

كتالوج وصف المقررات

CATALOG OF COURSE DESCRIPTION



أكتوبر 2020 OCTOBER 2020

3

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY





جَامِعَةُ الْعِلْمِينِ الدَّوْلِيَّةِ
ALAMEIN
INTERNATIONAL UNIVERSITY

الجلد الثالث: كتالوج وصف المقررات

VOL. 3: CATALOG OF COURSE DESCRIPTION





EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



TABLE OF CONTENTS

Department Coding, 4

Legend to Read Course Data, 8

I. Faculty of Business Administration, 9

- | | |
|---|---------------------------------|
| 1. Department of Accounting, 10 | 2. Department of Management, 15 |
| 3. Department of Finance, 22 | 4. Department of Marketing, 26 |
| 5. Department of Business Information Systems, 29 | |

II. Faculty of Mass Media & Communication, 33

- | | |
|---|---|
| 6. Department of Public & specialized Communication, 34 <ul style="list-style-type: none">• Public communication, 34• Marketing Communication, 38• Broadcast Communication, 43 | 7. Department of News Editing & writing, 45 <ul style="list-style-type: none">• News Editing, 45• Mass Media Writing, 49 |
| 8. Department of Media Production & Digital Communication, 52 <ul style="list-style-type: none">• Radio & TV Production, 52• Marketing & Advertising Production, 57• Digital Communication Production, 61 | |

III. Faculty of International Law Studies, 65

- | | |
|---|-----------------------------------|
| 9. Department of Public Law, 66 | 10. Department of Private Law, 69 |
| 11. Department of International Law, 74 | |



EGYPTIAN NATIONAL UNIVERSITIES

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

مشروع إنشاء الجامعات المصرية الأهلية



TABLE OF CONTENTS ... Cont.

IV. Faculty of Tourism & Hospitality, 79

12. Department of Tourism Studies, 80

14. Department of Tourism Guidance, 107

13. Department of Hospitality Management, 89

V. Faculty of Arts & Design, 113

15. Department of Environmental Design, 114

17. Department of Fashion Design, 154

16. Department of Visual Digital Design, 130

18. Department of Cinema & Theatre, 167

VI. Faculty of Engineering, 196

19. Department of Mechanical Engineering, 197

21. Department of Bio Medical Engineering, 231

23. Department of Civil Engineering, 249

25. Department of Architecture Engineering, 267

27. Department of Petroleum & Gas Engineering, 297

20. Department of Physical Engineering, 224

22. Department of Electrical Engineering, 236

24. Department of Chemical Engineering, 262

26. Department of Urban Design, 289

VII. Faculty of Computer Science & Engineering, 304

28. Department of Computer Science & Engineering, 305

30. Department of Bio Medical Informatics, 329

29. Department of Artificial Intelligence Engineering, 321

VIII. Faculty of Science, 333

31. Department of Geological sciences, 334

33. Department of Environmental sciences, 353

35. Department of Physics, 375

37. Department of public health sciences, 397

32. Department of Biological sciences, 341

34. Department of Chemistry, 355

36. Department of Mathematics, 393



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



TABLE OF CONTENTS ... Cont.

IX. Faculty of Medicine, 421

38. Department of Basic Medical Sciences, 422

40. Department of Medical Education, 451

X. Faculty of Dental Medicine, 452

41. Department of Basic Dental Sciences, 453

43. Department of Conservative Dentistry, 459

45. Department of Orthodontics & Pedodontics, 462

XI. Faculty of Pharmacy, 466

47. Department of Medicinal Chemistry, 467

49. Department of Pharmaceutics & Industrial Pharmacy, 472

51. Department of Microbiology & Immunology, 476

53. Department of Pharmacy Practice & Clinical Pharmacy, 480

XII. Vice President for Academic Affairs, 490

54. Social Sciences & Humanities, 491

39. Department of Clinical Medical Sciences, 436

42. Department of Prosthetic Dentistry, 455

44. Department of Oral & Maxillofacial Surgery, 461

46. Department of Oral medicine, Periodontology, Diagnosis & Oral Radiology, 464

48. Department of Pharmacognosy, 470

50. Department of Pharmacology & Toxicology, 474

52. Department of Biochemistry, 479



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department Coding

| Code | Department | Faculty |
|------|---|---|
| ACC | Accounting | Faculty of Business Administration |
| AIE | Artificial Intelligence Engineering | Faculty of Computer Science & Engineering |
| ARC | Architecture Engineering | Faculty of Engineering |
| BDS | Basic Dental Sciences | Faculty of Dental Medicine |
| BIO | Biological sciences | Faculty of Science |
| BIS | Business Information Systems | Faculty of Business Administration |
| BMD | Bio Medical Informatics | Faculty of Computer Science & Engineering |
| BME | Bio Medical Engineering | Faculty of Engineering |
| BMS | Basic Medical Sciences | Faculty of Medicine |
| BRC | Department of Public & specialized Communication: Broadcast Communication | Faculty of Media & Communication |
| CDD | Conservative Dentistry | Faculty of Dental Medicine |
| CHE | Chemistry | Faculty of Science |
| CHG | Chemical Engineering | Faculty of Engineering |
| CIV | Civil Engineering | Faculty of Engineering |
| CMS | Clinical Medical Sciences | Faculty of Medicine |



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



| Code | Department | Faculty |
|------|--|---|
| COM | Department of Public & specialized Communication: Public Communication | Faculty of Media & Communication |
| CSE | Computer Science & Engineering | Faculty of Computer Science & Engineering |
| CTH | Cinema & Theatre | Faculty of Arts & Design |
| DCP | Department of Media Production & Digital Communication: Digital Communication Production | Faculty of Media & Communication |
| ELE | Electrical Engineering | Faculty of Engineering |
| ENV | Environmental Design | Faculty of Arts & Design |
| ENV | Environmental sciences | Faculty of Science |
| FIN | Finance | Faculty of Business Administration |
| FSH | Fashion Design | Faculty of Arts & Design |
| GES | Geological sciences | Faculty of Science |
| HOM | Hospitality Management | Faculty of Tourism & Hospitality |
| IMC | Marketing Communication: Marketing Communication | Faculty of Media & Communication |
| INT | International Law | Faculty of International Law Studies |
| MAP | Department of Media Production & Digital Communication: Marketing & Advertising Production | Faculty of Media & Communication |
| MAT | Mathematics | Faculty of Science |
| MEC | Mechanical Engineering | Faculty of Engineering |
| MED | Medical Education | Faculty of Medicine |
| MGT | Management | Faculty of Business Administration |



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



| Code | Department | Faculty |
|------|---|--------------------------------------|
| MKT | Marketing | Faculty of Business Administration |
| MMW | Department of News Editing & writing: Mass Media Writing | Faculty of Media & Communication |
| NED | Department of News Editing & writing: News Editing | Faculty of Media & Communication |
| OMR | Oral medicine, Periodontology, Diagnosis & Oral Radiology | Faculty of Dental Medicine |
| OMS | Oral & Maxillofacial Surgery | Faculty of Dental Medicine |
| OPD | Orthodontics & Pedodontics | Faculty of Dental Medicine |
| PBC | Biochemistry | Faculty of Pharmacy |
| PDD | Prosthetic Dentistry | Faculty of Dental Medicine |
| PGE | Petroleum and Gas Engineering | Faculty of Engineering |
| PHE | Physical Engineering | Faculty of Engineering |
| PHS | Public health sciences | Faculty of Science |
| PHY | Physics | Faculty of Science |
| PMB | Microbiology & Immunology | Faculty of Pharmacy |
| PMC | Medicinal Chemistry | Faculty of Pharmacy |
| PPC | Pharmacognosy | Faculty of Pharmacy |
| PPH | Pharmaceutics & Industrial Pharmacy | Faculty of Pharmacy |
| PPP | Pharmacy Practice & Clinical Pharmacy | Faculty of Pharmacy |
| PPT | Pharmacology & Toxicology | Faculty of Pharmacy |
| PRL | Private Law | Faculty of International Law Studies |
| PUL | Public Law | Faculty of International Law Studies |



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



| Code | Department | Faculty |
|------|--|-------------------------------------|
| RTP | Department of Media Production & Digital Communication: Radio & Television Production | Faculty of Media & Communication |
| SHS | Social Sciences & Humanities | Vice President for Academic Affairs |
| TOG | Tourism Guidance | Faculty of Tourism & Hospitality |
| TOS | Tourism Studies | Faculty of Tourism & Hospitality |
| URB | Urban Design | Faculty of Engineering |
| VDD | Visual Digital Design | Faculty of Arts & Design |



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Legend to Read Course Data

| | | |
|--------|-------------------------------|--------------------------------|
| LCT | Lecture | محاضرة |
| LAB | Laboratory | معمل |
| TUT | Tutorial | درس |
| OTH | Other | أخرى |
| CNTACT | Contact Hours | ساعات اتصال |
| CH | Credit Hours | ساعات معتمدة |
| SWL | Student Workload | حمل عمل الطالب |
| ECTS | European Credit System Points | نقاط معتمدة في النظام الأوروبي |



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الأعمال

FACULTY OF BUSINESS ADMINISTRATION



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Accounting

ACC111 Principles of Financial Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The contents of the course include the Importance of accounting information in business and other organizations. The accounting equation and the impact of business transactions on the elements of the equation. The rules of debit and credit in analyzing and recording business transactions. Preparation of adjustments to appropriate accounts and why adjustments are necessary. Preparing closing entries and understanding why closing entries are necessary for the accounting cycle. Prepare financial statements for a service or merchandising business organization. Preparing journal entries for merchandise transactions from both the buyer's and seller's point of view. Preparing a bank reconciliation and the necessary entries based on the reconciliation. Accounting for uncollectible receivables. Compute the cost of inventory under the periodic and perpetual inventory systems.

ACC112 Principles of Managerial Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC111**

Management Accounting and business organization. Introduction to cost behavior and Cost-Volume-Profit relationship. Measurement of cost behavior. Cost management systems and Activity-Based Costing. Relevant information for pricing decisions. Relevant information for operational decisions. Budgets and preparation of the master budget.

Flexible budgets and variance analysis. Capital budgeting.

ACC113 Introduction to Accounting (For Non-Business Students)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The contents of the course include Introduction to financial accounting. Financial statements. Recording accounting transactions. Cash controls & the statement of cash flows. Financial Statement analysis. Introduction to management accounting & ethics. Budgeting for planning and decision making. Cost behavior. CVP analysis. Accounting for sustainability. Using accounting information for planning, control and decision making.

ACC211 Intermediate Accounting 1

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC111**

The conceptual framework of financial reporting. The Accounting Process; The Statement of Financial Position and Financial Disclosure. The Income Statement, Comprehensive Income; The Statement of Cash Flows. Accounting for Cash and Receivables. Accounting for Inventories: Measurement and Additional Issues. Accounting for Property, Plant, and Equipment: Acquisition and Disposition; Utilization and Impairment. Accounting for intangible assets. Accounting for Investments.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ACC212 Principles of Cost Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC112**

This course includes Introduction to cost concepts. Job order costing. Process costing. Cost allocation. Activity base systems. Measuring cost for planning Absorption costing methods as a tool for management.

ACC213 Intermediate Accounting 2

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC211**

Topics covered in this course include Accounting for Current and Contingent Liabilities. Accounting for bonds and other long-term liabilities. Accounting for Shareholders' equity. Earnings per share. Revenue recognition. Accounting changes and correction of errors. Accounting for leases. Accounting for income taxes. Accounting for Pension funds. Statement of Cash Flows. Financial statement analysis. Full accounting disclosure.

ACC311 Tax Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The following are the major topics covered in this course: Tax accounting concepts and practices: Tax planning. Tax costs and benefits. Basic tax planning variables. Ethical issues in tax planning. Basic company taxation. Accrual versus cash bases of accounting. Permanent and temporary differences. Presentation of tax-related accounts in the financial statements. Income taxation of sole Proprietorships, partnerships, and corporations. Business taxation under the current Egyptian Tax Law: Institutional environment of

Egyptian taxation. Tax audits/compliance and the obligation of the taxpayers. Company income tax. Professional income tax. Salaries tax. Real estate tax. International tax treaties. Ethics, professional and cultural issues. Environment of accounting firms: Stakeholders, guiding codes of conduct. Accounting firms and ethical dilemmas. Tax officers' training and job environment. Contemporary tax issues.

ACC312 Accounting for Governmental and Non-For-Profit Organizations

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC111**

. The course coverage includes Identifying and applying appropriate accounting and reporting standards for governmental units. Using budgets for planning and control in governmental units. Preparing financial statements governmental units, Performance evaluation of governmental units. Auditing requirements for governmental units. identifying and applying appropriate accounting and reporting standards for private not-for-profit organizations, preparing financial statements for private not-for-profit organizations, using nonfinancial performance measures to evaluate not-for-profit entities, Auditing requirements for not-for-profit entities.

ACC313 Accounting for Financial Institutions

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

. The first part of the courses deals with accounting for banks with emphasis on the nature of banking operations, and the standards and regulations governing the banking industry. Students will be introduced to the accounting process in commercial and other banks and how to prepare and interpret their financial statements, as well as the auditing



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



requirements for banks. The rest of the course is devoted to accounting for insurance companies. Special emphasis will be on the nature of the insurance industry, and the accounting measurement and disclosure issues in insurance companies. Students also study how to account for potential risks arising from insurance and reinsurance activities.

ACC314 Internal Control in Service Organizations

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC211**

The course starts with the basic activities and structure of hotels and other hospitality organizations, and how to account for such organizations. The emphasis will be on how to establish internal control systems as a part of the overall financial control system in hospitality organizations. Students will be trained in how to evaluate the system and detect any deficiency in the system.

ACC315 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite **ACC213**

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and present him/herself in a professional manner at all times. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest

in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

ACC316 Auditing

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The course covers the following topics: Introduction to auditing. Accepted auditing standards. Professional ethics and auditor's responsibility. Types of audit report. Client acceptance and audit planning. Audit evidence. Audit risk model and risk assessment. Analytical reviews. Internal control concepts and control risk assessment. Audit sampling for test of controls and accounting balance sampling. Auditing the revenue and purchasing processes. Auditing human Resources-Payroll. Auditing Cash, investment, debt, and equity. Internal audit, Audit Committee, and risk management. Fraud detection.

ACC317 Accounting for Small Businesses

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC111**

This course is intended to broaden the student's depth of understanding of particular accounting issues required by small business. The basics of financial management for small business. recording transactions. Preparing accounts and financial statements. Cost analysis and managerial decisions concerning the small business, small business taxation. Payroll accounting.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ACC319 Special Topics.

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **Consent**

Investigation of topics not covered in regularly scheduled courses.

ACC411 Advanced Financial Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The contents of this course include Equity Method of Accounting for Investments. Consolidation of Financial Information. Consolidations – Subsequent to Day of Acquisition. Consolidated Financial Statements and Outside Ownership. Consolidation with Intra-Entity Transactions in Inventory, Land, or Building. Segment and Interim Reporting. Foreign Currency Transactions & Hedging Foreign Exchange Risk. – Translation of Foreign Currency Financial Statements. Partnerships: Formation and Operation. Partnerships: Termination and Liquidation.

ACC412 Advanced Managerial Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC212**

Management Planning & Control Systems (MPACS) [Responsibility Accounting & Responsibility Centers. Transfer Pricing]. Balanced Scorecard and Strategy Map. The theory of constraints. Activity-Based Management. Measuring & Managing Performance. Behavioral & Organizational issues in MPACS. Management Control and Decentralization Budgeting. Corporate Governance. Corporate Social Responsibility. Sustainability Accounting.

ACC413 Accounting Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **ACC213**

Topics to be covered include Overview of Transaction Processes. Systems Development Life Cycle (SDLC). Contemporary technology and applications. Documentation. Introduction to Database Design. Introduction to XBRL. Computer Fraud. Controls & Risk Management. IS Controls. QuickBooks Accounting Transaction Cycles. auditing of information systems.

ACC414 Costing Systems in Service Organizations

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC112**

A specific implementation of accounting systems based on internal costs to different areas of service management, such as human resources. This learning will have led students to approach companies from a cost-based perspective that will allow them to address strategic management within service organizations by identifying, controlling, and evaluating critical sources of cost and revenue.

ACC415 Accounting Information for Decision Making

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The contents of the course include Theoretical Foundations of accounting information production: Agency Theory. Evaluation Apprehension Theory. Information Economics. Management Control System. Management Compensation. Controls for Differentiated Strategy. Service & Non-for-Profit Organizations. Financial Reporting and Financial Statements. How to read and analyze financial



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



statements. Assessing Firm's Profitability. Assessing Firm's Liquidity. Assessing Firm's Solvency. Market Test. Use of accounting information for investment and credit decisions.

ACC416 Auditing Computerized Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **ACC413**

This course contains a risk-based approach to external auditing in the new computerized environment. In addition to the discussion of auditing standards and professional ethics, the course provides students with knowledge and skills needed to identify significant IT threats and described audit tests and procedures for evaluation internal controls. Detailed topics include: The general framework for IT risks and control. Audit objectives and procedures used to evaluate data management controls. Stages in the SDLC. IS auditing standards. IS audit process overview; planning and conducting the IS audit. CAATTs. Evaluating IT governance. Evaluating key elements of IS security. Evaluating IS Risks. Conducting tests of controls and substantive tests of revenue and expenditure cycles using ACL. The nature of information systems, e.g., networks, DBMS, cloud computing, etc., and its effect on audit risk and audit procedures.

ACC417 Financial Statement Analysis

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The contents of the course include: A Framework for Business Analysis

and Valuation Using Financial Statements. Introduction to financial statements analysis. Financial statement analysis / Disclosure Environment. Valuation Uses of Financial Statements. Simple Models. Pricing Book Values. Pricing Earnings. Financial Statements; Shareholders Equity. Balance Sheet and Income Statement. Analysis of Profitability. Analysis of Growth and Sustainable Earnings. The Value of Operations. Full Information Forecasting and Valuation.

ACC418 Financial Control Systems

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **ACC213**

The contents of the course include: The concept of financial control. Internal control system. Introduction to Management Control System and Responsibility Accounting. Management Control in Decentralized Organizations. Strategic Planning and Budget Preparation. Balanced Scorecard. Performance Measurement. Management Compensation. Multinational Organizations. Controls for Differentiated Strategy. Service & Non-for-Profit Organizations. Measuring and Controlling Assets Employed. Analyzing Financial Performance Report.

ACC419 Graduation Project

6 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **5** OTH) – SWL = **300** – ECTS = **9**

Prerequisite **ACC315**

Completion of a graduation project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Management

MGT102 Strategic planning (For Non-Business Students)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

The holistic perspective of planning and development at the institutional and international levels. Strategies and their processes. Planning types and institutions. Factors that contribute to the success planning and its obstacles. Strategic management and strategic thinking, their characteristics. Environmental analysis and its various components and applications (SWOT analysis. International variables, considerations necessary when planning begins. Characteristics of planners. Practical models of actual plans in different sectors. Egypt's Sustainable Development Plan and Strategic Objectives (Egypt 2030).

MGT121 Introduction to Management (For Non-Business Students)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Introduction to Management Foundation: Managing and performing. External and internal environment. Managerial decision making. **Fundamentals of Planning:** Planning and Strategic Management. Ethics and Corporate Social Responsibility. International Management. Entrepreneurship. **Fundamentals of Organizing:** Organization Structure. Organization Agility. Human resource management. **fundamentals of Leading:** Leadership. Motivating for Performance.

Teamwork. Communicating. **Fundamentals of Controlling:** Managerial control. Creating and leading change.

MGT122 Principles of Management

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The course contains management concepts, managers, managerial process, and development of managerial thought, management environment, planning, decision making, organizing concepts, organizational design, directing, controlling, electronic management and change management.

MGT123 Organizational Behavior

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **MGT122**

These include theories relating to individual differences in abilities and attitudes, attribution, perception, motivation, group dynamics, teams, power and politics, leadership, conflict resolution, organizational culture.

MGT201 Negotiation Skills

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

The course includes introducing what negotiation is, preparing the negotiation, the actual negotiation stage, negotiation strategies, countering manipulation and psychological press, post negotiation stage, and social negotiation cases.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



MGT221 Human Resource Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT123**

Human Resource management is a central function of any organization. HR management can be defined as the effective use of human capital in an organization through the management of people-related activities. It involves leadership, values, employment planning, recruiting, and selecting employees, training, and compensating them, and evaluating their performance. It also significantly influences the corporate culture and norms.

MGT222 Entrepreneurship and Innovation (University requirement)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The course contains small Business: opportunities and rewards, small business entrepreneurs: characteristics and competencies, small Business Ideas: creativity, opportunity, feasibility, business plans, small business marketing, small business finance, and small business entry.

MGT223 Entrepreneurship in Service Organizations

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

This course has been designed to give you the particular skills you would need to run a service business. It will cover content specific to service operations as well as business management modules set in the context of the industry. You will develop your knowledge in areas from financial understanding to marketing and human resources while learning how to apply this knowledge in a start-up or new business.

MGT224 Feasibility Study for Small Business Enterprises

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

Feasibility study concepts and applications. Economic feasibility study for small business enterprises. Pre-feasibility study. Detailed feasibility study (marketing, technical and engineering, financing and financial). Different methods to evaluate the proposed projects under risk and uncertainty (NPV, IRR, BCR, decisions tree, etc.). Case studies.

MGT225 Catering and Food Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

Food & Beverage Global & National Trends. Developing your Restaurant concept and design. Menu development, costing and design. Kitchen Design & layout, Planning & Equipping the Kitchen. Dining Room Design & layout, & Furniture & Fittings. Sourcing, Purchasing & Receiving. Choice of Service Style, Customer Service Philosophy. Restaurant Technology Forecasting, production & scheduling. Food & Beverage Costing, Pricing. Staffing, recruiting, training, and controlling payroll cost. Marketing, social media, Online Review sites & apps, Restaurant Critics. Sanitation, Security, Health & safety. Merchandizing, Off-Site Catering. Restaurant Performance Evaluation Calculations & Correction.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MGT226 Supply Chain Planning

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

Students learn how companies plan and manage inventories in a supply chain under the considerations of, i.e., forecasting methods, economics of scale, or uncertainty. Further fields of study: supply chain performance; achieving strategic fit & scope; supply chain drivers and obstacles; demand forecasting in a supply chain; aggregate planning in the supply chain; planning supply and demand in the supply chain.

MGT227 Building Business Plans

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

Students learn all aspects of creating a solid first draft of a business plan. This course begins with a comprehensive "situation analysis" of small business. The key components for creating an effective business plan: existing customers, targeting future customers, customer value formulation, preparing SWOT analysis, income statement and balance sheet forecasting, revenue forecasting methodologies, competitor assessment and emerging competitors, and understanding the pitfalls of small business development. building and planning an efficient business infrastructure (systems, technology..); small business finance, cash flow, debt, and financing alternatives; transitioning from personal guarantees and credit lines to a self-financing business model; effectively planning, hiring, and training staff with high potential; the legal aspects of organizing and managing a small business; negotiating skills;

and setting day-to-day priorities with the business plan in mind.

MGT228 New Business Models for Small Business Based on IT

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

Students learn some technology-based business models trends. Discusses the general issues of IT/IS, IT solution services specifically applicable to small business, advanced IT topics specifically for small business, using software such as "QuickBooks" which manage the financial aspects of small business quickly e.g., recording income and expenses; entering checks and credit card payments; tracking payables, inventory, and receivables.

MGT229 Special Topics.

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **Consent**

Investigation of topics not covered in regularly scheduled courses.

MGT320 Leadership and Strategic Management in Healthcare Organizations

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course examines the basic concepts of leadership and strategic management with a focus on Healthcare Organizations. The course focuses on the analysis, design, and implementation of competitive strategies from a non-profit perspective. The course takes a management perspective examining how best practices in each functional area are integrated into an overall competitive strategy.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Students explore the impact of a workforce on leadership practices and decision-making while examining new organizational structures. After completion of the course, the student is expected to have increased knowledge to understand and evaluate organizational, management, and leadership models, problems, and possibilities in Healthcare Organizations. In addition, the student will have increased knowledge and skills to design and change work organization, to contribute to working environments in which everyone is able to contribute to organizational learning and success.

MGT321 Operations Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

The course contains introduction to production and operations management, forecasting in the field of production and operations, production and operations strategy, site selection, mode of transport, order (internal planning) production facilities, design of production processes, product design, design, work mean sacrament and considerations associated with it, and maintenance problems, re-engineering processes. Interview, diversity, testing, selection, performance appraisal, training and development, and career management.

MGT322 Logistics and Supply Chain Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

Basic logistics functions, supply chain management, demand and forecasting within the logistics system, transport and flow management within the supply chain, the supply of materials and services, order management and consumer service, inventory management within the

supply chain, the role of processes within the supply chain.

MGT323 Business Ethics

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

The course contains an introduction to business ethics: concept, sources, ethical frameworks, and factors that drive an individual to unethical behavior, different approaches to interpret business ethics, ethical issues related to the field of work of the project, public job ethics, integrity and address corruption in the organs of the state, corporate governance, corporate social responsibility, some contemporary issues in the field of: hacking, industrial spying, intellectual property rights and unethical practices via the internet.

MGT324 Quality Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT321**

The course contains quality management overview, quality management organization, six sigma quality management program, DMAIC and problem-solving tools such as seven quality tools, methods of statistical control on quality, quality costs and continuous improvement, organizational chart of total quality management, application of total quality management quality systems, total quality management and ISO, focusing on the client in the concept of total quality, total quality strategies and contemporary trends in quality management.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MGT325 Human Resource Development

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains an overview of change interventions, including training and staff development; succession planning and performance management; factors that influence HRD; the consulting role and skills of the HRD professional, including facilitation and group dynamics; and the trends in HRD, such as human performance technology and the work out process model trends in quality management.

MGT326 Work and Industrial Relations

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains a definition of industrial relations and industrial union, trade unions and labor legislation strategies for the growth of trade unions and understanding the role and requirements of trade unions, relations between workers and management, and patterns of negotiation and bargaining, the role of human resources management in improving labor relations and industrial relations and the most important contemporary issues in industrial relations.

MGT327 Strategic Human Resources

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains strategic human resources concepts and theoretical models, explain how SHR strategies can be a source of competitive advantage, evaluate the SHR in action, by studying different HRM topics from a strategic perspective, such as: in resourcing strategies, retaining strategies, talent management, crisis management

and international human resources management.

MGT328 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite **MGT221**

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and present him/herself in a professional manner at all times. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

MGT329 Operations Research and Decision Making

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT321**

The course introduces student to operations research techniques and how to use them in making decisions. The first part of the course deals with deterministic models and their applications, including linear programming, integer programming, and dynamic programming. The second part of the course introduces students to probabilistic models



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and their applications in a business context. Models such as Queuing Theory, Decision Theory, and Game Theory will be discussed as well.

MGT421 Project Planning and Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT321**

The course describes in a readily understandable way how projects should be managed. The course covers: Project management principles, Project roles and responsibilities, Project definition, Project planning, estimating, and resourcing, Project issue management, Project risk management, Project quality management, Project change management, Project controlling and reporting, and Communication management and team building.

MGT422 Organization Theory and Design

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains organization and organization theory, strategy, technology, environment, organization structure, size, effectiveness, and organizational culture.

MGT423 Leadership

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains trait approach, skill approach, situational leadership, contingency leadership, transformational leadership, charismatic leadership, and ethical leadership.

MGT424 Performance Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course contains the concept of performance management and its contribution, differentiate between performance management and performance appraisal, understand the PM process, adopt different approaches to measuring performance, develop accountabilities; identify objectives, performance standards, and competencies, develop comparative performance measurement systems and absolute performance management systems, manage team performance, manage organizational performance.

MGT425 Strategic Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221, FIN231, MKT241**

The course contains basic concepts, strategic management model, ethics and social responsibility, vision and mission, analysis of the external environment, analysis of the internal environment, strategies at the company level, strategy selection tools, business unit strategies (competitive strategies, cooperative strategies, strategies for distance from competition Blue Ocean strategy), functional strategies, implementation of the strategy, follow-up, control and strategic review, scenario planning, crisis and disaster management.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MGT426 International Business

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT122**

Introduction to globalization and the cultural, economic, political, and legal environments of international business including an overview of risks, challenges, and opportunities of competing in the global marketplace. Alternative modes of market entry, including import and export through intermediaries, contracting with suppliers and distributors, strategic alliances, and foreign direct investment (FDI).

MGT427 International Supply Chain Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT322**

History and Theories of Trade. Globalization and Trade. Global Supply Chains. Design of Supply Chains. a. Facility location decisions. b. Transportation network design decisions. c. Outsourcing decisions. d. Partnering decisions. - Operation of Global Supply Chains. Transportation routing and scheduling decisions. Inventory policy decisions. Contracts and international arbitration. Trademark, protection of intellectual property. Litigation and dispute resolution across borders.

Impact and Alternative Visions for Supply Chain. a. Cultural impacts. b. Livelihood impacts. c. Human and environmental health impacts. d. Alternatives and their limits.

MGT428 Planning & Managing Small Business

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MGT221**

The course describes in a readily understandable way how projects should be managed. The course covers: Project management principles, Project roles and responsibilities, Project definition, Project planning, estimating, and resourcing, Project issue management, Project risk management, Project quality management, Project change management, Project controlling and reporting, and Communication management and team building.

MGT429 Graduation Project

6 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **5** OTH) – SWL = **300** – ECTS = **9**

Prerequisite **MGT328**

Research seminars.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Finance

FIN101 Fundamentals of Microeconomics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Topics covered include: The fundamentals of economics. The economic problem and the PPF. Demand, supply, and market equilibrium. Elasticity of demand and supply. Government actions in markets. Consumer choice: utility and demand. Output and costs. Perfect competition.

FIN102 Fundamentals of Macroeconomics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Topics covered include Measuring GDP and Economic Growth. GDP definition and circular flow. Measuring GDP using Expenditure approach and income. Uses and limitations of GDP. Nominal and real GDP calculation. Monitoring Jobs and inflation. Employment and unemployment. Different types of unemployment. The price level, inflation, and deflation. Expenditure multipliers. Consumption and saving plans. Consumption and saving functions. Components of aggregate expenditure. Equilibrium expenditure. Closed economy multiplier. Opened economy multiplier. Fiscal policy multiplier. The multiplier and the price level. The multiplier in short run. The multiplier in long run. Aggregate supply and Aggregate demand. Aggregate supply in long run. Aggregate supply in short run. Changes in Aggregate supply in long run and in short run. Aggregate demand. Short run and

long run equilibrium. Fluctuations in aggregate demand and supply. Cases of inflation. Effects of fiscal policy and monetary policy.

FIN103 Introduction to Economics (For Non-Business Students)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Introduction to economics. Measurement of macroeconomic activity. Income and expenditure. Balance of national income. Inflation. Financial policy. Money and monetary policy. International Trade. Economic development.

FIN231 Finance

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction to Corporate Finance. Financial Statements. Time Value of Money. Capital Budgeting. Cash Flow Estimation. Debt instruments. Equity and Hybrid Instruments. Cost of Capital. Capital Structure. Dividend Policy.

FIN232 Finance for Small Business

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite FIN231

Fundamental principles and practices in finance related to entrepreneurship. Focuses on areas such as accounting, budgeting, and financial management as they apply to entrepreneurship. In



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



addition, financial management of the small business; financial information; operational funding; bank finance; export finance; trade credit; venture capital financing; cash flow management; business valuation; performance benchmarks.

FIN331 Financial Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

. Goals and function of Financial Management. Review of Accounting. Cash Flow Statements. Financial Analysis. Financial Forecasting. Operating and Financial Leverage. Working Capital and the Financing Decision. Current Asset Management. Sources of Short-Term Financing.

FIN332 Financial Markets & Institutions

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

This course introduces students to the fundamental principles that govern financial markets and institutions. It will help students understand the working of the banking industry and the behavior of financial intermediaries. Topics include valuation of financial assets and the characteristics of financial instruments in money and capital markets. The course also covers the relationships among financial institutions, monetary policy, and the stability of the economy as a whole.

FIN333 Investment

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

Basics of financial investments. How securities are traded. How

securities are issued. Implications of efficient capital markets. Portfolio theory. Diversification and asset allocation. The Markowitz portfolio selection model. Analysis of equity. Valuation of equity. Financial statement analysis. Portfolio Management. Mutual funds, hedge funds, and other investment companies. Passive and active portfolio management. Portfolio performance evaluation. Analysis of fixed income securities. Bond prices and yields. Bond duration and convexity. Managing bond portfolios. Analysis of derivative securities. Option strategies. Option valuation using binomial option pricing and Black-Scholes. Forwards, Futures, and Swaps. Hedging using derivatives.

FIN334 Investment Analysis

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

The objective of this course is to introduce students to the theory and practice of investment analysis. The characteristics of financial markets and financial instruments, security trading mechanisms, investment process, pricing models, equity and bond valuation are studied. Topics covered include analysis of equity, valuation of equity, financial statement analysis. analysis of fixed income securities, bond prices and yields, bond duration and convexity, analysis of derivative securities.

FIN335 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite **FIN231**

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and always present him/herself in a professional manner. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

FIN339 Special Topics.

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **Consent**

Investigation of topics not covered in regularly scheduled courses.

FIN401 Money and Banking

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **FIN102**

Why study Money, Banking, and Financial Markets? An Overview of the Financial System. What is Money? Understanding Interest Rates and their Behavior. Central Banks: A Global Perspective. Banking and the Management of Financial Institutions. Economic Analysis of Banking. The Money Supply Process and Tools of Monetary Policy.

FIN402 Transportation Systems & Economics

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **FIN101**

Basics of microeconomics: demand and supply, and consumer surplus;

Transport and the economy. Transport and local economic development; Transportation demand: aggregate models and disaggregate models; Costs and benefits of transportation systems; Regulation, competition, and efficiency in transportation; Investment and financing in transportation infrastructure; Revenues in transportation; Transportation project evaluation, forecasting; Economic impact assessment in transportation projects; Transportation and land use.

FIN431 Portfolio Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN333**

This course focuses on the theory and practice of modern portfolio management. In addition to providing in-depth discussions of portfolio construction, monitoring and evaluation, it will allow students to gain hands-on experience through case study and portfolio simulation. Major topics will include asset pricing models, equity and bond portfolio management, performance evaluation and new developments in professional asset management. Students targeting the professional asset management career or planning to take the CFA test will find this course particularly useful.

FIN432 Management of Financial Institutions

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN332**

Introduction. On successful completion of this course, students will be able to: 1. Explain the importance of financial institutions in the global economy 2. Evaluate the performance of different types of financial



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



institution 3. Identify the main types of risk financial institutions are exposed 4. Apply different methods to measure those risks to suit different contexts 5. Propose methods to manage risks based on international standards of banking practice 6. Communicate and work effectively in teams and as individuals

FIN433 Risk Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

Introduction to Risk Management. Techniques and Strategy. Analysis of Liability Impact and Safety. Advanced Approaches. Insurance Industry Overview. Property Contracts and the Retail Environment. Liability Contracts and the Retail Environment. Project and Operational Risk Management –Retail Perspective.

FIN434 International Finance

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

-Multinational Financial Management: An Overview. -International Flow of Funds. -International Financial Markets. -Exchange Rate Determination. -Currency Derivatives. -International Arbitrage and Interest Rate Parity. - Relationships Among Inflation, Interest Rates, and

Exchange Rates. -Forecasting Exchange Rates. - Measuring Exposure to Exchange Rate Fluctuations. - Managing Transaction Exposure. - Country Risk Analysis. - Multinational Capital Budgeting. - Financing International Trade. - International Cash Management.

FIN435 Business Analysis & Valuation

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **FIN231**

Lecture One -Introduction to Business Analysis and Valuation. Lecture Two –Business Analysis and Strategy. Lecture Three -Accounting Analysis. Lecture Four -Financial Analysis. Lecture Five –Cash Flow Analysis. Lecture Six –Prospective Analysis: Forecasting. Lecture Seven –Cash Flow-Based Valuation. Lecture Eight–Accounting-Based Valuation. Lecture Nine–Price Multiples Based Valuation. Lecture Ten–Credit Analysis and Distress Predictions. Lecture Eleven–Mergers and Acquisitions. Lecture Twelve –Financial Policies.

FIN439 Graduation Project

6 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **5** OTH) – SWL = **300** – ECTS = **9**

Prerequisite **FIN335**

Research seminar.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Marketing

MKT241 Marketing Principles

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The course covers the following topics: Marketing's Value to Consumers, Firms, and Society. Marketing Strategy Planning. Evaluating Opportunities in the Changing Marketing Environment. Focusing Marketing Strategy with Segmentation and Positioning. Demographic Dimensions of Global Consumer Markets. Final Consumers and Their Buying Behavior. Business and Organizational Customers and Their Buying Behavior. Improving Decisions with Marketing Information. Elements of Product Planning for Goods and Services.

MKT242 Marketing Management

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **MKT241**

The course provides an overview of the following topics: Marketing: creating and capturing customer value. Company and marketing strategy: partnering to build customer relationship. Analyzing the marketing environment. Managing marketing information to gain customer insight. Markets and business buyer behavior. New product development and product life cycle strategies. Communicating customer values: integrated marketing communication strategies. Direct and online marketing: Building direct customer relationship. The global market.

MKT243 Marketing of Hospitality Services

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **MKT241**

The course provides an overview of the following topics: Introduction: Marketing for Hospitality and Tourism Service Characteristics of Hospitality & Tourism Mktg the Role of Marketing in Strategic Planning. The Marketing Environment Mktg Information Systems and Marketing Research Consumer Markets and Consumer Buying Behavior. Organizational Buyer Behavior and Group Market. Market Segmentation, Targeting, and Positioning. Designing and Managing Products. Internal Marketing Pricing Products: Considerations & Strategy Distribution Channels. Promoting Products: Communication and Promotion Policy and Advertising Promoting Products: PR and Sales Promotion Professional Sales. Direct and Online Marketing: Building Customer Relationship Destination Marketing.

MKT341 Consumer Behavior

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **MKT242**

The course covers the following topics: Introduction to Consumer Behavior and Consumer Research. Internal Influences on Consumer Behavior. External Influences on Consumer Behavior. Consumer Decision Making.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MKT342 Market Research

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

The course covers the following topics: Introduction to Marketing Research and the Research Process. Problem Definition and Developing an Approach. Research Design, Secondary and Syndicated Data Sources. Qualitative Methods. Survey and Observation; Questionnaire Design. Measurement and Scaling. Experimentation and Causal Research. Sampling; Data Analysis: Frequencies. Data Analysis: Hypothesis Testing (t-tests). Data Analysis: ANOVA, Cross-tabulation, and Chi-Square. T-tests and ANOVA. Data Analysis: Correlation and Regression.

MKT343 Service Marketing

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

Brief Overview of Service. Marketing. Trends: Understanding the importance of Service in a Service---based Economy. Difference. between products and services: a. The role of the Services Manager vs. the Product Manager: Implications. Service Process Map. Some Marketing Fundamentals. Understanding them. Customer in a. Services Setting (consumer behavior). Planning Service via STP. The 4Ps plus the 3Ps. a. The 3Ps of Services Marketing: People. b. The 3Ps of Services Marketing: Process/Physical Environment. Tools and Frameworks in services marketing: Seroquel/ Rater / Service Quality Gaps. Innovation in Services Marketing. Insighting. BIDA/MOT matrix. Service and BIG IDEAS workshop. Service Quality and Satisfaction. Service Metrics. Failure and Recovery. Service Guarantees / Retention. Service Setting Design: Aligning the strategy. Delivering

Outstanding Service. Managing the Service scape. (Physical environment). Internal Marketing (role of employees – people and process). Understanding the customer. satisfaction profit chain / Value Profit Chain. d. Customer Experience Management.

MKT344 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite **MKT242**

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and always present him/herself in a professional manner. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

MKT349 Special Topics.

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **Consent**

Investigation of topics not covered in regularly scheduled courses.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MKT441 Integrated Marketing Communications

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

The course provides an overview of the following topics: Integrated Marketing Communication. IMC Plans; Branding, Positioning. Campaigns, and Public Relations. Newspaper, Magazine, & Radio Advertising. Out-of-Home, Direct Marketing, Sales Promotions.

MKT442 International Marketing

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

The course covers the following topics: Introduction to International Marketing. The Cultural, Political, and Legal Environment. The Economic Environment, Regional Integration, and Marketing Management. Product and Distribution Strategies. Promotion and Price Strategies.

MKT443 Digital Marketing

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

The course provides an overview of the following topics: Marketing Fundamentals. Content Strategy. Social Media Marketing (Organic). Social Media Advertising (Paid). Search Engine Optimization (SEO). Search Engine Marketing with AdWords (SEM). Display Advertising. Email Marketing. Measure & optimize with Google Analytics.

MKT444 Product and Brand Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

The course provides an overview of the following topics: Introduction to

New-Product Development. Innovation Strategy. Opportunity Identification. Idea Generation. Design Process. Testing and Improving New Products. Introduction to Brand Management. Brand Equity Concept. Elements to Build Effective Brands. Testing and Improving New Products. Product Introduction and Life Cycle Management. Product Failures.

MKT445 Strategic Marketing

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MKT242**

This course has five modules: Module A: Fundamentals. This section covers marketing strategy basics, including the role of marketing strategy, customer advantage, differentiation, and positioning. It also includes a class on how to create an effective marketing plan. Module B: New business strategy. In this section, the focus is on new businesses, including strategies for entering established categories and strategies for entering emerging categories. Module C: Established business strategy. This section focuses on strategies to build established businesses, including margin enhancement strategies, core business growth strategies and new product strategies. Module D: Defensive strategy. In this module, we look at defensive marketing. We review why defense is so important and how to develop strong defense plans. Module E: Portfolio strategy. In the last part of the course, we focus on integrating all the strategies into an overall plan.

MKT449 Graduation Project

6 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **5** OTH) – SWL = **300** – ECTS = **9**

Prerequisite **MKT344**

Research seminars.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Business Information Systems

BIS251 Business Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The Digital Economy, new business environments, and transformation of business organizations. Information Systems and its components. Information Systems in Global Business. Impact of information systems on organizations. Information System Strategies, Global E-Business and Collaboration. Components of IT infrastructure and stages and drivers of IT infrastructure evolution. Current trends in computer hardware and software. Information Systems and achieving Operational Excellence. Supply Chain Management Systems. Customer Relationship Management Systems. and Enterprise Applications.

BIS252 Information Systems Analysis and Design

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS251**

System, Roles, and Development Methodologies. Project Management. Information Gathering. Agile Modeling and Prototyping. Data Flow Diagrams. Analyzing Systems Using Data Dictionaries. Designing Databases. Object Oriented System Analysis and Design Using UML. Designing input and Output. Human Computer Interaction.

BIS259 Special Topics.

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **Consent**

Investigation of topics not covered in regularly scheduled courses.

BIS351 Database Design and Management

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS252**

Database Environment. Database Development Process. Modeling Data using ERD. Enhanced E-R Model and Business Rules. Logical Database Model and the Relational Model. Data Normalization. Physical Database Design. Introduction to SQL. Advanced SQL. Client/Server Database Environment. Internet Database Environment. Data Warehousing.

BIS352 E-Commerce and E-Business

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS251**

Overview of Electronic Commerce. E-Marketplaces: Mechanisms, Tools, and Impacts of E-Commerce. Retailing in Electronic Commerce: Products and Services. Online Consumer Behavior, Market Research, and Advertisement. B2B E-Commerce. Innovative EC Systems: From



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



E-Government and E-Learning to C2C E-Commerce and Collaborative Commerce. Web 2.0 Environment and Social Networks. Mobile Computing and Commerce. Commerce Security and Fraud Protection. Electronic Commerce Payment Systems. Launching a Successful Online Business and EC Projects.

BIS353 Information Technology Governance

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **BIS251**

What is IT governance. Importance of IT Governance and Strategic Planning. Government Areas of IT. Structures and relationships in the IT governance. IT-related decisions. Processes for IT governance. Tools for the implementation of IT governance. COBIT. Self-assessment of the maturity of IT governance

BIS354 Introduction to Computer Programming

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Introduction to the history of programming languages. Problem solving and Flow charts. Data types. Operators. Reading program input and printing program output. Condition Statements. Repetition Statements. Jump Statements. Arrays. Searching Arrays. Sorting Arrays. Introduction to Modular programming.

BIS355 Applications in Computer Programming

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS354**

Two-dimension arrays. Introduction object-oriented programming. Encapsulation, inheritance, and polymorphism. Interfaces and Super classes. Exception handling. Database connectivity. Program I/O.

Packages. Recursion.

BIS356 Planning and Management of IS Projects

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS251**

Introduction to Project Management. The nature of IS projects. Plan Driven IS projects. Rational Unified Process. Agile Development Methods. Project management in the IS context. IS Project escalation. Managing Project Teams. Project Initiation and Planning. Managing Project Scheduling and Resources. Project Cost Estimation. Managing Procurement in IT projects. IS project Execution and Control. Project Closure and Audit.

BIS357 Hotel Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS251**

Information Technology Applications in Hospitality. Global Distribution Systems and Channels. Front office information systems. Restaurant Management Systems. Hotel and Resort Technology. Technology for the Meetings and Events Industry. Inventory control systems. Strategic Hospitality Technology Investment. Technology future trends in the hospitality industry.

BIS358 Data Security

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS351**

Overview of Data Security. Access Control Foundations and Models. Integrity Models. Hybrid Models. Cryptography. Database Security and Encrypted Data storage in Databases. Access control in distributed systems. SQL and Code injection attacks. Data Privacy. Policy, legal



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ethics, and compliance. Economics of data security and privacy.

BIS359 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite **BIS252**

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and always present him/herself in a professional manner. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

BIS451 Intelligent Decision Support Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS252**

Decision Support Systems and Business Intelligence. Decision Making, Systems, Modelling, and Support. Decision Support Systems: An Overview Modelling and Analysis. Modelling and Analysis. Data

Warehousing. Business Analytics and Data Visualization. Data, Text, and Web Mining. Knowledge Management. Artificial Intelligence and Expert Systems. System Development and Acquisition.

BIS452 Integrated Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS252**

Business functions and processes. Process Modeling, Process Improvement. ERP Implementations Methodologies and Tools. Database basics, master data in SAP. Sales Order Process Logistics. Supply Chain Management. Materials Management. Accounts payable. Organization and Human Resource Management and Payroll. Financial accounting and managerial accounting components. Business Planning and Controlling. Capital Asset Management. Reporting Basics and tools.

BIS453 Information Technology Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS251**

Information Technology planning. Information Systems Project Management. Digital innovation. Disruptive innovation. Business value of IT. Managing Change. Information System Architecture. Network effects. Social media; the sharing economy. Data communications. Enterprise Systems and process design. Mobile industry ecosystem.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BIS454 Logistic Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS251**

Demand forecasting, planning, and management. Inventory planning, management, and control. Transportation planning, management, and operations. Supply chain network design. Procurement, sourcing, and auctions. Management and optimization of supply chain. Supply contracts and collaboration.

BIS455 Data Analytics

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS351**

Introduction to Data Analytics and Data Mining. Data Pre-processing. Data Warehouse and OLAP Technology. Mining Frequent Patterns, Associations and Correlations. Classification and Prediction. Decision Trees. Linear and Nonlinear Regression. Cluster Analysis. Mining Time-Series Data. Data Summarization and Visualization.

BIS456 Information Systems in Healthcare Organizations

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIS251**

Foundations of Health-care Informatics. Electronic Health Records. Information Infrastructure. Implementing Healthcare Information Systems. Healthcare Informatics & Decision Support. Health

Information Interoperability. Using Healthcare Data & Information. Privacy and security of Health Information. Trends & Emerging Technologies.

BIS457 Software Engineering

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS354**

The Process of Software Development. Feasibility Studies. Project Management. Requirements Analysis. Usability. System Architecture and Design. Object Oriented Design. Managing People. Design Patterns. Business Aspects of Software Engineering. Delivering the System. Risk in Software Development.

BIS458 Simulation

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **BIS354**

Overview of Simulation. Simulation and Modeling. Fundamental Simulation Concepts. Simulation languages and tools. Modeling Basic Operations and Inputs. Find and Fixing Errors and Input Analysis. Modeling Detailed Operations. Statistical Analysis of Output. Conducting Simulation.

BIS459 Graduation Project

6 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **5** OTH) – SWL = **300** – ECTS = **9**

Prerequisite **BIS359**

Completion of a graduation project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الإعلام والاتصال

FACULTY OF MASS MEDIA & COMMUNICATION



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Public & specialized Communication

Public Communication

COM121 Introduction to Communication

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

This course provides an overview of the basic concepts of communication; elements, basic models, its development, and the skills necessary to communicate in a variety of contexts. Emphasis is placed on techniques used in interpersonal, group, public, intercultural, and mass communication situations. The nature of different mass media industries will be taught as well as the current trends in mass communication and how technologies change the cultures that use them.

COM221 Communication Theories

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **COM 121**

This course aims to enable students to think about and analyze communication theoretically. General and specific theories will help students to trace the development of theoretical inquiry in the field of communication, evaluate the cognitive, affective, as well as behavioral

effects of media; Understand why people expose themselves to the media, recognize and explain major communication theories, and apply knowledge of communication theories to “real world” issues.

COM222 Media Laws and Ethics

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **COM 121**

This course explores the ethical guidelines of various media practices. Students will learn about their legal rights and obligations. The course will educate students on how to publish information without violation of ethics, defamation, or invasion of privacy. The course will teach students how to gather information to avoid legal and/or ethical issues. It aims to establish an understating of media ethics as globally understood and standardized. It engages with ethical dilemmas that journalists face in their career, in theory and practice. The course also outlines the basic legal principles governing the media industry. It highlights public communication laws and regulations regarding copyright, privacy, defamation, commercial speech, and obscenity.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



COM223 Media Management and Economics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **COM 121**

This course is designed to provide students with detailed insight into the structures, management, processes, economics of and controversies surrounding different media industries. It will cover the fundamental concepts, theories, and approaches of media management and economics. Students learn how to use these theoretical constructs to analyze media markets, industries, and the practices of media organizations. They will learn moreover how the media economy has been shaped by multiple factors, including technology, management, globalization, regulation, and rapid development of social media industries.

COM224 Public Opinion

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **COM 121**

This course explores the structure and dynamics of public opinion, providing a broad-based introduction to the forces that shape citizens' social and political attitudes in contemporary countries. Three major areas will be focused upon: definitions of public opinion and theories of opinion formation; how public opinion is influenced and how it in turn influences governmental policy, and public opinion in specific issue areas of the contemporary political life. The course covers how citizens structure their political opinions and what factors cause these opinions to change. Moreover, the course will evaluate the utility of various theoretical perspectives and methodological approaches used to study public opinion polls.

COM325 Communication Management

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This course explains the concepts of the communication management process, especially from an agency perspective. It highlights the scope of the different activities taking place in the Media department of the marketing, communication, PR, and advertising agencies. First, it encompasses the planning side and secondly the buying /budgeting side and ends with the evaluation of the media plan for the integrated marketing communication campaign. This course includes a thorough discussion of the various steps of media planning & buying starting with media research, media objectives, target mapping and segmentation, media mix and market prioritization ending with the buying, developing media plan and proper evaluation.

COM326 Introduction to Political Communication

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

In this course, students are introduced to major concepts of political communication in the era of media convergence. Students will learn to assess the analytical force of these concepts and compare how they apply in the context of traditional mass media and interactive online media, respectively. Moreover, the course aims to review the concepts of the democratic performance of the media and also to distinguish between the various theories related to political communication like agenda-setting and schema theories.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



COM421 Political Media Campaigns

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Political marketing consultants and spin doctors often operate in the shadows of political campaigns, but this course puts them front and center. The course has three goals. First, it introduces students to key concepts and theories underlying contemporary political marketing. In doing so, it links to more general approaches from political communication. Second, it seeks to develop students' communicative skills in a campaign context by having students develop their own political marketing plan for a party or candidate of their choosing. Third, it addresses the normative and ethical implications of political marketing on politics, and democracy more broadly.

COM422 Risk and Crises Communication

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course offers the students a starting point for examining the burgeoning research on crisis communication by defining the domain of risk and crisis communication, explaining its applied value, and pointing to future directions for crisis communication. Risk communication involves issue-management of health and environment-related issues in relation to organizations' practices. The proper understanding of any crisis requires the examination of the socio-economic context in which it occurs to recognize the roots and development of events and consequences. The course will review the crises communication theories and their applications through numerous case studies.

COM423 Special Topic in Political Communication

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This course addresses a current and timely topic, which is in a “pilot” phase before being offered on an ongoing basis or that is known to be a one-time offering. Special topic course offerings can vary from term to term. The major objective of this type of course is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses. The course aims to offer an understanding of one of the Political Communication special practices. The instructor can choose one or two or the most current trending practices in the field. This course examines in depth a major issue, problem, or theme in the area of Public Relations and communication. It includes a specialized research paper or project, involves discussion and oral and written reports, and may include guest speakers and field trips.

COM424 Industry Practices

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The course aims to analyze the different industry structures and operations related to print, radio, television, and online news. The course aims to explain the key drivers to the functioning of the media industry. The course will look at the relationship between technologies, industries, markets, genres, and audiences. Students will study the business model of news channels and agencies. They will also learn the features of each unit and department as well as job descriptions of the heads of these units.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



COM425 Techniques of Political Communication

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course guides students through the research, planning, and design stages of public relations writing, to the production of effective public relations materials for political communication. It explores the methods involved in selecting media and evaluating the success of communication campaigns. It emphasizes the importance of tailoring messages to specific audience needs and of behaving ethically towards the public. It includes special training in planning and writing political speeches, statements, position papers as well as press releases. Students should understand the development and implementation of effective conflict resolution and negotiation strategies and tactics, applying them to interpersonal, organizational, and intercultural contextual frameworks.

COM426 Media and Politics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This course examines the triangle that exists between politics, the media, and the public (both foreign and domestic). Political

communication examines the relationships that exist between these three actors that are central to contemporary democracies: to communicate with the public, political elites need to pass through the media gates, as most people get their political information through the media. Yet, politicians have a hate/love affair with journalists, as both actors are trying to gain the upper hand. Media themselves are constantly in flux, and the public's use of media is shifting dramatically in response to the rise of online technologies. Finally, governments increasingly rely on communication to bolster support abroad. This course offers a broad overview of the field of political communication and public diplomacy.

COM427 Special Topic in Print Media Journalism

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This course addresses a current and timely topic, which is in a "pilot" phase before being offered on an ongoing basis, or that is known to be a one-time offering. Special topic course offerings can vary from term to term. The major objective of this type of course is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Marketing Communication

IMC241 Introduction to Marketing Communication

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **COM 121**

This course introduces students to the fundamentals of Integrated Marketing Communication (IMC). It helps students to define Integrated Marketing Communication (IMC) and describe the IMC planning process and apply. Students learn to identify the requirements and expectations of the IMC program and employ the technology and support resources that are available in the IMC planning process. It examines the role of integration to ensure consistency of creative strategy and complementary use of traditional and digital media.

IMC341 Advertising in Modern Economies

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course emphasizes the vital role of advertising in the marketing communication process. It provides the students with advanced knowledge of the positive and negative role advertising plays in modern economies, the communication and marketing roles as well as societal, economic, and political roles of advertising. The media literacy concept will be highlighted to increase the ability to understand advertising roles and effects.

IMC342 Advertising and Promotion Strategies

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course provides students with an opportunity to gain an understanding of advertising and other mass communications marketing practices: common business activities and terminology, perspectives applied when taking the optimal approach to decisions, plus descriptions and rationales of common practices. The greatest difficulty for students in this class is shifting perceptual focus, as they will be the creators of communications strategies not members of the audience. Advertising strategy and tactics must be assessed in terms of what a target audience might perceive, not in terms of what appeals to the students. Advertising appeals will be highlighted, and their application will be evaluated through analysis of different case studies. As indicated by the course title, the focus of this course is on decision making for mass communications strategy.

IMC343 Advertising Media

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course highlights the analysis of the specific characteristics of each of the advertising media. The course aims at differentiating between the audience profile of each of those media. This knowledge should enable the students to make logical, scientific marketing communication decisions for their brands. The aim of this course is to provide students with the nature and scope of advertising media and their audience so



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



that they can make better media selection decisions. The common association people make when thinking of media is radio, television, and newspaper. However, business owners must learn about other types of media to reach a broader audience. Additional types of media for cross-media advertising campaigns include billboards, print ads, video ads on niche websites, advertising spaces offered by search engines, Internet banners visual ads.

IMC344 Advertising Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course explains the concepts of the advertising management process, especially from an agency perspective. It highlights the scope of the different activities taking place in the media department of the marketing, communication, PR, and advertising agencies. First, it encompasses the planning side and secondly the buying /budgeting side and ending with the evaluation of the media plan for the advertising campaign. This course includes a thorough discussion of the various steps of media planning & buying starting with media research, media objectives, target mapping and segmentation, media mix and market prioritization ending with the buying, developing media plan and proper evaluation.

IMC345 Advertising and Culture

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The Advertising and Culture course pursues a critical examination of advertising, exploring its effects on society and self within the context of larger economic, social, political, and global shifts. Beginning with an overview of the development of advertising, the course will introduce a methodological framework for understanding how advertisements

create meaning, and then go on to examine how such meanings interact with, and impact upon, the culture at large. Advertising and Society explores advertising as a site marked by complex constructions of self, gender, class, ethnicity, nationality, and local/global identity. This course embraces a wide theoretical spectrum and should prove useful to those pursuing Commerce, Marketing, Fine Arts and Politics, as well as Media, Film and Television.

IMC346 Advertising Research

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **RES 202**

This course emphasizes the vital role of research in the advertising process. It provides students with advanced knowledge of research methods used in the industry. The course offers an understanding of traditional and modern research applications in advertising and marketing communication through various case studies. The students will practice conducting advertising research through a hands-on research project that evaluates their command of qualitative and quantitative research tools as well as their reporting and presentation of findings.

IMC348 Events Marketing

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course reviews the concepts and tools used to design and implement a successful event marketing strategy. The focus of the course is on applying contemporary principles of strategic marketing to the process of event management. These concepts are applicable to the broadest definition of the event management industry including festivals, sporting events, community celebrations, cultural events, and arts productions. A student-defined case study further defines the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



application of course content.

IMC361 Marcom Research

4 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 195 – ECTS = 8

Prerequisite **RES 202**

This course emphasizes the vital role of research in the marketing communication process. It provides students with advanced knowledge of research methods used in the industry. The course offers an understanding of traditional and modern research applications in Marketing Communication through various case studies. The students will practice conducting MARCOM research through hands-on research project that evaluates their command of qualitative and quantitative research tools as well as their reporting and presentation of findings.

IMC362 Marketing Communication

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course highlights the marketing process and the role of MARCOM in the branding process, from creating a brand name to establishing brand value, personality, and equity. The students will be introduced to the theories of marketing communication and the variables governing the process. The course intends to deepen the students' understanding of the components of marketing communication and the function of each of the various organizations. Assignments to be presented by students that review successful and failure practices are an important component of the course.

IMC363 Innovative Marcom Techniques

4 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

This course introduces the Internet and related technologies as they have come to be used for the marketing, selling, and distribution of goods and services. The course includes discussions of both B2B and B2C and looks at marketing and communication from an integrated, business-wide perspective. The goal is to appreciate principles, and practice of online marketing. The following major topics will be covered: Innovative Marketing Strategy, Search Engine Optimization (SEO), Search Engine Marketing (SEM), Word-of-Mouth (WOM), Email Marketing, Social Media Networks and Social Media Marketing, Web Analytics, and Web Monitoring.

IMC364 Marcom Planning

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course offers a deep understanding of Marketing Communication Planning and campaign design. The students will learn how to analyze and research the internal and external environments of any organization to formulate a coherent SWOT or PEST analysis. Students will learn more about theories and models of planning communication campaigns like the RACE, ROSIE, and ROPE formulas. Grunig's models of PR planning and image-building theories will also be an integral component of the study of MARCOM planning. The course aims at highlighting the various strategies of MARCOM campaigns, with special emphasis on segmentation, targeting, positioning, and evaluation methods.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**IMC441 Advertising Campaigns****3** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

The purpose of this course is to analyze local and international advertising campaigns. Theories lying behind various advertising campaigns will be highlighted. Students will study elements of the success or failure of campaigns in addition to evaluation criteria. The course will provide students with hands-on opportunity to develop an advertising campaign plan for a client to further develop the skills used in creating advertising and marketing communications, focusing on research, strategies, copy and design, media selection, sales promotion, and public relations.

IMC442 Special Topics in Advertising**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

. This course addresses a current and timely topic, which is in a “pilot” phase before being offered on an ongoing basis or that is known to be a one-time offering. Special topic course offerings can vary from term to term. The major objective of this type of course is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses. The instructor can choose one or two or the most current trending practices in the field. This course examines in depth a major issue, problem, or theme in the area of Advertising and communication. It includes a specialized research paper or project, involves discussion and oral and written reports, and may include guest speakers and field trips.

IMC443 Advertising Agencies**3** Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The objective of this course is to equip students with a sound understanding of the types of advertising agencies, their structure and organization as well as their working procedures. This course will further expand on the agency’s compensation methods and business model. The students will also learn about the various jobs and positions available in advertising agencies. The focus of the course will be on the pitching process, account management, role of vendors and long-term relationships with both media and clients.

IMC461 Research Seminar**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**Prerequisite **IMC 361 MARCOM RESEARCH**

This course elaborates on the students’ previous study of research methods and techniques. The students will learn to conduct numerous advanced research techniques like projective ones in focus groups as well as new tools like experimental research. Utilizing all quant. and quality suitable research methods will be required from the students in preparation for their graduation projects. This course will assist the students to properly conclude the SWOT analysis of the environment of their project.

IMC462 International Public Relations**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

The aim of this course is to provide an analysis of the international business and consumer environments and the development and implementation of Public Relations programs across business alternatives. Topics include the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



roles of cultural, political, technological, economical, and legal aspects of marketing in an international environment, as well as how these affect the marketing mixes and public relations activities likely to be successful in various international markets. The global nature of PR and marketing is given consideration, thus allowing students to incorporate a series of culturally driven elements and factors, thus gaining in the process a far better understanding of how and why these factors need to be taken into consideration when selling a product, a service, or a media/culturally driven production.

IMC463 Special Topic in Public Relations

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course addresses a current and timely topic, which is in a “pilot” phase before being offered on an ongoing basis or that is known to be a one-time offering. Special topic course offerings can vary from term to term. The major objective of this type of course is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses. The instructor can choose one or two or the most current trending practices in the field. This course examines in depth a major issue, problem, or theme in the area of Public Relations and communication. It includes a specialized research paper or project, involves discussion and oral and written reports, and may include guest speakers and field trip.

IMC464 Consumer Relationship Management

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The objective of this business and management course is to equip students with a sound foundation of CRM concepts and best practices so they can implement CRM practices successfully for long-term profitability. Businesses aim to win and keep customers. Their competitors also seek to do the same. The course highlights a comprehensive set of processes and technologies for managing relationships with potential and current customers and business partners across marketing, sales, and service areas regardless of the channel of distribution.

IMC465 International Advertising

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

Introduction to international advertising. Tools and methods. Message Passing. International Channels.

IMC466 Brand Strategy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

In this course, students will learn how to apply the concepts of advertising and marketing to branding. The course will examine topics and various strategies related to building, measuring, and managing a brand, including direct and indirect measures of brand equity, structures of desired brand knowledge, choice of brand elements, development of supporting marketing programs, and management of brands over time.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Broadcast Communication

BRC211 Introduction to Audiovisual Communication

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **COM 121**

Students are introduced to the basics of audiovisual communication, its forms, and types for mass and new media. The goal of the subject is to teach students the methods of communication and discourse via type, typography, graphic design, static and dynamic images, and audio. Students study methods of audio-visual diction, visual symbols and visual style, image, and audio composition, as well as function of audio reproductions, and contemporary visual culture.

BRC411 Special Topic in Radio

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Course pre-requisite. This course addresses a current or timely topic, which is in a “pilot” phase before being offered on an ongoing basis, or that is known to be one-time offerings. Special topics course offerings can vary from term to term. The major objective of that type of courses is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses.

BRC412 Radio Planning

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

In this course, the student will study the basics of planning radio

programs and stations. It is designed to help students conduct audience research to identify listener's favorites, formulating the daily program map and harmonizing broadcasting time with the needs of the audiences, the quality of the program content and the economics of the radio stations. The program mixes modern radio stations and the most popular forms of programs among listeners.

BRC413 Global Television Channels

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course introduces students to theories of global television studies from the modernization and cultural imperialism theories to cultural studies and critical political economy perspectives. The course also examines the theories and problems related to the international function of Television Journalism, the entertainment industry, and the telecommunications sector. Students also gain a clear Identifying of the creation of the global media marketplace and how international communication evolves in the Internet age. Students also will study some international TV channels and networks in terms of programming, policy, and structure.

BRC414 Special Topics in Television

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course addresses a current or timely topic, which is in a “pilot” phase before being offered on an ongoing basis, or that is known to be



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



one-time offerings. Special topics course offerings can vary from term to term. The major objective of that type of courses is to update students with the most recent knowledge or applications that are related to recent developments in the field that are not covered by other courses.

BRC415 Television Drama

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

In this course, the student examines the concept of drama, its types,

evolution, basic elements, and the most famous schools of Drama. Students will be introduced to Television Drama where they will study its effects and significance in human life, as well as Television drama production which includes Characterization, location and sets, the plot, outline of the actual drama production, and producing TV drama. Students are trained to analyze television drama in terms of technical construction and directing to deepen students' Identifying of television drama.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of News Editing & writing

News Editing

NED271 Translation for Media Use

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MMW 191**

This course introduces students to the methods and challenges of translating texts from print, broadcast, and online media outlets on a variety of topics. In this course, students build media terminology, translate media texts from Arabic to English and vice versa, analyze and compare different types of media texts in the two languages, practice trans-editing, and assess translations.

NED272 News Editing

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **NED273**

This course provides journalism students with essential skills in news editing. The course teaches news gathering, news evaluation, and news story writing. Students will learn the ethical foundations of reporting and the basic elements of news writing. The course aims to teach the various news story writing formats most commonly used in print, online and broadcast media in both Egyptian and international news media. Students will learn to use the AP Style in their news writing. They will learn to find a variety of suitable sources for their stories and the basic

techniques of interviewing, quotation, and attribution.

NED273 Introduction to Media News

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **COM 121**

The course introduces students to journalism's three basic components: reporting, processing, and writing. Reporting is collecting information, gathering facts, evaluating the newsworthiness of information and events, and verifying the accuracy. Writing is putting those facts into words by creating clear, concise, and interesting stories. News media is the different news platforms with different characteristics. The concept of news, its elements and significance in contemporary life are included. The Emphasis is on writing form mechanics (grammar, spelling, punctuation, and journalistic style) to content (accuracy, completeness, audience, and readability) and reporting.

NED371 News Interviews

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

News Interviews aims to provide students with the knowledge and skills to conduct effective and professional interviews in various contexts. The course will provide an overview of the theoretical principles of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



interviewing as well as practical applications. Students will be introduced to the major types of interviews, the people involved in interviews, the impact of perception and the nature of communication in the interviewing process. The course will explore the major parts of an interview and questioning techniques. Students will learn how to write different types of questions and how to ask these questions in an order most suitable for the purpose of the interview. Students will study techniques of research required to conduct interviews.

NED372 Print Media News Production

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite **NED272**

The purpose of this course is to build up students' writing skills in printed news. Students will read and conduct analysis of news writing from local, regional, and international newspapers – looking for errors and areas of improvement. Students will also learn to create stories with local angles from regional or international stories. Students will also learn to simulate a newsroom and how to cover a news beat for a student newspaper production. Students will learn to pay attention to facts and details, keep the reader in mind, identify sources, write concisely, and meet deadlines.

NED373 Feature Editing

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Feature style writing is commonly found in magazines, newspapers, newsletters, and different types of news sites. This course aims to teach student the techniques to develop a well-written feature story. Students will be introduced to various types of features including profiles, short features, news features, trend features and personal essays. Students

will learn to develop ideas and conduct research and interviews for feature stories. Students will evaluate feature stories written in local, regional, and international news media. By the end of the course, students will have written a variety of features stories suitable for publication.

NED374 Global News Media

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

This course will explore the different practices in print, broadcast, and online news media across the globe. The focus of the course is the exploration of the factors that influence the media's practices in different countries. From the flow of information, news agencies, values and traditions, forms of ownership and funding, government regulations, organizational dynamics. The course will compare media across geographical regions, time periods, and institutional fields, including print news, broadcast news, and digital media.

NED375 Sports News Coverage

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Sports news coverage is a writing-intensive course that helps students focus their skills by exploring sports writing, social networking, and self-marketing online and in print. This course will appeal especially to those planning a career in Sports Journalism. This course will introduce students to the practices of sports journalism, studying how the techniques used by sports journalists compare with those used by other news journalists. Students will learn how sports news balances information and entertainment. Students will also learn about various influences within sports journalism and how to avoid ethical dilemmas.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Students will attend key sporting events which they will report on and analyze. Students will survey all storylines of modern sports communications, including sports business, sports and crime, sports marketing, the evolution of nationally driven stories, and sports celebrity as cultural phenomenon.

NED376 Business and Economic Reporting

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

As business becomes more influential in the lives of everyday citizens, it is important for media to become more aggressive in acting as a watchdog. Covering business requires an understanding of complex numbers and the ability to use data to write stories relevant to the economics of ordinary citizens. This course introduces the students to the fundamental principles and practice of business, finance, and economics. It aims to train the students to report and write on contemporary business and economic issues. This course teaches students how to understand what is going on at companies big and small and to report and write stories about these businesses in a compelling and simplified way that would appeal to the average reader.

NED377 Comparative Media News

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

News practices are developing and changing according to developments in news technologies, including digital and social media. Through this course, students will compare news practices across different news platforms including print, broadcast, and online news. This course will look at changing technologies and practices, the primary agents of change in news media, and the impact of these changes on

audiences and journalistic practices.

NED378 News Correspondent

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course provides a platform for students to explore contemporary international issues, study how they are reported, and understand the importance of international news in a globalized world. Upon completion of this course, students will have learned how to become news correspondents covering regional or international news stories. Topics to be covered include how to develop sources, use of language, and ethics of covering conflict, how to stay safe while covering conflicts, Wiki leaks and the role of International News Organizations and social media. The ultimate objective is for students to learn how to be news correspondents, cover news from a foreign country and how to develop sources even if they are not there.

NED379 Narrative News Writing

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course will explore narrative non-fiction writing for journalistic purposes. Students will learn to find stories suitable for narration, use suitable reporting techniques, and conduct successful interviews for these stories. Students will read and analyze well-written narrative stories in Egyptian, regional and global media. Students will be exposed to print, online and broadcast narratives. Throughout the course, students will practice writing narrative news stories in various formats.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**NED471 Applications of Print Media News****3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course aims to further develop reporting, writing, and editing skills for print news. Students will demonstrate the ability to produce well-organized, well-written, smooth flowing content under deadline pressure for print news publications. Students will create print news report portfolios regarding major hot issues globally or in the Middle East and conduct content and discourse analysis on these reports.

NED472 News Analysis and Commentary**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course explores several forms of analytical and persuasive journalism: editorials, criticism, op-ed columns, and personal columns. Course work emphasizes thorough reporting, critical thinking, and sound argumentation along with effective, stylish writing adaptable to any medium. Class sessions include extensive discussion of professional practices, sophisticated writing techniques, ethics, legal issues, and moderating opinion forums. This course examines the news analysis form for news writing. The course will look at how research and reporting can be presented with some authority to write short-form analytical articles based on significant news events: op-eds, columns, news analysis, explanatory, and historical context pieces. Students will learn to write clearly and concisely, and to produce analytical stories on deadline, bringing context and depth to local, national, or international topics.

NED473 Graduation Project Print Journalism**4** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**Prerequisite **NED 372**

The main aim of this course is to prepare students for the practical tasks of the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: (. Proposal that describes the project topic, research sources, approach, and product to be produced. (. Classroom/outside research and work assignments. (. Final Product. (. Presentation before the Graduation Evaluation Committee.

NED474 News Editing for Digital Media**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Introduction to News Editing. Introduction to Digital Media News. Advanced topics in news editing for digital media.

NED475 Investigative Journalism**4** Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**Prerequisite **NED272**

This course will introduce students to investigative journalism practices and the importance of investigative reporting in modern journalism and democratic societies. Students will learn how to construct investigative stories on neglected and under reported stories. The course aims at enhancing the observation skills of students to find unique areas in their local environment worthy of reporting. This course builds on the essential skills taught in the previous News Editing course. Students will practice advanced levels of news gathering, news evaluation, and news



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



story writing. The course aims to teach and practice the various news story writing formats most commonly used in print, online and broadcast media in both Egyptian and international news media. The course will also introduce students to advanced news writing formats. Students will be expected to cover news events and write their own news stories.

NED476 News Editing (Advanced)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **NED272**

This course builds on the essential skills taught in the previous News

Editing course. Students will practice advanced levels of news gathering, news evaluation, and news story writing. The course aims to teach and practice the various news story writing formats most commonly used in print, online and broadcast media in both Egyptian and international news media. The course will also introduce students to advanced news writing formats. Students will be expected to cover news events and write their own news stories.

Mass Media Writing

MMW191 Arabic for Media Use

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **ARB 101**

This course aims at developing student writing and editing skills for different media content in correct Arabic style. Students will study the characteristics of writing for media in Arabic, the most common language mistakes, different Arabic styles, and the most required Arabic grammar. Students will practice translating and editing translated texts.

MMW291 Writing for Mass Media

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **COM 121**

The purpose of this course is to teach students the basic principles of writing for the following mass media: print (newspapers and magazines), radio, television, and the web. This writing course helps students focus

their skills by exploring different forms of media writing. Student will learn the syntax (a structure for constructing sentences, paragraphs, stories, images, and graphics) that is unique to each mass medium; and how to apply the knowledge of the syntax for each medium to help students better interpret the meaning of a mass medium's content.

MMW391 Advertising Writing and Editing Skills

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course focuses on advertising copy planning, execution, and editing. The objectives of this course target teaching the students the elements of the creative brief, its functions and format. The rest of the course is dedicated to writing proper advertising copy, slogans, taglines as well as headlines for print media in addition to advertising scripts for electronic media. Students will analyze numerous advertising copies,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



provide translation with localized frames for others and then create their own advertising copies.

MMW392 Advanced Copywriting

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **MMW 391**

This course aims at training students in advanced advertising copywriting formats. The copywriting and editing assignments are advanced in nature and are applied to new forms of advertising like the mobile messages, virtual and augmented advertising, as well as various internet advertising messages that range from banner ad to social media interactive ones. Students will create numerous advertising copies and provide translation with localized frames for others.

MMW393 Writing for Public Relations

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MMW 291**

This course aims to highlight the media relations function of public relations, its models, scope, and challenges. As public relations activities rely heavily on written communication, this course will teach the students numerous writing formats like press releases, announcements, feature stories and position statements for both controlled and uncontrolled media. Henceforth, the assignments will be dedicated to fulfilling the requirements of enhancing the students' writing and editing skills.

MMW394 Writing for Radio and Television

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MMW 291**

The course aims to develop students' writing skills for radio and television. The student examines the technical characteristics of each medium and their effects on the writing characteristics for each. Students will learn to communicate using the verbal elements of radio and both the verbal and visual elements of television. He/she also studies the different forms and formats of programs and the bases of writing them. Students study radio and television scripts in order to identify their characteristics. Students are taught to write scripts for different programs and how to search for information needed to prepare radio and television scripts.

MMW395 Script Writing

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MMW 394**

The aim of the course is to provide the students with theoretical knowledge about the methods of script writing and develop their skills in writing TV scripts. The student will study the technical foundations of script writing, gathering the necessary information for its construction and stages of preparation, and the full and incomplete scripts for TV programs, while applying these rules to selected scripts of various programs and films. Students are trained to write scripts for a number of television programs and short films.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MMW396 Writing for Radio and Television (Advanced)

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **MMW 394**

This course will instruct the student in basic script formats, terminology, and writing techniques for radio, television, cable, and video. Writing for

news broadcast, promotional announcements, spot announcements and documentary, dramatic, and experimental television will be covered. Students will learn to communicate using the verbal elements of radio and both the verbal and visual elements of television



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Media Production & Digital Communication

Radio & TV Production

RTP281 RandTv News Production

4 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **195** – ECTS = **8**

Prerequisite **BRC211**

The purpose of this course is to introduce student to the basics of Radio and Television News Production. Students will study the significance of radio and television as media for disseminating news and their effects. They will conduct analysis of news stories produced for both radio and television news and evaluate areas of improvement. Students will also learn to rewrite print stories as radio or television scripts.

RTP282 Electronic News Gathering

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

ENG is a broadcasting (usually television) industry acronym which stands for electronic news gathering. This course provides instruction and practice in news gathering. Students will be introduced to and learn to evaluate methods of news gathering from electronic sources, including news gathering from participants, experts, libraries, and online sources.

RTP283 Voice and Speech

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BRC 211**

This course aims at developing the skills of radio and television different programs presentation. Students are to study human vocal and respiratory systems, Analyzing Punctuation Marks Used in Scripts, aspects of speech, common voice problems, mispronunciation and its causes, Classification of Microphones, Camera Consciousness, Principles of Effective Interviewing, Anchoring Radio, and television News.

RTP284 Camera Techniques

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

In this course, the students are introduced to video Camera Techniques. They study the characteristics of video photography, cinematography, video imaging theory, and light theory. Students are to be trained to use different lenses, optical control devices, and types of cameras in different settings as well as other required equipment. Besides student must Identify the different types of shots and its technical uses, and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



camera angels.

RTP285 Video Editing

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **RTP 284**

The course will cover the fundamental theoretical and practical aspects of video editing. Further, the course will impart technical knowledge of operating two different video editing software applications. The Course aims to provide a well-rounded and comprehensive training on video editing through lectures, exercises, and applications. To emphasize skill proficiency so that students can practically contribute and provide support to the relevant industry.

RTP286 Television and Radio Production

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

This course addresses the theory and practice of film/video production. Students will be expected to Identify: camera operation, audio control, basic directing, lighting, and editing. Students will also be expected to learn the terminology of video production/post-production and use this terminology competently. Students will be expected to become proficient in all other production roles: economics of production, the technical capabilities of television, production tools, studio management, image-use techniques, and production services.

RTP381 Applications of Television Journalism

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP281**

The purpose of this course is to teach students the art and craft of producing news for radio and television newscasts. Students will learn

the process of creating a professional news story for broadcast including researching, shooting, writing, executing, and editing the story. For television, students will expand upon the art of videography for television news, including how to plan powerful visual elements, how to shoot various sequences, how to shoot interviews and other elements available at news locations. Furthermore, students will practice writing scripts to video. By the end of the semester, student will produce complete news stories suitable for broadcasting on local or international radio and television news channels.

RTP382 Directing

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

This course is concerned with the development of student knowledge and skills in television directing. The student examines the responsibilities of the director and his relations with the work team as well as his professional and personal characteristics. Stages of directing, starting with the technical reading of the scenario and budgets, choosing the locations of photography, editing and the final preparation of the television work for broadcasting. The student is critically studying a number of television programs to discover the strengths and weaknesses of directing. Students are assigned to direct some simple television programs.

RTP383 Documentary

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

This course deals with films and documentary programs on radio and television and its production methods. The student studies the concept of programs and documentary films, their functions, development,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



types, areas of use and stages of production. The student also studies in different schools in documentary production, models of documentary programs and films with different functions and analyzes them technically. Students are assigned to produce samples of documentaries using Television, radio, and cinema archival data.

RTP384 Subtitling

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **NED 271**

This course is concerned with developing student skills to translate English spoken films and TV programs into Arabic. Through this course, Students will: Apply knowledge in screen translation (subtitling) and its development as a discipline, apply a professional knowledge of concepts and practice of screen translation to make appropriate use of scripts, soundtracks, and visual contexts in subtitling, prepare for and conduct subtitling assignments professionally, and Identify Subtitling constraints and strategies.

RTP385 Dubbing

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 283**

In this course, students will study the post-production process of recording and replacing voices on a motion picture or television soundtrack subsequent to the original shooting. The course includes Introduction to sound. Basic knowledge of Voice Dubbing Voice Recording Technique in Studio Voicing I.e., Voice manipulation. Fundamental of Sound Recording Dubbing for films, cartoon films, T.V. Serials Practice. Identifying Studio Microphones.

RTP386 Advanced Camera Techniques

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 284**

This course provides a more advanced study of the complex technical and practical techniques of photography in relation to Video photographic techniques and advanced image manipulation. This is a continuation of what the student studied in the field of video photography. The aim of the course is to enhance students' photography skills and to develop more skills than previously applied.

RTP387 Advanced Video Editing

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 285**

This course is characterized by most recent practical applications in TV editing to maximize the production of high-quality videos, films, documentaries, and other related formats, proficiently use different video editing software applications including Adobe Premiere, Final Cut Pro, to learn all relevant concepts, functions and constructs applicable to video editing in FCP. - To explain video editing using Final Cut Pro starting from the very basics to the specifics using a step-by-step approach. Students will Apply more theoretical and practical knowledge of video editing and its related constructs including filmmaking.

RTP388 Television News Presentation

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **NED371**

This course aims to introduce the whole process of presentation in Radio & TV News reading, with concentration on continuity, program presentation, interviewing and hosting talk shows. The course provides



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



practical training that helps the student to get acquainted with the tools of television news presentation, including the correct usage of language, phonetics and grammar, the science of vocalization, respiration, timings, tone, and eye-contact.

RTP481 Television News Directing

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP281**

This course will further develop video production methods and techniques for television news production. Student will learn to evaluate a project to determine equipment, personnel and set needs, mark scripts and rundowns with director's cues, direct a recorded field production and direct a live and recorded studio news production.

RTP482 Graduation Project - Television Journalism

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **RTP 281**

The main aim of this course is to prepare students for the practical tasks of the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: (1) Proposal that describes the project topic, research sources, approach, and product to be produced. (2) Classroom/outside research and work assignments. (3) Final Product. (4) Presentation before the Graduation Evaluation Committee.

RTP483 Production Applications of Radio Programs

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 286**

This course emphasizes improving students' auditory, communication

and literacy skills through radio broadcast media as well as preparing student for a career in radio and audio production. Students will learn skills of modern radio production and Identify radio programming as a business. Students will participate in producing live programming and prerecorded 3 different program formats.

RTP484 Graduation Project - Radio Specialiation

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **MMW 394**

The main aim of this course is to prepare students for the practical tasks of the workplace after graduation. This includes building his/her ability to perform a complete Project using the knowledge and skills he/she applied throughout the program. The course is divided into four parts in terms of work and evaluation: (1) proposal that describes the project topic, research sources, approach, and product to be produced. (2) Classroom \outside research and work assignments (3) Final product (4) Presentation before the Graduation Evaluation Committee.

RTP485 Radio Programs Presentation

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 283**

This course is designed to give the student a broad overview of Radio announcing procedures in a number of different broadcast situations. The student will also practice delivery of a wide range of Radio copy with emphasis on Music, Talks, and News Students will gain a knowledge of the physical aspects of the voice and identify proper delivery techniques including articulation, pronunciation, inflection, enunciation, word rate, correct breathing, interpretation, voice quality, mood, volume, regionalism, and communication.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



RTP486 Production Applications of Television Programs

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **RTP 286**

This course is designed to help enhance student skills in the different elements of television production. Student will be trained to Demonstrate lighting principles that meet technical and aesthetically creative purposes, direct multi-camera studio productions ,show an Identifying of television production techniques, perform competently using control room equipment, execute the duties of individual production crew positions, Identify and perform basic shot composition used in film and TV production, and perform visual and audio editing operations on a non-linear editing system (AVID Media Composer, Adobe Premiere).

RTP487 Graduation Project - Television Specialization

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **RTP 286**

The main aim of this course is to prepare students for the practical tasks

of the workplace after graduation. This includes building his/her ability to perform a complete Project using the knowledge and skills he/she applied throughout the program. The course is divided into four parts in terms of work and evaluation: (. proposal that describes the project topic, research sources, approach, and product to be produced. (. Classroom \outside research and work assignments (. Final product (4) Presentation before the Graduation Evaluation Committee.

RTP489 News Documentaries

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The course aims to provide the knowledge and techniques of news documentaries for television. Students will be exposed to different news documentary styles and topics. Students will critically analyze and compare news documentaries created locally, regionally, and internationally and engage in debates on content, style, and subject matter. The course will explore the steps of news documentary production, from creating the concept to production and post-production through student projects.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Marketing & Advertising Production

MAP351 Creative Advertisements

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

This course introduces the creative process and its phases. The course will highlight the activity of the left side of the brain and the possible means of reaching original ideas for advertising. The course will examine numerous successful and failed examples of advertising, analyzing the elements of advertising idea and message. The course will highlight the theories behind creative advertising and the criteria of its measurement and evaluation. Students will be required to produce their own creative concepts for existing or imagery brands as part of their course work.

MAP352 Industry Practices

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

Advertising Industry is very dynamic and changing consistently over time. This course will focus on the current industry practices. Through hand-on training and role -playing, students should be able to identify the jobs in the field and the corresponding responsibilities. Students will not only simulate the positions and departments inside an advertising agency, but also role play clients and media organizations to learn the complete process of the Advertising industry. Client-agency-media relationships and communication patterns are the focus of this course.

MAP353 Advertising Production

4 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

This unit describes the skills and knowledge required to manage advertising production of electronic and print advertising. It includes planning and directing the advertising production process as well as evaluating the final production of the advertisement according to the creative brief. This course further develops students' understanding of production processes involved in the execution of creative advertising. However, emphasis is placed on the management and coordination of content production. This unit applies to individuals working in a senior advertising management, advertising production or account management role within an advertising or media organization.

MAP354 Applications in Cross Media Advertising

4 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

This practical course aims at training the students to advance their application capabilities within the framework of media convergence. Cross-media advertising is a strategy used by business owners to market a business using various types of media. Owners may use all media types individually or combine several mediums to create a cohesive marketing campaign. Cross-media advertising is one often overlooked by business owners, especially Internet entrepreneurs. Students will apply keeping the target consumer profile in mind when choosing media for a given business to reach maximum profits. The



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



students will produce complete, consistent campaigns for certain brands, services or issues depending on a comprehensive creative brief. The correct use of cross media consistent messages of the same campaign is the ultimate goal of this course.

MAP355 Advertising in Electronic Media

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **MMW 391**

Radio, television, and internet advertisers can draw upon several advantages electronic media has over other forms of advertising. The mass coverage offered by these media attracts national advertisers. Advertisers weigh the advantages against the various disadvantages associated with electronic media. This course will guide the students throughout the process to get them to produce ads for electronic media. Creative briefs with advertising scripts and storyboards will be the base upon which the students' production projects will depend.

MAP356 Public Relations Production

4 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

This course trains students to plan PR events and produce all the required assignments necessary for PR tasks. Students are introduced to the various steps of planning and production of company publications like newsletters, brochures, press kits, giveaways, etc. The students will also produce electronic public relations publications as websites and social media platforms' messages. This course is practical in nature and all the course assignments will lead to practical output in the form of PR publications in both print and electronic versions.

MAP357 Media Relations

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

The aim of this course is the study of communication that is mediated through technology, including traditional mass media (books, newspapers, radio, film, and television), social media and new and developing technologies. Students will learn the nature and practice of public relations, corporate interface with press organizations, and the role of advertising. The ethical and legal repercussions of mass communications will also be considered. This course will focus on the media as a middle public to disseminate organizations' messages to stakeholders and as an end public used to endorse a company's image and reputation.

MAP358 Social Marketing Campaigns

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The course focuses on the use of marketing principles to develop social marketing strategies and programs and to bring behavioral change for social good. Social marketing can be used to promote merit goods, or to make a society avoid demerit goods and thus promoting well-being of society. Students will learn how to influence behavior in four different ways: Accept a new behavior. Reject a potentially undesired behavior. Modify a current behavior. Abandon an old undesired behavior. Students will learn how to apply key marketing principles to campaigns and efforts to improve health, decrease injuries, protect the environment, build communities, and enhance financial well-being.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**MAP451 Advertising Media Plan and Budget****3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**Prerequisite **IMC 343 ADVERTISING MEDIA**

This course focuses on advanced levels of the advertising management process, which includes the agency, media, and the client in one cycle. Building on the students' prior knowledge of media planning, students will be required to prepare an integrated media strategy, plan, and schedule with proper selection of media vehicles as well as an assigned budget for the suggested schedule. This course is an application of the various steps of media planning & buying starting with media research, media objectives, target mapping and segmentation, media mix and market prioritization ending with the buying, developing media plan and proper evaluation.

MAP452 Advertising Management Graduation Project**4** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**Prerequisite **IMC 344**

The main aim of this course is to prepare students for the practical tasks for the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: Proposal that describes the topic, research sources, approach, and product to be produced. Classroom and outside research and work assignments. Final product. presentation before the Graduation Evaluation Committee.

MAP453 Advanced Advertising Production**3** Cr. Hrs. = (**1** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6**Prerequisite **MAP 353**

Marketers struggle to stretch their limited production budgets because they must contend with a complex media ecosystem. By understanding the ins and outs of the production process and by knowing what drives the cost of producing content assets, students are empowered to make better production decisions. This awareness also makes it easier for them to choose the appropriate agency and production partners that are vital to production efficiency, effectiveness, and ROI. This course will highlight best practices and clarify responsibilities in the content production process (TV/video, photography, OOH, digital/social, etc.). This course also provides learning on the unique challenges of producing content for social platforms. Students will gain insight on the latest production trends, such as transparency and marketer-led production.

MAP454 Advertising Design Graduation Project**4** Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **210** – ECTS = **8**Prerequisite **MAP 351**

The main aim of this course is to prepare students for the practical tasks for the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: Proposal that describes the topic, research sources, approach, and product to be produced. Classroom and outside research and work assignments. Final product. presentation before the Graduation Evaluation Committee.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MAP455 Applications in Advertising Creative Design

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This subject is primarily about managing the practical and creative process of advertising production by the implementation of effective visual languages and messages in various formats of advertisements. This studio-lecture subject provides analysis of advertising expressions and strategies of communication in a wide range of advertising media such as print media, broadcasting, and web advertising. Students will play the role of creative staff in an advertising agency and culminate the execution of an entire advertising campaign. This subject aims to provide students with an understanding and knowledge to manage the pre-production, production, and postproduction process to meet the advertising campaign schedule for advertising project management and future career in advertising.

MAP456 Public Relations Graduation Project

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **IMC 364**

The main aim of this course is to prepare students for practical tasks for

the workplace after graduation. This includes building his/her ability to produce a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: Proposal that describes the topic, research sources, approach, and product to be produced. Classroom and outside research and work assignments. Final product. Presentation before the Graduation Evaluation Committee.

MAP458 Political Communication Graduation Project

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **COM 421**

The main aim of this course is to prepare students for the practical tasks for the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: Proposal that describes the topic, research sources, approach, and product to be produced. Classroom and outside research and work assignments. Final product. presentation before the Graduation Evaluation Committee.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Digital Communication Production

DCP131 Digital Photojournalism

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Digital Photojournalism introduces students to non-fiction photographic storytelling. This course focuses on the methods, processes, and equipment used to create, modify, and present digital imagery. Students learn fundamentals of photography for different media outlets through a sequence of hands-on assignments. The main concern of this course is to teach students how to be a photojournalist, not a photographer. It is a course in visual communication not in photography.

DCP132 Basics of Design

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The Basics of Design course is a foundation course that develops a student's ability to analyze and design using basic principles and theory applicable to all forms of art. This is a visual design theory course that introduces the core concepts of visual design — visual elements, principles of design and creative process. Composition issues and strategies valid in all areas of visual design are explored through examples, exercises, critiques, and creative works. The student is introduced to tools and techniques used in today's communication industry.

DCP133 Introduction to Graphics

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course introduces students to graphic design as a form of visual communication through the use of type, image, form, and color. Students learn and apply fundamentals of various software applications (such as Illustrator and Photoshop), web design, image editing, drawing and graphic animation. They will learn how to write basic shades, lighting and shading, projections, transformations in 3D, and texture mapping.

DCP231 Introduction to Videography

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course serves as an introduction to the art of video post-production. It explores the theory and practice of various editing styles in order to gain a better understanding of how stories are constructed in the editing room. Students will learn from an industry expert how to go from pre-production to post-production while working hands-on with real equipment and scenarios.

DCP232 Digital Communication

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite COM 121

This course aims to identify the effects of technological development on all elements of the communication process and changes in the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



communication environment as a result of the spread of electronic means of communication. The student studies the development of electronic communication, its characteristics, means, uses, effects, and its relation to traditional means of communication. The student also studies the basic characteristics of the production of electronic communication messages.

DCP331 Digital Media News Production

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

The purpose of this course is to build up students' writing skills for digital media news. Students will read and conduct analysis of news writing from local, regional, and international news sites and social media sites – looking for the latest practices and areas of improvement. Students will learn to cover a beat and produce stories for an online student news site.

DCP332 Print News Media Design and Layout

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **DCP132**

This course will provide students with the knowledge and techniques to produce print news publications. Students will learn to use industry standard software in the production of newspapers and magazines. Students will learn the basic principles of print layout and design as well as practice implementing these principles. The course will cover standard terms used to identify elements, page layout, word, and image conventions for reporting the news. By the end of the course, students will be expected to produce their own sample publication.

DCP333 Multimedia Production

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite **BASICS OF DESIGN**

This course is one of the applications of modern communication technology in the production of media materials. The course includes multimedia definition and areas of use. The course focuses on developing students' skills to use multimedia design programs and employing their production capabilities such as Macro Media Director \ Flash.

DCP334 Radio and Television Online

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course aims to introduce students to Internet applications in transmitting radio and television programs and current experiences in this regard to develop their ability to transmit audio and video materials over the Internet. In this course, the student will study the concept of Web Casting, its importance, and areas of use, as well as the necessary components and considerations for transmitting radio and television programs over the Internet as well as the production technicalities of this type of broadcast. The student is trained in the electronic transmission and compressing methods of audio and video files.

DCP431 Applications of News for Digital Media

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **DCP331**

This course aims to further develop producing, reporting, writing, shooting, and editing skills for digital media news for traditional news sites and social media platforms. Students should demonstrate the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ability to produce professional productions of news stories suitable for digital transmission. Student will demonstrate the ability to create a complete online news package.

DCP432 Digital News Graduation Project

4 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **210** – ECTS = **8**

Prerequisite **DCP 331**

The main aim of this course is to prepare students for the practical tasks of the workplace after graduation. This includes building his/her ability to perform a complete project using the knowledge and skills he/she acquired throughout the program. The course is divided into four parts in terms of work and evaluation: (. Proposal that describes the project topic, research sources, approach, and product to be produced. (. Classroom/outside research and work assignments. (. Final Product. (. Presentation before the Graduation Evaluation Committee.

DCP433 Solo Journalism

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course aims to teach journalism students to become solo or backpack journalists in the age of media convergence. Students will become capable of performing all the functions involved in the construction of multimedia journalistic stories using mobile media production. Students will learn to use digital audio and visual tools in reporting for online news media, including writing, photography, video, and audio. Students will be provided with the skills to produce the news and all multimedia for a news story while in the field through the use of the latest mobile technologies. Students will learn to disseminate the story quickly directly from the field through the internet.

DCP434 Design of Digital Media News Sites

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **165** – ECTS = **6**

Prerequisite **DCP232**

This course focuses on the design of news sites. This course builds on students' web design skills and digital news production skills. Students will learn the elements of news site design and layout and the complete online news package. By the end of the semester, students will have developed their own online news website with online news packages using the latest web design software.

DCP435 Digital Advertising Campaigns

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This Digital Advertising course provides a detailed understanding about Digital Marketing concepts, strategies, and implementation, including planning a website, website promotion, email, and Search Engine Optimization (SEO) campaigns, Pay Per Click (PPC) campaigns and integrating digital advertising with traditional advertising. This course has been designed for those who want to understand the key elements of building an effective digital marketing campaign. Covering best practice and using case studies throughout, the course offers a practical guide to the core techniques in digital advertising. Online tools and reference materials are highlighted throughout, enabling delegates to leave with solid hands-on knowledge that they can implement immediately upon graduation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



DCP436 Digital Marketing

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite **DCP 232**

This course equips students with the knowledge and set of skills required to create and manage online identity for brands. It aims at enhancing students' capacities in creating and curating content, managing the online presence and activities of a specific organization (business, NGO, individuals, university ... etc.) and engaging with its

audiences. The essence of the course is to train students for employability providing them with useful tools to embark on a career in managing online activities including strategizing and planning for various online marketing tactics, generating content and how to present this content on different online platforms and networks, engaging with publics and evaluating the implemented strategies. Topics covered include: the digital communication landscape, online marketing, social media tools and applications, online analytics tools, measuring success, and resources to stay updated on all the discussed matters.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الدراسات القانونية الدولية

FACULTY OF INTERNATIONAL LEGAL STUDIES



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Public Law

PUL111 Political Systems & Constitutional Law

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course studies constitutional law; its nature and its relationship with other branches of law, the definition of the constitution, its sources, kinds of constitutions, their origins and developments, the diminishing relative value of constitutions and the means for protecting them through censorship and its application. The course also studies the state, its legal attributes, systems of government, the concept of government and its various types with samples of current governing systems. The course will also examine the constitutional system of Egypt, and in particular the separation of powers doctrine and civil and political rights and liberties.

PUL121 Criminology & Penology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

study in this part involves the definition of criminology, its historical background and the relation between criminology and other criminological sciences and disciplines. The methods of studying crimes are also dealt with. In addition, the theories of delinquency are studied. The second part of this course deals with penology. The study in this part involves criminal punishment and other criminal treatments. Punishment institutions, such as prisons, are also dealt with in this part.

PUL131 Principles of Political Economy

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

This course deals with the Economics Problem (Needs and Utility Total and marginal) - Economic systems development - The Theory of Value - supply & demand - Production – Egyptian government and current Economic problems - The Co-operation Economics.

PUL211 Administrative Law

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite **PUL111**

This course deals with the definition of administrative law, its sources, the actions taken by the public administration in implementing the laws, administrative control, the system of public utilities, administrative legal instrument; administrative decisions, and administrative contracts (public procurement).

PUL221 Criminal Law (general Part)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PUL121**

This course deals with the general theory of crime and punishment. The general theory of crime contains the definition, types, and elements of crime. The course will focus on the concept of the material and mental element of crime. It deals with the definition and forms of each element: commission and omission; attempt; causation; complicity; intention and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



recklessness. The course will also highlight the causes of permissibility like Legitimate Defense, the use of authority and the right to exercise some activities. The course will deal with the capacity and incapacity conditions of the person: the age of criminal responsibility, insanity, intoxication. In addition, the course addresses the general theory of punishment. It deals with the definition, purposes, kinds of punishment (substantive and subsidiary penalties) and its termination.

PUL231 Economic Legalisations

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Economics laws. Legalization Organizations. Relations to other laws.

PUL311 Administrative Judiciary

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PUL221**

This course deals with Principle of Legitimacy, the structure of the administrative court system (Supreme Administrative Court- Administrative Courts-Disciplinary courts.) and its jurisdiction over administrative matters related to administrative contracts, tenders, and decisions. etc. With concentrate on Cancellation, Compensation and Discipline Lawsuits.

PUL321 Criminal Law (specific Crimes)

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course deals with the two major classifications of crimes in the Egyptian penal law. It will focus on the definition, elements, and punishment of each crime. First, crimes against the public interest: such as crimes against the state (treason, espionage, conspiracy); crimes

against the administration and public property (corruption, bribery); justice crimes (contempt of court); crimes against public trust (forgery or counterfeit) and crimes against the social order (corrupt public morals or outrage public decency). Second, crimes against persons and property: such as homicide, murder, manslaughter, bodily assault, abortion, kidnapping, false imprisonment, sexual crimes, extortion, theft, robbery.... etc.

PUL331 Public Finance

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **PUL131**

This course deals with the concept of public finance, the fiscal role of government and its evolution, the public budget and its preparation, its laws, principles, and kinds. Public budget encompasses studying public expenditures: definition, involvement determinants, implications, etc. The course also addresses the main sources of revenues such as state property, fiscal charges, public loans, and taxation. This is in addition to fiscal policy.

PUL411 Administrative Contracts

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course deals with the “criminal process” and the structure, functions and competences of the criminal courts and the public prosecution service according to the Egyptian law. It focuses on the pre-trial procedures: the arrest (with and without warrant); investigation; seizure; wiretapping; witness; interrogation; expertise; preventive detention; decisions to prosecute or not prosecute. The course will deal with the trial phase before the criminal courts, focuses on the proceedings, evidence; grounds of the judgment; appeal.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PUL421 Criminal Procedures Law

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PUL221**

This course deals with the “criminal process” and the structure, functions and competences of the criminal courts and the public prosecution

service according to the Egyptian law. It focuses on the pre-trial procedures: the arrest (with and without warrant); investigation; seizure; wiretapping; witness; interrogation; expertise; preventive detention; decisions to prosecute or not prosecute. The course will deal with the trial phase before the criminal courts, focuses on the proceedings, evidence; grounds of the judgment; appeal.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Private Law

PRL111 Introduction to Islamic Jurisprudence

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course consists of an introduction about the branches of Sharia, and specifications, sections of Islamic Fiqh, Sequence and outline major historical highlights in the developmental stages of Fiqh roles and issues of Islamic legislation, Summarize the establishment of the four Islamic schools of thought and the factors that led to them. and General Theories of Right, Ownership and Contracts in Islamic Fiqh.

PRL121 Principle of law, Human Right & Morality

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

: This course contains three main components: First, it discusses the Principles of Law - which contains the concept, philosophy, sources, and classification of law and the scope of its application and interpretation in general. Second, it discusses the theory of human rights in national and international laws, which includes the concept of human rights and their development and classification (i.e., civil, political, social, economic, and cultural rights). The development of these rights will be pursued in both national and international systems. Third, it offers theories on the nature and foundations of ethical judgments as well as the applications on contemporary moral issues.

PRL122 Theory of Right

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course deals with the general theory of Right, it will introduce the students to the theory of rights as known in the civil law systems. This part will deal with the concept, classification, subjects and persons of rights and other relevant issues.

PRL151 History of Legal Systems

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This Course deals with the relations between History of Law and Others law branches special Philosophy of law. The course studies: Property, Crimes and punishment, marriage, Personal Statutes, in Ancient Society like: Babylonia, Arabs before Islamic Period, Greeks, Romans, Anglo-Saxon.... Etc.

PRL211 Family Law

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PRL111**

Students will explore Islamic family law including the rules regarding marriage and divorce, custody of children and maintenance, the importance of the extended family, and developments in family planning in Muslim and Non-Muslim Laws.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PRL221 Civil Law (Sources of Obligation)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PRL121**

This Course introduces the students thoroughly to the fundamental principles of the sources of obligations in the Egyptian Civil Code. Include: Contract, Unilateral Will, Tort liability, Unjustified Enrichment and Law.

PRL222 Civil Law (Effects of Obligations)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PRL121**

This course deals with the legal regulation of the effects of obligations: include Specific Performance, Compensation in Lieu of Performance, Means of Realizing and Securing the Rights of Creditors, Conditional Obligations and Time Clauses, Plurality of debtors or creditors, The Assignment of a Right, Payment, Methods of Extinction of the Obligation Equivalent to Performance and The Extinction of Obligations without Payment.

PRL223 Evidence Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **PRL121**

This course will shed the light on the general theory of the law of evidence and the different substantive and procedural legal aspects of the methods of proof: writing, testimony, oath.... etc.

PRL251 Philosophy of Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

. This course will provide a general philosophical analysis of law and legal institutions. The course will explore the nature and purpose of law as found in theories such as natural law theory, positivism, and critical legal studies. Students will critically examine the justification of laws and how, if at all, the law is connected with morality. Additionally, the course will examine the nature of legal responsibility, and the purpose of and justification for punishment. The course may also look at the nature of legal reasoning in judicial decisions, for example Supreme Court decisions. Course readings may be selected from both historical and contemporary sources.

PRL311 Islamic Law (Inheritance, wills & Waqf)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PRL221**

This course deals with Islamic rules of inheritance and those rules governing wills and the effect of both types of rules in achieving social justice in the Muslim society and Egypt. The course will also deal with the WAQF in both Sharia and law. Its kinds, conditions, and termination.

PRL321 Civil Law (Nominated Contracts)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **PRL221**

. The Egyptian legal system follows the Latin distinction between civil and commercial contracts. This course will, therefore, follow this distinction and study the concept of nominated civil contracts and the distinction between such contracts and non-nominated contracts. The



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



course will concentrate on the Three main nominated contracts: the contract of sale - the contract of leasing and the Insurance contract. All aspects of these contracts will be examined including their definition, formation, elements, obligations arising there from and termination.

PRL322 Labor Law

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PRL221**

. This course deals with general principles of labor law in the light of the Egyptian legal system It will introduce the students to the labor law's definition, scope, evolution, and sources. It will then investigate the individual labor contract, its elements, duration, and effects. The course shall also shed the light on the legal regulations of the collective labor agreements, labor syndicates and the settlement of the collective labor disputes. The course will also examine the legal environment of social security.

PRL331 Commercial Law (1)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **PRL121**

This course will provide the students with the general principles of commercial law, its concept, characteristics, development, and sources. It will also study the legal concept and theory of Commercial transactions and that of merchants. The course addresses The Commercial Premises and Its Elements, and the general rules and precepts for companies in civil law, and then moves to corporate law to study the sources and characteristics of corporate law. Also, the module deals, in a detailed manner, with the types of companies in Egyptian law, namely: Partnership companies, Limited partnership companies, Joint venture companies, Partnership limited by shares companies,

limited liability companies. etc.

PRL332 Intellectual Property Law

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PRL121**

This course deals with national and international legal protection of intellectual property rights. The course shall introduce the students to the theory of intellectual property and applications, namely: copyrights and Neighboring rights, industrial and commercial property rights and the laws that protect patent, trademarks and layout designs, the rules of the law that protect intellectual properties in Egypt. It also examines international agreements on industrial and intellectual property, such as the Bern Convention, the Paris Convention, and the TRIPS.

PRL341 Law of Civil & Commercial Procedures (1)

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PRL223**

This is an advanced course which deals with the structure of the judiciary in Egypt, the formation of the civil courts, their jurisdiction, and the legal proceedings of the civil and commercial cases before the courts and the rules of appeals and cassation.

PRL411 Fundamental of Islamic Jurisprudence

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

This course deals with the property rights: the right of ownership, the scope of this right, the instrument for its protection, types of ownership, the basis for acquiring property, the rights derived from ownership, transfer, use, benefit, restrictions on its use and that will be studied according to Egypt relevant legislation. This course will examine the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



main principles of debt securities in the Egyptian Civil Law. It covers the concept, elements, conditions, and legal effects of all types of real securities such as Mortgage, Pledge and Liens and of personal securities such as guarantees.

PRL421 Civil Law (property & Real rights)

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PRL221**

This course deals with the property rights: the right of ownership, the scope of this right, the instrument for its protection, types of ownership, the basis for acquiring property, the rights derived from ownership, transfer, use, benefit, restrictions on its use and that will be studied according to Egypt relevant legislation. This course will examine the main principles of debt securities in the Egyptian Civil Law. It covers the concept, elements, conditions, and legal effects of all types of real securities such as Mortgage, Pledge and Liens and of personal securities such as guarantees.

PRL431 Commercial Law (2)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **PRL331**

This course deals with the system of commercial bankruptcy as far as it is a system particular to merchants and commercial companies. The concept of bankruptcy, its effects, the management of bankruptcy, ascertaining the debts and the bankruptcy panel will be studied. Also studied will be the simple conciliation and its conditions, restoration of esteem, bankruptcy, and liquidation crimes. The protective conciliation and its formal and objective terms, and its legal provisions are included in the study. The course shall also introduce students to the most common contracts of commercial nature such as the contract of sale

and the contract of commercial agency and. On the other hand, it studies the Commercial Papers: Bill of exchange, Cheque and Promissory note. And The Banking operations: deposit account – Loans, Letter of Guarantee, Documentary Credits.

PRL432 Aviation & Maritime Law

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

the definition, history, development, scope, and sources of maritime law, concerning the legal system of the ship and maritime contracts such as the lease and sale of the ship and the contract of the carriage of goods by sea and the contract of maritime insurance in the light of Egyptian regulations and international maritime treaties. legal rules governing maritime accidents, joint losses and the most important international maritime treaties governing such matters.

PRL441 Law of Civil & Commercial Procedures (Forced Execution)

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PRL341**

This course will cover the law of enforcement judgments, Including: Enforcement of Judgment and Preliminary Seizure for Security: General Rules, The Judge of Execution and The Execution Officer, The Enforcement Instruments, Object of Seizure, Preliminary Seizure for Security, Judgment of Validity and Efficacy of Provisional Seizure. The Procedures: Kind of Seizure, Seizure of Rights of Movable Material Properties by the Debtor and Third Part, Seizure of Shares, Bonds, Revenues and Real Rights, Distribution of The Proceeds of Enforcement and Recognition and Enforcement of Foreign Judgments.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PRL461 Externship

3 Cr. Hrs. = (**1** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Externship offer students the opportunity to work in practice settings outside the College. Through an externship, students can gain real work

experience in specific areas of interest. Students will be distributed among the different sites of legal work such as courts, police, departments of legal affairs of Ministers and private sector. Students will work under the supervision of, and with the assistance of, experienced lawyers.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of International Law

INT111 Public International Law

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite INT111

This course will introduce the students to the definition, legal binding character, sources, and branches of public international law. It will also deal with different aspects of its applications in peace and war; in particular, the question of international recognition of a state, the state's responsibility, succession and means of international disputes settlement.

INT211 Law of International Organization

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course deals thoroughly with issues related to the legal rules of constitution and functions of international organizations such as the League of Nations, the United Nations and its specialized agencies, the Security Council, the International Court of Justice, and the UNESCO. It is advisable, however, to spot the light on some regional organizations such as the Arab League and the European Union. Consideration should be given to certain issues such as legal personality, treaty making, privileges and immunities, membership, organs, dispute settlement and withdrawal.

INT212 International Humanitarian Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course introduces the law of the European Union as a model for regional integration. Students will be introduced to the features of the Union, including the main institutions, the relationship with the Member States and the judicial system. The second part will deal with substantive topics, which may include topics such as the internal market, harmonization of laws, competition law and trade law. At the end of the course students will be able to understand EU legal issues and problems in a practical context and derive lessons from the EU experience.

INT213 European Union Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course introduces the law of the European Union as a model for regional integration. Students will be introduced to the features of the Union, including the main institutions, the relationship with the Member States and the judicial system. The second part will deal with substantive topics, which may include topics such as the internal market, harmonization of laws, competition law and trade law. At the end of the course students will be able to understand EU legal issues and problems in a practical context and derive lessons from the EU experience.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



INT214 Sea Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course introduces the law of the European Union as a model for regional integration. Students will be introduced to the features of the Union, including the main institutions, the relationship with the Member States and the judicial system. The second part will deal with substantive topics, which may include topics such as the internal market, harmonization of laws, competition law and trade law. At the end of the course students will be able to understand EU legal issues and problems in a practical context and derive lessons from the EU experience.

INT215 International Sports Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Rules and laws. International Organizations in sports. International and local federations.

INT311 Space Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite INT111

Course will provide a basic overview of space law with primary emphasis on the civilian and commercial dimensions of space law and policy (including civilian government space, satellite launch, insurance, space tourism, remote sensing, and space traffic management). Course coverage will include the five major international treaties dealing directly with space (the Outer Space Treaty, Liability Convention, Registration Convention, Rescue and Return Agreement, and Moon Treaty).

INT312 international Environment Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This Course deals with the concepts and principles which underpin environmental law from the international to the local level. The course will address Constitutional responsibilities and roles relating to the environment; sustainable development and the law; environmental planning through environmental impact assessment and land-use law; environmental protection principles, climate change water resources law; heritage issues and the protection of biological diversity.

INT321 Private International Law (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite PRL121

This course deals with the general theory of nationality, its definition, concept, development, types and means of acquisition, withdrawal and dropping. The course shall also cover the legal remedies for multinationals and stateless.

INT322 International Oil & Gas Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course examines the history, development and legal nature of agreements and contracts for exploration, production and sale of Oil and Gas. It focuses on the special legal distinctiveness of these legal instruments in the Arab Middle East. The course deals with the terms of standard forms of concession, exploitation, production agreement/contract/convention or other oil related agreement in order to clarify special features.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



INT411 International Diplomatic Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course introduces students to the main issues in contemporary international relations. The aim is to provide students with basic knowledge about the two dominant patterns of behavior in international relations: conflict and cooperation. The course also provides an introductory overview of the major approaches and theories of international politics, such as realism, liberalism, and social constructivism. Specific historical and contemporary issues are studied from these perspectives.

INT412 International Criminal Law

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

International crimes related to universally condemned practices, such as piracy or the slave trade. However, advances in technology and communications, as well as increased transnational mobility, have led to new categories of conduct being recognized as international crimes. The definition and codification of criminal offenses, the expansion of jurisdiction, and the creation of international criminal courts are now key issues in international criminal law. This course will include the following topics: criminal jurisdiction in international law including the five traditional bases; extradition and its legal and constitutional bases; the nature of international crimes in customary international law; the law of war and humanitarianism law; and the definition of international crimes.

INT421 Private International Law (2)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite INT321

This course deals with the concept, development, nature, sources, and role of conflict of laws rules in private international relationships either of financial character or of personal and family status the course also examines legal rules set up to determine the competent courts (conflicts of jurisdictions) in cases involving foreigners or of international character.

INT422 International Sale of Goods Contract

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course covers many facets of the international commercial sales of goods. It is meant to be realistic and practical, and for that reason it includes comparative law as well as international law. The focus of the course is the United Nations Convention on Contracts for the International Sale of Goods (Vienna., known as the CISG, with comparisons to domestic systems in both the common law (especially Uniform Commercial Code Article. and the civil law (most notably in the French and German and Egypt systems). The class also covers the payment and credit terms typical in such sales, with particular attention to the laws and practices relating to letters of credit. In addition, the course addresses transportation of goods and the risk of loss. The course emphasizes not only the different rules of domestic and international law but also the varying legal cultures, attitudes, and perspectives of the lawyers and businesses who participate in these transactions, as well as the commercial realities of doing business in multiple countries.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**INT423 International Arbitration Law****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course covers many facets of the international commercial sales of goods. It is meant to be realistic and practical, and for that reason it includes comparative law as well as international law. The focus of the course is the United Nations Convention on Contracts for the International Sale of Goods (Vienna., known as the CISG, with comparisons to domestic systems in both the common law (especially Uniform Commercial Code Article. and the civil law (most notably in the French and German and Egypt systems). The class also covers the payment and credit terms typical in such sales, with particular attention to the laws and practices relating to letters of credit. In addition, the course addresses transportation of goods and the risk of loss. The course emphasizes not only the different rules of domestic and international law but also the varying legal cultures, attitudes, and perspectives of the lawyers and businesses who participate in these transactions, as well as the commercial realities of doing business in multiple countries.

PUL232 Economic (Money & Banking)**3** Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

This course deals with Principle of Legitimacy, the structure of the administrative court system (Supreme Administrative Court- Administrative Courts-Disciplinary courts.) and its jurisdiction over administrative matters related to administrative contracts, tenders, and decisions. etc. With concentrate on Cancellation, Compensation and

Discipline Lawsuits.

PUL333 International Investment Law**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course introduces the students to the concept, origins, and roles of the law of foreign investments; national standards v. international minimum standard; International efforts to regulate foreign investment (e.g., United Nations efforts, Efforts made by the World Bank, OECD efforts and the role of the World Trade Organization; regulation of investments under bilateral and regional investment treaties (BITs).

PRL322 Labor Law & Social Security**2** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **120** – ECTS = **6**Prerequisite **PRL221**

. This course deals with general principles of labor law in the light of the Egyptian legal system It will introduce the students to the labor law's definition, scope, evolution, and sources. It will then investigate the individual labor contract, its elements, duration, and effects. The course shall also shed light on the legal regulations of the collective labor agreements, labor syndicates and the settlement of the collective labor disputes. The course will also examine the legal environment of social security.

PUL233 International Economic Law**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**Prerequisite **PUL131**

This is a foundation course that enhances the understanding of financial,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



monetary, trade and investment law and regulation and related economic development theories/policies in their current global setting, particularly as they directly impact on the most world population. Against the constantly changing background of economic policymaking, this course examines economic and legal interaction among industrialized state, developing countries, international (e.g., UN economic functions, IMF, and World Bank Group) and regional economic institutions (e.g., in Latin America and Africa) and private actors (e.g., multinational corporations, international commercial financial institutions and non-government organizations).

PUL332 Tax legislations

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

This course consists of the tax legislation which means the Tax Act and all federal, provincial, territorial, municipal, foreign, or other statutes imposing a tax, including all treaties, conventions, case law, interpretation bulletins, circulars and releases, rules, regulations, orders, and decrees of any jurisdiction.

PUL431 Law of Taxation Procedures

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Taxation Legislation which aims to establish unified tax procedures for filing and regulating direct and indirect taxes. As such, taxpayers will have a single tax code for their tax registration for the different types of taxes.

The key issues addressed by the law involve filing of returns, financial penalties, rights and obligations of the Tax Authority and taxpayers as relevant to tax audit, appeal, refund, documentation retention, etc.

PUL412 International Civil Servant.

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

The objective of this course is to provide the students with a comprehensive understanding of **the International Civil Servant and** Its relations international organizations located in a country other than their own.

The Course reflects on theoretical questions, which argues that the authority of international civil servants should be understood and analyzed as operating through three distinct, yet interconnected, modalities of discourse and practice: legal, moral, and expert.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية السياحة والضيافة

FACULTY OF TOURISM & HOSPITALITY



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Tourism Studies

TOS111 Introduction to Tourism Industry

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Describe the characteristics of tourism. Define, understand, and explore a variety of tourism terminology and concepts. Identify evolving issues and trends in the tourism industry. The impacts of tourism. Define the interrelationship of the different sectors of the tourism industry. Identify travel motivators and tourism generators. Describe the role and function of industry and government organizations that support tourism at the regional, national, and international level. Identify tourism-related products at local, provincial, and national level and describe their role in supporting events. Demonstrate an ability to critically assess a variety of explanations of the nature and value of tourism.

TOS112 Tourism Operations Management

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

Tour and travel intermediaries: Tour Operators, Travel Agents, Tours guides. The role of tour operators in the mass tourism industry. The role of travel agents in the supply chain and identify their strengths and weaknesses. Factors influencing the tour operating industry. Different types of packages. Trends and contemporary issues in the travel industry. Tour motivations and the vacation decision. Travel, Transfer and Accommodation planning. Itinerary Planning. Pricing, Travel Management, Tour schedule and Information. Tour administration and

management – office, reservations, data management. Travel Facility Management. Legal Aspects in Tour and Travel Operations.

TOS113 Tourism and Hospitality Legislations

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Introduction to the Legal System. Legislation, disciplines, and ethics that govern the field of tourism and hospitality. The interrelationships between the different parties representing the tourism and hospitality industry. Tourism labor rights and duties in the Egyptian labor law. The investment incentives for tourism and hospitality enterprises by the Egyptian investment law and regulation. Conditions and procedures for licensing the tourism and hotel establishments in Egypt. Contract Law. Property. Employment. Tort Law. Relationships with Guests and Other Patrons. Protecting Patrons' Property. Liability with Respect to the Sale of Food and Alcohol. Legal Responsibilities with Travel & Tourism. Safety & Security Issues in the Hospitality Industry.

TOS114 Introduction to Tourism Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

The evolution of the tourism industry as business. The nature, structure and development of tourism and travel. The positive and negative economic, social, and environmental impacts of tourism. The different functions of human resource in tourism context. Finance accounting in tourism. The significance role of marketing in tourism and travel



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



industry. The different aspects of managing subsectors in tourism. The accommodation sector. The travel agency. The tour operators. The tourist attractions. Diagnose the different aspects of crisis management in tourism industry.

TOS191 Egyptian Natural Environment

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

Introduction about the Egyptian environment: the definition of environment and its types; sorts of environmental activities that can be practised. The geographical location of Egypt; the number and distribution of the population in Egypt. The environmental characteristics of the Delta and the Nile valley. The environmental characteristics of the Eastern and Western Desert. The environmental characteristics of Sinai with its different geographical spots. Natural Reserves in Egypt.

TOS191 Egyptian Natural Environment

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Introduction about the Egyptian environment: the definition of environment and its types; sorts of environmental activities that can be practised. The geographical location of Egypt; the number and distribution of the population in Egypt. The environmental characteristics of the Delta and the Nile valley. The environmental characteristics of the Eastern and Western Desert. The environmental characteristics of Sinai with its different geographical spots. Natural Reserves in Egypt.

TOS192 Touristic Egyptian Regions

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The definition of a region, and the touristic region and its characteristics. The geographical location and the administrative division of Egypt. The natural and touristic characteristics of the Delta and the Nile Valley. The natural and touristic characteristics of the Eastern and Western Deserts. The natural and touristic characteristics of Sinai.

TOS192 Touristic Egyptian Regions

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The definition of a region, and the touristic region and its characteristics. The geographical location and the administrative division of Egypt. The natural and touristic characteristics of the Delta and the Nile Valley. The natural and touristic characteristics of the Eastern and Western Deserts. The natural and touristic characteristics of Sinai.

TOS212 An Introduction to Sports and Recreation Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Benefits of sport & recreation. The socio-cultural dimensions of sport & recreation. Challenges, Facing sport & recreation. The evolution of the sport and recreation management profession. Planning for leisure & recreation. Sport, Physical Education, Physical Activity. The roles of professional sport and recreation managers. Ethical behavior and ethical codes in sport and recreation management. Risk management in sport & recreation. Current issues and trends in sport and recreation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**TOS214 Tourism Destination Management****3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Destination Management: Concepts, theories, and strategies. Cluster networks and value chains are used in enhancing destination competitiveness. Tourism destination management information system. Identifying the destination's visitor profiles. Destination Life cycle/Model. Destination Management in practice. Tourism destination market positioning and branding strategies. Destination Product development. Destination Marketing. Tourism destination - policy and planning strategies.

TOS221 World Tourist Attractions**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Major international destinations as part of the global competition for tourist expenditures. Existing and emerging destinations in: Africa. Asia. Australia. Europe. North America. South America. Social, cultural, political, and environmental characteristics of destinations around the world. Classifications of world tourist destinations according to tourism types. The major tourist activities in world tourist destinations. The unique attractions in world tourist destinations. Political, cultural, and environmental events and issues affecting world travel.

TOS231 Introduction to Recreation Therapy**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Health, wellness, and quality of life. The concept of therapeutic recreation. Historical development recreational therapy. Rationale for

Therapeutic Recreation Services. Approaches in therapeutic recreation. Therapeutic recreation services and facilities. Models of therapeutic recreation practice. Marketing recreational therapy. Professional ethics of Therapeutic recreation. Health and safety considerations in therapeutic recreation. Technology in recreational therapy.

TOS241 Cultural and Heritage Tourism**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Teaching and Learning Methods.

TOS242 Sustainable Tourism**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Introduction to sustainable tourism. Sustainable tourism as a development tool. Philosophic approach to sustainable tourism. Tourism and environmental sustainability. Tourism and economic and social sustainability. Principles and characteristics of sustainable tourism. Sustainable tourism strategies and practices. Management of sustainable tourism destinations. Trends and challenges of sustainable tourism. Case studies of world sustainable tourism destinations.

TOS251 Economics of Tourism, Recreation, and Leisure**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

The role of tourism in economic development. Identifying and evaluating trends in tourism demand and their relevance for local economic development. The impacts of tourism on local economies and factors are likely to affect the extent of these impacts. The market for recreation,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



tourism, and leisure products. Estimating and forecasting recreation and tourism use and demand. The appropriate economic methods used in recreation's decisions and tourism and problem solving. The various types of tourism and trends in tourism demand and their relevance for local economic development. The tourism multipliers. Globalization and tourism.

TOS271 Principles of Tourism Marketing

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Introduction to tourism marketing. The characteristics of services in tourism marketing. Buying behavior in consumer and organizations markets. Marketing research. Unique Selling Position (USP). Segmentation, targeting and positioning. Development of the marketing mix for tourism and travel industry. Pricing for travel services. Traditional and global distribution channels. Promotion: communication, sales promotion, advertising. Direct marketing and online marketing.

TOS272 Tourism Public Relations Management

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

The theoretical and applied framework of public relations as a science and a professional practice. The basic concepts of effective public relations in tourism. The role and functions of public relations as a mean of communication in tourism. The role of public relations in communication, management, human resources management, and marketing. New Technology and Public Relations. The methods and techniques of public relations in tourism enterprises required for the promotion of tourism businesses (accommodation, restaurants, food sector, conferences and events facilities, travel agencies, etc.). Public

relations campaign in tourism. Public Relations techniques for special tourism events (conferences, exhibitions, international meetings, etc.). Public Relations in Media.

TOS311 Visitor Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - - -

Visitor Management: concepts and Approaches. Developing Visitor Management Plans. Visitor Research & Understanding: Profile, expectations, motivations, and experience. Restrictions on the use level. Management of the Visit/ Visitor Behavior. (Strategies & Tools for Large Number of Visitors). Interpretation & Site Presentation. Visitor Risk Management.

TOS312 Yield Management in Tourism

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - - -

Introduction to yield management. Theory and origins of yield management. Market segmentation, profiling and targeting. Demand evaluation and management. Forecasting, optimizing, and managing demand. Yield management strategies and tactics. Yield management and distribution channels. Yield management implementation, measurement, and evaluation. Limitations of the yield management approach. Computerized yield management systems.

TOS313 Human Resources Management for Tourism



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**and Recreation****3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Introduction to Human Resource Management. Human Resource Planning in Tourism & Recreation Industry. Major Functions of HOM. Recruitment, Selection and Benefits in Tourism & Recreation Industry. Motivation in Tourism & Recreation Industry. Training and Career Development in Tourism & Recreation. Performance Appraisal and Performance Management in Tourism & Recreation. Safety and Healthy in Tourism & Recreation Industry.

TOS314 Recreational Facilities Management**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - - -

Understanding recreation facility management. Terminology and theories pertaining to facilities. Understanding management functions and how they relate to facilities. Assessment, Planning & Designing Recreation Facilities. Facility Procurement. Basic facility development and design information. Basic information regarding facility utilization. Managing employees. Managing equipment. Managing Finance. Understanding auxiliary facility operations and how they enhance facility operations. Circulation, Safety, Control & Security. Facility Maintenance.

TOS315 English for Tourism and Recreation**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 1 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Language Special Terms and Expressions for Tourism and Recreation.

TOS321 Tourist Attractions in Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Classification of tourism resources in Egypt. Geographical distribution of tourism resources and attractions across Egypt. Tourism patterns, activities, and facilities in Egyptian destinations. Ownership and management structures of tourist attractions across Egypt. Accessibility and means of transportation to tourist attractions. Accommodation and lodging facilities in Egyptian tourism destinations. Target markets and new trends in the Egyptian tourism industry. Impact of visitors on tourist attractions in Egypt.

TOS331 Sociology of Leisure**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Introduction to sociology. The social influence of leisure. Leisure as a socio-cultural phenomenon. The sociological analysis of leisure. Leisure and common experiences: Work/Family/ Gender/life cycle. The sociology of community and leisure.

TOS332 Planning for Recreational Services and Facilities**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - - -

. Introduction to planning as a management function. Planning and development of a tourism product. Concept of Recreation and leisure planning. Typology, categorization, influences and implications in planning recreation and leisure. Significance and impacts of planning for leisure and recreation. Processes and techniques of recreation



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



planning. Principals of recreation recourse planning. Recreation planning strategies and approaches. Scope and levels of recreation planning. Role of stakeholders in recreation planning. Recreation planning research.

TOS341 Tourism and Recreation for Local Community

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Tourism and destination local communities. Structures, resources, and types of destination local communities. The economics of tourism in host communities. Tourism, culture, and local communities. Challenges and opportunities for destination communities. Role of community in destination development. Role of community in destination marketing.

TOS342 Cross Cultural Concepts in Tourism and Travel

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

Management Accounting Theory & Practice. The Role of Accounting. The Organization of a travel agency Accounting Dept. Assets, Liability and Equity A/Cs. Accounting Ethics. Effect of Business Transaction. Debits and Credits. Journal Entries & General Ledgers. Accounts Payable. Payroll. Closing the Financial Period, Prepaid, Other Entries. Income Statement, Balance Sheet & Statistics & Review.

TOS351 Accounting for Tourism

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Management Accounting Theory & Practice. The Role of Accounting. The Organization of a travel agency Accounting Dept. Assets, Liability and Equity A/Cs. Accounting Ethics. Effect of Business Transaction.

Debits and Credits. Journal Entries & General Ledgers. Accounts Payable. Payroll. Closing the Financial Period, Prepaid, Other Entries. Income Statement, Balance Sheet & Statistics & Review.

TOS352 Financial Management for Tourism and Recreation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Key concepts in financial management. key financial statements. Measuring firms' financial performance. Time is value for money. Investment decision criteria. Financial problems related to tourism & recreation industry and interpreting results.

TOS361 Tourism Information Systems

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **1** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - - -

Introduction to information and communication technology. Managing innovation and technological change in the global arena. Tourism as an information intensive industry. Typologies for tourism information. Role and effects of technology applications in the tourism and recreation industry. Strategic management of information in tourism and recreation. Challenges and opportunities of ICT in tourism and recreation industry. Emerging ICT trends in the tourism and recreation industry.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



TOS362 Technology Applications in Tourism and Recreation Industry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Introduction to information and communication technology. Managing innovation and technological change in the global arena. Tourism as an information intensive industry. Typologies for tourism information. Role and effects of technology applications in the tourism and recreation industry. Strategic management of information in tourism and recreation. Challenges and opportunities of ICT in tourism and recreation industry. Emerging ICT trends in the tourism and recreation industry.

TOS411 Management of Sites and Attractions

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Types and categories of visitor attractions. The nature and role of tourist attractions. Visitor attraction products and services. Operations management in tourist attractions. Financial Management in tourist attractions. Human Resource Management in tourist attractions. Management of visitor impacts in tourist attractions. Ethical challenges in attractions management. Quality management in tourist attractions.

TOS412 Safety and Security Management in Resorts

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Introduction to safety and security. Security culture and types of security. Safety and security standards and procedures. International perspectives on safety and security. Concepts and principles of safety

and security management. Elements of a comprehensive security program. Security-related information management. Innovations in safety and security technology. Safety and security standards in tourism and hospitality industry. Risk assessment and crisis management at resorts. Safety and security concerns in resorts. Safety and security measures in Egyptian hotels and resorts. Safety and security research, evaluation, and assessment procedures.

TOS413 Quality Management in Tourism and Recreation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Quality definitions. Quality systems. Quality theories. Quality inspection. Quality assurance. Quality audit. Total quality management. Six sigma. Sustainable development. Environmental management schemes.

TOS414 Tourism and Recreation Logistics Management

3 Cr. Hrs. = (**2** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Fundamentals of tourism logistics management. Relationship between logistics and supply chain management. Nature of logistics and supply chain in tourism operations. key business functions of the logistics system in tourism. Modern versus traditional tourism. tourism supply chain. Relationship between logistic activities and tourism management. Tourism Supply Chain and Strategic Partnerships. Modern logistics technology and e-logistics management. Tourism logistics and competitive advantages.



EGYPTIAN NATIONAL UNIVERSITIES

مشر وم إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**TOS415 Management of Resort Animations****3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Introduction and course overview. Understanding Recreation Facility Management. Managing Recreation Facilities. Learning the Basics of Recreation Facilities. Assessment/Planning & Designing Recreation Facilities. Animations. Managing animators. Managing Equipment. Circulation, Safety, Control & Security. Coordinating & Scheduling. Maintenance. Emergencies & Responses. Aquatics. Ancillary Spaces.

TOS416 Adventures Sports Management**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - - -

Introduction to adventure tourism. Historical, philosophical, and theoretical foundations of adventure activities. The commodification of adventure. Types of and motivations to adventure sports and activities. Planning, management, and evaluation of adventure sports programs. Potentials and problems of adventure sports in tourist destinations. Environmental ethics, practices, policies associated with adventure sports. Safety and security considerations associated with adventure sports.

TOS421 Visitor Centers for Tourism Attractions**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Functions of visitor centers. Planning of visitor centers. Visitor center design guidelines. Tourists' informational needs. Operation and management of visitor centers. Characteristics of successful visitor centers. Role of visitor centers in development of tourism attractions.

Visitor centers as a vital component for providing quality visitors services. Visitor center case studies.

TOS431 Tourism and Recreation Organizations**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - -

Classification of Tourism organizations. International tourism Organizations. United Nations World Tourism Organization (UNWTO). International Air Transport Association (IATA). International Civil Aviation Organization (ICAO). World Travel and Tourism Council (WTTC). The United Federation of Travel Agents Associations (UFTAA). World Association of Travel Agencies (WATA). World Federation of Tourist Guide Associations (WFTGA). Regional. Development Organizations (DO). The World Bank (US). Fund for International Development (Austria). Asian Development Bank (Philippines). Islamic Development Bank (Saudi Arabia). Regional Tourism Organizations. Pacific Asia Travel Association (PATA). Caribbean Tourism Association (CTA). American Society of Travel Agents (ASTA). East Asia Inter-Regional Tourism Forum (EATOF). Global Tourism Economy Research Centre. Tourism Promotion Organization for Asian-Pacific Cities. World Tourism Cities Federation. European Leisure and Recreation Association (ELRA). Tourism bodies and organizations in Egypt. (NTO's). (RGO's). (LTO's) / (CVB's).

TOS432 Recreation Public Health**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Introduction to public health. Concept and evolution of public health. Scope and concerns of public health. Principles, policy, and politics of public health. Globalization and public health challenges. Recreation as



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



a determinant of public health. Health benefits of recreation. Social benefits of recreation. Health and wellness recreation activities.

TOS441 Current and Future Trends in Tourism and Recreation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - - -

Introduction to the new tourism business environment. Future economic development in tourism. Tourism demand modelling and forecasting. Strategic creativity in tourism business. Strategic innovation in tourism business. Technology management in tourism. New strategic developments in tourism. Tourism and global environmental change. New markets and destinations. New patterns and products. New segments and consumers. New technologies and facilities. Forthcoming challenges and opportunities.

TOS451 Feasibility Studies for Tourism and Recreation Projects

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Fundamentals of feasibility studies. Definitions of feasibility studies. General rules of the preparations of studies. Prerequisites, reasons, and purposes. Objectives of feasibility study. Time frame. Information sources. Structure of a feasibility study. Description of the market. Analysis of supply. Analysis of demand. Analysis of competitors. SWOT

analysis. Detailed description of the project. Financial projections and forecasts. Success factors for feasibility studies. Sources of markets. Case studies from the industry.

TOS471 Digital Marketing for Tourism and Recreation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Marketing research. Developing digital communication strategies with focused business tactics and objectives. The benefits of digital marketing, developing content strategies for a variety of digital marketing channels, Understanding social media channels, digital PR, and Email marketing. Content marketing. Web property analysis (strategy, design, and navigation), including SEO. Web design. SEO (Search Engine Optimization). Social media marketing. Mobile marketing. Web advertising; web analytics. E-commerce and web business models – customer acquisition and conversion. Digital marketing's relationship to entrepreneurship.

TOS481 Internship

3 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **6**

Prerequisite - - - -

During the internship, the student shall acquire professional skills in one of the following areas: Leisure and recreation service agencies. Tourist information centers. Visitor attractions. Tourist resorts.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Hospitality Management

HOM111 Introduction to Hospitality Industry

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - - -

Introduction to tourism. Components of tourism industry. Components of hospitality industry. Concepts of tourism, its importance, types, and definitions. Tour operators and travel agencies. Means of transportation. The destination choice process and decision-making process. Hospitality careers. Types of accommodation – hotels and rooms. Organizational Chart and Hotel Departments' Interrelationships. Types of hotel ownership.

HOM121 Food Safety and Sanitation

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Creating a safe environment. Working with Health and Safety. Sanitation and cleaning. Food Safety. HACCP.

HOM161 E-Business in Hospitality and Tourism

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Comprehensive general review of terms and concepts of e-business. Strategic and tactical tools for e-business. Online marketing possibilities. Customer focus and management. Social media today. Risks and risk management. Technological advances and advantages.

HOM211 Protocol And Etiquette

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

The universal principles of protocol, etiquette, courtesy, and manners. Communicating with different cultures. The art of making conversation. Meeting, greeting, and receiving. Appropriate etiquette in the workplace. Prepare and host VIP visits and formal occasions. Interact respectfully with people from many cultures, nations, and regions. Dining etiquette. Interview etiquette. Email etiquette.

HOM212 Effective Communication Skills

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Business letters and memos: Format, Style, and Content. Formal and informal reports that include analysis and offer recommendations. Letters of Inquiry, Quotations and Offers. Orders, Order acknowledgements. Sales promotion letters. Banking and Credit letters. Memoranda, Telephone conversations and E-mails. Business meetings. Questionnaire compilation. Business presentations. Effective interviews. Letters of application, Cover letters and CV writing.

HOM213 Knowledge Management in Hospitality

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Various aspects of knowledge management in hospitality and tourism.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



An Internet-based knowledge management system. The advent of the “knowledge café” in hospitality and tourism industries. the knowledge supply chain matrix. Software applications for cross-border destination management. Mental models for efficient operation of tourism-based businesses. Database marketing. Data mining, Knowledge discovery.

HOM214 Environmental Management in Hospitality Industry

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Background Issues in Environmental Management. National and International Action in Environmental Management. Energy Management. Water Conservation. Packaging and Disposable Products. Waste Management. Air & Control. Noise Control. Environmental Business Tool. Environmental Audit. Reporting on Environmental Performance. ISO 14000 EMS. Green Consumer in Hospitality Industry.

HOM215 Tourism and Hospitality Crisis Management

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Role of risk and crisis management for tourism, hospitality, and event industries in 21st Century. Risk and crisis management process and plan. Risk assessment: identification and analysis of risks. Tools and techniques for effective risk management. Loss prevention: Importance of contingency planning. Preparation of a contingency plan. Implementation of a contingency plan. Preparation for management team to risk and crisis management.

HOM216 Tourism and Hospitality Risk Management

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Definitions of Risk – Financial & Enterprise. Financial Risk for Corporations: Interest Rate and Credit Risk. Financial Risk Applications for assessing clients and capital uses. Financial Risk Tools. Measuring Risk. Managing Financial Risk and the Regulatory Environment. Systemic Risk & Risk in Crisis. Organizing, Managing, and Governing the Risk Management Function. Risk External and Internal Impacts: Outsourcing, Suppliers, Operations. Risk Assessment Tools: Profiles, Tolerances, Application/Measurement. Enterprise Risk analysis of selected corporation.

HOM217 Recreation Facilities Management in Hospitality

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Introduction and course overview. Understanding Recreation Facility Management. Managing Recreation Facilities. Learning the Basics of Recreation Facilities. Assessment/Planning & Designing Recreation Facilities. Funding & the Bid Process. Site Visit. Managing Finances. Managing Employees. Managing Equipment. Circulation, Safety, Control & Security. Coordinating & Scheduling. Maintenance. Emergencies & Responses. Parks & Playgrounds. Aquatics. Ancillary Spaces.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



HOM218 Cruise Ships Operations and Management

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Cruise introduction, history of travel, and economic impact. Cruise Geography to the Caribbean, Mexican Riviera, Alaska, Europe, Asia & the world. Small, Medium, Large Ships; River Vessels; Cruise vessels from Economy to luxury. Planning Cruise Itineraries and Ports of Call. Pre & post tour packages and shore excursion tours in the ports of call. Cruise operations – Captain & Chief Engineer; Purser Staff; Cruise Staff. Working Onboard. Customer Service & cruise terminology. Managing Cruise Terminals during embarkation & disembarkation. Managing Food and Drink Operations. Health, safety, and security (SOLAS) & the 4 disaster ships. Maritime issues and legislation; CST, seller of travel. Managing Integrated Operations.

HOM219 Spa and Wellness Resorts

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The Global Spa and Wellness Concept. Wellness Tourism. Spa Consumption: Theory and Practice. Advanced Treatment Philosophy and Physiology. Spa Facilities and Operations Supervision. Spa Financial Performance. Spa Operations Management. International Spa Design. Spa Marketing and Communication. Evolution and Innovation in Spa.

HOM210 Convention and Meeting Management

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Introduction to MICE. Meetings. Incentives. Conferences/ conventions.

Events. Issues with MICE. Marketing for MICE. Venue Management. Distribution and the Role of Travel Agents. Planning and Project Management.

HOM2111 Festival and Exhibition Management

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Festival Manager. Planning a coordinating a Festival and an exhibition. Documentation for planning. Marketing for a Festival and an exhibition. Health and safety issues. Managing Risk. Corporate Festival Management. Fundraising Festivals. Sports Festival Management. Celebrity Festivals. Government, Civic, and Political Festivals. Festival Sponsorship. Exhibition Management. Festival Evaluation & Reporting. Eco-friendly Festivals.

HOM221 Food Production (1)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - - -

Introduction to the catering Industry. Food & Beverage Staff. Kitchen organization. Food hygiene & safety. Catering premises. Kitchen & Catering Equipment. Cooking methods. Soups. Stocks. Sauces. Salads. Fish & shellfish. Glossary & Cases.

HOM222 Purchasing for Hospitality Operations

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Factors affecting cost and availability of goods include seasonality, supply and demand, distribution channel costs, and quality levels. Mechanics of purchasing. Inspection and grading of foods. Effective purchase specifications. Conduct proper receiving procedures.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Inventory management principles. The purchasing functions. Purchasing system. Technical considerations required in purchasing. Receiving, storing, and issuing procedures. Data found on purchasing department forms (turnover ratio, inventory data, food cost percentages, etc.).

HOM223 Sanitation in the Hospitality Industry

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Creating a safe environment. Working with Health and Safety. Sanitation and cleaning. Food Safety. HACCP.

HOM224 Food Production (2)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - - -

Stocks. Sauces. Soups. Cold Section. Poultry. Meat. Fish dishes. Salads. Bakery. Pastry.

HOM225 Food and Beverage Management and Control

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - - -

Food Production Operations. Food Service Systems. Types of food and beverage outlets. Production and sale of non-alcoholic and alcoholic beverages. Menu planning and standard recipes. Staffing Skills. Functions and Events. Hierarchy of food and beverage. Food and beverage practice and procedures. Methods of developing food production systems. Meeting F&B customer requirements. Food and Beverage Operations and Management. Developing the Consumer-Product Relationship. Food Production Control. Beverage Control. Designing Operational Areas, Equipment and Staffing of Foodservice

Operations. Food and Beverage Service. Performance Appraisal and Decision Making.

HOM241 Housekeeping in Hospitality Industry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Departmental organization. Housekeeping equipment. Challenges of staff management in housekeeping. Uses and management of chemicals and cleaning agents. Housekeeping scheduling systems. Security, the lost and found, and pilferage. Sanitation and guest safety. The inspection processes. The forms and reports used in managing housekeeping. The relationship between housekeeping and the front desk. Adhering to strict cleanliness standards. Proper room cleaning techniques. Inventory control includes supplies, essentials, and expendables. In house laundry management. Customer relations & the hard work realities of housekeeping.

HOM261 Information and Communication Technologies (IcTs) in the Hospitality Industry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Information and Communication Technologies (ICTs). The role of ICT in the hospitality industry. Internet Terminology Concepts, Principles, and Applications. Networks & system security. Uses and impact of ICT in different sectors of the hospitality industry. – accommodation, – restaurant, – attractions, – marketing, – distribution chains. reservation. kitchen display. food costing. menu management. labor management. – Customer relationship management. The impact of ICT on consumer behavior, including social networking. ICT issues in developing countries. Potential future applications of ICT in hospitality.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**HOM262 Icts in Tour Operators****2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

ICTs and tour operators. ICTs usage by tour operators. Internet and Tour Operators. Role of ICT for Tour Operators. Central Reservation System (CRS). Global Distribution System (GDS). Yield management & dynamic pricing. Dynamic packaging. Case Studies of ICTs by tour operators. Critical Issues for Tour Operators.

HOM263 Icts in Travel Agencies**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

ICTs and travel agencies. ICTs usage by travel agencies. Internet and travel agencies. Internet Booking Engine. Role of ICT for travel agencies. Central Reservation System (CRS). Global Distribution System (GDS). DMOs/DMSs. Videotext Systems. Yield management & dynamic pricing. Dynamic packaging. Case Studies of using ICTs by travel agencies. Virtual Travel Agencies. Travel Agency Advisory System. The Webmail information network. Critical Issues for travel agencies.

HOM264 Icts in the Airline Industry**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - - -

The role of ICT in the airline industry. Areas of ICT usage. Advantages and disadvantages of using ICT in the airline industry. Airline Computer Reservation Systems (CRSs). Flight Schedule Management Systems. Crew Management Systems. ICT and Tactical & strategic management circle. ICT and Revenue analysis and forecasting circle. ICT and Route

planning and capacity management circle. ICT and Strategic pricing and yield management circle. ICT and partnerships and alliances circle. ICT and reduction of travel agencies' dependency square.

HOM265 Icts for Tourism Destination Management**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - - -

Destination and its information technology. Mobile information management, Geographical Information Systems within the tourism industry. The virtual destination. Structure and management of GIS. Destinations' organization and structure. Tourism product supply as a result of networking. Leadership and management of destinations. Segmentation of and positioning on the regional, national and/or global tourism.

HOM266 Knowledge Management in Hospitality and Tourism**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - - -

Various aspects of knowledge management in hospitality and tourism. An Internet-based knowledge management system. The advent of the "knowledge café" in hospitality and tourism industries. the knowledge supply chain matrix. Software applications for cross-border destination management. Mental models for efficient operation of tourism-based businesses. Database marketing. Data mining, Knowledge discovery.

HOM267 E-Learning for Hospitality and Tourism**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - - -

E-learning. Interactivity and Navigation in eLearning. Authoring Tools.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Video and Audio. Simulations and Gaming. Web. 0 Tools.

HOM271 E-Marketing

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Understanding the internet. Online marketing research. Website design and development. Web analytics/ conversion optimization. Search engine optimization. Pay per click advertising. Online advertising. Affiliate marketing. Video marketing. Social media marketing. Email marketing. Mobile marketing. Customer relationship management.

HOM272 Technology Applications in Food and Beverage Management and Control (1)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Types of food and beverage outlets. Hierarchy of food and beverage. Food and beverage practice and procedures. Food and Beverage Operations and Management. Material control. Technology applications in food cycle. Technology applications in-menu engineering. Technology applications ordering. Technology applications purchasing. Technology applications receiving. Technology applications storing. Technology applications issuing.

HOM282 Technology Applications in Food and

Beverage Management and Control (2)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Food production methods. Types of food and beverage service. Technology applications in pre-preparation. Technology applications preparation/cooking. Technology applications holding. Technology applications serving. Technology applications cashiering. Technology applications in customer service.

HOM283 Technology Applications in Hospitality Accounting

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - - -

Information Systems and Accounting. Uniformed System of Accounting. Using information systems in Recording Business Transactions. Using information systems in The Adjusting Process. Using information systems in Completing the Accounting Cycle. Using information systems in Merchandising Operations. Using information systems in Merchandise Inventory. Using information systems in Internal Control & Cash. Using information systems in Receivables. Using information systems in Plant Assets & Intangibles. Using information systems in Current Liabilities & Payroll. Using information systems in Long-term Liabilities. Using information systems in Paid-In Capital & the Balance Sheet. Using information systems in Retained Earnings & the Income Statement.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



HOM291 Internship in Hospitality Industry (1)

3 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **6**

Prerequisite - - - -

During the internship, the student shall: Learn how to “do the work” in the food and beverage departments as many areas of operations and administration as possible. Become familiar with food and beverage industry vocabulary, reports, operations, business practices and customer service. Be able to demonstrate an understanding of organizational structure. Be exposed to as many administrative works of the department.

HOM311 Meetings, Incentives, Conferences and Exhibitions (Mice)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Introduction to MICE. Meetings. Incentives. Conferences/ conventions. Events. Issues with MICE. Marketing for MICE. Venue Management. Distribution and the Role of Travel Agents. Planning and Project Management.

HOM312 English for Hospitality Industry (2)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Advanced Special terms and expressions for hospitality industry. Advanced Practical English and multi-lingual environments.

HOM321 Food and Beverage Service

3 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - - -

History of catering industry. Introduction to restaurant management. Organizational and chart for various restaurants. Principles for restaurant classification. Food hygiene (equipment). Stages of restaurant operation. Food service methods and types of catering. Equipment that be used in a restaurant. Menu planning. Design and preparation of guest's tables. Kitchen design and stations. Organize and manage the banquets. Promotion strategies. General case studies and terminology.

HOM322 Human Nutritions

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Nutrition. Food Technology. Food preferences. Food recipes. Classis Menus' sequence and the modern ones. Menu/purchasing relation.

HOM323 Menu Planning and Engineering

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Menus and cost controls. Menu engineering. Menu/purchasing relation. Conversion of recipes. Food preferences. Marketing strategies. The life cycle of the menu. Cost control. Technology in menu planning.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**HOM324 Equipment and Hospitality Interior Design****3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Substantial urban developments and buildings projects. Architecture and design and design image. Architecture and design essentials. Hotels and resorts concepts. Hotels and resorts exterior design. Hotels and resorts interior design. Planning: development strategy and project financing. Regulations and contract related issues. Construction: design team, costs, and management. Management: operational planning of hotel and service.

HOM331 Customer Behaviour**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

An Introduction to Consumer Behavior. Key terms, definitions, and concepts used in the study of consumer behavior. Motivations and perceptions. Personality, Self-Image, and Lifestyle. Income, Social Class, and Family Structure. Customer Decision Making. Consumer Attitude Formation and Change. Interactive communication and Consumer Behavior. Internal and External Influences on Consumer Behavior. Cultural Influences on Consumer Behavior. Developing better marketing programs and strategies to influence customer behavior. Developing Customer loyalty.

HOM332 Event Marketing and Promotion**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **75** – ECTS = **4**

Prerequisite - - -

The role of the various techniques of sales and marketing communications within events. Marketing information and research in

events. The marketing tools used in events. Sales promotion within events.

HOM333 Customer Service**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

System usage. Satisfaction measurement and reports. Preventative vs. Reactive approach. Proactive service. Empathy. The art of service applied. Service profit chain. Best practices. Develop a customer-friendly attitude. Identifying with different types of customers (generational, cultural, etc.). Empowering employees.

HOM341 Front-Office Management in Hospitality**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Hotel Classification & Basic Measures. Hotel Ownership & Management. The Structures of the Hotel Industry. Introduction: Managerial approach. Rooms division organization chart. Front office duties. Reception department. Reservation department. Forecasting Availability & Overbooking. Global Reservations Technologies. Back of the house department. Introduction to housekeeping. Housekeeping organization chart. Laundry department.

HOM351 Financial Accounting in Hospitality**3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Accounting & the Business Environment. Recording Business Transactions. The Adjusting Process. Completing the Accounting Cycle. Merchandising Operations. Merchandise Inventory. Internal Control & Cash. Receivables. Plant Assets & Intangibles. Current Liabilities &



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Payroll. Long-term Liabilities. Paid-In Capital & the Balance Sheet. Effects on Retained Earnings & the Income Statement.

HOM352 Managerial Accounting in Hospitality

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Principles of managerial accounting. Hotel revenue accounting - Hotel revenue centers. Hotel revenue accounting – industry practice. Computer accounting and financial information systems. Hotel departmental statements. Hotel income statement. Property and equipment accounting - depreciation. Other Noncurrent assets accounting. Intangible assets and amortization. Hotel balance sheet. Statement of cash flow. Operations budgets. Ratio analysis. Inventory accounting.

HOM353 Revenue Management in Hospitality

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Introduction to pricing and revenue optimization. Demand functions and price optimization: Price-response function; Competition. Demand drivers. Demand forecasting. Price-response estimation. Price differentiation: Volume discounts; Arbitrage and cannibalization; Consumer welfare. Constrained supply: Opportunity cost; Segmentation; Variable pricing. Revenue Management. Capacity Allocation. Network Management. Overbooking. Food and beverage pricing. Markdown Pricing. Customized Pricing: List prices vs. customized prices; Responses to competitor bids.

HOM354 Hospitality Cost Accounting

3 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

The Accountant's Role. Cost Terms and Purpose. Cost-Volume-Profit Analysis. Job Costing. ABC Costing. Master Budget/Responsibility Accounting. Flexible Budgets, Direct Variances, Control. Overhead Variances, Control. Inventory Costing. Cost Behavior. Decision Making. Cost Allocation of Support Departments. Process Costing. Performance.

HOM371 Electronic Customer Relationship Management in Hospitality

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Evaluation of Customer Relationship Management (CRM). Customer Loyalty. CRM Success Factors and Levels of Services. Service – Level Agreements. CRM in Marketing. Sales Force Automation. Knowledge Management Practices. Enterprise Resource Planning (ERP). Supplier Relationship Management (SRM). Partner Relationship Management (PRM). Analytical CRM. CRM Implementation.

HOM372 Electronic Distribution Channels in Hospitality and Tourism

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Distribution agents and intermediaries. Channel requirements and optimization. Pricing integrity. Competitive distribution analysis and justification. Integration of marketing in distribution channels. Computer reservation systems(CRSs). Global Distribution Systems (GDSs). GDS



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



New Entrants (GNEs). New Distribution Capability (NDC). Tour operators. Tour wholesalers. Travel retailers. Travel management company (TMC). Online travel agents (OTAs). Channel Managers. Business Travelers needs.

HOM373 Virtual Reality in Hospitality

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Virtual Reality- History. Virtual Reality- Hardware. VR Applications. basic 3D computer graphics. The Psychology of VR: The Three Illusions. Challenges in Virtual Reality.

HOM374 Gamification in Hospitality and Tourism

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Gaming and gamification in tourism. Different virtual marketing channels. Mobile game applications. Mobile game apps and web games in the hospitality industry. Examples of good practices. Available technologies for gamification in tourism marketing. Implementing gaming into hospitality marketing strategy. Engaging customers and employees with gamification.

HOM375 Online Marketing In Hospitality and Tourism

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Search Engine Optimization. Search Engine Marketing. Online Advertising. Web Analytics. Email Marketing. Social Media. Reputation Management.

HOM376 Digital Marketing in Hospitality and Tourism

2 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - - -

E-commerce. Design Thinking for a Digital World. Games. Content Marketing. Video Marketing. Mobile Marketing (SMS text campaigns). TV Ads. Data Visualization. And effectiveness measurement. Advance campaign measurement and experimental evaluation. Behavior-based inference. Online privacy and policy implications.

HOM377 Mobile Marketing in Hospitality

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Uses of mobile marketing. The mobile media channels. Mobile and CRM. Mobile and social media. Building a perfect mobile app. Mobile display advertising. Mobile technology. M-commerce, retail, and mobile payment. Design of mobile marketing.

HOM378 Video Marketing in Hospitality

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

YouTube marketing strategy. YouTube analytics. YouTube advertising. Building perfect video marketing. Video sharing. Video marketing content. Video marketing tips. Video marketing tools. Video marketing sites.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



HOM381 Technology Applications in Rooms Management and Control (1)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - - -

The role of the front office in the Hotel's organization. Property Management System usage. Reservation Procedures. Electronic Booking Systems. Arrival Procedures. Telephone procedures. Check-in Procedures. In-room technology/Smart guest rooms.

HOM382 Technology Applications in Hospitality Economics

3 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Hotels and resorts management systems. Reservation and guest handling software. Hardware and Software systems in hospitality.

HOM383 Technology Applications in Hospitality Total Quality Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Hardware and Software systems for total quality control.

HOM384 Technology Applications in Rooms Management and Control (2)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Advanced technology for rooms management. Hardware and software

for room control.

HOM391 Internship in Hospitality (2)

3 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 6

Prerequisite - - -

To receive credit for the internship, a student is required to register for the course, complete all assignments and turn them in by the deadline, and present him/herself in a professional manner at all times. The student is responsible for all materials and announcements related to the course. Additionally, a student is representing him/herself, his school and university. Student should keep in mind that he/she is expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Present him/herself in a professional manner at all times, including being appropriately dressed for the workplace. Communicate any concerns with his/her supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what he/she is doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when he/she returns to school. Keep track of and accurately report internship hours worked.

HOM392 Internship in E-Hospitality (1)

3 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 6

Prerequisite - - - -

During the internship, the student shall: Learn how to “do the work” in the front office department as many areas of operations and administration as possible. Become familiar with front office industry vocabulary, reports, operations, business practices and customer service. Be able to demonstrate an understanding of organizational



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



structure. Be exposed to as many administrative works of the department.

HOM411 Management of Human Resources in Hospitality

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - - -

Introduction to HRM. Strategic HRM. Job Analysis and Job Design. Human Resource Planning. Recruitment and Selection. Motivation and Work Behavior. Managing and Evaluating Employee Performance. Human Resource Development. Managing Compensation, Rewards and Performance Management.

HOM412 Quality Management in Hospitality

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - - -

Quality definitions. Quality systems. Quality theories. Quality inspection. Quality assurance. Quality audit. Total quality management. Six sigma. Sustainable development. Environmental management schemes.

HOM413 Tourism and Hospitality Entrepreneurship

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Perspectives on entrepreneurship. Personal and sociological influences on entrepreneurship. Environmental influences on entrepreneurship. Opportunity recognition and evaluation. Planning the new venture. Feasibility Study for start-up and ventures. Legal and financial issues during start-up. Entry strategies for the new venture. Developing a product strategy for a small tourism & hospitality business. Developing a marketing strategy for a small tourism & hospitality business. Risk

management. General management in the entrepreneurial venture.

HOM414 Total Quality Management

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

The Foundations of Total Quality Management. Key Aspects of the Quality System. Planning for quality. TQM Tools and the Improvement Cycle. Conformance and Non-conformance to Quality Standards. The Quality Organization Within an Organization. Control of Quality Records. Internal Quality Audits. Quality and Business Process Re-engineering. Training in Total Quality Management.

HOM415 Leadership and Innovation Management in Hospitality

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Introduction to Leadership. Leadership Fundamentals. Leadership Skills. Approaches to defining leaders and leadership. Leadership theories. Leadership styles. Dark Side of Leadership. Developing Leaders. Leading Change. Strategic Management. Innovation theories.

HOM416 Strategic Management in Hospitality

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Strategic plan. Project plan. Action plan. Critical path. Communication. Stakeholder analysis. Worst case and best-case scenarios. Plan, do act, check. Project implementation.

HOM417 Management and Franchising Agreements in



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Hospitality

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

The Hotel Franchise Relationship. Hotel Franchising: Origin & Structure. Hotel Franchising: Governmental Regulations Related to Franchises. The Franchise Agreement: Major Elements. The Franchise Agreement: Advantages to the Franchisee / Franchiser. The Franchise Agreement: Selecting a franchiser. Hotel Management Company Relationship: Management Companies. Management Companies: Origin & Purpose. Management Companies: Hotel Management Company Structures. Management Operating Agreement. Management Operating Agreement: Advantages / Disadvantages to Hotel Owners. Issues affecting management contracts and franchising agreements.

HOM418 Special Events Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Introduction to the special events. Special event product, service, and operations management. Special event value chains. Special event process selection, design, and analysis. Special event facility and work design. Special event supply chain design. Managing special event inventories. Special event quality management. Special event resource management.

HOM421 Restaurant and Catering Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

What is Catering? State and Local Regulations. Food Safety. Business Planning. Getting Started. Marketing. Party Planning. Meal Planning. Shopping. Timing and Kitchen Efficiency. Logistics: Getting the Food to

its Destination on Time.

HOM431 Sales and Marketing in Hospitality

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - - -

Marketing Segmentation and the Hospitality Industry. Positioning in Line with Consumer Preferences. The Channels of Distribution. Consumers and Marketing in Perspective. Marketing Research. Sales. Customer Service. Advertising. Public Relations. Promotions. Packaging. Collateral Materials and promotional Support. Technology and Marketing in Perspective. Database Marketing Consumer Behavior. Electronic Marketing. Understanding Rates and Fares. Pricing Strategies. Revenue Maximization. The Marketing Budget. The Hotel/Unit Marketing Plan.

HOM432 Service Marketing in Hospitality

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - - -

Part I: AN OVERVIEW OF SERVICES MARKETING. An Introduction to Services. The Service Sector: Super sectors and Ethical Considerations. Fundamental Differences between Goods and Services. Services Consumer Behavior. Part II: THE TACTICAL SERVICES MARKETING MIX. The Service Delivery Process. The Pricing of Services. Developing the Service Communication Strategy. Managing the Firm's Physical Evidence. People as Strategy: Managing Service Employees. People as Strategy: Managing Service Consumers. Part III: ASSESSING AND IMPLEMENTING SUCCESSFUL SERVICE STRATEGIES. Defining and Measuring Customer Satisfaction. Defining and Measuring Service Quality. Complaint & Service Recovery Management. Customer Loyalty & Retention.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**HOM451 Hospitality Economics****3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

DEMAND. Meaning of Demand. Law of Demand. Extension and contraction of Demand. Increase and decrease in Demand. Survey of Buyers intention. ELASTICITY OF DEMAND. Meaning of income elasticity of Demand. Cross elasticity of Demand. Price elasticity of Demand. PRODUCTION FUNCTION. Managerial use of production functions. Law of variable proportions. COST OF PRODUCTION. Cost concepts- TFC-TVC, TC-AC and MC factors influencing cost of production, opportunity cost, cost, and output relation. SUPPLY. Meaning – Law of supply. Determinants of Law of Supply. Elasticity of Law of Supply. Influence on cost of production.

HOM452 Financial Management in Hospitality**3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

The importance of finance for the tourism sector. Finance resources. Selecting a suitable resource. Loans policies. Methods of hotel finance. Classifications of loans. Types of tourism investments. Methods of evaluating investment. Investment plan. Planning capital investments. inventory investment. Problems facing inventory investment for hotels. Tourism projects priorities. Cost- benefit analysis. The role of public sector for encouraging tourism investment.

HOM461 Managing E-Hospitality Operations**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

ICT and hospitality operations. IT and outsourcing. IT and operational

performance. Enterprise Architecture (EA). Development project case: Customer Relationship Management (CRM). Enterprise Resource Planning (ERP). Tourism networks and value chain. ERP cases. Big data. Business Intelligence (BI).

HOM462 Future Technologies and Trends in Hospitality and Tourism**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

An overview of Back Office Systems. Purchasing and inventory control systems. Kitchen display systems. Food costing systems. Menu management systems. Labor management systems. Customer relationship management systems. Selecting and Implementing a Computerized Management System. Accounting Procedures Used in a Management System. Using the Central Reservations System (CRS) in Marketing. The Future of Technology.

HOM463 Business Intelligence in the Hospitality and Tourism**2** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Overview of BI and analytics. Foundation and Technologies for decision Making. History of business intelligence in the hospitality industry. Current business intelligence trends in the hospitality industry. The components of a hospitality business intelligence system. Descriptive Analytics – Data warehousing. Predictive Analytics – Data Mining. Predictive Analytics – Text Analytics and Text Mining. Predictive Analytics – Web Analytics and Web Mining. Model Based Decision Making. Knowledge Management and Collaborative Systems. Big Data and Analytics. Challenges to business intelligence in the hospitality



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



industry. Future business intelligence innovation in the hospitality Industry.

HOM464 Information Systems and Technology in Hospitality

3 Cr. Hrs. = (**2** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Information systems & technology. Internet Terminology Concepts, Principles, and Applications. Networks & system security. Automated Hotel Property Management System (PMS). Reservation systems. Rooms management. Property Management System (PMS) Interface. Central Reservations Systems (CRS) Interface. Technology applications in customer-life cycle. Applications of reservation systems. Applications of rooms management systems. Applications of Automated Restaurant Management System.

HOM471 Social Media Marketing in Hospitality

2 Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Practical Applications of social media. Awareness Phase of social media. Consideration Phase of social media. Preferences Phase of social media. Action Phase of social media. Loyalty Phase of social media. Advocacy Phase of social media. Platform Specific Strategies (Facebook, Twitter, Instagram, Google + etc.). Social Media Return on Investment(ROI) for hotels. Social Media Marketing Trends.

HOM472 Website Optimization in Hospitality

2 Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - - -

Types of websites. Websites vs Portals. Architecture of Website.

Website Designing Basics. Domain, Hosting. SWOT analysis of website. Difference between dynamic & static website. Search Engine Optimization. Search Engine Optimization Techniques. On Page Optimization. Off Page Optimization. SEO Tools. SEO Reporting. Micro Blogging. Online Advertisements. Google Analytics.

HOM473 Online Auction Markets in the Hospitality Industry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - - -

Online auction and Market analysis. Online auction for hospitality industry. Example of E-bays auctions for hospitality industry. Topological analysis of online auction markets. Buyer dimensions. Seller dimensions. Future of online auction.

HOM481 Technology Applications in Event and Convention Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Introduction to MICE. Technology and meeting industry. Technology applications in booking and query stage. Technology applications in arrival and check-in stage. Technology applications in guest rooms. Technology applications in meeting rooms. Technology applications in food and beverage. Technology applications in check-out stage. Technology applications in event marketing.

HOM482 Technology Applications in Hospitality



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Environmental Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Background Issues in Environmental Management. National and International Action in Environmental Management. Energy Management and technology. Water Conservation and technology. Packaging and Disposable Products and technology. Waste Management and technology. Air Control and technology. Noise Control and technology. Environmental Business Tool and technology. Environmental Audit and technology. Reporting on Environmental Performance and technology. ISO 14000 EMS and technology. Green Consumer in Hospitality Industry and technology.

HOM483 Technology Applications in Hospitality Human Resources Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Introduction to HRM. Strategic HRM. Human Resource Information Systems. Job Analysis, Job Design, and technology. Human Resource Planning and technology. E-recruitment and Selection. Human resource Development and technology. Motivation, Work Behavior, and technology. Managing and Evaluating Employee Performance and technology. Managing Compensation, Rewards and Performance Management using technology.

HOM484 Technology Applications in Hospitality Revenue Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Revenue Management and Technology. Introduction to Strategic Pricing Value and Technology. Forecasting Demand Inventory & Price Management using technology. Distribution Channels and revenue management. Revenue Management for Food and Beverage Services. Evaluation of Revenue Management Efforts in food and Beverage Services. Specialized Applications of Revenue Management. Building Better Business Application & Wrap Up.

HOM484 Technology Applications in Hospitality Revenue Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - - -

Revenue Management and Technology. Introduction to Strategic Pricing Value and Technology. Forecasting Demand Inventory & Price Management using technology. Distribution Channels and revenue management. Revenue Management for Food and Beverage Services. Evaluation of Revenue Management Efforts in food and Beverage Services. Specialized Applications of Revenue Management. Building Better Business Application & Wrap Up.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



HOM485 Technology Applications for Hospitality Financial Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

The importance of finance for the tourism sector. Finance resources and technology. Global financing. Storing and protecting information. Information security. Traditional financial management. Role of technology in financial management. List of Information Technology Financial Management (ITFM) Software Solutions. E-commerce and financial management. Role of technology in decision making. Methods of hotel finance and technology. Methods of evaluating investment using technology. Cost- benefit analysis using technology.

HOM486 Strategic Management of Hospitality Technology and Innovation

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Technology innovation. Patterns of change in technologies and markets. Standards and dominant designs. Market life cycles, transitions, and disruptions. Technology Brief Presentations. Defining Strategic Direction. Choosing Innovation Projects. Organizing for Innovation. Protecting Innovation. Managing the new product development process. Managing New Product Development Teams. Crafting a Deployment Strategy.

HOM486 Strategic Management of Hospitality Technology and Innovation

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - - -

Technology innovation. Patterns of change in technologies and markets. Standards and dominant designs. Market life cycles, transitions, and disruptions. Technology Brief Presentations. Defining Strategic Direction. Choosing Innovation Projects. Organizing for Innovation. Protecting Innovation. Managing the new product development process. Managing New Product Development Teams. Crafting a Deployment Strategy.

HOM491 Graduation Project

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - - -

Market Area Analysis. Project Site and Area Analysis. Competition Analysis. Demand Analysis. Marketing Analysis. Food and Beverage Analysis. Accommodation Analysis. Human Resource Analysis. Facilities analysis. Environmental Analysis. Financial Analysis. Student Reflections and Conclusions.

HOM491 Graduation Project

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - - -

Market Area Analysis. Project Site and Area Analysis. Competition Analysis. Demand Analysis. Marketing Analysis. Food and Beverage



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Analysis. Accommodation Analysis. Human Resource Analysis. Facilities analysis. Environmental Analysis. Financial Analysis. Student Reflections and Conclusions.

HOM492 Graduation E-Hospitality Project

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **1** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - - -

Market Area Analysis. Project Site and Area Analysis. Competition Analysis. Demand Analysis. Marketing Analysis. Food and Beverage Analysis. Accommodation Analysis. Human Resource Analysis. Facilities analysis. Environmental Analysis. Financial Analysis. Student Reflections and Conclusions.

HOM493 Internship in E-Hospitality (2)

3 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **6**

Prerequisite - - - -

During the internship, the student shall: Learn how to “do the work” in

digital marketing and administrative departments as much as possible. Become familiar with marketing and administrative departments vocabulary, reports, operations, business practices and customer service. Be able to demonstrate an understanding of organizational structure. Be exposed to as many administrative works of the department.

HOM493 Internship in E-Hospitality (2)

3 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **6**

Prerequisite - - - -

During the internship, the student shall: Learn how to “do the work” in digital marketing and administrative departments as much as possible. Become familiar with marketing and administrative departments vocabulary, reports, operations, business practices and customer service. Be able to demonstrate an understanding of organizational structure. Be exposed to as many administrative works of the department.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Tourism Guidance

TOG111 History of Ancient Egypt (1)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

The Pre-dynastic era. The unification between Upper and Lower Egypt. The Old Kingdom. The First Intermediate Period. The Middle Kingdom.

TOG112 Archaeology of Ancient Egypt (1)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The Pyramids of Saqqara, Dahshur, and Giza. Memphis area and monuments. The sun temples at Abusir. Some tombs of the nobility at Saqqara.

TOG113 History of Ancient Egypt (2)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

The Second Intermediate Period. The New Kingdom.

TOG114 Archaeology of Ancient Egypt (2)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Tombs of Beni Hasan. ElMinya and Ashmonein. Tell ElAmarna. Abydos.

TOG115 Ancient Egyptian Art

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 75 – ECTS = 4

Prerequisite - - -

The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG161 Ancient Egyptian Language (1)

3 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Introduction about the ancient Egyptian language (its decipherment, and its three scripts). Gardiner lessons. 6. Grammar (the hieroglyphic alphabet, the types of sentences, the pronouns). The exercises.

TOG162 Ancient Egyptian Language (2)

3 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Gardiner lessons. 12. The grammar of writing the Egyptian sentences (such as the invocation, the direct and indirect genitives, the negation, and the existence). The exercises.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



TOG171 Tourism Guidance Skills

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Introduction to the tourism industry and its types. The history of the tourism guidance profession. The definition of tourism guidance and its principles. The types of tour guides. The ways of management of touristic tours and trips. The aspects of efficient tourism guidance. The training of the tour guides. Developing the skills of tour guides. The challenges and problems that face the tour guides. The ethics of the profession and the laws for its upkeep.

TOG211 History of Ancient Egypt (3)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

The Third Intermediate Period. The Late Period.

TOG212 Archaeology of Ancient Egypt (3)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Karnak Temples. Luxor Temple. DeirElBahari Temple. Ramesseum Temple. MedinetHabu Temple. Malkata Temple.

TOG213 Ancient Egyptian Literature

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three

Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG214 Ancient Egyptian Religion

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG215 Archaeology of Ancient Egypt (4)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

The Valley of the Kings. The Valley of the Queens. Nobles' Tombs. DeirElMedineh.

TOG216 Archaeology of Ancient Egypt (5)

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Advanced topics in Archaeology of Ancient Egypt.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**TOG221 History of Graeco-Roman Egypt (1)****3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

Introduction to the ERA. Most important culture and events.

TOG261 Ancient Egyptian Language (3)**3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

Gardiner lessons. 20. The grammar. The exercises. The cartouches of the Egyptian kings from the Old Kingdom to the Late Period (reading, translation and comment on them).

TOG262 Ancient Egyptian Language (4)**3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG263 Ancient Egyptian Language (5)**2** Cr. Hrs. = (1 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

The parsing cases of nouns (second object, genitive case, vocative,

apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG311 Ancient Egypt Civilisation**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**Prerequisite **NONE**

The idea of resurrection and the belief in the afterlife. The burial in various forms of sepulchers (ex: the pyramid, and its sacredness). The tomb as a point of contact between the worlds of living and the dead. The elements of the individual (physical and non-physical). The tomb and society. The access to the Netherworld and to the gods. Aspects of domestic life (ex: at DeirElMedineh).

TOG312 Archaeology of Ancient Egypt (6)**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

Advanced topics in Archaeology of Ancient Egypt.

TOG321 Archaeology of Graeco-Roman Egypt (1)**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The Roman Empire. The Claudian Dynasty. The Flavian Dynasty. Non-Roman Emperors: Phillip, Hadrian, and Trajan. Collapse of the Roman Empire.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



TOG322 Archaeology of Graeco-Roman Egypt (2)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The Roman Empire. The Claudian Dynasty. The Flavian Dynasty. Non-Roman Emperors: Phillip, Hadrian, and Trajan. Collapse of the Roman Empire.

TOG333 Coptic Art

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

The construction of churches and monastic architecture in Egypt (from 4th to 12th century). Christian Pilgrimage sites. Occupation and conversion of ancient Egyptian temples. Samples of Funerary Art and Architecture. Coptic archaeological excavation (different findings). Iconography (Wall paintings, icons). Architectural decoration. Manuscript Making.

TOG361 Ancient Egyptian Language (6)

3 Cr. Hrs. = (**2** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns, and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters, and signs; and. The application on phrases from the Ancient Egyptian scripts.

TOG371 Practical Tourism Guidance (1)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

The pieces of art from the pre-dynastic era. The objects from the Old Kingdom. The objects from the Middle Kingdom.

TOG372 Practical Tourism Guidance (2)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite **TOG141**

The objects from the New Kingdom (18th Dynasty). Historical background about the reign of King Amenhotep III and the features of art during his time. Historical background about the reign of Akhenaten and his style of art. Overview of the religious revolution of Akhenaten. The objects from the reign of Akhenaten.

TOG373 Introduction to Museum and Heritage Studies

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **NONE**

Museum Studies: Museum Science as a Discipline. Foundation of ICOM as a turning point of Museology. Museography and Museums. The Link between Museology and fundamental Scientific Disciplines. Museological Functions. Heritage Studies: Heritage management concepts and definitions. Approaches of heritage management. The 1972 World Heritage Convention. World Heritage bodies and their requirements. International Standards in Heritage Management.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**TOG411 Religion Through the Eras****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**Prerequisite **NONE**

An outline of the religion in ancient Egypt. Overview of the gods and their myths of Graeco-Roman Egypt. Coptic Egypt and the most important churches. Study of some mosques and mausoleums in Egypt.

TOG441 History of Islamic Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

Egypt on the Eve of Islam. The Foundation of al-Fustat: what is a misr? Imperial Ambitions: Ibn Tulun and al-Ikhshid. Age of the Caliphate: The Fatimids. The foundation of al-Qahira. Fatimid Mosques of Cairo: new traditions and old forms. The Cult of Saints: mashhads and mausolea. The defenses of Cairo. The growth of Cairo and the development of the Qarafas. The coming of the Ottomans. The architectural and urban works of Muhammad Ali. Orientalism and the Fascination of Egypt.

TOG442 Archaeology of Islamic Egypt (1)**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The Monuments of Tulunid Era. The Monuments of Ikhshidi Era. The Monuments of the Fatimid Era. The Monuments of Ayyubid Era. The Monuments of Mamluk Era. The Monuments of the Ottoman Era.

TOG443 Civilization of Islamic Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

The systems of governance and administration. The social life. The financial systems. The military system.

TOG444 Islamic Art**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

Pottery, Faience. Textile. Wood Art. Ivory. Metal Works. Glass. Art of Islamic Ornamentations. Art of Islamic Calligraphy.

TOG451 Modern History of Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

The Ottoman conquest to Egypt. The French expedition to Egypt. The Political disturbances /turmoil Era. Mohamed Ali's rule in Egypt. The successors of Mohamed Ali (Wali Abbas Helmy I, Wali Said Pasha, and Khedive Ismail.

TOG452 Landmarks of Modern and Contemporary Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 1 OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

Gayer Anderson Museum. ElGohara Palace in the Citadel. Palace of Mohamed Ali in Shoubra. Abdeen Palace and its Palaces. House of the Nation. The Royal Jewelry Museum. ElManial Palace. Baron Empain Palace. High Dam of Aswan.

TOG453 Contemporary History of Egypt**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **6**

Prerequisite ---

Orabi Revolution. The British Occupation, and the emergence of national movements. The Formation of the Egyptian political parties, and their role in the national movement. The revolution of 1919, and the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



constitution of 1923. Egypt during the Second World War, and the negotiations after the war. The revolution of 1952, its reasons, and the end of monarchy in Egypt and the announcement of the Egyptian Republic.

TOG454 Contemporary Egyptian Society

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

General overview of the Egyptian society. The formation of the Egyptian society and its phases of development. The areas of major transformations in the Egyptian Society. The sources of culture to the Egyptian Society and their features. The value system of Egyptian society and its spiritual and cultural heritage. The features of the Egyptian character. The general life in Egypt and the Egyptian celebrations.

TOG471 Practical Tourism Guidance (3)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite **TOG241**

An overview of the features of art of Tutankhamun's time and the influence on it from the Amarna period. All the unique objects from the tomb of Tutankhamun. The traits of art in the Late period and some of the objects from this era. The art in the Graeco-Roman period and some of its objects.

TOG472 Practical Tourism Guidance (4)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite **TOG341**

Some objects of art from the Coptic era. Some objects of art from the Islamic era.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الفنون والتصميم FACULTY OF ARTS & DESIGN



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Environmental Design

EVD011 Analysis and Criticism of Interior Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This course contextualizes the interior as interpreted by philosophers such as Henri Lefebvre (interior space is an economically and cultural product), Gaston Bachelard (phenomenology), Jasmine Rault's definition of "Sapphic modernity," Henry Urbach's analysis of the social and physical implication of interior objects and George Wagner's importance of technology. In sum, this course focuses on a practice that is interrogative, discursive, and experimental.

EVD012 Lighting Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Introduction to Light in Furniture. Lighting terminology. Lighting effects and typology, Behavior, and quality of light. Hands on workshop in lighting lab. Lighting concepts and Representation. Lighting Design. Technical skills and safety factors. Designing and creating a body of functional lighting pieces. various lamp typologies. Light as an art. Students individual designs. Final Project.

EVD013 Design for Production

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Introduction to production strategies. Analyzing manufacturing

resources. Emerging manufacturing technologies. Production processes and methods. Marketing and retail facilities Analyzes. Marketing Strategies. Implementation of resources into work as a designer/artist. Individual projects (finished production ready object in multiples along with supporting marketing materials). Final Project.

EVD014 Future Trends in Interior Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

This theoretical course encompasses new trends in interior design to forecast future trends. It focuses on the development of self-reflection, analysis and research on the latest architectural projects, museum shows, artist's exhibition at the local and global levels considering current events. It collaborates with the consumer/ public facing' media and activates the creative thinking process of the designer of interior; it allows him/ her to familiarize with markets' dynamics and the different aspects of other forms of related art.

EVD015 Metals for Furniture Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Introduction: Course introduction: scope of work, methodologies, materials, processes, and tools. Fabric selection. Upholstery mechanics. Existing frameworks. Furniture restoration. Creating slipcovers. Large furniture upholstery. Final Project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD111 History of Design

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - -

Through this interactive course the student will explore and examine practices that have shaped the cultures of contemporary art and design. It will also introduce key art historical concepts and methods of analysis and interpretation. The objective is to provide you with a deeper understanding of theories and approaches in the study of art history, and a broad-based knowledge of both pre-modern and modern art, architecture, and visual art.

EVD112 Engineering Drawing I

3 Cr. Hrs. = (**2** LCT + **3** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Introduction to Engineering Drawing. Technical Drawing – Overview. Orthographic Projection–Multiview Projection; Glass Box Concept; Conventional Practice of Lines; Projections of Lines and Planes. Pictorial Drawing– Axonometric Projection; Oblique Projection; Isometric Projection; Isometric Sketching; Oblique Sketching. Reading an Orthographic Drawing – Analysis by Solids; Analysis by Surfaces; Missing View Problems. Convention Practice in Orthographic Drawing - Alternate Position of Side View; Incomplete View; Aligned View; Enlarged View; Non-Existing Intersection Line; Cylinder Intersection. Introducing AutoCAD–Workspace; Toolbars; Coordinate Systems; Setting Up 2D Drawing Environment; Drawing Tools in AutoCAD; Object Snap; Modify Tools in AutoCAD; Layers; Orthographic and Isometric in AutoCAD. Sections – Terminology; Cutting Plane; Section Lining; Kind of Sections; Convention Practice in Section View; Aligned Section. Final Project.

EVD211 Interior Design Studio I

4 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

This course is an introduction to the profession of interior and furniture design with an emphasis on problem solving for small residential spaces. Elements and principles of design are explored as well as human factors, color theory and the art of lighting. Students are introduced to residential space planning, furniture layouts, the development of color schemes and the selection of finishes, furnishings, and materials. Exercises in sketching, model-making, and various design strategies.

EVD212 Human Dimensions in Housing and Interiors

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course discusses the relationship between the user and his surrounding interior environment. It deals with physical and cultural issues. Physically, it studies the measurements and dimensions of the human body (all ages, sexes, different postures) on a comparative basis and their influence on interior spaces and furniture measurements. It also discusses the implications of socio-cultural and psychological factors that govern different interior furniture layout for various activity performance and the distances between them.

EVD213 Representation and Rendering Techniques I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Introduction to furniture rendering. Importance of furniture rendering. Current furniture rendering methods. 2D furniture rendering. 3D



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



furniture rendering. Manual furniture rendering techniques. Furniture rendering using computer software. Computer software is used in furniture rendering. Effective presentation of furniture. Latest in furniture rendering Techniques. Final Project

EVD214 Engineering Drawing II

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 165 – ECTS = 6

Prerequisite **EVD112**

Introduction to engineering drawing. Technical drawing – overview. Orthographic projection–Multiview projection; Glass box concept; conventional practice of lines; Projections of lines and planes. Pictorial drawing– Axonometric projection; Oblique projection; Isometric projection; Isometric sketching; Oblique sketching. Reading an orthographic drawing –analysis by solids; Analysis by surfaces; Missing view problems. Convention practice in orthographic drawing –alternate position of side view; Incomplete view; Aligned view; Enlarged view; non-existing intersection line; Cylinder intersection. Introducing AutoCAD–Workspace; Toolbars; Coordinate systems; Setting Up 2D drawing environment; Drawing tools in AutoCAD; Object snap; Modify tools in AutoCAD; Layers; Orthographic and isometric in AutoCAD. Sections –terminology; Cutting plane; Section lining; Kind of sections; Convention practice in section view; Aligned section. Final project.

EVD215 3D Design Visualization Studio

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Introduction to 3D design. Transferable design processes. 3D design users and clients. Brainstorming and research techniques. Inspiration, ideation, and concept development. Production techniques and materials. Inspiration, Ideation, and concept development. Sketch

modelling and presentation models. Working with human measurements, scale, and ergonomics. Production drawing. Final Project.

EVD216 Interior Design Studio II

4 Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite **EVD211**

This course reinforces concepts and skills developed in interior and furniture design. Design development through drawing and model making. Housing. It focuses on solving functional and aesthetical issues of the interior residential environment. It emphasizes environmental factors, orientation, styles, space planning, lighting, fabrics and furnishing for residential spaces. It also introduces students to some local and international codes and regulations with an impact on the design of interior spaces. evolution of a project through a complete design process and design development phases and final display

EVD217 Representation and Rendering Techniques II

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 2 OTH) – SWL = 195 – ECTS = 6

Prerequisite **EVD213**

Introduction to three-dimensional drawing of furniture. Techniques of drawing and concept development. Sketching with three-dimensional models. Mock-ups and prototypes for furniture. Computer software is used in 3D drawing furniture. Basics of computer simulation. Develop design concept by 3d drawing. Communicate design concepts by 3d drawing. Application of 3d articulation of furniture in innovative designs. Final project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD218 Materials of Interior Design

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Technology of materials discusses the types, characteristics and techniques used in furnishing and cladding interiors. It presents the details of design and quality of the material according to the required ambiance or and the level of thermal comfort. It focuses on concrete, masonry materials, wood, marble, ceramics and recycled materials and furniture materials, processes, and tools. Fabric selection. Upholstery mechanics. Existing frameworks. Furniture restoration. Creating slipcovers. Large furniture upholstery. It teaches students the art of making the appropriate selection of material and method of execution that is applicable to the design considering the functional, aesthetic, and economic factors.

EVD219 History of Interior Design

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - -

This course is a historical study of interior architecture, furniture, and furnishings from ancient times until the nineteenth century. Topics are woven together from cave dwellings and temple architecture, through Gothic cathedrals and renaissance palaces, to the grand civic spaces of the nineteenth century. Features of furniture from periods and styles. The development and evolution of period furniture is both religious and domestic. Movements, styles, and traditions are chronologically explored in Europe and the Islamic world. The evolution of interior design is presented in the context of the social, political, and technological developments of the time

EVD221 Creative Thinking

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **135** – ECTS = **4**

Prerequisite - - -

This course aims to Develop student's creative problem-solving skills and enhance them through practice. It focuses on the art and science of creative thinking, introduces the fundamental principles and methods of creative behavior to develop personal creativity.

EVD222 Furniture Design Studio I

4 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

Introduction to furniture. Skills and techniques for furniture design. Innovative furniture concepts. Sketching and drawing of furniture. Color Theories. Simple hand-tools techniques. Basic woodworking Machinery. Materials and processes of furniture design. Exercises in sketching, model-making, and various design strategies. A project of two substantial products.

EVD223 Furniture Working Details I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course teaches the student the meaning and importance of construction documents that translate preliminary design into a realizable application form. It deals with the process of generating detailed drawings of a designed interior space. It is an advanced phase dealing with the interior architecture detailing of specialty buildings: (flooring, ceiling, walls, aperture and doors and other details pertaining to the project).



EGYPTIAN NATIONAL UNIVERSITIES

مشر وم إنشاء الجامعات المصرية الاهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD224 Furniture Materials I

3 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction: Course introduction: scope of work, methodologies, materials, processes, and tools. Fabric selection. Upholstery mechanics. Existing frameworks. Furniture restoration. Creating slipcovers. Large furniture upholstery. Final Project.

EVD226 Furniture Construction I

4 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **6** OTH) – SWL = **225** – ECTS = **8**

Prerequisite - - -

The course: model construction of interiors, develops the student's technical and aesthetic abilities using a wide variety of processes and materials to answer challenging briefs. It is an overview of model types and an introduction to basic construction methods, model materials, tools, and equipment. It is a practical learning process of transforming 2D interior architectural drawings into 3D models.

EVD227 Furniture Design Studio II

4 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD222**

Course overview/ introductions. Present and explore the development of concept. Design Development through drawing and model making. Introduction to materials. Documentation of ideas in 2D and 3D using Sketch-Up or manually. Build a model. Workshopping project. Furniture design -Contemporary overview, photographing work, evolution of a project through a complete design process and design development phases and final display.

EVD231 Ergonomics I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **165** – ECTS = **6**

Prerequisite

Requirements when designing furniture. Physical and social contexts of use. Anthropometric information. The use of anthropometric information in furniture design. Methods of research into human factors. Implementation of ergonomics and human factors in furniture designs. A project of one substantial products.

EVD233 Design Theories

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course combines lectures, discussion, and appropriate visual material to introduce students to theories, principles, and techniques that assist in solving visual problems. The course will focus on communication, semiotics, and perception theory as they relate to practice in the design profession. The course will focus on philosophical and practice-based theories associated with modernity; commodity culture; semiotics; visual communication; authorship; subjectivity; disruption and resistance; post-modernism. Particular attention will be paid to how philosophical schools of thought have shaped and been shaped by the discipline of design.

EVD235 Manual Colouring and Rendering

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course covers the basic color theory. It instructs students of interior architecture considerations in color design such as color attributes and temperature, setting the emotional tone, focusing, or diverting attention,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



visually reshaping or unifying a space. It also teaches inter-activeness of color relationship, color hierarchy and proportions, harmony, contrast; monochromatic, analogous, and complementary schemes. Students understand color effects: visually, psychologically, physiologically, and symbolically; they also develop color vocabulary and they become proficient in color mixing and its use for interior architecture design.

EVD236 Product Design Studio I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This course introduces students to the theory of light (natural and artificial), its physical properties, and its psychological effect on humans. It also teaches them light's process and practice in terms of principles, of space function, of ambient and or accent lighting. It covers lighting terminology, perception, and general design strategies. It presents a thorough examination of the latest advances in lighting technology and practice together with the newest light sources, fixtures, and systems.

EVD237 Materials Properties and Technology

3 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Technology of materials discusses the types, characteristics and techniques used in furnishing and cladding interiors. It presents the details of design and quality of the material according to the required ambiance and/ or the level of thermal comfort. It focuses on concrete, masonry materials, wood, marble, ceramics, and recycled materials. It teaches students the art of making the appropriate selection of material and method of execution that is applicable to the design considering the functional, aesthetical, and economic factors.

EVD238 Digital Colouring and Rendering

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction to furniture rendering. Importance of furniture rendering. Current furniture rendering methods. 2D furniture rendering. 3D furniture rendering. Manual furniture rendering techniques. Furniture rendering using computer software. Computer software is used in furniture rendering. Effective presentation of furniture. Latest in furniture rendering Techniques. Final Project.

EVD239 Industrial Graphics I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course gives comprehensive information about CAD system and Autodesk Co. It explores program interface, discusses commands and sub commands. It gives a general preview for help system – how to control the drawing interface (Zoom –Pan –Mouse navigation). In this first part, it teaches to draw simple design using (Line –Circle –Arc – Polygon) command. Understand modification tools (Move –Rotate – Copy), then complex designs. It also demonstrates how AutoCAD facilitates geometric pattern designs, the drawings using layer, color, and line types.

EVD311 Interior Design Studio III

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD216**

This course focuses on solving functional and aesthetical issues of several types of commercial and office interior and furniture design. It emphasizes environmental factors, orientation, styles, space planning,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



circulation, lighting, fabrics and furnishing for such spaces. It also introduces students to some local and international codes and regulations with impact on the design of simple commercial and office interior spaces. Sketching and drafting techniques are reinforced through furnished plans, sectional elevations, and perspectives. Build a full-scale model. Computer aided drafting skills are incorporated in the design. Documentation of ideas in 2D and 3D by computer.

EVD312 Building Construction and Materials

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course equips students to identify the different construction methods, either wooden or iron or with the latest materials and techniques. It also helps to support the student's ability to understand how to apply scenic construction methods for the theatre, especially works that require structural knowledge. Lecture, (studio + workshop) based tutorial, stage construction design projects, field trips to theatre plays under construction, Reading-based analytic reports, and students' presentation.

EVD315 Working Details I

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This course teaches the student the meaning and importance of construction documents that translate preliminary design into a realizable application form. It deals with the process of generating detailed drawings of a designed interior space. It is an introduction to residential interior architecture detailing flooring, ceiling and walls, aperture, and doors.

EVD316 Interior Design Studio IV

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD311**

This course focuses on solving functional and aesthetical issues of several types of educational and healthcare facilities. It follows the theme of sustainability in design and emphasizes environmental factors, orientation, styles, space planning, circulation, lighting, covering materials, fabrics and furnishing for such spaces. It also introduces spatial codes for institutional space requirements and the different aspects of security issues. It teaches students to prepare appropriate design concepts according to circumstantial issues.

EVD317 Working Details II

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite **EVD315**

The course is designed to teach-through hands-on instruction-the basics of hand-tool furniture working. process of learning how to sharpen your chisels, plane blades and handsaws; and you will learn how to cut dado joints, mortise-and-tenons and dovetails by hand as you complete several projects. Dadoes, mortise-and-tenons and dovetails are the main joints used to build fine wood furniture.

EVD318 Furniture Design

4 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **210** – ECTS = **8**

Prerequisite ---

This course focuses on solving functional and aesthetical issues of several types of commercial and office simple interior architecture. It emphasizes environmental factors, orientation, styles, space planning, circulation, lighting, fabrics and furnishing for such spaces. It also



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



introduces students to some local and international codes and regulations with impact on the design of simple commercial and office interior spaces. Sketching and drafting techniques are reinforced through furnished plans, sectional elevations, and perspectives. Computer aided drafting skills are incorporated in the design.

EVD320 Contemporary Design in Interiors

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This theoretical course encompasses new trends in interior architecture design to forecast future trends. It focuses on the development of self-reflection, analysis and research on the latest architectural projects, museum shows, artist's exhibition at the local and global levels considering current events. It collaborates with the consumer/public facing' media and activates the creative thinking process of the designer of interior architecture; it allows him/ her to familiarize with markets' dynamics and the different aspects of other forms of related art.

EVD321 Furniture Design Studio III

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD227**

Course overview/ introductions. Present and explore the development of concept. Design Development through drawing and model making. Introduction to materials. Documentation of ideas in 2D and 3D by computer. Build a full-scale model. Workshopping project. Furniture design -Contemporary overview, photographing work, evolution of a project through a complete design process and design development phases and final display. Final Project.

EVD322 Furniture Materials II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **EVD224**

This course contextualizes the interior as interpreted by philosophers such as Henri Lefebvre (interior space is an economically and cultural product), Gaston Bachelard (phenomenology), Jasmine Rault's definition of "sapphic modernity," Henry Urbach's analysis of the social and physical implication of interior objects and George Wagner's importance of technology. In sum, this course focuses on a practice that is interrogative, discursive, and experimental.

EVD323 Furniture Construction II

4 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **240** – ECTS = **8**

Prerequisite **EVD226**

The course: model construction of interiors, develops the student's technical and aesthetic abilities using a wide variety of processes and materials to answer challenging briefs. It is an overview of model types and an introduction to basic construction methods, model materials, tools, and equipment. It is a practical learning process of transforming 2D interior architectural drawings into 3D models.

EVD324 History of Styles I

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite - - -

This course is an in-depth study of period styles of interior architecture pertaining to the most influential phases and countries throughout the centuries such as the ancient Egyptian, the Greek and Roman in the ancient world, the Renaissance in Europe, the mid-nineteenth and the twentieth century until today in Europe, the USA and in Egypt.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD325 Furniture Working Details II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **EVD223**

The course is designed to teach-through hands-on instruction-the basics of hand-tool furniture working. process of learning how to sharpen your chisels, plane blades and handsaws; and you will learn how to cut dado joints, mortise-and-tenons and dovetails by hand as you complete several projects. Dadoes, mortise-and-tenons and dovetails are the main joints used to build fine wood furniture.

EVD326 Furniture Design Studio IV

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD321**

This course focuses on solving functional and aesthetical issues of several types of educational and healthcare facilities. It follows the theme of sustainability in design and emphasizes environmental factors, orientation, styles, space planning, circulation, lighting, covering materials, fabrics and furnishing for such spaces. It also introduces spatial codes for institutional space requirements and the different aspects of security issues. It teaches students to prepare appropriate design concepts according to circumstantial issues.

EVD327 Contemporary Design in Furniture

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

Introduction: Course introduction: scope of work, methodologies, materials, processes, and tools. Fabric selection. Upholstery mechanics. Existing frameworks. Furniture restoration. Creating slipcovers. Large furniture upholstery. Final Project.

EVD328 History of Styles II

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **6**

Prerequisite **EVD324**

This course is a comprehensive introduction to the History of Art and Architecture, architectural heritage, and visual culture. -It provides students with essential knowledge and skills for documenting and analyzing works of art and architecture. -It holds an ability to describe and critically analyses images, builds a rich visual memory, and develops skills in research and presentation.

EVD329 Furniture Painting Techniques I

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Learn the basics of painting furniture in various finishing types of paint. How to identify furniture appropriate for painting, what tools and supplies you will need, and methods for applying paint and sealer.

EVD331 Product Design Studio II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite **EVD236**

Introduction to elements & principles of design. Element of line & Principle of rhythm. Element of shape, space, and principle of balance. Element of color value, and principle of pattern and proportion. Element of texture & principle of unity & variety. Time, chance, motion. Spatial illusion / depth cues. Final project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD332 System Design

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course teaches students to establish a complete tendering package as applied in interior architecture projects. It explores the various components necessary to present and clearly illustrates the various types of tender documents used in the profession. It also instills in them the basic knowledge of professional ethics that they will continue through the remainder of their interior architecture career.

EVD333 Industrial Graphics II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **EVD239**

This course is more advanced in CAD system and Autodesk Co. It explores the more complicated and specific programs such as Sketch-UP, Autodesk 3Ds Max, Auto desk Revit to obtain 3D interiors with lines, with color and textures, also using the different light exposures.

EVD334 History of Industrial Design

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

This course is a comprehensive introduction to the History of art and architecture, architectural heritage, and visual culture through Roman and Byzantine Empires, early Christian, and Jewish visual culture, as well as Christian art, architecture from Ethiopia and Islamic art. It provides students with essential knowledge and skills for documenting and analyzing works of art and architecture. -It holds an ability to describe and critically analyses images, builds a rich visual memory, and develops skills in research and presentation.

EVD335 3D Modelling Design and Rapid Prototype

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This is a beginning class that introduces students to the 3D environment and tools. A studio course in the theory and technique of three-dimensional (3D) modelling utilizing appropriate software. Topics include the creation and modification of 3D geometric shapes; and rendering techniques; and use of camera light sources, texture, and surface mapping. Students will use these tools to build complex objects then learn the basics. 3D rendering tools and techniques including surface channels, procedural textures, image mapping, light types and settings, camera settings and use, as well as a variety of rendering options, including raytracing. Students will also learn the importance of file backup and management.

EVD336 Product Design Studio III

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite **EVD331**

Introduction to 3D design. Transferable design processes. 3D design users and clients. Brainstorming and research techniques. Inspiration, Ideation, and concept development. Production techniques and materials. Inspiration, Ideation, and concept development. Sketch modelling and presentation models. Working with human measurements, scale, and ergonomics. Production drawing. Final Project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD337 Interactive Design

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Fundamental web concepts regarding various web devices. Engage in web production by constructing pages using HTML, CSS, & JavaScript. Synthesize complex interactive based projects that exhibit both complete construction, functionality, and an understanding of user experiences. Examine the potential of the “art & design process” in developing complex digital media experiences. Evaluate the role of the visual communicator and other key roles in the design and development processes as it applies to the role of an interactive designer. Demonstrate a deeper awareness of software/tools and design knowledge/thinking relevant to visual communication practice.

EVD338 Mechanical Engineering Drawing

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

In the tutorial these contents will be covered: Introduction to Machine parts and assembly drawing, Types of threaded fasteners and washers, Internal and external Thread Standards, definitions, and drawings, Bearing drawings, types of fittings, Fits and Tolerances, Geometrical Tolerances, Surface Finish. Exercises on assembly drawings such as: crane hook, stuffing box, valves, grinding wheel drive, worm and worm gear, machine vice, hand press, transmission shaft, ..., etc. In the Lab. These contents will be covered: Introduction to solid modeling on CAD software such as Solid-works, Inventor, or any other CAD, Sketcher workbench, Solid work-features: applied features, pattern features, fillets, design tables. 3D Modeling techniques; 3D Part design, Parametric part design. 3D Assembly. 3D animation. Drafting and 2D

drawings: basics, cross sections, dimensions, fits, and tolerance. Sheet metal design; Weldment features.

EVD339 Economics and Design Management

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

This course is a comprehensive introduction to the technology of interior architecture finishing such as different types of finishes for each material including paints, wallcoverings, the use of fabrics for different shapes of window curtains. The student will learn about safety protocols and the use of tools. He/ she will get acquainted with surface preparation and finishing methods.

EVD411 Interior Design Studio V

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD316**

This course focuses on problem solving functional and aesthetical issues for hospitality and recreational areas. It follows the theme of sustainability and eco-friendly design. It qualifies students to ascertain and apply the socio-cultural and eco-economic sustainable aspects as well as concepts of human factors and dimensions in public buildings interior architecture. Design concept, image, color and finishes, graphics, building codes, and barrier-free design compliance are emphasized. Architecture and (FF & E) * design details are within the projects' requirements. *Furniture, fixtures, and equipment.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD413 Graduation Project I

4 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **4** OTH) – SWL = **240** – ECTS = **8**

Prerequisite ---

This course is the theoretical research study of the graduation project as an essential part of the design process. It reinforces knowledge and skills in providing students with the expertise needed in data gathering, analysis, design programming then reaching a design concept. It qualifies students to identify and apply their knowledge in writing effectively the literature review, the research methodology, and the results of their selected graduation project study.

EVD414 Interior Finishes

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This course is a comprehensive introduction to the technology of interior architecture finishing such as different types of finishes for each material including paints, wallcoverings, the use of fabrics for different shapes of window curtains. The student will learn about safety protocols and the use of tools. He/ she will get acquainted with surface preparation and finishing methods.

EVD415 Environmental Control and Design for Sustainability

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course explores the various components of a building and the sequence of construction in different types of spaces and how various building systems-environmental control systems involving water supply, waste water treatment, plumbing, space-heating, air conditioning,

ventilation, electrical, vertical transportation, noise control and acoustic concerns are designed and integrated into the building shell so student can effectively design safe, healthy and suitable environments for human activity. Safety in the workplace. community expectations, safety legislation; procedures for dealing with emergencies; terms hazard, risk, risk assessment and management, and an understanding of the procedures for assessing and managing risk; main types of hazards encountered in studios and workshops - chemical, physical, and biological; Importance of controlling risk.

EVD416 Forecasting and Futuristic Design

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course encompasses new trends in interior architecture design such as interactive interiors, virtual environments, cognitive dimensions, and nanotechnology. It focuses on the development and advancement of working methodologies using research, programming prior to design concepts and activates the creative thinking process of the designer of interior architecture. Results from research are implemented in the design of interior architecture of any type of building. Design concept, image, color and finishes, graphics, building codes, and barrier-free design compliance are emphasized. Architecture and (FF & E) * design details are within the projects' requirements. *Furniture, fixtures, and equipment.

EVD417 Graduation Project II

4 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **4** OTH) – SWL = **240** – ECTS = **8**

Prerequisite **EVD413**

This course represents the final stage of undergraduate interior architecture design. It exploits students' expertise and previous



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



experience throughout their course of study to accomplish their final interior architecture design project –The Graduation Project.

EVD418 Work Design Managment

3 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course is a comprehensive introduction to Design Management. Management principles. New and emerging design management practices. New applied technologies. Project data management. Organizational management. Design appraisal applications.

EVD419 Building Systems and Codes

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

This course is a comprehensive introduction to the technology of interior architecture finishing such as different types of finishes for each material including paints, wallcoverings, the use of fabrics for different shapes of window curtains. The student will learn about safety protocols and the use of tools. He/she will get acquainted with surface preparation and finishing methods.

EVD421 Furniture Design Studio V

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD326**

This course is a study of interior architecture theories that started from the second half of the nineteenth century until the second decade of the third Millennium. Movements in all forms of art were rich and with a fast-changing pace covering arts and crafts, art nouveau, modern, art-Deco, industrial design, late modern, postmodern, deconstruction, parametric,

Futuristic and Cybersecure. The evolution of interior design is presented in the context of socio-political and technological developments thus forming theories to be understood and used in design.

EVD422 Graduation Project I

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** – ECTS = **11**

Prerequisite - - -

Design and execution of creative projects integrating learning within curriculum, solution of textile design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional textile design practices and methods including advanced portfolio development concepts and presentation, development of textile collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials/equipment. Senior standing, BS fashion and textile design, textile design majors only.

EVD423 Furniture Painting Techniques II

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **4**

Prerequisite **EVD329**

Learn specific creative techniques including crackling, dry brushing, distressing, two color, waxing, finishing and paint protecting techniques. Also, the techniques molding, glazing, raised stenciling, decoupage, blending, and metallic/leaf foiling.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD424 Forecasting Furniture Design

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Course introduction: scope of work, methodologies, materials, processes, and tools. Analysis of advanced reference projects. Analyze reference piece, de-construct 3D, re-create 2D drawings. Re-construct as a model. Design brainstorming & sketching. Advanced Individual concept design: Identify design drivers/constraints de-fined by use, material, fabrication techniques. Advanced aspects of fabrication & technologies. Develop design (3D-models, 2D-drawings, cardboard sketch models). Working drawings, full-scale: Production sequence within group. Prototypes production and documentation. Finalize project drawings and documentation. Final project.

EVD425 Graduation Project II

6 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **6** OTH) – SWL = **360** – ECTS = **11**

Prerequisite **EVD422**

Design and execution of creative projects integrating learning within curriculum, solution of design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional design practices and methods including advanced portfolio development concepts and presentation, development of collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials/equipment.

EVD426 Product Branding

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

The course begins with a conceptualization of brand image on a psychological basis, and then elaborates the strategy, tactics and governance that can create and sustain powerful and meaningful brand images. It also provides a detailed examination of the advertising industry strategic communications planners. And focuses on the planning process for an effective advertising communications campaign and access to the latest trends and tools that are used in the advertising industry. The course allows a student to expand his ability to approach advertising from a strategic brand management perspective. It includes the whole advertising process and the emerging trends in a strategic context.

EVD428 Projects Design Management

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

The design management course aims to integrate innovation processes, multidisciplinary decision-making, a human- cantered mind set and business strategies, to create effective products and services to build successful and meaningful brands. This course allows students to blend way of thinking and methodologies with business management strategies and market value creation. It also covers the visual communication design management process, strategy, Setting Objectives, formulating budgets, and vehicles strategy implementation Assessing Visual Communication Design Effectiveness.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD431 Product Design Studio IV

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **EVD336**

This course represents the final stage of undergraduate Ceramic. It exploits students' expertise and previous experience throughout their course of study to solve any problem in glass design.

EVD432 Graduation Project 1

6 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **6** OTH) – SWL = **360** – ECTS = **11**

Prerequisite - - -

This course is the theoretical research study of the graduation project as an essential part of the design process. It reinforces knowledge and skills in providing students with the expertise needed in data gathering, analysis, design programming then reaching a design concept. It qualifies students to identify and apply their knowledge in writing effectively the literature review, the research methodology, and the results of their selected graduation project study.

EVD433 Industrial Design Research

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Design inquiry I ask students to think critically about and experiment with expanding their toolkit of process and methods in solving large scale problems with innovative solutions. Through discussion sections, students will also be introduced to methods of critical reading and writing as a reflective practice. Topics students will consider and implement include lateral thinking, metaphorical thinking, abductive reasoning, networked thinking, discourse as thought, systems thinking and more. Students in Design must receive a C- to pass the course.

EVD434 Industrial Graphics III (Cad - Cam)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **EVD333**

This course gives comprehensive information about CAD system and Autodesk Co. It explores program interface, discusses commands and sub commands. It gives a general preview for help system – how to control the drawing interface (Zoom –Pan –Mouse navigation). In this first part, it teaches to draw simple design using (Line –Circle –Arc –Polygon) command. Understand modification tools (Move –Rotate –Copy), then complex designs. It also demonstrates how AutoCAD facilitates geometric pattern designs, the drawings using layer, color, and line types.

EVD435 Engineering Analysis for Product Design

3 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction to production strategies. Analyzing manufacturing resources. Emerging manufacturing technologies. Production processes and methods. Marketing and retail facilities Analyzes. Marketing strategies. Implementation of resources into work as a designer/artist. Individual projects (finished production ready object in multiples along with supporting marketing materials). Final Project.

EVD436 Graduation Project II

6 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **6** OTH) – SWL = **360** – ECTS = **11**

Prerequisite **EVD432**

This course represents the final stage of undergraduate scenography. It exploits students' expertise and previous experience throughout their course of study to accomplish their final scenography project – The Graduation Project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



EVD438 Projects Management

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course introduces the student to the purpose, type and scope of costs and project management. Costs and project management principles and processes are clearly explained through practical examples and their theoretical context. It offers the students a learning opportunity of planning and controlling budget of a project; of estimating, allocating and controlling the costs in a project; of using parametric; the whole process is done using fixed and variable costs. Readings and analytic reports are applied on interior architecture projects.

EVD439 Practical Internship I

1 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **120** – ECTS = **2**

Prerequisite - - -

This cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training Falls within the regular instructions of

training programs that contains actions related to duration, selection of training, plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.

EVD440 Practical Internship II

1 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **120** – ECTS = **2**

Prerequisite - - -

This Cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training Falls within the regular instructions of training programs that contains actions related to duration, selection of training, plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Visual Digital Design

VDD011 Elements of Cultural Marketing

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is a comprehensive introduction to Elements of Cultural Marketing. Environmental analysis. Industry and competitor analysis. Objective setting. Marketing strategies. Market mix components. Implementation and control mechanisms. Practical implementation of the concepts covered and the development of problem-solving skills by means of face-to-face seminars and tutorials, online learning, and a marketing practice simulation.

VDD012 Design Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is a comprehensive introduction to Design Management. Management principles. New and emerging design management practices. New applied technologies. Project data management. Organizational management. Design appraisal applications.

VDD013 Psychology of Art

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is a comprehensive introduction to the psychology of Art: Seeing, observation, perception, sensation. Expression and scene – psychological background of visual expression and revealing.

Convention and Creativity. Empathy and Distance. Psychoanalysis, Analytical Psychology and Art. Visual Perception and Illusion I.

VDD014 Digital Illustration

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course provides the students with fundamentals of digital illustration to create innovative images and essential skills and practice needed to be able to draw professionally with any digital devices. It is a practical introduction to image-making that includes knowledge and understanding of contemporary illustration, graphic design or visual communication practices and examine how digital illustration communicates through metaphor, symbolism, and narrative.

VDD015 Design Culture

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course provides the students with the critical thinking skill needed to analyze and evaluate design from a cultural perspective to their view and move their research from the realm of the traditional user-product environment into the cultural context. This expert explores design theory in connection with contemporary issues such as identity, sustainability, globalization, and multiculturalism. It also includes determining the impact of contemporary visuals on popular culture. Through analytical criticism students will be able to identify cultural problems and contribute through innovative design problem solving.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**VDD016 New Media Applications****3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

This course fosters learning to manage change in media, creating effective expressions (communications, creative works, applications) in digital environments, and exploring the interrelationship of new media with other fields of study to understand the relationships between technology and culture. This course also will teach students about one of the most important aspects of VR, AR, and MR, how to interact with their world as they are completely different from an onscreen app or game. Augmented reality (AR) and virtual reality (VR) are quickly becoming huge areas of technology, so this course aims to provide the students with skills to remain relevant in the next decade and beyond.

VDD111 Free Drawing I**4** Cr. Hrs. = (**1** LCT + **5** TUT + **0** LAB + **2** OTH) – SWL = **240** – ECTS = **8**

Prerequisite ---

This course reveals artistic, intellectual, and organizational skills and provides a practical and contextual introduction to illustration through a range of approaches to still life, free and creative drawing. It will also introduce the essential knowledge, skills and practice required as a starting point for designers. The course includes a practical exploration of drawing encourages visual experimentation through pencil, color, tone, line, and shape as well as mixed media.

VDD112 Basic Design I**4** Cr. Hrs. = (**1** LCT + **5** TUT + **0** LAB + **2** OTH) – SWL = **240** – ECTS = **8**

Prerequisite ---

This course focuses on providing students with a design language through the essential concepts and principles underlying all good

design. The course is an essential introduction to design and aims to help student to develop creative methods of thinking and a critical approach to their own work. Design principles course is to make students perceptually aware and better able to see visual qualities as well as content and to gain a complete understanding of design principles as a visual language.

VDD113 Free Drawing II**4** Cr. Hrs. = (**1** LCT + **5** TUT + **0** LAB + **2** OTH) – SWL = **240** – ECTS = **8**Prerequisite **VDD111**

This course provides the students with fundamentals of digital illustration to create innovative images and essential skills and practice needed to be able to draw professionally with any digital devices. It is a practical introduction to image-making that includes knowledge and understanding of contemporary illustration, graphic design or visual communication practices and examine how digital illustration communicates through metaphor, symbolism, and narrative.

VDD114 Basic Design II**4** Cr. Hrs. = (**1** LCT + **5** TUT + **0** LAB + **2** OTH) – SWL = **240** – ECTS = **8**Prerequisite **VDD112**

This course provides the students with the critical thinking skill needed to analyze and evaluate design from a cultural perspective to their view and move their research from the realm of the traditional user-product environment into the cultural context. This expert explores design theory in connection with contemporary issues such as identity, sustainability, globalization, and multiculturalism. It also includes determining the impact of contemporary visuals on popular culture. Through analytical criticism students will be able to identify cultural problems and contribute through innovative design problem solving.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



VDD115 History of Art of Civilizations I

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

This course is a comprehensive introduction to the history of art and architecture, architectural heritage, and visual culture. -It provides students with essential knowledge and skills for documenting and analyzing works of art and architecture. - It holds an ability to describe and critically analyze images, builds a rich visual memory, and develops skills in research and presentation

VDD116 Principles of Design

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course is a comprehensive introduction to the world of design. It helps the student to innovate two dimensional designs through inspiration and ideation from the natural elements in the surrounding environment and from local and global heritage; considering the theories related to design basics. It focuses on the art elements and principles: the elements (line, shape, form, space, color, texture, and value); the principles (balance, emphasis, harmony, movement, pattern, proportion, repetition, rhythm, unity, and variety). It familiarizes students with cultural influences and various kinds of design (logo, pamphlet, poster & others).

VDD117 Principles of Painting

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

-This course is a comprehensive introduction to the principals of Traditional Oil Painting, it focuses on the elements, principles and how

they interact in achieving the artistic purpose: the elements (line, shape, form, space, color, texture and value); the principles (balance, emphasis, harmony, movement, pattern, proportion and Scale, repetition, rhythm, movement, harmony, unity, variety, balance, contrast, emphasis, dominance, focal point and proportion. -Learn how to treat the figure, basic geometric shapes, perspective, action, and rhythm in the design, articulating both form and volume. -Learn how to use tools and materials, how to think in the perfect way that led to apply the media of oil Painting. -Elements of painting. -Color and tone. - painting media as: oil/ pastel/ acrylic/ watercolor/ ink. -Painting styles: modernism/ impressionism/ abstract styles. - Still life. - Portrait painting.

VDD119 Principles of Sculpture

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course is a comprehensive introduction to the principals of Sculpture. It focuses on the Sculpture's elements and principles and how they interact in achieving the artistic purpose: the elements (line, shape, form, space, color, texture, and value); the principles (balance, emphasis, harmony, movement, pattern, proportion and scale, repetition, rhythm, unity, variety, contrast, dominance, and focal point. - Understand the basic principles of suggesting form in 2 Dimensions and 3 Dimensions. -Introduce the students to the quick studies and sketches, and their important role in developing artistic skills in sculpture. -Learn how to treat the figure, basic geometric shapes and perspective and action in the human figure, articulating both form and volume. -Importance of anatomy, perspective and the relation between mass and void for Sculpture. -Learn how to use tools and materials and how to think in the perfect way that led to applying the media of Sculpture.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**VDD120 Principles of Graphic****3** Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course is a comprehensive introduction to the principals of Traditional Graphic & Engraving and printing, it focuses on the elements and principles and how they interact in achieving the artistic purpose: the elements (line, shape, form, space, color, texture and value); the principles (balance, emphasis, harmony, movement, pattern, proportion and scale, repetition, rhythm, movement, harmony, unity, variety, balance, contrast, emphasis, dominance, focal point and proportion. - Understand the basic principles of engraving genres, traditional (As etching/dry-point/Mezzotint) and modern (Laser engraving/photogravure). -Learn how to treat the figure, basic geometric shapes and perspective and action and rhythm in the design, articulating both form and volume. -Learn how to use tools and materials, how to think in the perfect way that led to applying the media of Graphic, Engraving and Printing.

VDD121 History of Art of Civilizations II**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **VDD115**

This course is a comprehensive introduction to the History of art and architecture, architectural heritage, and visual culture through Roman and Byzantine Empires, Early Christian, and Jewish visual culture, as well as Christian art, architecture from Ethiopia and Islamic art. -An introduction to the arts of the Christian Middle Ages in the Greek East and Latin West ca. 200-1400 C.E. - Archaic Greek art. -Classical Greek Art. -Hellenistic Greek Art. -Greek Architecture. - Etruscan Art. - Roman Architecture. -Roman Art. -Early Christian art and architecture. - Byzantine Architecture. -Byzantine art. -Islamic arts. -Islamic Architecture. It provides students with essential knowledge and skills for

documenting and analyzing works of art and architecture. -It holds the ability to describe and critically analyze images, builds a rich visual memory, and develops skills in research and presentation.

VDD122 Technology of Art**2** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course contains: Introducing the Course. Introduction to digital multimedia and digital media tools. Basic knowledge of digital image. Basic of image processing. Working with bitmap/raster-based imaging tools. Basic of image filtering and its tools. Vector-based image. Creating vector-based image. Technologies to make animations on the web. Basic knowledge to create flash animation. Flash animation. Creating and editing symbols. Flash animation. Working with color and images. Twining. Scripting and Interactivity. Scripting in a flash.

VDD123 Introduction to Bio Art**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The concept of bio-art. Defining bio-art the rise of public engagement What practitioners and theoreticians see as the main goal of bio-art corporate agenda's worldly difference. The bio-art competitions. Competitions as an instrument of cultural exchange The Bio art & Design Award Dutch relationship with science the role of the competition Winning artworks, The welcome Trust arts award UK's relationship with science, The Sci-art award, public engagement winning Artworks. The VIDA Artificial Life International Awards, Latin America's relationship with science, winning artworks, The FASEB Bio-Art competition, American attitude towards science, Winning artwork.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**VDD128 History of Art and Design****2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Through this interactive course the student will explore and examine practices that have shaped the cultures of contemporary art and design. It will also introduce key art historical concepts and methods of analysis and interpretation. The objective is to provide you with a deeper understanding of theories and approaches in the study of art history, and a broad-based knowledge of both pre-modern and modern art, architecture, and visual art.

VDD134 Practical Internship I**2** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **3**

Prerequisite - - -

The internship will be evaluated by the company and the department. The evaluation of the internship focuses on the students' ability to: •act in a professional manner with reference to the skills and training framework; •Mobilize common, specific, and cross-cutting courses in conducting their project; •integrating into a team; •analyze, evaluate, and adapt their professional action; •report on their professional experience.

VDD211 Typography**4** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **240** – ECTS = **8**

Prerequisite - - -

This course provides essential Knowledge, skills and practice needed to understand, apply, and create functional, workable, and aesthetical typography as an essential element in visual communications. The course also acquires the skills of combining letterforms and layout design

in all forms of information design in digital or/and printed materials, such as posters, magazines, books, and websites.

VDD212 Visual Communication**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course introduces students to communicate from a creative and innovative perspective through visual imagery. It also provides the students with the concepts, theories, aesthetics, and skills of visual communication design. The visual communication course depends on the ability to ideas visualization and visual persuasion.

VDD213 Advertising Design Studio I**4** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **6** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

This course concerns building brand identity and design assets as tangible elements that will determine how a brand is perceived. These elements such as logo, Slogan, patterns, color schemes and typography. In addition to communicative tools that convey values, meanings, and messages like visuals, packaging, design, business cards and paper systems.

VDD214 Photography**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course is comprehensive. Basic rules in photography (image configuration). Types and uses of the image. -The concept of traditional photography, digital photography, and fundamental differences between the two sides. -Technical terms of photography (digital). -The principles of digital photography, and its main features. -Fields of photography: silent nature pictures, people's pictures, landscapes, etc. -The



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



importance of digital perception, its uses in design and advertising, publications, and some technical and educational fields. -Concept of composition. -Elements of configuration in the photograph (digital). -Foundations of the formation of the composition in the photograph (digital). -Cameras, types, basic and additional parts in cameras, their functions, and the bases to be considered in selecting the appropriate machine. -Operation of the camera, hard photography, and mobile photography. -Use of optical filters, lenses, and flashlight units. -Edit, manipulate CNC images (use raw camera file formats, advance masking techniques, color techniques, refinement techniques, annotation. etc.). -Photo printing. -Practical applications based on digital photography in the production of innovative artistic images in which the general bases of image formation, in addition to the use of some software programs in the editing, processing, and printing of images.

VDD216 Web Design

3 Cr. Hrs. = (**1** LCT + **2** TUT + **4** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite ---

In this course students learn the difference between digital interactive storytelling and earlier forms of storytelling. They will learn how to develop a branching narrative, design their story characters and plot, storyboard their scenes, write their script, and finally create an exciting interactive multiple-ending scene-based adventure game.

VDD217 Engraving & Printing

4 Cr. Hrs. = (**1** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **225** – ECTS = **8** Prerequisite ---

Students will develop knowledge of printmaking terms and concepts, aspects of relevant printmaking history and theory, analysis of set project material, visual research skills to allow for development of project work and understand safe work practices appropriate for a collaborative studio environment. Course content will include instruction in relief

printmaking including Lino, woodblock, and various alternative printmaking techniques. Black and white printing, the edition and the unique print, and investigation of printing surfaces will also be covered. Students will learn how to analyze the shadow and light from the visual forms in front of him, such as still life, statues and living models, and translate them into black and white spaces or lines in white gouache on black paper, in proportion to the nature of Longitudinal wood -and its fibers direction- and linoleum. Then comes the implementation stage where the student learns how to prepare the engraving surface and the engraving process using woodcut engraving tools. And finally, the printing process on paper, which brings out set of editions of identical prints matched with the design prepared in advance.

VDD219 Graphic Design I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite ---

Understand deepen sides of graphic design through in-depth study of the previous software programs with the combination of manual and digital artwork based on the technical skills and the techniques available in the computer software's. Manual artworks. What is graphic design and how do you do it? Typography & typesetting. Creative Typography: the visual word. Visual dynamics-composition, color, layout. Introduction to illustrator or photoshop.

VDD220 Drawing I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite ---

This course is a comprehensive introduction to the principles of drawing still life and life models with pencils and ink. It focuses on the characteristics of each of them and their richness and productivity as medias for drawing. They continue to focus on relating the elements as masses within a surrounding environment and to distinguish between



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



different textures, color, light, shades, and shadow and, learn to render the whole in pencil and ink.

VDD221 Game Design Studio I

4 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **6** OTH) – SWL = **255** – ECTS = **8**

Prerequisite

This course is about characterization. Character development is the process of creating a character by giving them appearance, personality, mannerism, and depth. The course aims to help student to create strong characters for gaming that are enjoyable, interesting, different, and memorable enough. The course also includes the naming process as it is a massively important step and how name and another specific features in a character design can support gameplay.

VDD222 Interactive Media Arts

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This interdisciplinary course covers the fundamental practices, concepts and applied skills related to the field of interactive media arts, in its present state and provides a deeper understanding of the diversity of current interactive media forms and practices including interface design, applied multimedia and usability refinement. It will enable students to identify appropriate interactive content and the effect of interactive technologies on users' visceral, cognitive, attitudinal, and behavioral levels.

VDD224 Media Production

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite- - -

This course begins with an overview of the Media Production Process, starting from the idea to the final production. The second part of the

course will provide essential techniques for video and audio capturing as an important step in the process.

VDD225 Game Design Studio II

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **VDD221**

This course covers the design process of 2D Games animation course and how to create high quality stylized animations for games that will stand up as professional work. It will equip students with the knowledge to create designs and animations for desktop and mobile 2d games, through developing idea, concept and strategy then critical thinking and analysis. The students will also create interactive animations to be used later as a foundation for 2D Games.

VDD226 Graphic Design II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD219**

Overall understanding of what it means to be a graphic designer. Learning the steps, disciplines, and tools necessary to successfully execute clear and compelling marketing communications across a broad range of design assignments. A clear overall understanding and application of the 5 Cs of graphic design content, concept, components, composition, and creative consciousness. Instruction on the proper use and application of the software in the Adobe creative suite; when and how to use each application most effectively to contribute to the overall successful completion of the finished print publication product. Application of basic design principals and software skills acquired; in the creation of specific projects that would, in the professional world, be required of a graphic designer. Projects will be developed and completed in realistic time frames and with the expectation of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



professional quality working procedures and delivered outcomes. Strong emphasis given to the continuing development of communication skills; preparation, research, ideation, and execution to quickly and effectively arrive at professional level visual solutions that clearly and creatively speak to the assigned communication objectives.

VDD227 Drawing II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD220**

This course is a comprehensive introduction to the principles of drawing still life, life models and portraits with pencil and aquarelle. It develops the experience in how to treat the human figure, its action and refine techniques in compositional structures. Students continue to focus on relating the elements as masses within a surrounding environment and to distinguish between different textures, color, light, shades, and shadow and, learn to render the whole in pencil and watercolor (aquarelle). They observe rules of perspective in both linear and color conditions. Emphasis will be on “seeing,” drawing analytically, process, experimentation, and intent. Working in series, finding various solutions to the same problem will explore resolutions of formal and expressive concerns.

VDD228 Perspective

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

This course introduces manual one-point, two-points, and three-points interior perspective drawings (to scale and in sketch free hand form). It clarifies the difference between linear and atmospheric perspective; linear perspective uses lines and vanishing points to determine how much an objects apparent size changes with distance, whilst atmospheric perspective deals with how the appearance of an object is

affected by the space or atmosphere between it and the viewer. The course also teaches shades and shadows projected in interior perspectives.

VDD229 Engraving & Printing II

3 Cr. Hrs. = (**1** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD216**

Students will emphasis the knowledge of printmaking terms and concepts, aspects of relevant printmaking history and theory, analysis of set project material, visual research skills to allow for development of project work and understand safe work practices appropriate for a collaborative studio environment. -Course content will include instruction in relief printmaking including Lino, woodblock, and various alternative printmaking techniques. Reduction block color printing, the auditioned and the unique print, and investigation of printing surfaces will also be covered. -The student will learn how to draw his design with gouache colors on white paper, to have three, four or five colors as required to be distributed in proportion to the nature of engraving on wood or linoleum plates. Afterwards the stage of transferring design on the plate and then the first process of engraving the color and print and then engraving the second color and printing it too and so on till finally get a printed copy corresponding to the original design.

VDD231 Digital Painting

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Introduction to: Digital arts and their relation to classical painting, drawing and graphic arts. Computer digital arts. Drawing a still life and free hand drawing. Drawing using a graphic tablet. Composition using digital drawings of live elements and still life. Introduction to Photoshop & movie composition study. Material painting. Learning from pioneers.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



value structure & painting. Painting with Color. Finalizing a painting. Principals of lighting, color, & mood.

VDD232 Drawing III

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite VDD227

Perspective: Linear perspective (one, two & three point), Aerial perspective, shifting perspective, & overlap. Tonal Values: Highlight, mid-tone, junction of dark/Light, reflection, cast shadow & hard/soft edges. Composition: Space: Flat (no depth, primitive art), Illusionistic (linear perspective) & limited depth (Cézanne). Elements of design: Square, stage, Diamond, Circular, Linear Pattern & Lines. Proportion: golden section (1: 618 or 5: & Proportion (16:9 HD widescreen monitor, 1920:1080, 1: Movement, direction & rhythm: Horizontal, vertical, diagonal, triangular & “S” curve & Rhythmic Movement. Balance: symmetry & asymmetry. Shape: Positive/negative shapes, figure/ground relationships, Interior/exterior spaces & cropping. Dark & light contrast: Side lighting, flat lighting (front) & Rim lighting (back). Anatomy: In-depth study of human skeleton, bones and muscle’s structure and form. Image Interpretation: Pictography, realism, stylized, cubism & abstraction. Drawing History: Major styles & masters in Renaissance, realism, impressionism, postimpressionism, Expressionism, modernism, abstract expressionism & postmodernism.

VDD233 Digital Sculpture

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Study the technical basics of digital sculpting. This course focuses on sculpting with Pixologic's ZBrush, along with its role in digital sculpting, 3D art, 3D printing, and illustration. Students will learn the interface, tools, and workflows to proficiently create digital models and sculptures

using ZBrush and Maya to show students how to apply artistic processes to create high quality 3D sculptures.

VDD234 Landscapes I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 1 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

The primary focus of this course is based on the fundamentals of drawing. Students draw directly from observation of the natural world while developing an ability to compose well-constructed pictorial space. The process is intended to engage students in perceptual discovery, pictorial invention, and understanding of visual play. This course is structured to introduce the student to: Drawing as a foundation study in art and visual communication. Experimentation with a variety of drawing media including the basic ones of pencil, charcoal, and ink. Drawing rocks, buildings, trees, and more. Constant observation and sketching to develop drawing proficiency. Studies are expected to demonstrate a daily routine of drawing an.

VDD241 Projects in Bio Art

3 Cr. Hrs. = (0 LCT + 0 TUT + 3 LAB + 3 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

learn about the various species of owls, dissect owl pellets. Introduction to ebriid. Using red and blue LED lights to simulate sunlight. How do plants respond to changes in gravity? “How do seeds change in space?” “How do seeds/plants compete and interact within microgravity?” “How does this compare to conditions on Earth?”

VDD312 Advertising Design Studio II

4 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 6 OTH) – SWL = 255 – ECTS = 8

Prerequisite VDD213



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Although some advertising media can be placed today, the main concept of advertising communications is still the same. It is a way of conveying a message that is comprehensive, effective, and persuasive targeting specific audiences to achieve brand's marketing objectives. This course provides the student with the basics and principles that enable him to translate the abstract brand values, promises and messages in a visual form. Through digital and or printed media, posters, billboards, brochures, banners, catalogues, leaflets, Magazine and newspaper ads, the student will learn how to visualize ideas using graphic elements, art directing and execution.

VDD313 History of Advertising

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

This course provides the student with the key lines in the History of advertising and the main factors that affected it since the Industrial Revolution. It also relates advertising with the cultural, social, and technological changes in the recent past and nowadays. The course covers theoretical frameworks and applies them to specific advertisements.

VDD314 Information Design and Info Graphics

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

This course covers the design of all forms of visualizing data and designing information. It provides the students with the theories and principle needed to communicate complex information to a wide range of people with different cultural backgrounds. The course aims to provide students also with basic skills to simplify, organize, and visualize information to be presented through graphic elements, sound, and

motion in media.

VDD315 Advertising Design Studio III

4 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 2 OTH) – SWL = 255 – ECTS = 8

Prerequisite **VDD312**

This course allows the students to be problem solver in the field of advertising industry using 3D design elements such as ambient media or guerrilla advertising. It provides the students with the techniques and methods to think in an innovative way to create advertisements, benefits from, environment, location, and timing. The course focuses on how to attract consumer attention and invite him to participate and interact with the brand in the real world.

VDD316 Branding Design and Corporate Identity

3 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course covers the main concepts of brand building, brand strategy and brand identity. It provides the students with the knowledge needed to understand brand management process and the creative skills required to design corporate identity, marketing materials, and advertising programs. In addition to the importance of digital branding in nowadays marketing concept. It combines design and marketing principles to provide students with insights and practical experience in the branding process.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD317 Consumer Psychology

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course introduces the psychological process behind human decisions and the influence of thoughts, beliefs, feelings and perceptions on consumer behavior and the effect of cultural changes on shaping consumer psychology. This course also concerns the processes of selecting, purchasing, using, or engaging of products, services, ideas or brands and the methods to satisfy consumer's needs.

VDD318 Interactive Advertising

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 2 OTH) – SWL = **240** – ECTS = **8**

Prerequisite **VDD312**

Interactive advertising course refers to online advertising that includes an element of consumer feedback. It goes beyond simple banners using social media but includes any other approaches to engage the target audience. The course provides students with the skills required to develop two-way communication between brand and customer. The course includes different forms of interactive advertising (augmented reality, mobile applications, and interactive videos) that can build a relationship between business and its audience.

VDD320 Calligraphy

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course is a comprehensive introduction to the art of calligraphy. Introduction and history. - Definition of calligraphy. - Calligraphy across

the world and Arab world. - Classical calligraphy vs modern types and uses.

VDD321 Game Design Prototyping

3 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite **VDD214**

This course covers the important early stages of digital game development process from sketching to a fully coded demo. focusing primarily on prototyping to allow student to realize the vision and create a physical way to text out the idea. It includes playable sketches and rapid prototyping, concept refinement, creative direction, and concept communication. This course aims to provide the student as a game designer to check how emergent gameplay and artistic design choices affect the design.

VDD322 Introduction to Games Design Development

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

It is an introductory course that aims to provide students with an understanding of the basics of game development that includes both design (graphics, animation, and sound) and programming. starts with the standard game development tools to create basic games. It also includes formal definitions, terms, visual programming language and the key components of gaming.

VDD323 Visual Storytelling

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Visual storytelling course focuses on the new media and the cultural narratives that shape it, stories appropriate for modern



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



society and how people communicate their story using visuals and digital media such as video, graphics, and photography. It also the art of telling your brand's story using visual media as it can humanize the business, giving the target market a way to relate to the business and their story.

VDD324 History of Gaming Design

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course covers the history of gaming in the 21st century and the relationship between culture and the evolution of gaming concepts, design, and strategy. In addition to the effect of technology in developing and games production. The course will focus especially on the digital age gaming and how the availability of internet, mobiles, communication devices, interactivity, high-definition image, and screens allowed the gaming industry to rapidly grow and improve.

VDD325 3D Modelling

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This is a beginning class that introduces students to the 3D environment and tools. A studio course in the theory and technique of three-dimensional (3D) modelling utilizing appropriate software. Topics include the creation and modification of 3D geometric shapes; and rendering techniques; and use of camera light sources, texture, and surface mapping. Students will use these tools to build complex objects then learn the basics. 3D rendering tools and techniques including surface channels, procedural

textures, image mapping, light types and settings, camera settings and use, as well as a variety of rendering options, including raytracing. Students will also learn the importance of file backup and management.

VDD326 Game Design Studio III

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **VDD225**

This course is an introduction to game architecture and essential universal programming concepts. It covers the entire 3D game development process (design and programming) starting with idea and strategy, design characters, levels in 3D environments, game progression and implementation. It also includes and adds visual effects such as rendering, lighting, rigging, and compositing techniques.

VDD327 Game Analysis

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course allows us to understand games better, providing insight into the player-game relationship, the construction of the game and its sociocultural relevance. provides instruction on the basic building blocks of game analysis--examination of context, content and reception, and formal qualities-as well as the vocabulary necessary for talking about 2D and 3Dgames' distinguishing characteristics. provides a variety of exercises and sample analyses, as well as a comprehensive ludography and glossary. providing a true interdisciplinary perspective that draws upon applications from many different areas of study such as



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



management, strategic planning, competitive intelligence, military operations, economics, political science, and finance.

VDD328 UX Design

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

This course introduces UX research and UX design to create games through understanding of user needs, as a reference point to improve game's design and development that could fiercely competitive, to engage directly with the players and shape their experience. Through a deep understanding of people's lives and their cultural background.

VDD329 Audio-Video Production

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite VDD224

In this course, students develop professional skills in video production and editing. Through hands-on experience, students learn advanced editing techniques with an emphasis on post-production techniques that improve the sound and image quality of the videos. For their final project, they will shoot and edit their own videos and add special effects.

VDD330 Interactive Storytelling

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite VDD323

In this course students learn the difference between digital interactive storytelling and earlier forms of storytelling. They will learn how to develop a branching narrative, design their story characters and plot, storyboard their scenes, write their script, and finally create an exciting interactive multiple-ending scene-based adventure game.

VDD331 Computer Design Application I

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

This course is a comprehensive introduction to Mixing Digital arts to free-drawing and graphic arts through: Computer digital arts. Freehand drawing. Drawing using a graphic tablet. Digital tools, light, and filters. Digital adjustments and manipulation. Drawing with digital software (Photoshop/ illustrator). Reproduction of artworks by Digital tools. Mixed media.

VDD332 Specific Graphic Design I

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite VDD226

Beginning with a graphic ideas brief, the projects continue with an introduction to typography and layout. Projects to design a logo, a poster, and a magazine spread. The final projects are to make a small book and build a portfolio using a template website.

VDD333 History of Branding

2 Cr. Hrs. = (1 LCT + 1 TUT + 0 LAB + 1 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

This course provides the student with the key lines in the History of branding and advertising in addition to underlining the main factors that affected them since the Industrial Revolution. It also relates the brands and advertising with the cultural, social, and technological changes in the recent past and nowadays. The course covers theoretical frameworks and applies them to specific brands and advertisements.

VDD334 Computer Design Application II

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 105 – ECTS = 4

Prerequisite VDD331

This course is a comprehensive introduction to Mixing Digital arts to graphic prints through: Computer digital arts. Scanning of Graphic



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



prints. Digital tools, light, and filters. Digital adjustments and manipulation. Drawing with digital software (Photoshop/ illustrator). Reproduction of artworks by Digital tools. Mixed media. Painting with Color. Finalizing a Painting. Principals of Lighting, Color, & Mood. Students will be encouraged to think conceptually and apply these tools to a variety of media.

VDD335 Specific Graphic Design II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD332**

The necessary technological and project management tools are explored, to communicate simple and effective visual messages through the development of our own creativity and interdisciplinary methodological processes. Typography rules, conventions, and esoteric terminology.

VDD336 Advertising I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **1** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

How to communicate with potential clients and customers. Explore techniques for reaching a target audience. Examines restrictions in advertising as well as how advertising affects buyers.

VDD337 Branding Design Strategies

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The course begins with a conceptualization of brand image on a psychological basis, and then elaborates the strategy, tactics and governance that can create and sustain powerful and meaningful brand images. It also provides a detailed examination of the advertising industry strategic communications planners. And focuses on the

planning process for an effective Advertising communications campaign and access to the latest trends and tools that are used in the advertising industry. The course allows a student to expand his ability to approach Advertising from a strategic brand management perspective. It includes the whole advertising process and the emerging trends in a strategic context.

VDD338 Engraving and Printing III

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD229**

This course offers a comprehensive introduction to the intaglio print media -traditional and contemporary -including etching, aquatint, photo-processes, monotype, and alternative techniques. Printmaking encompasses drawing, design, mark making, multiples, sequences, and overlays, using various material substrates such as metals and plastics. Group and individual critiques. Projects may span media to build a group of related prints. Presentations on historical and contemporary print and its culture, visiting artists, museum and studio visits provide context.

VDD340 Drawing IV

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD232**

The course consists of studio assignments, demonstrations, and critiques followed by weekly homework. Participation in class discussion and critiques is crucial for improving verbal skills in evaluating one's work and others. Lectures and slides presentations will familiarize the students with traditional and contemporary issues in drawing. Emphasis will be on "seeing," drawing analytically, process, experimentation, and intent. Working in series, finding various solutions to the same problem will explore resolutions of formal and expressive concerns.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD341 Landscapes II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 1 OTH) – SWL = 120 – ECTS = 4

Prerequisite VDD234

Develop student's engagement in perceptual discovery, pictorial invention, and understanding of visual play. This course is structured to introduce the student to: Drawing with depth. Integrating proportion, scale, and light. Capture changing conditions. Drawing rocks, buildings, trees, and more. Creating mood and atmosphere. Historical and contemporary drawing methods, philosophies, and techniques. Experimentation with a variety of drawing media including the basic ones of pencil, charcoal, and ink. Constant observation and sketching to develop drawing proficiency. Studies are expected to demonstrate a daily routine of drawing an.

VDD342 2D Digital Drawing

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

-This course is comprehensive: -Introduction to the principals 2D Digital Drawing, -Raster 2D digital drawing (Adobe Photoshop). -Geometric Shapes. -Software elements: Shadow and Light /Adjustment/ morphing etc. -Draw still life using the Graphic tablet. -Plant elements. -Portrait. -The landscape. -Vector drawings (Adobe Illustrator). -Draw a character using the Graphic tablet and software elements: geometric shapes. -Perspective. -Drawing a cartoon character. -Mixed media.

VDD343 Engraving and Printing IV

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite VDD338

This course offers advanced professional study in printmaking

techniques, for students who wish to focus on the print with intensity, as they refine their personal visual statement through workshop practice, critique, and the enhancement of critical thinking. In addition to demonstrations and hands-on guidance, the course provides an expanded technical vocabulary. Combined multiple printing applications and experimental media will be an option as well as the opportunity to print at large scale. Introduction to contemporary artists engaged in print practice and contemporary issues, through presentations, field, and museum trips, and visiting artists.

VDD344 Landscapes III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 1 OTH) – SWL = 120 – ECTS = 4

Prerequisite VDD341

Understanding Composition Through Line and Gesture. Determine a strong composition. Block in values. Understanding Composition Through Shape and Value. Add color and details. Sources of Light. Mastering Lighting Techniques through Studying Nature. Capturing the Impression of Movement. Reinforcing Shape Language and Value.

VDD345 Multimedia Design

3 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This Course offers you exposure to the different areas of programming, common elements of design, and collaborative work with students studying to work in complementary career fields to learn on and become experienced with design-standard software such as Adobe Photoshop, Illustrator, aftereffects, XD, Audition, Adobe animate, and Premiere. Web technologies such as HTML5 and Extensible Markup Language (XML). This will prepare for collaborative projects in the field and help gain a real-world perspective on the nature of multimedia work.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD347 Practices in Bio Art

3 Cr. Hrs. = (**0** LCT + **0** TUT + **3** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **VDD241**

work with live tissues, bacteria, living organisms, and life processes. food production. video microscopes and scanning devices, scientific specimen collections, plant tissue engineering, new anatomical models, and molecular cuisine. tissue-culturing and transgenic. genetic engineering processes. Biotech Patronage and the Making of Homo DNA. Observations on an Art of Growing Interest: Toward a Phenomenological Approach. to Art Involving Biotechnology.

VDD348 Bio Art in the Mysterious World of the Microbes

3 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **1** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

new species within the microbial world. polymerase chain reaction. DNA sequencing. Bioluminescent diatoms, cyanobacteria, protozoans like amoebas and paramecium, zooxanthellae the symbiotic algae that live inside coral polyps.

VDD349 Research Project 1

3 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction to course and outline. Introduction to Bio-art Lecture. Introduction to Bio-art facilities, Health, and Safety. Microscopy Workshop. Kitchen Grade DNA Extraction Workshop Group. Reading Class discussion. "Labs Shut Open: A Biotech Hands-on Workshop for artists."

VDD352 Field Training

1 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **60** – ECTS = **2**

Prerequisite - - -

To receive credit for the internship, you are required to register for the course, complete all assignments and turn them in by the deadline, and always present yourself in a professional manner. You are responsible for all materials and announcements related to the course. Please keep in mind that you are expected to: Arrive at work as scheduled, ready to work, and stay for the agreed upon time. Always present yourself in a professional manner, including being appropriately dressed for your workplace. Communicate any concerns with your supervisor and the internship coordinator in a timely manner and respectfully. Demonstrate enthusiasm and interest in what you are doing; ask questions and take initiative as appropriate. Complete and submit assigned tasks by designated timelines. Meet all deadlines. Participate in assigned meetings at work and with the internship coordinator when you return to Elon. Keep track of and accurately report internship hours worked.

VDD354 Bio Art Studio I

5 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **3** OTH) – SWL = **255** – ECTS = **10**

Prerequisite - - -

intersection of art and the biological sciences. examine food, microbes, plants, human and non-human animals, through methods of observation, imaging, listening, scientific experiments and analysis.

VDD411 Advertising Design Studio IV

This course provides the student with the skills of radio creatives and focuses on the commercial radio industry and copywriting. A practical course aims to introduce a new generation of radio copywriters who



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



deeply understand the cultural aspects and can use language effectively to communicate on an emotional and persuasive level.

VDD412 Graduation Project I

4 Cr. Hrs. = (**1** LCT + **4** TUT + **2** LAB + **2** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing an ad campaign for a brand to achieve a specific goal. The dissertation is based on mixed research methodology; primary research should be done through interviews and/or survey questionnaire. Then the secondary data from the website and some qualitative information from textbooks and different sources, aiming to analyses the satisfaction level of customers and how effective messages delivered in the advertisement. After the research, he must conclude the advertising messages and present a brand creative strategy that includes a rebranding plan, redesigning identity, and a complete digital advertising campaign.

VDD413 Advertising Strategies

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course provides a detailed examination of the advertising industry strategic communications planners. And focuses on the planning process for an effective Advertising communications campaign and access to the latest trends and tools that are used in the advertising industry. The course allows a student to expand his ability to approach Advertising from a strategic perspective. It includes the whole advertising process and the emerging trends in a strategic context.

VDD414 Social Media Advertising

3 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **VDD318**

The social media advertising course is a practical approach explaining the available platforms: from Facebook to Twitter, Instagram and YouTube to LinkedIn and the different types of advertising options they offer. This course provides the students with the basic and required knowledge to use social media platforms in the right way for digital branding and to target the most relevant audiences for different ads. It allows the student to be able to launch a complete social media campaign including measurement and management.

VDD415 Audio-Video Production

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **240** – ECTS = **8**

Prerequisite - - -

This course allows students to develop professional skills in video, animation, film, and television pre-production, production, and post-production. Audio video course introduces students to video camera operation, camera stabilization techniques, lighting, scripts and storyboarding, digital imaging, motion graphics software, and importing or exporting graphics, movies, animations, and sound effects into, or out of video editing software. It allows students to use special effects and inserting computer graphics and explore the use of advanced software including Adobe After Effects, final cut, and DVD Studio Pro. Through group projects student will be able to produce audio video projects using advanced techniques.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD416 Communication Research Methods

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course provides the student with the basics and principles of social science inquiry and research methods in the field of communication and advertising from various perspectives. It focuses on research process both qualitative and quantitative studies that interpret human behavior. The course aims also to improve the writing skills of the student and his ability to present research problem, Hypotheses, and conclusion in an academic article. This course will allow student to benefit from market research and be able to identify design problems and suggest workable solutions on scientific and creative bases.

VDD417 Graduation Project II

4 Cr. Hrs. = (**1** LCT + **4** TUT + **2** LAB + **2** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **VDD412**

For graduation requirements, students will have to develop an integrated digital advertising campaign; including designing brand identity (logo, color schemes, typography, and creative communication materials), 2d advertising design (posters, magazine ads, brochure, web design and internet banners), 3D advertising (packaging, displays, ambient and interactive ads) in addition to radio and audio video advertising. A student should also design a complete presentation to explain his project and justify his point of view.

VDD418 Integrated Advertising

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **VDD413**

This course aims to give students a better understanding of contemporary design thinking and integrated communications. It gives student practical skills in developing and managing advertising ideas. An integrated advertising strategy involves choosing different media platforms that reinforce and complement one another. It allows the students understanding of all the interactions among and between all media forms and how to think critically in an integrated way during the design process.

VDD419 Graduation Project I

3 Cr. Hrs. = (**1** LCT + **1** TUT + **1** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing an ad campaign for a brand to achieve a specific goal. The dissertation is based on mixed research methodology; primary research should be done through interviews and our survey questionnaire. Then the secondary data from the website and some qualitative information from textbooks and different sources, aiming to analyses the satisfaction level of customers and how effective messages are delivered in the advertisement. After the research, he must conclude the advertising messages and present a brand creative strategy that includes a rebranding plan, redesigning identity, and a complete digital advertising campaign.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**VDD420 Professional Ethics & Regulations in Art****3** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course introduces the student to the role of global ethics and local regulations in the Visual Communication Design industry. Based on the importance of ethics to consumers, professionals, and clients. The student will be able to understand the principles of visual communication design ethics and practice it through simulation of real-life case studies and discussions to be able to make decisions based on ethical perspective.

VDD421 Game Design Studio IV**4** Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**Prerequisite **VDD326**

This course provides the student with the basic knowledge and skills to create advanced digital multiplayer games. It will allow him to communicate and synchronize with a game server different player at the same time, including online communications to make an enjoyable peer-to-peer gaming which reducing and managing network latency. It covers the fundamentals of game networking by developing a real-time multiplayer game, using a more scalable game design for online gaming.

VDD422 Graduation Project I**4** Cr. Hrs. = (**1** LCT + **4** TUT + **2** LAB + **2** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

A student should present a professional dissertation and thesis about his own graduation project. He needs to create an entirely unique, interesting game and provide background information. It might consist

of planning and executing a complete game prototype to achieve a specific goal. The dissertation is based on mixed research methodology; primary research should be done through interviews and/or survey questionnaire. Then the secondary data from the website and some qualitative information from textbooks and different sources, aiming to analyses the satisfaction level of users and how interesting and innovative the game is. After the research, he must conclude the game concept and present a game creative and programming strategy that includes levels plan, character design, storytelling, and a complete digital prototype.

VDD423 Simulation Games Design**3** Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course provides the student with the skills to apply game design; gameplay, user interfaces, core mechanics, character design, and storytelling to construction and simulation game genre to use the right techniques to create challenging experiences for your players. The course also will enable student to critically think, analyses and evaluate strategy for better decision making.

VDD424 Game Design Production and Marketing**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course aims to give students a better understanding of how to market their game as a product to be able to become industry professionals. The course provides the students with the knowledge and skills to be able to set a successful strategic plan for games marketing and production to create industry professionals. The course also covers the role of customers in the marketing strategy.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD425 Games for Specific Purpose

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

In this course, students will learn how games can be used in different industries with different goals, not just for pure entertainment. Not just for learning or training, but they can also be used for health enhancement, advertising, persuasion, and other purposes. According to their interest, they will choose to apply what they have learnt to create a game with their own set purpose.

VDD426 Games for Entertainment

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

The social gaming course is a practical approach explaining the available platforms, especially Facebook and the different types of gaming options they offer. This course provides the students with the basic and required knowledge about design features, users experience and technological opportunities to develop games that are specifically using social media platforms. It allows the student to be able to design a complete social media game project including measurement and management.

VDD427 Graduation Project II

4 Cr. Hrs. = (**1** LCT + **4** TUT + **2** LAB + **2** OTH) – SWL = **255** – ECTS = **8**

Prerequisite **VDD422**

For graduation requirements, students will have to develop their problem-solving skills and communication skills. The process from concept to final implementation and testing, through problem identification and the selection of appropriate solutions will be practiced by the students. Students have presented a complete 3d or multiplayer game project including, idea,

concept, levels, 3D character design storytelling, design, implement and evaluate a playable game to demonstrate their understanding in the entire game production process.

VDD428 Future Studies

2 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **135** – ECTS = **4**

Prerequisite - - -

This course provides the student with the knowledge and skills to be able to analyses and evaluate the circumstances, changes and events that could affect gaming industry. The course aims to improve students' critical thinking skills to develop a future plan for gaming according to culture research and innovative technology. This course allows students to be professional leaders in game development, creative problem solvers and decision makers.

VDD429 Branding Design and Corporate Identity

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course covers the main concepts of brand building, brand strategy and brand identity. It provides the students with the knowledge needed to understand brand management process and the creative skills required to design corporate identity, marketing materials, and advertising programs. In addition to the importance of digital branding in nowadays marketing concept. It combines design and marketing principles to provide students with insights and practical experience in the branding process.

VDD430 Business and Design Management

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The design management course aims to integrate innovation



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



processes, multidisciplinary decision-making, a human- centered mind set and business strategies, to create effective products and services to build successful and meaningful brands. This course allows students to blend way of thinking and methodologies with business management strategies and market value creation. It also covers. The visual communication design management process, strategy, setting objectives, formulating budgets, and vehicles strategy implementation assessing visual communication design effectiveness

VDD431 Advertising II

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 120 – ECTS = 4

Prerequisite **VDD336**

Analyzing advertising styles used in different mediums, such as TV, radio, and print. Students learn methods for creating advertising plans for the media and evaluating their effectiveness.

VDD432 Specific Graphic Design III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **VDD335**

Experimenting fearlessly. Showing and sharing ideas. Giving and receiving knowledgeable and constructive input.

VDD433 Criticism and Aesthetics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course contains: A comprehensive introduction to the concept and fundamentals of artistic criticism in general, including the axes of the history of arts. Introduction to the role and mission of artistic analyses and criticism. Technical criticism methods and schools used in modern and contemporary art, especially regarding specialization and the subsequent for film and plastic art methodology. The exposure of analytical tools and philosophical and scientific theories and some of

their applications, especially while tampering with schools of modern and contemporary art. The exposure of analytical tools and philosophical and scientific theories of media and film. The meaning of artistic criticism. The role of artistic criticism and its mission. History of artistic criticism in the world and Egypt. Theories of artistic criticism. Methods of technical criticism.

VDD434 Specific History of Art

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course contains: -A comprehensive introduction to the History of graphic art and design. -Essential knowledge for modern, post-modern, and contemporary periods and the role of graphic art and design. - Critical analysis of images which builds a rich visual memory and develops skills in research and its presentation for graphic art and design.

VDD435 Computer Design Application III

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 105 – ECTS = 4

Prerequisite **VDD334**

This course is a comprehensive advanced Mixing Digital manipulation to drawings and graphic prints through using Computer digital arts. Scanning of graphic prints and drawings. Digital tools, light and filters. Digital adjustments and manipulation. Drawing with digital software (Photoshop/ illustrator). 3D Max. Reproduction of the artworks by Digital tools. Mixed media. Painting with color. Finalizing a digital painting. principals of lighting, color, & mood.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD436 New Media

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

This course fosters learning to manage change in media, creating effective expressions in digital environments, and exploring the interrelationship of new media with other fields of study to understand the relationships between technology and art. In this course students will study one of the most important aspects of VR, AR, and MR, how to interact with their world. Augmented reality (AR) and virtual reality (VR) are quickly becoming huge areas of technology, so this course aims to provide the students with skills to remain relevant in the next decade and beyond.

VDD437 Graduation Project I

3 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing a visual art project. The dissertation based on mixed research methodology; A primary research should be done and some qualitative information from different sources, how effective message delivered a visual artwork. After the research, he has to present a final project.

VDD438 New Trends in Digital Painting I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

How to texture your work? Composition essentials. Values in digital art. How to use references properly? Studying for the masters. Creating and utilizing advanced custom brushes. How to create, manipulate and use

fractals. 3D rendering within Photoshop.

VDD439 Art Therapy

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

Introduces students to basic principles and practices of visual arts therapy through historical background, theoretical frameworks, and in-field issues. Provides information on pioneers in the field, how and where art therapists practice, and how training is required for the profession, as well as interactive art explorations to incorporate art therapy principles into their own teaching and artistic practice.

VDD440 Computer Design Application IV

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite **VDD435**

This course is a comprehensive development of Mixing Digital manipulation to drawings and graphic prints through using: Digital Tools explores the integration of digital media with traditional artistic practice. Students will be encouraged to think conceptually and apply these tools to a variety of media.

VDD441 New Trends in Digital Painting II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite **VDD438**

Advanced photo manipulation skills. Advanced painting with light. 3D sculpting. How to use the mixer brush tool? How to create awesome psychedelic shapes? How to use filter effects? Use the lasso tools. Use the variation of warp tools. Experiment with layer and clipping masks. Use the variation of layer effects. Combine all your knowledge. Build creative confidence. Become a professional digital artist! How to construct sacred geometry from scratch?



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**VDD442 Graduation Project II****4** Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **3** OTH) – SWL = **225** – ECTS = **6**

Prerequisite - - -

For graduation requirements, students will have to develop Works demonstrating their experimentation with a variety of two-dimensional media including, but not limited to, graphic design, typography, digital imaging, photography, collage, illustration, painting, printmaking, video, or computer art etc. benefiting from the knowledge and skills covered in the program. A student should also design a complete presentation to explain his project and justify his point of view.

VDD443 Video Art**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **3** OTH) – SWL = **165** – ECTS = **4**

Prerequisite - - -

In this course students work on creating artistic video works. The curriculum is organized around the three subfields: art animation, short film, and media art. Students can work in a variety of formats that include music videos, video installations, and works using projection mapping. There are also classes that bring in leading video artists, and students can broaden the scope of their work through exposure to the latest techniques and methods of expression. In addition, we hold screenings that are planned and managed by students with an emphasis on both creation and communication.

VDD446 Bio art Studio II**5** Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **3** OTH) – SWL = **255** – ECTS = **10**Prerequisite **VDD354**

How is semi-living defined? Characteristics of life include metabolism, reactions to stimuli, growth, and an ability to reproduce. Are freshly killed

cow's cells an example of semi-living? A person in a coma? Can they be considered alive if they are hooked up with an external apparatus? Is this a form of assisted living? Cultured cells need to be externally fed and comatose patients require a machine to continue their physical existence. Microorganisms. Bacteria. Bio-Couture, dresses made from cellulose generated by bacteria from red wine. 'growing' textiles produced by sugar, tea and bacteria to fashion jackets and kimonos.

VDD447 Graduation Project 1**4** Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **225** – ECTS = **7**

Prerequisite - - -

Module 1. Students will have produced a detailed plan for designing and developing a complete project using standard design and production techniques from concept to completion. Milestone 1, Project Plan 10%. Module 2 Studio I. Students will focus on production-oriented goals, professional production design, and a body of design work for their e project. Production Design. Visual Interface and Information Design. Milestone 2, bio art Document 20%. Module 3 Studio II. Students will refine the design plan and document the development stage of the project. Production. Bio art Development. Milestone 3, bio artwork Document 10%. Module 4 bio artwork Production. The student will implement a simulated professional environment for his projects and demonstrate a prototype based on his design and present convincing proof-of-concept prototype of their project. Project Tracking. Development. Milestone 4, Project Management Log 10%. Milestone 5, Prototype 20%. Module 5 Portfolio Design. Students will focus on the development of a plan to demonstrate proficiency in a specific area of the project and their portfolios, individually. Production for final bio artworks. Milestone 6, Individual Treatment Plan 20%. Milestone 7, Individual Portfolio Production Plan 10%.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



VDD449 Research Project II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **VDD349**

collaborates with bacteria as communicating devices whose color changes when they receive messages from one another. Bacillus subtilis. Chromo-bacterium violaceum. Escherichia coli. Micrococcus luteus. Micrococcus roseus. Proteus mirabilis. Pseudomonas aeruginosa. Pseudomonas fluorescens. Serratia marcescens. Staphylococcus aureus. Vibrio fischeri. Microbial art, agar art or germ art, bacteriograph. use of tissue technologies as a medium for artistic expression. se tissue engineering techniques for the creation of Semi-Living entities. grows meat from celebrity tissue samples and uses it to make artisanal salami.

VDD452 Graduation Project II

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **225** – ECTS = **7**

Prerequisite **VDD447**

Module 1. Students will have produced a detailed plan for designing and developing a complete project using standard design and production

techniques from concept to completion. Milestone 1, Project Plan 10%. Module 2 Studio I. Students will focus on production-oriented goals, professional production design, and a body of design work for their e project. Production Design. Visual Interface and Information Design. Milestone 2, bio art Document 20%. Module 3 Studio II. Students will refine the design plan and document the development stage of the project. Production. Bio art Development. Milestone 3, bio artwork Document 10%. Module 4 bio artwork Production. The student will implement a simulated professional environment for his projects and demonstrate a prototype based on his design and present convincing proof-of-concept prototype of their project. Project Tracking. Development. Milestone 4, Project Management Log 10%. Milestone 5, Prototype 20%. Module 5 Portfolio Design. Students will focus on the development of a plan to demonstrate proficiency in a specific area of the project and their portfolios, individually. Production for final bio artworks. Milestone 6, Individual Treatment Plan 20%. Milestone 7, Individual Portfolio Production Plan 10%.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Fashion Design

FSH011 Knitted Textile Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Design and production of hand- and machine-knitted fabrics. Exploration of basic structures effects. Exploration of color effects. Exploration of basic textural effects. Development of design abilities through hand- and machine-production methods. Introduction to Computer-integrated Design Systems. Awareness of industrial processes.

FSH012 Fashion Business in the Digital Age

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Effective management of digital technologies in contemporary business and their role in creating products and services of value. Explore and interrelate a range of strategic, tactical, and operational issues associated with digital technologies. E-business in a contemporary setting. Inter alia innovative applications in service and product design. Strategic impact of digital technologies and how effective management can secure competitive advantage.

FSH013 Fashion Development Processes

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Knowledgebase of garment construction. Light weight and heavy weight clothing. Garment assembly. Introduction to the industry standards of

garment manufacturing techniques. Machines and fabric choice. Analysis advantages and disadvantages of garment manufacturing techniques from sample stage to full mass production. Garment construction specifications. Working drawings, measurement specs. Significance of costing and economic elements of garment manufacture and wholesale production.

FSH014 Introduction to Color Science and its Application

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite ---

Color and color vision. Definition of color and its classification; Structure and function of the eye – Detail and study about eye and brain system; color consistency tests for defective color vision. Color Description. Arrangement of color; visual attribution of color; Beer-Lambert's law; color primaries and color mixing; additive and subtractive color mixing; color specification; color order systems –Munsell, Ostwald and CIE color order systems. Color measurement. Principles of color measurement; Tristimulus values; CIE diagram; standard Illuminant; standard observer; spectral reflectance; graphical and numeric representations. Color matching. Definition; Manual color matching; single constant Kubelka –Munk theory, spectral and tristimulus match; Metamerism; Concept of computer color matching system. Application of CCM system to Textile processing; Advantages and Limitations of CCM system. COLOR DIFFERENCE AND COLOR PREDICTION. Color difference - Perceptibility and acceptability; methods of assessment of color difference formula; Measurement of fluorescence –Visual,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



photoelectric colorimeter and Spectro photometric; Characterization of color displays; color mapping for two-dimensional texture image; texture effect on visual color difference evaluation; color synthesis for three dimensional objects.

FSH015 Formation and Structure of Textile Fabrics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

Fundamentals of the conversion of fibers and yarns into woven. Fundamentals of the conversion of fibers and yarns into Knitted. Fundamentals of the conversion of fibers and yarns into nonwoven. Structure, property, and performance relations of textile fabrics. Testing and evaluation of textile structures.

FSH016 3D Design

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

Introduction to 3D design. Transferable design processes. 3D design users and clients. Brainstorming and research techniques. Inspiration, Ideation, and concept development. Production techniques and materials. Inspiration, Ideation, and concept development. Sketch modelling and presentation models. Working with human measurements, scale, and ergonomics. Production drawing. Final Project.

FSH017 Digital Foundation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

Introduction to digital furniture design tools. Industry standards in page layout. Digital illustration. Digital photography of furniture. Photo

manipulation software. The Adobe Creative Suite. File transport (PDF). Font management software. Final Project.

FSH111 History of Art

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **3** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This course is a comprehensive introduction to the history of art, architecture, painting, sculpture, and graphic art in the European Renaissance providing students with essential knowledge and skills for documenting and analyzing works of art and architecture during this period. -It introduces the students to the relation and reflection of that period on our modern era and to most important artists of this period. - It holds an ability to describe and critically analyses images, builds a rich visual memory, and develops skills in research and its presentation.

FSH112 Museum Studies

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

The origins of museums and the leaders who helped shape the field of history, memory, and Surviving controversy. The changing role of museums for museum learning, creating exhibitions. The future of museums. Museums and innovation are among the issues which will be covered. Understanding of the numerous challenges facing museums as well as the process of proposing, researching, and executing an exhibition.

FSH211 Design Theories

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Effective management of digital technologies in contemporary business



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and their role in creating products and services of value. - Explore and interrelate a range of strategic, technical, and operational issues associated with digital technologies. – E-business in a contemporary setting. -Inter alia innovative applications in service and product design. Strategic impact of digital technologies and how effective management can secure competitive advantage.

FSH212 Textile Materials

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Introduction to textile fiber. Production of cotton and Protein fibers. Brief idea about cultivation. Sources and applications. Introduction to manmade fibers. Synthetic fibers. Brief idea about high performance.

FSH213 History of Costumes I

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Introduction to Early History of Costume, Ancient Middle East, A. Etruscan, Egyptian period, B. Greek period, C. Roman period. and Medieval Europe. The Renaissance in France, Italy, and England. The 17th Century in France, Italy, and England. The 18th Century in France, Italy, England, America. Characteristic of the 19th Century styles-Europe and America. The 20th Century Characteristics of Europe and America. Important economic, sociological, and psychological factors relate to their dress in each period.

FSH214 Apparel Design Studio I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This course provides Fashion and Textile Design first-year student with

a comprehensive introduction to foundational design concepts and methods representative of the creative thought and processes of fashion and textile design disciplines. The coursework encourages entering first-year students to think creatively through design and art, and the world around them, as they secure a skillful level of craftsmanship in the design and making of textile products. Design language, design elements and principles, and design communication and theory will be studied through readings and applications.

FSH215 Fashion Illustration I

2 Cr. Hrs. = (**1** LCT + **1** TUT + **0** LAB + **3** OTH) – SWL = **135** – ECTS = **4**

Prerequisite **MAD215**

Concepts and practices for the fashion figure and fashion illustration, including the analysis of fashion figure structure details, proportion, and fashion figures clothed with different apparel and materials. The training of effective drawing of different fashion styles, wearing status and occasions, and the study of applying multiple illustration approaches to enhance fashion design and presentation.

FSH216 Apparel Construction I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Students will learn the basic techniques of garment construction and create samples and a simple garment. Students will develop an understanding of garment manufacturing and learn to differentiate between good and poor quality in terms of construction - To investigate, analyses and apply appropriate garment assembly methods. - To develop the knowledge and skills of students on sewing machines, sewing techniques and garment construction. -To develop the creativity of students enhancing their knowledge about the methods of garment



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



production. -To improve students' material knowledge and encourage them to use their knowledge properly.

FSH217 Apparel Draping

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Exploration of three-dimensional methods of apparel design using textile substrates. Design and execution of draped garment structures will be explored in a studio setting.

FSH218 Pattern Making I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Pattern making for fashion designers. This is a beginner course on how to draft patterns, and some draping. Students will learn the principles of pattern drafting (dart manipulation, added fullness, contour). Students will learn techniques such as pivoting, slash and spread. Students will learn to draft an A-line skirt. Students will learn to draft a yoke unto a skirt and add fullness to the skirt. Students will learn how to draft princess style-lines or seams, darts, pleats, and tucks. They will learn grainlines and how to label patterns. Including notches and seam allowance.

FSH221 Jewellery Materials I

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Students will develop the different metalwork skills required to complete basic projects in conceptual Jewelry design and manufacture in a contemporary context. Students will be introduced to the metalwork

processes of saw-piercing, filing, riveting, soldering, and basic metal forming in conjunction with jeweler's hand tools and jewelry workshop equipment to create wearable objects.

FSH222 Anatomy for Designers

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Draw the human Figure. What can we learn from drawing the human figure? Interior makeup. Learning human anatomy. The skeleton. muscles and internal organs. External makeup. Drawing skin and fat. Drawing head, hair, hands, face, and feet. Drawing clothes. Pose and movement. Building a perfect figure. The way a figure moves or does not move. Drawing figures of different sexes. Observation of real life being independent of outside influences.

FSH223 Introduction to Jewellery Fabrication

3 Cr. Hrs. = (**1** LCT + **1** TUT + **0** LAB + **4** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Participants will commence designing and making jewelers objects utilizing introductory gold silversmithing techniques. Through a series of learning activities participants will develop ideas and designs through drawings and assemblages; Experience technical processes and working with metals specifically related to gold silversmithing practice; Use different metal fabrication techniques such as sawing, filing, cold joining and soldering to make a jewelry piece.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**FSH224 Jewellery Design Studio I****3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This course provides jewelry design first-year student with a comprehensive introduction to foundational design concepts and methods representative of the creative thought and processes of Jewelry and textile design disciplines. The course encourages entering first-year students to think creatively through design and art, and the world around them, as they secure a skillful level of craftsmanship in the design and making of jewelry products. Design language, design elements and principles, and design communication and theory will be studied through readings and applications.

FSH225 Jewellery Materials II**3** Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Piercing and filing. Sawing, drilling, folding, and polishing. Wirework. Soldering. Doming and forming.

FSH226 Enamelling Techniques**2** Cr. Hrs. = (**1** LCT + **0** TUT + **1** LAB + **2** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

Vitreous enameling on precious metals. Studies include an emphasis on the metallurgical properties of gold, silver, and platinum and their chemical compatibility with enamels. Surface treatments, ancient and modern, that intensify the jewel-like qualities of vitreous enamel on precious metal will be explored along with construction techniques that help students transform glass into beautiful, functional jewelry and objects of art.

FSH227 History of Jewellery**3** Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

You will be able to identify jewelry from the Belle Epoque to today by period. You will know the major fashions and jewelry houses and understand how each influenced the other to create extraordinary jewels. You will have been introduced to fashionable royalty, celebrities, magnates, and artists whose patronage inspired jewelry designers. You will have a broad understanding of the importance and mythology behind different gems, materials and motifs used in European jewelry. You will have seen prominent contemporary jewelers at work and have gained an insight into their personal inspirations and impact on today's.

FSH228 Soldering Techniques I**3** Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

The course will cover: - The different grades of solders when using and how to prepare them. - the different soldering methods. - chip or pillion, probe, or pick, stick feed, sweat, and paste. – Also, how to use them and which one to use for a particular joint.

FSH229 Metal Forming Techniques**2** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **135** – ECTS = **4**

Prerequisite ---

Introduction of jewelry-forming techniques. Identify the dapping and chasing tools by means of forging, annealing, and tempering. Using these tools, objects are created by repousse and other methods.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**FSH311 Apparel Design Studio II****3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This course is the continuation of the comprehensive introduction to foundational design concepts and methods representative of creative thought and activity across design and artistic disciplines, started in TFD Studio I. The course work encourages first year students to think critically and in depth about concept, context, material, and design process, for textile and fashion product development. There will be readings and applications in advanced design theory, including processes, methods, philosophies, and related concepts. The class will involve field trips to experience these advanced design principles in person. Additional costs may be incurred.

FSH312 Fashion Illustration II**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**Prerequisite **MAD215**

This course will focus on the concepts and practices for the fashion figure and fashion illustration, including the analysis of fashion figure structure details, proportion, and fashion figures clothed with different apparel and materials. The training of effective drawing of different fashion styles, wearing status and occasions, and the study of applying multiple illustration approaches to enhance fashion design and presentation.

FSH313 Apparel Supplements**4** Cr. Hrs. = (**1** LCT + **1** TUT + **2** LAB + **4** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course introduces apparel supplements through the basic techniques of textile dyeing and printing, apparel accessories, and

jewelry to reach an integrated fashion design point of view. It will introduce the connection between the Apparel supplements that will enable you to develop the skills of applied approaches to contemporary fashion design. This course focuses on understanding the basic supplements of apparel production, development of the knowledge and skills of the students through applying several techniques, development of the student's creativity through offering different perspectives on the approach to integrated design and encourage the students to consider the integration between apparel supplements.

FSH314 Apparel Design Studio III**3** Cr. Hrs. = (**1** LCT + **2** TUT + **4** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

Proficiency in a variety of fashion techniques and skills including drawing, draping, flat pattern, garment construction, and tailoring in designing ideas.

FSH315 Pattern Making II**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

The advanced pattern making course level comprises of the following topics: Basic blocks. Theory on sizing and fit issues. Technical drawings of styles. Styles. Style variations. Use of fabric. Lay planning. Sewing and assembly instructions. Self-assessment tests.

FSH316 Computer-Aided Apparel Design I**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Introduction to Corel draw. Tools and Menus. Mechanical Figure. Learning how to draw garments. Learning how to draw Neckline and Sleeves. Facial features. Introduction to Photoshop. Scanning



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Techniques. Tools and Menus. Layers. Image Menu. Photoshop Editing. Filters.

FSH317 History of Costumes II

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

Main issues surrounding fashion in contemporary culture. Theories provide the analytical tools for the investigation of fashion as object, image, and idea. Exploring design, images, and ideas from European costume history, opera, or plays. Creation of a contemporary visionary costume design integrating profound knowledge of European costume history, opera, or plays. Influence fashion by different factors such as cultures and traditions through.

FSH318 Apparel Construction II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Elements of garment construction using intermediate clothing construction methods and techniques. Multiple finishes, hard to manage fabrics, use of overlock, complex construction sequences. Students construct three garments using techniques from class.

FSH319 Apparel Branding

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

The concepts and principles of branding and brand management. Application of branding and brand management to relevant industries. The process of establishing a successful brand position. Principles of modern branding.

FSH321 Jewellery Design Studio II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

This course is the continuation of the comprehensive introduction to foundational design of jeweler concepts and methods representative of creative thought and activity across design and artistic disciplines, started in TFD Studio I.

FSH322 Jewellery Materials III

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Texturing metal: hammering, roll printing, annealing. Acid etching. Cold Joining. Riveting. jewelry findings. Finishing.

FSH323 Soldering Techniques II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

The course will cover: - different types of joins and how to prepare a join for successful soldering. - using just the right amount of solder to minimize cleaning up afterwards. - multiple joins on the same piece including hollow shapes. - troubleshooting and solving common soldering problems.

FSH324 Jewellery and Accessories Fabrication

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **135** – ECTS = **4**

Prerequisite ---

This course provides fashion and textile design first-year student with a comprehensive introduction to foundational design concepts and methods representative of the creative thought and processes of fashion



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and textile design disciplines. The coursework encourages entering first-year students to think creatively through design and art, and the world around them, as they secure a skillful level of craftsmanship in the design and making of textile products. Design language, design elements and principles, and design communication and theory will be studied through readings and applications.

FSH325 Wax Carving

3 Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Designing for wax carving (Beginners and Intermediate level). Qualities and properties of different forms of wax. Using wax carving tools to achieve your designs. Making finished wax carved experts ready to cast. How to cut off sprue and clean up castings. Full information on how and where to get your wax pieces cast locally, affordably, and much more.

FSH326 Design Studio III

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8**

Prerequisite - - -

The course work encourages second year students to think critically and in depth about concept, context, material, and design process, for Jewelry product development. There will be readings and applications in advanced design theory, including processes, methods, philosophies, and related concepts. The class will involve field trips to experience these advanced design principles in person. Additional costs may be incurred.

FSH327 Piercing and Sawing Techniques

3 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **3** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction: Course introduction: scope of work, methodologies, materials, processes, and tools. -Fabric selection. -Upholstery mechanics. -Existing frameworks. -Furniture restoration. -Creating slipcovers. -Large furniture upholstery. Final Project.

FSH328 CAD for Jewellery Design

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Overview of computer technology for fashion and textile CAD and CAM definition functions of textile and clothing CAD introduction to information system Integration of various information systems for business. -Introduction of textile CAD overview of textile product development process Importance of computer aided design in fashion supply chain Introduction to graphic file and color model. -Application of textile CAD software yarn design and simulation woven, knitted, and printed fabric design simulation of yarn, fabric color and structure effects. -Introduction to clothing CAD software and hardware of apparel CAD or CAM process flow of fashion product development using computer systems in fashion product design and manufacturing. application of apparel CAD software fashion design system pattern input, pattern drafting, pattern modification and pattern output. Pattern grading marker planning and material utilization 3D clothing simulation on virtual try-on, fitting evaluation, and pattern alteration.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**FSH329 Enamelling for Contemporary Jewellery****3** Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 3 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

You will set up projects covering a range of enameling techniques. You will be taught through practical demonstrations, group and individual tuition and you will learn from hands-on experience. You will actively take part in: - cutting, annealing, and cleaning copper and silver. - sifting/dusting enamel powder. -Washing and wet laying enamel powder. -Firing enamels using a torch and the kiln. -Practicing the enameling techniques of sgraffito (scratching through a layer), using stencils (stickers or wet paper) and glass beads, sticks or chips. - Producing pendants or buttons from a copper coin.

FSH411 Apparel Design Studio IV**3** Cr. Hrs. = (1 LCT + 2 TUT + 4 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite - - -

This course is the continuation of the comprehensive introduction to foundational design concepts and methods of Fashion representative of creative thought and activity across design and artistic disciplines, started in TFD studio I. The course work encourages first year students to think critically and in depth about concept, context, material, and design process, for textile and fashion product development. There will be readings and applications in advanced design theory, including processes, methods, philosophies, and related concepts. The class will involve field trips to experience these advanced design principles in person. Additional costs may be incurred.

FSH412 Graduation Project I**6** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = 360 – ECTS = 11

Prerequisite - - -

Design and execution of creative projects integrating learning within curriculum, solution of textile design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional textile design practices and methods including advanced portfolio development concepts and presentation, development of textile collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials or equipment. Senior standing, BS fashion and textile design, textile design majors only.

FSH413 Product Quality Control**3** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Physiological comfort and its components. - Physical-chemical comfort and its components. - Psychological comfort and its components. - The human/clothing system. - Physical processes in clothing and surrounding environment, -Physiological process in human body. - Neurophysiological processes by which sensory signals are formulated. -Significance of the microclimate characteristics arising between skin and clothing. - Moisture and water sorption and transfer. -Water vapor and air permeability. -Thermal conductivity and dynamic heat. -Skin contact characteristics. -Static electricity. -Fiber and fabric handle. -New comfortable fibers and textile structures, multifunctional materials. -



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Predictability of clothing comfort performance. Textile comfort test methods and assessing (human perception analysis).

FSH414 Fashion Digital Studio

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Coherent and systematic understanding, knowledge, and application of fashion styling and production; -A multi-disciplinary approach to problem solving and decision making; -An understanding of The creative and commercial contexts, principles and methodologies of fashion styling and production; - Critical analysis of fashion styling and production and the fashion industries within local and global contexts; - The application of knowledge and independent or collaborative skills appropriate for fashion styling production collaboration; . Evidence of the development of a range of creative attributes throughout the course of study and how they apply to fashion styling and production.

FSH415 Printing and Dyeing

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction to printing. - General sequence of printing; Printing ingredients: thickeners, dyes, hygroscopic agents, reducing and oxidizing agents, etc. Different styles of printing: direct, discharge, resist, brass, raised etc. Various methods of printing: flat-bed, screen printing, rotary screen printing, roller printing, block printing, stencil printing, transfer printing, etc. -Methods for print fixation. - Steaming, curing, ageing, various steamers, and agers. -Printing cotton fabric using different dyes. -Direct, reactive, vat, azoic colors, etc. by different styles of printing. -Printing of other natural fibers except cotton. -Wool, silk, etc. and regenerated cellulosic i.e., viscose rayon, cuprammonium rayon, etc. by different styles of printing using suitable dyes. -Printing of synthetic

fibers. -Polyester, nylon, acrylic, etc. by different styles of printing using suitable dyes. -Printing blended fabrics. Polyester or cotton, polyester or wool, cotton or viscose, polyester, or viscose, etc. using suitable combination of dyes and style of printing.

FSH416 Graduation Project II

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** – ECTS = **11**

Prerequisite - - -

Design and execution of creative projects integrating learning within curriculum, solution of textile design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional textile design practices and methods including advanced portfolio development concepts and presentation, development of textile collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials or equipment. Senior Standing, BS fashion and textile Design, Textile Design majors only.

FSH417 Fashion Merchandising and Buying

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

The role of the fashion buyer. Major fashion retail brands. Roles and responsibilities of retail fashion buyers and merchandisers. Trade fairs, ready-to-wear and couture shows. Trend prediction and seasons. Fabric and styling terminology. Numeracy and competitor shopping skills. Fashion supply chains.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**FSH418 Forecasting Fashion and Apparel Trends****3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

In the trend fashion forecasting course, students learn how to plan a product in relation to current trends. From the color of the fabric to the silhouettes and the target. The student will learn how to analyze current and future trends by collecting information through the internet and specialized magazine and books, trade fairs when possible, and will realize mood boards on Photoshop and written briefs and will be able to tell and demonstrate their own interpretations of a theme and/or trend.

FSH419 Apparel Design and Business Management**2** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

Illustrative methodology. - Jewelry design techniques. -Fundamentals of jewelry manufacturing and pricing. -Introduction to CAD-matrix software. -Jewelry mounting techniques. -Rendering software. - Communication. -Supervisory management. -Financial management. Marketing management. -Operations. -Entrepreneurship.

FSH421 Jewellery Design Studio IV**4** Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = **255** – ECTS = **8**

Prerequisite ---

This course is the continuation of the comprehensive introduction to foundational design concepts and methods representative of creative thought and activity across design and artistic disciplines. The course work encourages us to think critically and in depth about concept, context, material, and design process, for Jewelry n product development. There will be applications in advanced design theory,

including processes, methods, philosophies, and related concepts. The class will involve field trips to experience these advanced design principles in person. Additional costs may be incurred.

FSH422 Graduation Project I**6** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** – ECTS = **11**

Prerequisite ---

Design and execution of creative projects integrating learning within curriculum, solution of textile design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional textile design practices and methods including advanced portfolio development concepts and presentation, development of textile collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials or equipment. Senior standing, BS fashion and textile design, textile design majors only.

FSH423 Jewellery Casting**3** Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 3 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course also introduces stone setting where you will fabricate a setting and rub set a cabochon stone, and gypsy set a faceted stone. You are encouraged to keep a visual diary which reflects your personal practice, individual interests, and the work of other designers, and will be able to build on your knowledge and understanding of the design



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



process through discussion and studio-based practice, culminating in a personalized project.

FSH425 Jewellery Costing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course focus on the management to calculate the costs of the materials used for production of jewelry including design, types of materials and fabrication to be able to build on the knowledge and understanding of the design process through discussion and studio-based practice, culminating in a personalized project. This course also encouraged students to keep a personal vision of how-to manage big project of producing specific jewelry with individual interest and the work of other artists.

FSH426 Mechanical Drafting for Jewellers

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

knowing how to trace, sketch, produce gems in all shapes and sizes, understand and draw settings and findings as well as plan your creations considering the elements and principles of design. This course will train students to focus on accurate and detailed draughts to avoid costly mistakes and guarantee your design is produced to exact customer specifications. From efficient and effective counter sketches in front of the customer, jewelry trade practices such as requirements gathering and customer sign-off, all the way to the end communication with the jeweler and beyond with in depth jewelry costing including weight, gem, and manufacturing cost estimation theories.

FSH427 Graduation Project II

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** – ECTS = **11**

Prerequisite ---

Design and execution of creative projects integrating learning within curriculum, solution of textile design problems through synthesis of knowledge and skills gained through previous courses, preparation of work for portfolio, exhibition, and participation in industry focused design competitions. Professional textile design practices and methods including advanced portfolio development concepts and presentation, development of textile collections suited to specified end use with emphasis on ideation, refinement, and design development, presentation, and visual communication. The student will be expected to work with design, science, engineering, technology, and management disciplines. Additional costs may be incurred for course materials or equipment. Senior standing, BS fashion and textile design, textile design majors only.

FSH428 Introduction to Precious Stone

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Introduction to precious stone and their properties. Precious stone grading tools. Distinguishing stone from simulants and synthetics. Grading stone. Helping the consumer choose a precious stone. Understanding colored stone and industry trends.

FSH429 Jewellery Design and Business Management

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

Illustrative methodology. Jewelry design techniques. Fundamentals of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



jewelry manufacturing & pricing. Introduction to CAD-matrix software. Jewelry mounting techniques. Rendering software. Communication. supervisory management. Financial management. Marketing management. Operations. Entrepreneurship.

FSH430 Practical Internship I

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 120 – ECTS = 2

Prerequisite - - -

This cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training falls within the regular instructions of training programs that contains actions related to duration, selection of training, plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the

project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.

FSH431 Practical Internship II

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 120 – ECTS = 2

Prerequisite - - -

This Cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training Falls within the regular instructions of training programs that contains actions related to duration, selection of training, plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Cinema, Theatre & Animation Design

CTH011 Cinema Sociology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is comprehensive. Sociology of film. The relationship between cinema and sociology. Sociological understanding of cinema. Address the issues of society in cinema. Cinema proves the difference. The inability to express reality. Sociological understanding of cinema. Cinematic creativity. Social Realism in Cinema. Effect of films on human behavior. Ideology in films. Viewers in movies.

CTH012 History of Arabic and International Cinema

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is comprehensive. The emergence and evolution of cinema in the world. Stages of film development (era of leadership, era of silent films, era before World War II, the Golden Age). Silent cinema. Cinema-speaking (1930- contemporary cinema (1960- International cinematic trends and the most important directors and films. The different cinematic languages of the most famous directors in the history of cinema. The beginning of Arabic cinema. Egyptian cinema, Lebanese cinema, Syrian cinema, Moroccan cinema, Algerian cinema, Tunisian cinema, Saudi cinema, Kuwaiti cinema, Yemeni cinema, Sudanese cinema, Libyan cinema, Palestinian cinema, Iraqi cinema. Number of Films Produced in the Arab Cinema. Impact of Conflicts on Egyptian

Cinema and the Palestinian Cinema. Festivals.

CTH013 Cinema Appreciation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is comprehensive. Visual elements. The image is off the screen. Changes in sensory perception. Partial filaments. Factor belief. Cinema capabilities on description. Integrating reality with art. Effects of different montage. Effect and diversity of the sizes of the shots, camera movements and all elements of film production. Analysis of Eisenstein, Warrenham and Bazan films. Movies between realism and fantasy. The evolution of cinema themes in changing times.

CTH014 Analysis and Viewing (Cinema-TV)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

This course is comprehensive. Definition of cash and cinema as a means of communication. Film criticism issues. the 8 elements of film. Introduction to film criticism (preparation for watching and preparing for film criticism). Scenior theorists (Yela Palash, Vysvold Podovkin,). The vocabulary of films and subjects and criticism film. Principles, standards, and qualities to be met in the cash. criticism (theoretical and applied). Analysis and critique of the films of Antonioni, Desica and Federico Fellini. Film shows, criticism and analysis.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CTH015 Interactive Media Art****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

This interdisciplinary course covers the fundamental practices, concepts and applied skills related to the field of interactive media arts, in its present state and provides a deeper understanding of the diversity of current interactive media forms and practices including interface design, applied multimedia and usability refinement. It will enable students to identify appropriate interactive content and the effect of interactive technologies on users' visceral, cognitive, attitudinal, and behavioral levels.

CTH016 New Media Applications**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

This course fosters learning to manage change in media, creating effective expressions (communications, creative works, applications) in digital environments, and exploring the interrelationship of new media with other fields of study to understand the relationships between technology and culture. This course also will teach students about one of the most important aspects of VR, AR, and MR, how to interact with their world as they are completely different from an onscreen app or game. Augmented reality (AR) and virtual reality (VR) are quickly becoming huge areas of technology, so this course aims to provide the students with skills to remain relevant in the next decade and beyond.

CTH017 Lighting Techniques**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

The objective of the course is to give you the basic knowledge and the

practice on how a photography studio works. This course aims to teach students how to set up a professional studio with limited space, equipment, and budget. And learn various lighting set-ups with a variety of equipment to create meaningful images. The course also provides the student with the basic principles of lighting through understanding the physical, technical, and symbolic features of light. Focuses on the planning and preparation that leads to the successful execution of a photo shoot.

CTH211 Characters Design**3** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course provides essential Knowledge, skills and practice needed to understand, apply, and create functional, workable, and aesthetical typography as an essential element in visual communications. The course also acquires the skills of combining letterforms and layout design in all forms of information design in digital and/or printed materials, such as posters, magazines, books, and websites.

CTH212 Materials Technology**3** Cr. Hrs. = (1 LCT + 1 TUT + 0 LAB + 4 OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

The course provides an overview of developing a range of skills relevant to animation and video equipment and studios in response to Workshop projects. Explore the potential of animation and video technologies and processes used in set projects. Produce work which recognizes relationships between concept and process relevant to animation and video, and engages with historical and theoretical contexts relevant to Workshop projects.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CTH213 Visual Communication I****2** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 2 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course concerns building brand identity and design assets as tangible elements that will determine how a brand is perceived. These elements such as logo, slogan, patterns, color schemes and typography. In addition to communicative tools that convey values, meanings, and messages like, Visuals, packaging, design, business cards and paper systems.

CTH214 Manual Colouring and Rendering**3** Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

The course provides an overview of the design of urban areas. Students learn theories and principles of urban design and issues concerning process and practices. the physical and social structure of cities, models of urban form analysis, city and urban design, contemporary theories of urban design, suburbs, and metropolitan areas, implementation strategies, urban problems, projects analyzing the evolution of urban place, factors of high-quality urban design and development.

CTH215 2D Modelling**3** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Visual storytelling course Focuses on the new media and the cultural narratives that shape it, stories appropriate for modern society and how people communicate their story using visuals and digital media such as video, graphics, and photography. It also the art of telling your brand's story using visual media as it can humanize the business, giving the target market a way to relate to the business and their story.

CTH216 Writing Studio: Intensive**3** Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 180 – ECTS = 4Prerequisite **VDD221**

Students will implement techniques of information design to interactive media projects, with consideration of a particular purpose and audience. In this Web design course, students will use a variety of design software to organize, create, publish, and manage a web site. Course content includes creating a variety of graphic elements including video, animations, rollover effects, backgrounds, and page images. This course will provide in-depth insights into the world of web design and covers everything from how HTML works to more advanced structures and concepts of web design before finally creating quality layout.

CTH217 3D Design Visualization Studio**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Introduction to 3D design. Transferable design processes. 3D design users and clients. Brainstorming and research techniques. Inspiration, Ideation, and concept development. Production techniques and materials. Inspiration, Ideation, and concept development. Sketch modelling and presentation models. Working with human measurements, scale, and ergonomics. Production drawing. Final Project.

CTH218 Visual Communication I**3** Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 2 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course introduces students to communicate from a creative and innovative perspective through visual imagery. It also provides the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



students with the concepts, theories, aesthetics, and skills of visual communication design. The Visual Communication course depends on the ability to ideas visualization and visual persuasion.

CTH219 Visual Communication II

3 Cr. Hrs. = (**2** LCT + **1** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course introduces students to creative and innovative perspective through visual imagery with the concepts, theories, aesthetics, and advanced skills of visual communication design.

CTH220 Image Editing and Manipulation

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite -----

In this course students will be introduced to Digital Photography and Image editing skills using Adobe tools. Each activity contains a small task within, so students are learning and refining their skills as they complete each task. Each activity also contains student guides to learn the technical skills required to complete each task.

CTH221 Film Crafting Introduction

2 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

In this course students will be encouraged to explore the mechanics of classical narrative cinema. By examining the myriad of aesthetic, critical, theoretical, and practical components of the form, students will investigate the systems that film uses to communicate ideas, acts as a vehicle for personal expression, and reflects societal indices. By participating in lectures, screenings, discussions, and practical exercises, students can expect to further their procedural and theoretical

understanding of the filmmaking process.

CTH222 Camera Aesthetics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Students are taught to improve the camera skills, understanding of composition, lighting, and design, shooting techniques, decision-making and postproduction (using Adobe light-room) with the first level of introduction to photography. This course will motivate the students to push their skills and understanding further, giving them the confidence to produce even better images in a fun, relaxed environment.

CTH223 Sound Design

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite ---

In this course Sound design for film students will be involved more than just the creation of effects, encompassing a stratum of sound possibilities ranging from music to general ambience. In this course students will develop a theoretical and practical understanding of film sound and its use in underpinning the dramatic impact of cinema. This will be achieved by exploring the concept of film sound through lectures, tutorials, and workshops. Students will examine a range of practical techniques such as: ADR, Foley, effects creation and film music composition, through producing all aspects of their own short film soundtrack. Skills in production will also be developed, including sourcing and clearance of sound materials, mixing, delivery, management, and quality assurance. To promote investigative learning and research, students will complete readings and listening and perform practical exercises.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CTH224 Video Production

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 3 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course will focus on the advanced and contemporary techniques of video production. It allows students to develop more sophisticated and complex productions, using special effects and inserting computer graphics include work with longer format video projects. Students will explore the use of advanced software including Adobe After Effects, final cut, and DVD Studio Pro. Through group projects student will be able to produce audio video projects using advanced techniques.

CTH225 Visual Storytelling

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite ---

Learn the basic elements of screenwriting for movies or TV, via lectures, script readings, discussions, and in-class writing exercises. All the fundamentals of visual storytelling are covered in depth, including techniques for generating ideas, the drafting process, classical screenplay structure, conflict, characterization, dialogue, how to write visually, how to analyze your own work as a screenwriter, dealing with notes or feedback, scene structure, rewriting and other tools of the trade.

CTH226 Writing Studio: Intensive

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 1 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course provides essential Knowledge, skills and practice needed to understand, apply, and create functional, workable, and aesthetical typography as an essential element in visual communications. The

course also acquires the skills of combining letterforms and layout design in all forms of information design in digital and or printed materials, such as posters, magazines, books, and websites.

CTH227 Basics: Studio Production

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite CTH223

Teaching and Learning Methods.

CTH228 Introduction to Interactivity Media Art

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

This course is changing the way we associate our response by changing the kind of media that are familiar with, then laying the foundation of these changes. The course questions the characteristics of the outcomes and reflects the principles of exploring the meaning of the term medium and how that meaning has developed.

CTH229 Acting Introduction

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course starts from the style of the Shakespearean period to most educational tradition of acting, learning and analyzing the art of acting in the old professional theatre. The course offers an introduction to the cultural context of stage playing and acting, critical language and the different kinds of training and professional practice also included in this course. The course reflects the different theatres over the times while taking into consideration the recent and modern schools in acting.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CTH230 Audition Theatre

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

The course teaches students about what comprises a good audition. Through examining the various skills sought for, as well as audition etiquette, the course provides aspiring actors with the confidence to master their audition endeavors. The course also allows directors to examine and capture key characteristics of the actors during the audition and analyses the effectiveness and need for the tools that the actors display.

CTH231 Principals of Playwriting

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course offers a solid supplement for developing the students' writing skills tailored to playwriting and script interpretation. Students develop their writing skills through not only a variety of writing tasks but also through critically analyzing scripts and effectively deconstructing the embedded theoretical elements. Students will also learn to build scripts that show cohesion and that have well-developed characters. Most importantly, the students will learn to build plays with meaning that elicit a response and allow the audience to empathize with the characters as they witness the performance.

CTH232 Theatre Lighting Design I

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The objective of the course is to give you the basic knowledge and the practice on how a photography studio works. This course aims to teach students how to set up a professional studio with limited space,

equipment, and budget. And learn various lighting set-ups with a variety of equipment to create meaningful images. The course also provides the student with the basic principles of lighting through understanding the physical, technical, and symbolic features of light. Focuses on the planning and preparation that leads to the successful execution of a photo shoot.

CTH233 Media Literacy

3 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CTH235

The course offers students the opportunity to expand their critical understanding of contemporary mass media with its fast-paced developments. Students learn how to utilize the media resource to deliver information and for entertainment. Students will also appreciate the commercial nature of the industry. Students also learn to evaluate the messages delivered by the media and their social, cultural, and political implications. The course will provide students with the methods of analysis necessary to interpret media content to have control over the messages delivered in media.

CTH235 Anatomy for Animators

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course focuses on the importance of observation and sketching to be able to capture life and movement in addition to the importance of anatomy and proportions in drawing appropriate human figure and characters. The course will cover the basics of proportions, and how to simplify the skeleton, the muscles attach and how they change in different poses. Through practical drawing session the student will be able to recognize human structure and proportions that will enable him to illustrate ideas, characters, or figures in any design project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CTH236 Digital Color Theory

3 Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Digital color theory is a course that introduces important concepts in which students will apply to assignments and projects in basic and advanced visual communications projects. The psychological, symbolic, and visual aspects of color will be used in all approaches to design. Focuses on the basic visual and aesthetic interactions of color, the science of color perception and the metaphysical nature of color perception and use in fine art and applied design. The second half of the semester will consist of more digitally completed projects which require to develop a conceptual model, apply basic concepts, and incorporate additional color concepts such as color harmony, symbolism, space, and also incorporate art principles and elements as well as employing alternative media and technologies.

CTH237 Digital Illustration

3 Cr. Hrs. = (0 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course provides the students with fundamentals of digital illustration to create innovative images and essential skills and practice needed to be able to draw professionally with any digital devices. It is a practical introduction to image-making that includes knowledge and understanding of contemporary illustration, graphic design or visual communication practices and examine how digital illustration communicates through metaphor, symbolism, and narrative.

CTH238 Digital Imaging & Manipulation

3 Cr. Hrs. = (0 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Image editing and manipulation involves transforming or altering a photograph using various methods and techniques to achieve desired results. This course sets out essential concepts and skills relating to the ability to understand the main concepts underlying digital images and to use an image editing application to enhance images, apply effects, and prepare an image for printing and publishing.

CTH239 Animation Action Analysis

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Through this course student learn the importance of a construction map, character rotations, and full-body gestures and motion mechanism. Life drawing is the backbone of any art-related field, and animation is no exception. Regular practice at life drawing improves artistic performance in all stages of animation production. Students continue exploring forms of movement that range from technical to highly exaggerated. They learn to solve problems involved with rotating a character in three-dimensional space and are introduced to “explosion” timing. Basic anatomy is the focus, along with exploring different elements of the human body and how they relate to each other. Students also discuss and practice additional techniques for improving proportions and simplifying gesture lines and study their own expressions, students create expression sheets for their characters.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CTH241 Computer Design Application I****2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course is a comprehensive introduction to Mixing Digital arts to free-drawing and graphic arts through: Computer digital arts. Freehand drawing. Drawing using a graphic tablet. Digital tools, light and filters. Digital adjustments and manipulation. Drawing with digital software (Photoshop/ illustrator). Reproduction of artworks by Digital tools. Mixed media.

CTH242 Film Production Technology**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course is comprehensive. Introduction to digital Filmmaking. Nonfiction Filmmaking. Producing a Short Film. planning and getting ready to film (development and pre-production). filming (production). completing the film and getting it ready to show (post-production). Digital Film Editing. Sound Design. Visual Effects. Advanced Postproduction. Special Topics in Film. ALL DIGITAL.

CTH243 Special Effects**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **6**

Prerequisite ---

This course is comprehensive. What Are Special Effects? (A Brief History, Cognitive Media Theory, Gauging Emotional Stimuli). The cinematographer filmic techniques from traditional to digital era. Digital filming and special effects. Analytical and synthetic. The political economy of special effect. Digital tools for special effects. Temporal and special for special effect.

CTH244 Television Basics**3** Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **8**

Prerequisite ---

This course is comprehensive. The working principle of television. Roles of Production Team (Producer, Director ,3 Writer, Technical Director (TD), Camera Operator, Audio Engineer, Character generator (C.G.) operator, Lightning Manager, Stage Manager, Video Editor). PREPRODUCTION. (Generating Idea, Program Proposal, Budget, Costs, Funds and Financing, Script, Planning, People and Communication, Facilities Request, Production Schedule, Permits, Clearances and Rights, Publicity and Promotion). PRODUCTION (The Television Camera, How Television Camera Works, Adjusting the Camera, Camera Operations and Framing, Basic Rules During the shootings, Lightning, Lightning Instruments, Lightning Techniques, Audio, Sound Pickup, Sound Control, Video Recording m1 Electronic Features of Video Recording, Storage System, Switching, or Instantaneous Editing, The Actual Shoot, Field Production). POSTPRODUCTION (Editing, Delivering the Final Product, Professional Next Step).

CTH245 Cinema Basics**3** Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **8**

Prerequisite ---

This course is comprehensive. Basic cinematography. cinematography techniques. the elements of cinematography. Cinematography, Time Scales (Series), film part scene, shot beat frame. Shot elements scene -Camera - lights - subjects - props - set - music - dialog - foley – VFX: Duration, transition (context). Virtual camera controls, field of view, zoom, Distance from subject, position, orientation - Usually only yaw,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Motion - Usually, sensitivity, motion blur extent, tone curve & tint of Bloom, focus depth, defocus radius, Aspect ratio, Frame rate. Standard camera Locations, establishing shot, close-up (Insert shot), Over-the-shoulder. Lighting. Color composition. Transitions. Cinematography cheat sheet.

CTH246 Theory of Editing

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **6**

Prerequisite - - -

This course is comprehensive. film editing history. Evolution of Editing Theory. Evolution of Editing Theory. types of film editing. Kuleshov effect. elements of editing in film. continuity editing. editing techniques. montage editing. How to Manipulate the Passage of Time? Creation through montage. Analysis of some models (Potemkin armored film, Dr. Caligari's silo film). How to Manipulate the Passage of Time?

CTH247 Television Broadcasting Systems

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. historical background. How does TV broadcasting work? broadcasting technology. broadcast TV mean. types of broadcasting. Broadcast service station. Temporary community broadcasting licenses. Narrowcasting service station. Narrowband area service station. High frequency (HF) broadcasting stations. Spectrum use. International broadcasting license (IBL). The different types of digital broadcasting. Equipment for digital terrestrial television. Compact Series. Broadcast Series. Echo cancelling. Remote control & monitoring. Integrated solutions. Accessories for broadcasting (COFDM-ASI converter, active demultiplexer, multiplexer filters, transmission panels, power distributors, reception antennas). Cabinets

(Indoor cabinets, outdoor cabinets).

CTH248 Cinema and Television Decoration

3 Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course is comprehensive. Think about the course. Location of the camera and its height. One element of expression. Definition of buildings and architecture. Photographing model 1. Photography Model 2. Visualization of visual image.

CTH249 Management of Virtual Studios

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. What is a virtual studio? Virtual Studios in use (Planning, chroma-keying, camera positioning, computational power, user interface, depth, defocusing, cost). Design of camera supporting structure. Product description. Typical DeltaV virtual studio Applications. Operator training systems. Development and test systems. Online production systems. DeltaV virtual studio product features. Logical and physical VM assignments. Customized VM templates. Control and SIS hardware VM templates. High availability and disaster recovery are recommended. for all on-line production systems. DeltaV Virtualization system health alerts. Advanced virtualization diagnostics. Licensing considerations. Microsoft windows OS licensing. Sample for ordering information.

CTH250 Devices and Equipment I

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. The idea of working and sensitive media



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



types used with digital cameras. How to record and reproduce color information in sensitive media. The concept of color management in digital image production systems. Digital color schemes (color spaces). Evaluation and assessment of color differences between image and origin. Color measuring instruments (Densitometer-Cool-meter-Spectrophotometer). Components of color management system. How to set up the color profile for different digital devices. Evaluate the accuracy of the color definition of digital devices. Characteristics of lighting in photography. How different objects and materials deal with light. Types of inversion (direct dispersion), family angles, inverse square law. Components of the photographic studio. Flashlights within the studio, its characteristics, and accessories used with it. Camera Holder. Devices and means of synchronization between the camera and flash devices (Infra Red - Radio. Processing of digital images saved in the pattern of conservation raw by Alfotoshob. Digital image processing using Photoshop (color correction, contrast, exposure,). Using layer masks technology for Alfotoshob program to solve various problems in the digital image.

CTH251 Composition and Lighting I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 6

Prerequisite - - -

This course is comprehensive. The rules of shot composition. What is composition? FRAMING the SHOT (Rule of Thirds, Balance and Symmetry, Camera Lenses. Video Camera Lens Basics. Focal Length. Aperture. Shutter Speed. Depth of Field. Aspect Ratio. Video Camera Lens Extras. Lens Breathing. Lens flaring. Chromatic Aberration. Light Bokeh. Camera lens test videos. Blocking definition (What Is Blocking in Film?). Leading the eye (Leading Lines). Angle shots. Aspect Ratio. How to Make a Shooting Schedule? Lighting. Three-Point Lighting.

High-Key Lighting. Low-Key Lighting.

CTH252 Computer – Virtual Graphic I

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 8

Prerequisite - - -

This course is comprehensive. Virtual Reality (or VR for short). The term(s) of Virtual Reality. VR characteristics. VR - simulating stimuli. VR and the notion of space. Simulation of sensory stimuli. Computer technology. Adaptive Narrative Virtual Environments. Isoluminance Contours: A Fast, Simple Model for 4D Animated Visualization. State-of-the-art and related work 35. Hardware for 3D. Middleware and software for 3D. Applications.

CTH253 Color Theories

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 5

Prerequisite - - -

This course is comprehensive. Scientific & Philosophical Interests & Origins of Modern Color Theory. Light properties. Types of Color Theories. Color Temperature. Color Schemes: Monochromatic. Scientific & Industry-specific Color systems. Mechanical vision. Sources of colors Sources of illumination. Description Color measurement methods color. History of Photography and Colored Cinema. Color films and their types. The rules of color photography and artistic and artistic values. Color psychology.

CTH254 Television Production Technology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course is comprehensive. techniques used to create a television program. Selection of the program topic (Developing program briefs,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Researching the topic, Designing the Production Schedule, Storyboard, Script Designing & Script Layout). TV Recording and Editing (What is editing? Rules of editing, editing sound, U-Matic, Beta & VHS, Types of editing, The Single-camera Solution, insert editing. & FCP. stages of television production. Pre-production: a. research. b. scriptwriting and storyboard. c. Project planning. The shoot. Post-production: a. assembly of footage. b. animations and motion graphics. c. music. Duplication and delivery: a. Output to chosen media format. b. cover design (where required). idea generation: The process of creating, developing, and communicating ideas for Television Production. A television producer.

CTH255 Virtual reality

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

This course is comprehensive. Virtual Reality (or VR for short). The term(s) of Virtual Reality. VR characteristics. VR - simulating stimuli. VR and the notion of space. Simulation of sensory stimuli. Computer technology. Adaptive Narrative Virtual Environments. Isoluminance Contours: A Fast, Simple Model for 4D Animated Visualization. State-of-the-art and related work 35. Hardware for 3D. Middleware and software for 3D. Applications.

CTH256 Devices and Equipment II

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite DCA234

This course is comprehensive. The theories on which the film industry was based - the installation of a traditional film machine. Sporadic mechanical movement. Camera shutter and viewfinder. Study of models from the most common conventional cameras Arri. Arri 435 - Arri 16SR.

Digital Film Camera. Study models of the most popular digital cameras. Rrd one- Arri alexa -Arri D21. Traditional and digital cinematic media. Lighting devices. Light measuring devices. Devices for fixing and moving the camera. Film Projectors.

CTH257 Computer – Virtual Graphic II

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 8

Prerequisite DCA234

This course is comprehensive. Virtual Reality (or VR for short). The term(s) of Virtual Reality. VR characteristics. VR - simulating stimuli. VR and the notion of space. Simulation of sensory stimuli. Computer technology. Adaptive narrative virtual environments. Isoluminance Contours: A fast, simple model for 4D animated visualization. State-of-the-art and related work 35. Hardware for 3D. Middleware and software for 3D. Applications.

CTH258 Composition and Lighting II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

This course is comprehensive. The beginnings of cinema and various devices. 16mm film camera parts. The intermittent mechanical movement and shutter movement and types. Lenses - Determination of vision. Exposure and tolerance, sensitivity layer variation and film types and measurement. Color Temperature and Color Filters. Alternative technology for film in its various.

CTH259 Studio Engineering

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 210 – ECTS = 4

Prerequisite - - -

This course is comprehensive. TV studio design of space, height, floor,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



wall, and ceiling. Services of studio, studio sound insulation in studio. Audios Studio - HVAC Systems. Decoration and studio. Camera control room. Cameras, types, and accessories. Production control room. MONITOR, SWITCH, AND MIXING CAMERAS. Lighting network and control system - lighting console and sound console. Tlicinma devices. Video recording and editing equipment. Operators of studio units in technical and engineering terms. Digital TV in production and transmission.

CTH310 Texture and Lighting

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite - - -

The course special effect is a tech-centric discipline that covers the most common special effects used in digital communication projects and filming from texture to behavior and integration. It also includes how to use Adobe Photoshop®, Aftereffects®, FumeFX and 3Ds Max to create textures, and demonstrates essential methods for efficiency and optimization of visual effects to be used in digital communication and film making.

CTH311 Animation Studio I

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite - - -

Digital media literacy course provides students with the knowledge, skills, and practice to become professional communicators in creative industries. This course focuses on the powerful combination of words, images, and sounds to develop student's ability to analyses, evaluate, and create different forms of communicative contents in a digital environment.

CTH312 Storyboarding for Animation I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite VDD212

Although some advertising media can be placed today, the main concept of advertising communications is still the same. It is a way of conveying a message that is comprehensive, effective, and persuasive targeting specific audiences to achieve brand's marketing objectives. This course provides the student with the basics and principles that enable him to translate the abstract brand values, promises and messages in a visual form. Through digital or and printed media, posters, billboards, brochures, banners, catalogues, leaflets, Magazine and newspaper ads, the student will learn how to visualize ideas using graphic elements, art directing and execution.

CTH313 Animation for the Web

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite

This course provides the student with the key lines in the History of advertising and the main factors that affected it since the Industrial Revolution. It also relates advertising with the cultural, social, and technological changes in the recent past and nowadays. The course covers theoretical frameworks and applies them to specific advertisements.

CTH314 3D Modelling

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

This course covers the design of all forms of visualizing data and designing information. It provides the students with the theories and principle needed to communicate complex information to a wide range



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



of people with different cultural backgrounds. The course aims to provide students also with basic skills to simplify, organize and visualize information to be presented through graphic elements, sound, and motion in media.

CTH315 History of Animation

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

This course demonstrates the magic of early cinema, the students got to know the foundations of the animation industry. Students start from the early silent era and go through the coming of the sound. This course explores many aspects and topic like the animation as a modern art, Disney's new aesthetic, style and Fleischer Studio, the animation in World War II, international developments in post war animation, post-war experimentation, stop motion approaches and going through the Disney renaissance, computer-generated animation in features and wrapping all by animation in the art world.

CTH316 Animation Studio II

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite

This course covers the main concepts of brand building, brand strategy and brand identity. It provides the students with the knowledge needed to understand brand management process and the creative skills required to design corporate identity, marketing materials, and advertising programs. In addition to the importance of digital branding in nowadays marketing concept. It combines design and marketing principles to provide students with insights and practical experience in the branding process.

CTH317 Storyboarding for Animation II

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite CTH312

This course introduces the psychological process behind human decisions and the influence of thoughts, beliefs, feelings and perceptions on consumer behavior and the effect of cultural changes on shaping consumer psychology. This course also concerns the processes of selecting, purchasing, using, or engaging products, services, ideas or brands and the methods to satisfy consumer's needs.

CTH318 Animation Scripting

3 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite VDD312

Interactive advertising course refers to online advertising that includes an element of consumer feedback. It goes beyond simple banners using social media but includes any other approaches to engage the target audience. The course provides students with the skills required to develop two-way communication between brand and customer. The course includes different forms of interactive advertising (augmented reality, mobile applications, and interactive videos) that can build a relationship between a business and its audience.

CTH319 Voicing and Special Effects

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6

Prerequisite - - -

The course special effect is a tech-centric discipline that covers the most common special effects used in digital communication projects and filming from texture to behavior and integration. It also includes how to use Adobe Photoshop®, Aftereffects®, FumeFX and 3Ds Max to create



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



textures, and demonstrates essential methods for efficiency and optimization of visual effects to be used in digital communication and film making.

CTH320 Cinematography

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 3 OTH) – SWL = 180 – ECTS = 6

Prerequisite VDD214

This course covers the important early stages of digital game development process from sketching to a fully coded demo. focusing primarily on prototyping to allow student to realize the vision and create a physical way to text out the idea. It includes playable “sketches” and rapid prototyping, concept refinement, creative direction, and concept communication. This course aims to provide the student as a game designer to check how emergent gameplay and artistic design choices affect the design.

CTH321 Film Writing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite CTH228

This course offers students a detailed introduction to the art of writing for film as well as interpreting cinematic and drama texts for their adaptation into the audio-visual forms.

CTH322 Musical Appreciation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Music is an extensive and all - inclusive subjects, participation is mandatory and vital to the learning experience and momentous to the development of awareness throughout this course. In this course, students gain an understanding of musical composition and acquire a

convenient appreciation of the role composers provide to propagate the film’s content as and as elaborate tools for meaning delivery.

CTH323 Film History

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite

Music appreciation engages students to the discipline of music through listening, discussion, lectures, and analysis. The course highlights the historical development of music with an emphasis on Western art music. This course help students develop a working vocabulary of musical terms and concepts and link it to a visual concept accordingly. The course will recognize the aesthetic and stylistic characteristics of various music from diverse historical eras and identify the social, cultural, and historical contexts of individual works from different historical eras. The course will focus and highlight the various approaches to the composition and performance of musical works throughout history.

CTH324 Theories of Directing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

The course special effects are a tech-centric discipline that covers the most common special effects used in gaming from texture to behavior and integration into an alpha stage game level. It also includes how to use Adobe Photoshop®, Aftereffects®, FumeFX and 3Ds Max to create textures, and demonstrates essential methods for efficiency and optimization of visual effects to be used in a video game. In this course Students gain an advanced appreciation of the spatial factors within the studio settings and their employment in order to achieve intended moods, atmospheres, and meanings. Students also gain closer insights into set designs and layouts.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH325 Studio Production****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

In this course Students gain an advanced appreciation of the spatial factors within the studio settings and their employment to achieve intended moods, atmospheres, and meanings. Students also gain closer insights into set designs and layouts.

CTH326 Script Interpretation**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6Prerequisite **CTH322**

This course is a study of different dramatic structure and methods of script analysis as preparation for writing, directing, designing, performing through criticizing, and analyzing scripts for plays and films. The course offers students a solid foundation on script elements, character building, and interpretation approaches. It also probes the effective replication of written meanings and notions to vivid images and audio-visual contexts on the screen. The course focuses on reading a script theatrically with a view to mounting a coherent production. Through careful, intensive reading of a variety of platforms and scripts. While providing the students with analytical tools for understanding scripts and passing a skillful experience to those tools and elements.

CTH327 Digital Sound Design**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6Prerequisite **CTH225**

This course offers students a survey of the technologies and techniques used in sound production in film and drama. Students are taught about the mixing and editing stages as well as the postproduction stage with

a close examination of Foley and ADR. Students are also introduced to the various software used in the industry as well as the various instruments used in the recording stage. Students are also taught to collaborate and create meaningful dialogues with sound editors to ensure efficient utilization of music in their films.

CTH328 Digital Editing and Applications**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Students are familiarized with the latest technologies used for editing video and the visual and digital effects by which the director's vision may be elaborately and effectively delivered.

CTH329 Dramaturgy I**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course teaches the role of dramaturg through the study of a different classic text, an adaptation, a modern text, a musical and a contemporary text. This course engages students in production dramaturgy, preparing protocols, research presentation and in discussion in class with other peers. The course critically propagates an understanding of the relationship between the dramaturg and the text and delivers an understanding of how dramaturg balances research with the practical demands of performance.

CTH330 History of the Play I**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

The course offers a chronological survey of the history of plays and theatre. The course takes students through history of the play from the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Ancient Greek and Roman theatre and up to the Elizabethan era examining the nature of the play texts and performance styles. Students also examine ancient Asian and European theatre styles. The course allows students to gain an insight on analyzing a variety of texts from diverse time and geographical origins and identify the key theatrical elements relevant to the directing and the acting of the play.

CTH331 World Theatre

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

This course is a comprehensive introduction to the history of theatre throughout the Ages, with an emphasis on European and Western theatre and its forms, development, and functions. It also sheds light on a selection of different historical and current theatre traditions from Africa and Asia; thus, using academic terminology to describe and analyses phenomena in the field of theatre.

CTH332 Theatre Lighting Design II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course familiarizes students with the world of scenography and introduces them to theory and the application of set design techniques. Scenography philosophies and ideologies are clearly explained through practical examples and their theoretical context. It develops the students' creativity and originality in designing theatre settings related to a text and concept and to lighting and technical processes.

CTH333 Stage Directing and Acting Theories I

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course guides students to gain an understanding of the role of the director in theatre and the collaborative nature between actors and backstage crew. The course introduces the various theories of acting and directing and their utilization within performance training. Students will examine and analyses written materials and apply directing theories to achieve certain effects on stage. Students will also practice acting skills and master the roles of theatre artists through a variety of performance trainings.

CTH334 Playwriting I

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

The course introduces the right vocabulary that students will need to build their own play as a way of stories telling, and create through character, intention, action, conflict, and image. The course also includes the research and development of completed dramatic work. The course will guide the student to understand the basic and the more advanced percept of playwriting within the parameters of the dramatic work. This course identifies the various styles of playwriting.

CTH335 Advanced: Theatre Lighting Design III

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 2 OTH) – SWL = 240 – ECTS = 8

Prerequisite ---

The course provides an overview of advanced design and theoretical design techniques including programming, color application, texture, and intelligent lighting. This course will prepare the students to



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



successfully program conventional and intelligent lighting systems in coordination with each other. The student will be able to practically apply the skills learned in a completed lighting design scene. The course will enable students to explore more about automated lighting in the third millennium.

CTH336 Instrumental and Vocal Performance I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

. This course offers a brief introduction to musical education and musical performance. Students advance their music composition skills with practical experience and a rigorous training component. Students will not only learn theory and practice, but they will also learn pitch, tone, expression, improvisation, and performance.

CTH337 Drama, Theatre and Performance Introduction

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course is an introduction designed for students who are seeking a major in theatre and performance, with no experience yet with the art form. The course develops the student's skills in reading and analyzing plays and productions by understanding a several key artistic movements in the theatre. The course explores how the theatre has come to both shape and reflect samples in the history of Western and Arabic world through Egyptian performances. In this course you will also learn how theatre and drama rely on the commitment of people from a variety of backgrounds. The students will continue exploring the whole concept by doing, integrating concepts and practices from the theatre into their own work. Therefore, students will read plays, attend plays, write about plays, perform an acting scene, and collaborate on a final project that integrates the key concepts from the course.

CTH338 Contemporary Theatre Production Technology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course draws upon faculty and guest artists of the department of Theatre to explore what it means to be a theatre artist of the new millennium. What are the plays, theatre artists, and practices that describe our era? What are the relationships among and between designer, actor, playwright, and scholar? What is the nature of interdisciplinary work? How do you see yourself participating? Course materials include contemporary plays, techniques, readings on current practices, and research about contemporary latest technology in the field.

CTH339 Short Film Concept Development

3 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course will reveal the steps, tips, and tricks to making a professional short film. It provides techniques for making dramatic features, documentaries, corporate, broadcast, and experimental videos, and films. It will also introduce the student to a range of filmmaking specialisms. The course focus on the artistic and technical skills required to produce short-form films and gives the students a solid foundation with which to enter the film industry and also benefit everyday life. Students are introduced to the fundamentals – directing, production, cinematography, screenwriting or editing.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CTH340 Special & Visual Effects

3 Cr. Hrs. = (0 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

The course special effect is a tech-centric discipline that covers the most common special effects used in digital communication projects and filming from texture to behavior and integration. It also includes how to use Adobe Photoshop®, AfterEffects®, FumeFX and 3ds Max to create textures, and demonstrates essential methods for efficiency and optimization of visual effects to be used in digital communication and film making.

CTH341 Animation Production

3 Cr. Hrs. = (0 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Animation producers play an important role in any project. This course will provide student the practical knowledge to make his/her project investable and achievable in the real world. It concentrates on character action, animating the environment – features such as fire, smoke, water, and bubbles. In addition to physical laws of natural elements that guide their actions and consequently require a unique discipline of their own. Students apply the correct principles to perform different animation tasks and effects.

CTH342 Computer Design Application II

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 105 – ECTS = 4

Prerequisite DVA311

This course is a comprehensive introduction to mixing digital arts to graphic prints through: Computer digital arts. Scanning of Graphic prints. Digital tools, light and filters. Digital adjustments and

manipulation. Drawing with digital software (Photoshop/ illustrator). Reproduction of artworks by Digital tools. Mixed media. Painting with Color. Finalizing a Painting. Principals of Lighting, Color, & Mood.

CTH343 Shooting Script

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 4

Prerequisite - - -

This course is comprehensive. Drew's Script-o-Rama. Simply Scripts. The Daily Script. The Script Lab. Create a Shot List. shooting schedule? FREE Shooting Schedule Template. Why Shooting Schedules Matter to Cinematographers. Who uses a shooting schedule? How to Create a Shooting Schedule? production schedule. film scheduling programs like Studio-Binder. Shooting schedule software. film-scheduling-software. Shooting schedule software. Create a Shooting Schedule with Studio-Binder. The Revenant's ever-changing shooting schedule. how the weather altered The Revenant's production schedule? DiCaprio's commitment to a changing shooting schedule. free shooting schedule template. Create a More Encouraging Production Schedule.

CTH344 High Quality Cinematography

3 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 165 – ECTS = 17

Prerequisite - - -

This course is comprehensive. Introduction. Early Camera Arrays. The Multiple Camera Array. Hardware Components. System Architecture. Improved Imaging Performance. High-Dynamic Range and High-Resolution Video. High-Speed Video. Spatiotemporal Sampling. Planar Camera Arrays. Multi-baseline Spatiotemporal Optical Flow. Synthetic Aperture Photography. Non-linear Synthetic Aperture Photography. Hybrid Aperture Photography.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH345 Image Compositing Systems****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. What is Deep Compositing? Comparison to traditional concepts (zMerge, preserving color values/corresponding to zCrop/zSlice, Volumetric, what it can 't does). Implementation (Autodesk 3ds Max and Chaos Group 's V-Ray, The Foundry 's Nuke). Performance (File size, Processor and memory usage, Network, Compression, Compression). The visual effects pipeline. Workflows (Proxies - an essential concept for dealing with large data set, Region of interest, when to use deep images, Integration of live action with computer generated deep images). Outlook (Deep Object IDs, Vector blur that works for overlapping objects, Altering the look of volumetric renderings in compositing, Volume fog in Com, Light interaction, Building a deep image library, Stereo).

CTH346 Virtual Imaging Cameras**3** Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. Computational Imaging for VR/AR. VR Video Capture. Learn About VR Imaging? The Immersion of VR Gaming. The Intimacy of VR Painting. Imaging Data Need for VR Rendering. Modeling Light Images, Videos, Light Fields. A Camera for Plenoptic Function! Imaging Fundamentals Conventional Cameras, Lenses, Sensors. Design A VR Camera. Spherical Imaging (Monocular. Moving-Viewpoint Imaging (Full Plenoptic Function?). Multi-Camera Array. Lytro Immerge Multi-Camera Array for VR. Handheld 4D Light Field Camera (Plenoptic Camera). 4D Light Field Camera. Light Field Sampling Rates (Viewing resolution- Depth range of objects).

CTH347 Directing Principles**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course is comprehensive. The emergence of drama. Definition of cinematic and television drama. Definition of the scenario and its multiple sources. The difference between the script and other literary genres. The difference between a live event and a dramatic situation and knowing the story can be converted into a scenario. Elements of dramatic construction (conflict / personalities / dialogue / end and types). Time and place and how to express them (decoration / clothing / accessories / lighting / make-up). The responsibility of the director and the definition of his duties inside and outside the studio.

CTH348 3D Imaging I**3** Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. Visual perception. Consumer 3D Experience – basic concepts and guidelines. Comfortable viewing and vengeance-accommodation conflict. Perceptual distortion due to incorrect viewing angle. Interpapillary distance (IPD). Depth of field. Image-pair balancing. 3D imaging and the transformation of screen-space. How Cinematic Volume Rendering Technique brings new. Entertainment 3D Imaging. view to clinical imaging. 3D Holographic Imaging as a modality for 3D TV and displays. 3D Projector. Comparison of 3d reformat computed tomography images using different software's. 3D Imaging Technology's Narrative Appropriation in Cinema.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH349 Computer – Created Image****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course is comprehensive. Computer. Functionalities of a computer. Computer Components. Software. Software types. Application Software. Unit of Measurements. Computers classification. Computer image-processing & recognition. CG2Real: Improving the Realism of Computer-Generated Images using a Large Collection of Photographs.

CTH350 3D Cinematography**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

This course is comprehensive. History of 3D-Cinema. Stereoscopic Cinema, D Cinema, and Others. 3D display technologies (Stereoscopy, Auto-stereoscopy, Multiview Auto-stereoscopy). Computer vision, computer graphics, and stereoscopic. Cinema. Stereo-specific Processes. Integral imaging. Three-Dimensional perception and visual fatigue. Sources of visual fatigue. Picking the right shooting geometry. Lessons for live-action stereoscopic cinema from animated. D. post-production of stereoscopic movies. Holography. Volumetric displays. Analysis and comparison of 3D technologies. 3D content representation for stereoscopy and its variant technologies. Depth image-based rendering (DIBR). A real-time cinematography system for interactive 3D environments.

CTH351 Digital Cinematography Lab**3** Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course is comprehensive. Image (Low Contrast - High dynamic range OCN film contrast vs. print film). Film cameras color management,

Lens center, lab processing effects, capture aspect ratio & HD vs. data DI? Digital cameras (Digital film -Not digital video, High dynamic range, View LUTs, Digital cinematography cameras, Extended dynamic range, Bit depth & bit range, resolution & quality. Camera lenses, cCinematic Approach to digital capture, rough guide to shooting HD. Audio. Digital Dailies (Color calibration). Film capture (Digital dailies workflow). Digital Capture (View LUT calibrated dailies- view LUT Workflow). Post-production (Workflow Calibration- Calibration Steps). Film scanning (Data Telecines CCD vs. CRT, frame instability, dynamic Range, Resolution. HD – An Alternative Workflow for DI. Film Scanners (Speed -Super 2K). The choices. Digital images ingest. The digital intermediate process. Graphics & vfx. Audio. Deliverables (Film recording and processing, digital/data deliverables & video deliverables).

CTH411 Graduation Project I**4** Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **4** OTH) – SWL = **255** –ECTS = **8**Prerequisite **SENIOR LEVEL**

Students plan out their ideas and present their dissertation. The aim of this animation project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in Animation. Therefore, students will focus on the creative aspect of production, creating a short animation reel.

CTH412 Advanced 3D Modelling**4** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **240** –ECTS = **8**

Prerequisite ---

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing an ad campaign for a brand to achieve a specific goal. The dissertation is based on mixed research methodology; primary



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



research should be done through interviews and our survey questionnaire. Then the secondary data from the website and some qualitative information from textbooks and different sources, aiming to analyses the satisfaction level of customers and how effective messages delivered in the advertisement. After the research, he has to conclude the advertising messages, and present a brand creative strategy that includes rebranding plan, redesigning identity, and a complete digital advertising campaign.

CTH413 Drama Criticism

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 180 –ECTS = 6

Prerequisite CTH318

This course will run investigation about the theoretical developments in Drama and will highlight the historical connections. The course will crossroad over the influences of the theory on different drama practices and dramatic literature. This course will help you to elevate your critical thinking skills and deepen your understanding of dramatic works. The course will explain dramatic theory in the context of the world's cultural and intellectual studies in history.

CTH414 Rendering, Editing and Sound

3 Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = 195 –ECTS = 6

Prerequisite - - -

This is the course where the animators are expected to plan their final look carefully, students will gather all the previously produced scenes and shoot and start working on it to create the final product. This course will give the students the chance to evaluate their knowledge and start collecting feedback and then self- directing. The course is beneficial to the students to finalize their short film stories and create an addition in their demo reels.

CTH415 Animation Studio III

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 –ECTS = 8

Prerequisite - - -

This course allows students to develop professional skills in video, animation, film, and television pre-production, production, and post-production. Audio video course introduces students to video camera operation, camera stabilization techniques, lighting, scripts and storyboarding, digital imaging, motion graphics software, and importing/exporting graphics, movies, animations, and sound effects into, or out of video editing software. It allows students to use special effects, insert computer graphics, and explore the use of advanced software including Adobe After Effects, final cut, and DVD Studio Pro. Through group projects student will be able to produce audio video projects using advanced techniques.

CTH416 Graduation Project II

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = 360 –ECTS = 11

Prerequisite CTH411

Students execute their ideas presented in the first graduation project class. The aim of this project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in animation. Students will focus on the creative aspect of production, creating a short animation film, or reel.

CTH417 The Business of Animation

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 –ECTS = 6

Prerequisite VDD412

For graduation requirements, students will have to develop an integrated digital advertising campaign; including designing brand identity (logo, color schemes, typography, and creative communication



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



materials), 2D advertising design (posters, magazine ads, brochure, web design and internet banners), 3D advertising (packaging, displays, ambient and interactive ads) in addition to radio and audio video advertising. A student should also design a complete presentation to explain his project and justify his point of view.

CTH418 Professional Future Studies

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** –ECTS = **6**

Prerequisite ---

Students will learn how contemporary changes in cultural and global developments will shift and create new trends in animation. This is done through exploring how animation has developed over the past and how it continues to develop using external social and technological contexts. Students will also explore how the academic stream is going to develop by investigating recent research interests and aesthetics in the field. Students will also learn how to master many of the versatile technologies and software that would allow them to produce creative novel content and animation styles.

CTH419 Animation Studio IV

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **195** –ECTS = **6**

Prerequisite **CTH415**

The course provides an overview of the complete vision of the animation film with dialogue. Putting a voice to an animated character gives it a dimension and believability that cannot be achieved any other way. Following an exercise in basic lip sync, students proceed with planning, thumb-nailing, and animating a character to pre-recorded dialogue. Being able to make a character act appropriately to dialogue is vital to one's skill set as an animator. Students receive one-to-one feedback from instructors and their animation is graded on the strength of the posing, expressions, and timing.

CTH420 Advanced: Studio Production

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** –ECTS = **6**

Prerequisite **VDD326**

This course provides the student with the basic knowledge and skills to create advanced digital multiplayer games. It will allow him to communicate and synchronize with a game server different player at the same time, including online communications to make an enjoyable peer-to-peer gaming which reducing and managing network latency. It covers the fundamentals of game networking by developing a real-time multiplayer game, using a more scalable game design for online gaming.

CTH421 Graduation Project I

6 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **6** OTH) – SWL = **360** –ECTS = **11**

Prerequisite **CTH326**

Students plan out their ideas and present their dissertation. The aim of this project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in filmmaking. Students will focus on the creative aspect of production, creating a short narrative film assisted by additional crew support from filmmaking department students outside the class.

CTH422 Intense Digital Editing and Film Montage

3 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **180** –ECTS = **6**

Prerequisite **CTH329**

In this course, students shoot and edit a short film as an individual project. The course focuses on teaching the advanced montage and graphics techniques utilized during the postproduction stage.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH423 Film Music****3** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = **180** –ECTS = **6**Prerequisite **CTH323**

Lecture, studio-based tutorial, field trips, forum of discussion, research readings-based reports analyses.

CTH424 Advanced Cinematography**3** Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 2 OTH) – SWL = **195** –ECTS = **6**

Prerequisite - - -

This is a beginning class that introduces students to the 3D environment and tools. A studio course in the theory and technique of three-dimensional (3D) modelling utilizing appropriate software. Topics include the creation and modification of 3D geometric shapes; and rendering techniques; and use of camera light sources, texture, and surface mapping. Students will use these tools to build complex objects then learn the basics. D rendering tools and techniques including surface channels, procedural textures, image mapping, light types and settings, camera settings and use, as well as a variety of rendering options, including raytracing. Students will also learn the importance of file backup and management.

CTH425 Graduation Project II**6** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** – ECTS = **11**Prerequisite **CTH421**

Students execute their ideas presented in the first graduation project class. The aim of this project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in filmmaking. Students will focus on the creative aspect of production, creating a short narrative film assisted by additional crew support from filmmaking department students outside the class.

CTH426 Business of Filmmaking**2** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **120** –ECTS = **4**Prerequisite **VDD422**

For graduation requirements, students will have to develop their problem- solving skills and communication skills. The process from concept to final implementation and testing, through problem identification and the selection of appropriate solutions will be practiced by the students. Students have presented a complete 3d or multiplayers game project including, idea, concept, levels, 3D character design storytelling, design, implement and evaluate a playable game to demonstrate their understanding in the entire game production process.

CTH427 Cinematic Trends**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite

This course provides the student with the knowledge and skills to be able to analyses and evaluate the circumstances, changes and events that could affect gaming industry. The course aims to improve students' critical thinking skills to develop a future for gaming according to culture research and innovative technology. This course allows students to be professional leaders in game development, creative problem solvers and decision makers.

CTH428 Advanced Theories of Directing**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite - - -

In this course, students revisit some of the theories of directing they were taught in the introductory course but in a critical matter that problematizes some of the issues ingrained in each school of directing examined. Students make connections with how each school delivers



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



meaning and creates a creative context and critically analyze its utilization of visual content and auditory stimuli.

CTH429 Musical Theatre

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite - - -

This course introduces breaks new ground by making music, rather than text, the driving force behind design for the performing arts. After being introduced to music appreciation, students will create visual artworks inspired by personal responses to specific pieces of music. Students will then create designs specific to dance, concert design, musical theatre, and opera. Various forms of idea-sharing will be taught, including collage, sketching, rough modelling, and painting.

CTH430 Instrumental and Vocal Performance II

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite **CTH336**

In this course students will have learned the basics of music and will move on to the performance component and how to utilize their instrument or voice on stage to fulfil the required aesthetic effects. Students will get to perform multiple times on stage and will collaborate with directors gaining practical experience in the making and production of musicals.

CTH431 Stage Directing and Acting Theories II

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite - - -

This course will delve deeper into the text structures and messages relevant to performances. Students will discuss and explore the surrounding social, political, and cultural contexts of various texts and

how those notions can be transferred to the stage performance. The course will also teach students to identify the major roles that a professional dramaturg may be asked to fill. Students will gain practical experience in these roles and in the cooperative nature of the relationship with the director.

CTH432 Dramaturgy II

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CTH329**

This course will delve deeper into the text structures and messages relevant to performances. Students will discuss and explore the surrounding social, political, and cultural contexts of various texts and how those notions can be transferred to the stage performance. The course will also teach students to identify the major roles that a professional dramaturg may be asked to fill. Students will gain practical experience in these roles and in the cooperative nature of the relationship with the director.

CTH433 Graduation Project I

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** –ECTS = **11**

Prerequisite **SENIOR LEVEL**

Students select and plan out their ideas and present their dissertation. The aim of this project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in drama and theatre. Students will focus on the creative aspect of production, creating a short narrative theatre project assisted by additional crew support from theatre department students inside or outside the class.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH434 Drama and Theatre Design Management****2** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **120** –ECTS = **4**

Prerequisite - - -

This course is comprehensive. Concepts, foundations, and role of television. Lighting devices and types. Cameras and camera mounts and how they work. Build and design a television program and drama video. Production kit. The trade-off between television works. Work problems. Selection of the subject and the operational scenario. Project photography and montage work voice and image. Problems in the workplace, whether in lighting, photography or otherwise.

CTH435 Crafting Production for the Stage**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**

Prerequisite - - -

The course allows students to develop the various production techniques employed throughout time and analyses each in terms of their virtue and aesthetics. Students will understand basic concepts of the creative process and its ramifications and demands on theatre technology not only engage in critical analysis of texts but also in their associated production and the effectiveness of the transition from text to stage. Students will also learn the other implications of directing and production whether socially, politically, ethically, artistically, and even financially.

CTH436 History of the Play II**3** Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = **180** –ECTS = **6**Prerequisite **CTH330**

This course examines the play trends from the Elizabethan Era and up until contemporary theatre. The course will require students to critically

examine the texts in terms of their aesthetic, social and political implications and how they may transition to the stage performance. Students will also come to examine how the theatrical schools reflect the social circumstances of the time and region in which they were created. The course will also teach students about developing ancient texts and their adaptation to fit the demands of the modern audience.

CTH437 Graduation Project II**6** Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = **360** –ECTS = **11**Prerequisite **CTH433**

Students execute their ideas presented in the first graduation project class. The aim of this project is to provide students with the chance to work in a hands-on manner in the roles they will be pursuing throughout their career in drama and theatre. Students will focus on the creative aspect of production, creating a short theatrical project assisted by additional crew support from drama and theatre department students inside or outside the class.

CTH438 Design Management**3** Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The design management course aims to integrate innovation processes, multidisciplinary decision-making, a human- centered mind set and business strategies, to create effective products and services to build successful and meaningful brands. This course allows students to blend way of thinking and methodologies with business management strategies and market value creation. It also covers. The visual communication design management process, strategy, setting objectives, formulating budgets, and vehicles strategy implementation assessing visual communication design effectiveness.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH439 Graduation Project I****3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing digital photographic project for a certain brand, person, or event to achieve a specific goal. The dissertation is based on mixed research methodology; primary research should be done through interviews and/or survey questionnaire. Then the secondary data from the website and some qualitative information from textbooks and different sources, aiming to analyses the satisfaction level of audiences and how effective images delivered a digital photographic project. After the research, he has to represent a script and story board for the image design and short film project.

CTH440 Portfolio Development for Animators**3** Cr. Hrs. = (**0** LCT + **2** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

This course provides a practical guide for students as animators to showcase their work to potential clients. They will learn how to identify their strengths and weaknesses as animators, selecting works that best highlight their talents. Through feedback and critique from their peers and colleagues. They will be guided through the process of creating and publishing their own online or printed portfolio. Students learn and demonstrate industry-professional standards in a classical animation portfolio presentation and create a résumé and cover letter while refining their overall animation industry awareness and interview skills.

CTH441 Graduation Project II**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**Prerequisite **CTH440**

For graduation requirements, students will have to develop an integrated photographic and filmmaking project, including designing image, retouching, compositions, and effects. In addition to a short movie based on photographic narrative benefiting from the knowledge and skills covered in scriptwriting and directing courses. A student should also design a complete presentation to explain his project and justify his point of view.

CTH442 Technical Direction**3** Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

This course is based on the practicing method as students undertake several practical audiovisual narrative sessions throughout the course, into which they integrate the conceptual and technical knowledge acquired. It provides students with the knowledge and techniques to prepare them to produce audiovisual works in a professional format. learn about and perform the work of the director and of the other members of the filmmaking team in the preparation, filming, and post-production processes. The course also includes theoretical subjects that, using film as a permanent basis, cover various areas of contemporary audiovisual art, from the most innovative trends in current cinema to a historic-cultural insight over the past years.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CTH444 Graduation Project I****3** Cr. Hrs. = (**1** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

A student should present a professional dissertation and thesis about his own graduation project topic. He needs to create an entirely unique, interesting topic and provide background information. It might consist of planning and executing digital advanced movie for a certain story with Special Effects, the dissertation based on mixed research methodology; A primary research should be done, aiming to analyses how effective message delivered a digital advanced movie.

CTH445 Movie Composition**3** Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **4**

Prerequisite ---

This course is comprehensive. Composition: Framing of shots. Cinematic is better than specific. Techniques in films. cinematography. Time. Scales. •(Series). •Film. •Part. •Scene*. •Shot. • Beat. •Frame. Shot. Elements. •Scene. –Camera. –Lights. – Subjects. – Props. – Set. – Music. –Dialog. –Foley. –VFX. •Duration. •Transition. •(Context). Virtual. Camera. controls. The point. Lighting. Color. composition. Transitions. Films cheat. Sheet.

CTH446 3D Imaging II**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **4**Prerequisite **DCA336**

This course is comprehensive. Visual perception. Consumer 3D experience – basic concepts and guidelines. Comfortable viewing and vengeance-accommodation conflict. Perceptual distortion due to incorrect viewing angle. Interpapillary distance (IPD). Depth of field.

Image-pair balancing. 3D imaging and the transformation of screen-space. How Cinematic Volume Rendering Technique brings new. Entertainment 3D Imaging. view to clinical imaging. 3D Horoscopic Imaging as a modality for 3D TV and displays. 3D Projector. Comparison of 3d reformat computed tomography images using different software's. 3D Imaging Technology's Narrative Appropriation in Cinema.

CTH447 Virtual Production Methods I**3** Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **4**

Prerequisite ---

This course is comprehensive. Introduction. Intention and ambition. General framework of Thesis. Virtual production principles. Keynote. formation Conditions. Shifts in the film industry. Downsides of traditional VFX production methods. Origins of real-time filmmaking. Birthplace of virtual production. Status Quo – Recent state. Technology. Virtual production pipeline. Creative and artistic benefits. Challenges. limitations. Virtual production. -Innovative interfaces on set. Interface Basics. Developing innovative interfaces. Latest developments. requirements. Selecting devices. Tablet mockup. Interface prototype. Experimental production. Test scenario. Production scenario. Project management. Preparation. On-set production.

CTH448 Animation Techniques**3** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course is a comprehensive introduction to: -Traditional animation: Manuel/digital. Uses/animation movements (Balloon Exercise). -2D Vector-based animation. Uses/ animation movements (Primary Shapes movements). -Motion graphics: Genres. Uses/ animation movements



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



(Primary Shapes movements). -Stop motion. Genres: Cut out/ Puppets/ Claymation. Uses/ animation movements (Primary Shapes movements). - Most used 2d animation Software. TV Paint. Toon-Boom Harmony.

CTH449 Graduation Project II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite **CTH444**

For graduation requirements, students will have to develop digital movie including designing characters, compositions, audio and visual effects and Special Effects benefiting from the knowledge and skills covered in the program. A student should also design a complete presentation to explain his project and justify his point of view. Starting from the basic elements that go into making a film, they focus this knowledge and create their Final Film Projects.

CTH450 Performers' Performance Techniques

3 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **4** OTH) – SWL = **165** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. History of acting. Professional and amateur acting. Training. Improvisation. Physiological effects. Semiotics of acting. Resume and auditioning. Rehearsing. Audience and the actor. Heart rate while acting. Arabic and international examples and examples. Different representative schools.

CTH451 Virtual Production Methods II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **DCA434**

This course is comprehensive. Introduction. Background (Navigating virtual environments, virtual production in cinema, virtual production in

games). Related work. Methodology. System requirements. System architecture, input, tablet, networking, system). User experience, virtual camera functionality, scene & lighting, capture, playback, & edit, intelligence (expert system), collaboration). Application (virtual composition & shooting, augmented reality, match move, comparison to existing solutions). Known limitations & future development (tracking volume, processing power, form factor, expansion to other, fields). The rise of virtual reality in filmmaking and evolution of storytelling in modern cinema. History of VR. VR system perceptual side effects. Numerous applications of VR. VR in cinema. History of cinematic immersion. directing for cinematic virtual reality: how traditional film directors craft applies to immersive environments and notions of presence. Teaching visual storytelling for virtual production pipelines incorporating motion capture and visual effects. A lightweight intelligent virtual cinematography system for. Machinima production.

CTH452 Lighting Engineering

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

This course is comprehensive. Light and electromagnetic radiation (What is Light? The "Visible" Spectrum, ultraviolet radiation, infrared radiation). Basic concepts in optics, reflection, Refraction (Snell's law), reflection and the index of refraction, total internal reflection (TIR), dispersion, transmission, absorption, diffusion (scattering), filtering). Basic radiometric and photometric principles (Basic radiometric and photometric quantities - spectral response -Solid angle - Radiant and luminous energy and energy density -radiant and luminous flux- Spectral luminous efficacy- radiant existence, irradiance (Radiant incidence), and illuminance- radiance and luminance -radiant and luminous intensity). Basic radiometric and photometric measurement -



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



The inverse square law- Lambert's cosine law - Lambertian emission and reflection). The kelvin scales. Color temperature. Types of lights (Tungsten, HMI, fluorescent, LED lights). Here is a full spectrum look at the ins and outs of set lighting. Light sources (Incandescent lamps - Halogen lamps - Discharge lamps. -HID lamps -high pressure mercury vapor lamps- metal halide lamps- high pressure sodium lamps- Xenon lamps- fluorescent lamps- linear fluorescent lamps -compact fluorescent lamps (CFLs) -LEDs (light-emitting diodes)- Common lamp luminance's- common lamp efficacies). Spectrum and color. Optical modeling. (Ray tracing - computer modeling design steps).

CTH453 Practical Internship I

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 120 – ECTS = 2

Prerequisite - - -

This cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training falls within the regular instructions of training programs that contains actions related to duration, selection of training,

plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.

CTH454 Practical Internship II

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 4 OTH) – SWL = 120 – ECTS = 2

Prerequisite - - -

This Cooperative training is a prerequisite for ungraduated students. Through this course, students can work for a specific government or private facilities to equip them with practical experience in the areas of specialization. The training Falls within the regular instructions of training programs that contains actions related to duration, selection of training, plan, work, evaluate the trainee, and the contribution of the academic supervisor. The students will submit the final training project, accompanied by an oral presentation and a technical report of the project, which will be evaluated in accordance with the criteria agreed between the university and the relevant training authorities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الهندسة

FACULTY OF ENGINEERING



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Mechanical Engineering

MEC011 Engineering Drawing (1)

3 Cr. Hrs. = (2 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Engineering drawing techniques and skills. Conventional lettering and dimensioning. Geometric constructions. Theories of view derivation. Orthographic projection of engineering bodies. Derivation of views from isometric drawings and vice versa. Derivation of views and sections from given views. Sectioning views: (half, removed, rotates, offset and partial sectioning).

Teaching the students how to be able to draw any hard engineering drawing geometric constructions by using all drawing tools. Teaching the three Dimensions-way of thinking. Teaching, using Application on machine drawings, how to find three views from the isometric or the missing view from given two views, draw any isometric from given two views. Finally, teaching how to draw surface intersection curve.

MEC012 Engineering Drawing (2)

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC011

AutoCAD fundamentals, roaming facilities, create new drawings, Modifying Commands, create layers and assign properties, Create, and set text styles with different fonts and Dimensions, Isometric, 3D Modelling.

Teaching the students Giving learners an introduction to the principles

of engineering drawings and their applications using computer aided drafting (CAD) techniques. And teaching the students how to be able to draw any hard engineering drawing (2D or 3D) using AutoCAD program. Teaching the students, machine drawing applications, sectional views (full section – half section – offset section), introduction of assembly drawing for some mechanical components, finding the missing two views from given view for structural steel connection and finding elevation view from plan view for retaining wall.

MEC013 Technical Report Writing

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Typography and writing, Formal report components, types of engineering reports, content and appearance, communication types, nonverbal communication, memo, letter, email and social media, infographics in reports and presentations, types of graphs, how to evaluation written material and oral presentations.

MEC014 Engineering and Technology History

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Provide students with an understanding of the historical development of Engineering with relation to societal expectations of the period, Interaction between human society and Engineers to develop and guide the advancement of engineering technology; with society posing problems for Engineers to solve and Engineers developing new



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



technology that changed the course of human history, and helped shape the world we live in, General philosophy behind Engineering work to fulfil the needs of society (water, electricity, technological improvements etc.), The role of engineers in society from a humanistic perspective, Other relevant philosophical analyses of Engineering as a skill and profession such as, aesthetics, creativity, the epistemology of Engineering and more. Examples from the contributions of Arab Scientists in different fields.

MEC041 Production Engineering

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course aims to provide engineering students with a simple introduction and general knowledge about engineering parts, their materials, and primary production processes and manufacturing technologies. It includes engineering materials classification, characteristics, and materials selection for different applications. Production processes such as casting, joining and metal forming processes. Some manufacturing processes of polymers, machining processes of metals. Machining processes of wood and Measuring instrumentations. In addition, a brief view on new materials (e.g., Nano-materials, metallic glass... etc.) and advanced processing techniques (e.g., CNC, high deformation rate, water jet cutting.... etc.) is provided.

MEC111 Mechanical Engineering Drawing

3 Cr. Hrs. = (2 LCT + 1 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MEC012

A study of graphical representation of mechanical components involves graphical/CAD visualization, sketching, and geometric

construction of mechanical components. The mechanical components include fasteners and welded joints, pipelines and pipe fittings, valves and springs, keys and pins, gears and bearings, fits, and tolerances. Students will layout and create 2D working industrial drawings that adhere to industry standards illustrated using CAD drawing construction techniques that implement graphical communication through the use of orthographic projection, section views, auxiliary views and the creation of assembly and detail mechanical components. The course also includes an introduction to 3D modeling

MEC112 Strength of Material

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite

stress and strain concepts, axial load, statically indeterminate axially loaded members, thermal stress, torsion, angle of twist, statically indeterminate torque-loaded members, bending, eccentric axial loading of beams, transverse shear, shear flow in build-up members, combined loadings, stress and strain transformation, deflection of beams and shafts, statically indeterminate beams and shafts

MEC121 Manufacturing Technology

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC041

Machining: Principles of machining, turning machines and processes, drilling machines and processes, Shaping and planing machines and processes, Milling machines and processes, Methods of tools and work piece fixation, Machining time, Introduction to Non-conventional machining processes. Forming: Introduction includes mechanical behavior of the materials, Plastic deformation, Effect of temperature on plastic behavior, Types of forming processes: Hot, Cold, Massive or



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



sheet metal work, Metal forming processes: Forging and its types, Rolling, Extrusion, Types of drawing (rod, wire, tube, and deep), Sheet metal work (shearing, pressing, blanking, spinning, bending, coining, etc.), Brief explanation to forming machines and equipment. .Used

MEC131 Metallurgy and Material Testing

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY111

This course provides a general treatment of the principles and problems of engineering materials and testing with specific reference to the mechanical properties. It also covers the common methods of static and dynamic testing: tension, compression, bending, shear, hardness, impact, creep and fatigue. Other topics are also included, namely the types of fracture and the nondestructive testing of materials.

MEC141 Mechatronics for Health Sciences

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Design of biomedical instrumentation, Microfabrication and Micromachining fundamentals, Assembly techniques for MEMS, Mechanics and transduction at microscale, Fundamentals of robotics and tele-robotics, actuation and sensing methods - Electrostatic, piezoelectric, thermal, electromagnetic, resonant, capacitive sensors, resonators, lab on chip devices, micro-mirrors, and machine vision, Microsystem packaging. Application of robotics to medicine and surgery design of biomedical instrumentation.

MEC151 Thermal Energy

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Fundamental concepts of energy, Thermal System, Types of thermal energy, Heat Exchange with the Surroundings, Transmission of thermal energy, Thermal Conduction, Thermal Conductivity, Thermal Radiation, Thermodynamic Properties, Internal Energy, Applications of thermal energy, Heat Engines, Refrigerator and Heat Pump, Solar energy, Thermal Energy Storage.

MEC211 Mechanics of Machinery

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite

A study of the fundamental concepts underlying the study of velocity, acceleration, and force analysis of machines; linkages, cams, gears, and flywheels, gripping mechanisms, biomimetic robotic mechanisms, passive dynamic walking, Introduction to synthesis; computer simulation of mechanical systems.

MEC212 Stress Analysis

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MEC112

Theories of Elastic Failure, Principles of Statics and its application on deformable bodies. Stress and strain. Elastic behavior of simple elements under axial loading, bending and twisting. Principal stresses, Normal Stresses and Shear Stresses, Curved Beams Stresses, Beams deflection. Statically indeterminate beams, Thermal Stresses.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC213 Machine Elements Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MEC112

Introduction to Design Concepts, General Concepts of (Deflection, and Buckling), Design for Fatigue, Design of Machine Elements (Bolts, Power Screws, Rivets, Keys, Welded Joints, Springs), Design of Power Transmission Elements (Shafts, Couplings, Gears, Belt Drives, Chain Drives), Selection of Bearings. The use of interactive Finite Element computer programs for problem solving is illustrated and used.

MEC214 Mechanical Vibration

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC211

The course initially develops a foundation in analyzing elementary single and two degree of freedom systems subjected to natural and various types of forced motion. Then using this foundation, multi-degree of freedom systems is investigated for both natural and forced motion. Modeling, damping, resonance, force transmissibility and modal analysis are discussed. Emphasis is placed on practical vibrations problems in several engineering fields. Design problems provide the opportunity to apply principles taught in the classroom to realistic problems encountered by practicing engineers. In class demonstrations supplement the theory development.

MEC221 Casting and Welding Technology

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Metal casting technology: Introduction, Solidification processing, Liquid

metals, Principles of solidification, Primary (wrought) and casting, Metals and alloys, Production of primary metals, Production of shaped casting, Patterns, Molding techniques: Molding techniques and dynamics, Melting procedures and equipment, Design considerations, Structure, Properties and defects of casting, Casting process selection, Computer applications in metal casting, Quality control in casting, advanced casting processes. Metal Welding Definition, Welding Joints, Welding Standards, Welding Symbols, Fusion Welding Processes, Solid State Welding Processes, High Energy Welding Processes, Heat Flow in Metal Welding, Chemical Reactions & Fluid Flow in Arc Welding, Solidification of Fusion Zone, Weldability & Cracking Susceptibility, Welding Defects, and Inspection of Welded Joints.

MEC231 Engineering Economy

3 Cr. Hrs. = (2 LCT + 2TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MAT112

Origins of engineering economy, Principles of engineering economy, Design and manufacturing processes and EE, Cost estimation and cost terminology, Accounting, Balance sheet, Profit loss statement, Concept of equivalence, Money time relationships, Simple and compound interest rates, Single amounts and uniform series, Increasing and decreasing gradient, Application of money, Time relationships, Present value, Internal rate of return, External rate of return, Payback period, Evaluation of alternatives for different useful life and study period, Depreciation methods, Replacement analysis, Determination of the economic life of challenger and defender, Engineering economy techniques for evaluation of public projects.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC232 Human & equipment safety

3 Cr. Hrs. = (3 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Human factor analysis, Equipment safety, Occupational safety, Ergonomics, Physiological effects (human body), People, Components, Lifting, Materials handling, Safety culture, Risk assessment, Hazard identification, Risk estimation, Accident prevention, Risk control, Basics of environmental design.

MEC235 Nanotechnology Basics and Health Risk

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Introduction to Nano technology, engineering of Nanomaterials with emphasis on structural, optical, photonic, magnetic and electronic materials. Synthetic methods and analytical characterization with design for applications.

MEC242 Computerized Numerical Control Machine: Tools & Cad Cam systems

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Computer technology, The foundations of CAD/CAM. Computer aided design: Fundamentals of CAD, The design process, Applications of computers for design, Computer-aided design software, Wire frame models, Solid modelling. Computer-aided manufacturing: Automation of manufacturing processes, numerically controlled machines, Computerized numerically controlled machines (CNC), G codes, Programming languages, Applications and performance of CAD/CAM systems.

MEC 251 Fluid Mechanics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MAT112, PHY111

INTRODUCTION AND BASIC CONCEPTS: Definitions. Application Areas of Fluid Mechanics. Classification of Fluid Flows. Dimensions and Units. FLUID PROPERTIES: Density. Specific gravity. Compressibility. Vapor pressure. Viscosity. Surface tension. FLUID STATICS: Pressure. Pressure Measurement. Hydrostatic Forces on Submerged Plane and Curved Surfaces. Buoyancy, Floatation, and Stability. The Motion of Fluid as a Rigid Body. SIMILARITY, DIMENSIONAL ANALYSIS, AND MODELING.

FLUID DYNAMICS: Conservation laws of Mass, Momentum, and Energy. Bernoulli's Equation. Linear and Angular Momentum Analysis of Flow Systems. Static, Dynamic, and Stagnation Pressures. Hydraulic Grade Line (HGL) and Energy Grade Line (EGL). Applications of the Bernoulli Equation. Flow Rate and Velocity Measurement. Real flow through pipes: Laminar and Turbulent Flow. Friction & Eddy losses. Multiple Pipe System. A Brief Overview of Pumps: Classification of Pumps. Pump Performance Curves. System Characteristics and Pump Selection.

MC252 Heat and Mass Transfer

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC151

Thermal Conduction: The General Equation, Steady One Dimensional Conduction, Conduction without Heat Generation, Plane Wall, Composite Plane Wall, Composite Plane Wall Subjected to Convection, Overall Heat Transfer Coefficient, Cylindrical Shell, Composite Cylindrical Wall Subjected to Convection, Spherical Shell,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Composite Spherical Shell Subjected to Convection, Extended Surfaces (Fins), Conduction with Uniform Internal Heat Generation, Conduction with Variable Thermal Conductivity, Steady Two Dimensional Conduction, Unsteady One Dimensional Conduction (Transient Conduction), Periodic Conduction. Convection: Types of Convection, Dimensionless Groups, Dimensional Analyses, Buckingham's Pi Theory, Dimensionless Groups in Convection, Natural Convection, Forced Convection. Heat Exchanger: Heat Exchanger Types, Logarithmic Mean Temperature Difference, Effectiveness of Heat Exchangers. Thermal Radiation: Basic Concepts, Stefan-Boltzmann Law, Planck's Law, Radiation Properties of Real Surfaces, Emissivity and Absorptivity, Kirchhoff's Law, Emissivity of Real Surfaces, Gray Surfaces, Selective Surfaces, Heat Exchange by Radiation, Heat Exchange between Two Planes, Heat Exchange between Two Cylinders or Spheres, Heat Exchange between Gray Surfaces, View Factors. Mass Transfer, Fick's Law of Diffusion, Mass Transfer Rate from a Pool of Liquid, and from a Liquid Droplet.

MEC253 Thermodynamics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC151

Thermodynamic activity in solid and liquid systems, Gibbs free energy of solutions, entropy and enthalpy, binary phase diagrams, equilibrium constant, reaction equilibrium in gases, heats of reactions, stoichiometric phases with complex gas phases, mixed gas thermodynamics, Ellingham diagrams.

MEC254 Flow Machines and Advanced Fluid Dynamics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Identifying all energy resources: thermal, chemical, nuclear, kinetic, gravitational field, magnetic field, electric field. Rank and classification of different energies. Regenerative energy resources: solar, wind, biomass, wave energy, geothermal. Possible energy conversions. Cautionary and safety measures and introduction to environmental issues.

MEC255 Energy Resources

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MEC151

Identifying all energy resources: thermal, chemical, nuclear, kinetic, gravitational field, magnetic field, electric field. Rank and classification of different energies. Regenerative energy resources: solar, wind, biomass, wave energy, geothermal. Possible energy conversions. Cautionary and safety measures and introduction to environmental issues.

MEC256 Engineering Thermodynamics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite --

Concepts and definitions; the thermodynamic system, properties, phase equilibrium of pure substances, equations of state for gases, tables of thermodynamic properties, work and heat. First law of thermodynamics; thermodynamic cycles, change of state, internal energy, enthalpy, specific heat; open systems, steady-state and transient processes. Second law of thermodynamics; reversible and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



irreversible processes, the Carnot cycle, the thermodynamic temperature scale, entropy, the entropy production concept. Thermodynamic power cycles, refrigeration cycles, the Otto cycle and the Diesel cycle, the gas-turbine process.

MEC262 Aerodynamics of Vehicles

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Identifying all energy resources: thermal, chemical, nuclear, kinetic, gravitational field, magnetic field, electric field. Rank and classification of different energies. Regenerative energy resources: solar, wind, biomass, wave energy, geothermal. Possible energy conversions. Cautionary and safety measures and introduction to environmental issues.

MEC271 Automatic Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Introduction to control system, Mathematical Modeling and Analogy between different dynamic systems, Transfer function, Open and closed loop transfer function, Block Diagram Reduction, System Response; first, second and higher order systems, Error analysis, Stability analysis & Routh Hurwitz Stability Criterion, Root locus, Frequency response; Polar plot-Bode Plot, Controller design; pole assignment, Ziegler-Nichols method, compensator design (Lead, Lag, and Lead Lag), design applications using Matlab Control Toolbox. Case Studies and applications as applied to mechatronic systems and robotics.

MEC272 Energy Resources

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Identifying all energy resources: thermal, chemical, nuclear, kinetic, gravitational field, magnetic field, electric field. Rank and classification of different energies. Regenerative energy resources: solar, wind, biomass, wave energy, geothermal. Possible energy conversions. Cautionary and safety measures and introduction to environmental issues.

MEC273 Hydraulics and Pneumatics Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Physical principles and fundamentals of fluidic control systems, applications of pneumatic and hydraulic systems. Hydraulic control system components: power units, reservoirs, filters, piping and hoses, accumulators, pumps (positive versus non-positive displacement pumps, vane pumps, gear pumps, variable displacement pumps, piston pumps, swashplate pumps, pump control systems), valves (spool valve, poppet valve, pilot-operated valves, pressure control valves, flow control valves, check valves, sequence valves, proportional valves, servo valves, cartridge valves, etc.), actuators (motors and cylinders), hydraulic and electrohydraulic circuits design, interfacing and control. Case studies from industry, heavy and earthmoving equipment. Pneumatic systems: service unit, compressors (piston, screw, rotary), filters, air dryers, lubricators, pressure regulation valves, control valves, etc., electro-pneumatic circuits design and control using sequential approaches.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC281 P&O design engineering I

2 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Buckling, theories in failure, fatigue and stress concentrations, connections, Shear force and bending moment diagrams, centroids, 2nd moment of area and mass, theorem of parallel axes, bending stress, torsional stress of circular shafts, combined axial and bending stresses. Combined and torsional stresses, combined axial bending torsional stresses.

MEC282 Aeroplanes Fuel Systems

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

History of quality control Quality definitions and concepts, Process capability analysis, Theory of control charts, Statistical control charts for attributes, Statistical control charts for variables, Acceptance sampling: Principles and concepts, Acceptance sampling by attributes, Acceptance sampling by variables.

MEC310 Road Vehicle Dynamics

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Steering Systems: Steering linkages, steering systems design, Ackerman's Theory, Steering geometry error, steering gear ratios, vehicle steering properties: neutral, oversteer and understeer, vehicle directional stability, Vehicle comfort criteria: Human response to vibrations and international standards, sources of random vibrations and road surfaces.

MEC311 Vehicle Design & Simulation (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Parametric solid modeling for parts with complex geometry. Wireframe and complex surfaces. Multi-component assemblies with kinematic constraints. Fitting and kinematic animations for assemblies. Simulation analysis on solid models.

MEC312 Vehicle Design & Simulation (2)

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Classification of springs, Design of coil springs: Stresses, Deflection, check on buckling, Fatigue and natural frequency. Leaf springs: Stresses, Deflection, Neutral layer, Spring capacity. Torsion bar: Stresses, Equivalent stiffness, Design of rigid axle beam and king pin independent suspensions, Design of double wishbone and Macpherson suspensions, Bearings.

MEC313 Mechanical Power Transmission

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC112

The course will include the study of mechanical power transmission systems and standards such as shaft design, gear system design and gear trains, belt and chain drives, power screw, antifriction bearing and plain bearings, clutches, couplings, brakes and flywheel components and cams. Techniques of component solution design will include computer design solutions, Computer Aided Design, system design and realization of mechanical plans.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



MEC314 Mechanical System Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC212

Drum and disc brakes: Mechanical advantage, Assisted brake systems. Introduction to chassis design, Chassis types. Belts: Stresses, Design, Load carrying capacity, Pulleys, Shafts, Clutches, Design of springs, Hydraulic coupling, Gears: Spur, Helical, Worm, Bevel. Gearbox: Gear ratios, Torque distribution, Shifts.

MEC315 Introduction to Bio Engineering

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to Biomedical Engineering is a comprehensive survey text for biomedical engineering courses. It is the most widely adopted text across the BME course spectrum, valued by instructors and students alike for its authority, clarity and encyclopedic coverage in a single volume. Biomedical engineers need to understand the wide range of topics that are covered in this text, including basic mathematical modeling; anatomy and physiology; electrical engineering, signal processing and instrumentation; biomechanics; biomaterials science and tissue engineering; and medical and engineering ethics. Enderle and Bronzino tackle these core topics at a level appropriate for senior undergraduate students and graduate students who are majoring in BME or studying it as a combined course with a related engineering, biology or life science, or medical/pre-medical course.

MEC316 Automotive Engines using CAD

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Propulsion systems available or potentially available for automobiles and other vehicles. Options included internal combustion engines fueled by petrol, diesel, propane, or natural gas; hybrid vehicles, plug-in hybrids, fuel cell vehicles fueled by hydrogen and all electric cars.

MEC321 Doe and Quality Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MAT312

History of quality control Quality definitions and concepts, Process capability analysis, Theory of control charts, Statistical control charts for attributes, Statistical control charts for variables, Acceptance sampling: Principles and concepts, Acceptance sampling by attributes, Acceptance sampling by variables.

MEC322 Production systems

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to production systems, Types and characteristics of production systems, Types of layouts, Advantages and disadvantages of each, Layout objectives, Types of layout data, Quantitative and qualitative data, Construction of flow matrix, Construction of activity relationship chart, Space determination, Number of machines and manpower, Quantitative and qualitative techniques for construction of initial layout, improvement layout techniques, Computerized layout techniques, Evaluation of solutions and selection of the optimum, Single facility location problem, Introduction to materials handling



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



equipment and systems.

MEC323 Work Study

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Productivity: Factors affecting productivity and role of management, Introduction to work study: Objectives, Techniques applied, Method study techniques: Charts and diagrams, Critical examination and analysis, developing new methods, Measures and controls, Work measurements: Direct and indirect methods, Relaxation allowances and calculation of standard time, Learning curves: Concept, Application in work study and determination of standard time, worker's incentives.

MEC324 Operations Research

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MEC041

Linear programming: Formulation, Graphical solution, Simplex method, and Duality and sensitivity analysis, Transportation models: Transportation algorithm, Assignment problem and transshipment problem, Network models: Minimal spanning tree algorithm, shortest route problem and Maximum flow problem, Branch and bound algorithm.

MEC325 Industrial Systems Modelling and Simulation

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Introduction to industrial systems modelling, Basic simulation models, modelling complex systems, Discrete event simulation, hand simulation, Simulation software, building simulation models, Output

data analysis for a single system, Comparing alternative system configurations, Variance reduction techniques, Sensitivity analysis, Simulation of manufacturing systems.

MEC326 Production and services planning

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Application of industrial engineering theory and practice to the area of operations management and production planning/control. Analysis and understanding of forecasting, aggregate planning, operations strategy, capacity planning, supply-chain management, just-in-time systems, lean manufacturing, agile manufacturing, materials requirement planning, inventory management, short-term scheduling and sequencing, line balancing and other pertinent topics.

MEC327 Flexible manufacturing systems

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Addressing the problems facing industry regarding the automated systems such that of automatic storing and retrieving, integrated manufacturing systems, application of conveyors in industry, integration of CNC machinery within the FMS, collective control of machinery and automated manufacturing systems. The students will be aware of major cutting-edge technologies of production automation and material handling, and how these technologies are used to construct modern manufacturing systems. Material Transport Systems; Storage Systems; Automatic Data Capture; Group Technology and Cellular Manufacturing; Flexible Manufacturing Systems; Transfer Lines and Similar Automated Manufacturing Systems; Automated Assembly Systems; Process Planning and Concurrent Engineering;



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Production Planning and Control Systems and Agile Manufacturing.

MEC328 Revenue Management Pricing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction to Revenue Management and Pricing, Supply and demand, Revenue Management, Capacity Management, Segmentation, Competitive Factors, Forecasting and Budgeting, Pricing, Dynamic pricing strategies, Pricing under uncertainty, Risk analysis, Strategic decisions in revenue management.

MEC329 Industrial Robotics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC271

Introduction to robotics: history of robotics, types of robotics (Serial, parallel, walking, bipedal, etc.)• robotics applications, Transformation. Kinematics analysis: generalized coordinates, rotation representations, Euler angles, rotation matrix, homogeneous transformation matrix, Denavit Hartenberg rules, forward and inverse kinematics, Jacobian matrix, singularities. Trajectory planning: trajectory generation problem, joint and Cartesian planning, cubic polynomial, higher order polynomials. Dynamics analysis: joint space dynamics, Newton-Euler algorithm, inertia tensor, Lagrange equations, inverse and forward dynamics. Control: computed torque techniques, joint space control, PD control stability, trajectory tracking.

MEC331 Modern Ferrous and Non-Ferrous Making

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite MEC336

Types of Metals, History of metals making, Status of steel and

nonferrous metal making in Egypt and world, Steel, Aluminum, copper, Magnesium and Titanium production and consumption, metals making fundamentals: Solution thermodynamics, Role of slag in steelmaking, properties of slag. Steel making fundamentals: Steelmaking reactions such as oxidation of carbon, silicon, manganese, iron, phosphorous and chromium, Numerical problems, Role of refractory. Steel making practice: Bessemer and open-hearth steel making, Blast furnace iron making, Basic oxygen steel making, Electric furnace steel making and vacuum treatment, ladle metallurgy, deoxidation and teeming practice, ingot production, ingot defects and remedies, testing of steel products, inspection of steel products. Clean steel, ingot and continuous casting, final finishing operations like heat treatment and deformation processing.

MEC332 Biochemistry for Nano Technology

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

to study Nano technology, engineering of Nanomaterials with emphasis on structural, optical, photonic, magnetic and electronic materials. Synthetic methods and analytical characterization with design for applications. to link with Biochemistry, and applications of Nanotechnology.

MEC333 Glass, Ceramics, and Binding Materials

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Structure of amorphous and crystalline polymeric materials, mechanical, electrical and optical properties and their modification through processing, Newtonian and non-Newtonian behavior, viscoelastic behavior, viscosity, review on destructive and non-



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



destructive testing, mechanical analysis (DMA, TMA)• quick overview on polymer processing technologies.

MEC334 Polymer Materials

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite CHE342

Structure of amorphous and crystalline polymeric materials, mechanical, electrical and optical properties and their modification through processing, Newtonian and non-Newtonian behavior, viscoelastic behavior, viscosity, review on destructive and non-destructive testing, mechanical analysis (DMA, TMA)• quick overview on polymer processing technologies.

MEC335 Corrosion and Failure Analysis

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC131

Introduction, corrosion types, atmospheric corrosion, principles of cathodic protection, corrosion by soils, corrosion by water and steam, localized corrosion, fundamentals of inhibitors, stress corrosion, metallurgical factors affecting corrosion, at high temperature, alloy behavior at high temperature, coatings, corrosion testing, materials for corrosive environments, analysis of corrosion failure. General approaches of Failure Analysis: data and sample collection, preliminary examination, nondestructive inspection, macroscopic and microscopic examination of metallographic sections and fractured surfaces, modes of failure (ductile, brittle) cause of failure (overloads, fatigue, creep, corrosion, wear, elevated temperature failures, etc.)• solve the problems of cracks' initiation and propagation, writing a standardized failure technical report, and failure prevention recommendations.

MEC336 Materials Characterization

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to characterization, characterization techniques, principles, analysis and applications: optical metallography, measurements and analysis, quantitative analysis, SEM, EDX, TEM, x-ray diffraction, AFM, introduction to thermal analyses methods (TGA, DSC, DMA, DTA) etc.

MEC337 Social Network Behavior Models

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Learn how to model social and economic networks and their impact on human behavior. How do networks form, why do they exhibit certain patterns, and how does their structure impact diffusion, learning, and other behaviors? We will bring together models and techniques from economics, sociology, math, physics, statistics and computer science to answer these questions.

MEC338 Surface Engineering and Tribology

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Lubrication properties, types of lubricants, solid, waxy and oil, Interdisciplinary materials on lubrication in machine design including mechanical, mechanics and chemistry aspects, engineering tribology, surface topography, topographical measurements and characterization and classification of regimes of lubrication types of industrial lubricants, properties of lubricating oils: compositions, viscosity and additives, synthetic lubricants and engine oils. Hydrodynamic



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



lubrication. The last topic to be covered is the theory and application of Elasto-hydrodynamic lubrication (EHL).

MEC341 Measurement and Instrumentation

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE112 Or ELE114

Characteristics of Sensors, Flow rate Measurement Principles, Orifice-Meter, Venturi-Meter, Coriolis Flow Meter, Turbine Flow Meter, Rotameter, Velocity Measurements, Pitot Tube, Vane Anemometer, Hot Wire Anemometer, Laser Doppler Anemometer, Particle Image Velocimetry, Pressure Measurement, Manometer, Bourdon Tube Gauge, Piezoelectric Sensor, Temperature Measurement, Thermometer, Thermocouple, Thermistor, Optical Pyrometer, Rotational Speed Meters, Tachometer, Torque Measurement, Strain Gauges, Gas Analysis, Electro-Chemical Gas Analyzer, Accuracy, Precision, Statistical Methods Error Analysis and Uncertainty.

MEC342 Additive Manufacturing 1

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC121

Additive Manufacturing (AM) is driving a paradigm shift in design and manufacturing. Provides a comprehensive overview of AM, from process physics and material chemistry to process and technology development. Explores new engineering and product design degrees of freedom enabled by AM. Topics include fundamentals of polymer, metal and composite AM processes; process capabilities such as rate and resolution; material properties and their dependence on material characteristics, process parameters and machine designs; existing and new applications of AM; and a perspective on current and future technical challenges in AM.

MEC343 Micro and Nanosystem Computer-Aided Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Modeling and simulation. Lumped versus distributed approaches. Review of differential-equation systems, constitutive relations, boundary conditions, and solvers for complex, coupled transport problems pertinent to micro and nano-systems. Coupling strategies. Numerical schemes for nonlinear systems. Basic modeling and simulation of micro and Nano-systems, and fluidic systems. Relevant nanotechnology applications: optical, thermal, mechanical, and fluidic microstructures, and nanoscale devices.

MEC344 Additive Manufacturing II

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC342

Additive Manufacturing (AM) is driving a paradigm shift in design and manufacturing. Provides a comprehensive overview of AM, from process physics and material chemistry to process and technology development. Explores new engineering and product design degrees of freedom enabled by AM. Topics include fundamentals of polymer, metal and composite AM processes; process capabilities such as rate and resolution; material properties and their dependence on material characteristics, process parameters and machine designs; existing and new applications of AM; and a perspective on current and future technical challenges in AM.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC351 Automotive Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Tires: Tire forces and moments, tire rolling resistance, Tractive effort, Tire radii, Cornering properties, Ground vehicle dynamics: Road resistance, Traction and tractive effort, performance curves, equations of motion, Dynamic certificate, acceleration and time with distance, grades and overtaking. Braking Systems: brake system requirements, antilock braking system theory.

MEC352 Automotive Engines

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Classification of internal combustion engines, Actual working cycles, Standard air cycles, Standard air and fuel cycles, Combustion in spark ignition engines, Combustion periods, Ignition points, Flammability limits, Detonation, Flame propagation, Pressure rise, Combustion chambers. Friction and lubrication, Lubrication system, Lubricating oil and additives properties, Oil consumption, Oil filters. Engine cooling.

MEC353 Thermal Power Engineering

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite MEC151

Thermal System, Control Volume, States of the Working Medium, Processes and Cycles, Calculation of Work, Heat Exchange with the Surroundings, Ideal Gases, Equation of State, Pure Substances, Phase Equilibrium, Tables of Thermodynamic Properties, First Law of Thermodynamics on Steady State Steady Flow Open Systems, and Applications such as simple Steam Rankine cycle, Brayton cycle,

Diesel cycle, Otto cycle (introduction to Internal Combustion Engines), Heat transfer of electrical and electronic devices.

MEC354 Power Plant Systems and Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC 249, MEC 116

Main power plant components, Measurements and Instrumentations, Power plants comprise the following main combustion control systems: fuel handling, air handling, gas handling, Main steam, reheat steam, auxiliary steam, extraction steam, condensate, feedwater, circulating water, and air removal. Boiler control circuits, firing rate demand control, Steam temperature control, Steam turbine control, Gas turbine control, Combined-cycle control, Safety devices, Power generation and load managements, Power station parallel operation.

MEC355 Combustion

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC353

Fuel Bonding Energies, Chemical Structure Change due to Oxidation, Fuel Heating Values, Adiabatic and Non-Adiabatic Combustion Temperatures, Concentrations of Combustion Products under Chemical Equilibrium Conditions, Rates of Chemical Reactions, Stabilization of Premixed Flames, Laminar Flame Speed, Turbulent Flame Speed, Flame Stabilization at Higher Flow rates, Reaction Zones in Non-Premixed Flames, Diffusion Flame Length, Diffusion Flame Blowout Limits, Combustion Efficiency and Flame Generated Pollution, Liquid Fuel Sprays, Atomizers, Time of Fuel Droplet Evaporation, Physical and Chemical Ignition Delays, Combustion of Solid Fuels on Grates, Pulverized Coal Combustion, Proximate and Ultimate Analysis of Coal, Detonation and Explosives.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC361 Human factors in system design

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Project work (mainly an industrial problem with focus on detail design in a system context). Innovation, creativity and patent. Information sources and search, benchmarking. The product development process, project planning. Requirement specification, QFD. Concept development, functions-means tree, concept selection. Detail design, considering environmental effects, material selection, ergonomics. Solid mechanics for modeling and dimensioning (both using FEM and analytical). Manufacturing documents (detail drawings including manufacturing tolerances). Assembling, testing, evaluation, redesign. Presentation and communication, both orally and in different form of written documentation.

MEC362 Social network behavior models

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to Social Networks and their Impact, Definitions, Measures and Properties: Degrees, Diameters, Ties, Degree Distributions, Random Networks, Strategic Network Formation, Game Theoretic Modeling, The Connections Model, Directed Networks, Diffusion on Networks, Learning on Networks, Strategic Complements and Substitutes, Relation between Network Structure and Behavior.

MEC363 System Psychology and Biomechanics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to Biomechanics of human movement, fundamentals of

biomechanics and qualitative analysis, introduction to psychology.

MEC364 Automotive Maintenance Engineering

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Maintenance: Test required to evaluate engine performance: Compression test, Vacuum test, Leakage test, Homogeneity test, Bypass gases test and exhaust gas analysis. Periodic maintenance: Fault diagnosis and testing for Fuel systems components, Ignition systems, Distributor, circuits, Spark plugs, Charging, starting systems, Braking systems, Steering systems,

MEC371 Automotive Mechatronics

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Planning and implementing industrial networks and connecting them to a corporate network demands a lot of ability and accessible specialist knowledge. The same applies when a communication network needs to be secured, diagnosed or optimized. That's why we've developed a training program and subsequent certification that is aligned with international Industrial Ethernet standards. Each certificate documents tested network skills as part of the overall Siemens industrial networks training program.

MEC372 Sensors and Measurement Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC341 OR ELE212

To build a measuring system for frequently occurring mechanical measurement problems by selecting or designing the appropriate measuring system components. to analyze the components of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



measurement systems for mechanical quantities. to compare and critically evaluate measurement systems by combining the knowledge of measuring systems with the knowledge of dynamic mechanical systems and phenomena. During the practice-oriented lab sessions, the student increases his/her experimental skills in designing and analyzing measuring systems. The student can, in cooperation with others, within the frame work of lab sessions investigate and solve measurement problems and report about it. During two exercise sessions, the student acquires knowledge about the solution strategies needed to analyze measuring systems for mechanical quantities and to calculate the necessary parameters.

MEC373 Modeling and Simulation of Mechatronics systems

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to modeling and simulation, system definition, classification of systems, linear versus non-linear, discrete-time systems. Systems modeling: modelling importance and usage, modeling techniques and methods, mathematical modeling. Review of mechanical, electrical, electromechanical, thermal, and fluidic systems modeling. Model linearization and analysis, modeling using transfer function and block diagrams, state space modeling representation. Simulation: applications of simulation, simulation techniques, numerical methods of simulation, characteristics of numerical models, discrete-event modeling and simulation, Hardware in the Loop simulation (HIL). Case studies for modeling and simulation of mechatronic systems via projects and assignments.

MEC375 Advanced Automatic Control

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Dynamical systems. The feed-back principle. Differential equations, transfer functions stability, error constants. PID control, relationships between dynamical properties and pole location. Root locus. Frequency response, Bode diagram. Stability analysis using Bode diagrams, phase and amplitude margin. Specifications in the frequency domain lead lag compensation, sensitivity and robustness. State space models. State feedback, observers

MEC381 Gait Analysis and Locomotion

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

History of gait analysis and locomotion, techniques for gait analysis such as: kinematics, markerless gait capture, pressure measurement, kinetics, and dynamic electromyography. Applications of gait analysis.

MEC382 P&O design engineering II

3 Cr. Hrs. = (2 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Simplification of prosthetic hand engineering is crucial for many interests and readers, with the increased numbers of handicapped individuals overall the world. An introduction to the basic engineering concepts of designing, prototyping, and assembling of a prosthetic hand can be available for everyone in demand to this technology, which becomes more affordable and cheaper by using of 3D printing and 3D CAD modeling techniques.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC383 Aerospace Maintenance Engineering

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

MEC384 Air Engines

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

MEC385 Aeroplan's Engines Design Using Cad

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is

materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

MEC391 Industrial Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

MEC411 Introduction to Bio Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CHE142

Bioengineering is the application of the life sciences, physical sciences, mathematics and engineering principles to define and solve problems in biology, medicine, health care and other fields. This course introduces biotechnology and its application in a variety of medical, clinical and science disciplines. Topics covered include GLP, GMP, solution chemistry, spectroscopy, chromatography, basic microbiology techniques and DNA and protein purification/separation techniques. This course emphasizes basic laboratory skills essential



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



for beginning level employment in clinical, pharmaceutical and biotechnology laboratories.

MEC412 Introduction to Nano systems Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to the engineering design process: problem definition and needs analysis; process synthesis, analysis, optimization, and troubleshooting; safety and environmental protection in design; written and oral communication for design reports. Students form four-person design teams and start a team-oriented project based on the knowledge and skills acquired in previous courses and on co-operative work terms, culminating in a design proposal presentation.

MEC421 Facilities Planning

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to production systems, Types and characteristics of production systems, Types of layouts, Advantages and disadvantages of each, Layout objectives, Types of layout data, Quantitative and qualitative data, Construction of flow matrix, Construction of activity relationship chart, Space determination, Number of machines and manpower, Quantitative and qualitative techniques for construction of initial layout, improvement layout techniques, Computerized layout techniques, Evaluation of solutions and selection of the optimum, Single facility location problem, Introduction to materials handling equipment and systems.

MEC422 Quality Systems and Assurance

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Basic concepts, Definitions, Terminology, Development of quality control systems Quality systems for: design, development, purchasing, and Planning, Quality organization, Cost of quality, Economics of quality, Training, Quality Management Systems, Quality assurance, Employee participation programs.

MEC423 Ergonomics

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

A Systematic approach to the optimization of the human task environment system: Workspace design, Manual materials handling, Cumulative trauma disorders and environmental factors, Emphasis on industrial applications, Ergonomics process, Anatomy, Anthropometry, Workplace design, Hand use design, Office ergonomics, Handling loads, Work physiology, Design for special populations, Information processing, Noise, Vibration, illumination, Control, and display design.

MEC424 Product Life Cycle Management

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Benefits, development process, Phases of product lifecycle; conceive, design, realize, service; concurrent engineering workflow, bottom-up design, to down design, pyramid of production systems; Product Lifecycle Management, Sustainable development, Quality and Environmental Assurance of Product Development, Life cycle analysis, Product Data Management and CAD, Design for disassembly, Product



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



recovery cycle, PLM integration; case studies.

MEC425 Lean enterprise

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

digitally connected enterprise is, as they learn about the operational complexity of enterprises, business process optimization and the concept of an integrated product-process-value chain. Students will become acquainted with the available tools, technologies and techniques for aggregation and integration of data throughout the manufacturing supply chain and entire product life cycle. They will receive foundational knowledge to assist in efforts to facilitate design, planning, and production scheduling of goods and services by applying product life cycle data. Main concepts of this course will be delivered through lectures, readings, discussions, and various videos. This is the sixth course in the Digital Manufacturing & Design Technology specialization that explores the many facets of manufacturing's "Fourth Revolution," aka Industry. 0, and features a culminating project involving creation of a roadmap to achieve a self-established DMD-related professional goal. To learn more about the Digital Manufacturing and Design Technology specialization,

MEC426 Six Sigma Quality

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

A brief history of Quality, what is Quality (Definitions) and service or product, Quality Gurus & their contribution to Quality, Enterprise-wide View, Leadership, Six Sigma Roles and Responsibilities, Team Formation, Team Facilitation, Team Dynamics, Time Management for Teams, Team Decision making Tools, Management and Planning

Tools, Team Performance Evaluation and Rewards, Overview of DMAIC.

MEC427 Operations Management

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Forecasting and time series analysis (qualitative techniques: Sales force polling, Customers' opinion, Delphi technique, Quantitative techniques: Smoothing methods, Averaging Methods, Linear regression), Capacity planning(defining capacity, rough-cut capacity planning, detailed capacity planning), Aggregate production planning, Inventory management and control (determining optimal order quantity, optimal production quantity, safety stock), Materials requirement planning, Work loading and scheduling.

MEC428 Industrial Communication and Network Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite --

Introduction. Design and fabrication issues of MEMS/NEMS devices. Fundamentals of mechanics, micromechanical beams and damping, Electrostatic, mechanical, thermal, piezo-resistive, piezoelectric sensing, and actuation principles. MEMS Fabrication. CAD tools for MEMS design. Designing simple MEMS devices.

MEC429 Industrial Automated Assembly Mechanisms

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

An overview of robotics and manufacturing automation technology and principles. Topics include automatic production and assembly,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



sensors, actuators and drives, mechanization of part handling, industrial robots, and vision systems. Emphasis will be on the planning, design and implementation of automation systems and mechanisms.

MEC431 Biomedical materials

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Reviews of biological materials (mechanical and physical properties of bone, cartilage, vessels, skin, muscle and the variety of collagen based biological materials), use of metals clinically in joint replacement, use of ceramics in Medicine, polymer and composite material and filler selection for soft tissue replacement (e.g., heart valves), implants, percutaneous prosthetics, and active devices, introduction to the analysis of surfaces, particularly by electron spectroscopy, surface coatings and treatments used to achieve biocompatibility, introduction to the mechanical and physical properties of shape memory alloys, their current clinical use and their clinical potential.

MEC432 Material and Process Selection

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC131

Understanding materials, their properties and behavior is fundamental to engineering design, and a key application of materials science. Written for all students of engineering, materials science and design, Materials Selection in Mechanical Design describes the procedures for material selection in mechanical design in order to ensure that the most suitable materials for a given application are identified from the full range of materials and section shapes available.

MEC433 Polymeric Processing Techniques

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC131

Introduction to the concepts of composite materials, matrix, reinforcement and interface, engineering matrices and reinforcements, production techniques for common reinforcing fibers, intrinsic properties of matrix materials and fibers, mechanical properties and fabrication of engineering composites including MMCs PMCs and CMCs, introduction to the mechanics of composites, rule of mixtures, methods for interfacial characterization.

MEC434 Composite Materials

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC336

The use of heat treatment to produce required metallurgical properties, Cooling curves and equilibrium diagrams, Heat treatment of steels, phase transformations (e.g., martensitic transformations), Hardenability, Strength, and Toughness, Case hardening, Carburizing, and Nitriding, De-carburizing, Re-heat treatment, Re tempering, Annealing, and Normalizing, Heat treatment of Aluminum alloys, Annealing, Solution treatment, Natural ageing, Artificial ageing, Over ageing, Explanation of the heat treatment of Aluminum alloys, Control testing.

MEC435 Heat Treatment

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The use of heat treatment to produce required metallurgical properties, Cooling curves and equilibrium diagrams, Heat treatment of steels,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



phase transformations (e.g., martensitic transformations), Hardenability, Strength, and Toughness, Case hardening, Carburizing, and Nitriding, De-carburizing, Re-heat treatment, Re tempering, Annealing, and Normalizing, Heat treatment of Aluminum alloys, Annealing, Solution treatment, Natural ageing, Artificial ageing, Over ageing, Explanation of the heat treatment of Aluminum alloys, Control testing.

MEC436 Phase Transformation and Thermodynamics of Materials

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

The use of heat treatment to produce required metallurgical properties, Cooling curves and equilibrium diagrams, Heat treatment of steels, phase transformations (e.g., martensitic transformations), Hardenability, Strength, and Toughness, Case hardening, Carburizing, and Nitriding, De-carburizing, Re-heat treatment, Re tempering, Annealing, and Normalizing, Heat treatment of Aluminum alloys, Annealing, Solution treatment, Natural ageing, Artificial ageing, Over ageing, Explanation of the heat treatment of Aluminum alloys, Control testing.

MEC441 Computer Integrated Manufacturing

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE014, MEC121

Introduction, Computer aided design (CAD) systems, computer aided graphical modeling, Cad database, computer aided manufacturing (Cam) systems, computer aided process planning (CAPP) systems, robotics systems, group technology and cellular manufacturing systems, automated material handling systems, automated inspection

systems, flexible manufacturing systems (FMS).

MEC442 Microfabrication and Thin-Film Technology Laboratory

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Introduction to Microfabrication and Thin-film Technology, modern CMOS technology, Wafer fabrication, clean room wafer cleaning and gettering, Lithography, Thermal oxidation, Dopant diffusion, Ion implantation, Thin film deposition, Etching.

MEC445 Design of Autonomous Systems

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC329

Introduction to autonomous systems: autonomous versus automatic systems, automated and autonomous human-centered technical systems, semi-autonomy, autonomous behavior. Perception: multi-sensor fusion, localization, navigation and mapping, obstacle recognition and detection. Planning and actuation: task decomposition, reactive behavior, preplanned knowledge, and skill-based behavior. Knowledgebase: facts and procedures, acquisition, exploration, skill transfer, learning. Autonomous systems architecture: behavioral principles, expert systems, knowledgebases, multi-level control concepts. Applications of autonomous systems.

MEC451 Solar Energy and Voltaic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite --

Intensity of Solar Radiation within the Outer Space, Calculation of the Solar Intensity on the Earth, Availability and Usability of Solar Energy,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Measurement of the Solar Intensity, Direct and Diffuse Radiation, Reflection from the Ground, Solar Angles, Shades, the Equation of Time, Incidence Angle on Horizontal and Inclined Surfaces, Theory of the Flat Plate Collector, Transmission through Glass, Heat Loss Calculations, Collector Performance, Solar Energy Concentrators, Point and Line Concentrators, Cylindrical Trough, Parabolic Trough, Parabolic Dish, Central Receiver, Heliostat, Heliostat Optimum Placement, Sun Beam Tracking, Shadowing and Blocking, Concentration Ratios, Fresnel Lens, Thermal performance, Heat Transfer Coefficients, Receiver Efficiency.

MEC452 Renewable Energy Resources Interfacing

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite --

Storage technologies: Supper Capacitors: structure, ratings, characteristics, use with the wind power plant, fuel cells, Superconducting magnetic energy storage (SMES): structure, operation, Batteries: types, characteristics and operation, charge and discharge, Flywheels energy storage. Interface technologies: Concept of Distributed Generation, Type of interface, Interconnection standards, static synchronous generators, control of active power and voltage regulation, Wind turbines and photovoltaic interface topologies.

MEC453 Wind Storage

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite --

Storage technologies: Supper Capacitors: structure, ratings, characteristics, use with the wind power plant, fuel cells, Superconducting magnetic energy storage (SMES): structure, operation, Batteries: types, characteristics and operation, charge and

discharge, Flywheels energy storage. Interface technologies: Concept of Distributed Generation, Type of interface, Interconnection standards, static synchronous generators, control of active power and voltage regulation, Wind turbines and photovoltaic interface topologies.

MEC454 Hydroelectric Energy

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Tunneling system - Hydropower station - Optimization. Estimation of state and maintenance of electrical equipment - Hydropower generators; Construction and design - Designing of electrical system in power-plant. Dimensioning of the turbine - Dynamical dimensioning and governing stability - Operation and maintenance of turbine - Efficiency measurements in laboratory and in field.

MEC455 Industrial Automation

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE014

Architecture of Industrial Automation systems, Requirements of automation systems, Automation components, Hardwired Control, PLC hardware structure: centralized, decentralized, and distributed systems, PLC Programming Languages standards: Ladder diagram, Sequential flow chart (SFC), Statement List (STL), Relay logic to Ladder Diagram Conversion, SFC to ladder diagram conversion, Bit logic, Timers, Counters, Math Operations, Data Manipulation, Analog Scaling. Program Architecture: Interrupts, Functions, Function Blocks, Data Blocks. PLC Communication and networking, PLC selection, PLC Installation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC456 Building Management Systems

3 Cr. Hrs. = (2 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Building Management System levels, Process field level (sensors, switches actuators, and valves) for HVAC, Basic functions of HVAC and control systems, Design criteria, Control diagram and symbols, Single-zone air handler, Single-zone air handler with dual set point thermostat, firing, lightning, intrusion, Area zone individual control), Group control level(Batch, continuous, discrete), Supervision level and SCADA system, Building applications (energy management, occupancy evacuation, smoke abatement,...), Enterprise and management level.

MEC457 Nuclear Energy

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Overview of energy recourses and energy use. Production methods for electric power, thermal energy and cooling, and their consequences on the environment. Energy use in industry and buildings. Energy flexibility and transportation in district heating systems. Technology, distribution, and infrastructure in the Nordic electric power system. The physics involved in electric power transmission, and the trade in the Nordic electric power market (Norpol). Energy balance and environmental accounts.

MEC461 Decision analysis

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Distinctions, possibilities, and probabilities, Buying and selling prices,

Value of information and experimentation, Relevance and decision diagrams, Value of information and experimentation, Risk attitude and assessment of probabilities, The decision analysis cycle.

MEC462 Sustainable manufacturing

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Last update: Sustainable Manufacturing Technologies Universitat Politècnica de Catalunya1 / 7Degree competences to which the subject contributes- To Provide basic knowledge, theoretical, practical, sustainable manufacturing processes most commonly those areas aerospace, automotive and renewable energy, among others. -To Introduce students to the techniques of quality control in the manufacturing sector, with considerations of design, safety, and sustainability.

MEC463 Energy and Environment

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Overview of energy recourses and energy use. Production methods for electric power, thermal energy and cooling, and their consequences on the environment. Energy use in industry and buildings. Energy flexibility and transportation in district heating systems. Technology, distribution, and infrastructure in the Nordic electric power system. The physics involved in electric power transmission, and the trade in the Nordic electric power market (Norpol). Energy balance and environmental accounts.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC464 Automotive After Sales Services

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Practical solutions to improve processes, productivity, and efficiency of staff, reduce costs and increase bottom line using powerful, proven, measurable ideas that can be implemented in dealership, optimization of customer relationship and CSI, improvement of customer retention strategies. Field visits to multiple aftersales centers.

MEC465 Energy and Environment

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Overview of energy resources and energy use. Production methods for electric power, thermal energy and cooling, and their consequences on the environment. Energy use in industry and buildings. Energy flexibility and transportation in district heating systems. Technology, distribution, and infrastructure in the Nordic electric power system. The physics involved in electric power transmission, and the trade in the Nordic electric power market (Norpel). Energy balance and environmental accounts.

MEC471 Microcontroller and Embedded Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE111, MEC271

Introduction to Embedded Systems. Microcontroller architectures. Interrupt signals and routines. Interface circuits. Analog and Digital Peripherals programming: Digital I/Os, Timers, ADC and Communication Peripherals, Low power modes of operation.

MEC472 Mechatronic Systems Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MEC273

Mechatronic product development process, Product requirements and needs (customer and engineering requirements/specifications), design constraints, modular mechatronic systems, and hierarchy. Mechatronics design methodology: traditional approaches, VDI 2206, V-model, nested Vmodel, simplified examples and case studies. Selections of mechanisms, actuators, sensors, and controllers, actuator, and motor sizing. Essential tools for the mechatronics system design using the V-model: MATLAB/SIMULINK, LabVIEW, PROTEUS VSM, SOLIDWORKS, microcontrollers, etc. packages. Design and implementation of mechatronic systems via mini-projects.

MEC473 Design of Autonomous Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC329

Introduction to autonomous systems: autonomous versus automatic systems, automated and autonomous human-centered technical systems, semi-autonomy, autonomous behavior. Perception: multi-sensor fusion, localization, navigation and mapping, obstacle recognition and detection. Planning and actuation: task decomposition, reactive behavior, preplanned knowledge, and skill-based behavior. Knowledgebase: facts and procedures, acquisition, exploration, skill transfer, learning. Autonomous systems architecture: behavioral principles, expert systems, knowledgebases, multi-level control concepts. Applications of autonomous systems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



MEC474 Modeling and Simulation of Mechatronics Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC271

Automation history and applications, Automation vs Mechanization, Automation system architecture and components, Design of combinational and Sequential logic systems, Hardware considerations and wirings of automated systems. Computer based automation, Human Machine Interfaces (HMIs); PLC based automation (PLC): hardware, wiring, programming Languages (Ladder diagram (LLD), function block (FB), structured text, and sequential functional chart (SFC), Analogue Modules and Special Functions. Communications and Networks within automation systems; Supervisory Control and Data Acquisition (SCADA); Distributed Control Systems (DCS); Internet of Things (IoT) based Industrial Automation; Automation Systems Security. Applications and case studies relevant to the mechatronics and mechanical Engineering such as flexible manufacturing systems (FMS), Computer integrated manufacturing (CIM), Manufacturing and production systems, Digital factory, Power systems, Oil, and gas industry, ...etc.

MEC475 Digital Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC271

Basic concepts, Dynamical systems, time-driven versus event driven control systems. State space modelling fundamentals, controller design, pole placement, controllability, observability, state feedback, observers design, state estimation. Digital control fundamentals, Digital control systems: digitization, analysis of discrete systems, Z-

transform, pulse transfer function, the stability of a digital system, digital control systems design, digital state Space-Design and tune a digital PID controller, Discrete event systems control, Hybrid control systems design.

MEC476 Advanced Automatic Control

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Dynamical systems. The feed-back principle. Differential equations, transfer functions stability, error constants. PID control, relationships between dynamical properties and pole location. Root locus. Frequency response, Bode diagram. Stability analysis using Bode diagrams, phase, and amplitude margin. Specifications in the frequency domain lead lag compensation, sensitivity and robustness. State space models. State feedback, observers.

MEC477 Advanced technology in P&O

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to advanced technologies seen in modern clinical practice, Computer aided design and manufacturing of prosthetic/orthotic devices, microprocessor (MP) controlled P&O systems (MP knee/feet, MP knee orthoses, exo-skeletons, direct neural control of prostheses, etc.), advanced prosthetic suspension systems, and osteo-integrated prostheses, ethical use of technology in clinical care.

MEC478 Advanced Biomechanics

3 Cr. Hrs. = (2 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Mechanical characterization of biological tissues at the cellular, organ,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and system level, Interaction between living and non-living materials, Viscoelastic behavior, Governing equations for the parameter viscoelastic solid, Musculoskeletal structure and function, Joint moment assessment, Fracture mechanisms of cortical and cancellous bone, Bone remodeling, Injury mechanics and rehabilitation.

MEC481 Rehabilitation Robotics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Rehabilitation Robotics gives an introduction and overview of all areas of rehabilitation robotics, perfect for anyone new to the field. It also summarizes available robot technologies and their application to different pathologies for skilled researchers and clinicians. The editors have been involved in the development and application of robotic devices for neurorehabilitation for more than 15 years. This experience using several commercial devices for robotic rehabilitation has enabled them to develop the know-how and expertise necessary to guide those seeking comprehensive understanding of this topic.

MEC482 Refrigeration and Air Conditioning

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC252

Introduction of refrigeration cycles, simple vapor compression cycle, multi-pressure compression cycles, heating load calculations, psychometric chart, moist air psychometric processes, air conditioning cycles, cooling load calculations. Absorption refrigeration cycles, compressors, evaporators, condensers, expansion devices, cooling coils, humidifiers and dehumidifiers, chemical dryers, water-cooled and aircooled chillers, equipment selection, design of air ducts, piping design, course project.

MEC490 Modern Vehicles Technologies

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite MEC351

Applications of Transducers, Sensors & Actuators- Advance Ignition system - Advancement in Engine and related components - Modernization in Peripheral systems- Advance Safety Equipment- Modern Features in Automobile.

MEC491 Graduation Project 1

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite: 130 Cr. Hrs.

Under supervision, the student should approach his graduation project within his Senior year. The purpose of this graduation project is to provide students with an opportunity to engage in an activity that will allow them to demonstrate their ability to apply the knowledge and skills they have gained throughout their years in the educational system. The project is designed to ensure that students are able to apply, analyses, synthesize, and evaluate information and to communicate significant knowledge and understanding. Problems/ topics to be considered should be materials engineering oriented, in any of the related disciplines offered by the faculty.

MEC492 Graduation Project 2

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite MEC491

This graduation project may be seen as a continuation of the first part (MEC 491: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MEC493 Vehicle Safety Systems & Accident Analysis

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The course is an introduction to further studies in energy and the environment, and therefore it will give an overview and a broad understanding of the subject area. It will provide an overview of: -The environment as a framework for energy. Energy resources and energy use. Methods of production as well as environmental impacts for electrical power, thermal energy, and cooling. Heat and cold, production methods and environmental impacts. Energy conversions in industry and buildings. Energy flexibility and transport of district

heating. Electrical energy, electricity as energy carrier and the infrastructure associated with this. Electricity market and price formation. Planning and dimensioning of heat supply. Energy balance and environmental accounts.

MEC499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Physical Engineering

PHE511 Nuclear Reactor Physics

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite ---

basic and advanced knowledge in modern reactor physics. The main part of the course is devoted to neutron diffusion theory, theory of nuclear fission and their industrial applications (power generation). The lectures give also an insight into new ideas to transmute nuclear wastes with the help of particle accelerators. A historical survey of the milestones of nuclear physics since 1900 is also given in an introduction to the lectures. The course also gives some practical understanding of reactor operation through the laboratory exercises conducted at the departmental reactor simulator and probably at a research reactor.

PHE512 Radiation, Protection, Dosimetry and Detectors

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

nuclear- and radiation physics as a tool for calculating and estimating the dose absorbed in the body after being exposed to radioactive material in a specific situation. Together with knowledge about the interaction between matter and radiation, the biological effects of radiation, and knowledge about the current regulations on radiation protection, the student will in addition be able to use these tools to make adequate choices for radiation protection in situations that will

occur in their future courses, and in their future professional career.

PHE513 Nuclear Power Safety

3 Cr. Hrs. = (3 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The course addresses both fundamentals of safety design and methods for safety analysis of nuclear power plants, with emphasis on Light Water Reactors. Topics covered include. safety characterization and safety features of nuclear power plants. reactor safety principles and criteria. design-basis and beyond-design-basis events. accident phenomena, including severe accidents. safety systems, containment performance. deterministic safety analysis (basic elements). accident modeling simulation codes. probabilistic safety analysis (basic elements). analysis of operation transients, accidents, and severe accidents. emergency operation procedure, accident management. safety issues and safety issue resolution. operating experience, regulation, and safety culture.

PHE514 Nuclear Reactor Technology

4 Cr. Hrs. = (4 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite ---

The course focuses on the design and analysis of a nuclear reactor with special attention to safety, economy and environment. Example of topics which are covered in the course: nuclear reactor design and principles of reactor analysis. core design, core operation and fuel design. core reactivity and poisoning. thermal hydraulics of water-



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



cooled reactors. thermal limits in fuel under reactor operation. materials in nuclear systems.

PHE515 Sustainable Energy Transformation Technologies

4 Cr. Hrs. = (4 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite ---

Teaching and Learning Methods.

PHE516 Renewable Energy Technology

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

The purpose of this course is to provide an engineering assessment of renewable energy resources, including technologies for harnessing them within the framework of simple to advanced energy systems. Course content is divided into the following blocks: Biomass & Biofuels. Wind Power. Solar Energy. Hydropower. Energy Storage.

PHE517 Nuclear Physics

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

Nuclear forces and the structure of the nucleon. Nucleon-nucleon interactions. The deuteron. Nuclear stability. Overview of nuclear models. Nuclear decay (radioactivity). Nuclear reactions. Nuclear astrophysics (nucleosynthesis, stellar processes) Interactions of ionizing radiation in matter. Principles for detection of ionizing radiation. Particle accelerators and their applications. Nuclear energy production (fission, fusion). Nuclear medicine. Material analysis and other applications of nuclear physics.

PHE518 Radiation Damage in Materials

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

Mechanisms for generation of point defects - Hardening, swelling and embrittlement – Solubility – Diffusion – Clustering - Molecular dynamics, Monte Carlo, and rate theory simulations.

PHE519 Leadership for Safe Nuclear Power Industry

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

Safety and quality - Organization in nuclear technology - Communication and media - Leadership and theory of organization.

PHE521 Small Reactors

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

Fuel economy in small reactors: Enrichment and control rod worth. Passive safety in small reactors: Reactivity feedback, natural convection, and decay heat removal. Severe accidents: Source term and radiological impact on environment. Cost analysis: Capital cost, fuel cost and costs for operation and maintenance.

PHE522 Generation Iv Reactors

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite ---

Physics of breeding - Safety parameters in fast neutron systems - Liquid metal and gas coolants - Fuels for fast reactors - Radiation damage in fast neutron spectra - Core design.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PHE523 Elements of the Back end of the Nuclear Fuel Cycle: Geological Storage in Precambrian Bedrock

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

Nuclear energy and nuclear fuel cycle primer. Petrology and mineralogy. Plate tectonics. Metamorphism. Quaternary geology. Hydrogeology in soil. Hydrogeology in fractured bedrock. Hydro-geochemistry. The KBS method. Social aspects of storing of nuclear waste.

PHE524 Thermal-Hydraulics in Nuclear Energy Engineering

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

The course focuses on the thermal and thermodynamic processes in nuclear systems. Examples of the covered topics: transport equations of mass, momentum and energy, flow in pipes, mechanisms for heat transfer, convection, boiling and condensation, critical heat flux, laminar and turbulent flows, two-phase flows, critical flow, reaction forces.

PHE525 Nuclear Reactor Dynamics and Stability

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

The course focuses on the dynamic features of a nuclear power plant. Examples of the topics that are covered in the course: nuclear reactor kinetics and dynamics, point-reactor kinetic and dynamics models, reactivity feedbacks and reactivity coefficients, reactor stability

– instability mechanisms, instabilities of two-phase flows.

PHE526 Monte Carlo Methods and Simulations in Nuclear Technology

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

Theory of Monte Carlo methods - General variance reduction techniques - Pseudo-random and quasi-random sequences - Monte Carlo simulation of particle transport - Monte Carlo simulation of nuclear reactors - Variance reduction techniques in Monte Carlo reactor physics - Trends in Monte Carlo reactor physics - Monte Carlo in other fields like nuclear medicine, radiation protection etc.

PHE527 Compact Reactor Simulator- Exercises in Reactor Kinetics and Dynamics

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

The course addresses fundamentals of numerical analysis and numerical solution of ODE's and PDE's arising in nuclear engineering. Topics covered include. Solution of linear equations using direct, stationary, and non-stationary iterative methods. Solution of system of non-linear equations using iterative methods. Solution of eigenvalue problems. Numerical integration and differentiation. Consistency, stability, and convergence of discretized equations. Truncation error analysis. Von Neumann stability analysis. Lax-Richtmyer equivalence theorem. Finite difference discretization of ODE's. Numerical solution of initial value and boundary value ODE's. Finite difference and finite volume discretization of PDE's. Numerical solution of PDE's arising in nuclear engineering.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PHE528 Numerical Methods in Nuclear Engineering

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

The course addresses fundamentals of numerical analysis and numerical solution of ODE's and PDE's arising in nuclear engineering. Topics covered include. Solution of linear equations using direct, stationary, and non-stationary iterative methods. Solution of system of non-linear equations using iterative methods. Solution of eigenvalue problems. Numerical integration and differentiation. Consistency, stability, and convergence of discretized equations. Truncation error analysis. Von Neumann stability analysis. Lax-Richtmyer equivalence theorem. Finite difference discretization of ODE's. Numerical solution of initial value and boundary value ODE's. Finite difference and finite volume discretization of PDE's. Numerical solution of PDE's arising in nuclear engineering.

PHE551 Nuclear Medicine Procedures

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The following is an incomplete list of topics covered in the course. Scientific knowledge. Hypothesis testing. Observations and measurements. Experiments. Models. Statistical reasoning. Causes and explanations. Philosophy of social science. Philosophy of technology. Risk and risk assessment. Research ethics.

PHE611 Theory and Methodology of Science (Natural and Technological Science)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The following is an incomplete list of topics covered in the course.

Scientific knowledge. Hypothesis testing. Observations and measurements. Experiments. Models. Statistical reasoning. Causes and explanations. Philosophy of social science. Philosophy of technology. Risk and risk assessment. Research ethics.

PHE612 Research Methodology in Physics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course will be conducted in seminar form, where invited speakers will discuss various aspects of the topics above. As a student, you should, apart from actively taking part in the seminars, also read, form an opinion on, and present a scientific paper. The presentations will be done under conference-like forms, during two days at the end of the course. There too, you are expected to take part actively, thus contributing to the quality of the seminar, and also you get the opportunity to listen to well-prepared presentations from a broad spectrum of research fields.

PHE613 The Nuclear Fuel Cycle

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Short overview of quantum mechanics and atomic structure. Atomic collisions, cross-sections, rate coefficients. Elastic collisions, classical and wave mechanical. The Born approximation. Interatomic potentials. The Thomas-Fermi model. A universal interatomic potential. Plasma resistivity. Stopping cross-sections, sputtering, and backscattering at surfaces. Inelastic collisions with classical and semi-classical model. Ionization, recombination, charge exchange, and Bremsstrahlung. Effective Z, radiation losses, equilibria, transport, and energy confinement time. Use of data for atomic processes in models that treat fusion plasma physics problems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PHE614 Atomic Physics for Fusion

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

Derivation of the neutron transport equation (NTE), fundamental properties of NTE, solution methodology for NTE, including approximations. Sn-method for numerical solution of NTE. Derivation of the kinetic equation, its properties and solution methods.

PHE615 Plasma Physics

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

General theory and its application on nuclear materials will be interleaved throughout the run of the course. Since the students may have varying need to refresh some concepts fundamental to the course, such as different nuclear reactor designs or general university chemistry, those parts will largely be in the form of self-studies. The lectures will center on how such knowledge can be complemented and extended to describe fewer common materials under extreme conditions and explain complex physico-chemical processes in the reactor core. The lectures will also detail the principles and methods for fuel manufacture and reprocessing.

PHE616 Neutron Transport Theory

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

Derivation of the neutron transport equation (NTE), fundamental properties of NTE, solution methodology for NTE, including approximations. Derivation of the kinetic equation, its properties and solution methods.

PHE617 Chemistry and Physics of Nuclear Fuels

4 Cr. Hrs. = (3 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite - - -

Radiation therapy involves the therapeutic use of controlled doses of radiation for cancer treatment in hospitals. This reading-tutorial course consists of 24 modules covering various aspects of Radiotherapy Physics. Course notes are available via the internet and a list of recommended textbooks. Topics include units and definitions of physical quantities used in radiotherapy, radiobiological basis for radiotherapy, compartment analysis, measurement of radiation for radiotherapy, Bragg-Gray theory, absorbed dose. measurements, depth-dose profiles, field correction factors, calibration of ionization chambers for photon and electron beams, quality assurance protocols, treatment machines (linacs), treatment planning overview, beam data specification and acquisition, treatment planning: photons and electrons, single and multiple beams, conformal and intensity modulated RT, other beams: proton therapy, simulators and ancillary techniques, simulations, dosimetry and therapeutic techniques using unsealed sources, brachithery, shielding calculations in medical equipment installations.

PHE618 Physics of Radiation Therapy

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

units and definitions of physical quantities used in radiotherapy, radiobiological basis for radiotherapy, compartment analysis, measurement of radiation for radiotherapy, Bragg-Gray theory, absorbed dose measurements, depth-dose profiles, field correction factors, calibration of ionization chambers for photon and electron beams, quality assurance protocols, treatment machines (linacs), treatment planning overview, beam data specification and acquisition,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



treatment planning: photons and electrons, single and multiple beams, conformal and intensity modulated RT, other beams: proton therapy, simulators and ancillary techniques, simulations, dosimetry and therapeutic techniques using unsealed sources, brachithery, shielding calculations in medical equipment installations.

PHE631 Radiation Damage in Materials

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Mechanisms for generation of point defects - Hardening, swelling and embrittlement – Solubility – Diffusion – Clustering - Molecular dynamics, Monte Carlo, and rate theory simulations.

PHE633 Advanced Material Analysis

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Crystal structures, Diffusion in metals, Solidification of metals, Equilibrium diagrams, Heat treatment of metal alloys, Defects in materials, Strengthening of materials, Advanced materials, Properties, and applications (ceramics, polymers, composites), Materials selection.

PHE634 Environmental Modelling

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Fundamentals of environmental modelling and mathematical quantification. Fundamental definitions and principles of model constructions. Causality modelling. General formulation of mass balances and their applications within environmental modelling. Model descriptions and coupling of chemistry and transport for water quality problems. Training in the use of numerical modelling tools. Practice in

reading environmental modelling texts and manuals and in evaluating modelling work. Examples of modelling water quality, global and local element cycles, and ecosystem dynamics. Project work within environmental modelling.

PHE638 Reactor Control

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course will cover the following topics: • Nuclear reactor kinetics – the time dependent neutron transport equations; prompt and delayed neutrons. • Approximations to the neutron transport equations; point kinetics; space-time kinetics – the generalized modal model and the Improved Quasi Static (IQS) method. • The critical reactor, delayed super-criticality, prompt criticality, the sub-critical reactor. • Analytical approximations for the point kinetics model. Reactivity feedback mechanisms Doppler, coolant, and power feedback; Xenon poisoning and reactor dynamics. • Transfer function representation of a reactor; the in-hour equation; the reactor transfer function with feedback. Xenon stability and Xenon oscillations. • Reactor control mechanisms and devices, bulk power control; spatial power control, load following. • Control system for CANDU and LWR reactors.

PHE641 Leadership for Safe Nuclear Power Industry

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Safety and quality. Organization in nuclear technology. Communication and media. Leadership and theory of organization.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



PHE642 Nuclear Plant Systems and Operation

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course consists of an individual assignment with a topic that is decided by the examiner. It should normally constitute a specialization within the chosen field of technology and be at the level of second-cycle studies. The course should correspond to 15 weeks of full-time studies. The work will be presented in a written report and an oral presentation at an open seminar.

PHE643 Regulatory Affairs and Licensing Concepts

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course consists of an individual assignment with a topic that is decided by the examiner. It should normally constitute a specialization within the chosen field of technology and be at the level of second-cycle studies. The course should correspond to 15 weeks of full-time studies. The work will be presented in a written report and an oral presentation at an open seminar.

PHE651 Radiopharmacology

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

The course consists of an individual assignment with a topic that is decided by the examiner. It should normally constitute a specialization within the chosen field of technology and be at the level of second-cycle studies. The course should correspond to 15 weeks of full-time studies. The work will be presented in a written report and an oral presentation at an open seminar.

presentation at an open seminar.

PHE652 Technology of Nuclear Medicine

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The course consists of an individual assignment with a topic that is decided by the examiner. It should normally constitute a specialization within the chosen field of technology and be at the level of second-cycle studies. The course should correspond to 15 weeks of full-time studies. The work will be presented in a written report and an oral presentation at an open seminar.

PHE691 Degree Project in Physics, Second Cycle

4 Cr. Hrs. = (1 LCT + 0 TUT + 9 LAB + 0 OTH) – SWL = 270 – ECTS = 8

Prerequisite - - -

The course consists of an individual assignment with a topic that is decided by the examiner. It should normally constitute a specialization within the chosen field of technology and be at the level of second-cycle studies. The course should correspond to 15 weeks of full-time studies. The work will be presented in a written report and an oral presentation at an open seminar.

PHE699 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Biomedical Engineering

BME211 Human Anatomy and Physiology

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

structures and functions of normal human anatomy using a body systems approach. Learners will have the opportunity to demonstrate competency of select course objectives with the online simulated laboratory software. Provides a flexible, online introduction to the concepts of General Anatomy and Physiology.

BME212 Introduction to Bio Engineering

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite -----

a wide range of engineering techniques, anatomy and physiology, medicine, healthcare and the personal and societal context in which patients and their careers live, and in which health-services and the healthcare industry operates. This module aims to provide an overview of technologies and provide an awareness of the diverse challenges that form the background to research, development, and use of Healthcare Technologies.

BME213 Biochemistry

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Biochemical processes: Cells, Water, and Buffers/ Energy/ Structure and function/ Catalysis/ Flow of Genetic Information/ Metabolism I/

Metabolism II/Signaling/ Synthesis of Concepts in Biochemistry.

BME215 Biology

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

This course covers the following topics: macromolecules, biology of cells, metabolism, genetics, and evolution.

BME222 Biomechanics 2: Biological Tissues

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Detailed understanding of the structure and function of biological tissues as relevant to their mechanical behavior. Particular tissues to be studied include membranes, skin, ligaments and tendons, blood vessels, skeletal muscle, cardiac muscle, smooth muscle, and blood. The student will learn the origins of the material behavior of these tissues, as well as appropriate constitutive frameworks for representing their material behavior. Relevant concepts from continuum mechanics formulate continuum mechanics models of biomechanical systems with appropriate boundary conditions.

BME224 Introduction to Medical Imaging

3 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 1 OTH) – SWL = 105 – ECTS = 6

Prerequisite ---

Common imaging methods used in hospitals today -- i.e., x-ray, CT, MRI, and ultrasound -- as well as discuss emerging techniques, such



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



as photoacoustic imaging. The basic principles, instrumentation, and applications of each imaging modality.

BME252 Bio transport Phenomena

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + -0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

The course introduces the fundamental concepts of momentum, heat, and mass transport with applications to biological and medical engineering science and design. Properties of biofluids. Conservation equations in integral and differential forms.

BME255 Cell and Molecular Biology

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + - 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

The course will encompass the areas of Cell Structure, Protein Structure and Function, Basic Molecular Genetic Mechanisms, Molecular Genetic Techniques, Genes and Genomics, Transcriptional Control of Gene Expression, Post-Transcriptional Gene Control, Visualizing/Fractionating and Culturing Cells, Bio membrane Structure, Transmembrane Transport of Ions and Small Molecules, and Cellular Energetics.

BME311 Biomedical Sensors

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Signal theory, Pressure measurements, Flow measurements, Motion and force measurements, Temperature and heat flow measurements, Bioelectrical and bio-magnetic measurement techniques, Chemical measurement techniques.

BME312 Biomedical Engineering Design

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite BME211

Selected topics in Biomedical Engineering design are presented in an interactive project laboratory format. Project experiences will introduce students to relevant topics in biomedical engineering including problem solving, team design, innovation, information technology, engineering, medical ethics, and social responsibility.

BME315 Biomedical Systems Analysis

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite BME312

Applications of linear and control systems analysis to the dynamics of physiological systems and their responses to diagnostic and therapeutic interventions. Emphasis will be placed on respiratory, cardiovascular, and neuromuscular physiology and interactions of those systems with medical devices. Numerical models will be used to investigate these topics.

BME320 Biomechanics 1: Movement

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite MAT122, MAT121

This course explains how human movement is achieved through the complex and highly coordinated mechanical interaction between bones, muscles, ligaments, and joints within the musculoskeletal system. Emphasis is placed on the mechanical properties and structural behaviors of the spine and major joints



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BME321 Magnetic Resonance Imaging

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Foundations, concepts, and procedures of Clinical Magnetic Resonance Imaging.

BME322 System Physiology and Biomechanics

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

The nervous system from the molecular to the behavioral level. The neural resting potential, action potential signaling, synaptic signaling and plasticity and computation by neural circuits. Sensory and motor systems. Cardiovascular and respiratory anatomy, physiology, and pathophysiology. Cellular mechanisms of and quantitative systems approach human renal, digestive, endocrine, and metabolic physiology. The fundamental behavior of structures and solids. Methods of computing stresses in several types of structural and machine components. The use of equations of equilibrium, force-temperature-deformation relations, and expressions for the geometry of the deformations. Application to biological and physiological systems.

BME323 Modern Optical Microscopy and Imaging

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Introduction to optics, optical properties of tissue, and photon-tissue interaction, Sensing of optical properties and spectroscopy, Ballistic imaging, Wide-field and dark-field microscopy, Fluorescence microscopy, Confocal microscopy, Two-photon microscopy, Optical

coherence tomography, Super-resolution imaging.

BME324 Intermediate Fluid Mechanics

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Fundamental concepts of fluid dynamics. Kinematics, mass and momentum balances, constitutive relations. Navier-Stokes equations and methods of solution. Scaling techniques. Reynolds Transport Theorem. Conservation Laws. Inviscid Flow and Bernoulli. Viscous Flow. Navier-Stokes Equations. Low Reynolds Number Flow. Lubrication. Unsteady Flows. Dimensional Analysis.

BME325 Biomaterials and Medical Devices

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ---

Metal, ceramic, and polymeric implant materials, with an emphasis on structure-property relationships that enable their applications as medical devices. Interactions of materials with the body.

BME326 Intro to Biomedical Signals and Electrical Circuits

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite ELE111, ELE112

Basic concepts of circuit analysis, Resistive circuits, Nodal analysis and loop analysis, Op-Amp, Capacitor, inductor, and transistor, AC circuits and power analysis, EKG principle and acquisition, Fourier transform, Filtering, bandwidth, sampling, and aliasing



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BME327 Biological Performance of Materials

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

Interactions between cells and tissues for applications in biotechnology and biomaterials development, with a focus on applications for the selection, design, and fabrication of materials for medical implants, devices, and drug delivery. Topics include surface and interfacial properties of materials, surface characterization, protein adsorption, cell adhesion, foreign body response, immunomodulation, nanotechnology, gene delivery and in-vitro and in-vivo testing of biomaterials.

BME328 Tissue Engineering

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

History of Tissue Engineering; Tissue Engineering Industry; Tissue / Organ Structure and Function; Tissue Engineering Strategies; Regulatory Issues; Tissue Engineering Design; Cells as Design Elements; Stem and Progenitor Cell Technologies; Cell- and Soluble Factor-Based Signals as Design Elements; Extracellular Matrix as a Critical Design Element; Tissue Development, Repair, and Regeneration; Tissue Transplantation; Polymeric Biomaterials; Cell and Tissue Mechanics; Molecular Delivery and Transport.

BME329 Nuclear Technology in Medicine

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

Nuclear medicine technology uses radiopharmaceuticals (radioactive drugs) and specialized equipment to help diagnose and treat diseases.

The Nuclear Medicine Technology (NMT) program is a two-year, full-time program where students are trained as nuclear medicine technologists, ready to work with patients and medical staff in clinical nuclear medicine settings.

BME333 Microbiology and Immunity

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

“General Bacteriology morphology and structure, classification of bacteria, bacterial physiology and growth, bacterial genetics, gene cloning general methods for identification of bacteria. Components of the immune system, (. 5%) (10%) innate immunity, complement, acquired immunity (humoral and cell mediated) , protective immunity, tumor immunology, hypersensitivity, autoimmunity,

BME391 Industrial Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

BME421 Bioregenerative Engineering

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

Foundations, principles, and technologies of molecular, cellular, and



EGYPTIAN NATIONAL UNIVERSITIES

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

مشروع إنشاء الجامعات المصرية الأهلية



tissue regenerative engineering.

BME422 Regenerative Engineering Applications

3 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 6

Prerequisite - - -

Fundamentals of human disorders; engineering aspects of regenerative medicine; application of regenerative engineering to human disease.

BME491 Graduation Project 1

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 130 Cr. Hrs.

Under supervision, the student should approach his graduation project within his Senior year. The purpose of this graduation project is to provide students with an opportunity to engage in an activity that will allow them to demonstrate their ability to apply the knowledge and skills they have gained throughout their years in the educational system. The project is designed to ensure that students are able to apply, analyses, synthesize, and evaluate information and to

communicate significant knowledge and understanding. Problems/ topics to be considered should be materials engineering oriented, in any of the related disciplines offered by the faculty.

BME492 Graduation Project 2

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite BME491

This graduation project may be seen as a continuation of the first part (BME491: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.

BME499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Electrical Engineering

ELE111 Electrical Circuits

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY211

Electrical Circuits variables and elements, Simple resistive circuits, Analysis of electrical circuits, ohm's law, Kirchhoff's laws, series parallel equivalent, star delta transformation, source transformation, Network theorems: Mesh current method, Nodal voltage method, Thevinin's equivalent, Norton's equivalent, superposition principles. Sinusoidal steady state analysis, Phasor diagram representation, Applications of network theorems on alternating current circuits, Electric power in alternating current circuits, complex power calculations, power factor, circuits with nonlinear resistances, Transients in electrical circuits.

ELE112 Electronic Circuits

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY211, ELE111

Diodes, Circuits and Models, BJT Transistors, Amplifiers circuits. Biasing and small signal analysis. FET Transistors, configurations, models, and amplifiers, Power amplifiers and amplifier classes. Differential and multistage amplifiers. Ideal Operational Amplifier, Operational amplifier, specifications, and applications. Oscillators, Digital to Analog Converters (DACs) and Analog to Digital Converters, Comparators, Shmitt Trigger, voltage followers, inverting and non-inverting amplifiers. Subtraction, summing (mixer), difference and

compound amplifiers and active filters, the temperature controller, phase-locked loop circuits, and timer control circuits and various transducers.

ELE113 Electrical Drawing

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MEC012

Engineering drawing techniques and skills. Conventional lettering and dimensioning. Geometric constructions. Theories of view derivation. Orthographic projection of engineering bodies. Derivation of views from isometric drawings and vice versa. Derivation of views and sections from given views. Sectioning views: (half, removed, rotates, offset and partial sectioning). Introduction of assembly drawing. Computer aided drafting (CAD).

ELE114 Principles of Electrical and Electronic Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY211

Electric and Magnetic Circuits; AC Poly Phase systems, DC Machines, AC Synchronous Machines, AC Induction Machines. Induction Motors: Construction, Types, Rotating field theory principle of working, Slip and its effect on motor current quantities. Losses Efficiency and performance curves Starting, Full load maximum torque relations, and Torque slip characteristics. Transformers; Converting Machines; Rotary Converters, Construction, Principle of working Transformer



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



connections, Voltage, and current ratings of single and three phase converters; Mercury arc rectifiers, Construction, Operation; Transformer connections, Voltage and current ratios of single phase and three phase rectifiers.

ELE115 Electrical Circuits & Measurements

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 5

Prerequisite ---

Measuring Units' Systems: Historically data on measuring units. Units of Measuring Systems. In the International System of Units (S.I.). Modern Measuring Units and Standards. Error Analysis: Errors in Measurements. Classification, analysis, determination. Statistical processing in measurements. Statistical Distributions. Errors in direct and indirect measurements. Uncertainties type A and type B. International standard defining uncertainty GUM. Instruments and measuring devices: Static and dynamic characteristics of instruments. Mathematical models of measuring devices. Analog and digital instruments. General concepts and descriptions. Analysis of the main types of analogue and electronic instruments. Basic measuring devices: Ideal and real capacitor. Ideal and real coil. Measurements using ammeter voltmeter circuits. Voltage divider, resistive, capacitive, and mixed. Instruments' transformers, current and voltage measurements using transformers. Balancing Methods – Measuring Bridges: DC and AC Bridges. Wheatstone, Kelvin, Sauty - Wien, Schering, Wien - Robinson, Maxwell, Hay, Heaviside Bridges. Oscilloscopes: Basics of oscilloscope. Oscilloscope functions. Analog oscilloscopes. Digital Storage Oscilloscopes. Digital Phosphor oscilloscopes. Digital Oscilloscopes Mixed Signal - Joint Field. Digital Sampling Oscilloscopes. Sampling methods. Oscilloscope terminology. Operations - Functions - Settings of oscilloscopes.

Measurement Techniques. Measuring Power and energy: Energy and Power. Power measurement in DC - DC circuits. Measuring power in AC - AC circuits. Measuring power in three-phase and multi-phase circuits. Electronic power meters. Electrical energy measurement systems

ELE116 Electrodynamics

2 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Introduction to Electrostatics, Multipoles, Electrostatics of Macroscopic Media, Dielectrics, Magneto-statics, Faraday's Law, Quasi-Static Fields, Maxwell Equations, Macroscopic Electromagnetism, Conservation Laws, Plane Electromagnetic Waves and Wave Propagation, Radiating Systems, Multipole Fields, and Radiation, Scattering and Diffraction, Dynamics of Relativistic Particles and Electromagnetic.

ELE123 Electric and electronic circuits for Health Sciences

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Electrical Circuits: Constants and variables of electrical Circuits, elements of electrical circuits, DC circuits, Network theorems, Sinusoidal alternating current circuits at steady state, Phasor diagram representation of sinusoidal quantities, Applications of network theorems on alternating current circuits, Electric power in alternating current circuits, complex power calculations, power factor. Electronic Circuits: Diodes and Zener models, diode applications: clamping, voltage doubler, clipping, rectification. Op-amp model, op-amp applications: Inverting, non-inverting, buffer, summing, filters, Schmitt



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



trigger, oscillators.

ELE211 Electromagnetic Fields

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MAT112, PHY211, (MAT312 or MAT313)

Electrostatic: Vector Analysis, Coulomb's law, Electrical field intensity, Electric flux, Gauss' law, Divergence, Electric energy and potential, Electric Conductors, Electrical resistance, Dielectric material, Electric Capacitance, Electric field plotting, Poisson's equation, Laplace's equation. Magneto static: Steady magnetic fields, Ampere's law, Magnetic Forces, Magnetic Materials, Magnetic Circuits, Inductance, Time varying magnetic fields, Maxwell's equations, Measurement of electromagnetic fields, hazards of electromagnetic fields, Shielding of electromagnetic fields.

ELE212 Electrical Measurements and Measuring Instruments

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE111

Measurement errors, Accuracy, Statistical analysis, Static Calibration, Resolution and Precision, Dynamic Response, Moving coil instruments, Moving iron instruments, Electro-dynamic instruments, Induction type instruments, Current and voltage measurement instruments, Measurement of power, Measurement of energy and charge, Measurement of frequency and power factor, Measurement of nonelectrical parameters, Cathode Ray Oscilloscope (CRO) applications, DC potentiometers, DC bridges, AC bridges, Resistance and capacitance measurements, Allocation of cable faults, Strain

gauges, temperature transducers, Displacement, velocity and acceleration transducers, Force and pressure transducers, Light transducers, Data converters, Voltage to frequency converters, Digital measurement devices: Digital AVO meters, Digital frequency meters.

ELE213 Industrial Electronics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE112

Industrial Electronics devices Diodes, Thyristors, Rectifier circuits (uncontrolled / controlled), AC Voltage controller, STATCOM, Power Transistors MOSFET's IGBT's, DC Choppers (Buck, Boost, Buck Boost, Inverters.

ELE215 Electronics & Digital Circuits

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Number systems and codes, binary complement, logic gates, Boolean algebra, combinational circuits, memory elements, sequential circuits, finite machines, structure of logic elements structure on a transistor level (CMOS), programmable logic, a microcomputer, AD and DA conversion.

ELE222 Signals & Systems Fundamentals

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Classification of signals. Basic operations on signals. Systems and their properties. Linear Time-Invariant (LTI) systems. Impulse response of LTI systems. Relation between impulse response and system properties. Convolution integral and convolution sum. Differential and difference equation representation of LTI systems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Block diagram representation of LTI systems. Continuous-time Fourier series (CTFS), continuous-time Fourier transform (CTFT), sampling theory, discrete-time Fourier series (DTFS), discrete-time Fourier transform (DTFT). Laplace transform. Applications.

ELE231 Introduction to Embedded Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE234

Introduction: the importance of microcontrollers, the roles, and functions of microcontrollers. Acquaintance with microcontrollers and their simulators and debuggers. Understanding different addressing modes. Programming, debugging, and simulating assembly language programs. Developing a prototype for an embedded system. Interrupts and serial I/O. Memory Expansion. Microcontroller interfaces. Interfacing techniques. Interfacing requirements. A typical microcontroller system is utilized in this course with typical software-based applications. Interfacing with USB, I2C, SPI, CAN, LIN.

ELE232 Fundamentals of Communication Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -(ELE321 or CSE113), MAT131

Basic concepts of communications. Communication system elements. Channel bandwidth. Analog modulation: AM, FM, and PM. FDM. Super-heterodyne receiver. Pulse modulation: PAM, PCM, PTM. Nyquist theorem. Introduction to random signals. Noise effect on analog modulation. Line coding. Eye pattern. Generative/non-regenerative repeaters, Passband digital modulation: ASK, FSK, PSK.

ELE233 Automatic Control Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite (ELE111 or CSE113), MAT312

Introduction to control systems. Components. Modeling, Block diagram and signal flow graph. Transient response and steady-state accuracy. Stability. Root locus and Frequency response analysis. Introduction to design.

ELE234 Logic Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Review of number systems: positional notation, binary number systems, number base conversion, octal and hexadecimal, negative numbers, and coded number systems. Switching functions: main operators, postulates and theorems, analysis, and synthesis of switching functions, incompletely specified functions. Design using NAND and NOR gates. Storage devices: bit storage, set-reset FF, clocked SR FF, positive and negative-edge triggered SR-FF, JK-FF, race-around condition, master slave JK-FF, D-FF, T-FF, excitation table. Sequential circuits: state table and transition diagram, design of digital sequential systems, incompletely specified states, counters, shift registers. Miscellaneous topics: adders, subtractors, decoders, coders, multiplexer/demultiplexer, memories (ROM, PLA, RAM).



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ELE235 Industrial Networks

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - - ELE232

The course is presented through a layered top-down approach starting from the application layer down to the physical layer, focusing on basic networking concepts and typical application layer examples. Focusing on the Internet and the fundamentally important issues of networking, this course provides a foundation for students interested in computer science and electrical engineering, without requiring extensive knowledge of programming or mathematics. A typical outline of the course goes by the following sequence: * Application layer (e.g., e-mail, the Web, PHP, wireless Web, MP3, and streaming audio) * Transport layer essentials and requirements. * Network layer functions and fundamentals of routing, congestion control, QoS, IPv4, and IPv6. * Data link layer and MAC Sublayer with emphasis on gigabit Ethernet, 802.11, broadband wireless, and switching. * Physical layer (e.g., copper, fiber, wireless, satellites, and Internet over cable) The course dissects and depicts the principles associated with each layer and then focuses on Fieldbus networks, Control Area Networks (CAN, LIN, FLEXRAY) and SCADA systems.

ELE236 Industrial Communication and Network

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to Data Transmission and Telemetry. Voltage- and current-transmission systems, external noise coupling and suppression. Signaling, data communication, protocols, layered architecture, network standards. Industrial network standards and protocols: EIA-232, EIA-485, DH-485 and industrial local area

networks, industrial Ethernet, Power over Ethernet (PoE), fiber optics, Modbus, Modbus+, Modbus/TCP, HART, AS-I, DeviceNet, Controller Area Network (CAN) and CAN bus, FieldBus, ProfiBus, TCP/IP. ZigBee wireless sensor and control network: IEEE 802.15.4 protocol, addressing, routing, ZigBee RF4CE. Industrial network security: vulnerabilities, threat detection, risk assessment, monitoring and control, standards, and regulations, securing industrial networks. Applications

ELE238 Data Communication and Computer Networks

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE014-ELE234

Data-communication principles, including circuit switching, packet switching and error control techniques; Sliding window protocols, protocol analysis and verification; Routing and flow control; Local and wide area networks; Architecture and protocols of computer networks; Protocol layers; network topology; Network interconnection; Client-server interaction; Emerging networking trends and technologies; topics in security and privacy.

ELE271 Electrical Machines

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE111

Principle of energy conversion: Electromechanical energy conversion, magnetically single excited systems, magnetically multi-excited systems, Torque, and stored energy in magnetic fields, Multifid rotating systems. DC Machines: the generation of EMF and torque, construction, load characteristics of dc generators and motors. Synchronous machine, theory of operation, construction, EMF equation, Characteristics, and Parallel Operation. Transformers:



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



transformer construction, fundamental laws, equivalent circuits, transformer efficiency, transformer testing, transformer connections and harmonics, auto transformers and tap changers, parallel operation, transformer cooling. Poly-phase Induction Machine, theory of operation, construction, equivalent circuit, Torque, and power equations, starting and speed control.

ELE272 Electrical Power Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to electric power system, application of high voltage in electric power system, overhead transmission lines: parameter calculation, modeling, performance, and mechanical design, electric power distribution, underground cables, Determination of faults in underground cables, design of electrical distribution systems, insulated electrical cables, generation of high-voltage, high-voltage measurement, electric insulation types, corona, earthing and safety, Introduction to power system planning.

ELE311 Electrical Circuits and Machines (Advanced)

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE271

Electrical Circuits: Constants and variables of electrical Circuits, elements of electrical circuits, DC circuits, Network theorems, Sinusoidal alternating current circuits at steady state, Phasor diagram representation of sinusoidal quantities, Applications of network theorems on alternating current circuits, Electric power in alternating current circuits, complex power calculations, power factor. Three phase Circuits and systems, Magnetic circuits, Transformers, DC Machines, Synchronous machines, Induction machines.

ELE312 Analog Circuits

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ELE112

Analysis and design of single-stage and multi-stage amplifiers. Frequency response of amplifiers. Differential amplifiers. Current mirrors. Filters. Introduction to feedback. Experiments in the field of analog circuits to support the theoretical contents of the course.

ELE313 Electromagnetic Waves

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite MAT112, PHY211, ELE211

Maxwell's equations of time varying fields, Boundary conditions, Wave propagation equation, Electromagnetic waves in dielectric and conducting media, Skin depth, Surface impedance, Polarization, Phasor notation, Reflection, and refraction of plane waves at dielectric-conductor and dielectric-dielectric interface. Normal and oblique incidence, Total internal reflection, Critical angle, Brewster angle, Multiple reflections from a dielectric slab, Energy, and momentum in electromagnetic fields, Poynting theorem, Power loss in conductors and dielectrics, Material dispersion, Phase and group velocities, Transmission line theory, Impedance matching, Parallel and series stub matching, Smith chart.

ELE314 Waveguides

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE313

Parallel-plate waveguide, rectangular waveguide, Circular waveguide, grounded dielectric slab, Planar transmission lines, Micro-strip line, Symmetric and asymmetric dielectric slab waveguide, multilayer



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



waveguides, Optical fibers, Plasmonic waveguides, Mode orthogonality and completeness, guided and radiation modes, mode propagation analysis, ray picture, modal picture, Goos-Haenchen shift, Transverse resonance condition, multimode dispersion and chromatic dispersion. The application of the concepts of modern network theory to wave-guiding systems. Impedance transformation and matching, scattering matrix, propagation in non-isotropic media, passive microwave devices, electromagnetic resonators, measurements in microwave systems.

ELE321 Signals and Systems Fundamentals

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MAT312

The concept of signals and systems, both continuous and discrete time. Classification of signals. Basic operations on signals. Systems and their properties. Linear Time-Invariant (LTI) systems. Impulse response of LTI systems. Relation between impulse response and system properties. Convolution integral and convolution sum. Differential and difference equation representation of LTI systems. Block diagram representation of LTI systems. Continuous-Time Fourier Series (CTFS), Continuous-Time Fourier Transform (CTFT), sampling theory, Sampling of continuous-time signals. Discrete-Time Fourier Transform (DTFT). Laplace transform. The Z-transform and its properties. Applications.

ELE322 Advanced Semiconductor Devices

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE112, ELE312, PHY322

Semiconductors review, Theory of junctions and interfaces: p-n and metal-semiconductor junctions, Oxide-semiconductor and

heterojunction interfaces, Principles of bipolar transistor operation, Field effect devices: MESFET and MOSFET, Downscaling principles and Submicron devices, TFET transistors, SOI transistors, Vertical Transistors: FinFET and Surround gate FET.

ELE335 Microprocessor-Based Automated Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ELE234

Numbering systems and Data representations. Basic principles of microprocessors and microcontrollers. Instruction set and microcontroller programming. Microcontroller peripherals: Digital I/O ports, Interrupts, Timer, EEPROM, Analogue ports. Signal conditioning circuits and Interfacing circuits with external devices such as seven segments, switches, and relays. Applications such as look up tables, alarming system, Pulse Width Modulation (PWM), speed control, temperature control.

ELE336 VLSI Design

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE322, ELE488

CMOS Fabrication. CMOS scaling. IC Layout. Interconnect Capacitance and Resistance. Clock and power distribution. Data-path building blocks (Shifters, Adders, Multipliers). Semiconductor Memories. IC variability and reliability. Introduction to Input/Outputs. IC design methods. IC design economics. VHDL and FPGA design. Experiments in the field of digital circuits using logic synthesis tools to support the theoretical contents of the course.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ELE337 Analog and Digital Communication Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE232

Introduction to analog and digital communication systems. Random process. Noise, Noise temperature / Noise figure / Cascaded systems. Analog modulation noise performance. Digital baseband transmission and Matched filter. ISI and bit error rate. M-ary modulation, QAM, DPSK. Digital passband system noise performance. Shannon Capacity Theorem. Color TV.

ELE338 Wireless Communication Networks

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE337 or CSE113

First and second-generation cellular systems, land mobile vs. satellite vs. indoor wireless systems, adaptation and mobility in wireless information systems, Wireless Channel Modelling: Path-loss and shadow fading models, Rayleigh and Rician fading, coherence time, coherence bandwidth, frequency flat and selective fading. Modulation, Coding, Diversity Techniques, Digital modulation and coding techniques for wireless communication systems, spread-spectrum modulation, diversity combining techniques. Multiple Access Techniques: TDMA, FDMA, CDMA, ALOHA, Slotted-ALOHA, CSMA/CA, MACA, reservation protocols, PRMA, capture effects. Wireless Networking Standards: 3G, 4G, LTE systems, wireless LAN standards (IEEE 80.11), WMAN standards (IEEE 802.16), WPAN standards (IEEE 802.15).

ELE355 Legalization for Media

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Arrays, stacks, queues, lists, doubly linked lists. Trees, dynamic storage allocation, graphs. Different Searching and Sorting and Algorithms.

ELE371 Economics of Energy Generation, Transmission and Operation

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Load curves, Variation in demand, Load diversity. Power plant layout, Main equipment, Auxiliaries, Bus-bar arrangements. Power plant economics: Capital cost, Operating cost, Fixed charge rate, Selection of plant and size and unit size, Operation and economics of spinning reserve, economic analysis of a transmission system, tariffs, power factor, all-thermal generation allocation problem, hydro-thermal coordination, new energy resources. Transmission access fees assessment and calculations.

ELE380 Motors and electronic system

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisites:

Phase Controlled Converters, Thyristor triggering circuits, DC to DC Choppers, quadrants operation, triggering circuits, Inverters: Voltage source inverters – series, parallel and bridge inverters – PWM techniques – sinusoidal PWM, modified sinusoidal PWM, multiple PWM – current source inverters. Fundamentals of conventional Drives. Definition of Drives and their Components. Types of loads. Choice of motors. Speed Control.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ELE381 Power Electronics and Motor Drives

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE213, ELE311

Introduction to power electronics devices, Single phase Rectifier circuits, three phase rectifier circuits, Ac Voltage controllers, Ac static switches, Dc to Dc Converter: buck, boost, buck-boost converters. Single phase Inverters, 3phase-bridge inverters, PWM modulation techniques. DC motor Drives: soft starting, speed control, Electric braking. AC Drives: voltage control, v/f control, rotor circuit control of induction motors, stepper motor drives.

ELE382 Advanced Power Electronics

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE381

Switched mode power supplies, Voltage source converters, Interfacing of power electronics and Utility; HVDC Transmission, SVC and renewable energy, Application of resonance converters, new materials for power semiconductor devices.

ELE383 Power Systems Protection

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

principles and schemes for protecting power lines, transformers, buses, generators and introduces the fundamentals of wide-area monitoring and control (SCADA and EMS). It also briefly provides an introduction to communication within digital substations (IEC). The course provides basic guidelines for relay protection and setting calculation. It also reviews power system faults and instrument transformers.

ELE384 Image Processing and Computer Vision

3 Cr. Hrs. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite - - -

Digital image fundamentals; Image enhancement in the spatial domain: grey level transformation; Histogram processing; Spatial filters; Image enhancement in frequency domain: D Fourier transform; Other transforms; Smoothing filters; Sharpening filters; Image restoration; Noise model; Estimating the degradation function; filters; Geometric transformations; Image segmentation: detection of discontinuities; edge linking and boundary detection; Thresholding; Region based segmentation ; Morphological image processing : operation concepts ; some basic algorithms, Image Compression. Local Feature Extraction. Projective Geometry. Stereo Vision. Point Matching. 3D Reconstruction. Motion Detection. Object Recognition.

ELE391 Industrial Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ELE421 Optoelectronics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY322

Light-matter interaction, Photons in semiconductors, level and. level lasers, gain coefficient, gain saturation, Heterojunctions, Fabry-Perot resonators, Double-heterostructure semiconductor lasers, Single- and multiple-quantum well lasers, DFB and DBR lasers, FP and travelling wave semiconductor optical amplifiers, Erbium doped fiber amplifiers, Light emitting diodes, Laser and LED dynamics, PIN and APD photodetectors.

ELE422 Antenna Engineering and Propagation

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ELE313, ELE314

Fundamentals and definitions, Dipoles array synthesis and antenna arrays, Line sources, Folded dipole antennas, Micro-strip antennas, Broadband antennas: Traveling wave wire antennas, Helical antennas, Biconical antennas, Sleeve antennas, Rectangular and circular aperture antenna, Reflector antennas. Feeding networks for wire antennas, Arrays and reflectors, Antennas in communication systems, noise temperature, Atmospheric and ground effects.

ELE432 Digital Signal Processing

3 Cr. Hrs. = (2LCT + 2TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE321 or CSE113

Representation of Periodic and Finite-duration Sequences. The Discrete Fourier Transform, Linear and Circular convolution. Computation of the discrete Fourier transform. Decimation-In-Time and Decimation-In-Frequency FFT Algorithms, The Frequency

Response of LTI Systems. Linear Systems with Generalized Linear Phase. FIR and IIR filters. FIR and IIR filter design techniques. Structures for discrete-time systems. Linear constant-coefficient difference equations. Sampling Theorem. Sampling Rate Conversions. DFT filterbank. Perfect reconstruction filterbank. Time-frequency analysis.

ELE433 Biomedical Engineering

1 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 75 – ECTS = 2

Prerequisite --- ELE432

Introduction to mathematical modelling of physiological systems, Linear system approximation, Stochastic modelling, Cardiopulmonary system models, Myocardial mechanics, Cardiac energy and power analysis models, Models of gastrointestinal tract motility, Models of respiratory mechanics and chemical control of respiration.

ELE434 Integrated Circuits Technology

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ELE322

IC Processing, Clean Rooms and Clean Room Technology, Bulk Crystal growth, Epitaxial growth, Photolithography, Etching, Oxidation process, Diffusion process, Chemical vapor deposition CVD, Evaporation and multilayer coating, Ionic exchange process, Fabrication of passive and active components, Process integration and standard technologies, Layout design rules, Layout parasitics, Layout techniques, Interconnect modelling.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ELE435 Analog integrated circuits design

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE312

Advanced current mirrors. Operational amplifiers (basic, two-stage, Miller, symmetrical, telescopic, folded, fully differential). Stability and frequency compensation. Common-mode feedback circuits. Voltage and current references. Noise. Non-linearity. Mismatches.

ELE437 MEMS Design

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Introduction to MEMS, Review of basic fabrication processes, example of fabrication flows, System modelling, MEMS mechanical design, damping mechanisms, Actuation methods, Sensing elements, some selected applications.

ELE443 Modern Communication Systems I

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE337

Modern communication systems as LTE-A Systems, D2D communications, Spectrum sharing, Cognitive Radio networks, Spectrum sensing, Dynamic spectrum allocation, Resources optimization, Digital Video Broadcasting systems.

ELE444 Satellite Communication Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE337

Introduction and history of satellite communication systems. Satellite frequency bands and radio regulations. Types of satellite orbits.

Choosing satellite orbits. Orbital mechanics, Kepler's laws, Keplerian element set, true, eccentric, and mean anomalies, Earth-satellite geometry, acquiring the desired orbit. Geostationary orbits, antenna look angles. Satellite channel and influence of the atmosphere. The satellite link power budget and noise in satellite communication systems.

ELE445 Selected Topics in Communication Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE337

Selected topics in recent directions and advances in communication systems.

ELE454 Modern Communication Systems II

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE322

Source coding techniques for lossless and loss compression, Huffman codes, Noiseless coding Theorem. Digital modulation methods and QAM modem architectures. Optimum receivers for AWGN channels: Matched filter receiver; Maximum-likelihood and MAP detectors; BER performance, Link budgets. Information theory: Mutual information; Channel capacity.

ELE456 Selected Topics in Signal Processing

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE432

Selected topics in recent directions and advances in signal processing.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ELE470 Digital Signal Processing and Systems Fundamentals

3Cr. Hrs. = (2LCT + 2TUT + 1LAB + 0 OTH) – SWL =165 – ECTS =6

Prerequisite:---

The concept of signals and systems, both continuous and discrete time. Classification of signals. Basic operations on signals. Systems and their properties. Linear Time-Invariant (LTI) systems. Impulse response of LTI systems. Relation between impulse response and system properties. Convolution integral and convolution sum. Differential and difference equation representation of LTI systems. Block diagram representation of LTI systems. Representation of Periodic and Finite-duration Sequences. The Discrete Fourier Transform, Linear and Circular convolution. Computation of the discrete Fourier transform. Decimation-In-Time and Decimation-In-Frequency FFT Algorithms, The Frequency Response of LTI Systems. FIR and IIR filter design techniques. Structures for discrete-time systems. Linear constant-coefficient difference equations. Sampling Theorem. Sampling Rate Conversions.

ELE471 Economics of Generation, Transmission and Operation

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Load curves, Variation in demand, Load diversity. Power plant layout, Main equipment, Auxiliaries, Bus-bar arrangements. Power plant economics: Capital cost, Operating cost, Fixed charge rate, Selection of plant and size and unit size, Operation and economics of spinning reserve, economic analysis of a transmission system, tariffs, power factor, all-thermal generation allocation problem, hydro-thermal coordination, new energy resources. Transmission access fees

ELE472 Information Theory and Coding

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE014, ELE338

Uncertainty, Information, Entropy and Source-Coding Theorem. Data Compaction, Discrete Memoryless Channels, Mutual Information, Channel Capacity, Channel-Coding Theorem, Differential Entropy and Mutual Information, Shannon Capacity, Linear Block Codes, Cyclic Codes, Convolutional Codes, Maximum Likelihood Decoding of Convolutional Codes, Introduction to LDPC codes and turbo coding.

ELE477 Advanced Programming

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE322

The purpose of the course is to study the fundamental concepts and techniques necessary to write high-quality programs, including basic concepts of object-oriented programming, modular design, exception handling, and class libraries. Some advanced topics such as reflection, distributed programming, multi-threading, and GUI libraries are also covered. All of the mentioned concepts and techniques are studied using the Java language. It is important to note that this course is not a Java training course. The emphasis is on the concepts and techniques rather than the language itself.

ELE487 Selected Topics in Telecommunication Networks

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE338

Selected topics in recent directions and advances in telecommunication networks.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ELE488 Digital Integrated Circuits

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite PHY322, ELE213

In this course, students will learn to use a hardware description language (VHDL) in the digital design process. Emphasis will be on system-level concepts and high-level design representations. Methods will be learned that are appropriate for use in automated synthesis systems. Students will have the opportunity to use commercial schematic capture and simulation tools to design a series of increasingly complex devices. Students will also use a logic synthesis tool and synthesize assignments into Field Programmable Gate Arrays.

ELE489 Operating systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ----

Overview. Concurrency, implementation structures: dispatching and context switching. Mutual exclusion: deadlock; synchronization. Scheduling, .Memory management. Device management .File systems. .Security and protection

ELE490 Computer Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ELE489

Design principles associated with modern computer architectures; performance and cost considerations; architectural features influenced by such features as operating systems and window systems, high level languages, networking, security considerations; processor

implementation strategies, micro-programming, pipelining, CISC and RISC, memory hierarchy, cache, virtual memory organization for high performance machines.

ELE491 Graduation Project 1

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 130 Cr. Hrs.

Simplification of prosthetic hand engineering is crucial for many interests and readers, with the increased numbers of handicapped individuals overall the world. An introduction to the basic engineering concepts of designing, prototyping, and assembling of a prosthetic hand can be available for everyone in demand to this technology, which becomes more affordable and cheaper by using of 3D printing and 3D CAD modeling techniques.

ELE492 Graduation Project 2

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite ELE491

This graduation project may be seen as a continuation of the first part (ELE 491: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.

ELE499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Civil Engineering

CIV110 Properties and Testing of Materials

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite PHY111

Introduction to material properties and selection, basic mechanical properties. Testing and mechanical properties of metals under tension and compression, and composite members. Reinforcing steel (Types, Properties, Standard specifications), Testing, mechanical properties, and analysis in elastic and ultimate state in bending. Static shear, Torsion. Hardness of metals. Performance and testing of metals under Impact loads, fatigue loads. Creep of metals.

CIV111 Structural Analysis (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MAT122

Introduction: types of structures, types of supports, types of loads, determinacy, equilibrium, and stability of structures. Analysis of statically determinate structures: calculation of reactions, calculation of internal forces (normal force, shearing force and bending moments) for plane structures: beams, trussed beams, inclined beams, frames, closed frames, arches and trusses. Analysis of beams, frames and trusses under moving loads using the influence lines diagrams.

CIV112 Strength of Materials

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV110, CIV111

Properties of homogeneous cross section, straining actions, and stresses distribution in these sections, when subjected to axial, flexural, shearing and torsional loadings. Analytical determination of combined and principal stresses. Buckling of compression members (columns).

CIV113 Structural Analysis (2)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV111

Deflection for determinate structures: double integration method and elastic loads method. Theory of virtual work: calculating deformations for determinate structures due to loads, changes in temperature, movement of supports. Introduction to statically indeterminate structures. Analysis of statically indeterminate structures: general method of deformations (consistent deformations), three moments' equation method and moment distribution method. Introduction to matrix methods: stiffness method.

CIV114 Civil Engineering Drawing

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MEC012

Fundamentals of technical drawing, orthographic projections, sectional



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



views. Computer-aided drawing; Concrete structures; slabs, beams, and columns, Steel structures; building trusses and bridges. Irrigation Works: introduction to Irrigation works; Earthworks (Open Channels cross sections and projections/ changes in Bed, Berm, and Bank levels / Rotation and ends of canals). Retaining walls and abutments (types and its relationship with earth). Irrigation structures (Crossing works, heading up works, Canal ends works). Introduction to the design process.

CIV115 Mechanics of structures

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite MAT122

Introduction: types of structures, types of supports, types of loads, determinacy, equilibrium, and stability of structures. Analysis of statically determinate structures: calculation of reactions, calculation of internal forces (normal force, shearing force and bending moments) for plane structures: beams, frames, arches, and trusses. Properties of homogeneous cross section, straining actions, and stresses distribution in these sections, when subjected to axial, flexural, shearing, and torsional loadings.

CIV131 Surveying (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MAT112, MEC012

Introduction to surveying science: Historical background, definitions, and branches of surveying science. Introduction to national and international mapping system, linear measurements, electronic distance measurements, angular measurements, computation of coordinates, traverse (measurements, calculations, adjustments and drawing), coordinate calculations, two dimensional coordinate

transformation, area calculations (regular and irregular parcel shapes) by using analytical, mechanical and graphical methods, parcel division techniques, kinds and types of errors in surveying measurement, introduction to theory of errors, survey and setting out by Total station.

CIV132 Architectural Surveying

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite MAT112, MEC012

Introduction to surveying science: Historical background, definitions, and branches of surveying science. Errors In Surveying, Linear Surveying & Distance Measurements, Angular Measurements, Total Station: Basic Concepts, Introduction to Traversing, Traversing Adjustment, Areas, Introduction To Volumes, Surveying New Technologies (GIS/GPS).

CIV211 Concrete Structures Design (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV112 or CIV115

Introduction to reinforced concrete - Materials used in reinforced concrete- Mechanical properties of hardened concrete and reinforcing steel - Design Codes - Methods of design - Behavior and design of reinforced concrete sections subjected to flexure for: ultimate limit state and working stress stage - Design of sections for shear and torsion - Bond, development length and reinforcement splices - Analysis and design of sections subjected to axial loads.

CIV212 Steel Structures Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV112 or CIV115

Loads on steel structures, Allowable stresses analysis and design



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



concepts, steel grades and types, structural systems and general layout for multipurpose halls, local buckling and steel cross sections classifications, Stability of steel structures, bracing systems, Design of bracing members, Design of steel elements: Tension members, struts and compression members, flexural Members, lateral torsion buckling of beams, floor beams, Purlins, Crane track girders, and beam-columns. Design of bolted connections subjected to shear tension and shear and tension, Design of welded connections subjected to shear and tension, wind bracing systems and design of column bases, Details. Construction: Tolerances, Fabrication, Erection.

CIV213 Concrete Technology (1)

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY111

Building Stones, Concrete materials: aggregates (Types, Physical, chemical, and mechanical properties), Cement (Manufacture, Chemical composition, Hydration of cement, Physical and mechanical properties, testing of cement, Common types of cement), Mixing water. Admixtures (Chemical admixtures, Mineral admixtures, Air entrained admixtures). Properties of fresh concrete: Consistency, Workability, Cohesion, Segregation, Bleeding, air entraining. Properties of hardened concrete: (compressive, tensile, flexural, shear, and bond strengths). Concrete mix design methods. bricks (Types, properties

CIV214 Concrete Technology (2)

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV213

Concrete manufacturing: (Approval of materials source, Storage, Batching and mixing, Transportation, Pouring, Compacting, Curing, Construction joints, Formwork). Non-destructive testing: (Rebound

hammer, Ultrasonic, Pulse velocity, Core, Steel detection, Radiation). Ready mixed concrete. Durability of concrete: (sulfate attack, Alkali aggregate reaction, Carbonation, Corrosion process). Hot weather concreting: (Definition, Problems, Precautions). Concrete flooring: (Floor types, Materials properties, Construction joints, Surface finish and preparation). Volumetric changes of concrete: (Elasticity, Creep). Special types of concrete: (High performance, Polymer, Fiber, and Lightweight concrete).

CIV215 Geology

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV114

Geological structures and maps: joints, faults, folds, and landforms.

Earth composition. Major types of rocks and deposits. Soil and rock cycle. Rock as a construction material. Influence of geological origin on composition and structure of soils. Subsurface exploration: techniques and tests. Substance and mass properties of rock: compressibility, shear strength and permeability. Ground water. Weathering and engineering aspects of transported soils: alluvial, colluvial, glacial, coastal, aeolian, lacustrine and residual soils. Soil description and engineering classification.

CIV217 Project Management

2 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite MAT312

Introduction to project management, project life cycle, responsibilities and relationships of project partners, management functions, legal organizational structure, contractual relationships, Characteristics of project delivery systems; Types of optimizations, An introduction to the



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



basic principles and techniques of operations research. Topics include Graphical methods, simplex method for linear programming, integer programming, transportation and assignment problems, stock controls and computer applications.

CIV218 Sustainability of Construction and Building Physics

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite CIV214

The basic concepts of sustainability and sustainable construction, Development of international and local regulations in the area of sustainability, The different rating systems of construction sustainability. Causes and defects of climate change, the different techniques to approach energy-efficient and energy-saving constructions applying the concepts of building physics. Assessment and analysis techniques and the use of specifications as well as service life models for building materials, components, and assemblies.

CIV219 Soil Mechanics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV215

Introduction to geotechnical engineering, earth crust, soil and rock, minerals, soil formation. Index properties and classification of soils. Weight-volume relationships. Soil structures. Moisture-density relationships. Hydraulic soil properties and permeability. Principle of total and effective stresses. Stress distribution due to external loads and analysis of total settlements. Shear strength of soil. Composition and structure of soils. index properties. Soil description and engineering classification. Effective stress. Vertical stresses. Shear

strength. Lateral earth pressure. Seepage. Consolidation. Experimental determination of soil characteristics; Atterberg limits, Grain size, Compaction. In-situ density, Permeability, Shear strength of soil, Shear strength test, Outline of theory of consolidation Exploration. sampling and in situ soil measurements; Soil report.

CIV221 Infrastructure Network Planning

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Role of GIS in engineering projects, holistic view of integrated infrastructure networks for public works, effective planning methods, build-up of integrated GIS/data base for infrastructure networks, indicators for monitoring and decision-making of infrastructure networks.

CIV222 Fluid Mechanics and Water Resources.

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CHE142, PHY211

Introduction. Fluid continuum. Fluid as a continuum. Fluid properties, statics, and kinematics; conservation laws for mass, momentum, and mechanical energy; piezometric head and grade lines; dimensional analysis and similitude; weir and orifice flow; introduction to flow in pipes and open channels. Pressure. Pascals Law. Kinematics of fluid flow. Introduction. Types of Fluid Flow. Dynamics of fluid flow. Basic equun -Integration. Energy Equation (Conservation of energy). Dimensional Analysis and Hydraulic similitude. Dimensional Analysis. Pi Theorem. Bear on common and important areas of water system design: water distribution systems, sanitary sewer systems, and storm water collection systems. Application of hydrologic and hydraulic principles in the design and analysis of water resource systems;



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



probability concepts and economics in water resource planning, water law, reservoir operations, hydraulic structures, flood damage mitigation, hydroelectric power, and drainage.

CIV231 Surveying (2)

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CIV131

Introduction to vertical control, different methods for height difference determination, ordinary levelling, survey level and survey staff, Calculation of ordinary levelling, Precise level, Calculations of precise levelling, Indirect methods for height difference determination, Tachometry, Trigonometric levelling, Earth curvature and refraction and their effects on height differences, applications of levelling, longitudinal levelling, cross section levelling, grid levelling, contour lines, topographic maps, volume computations and earth work. surveying and data analysis of Global Positioning System GPS.

CIV232 Foundation Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV 211, CIV219

Types of foundation and design criteria: Shallow foundations. Spread footings. Strip footings. Combined footings. Strap beam footings. Raft foundations. Deep foundations. Pile foundations. Caissons. Retaining structures. Sheet-piling walls. Supported deep excavations. Free and fixed earth support types. Anchors. Struts. Waling beams. Braced cofferdams. Slope stability analysis. Retaining structures. Walls for excavation. Slurry trenches and braced-cut systems. Design of shallow foundations and deep foundations, Construction methods. Pile load test. Dewatering and seepage control. Soil stabilization for foundation support.

CIV233 Properties of materials, Soil mechanics and foundations

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CIV132

Properties of Material: non-metallic building materials, building stones, bricks, aggregates, cement, wood, glass and their physical and mechanical properties, testing standard for materials, introduction in composite sheets, galvanized steel, galvanized steel, galvanized steel, and galvanized steel. And their mechanical behavior under static tension and axial pressure, shear and stiffness, testing machines and stress capacitance, devices dedicated to measuring quality control methods in industrial buildings. **Soil Mechanics and Foundations:** Soil properties, soil classification, soil compaction, stress distribution on soil, consolidation theory, side earth compaction, shallow foundations, deep foundations, retaining walls, soil examination.

CIV244 Transportation planning and traffic engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite MAT312

Introduction to Transportation Planning (goals and objectives, planning process, mathematical models, technical, economic, and environmental evaluation). Planning Elements (transport systems, travel behavior, transport and land use interaction, travel demand and transport supply matching). Transportation Planning Models (demand forecasting: trip generation, trip distribution, mode choice, trip assignment). Public Transport (systems, network, lines, stations, demand for public transport, capacities, fleet size, headway, and timetable). Traffic Engineering (relations between flow, density and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



speed, traffic characteristics, traffic survey and analysis, unsignalized intersections, signalized intersections, roundabouts, delays and level of service, traffic management, traffic safety, intelligent traffic systems). Transport and Environment (traffic noise and air pollution, transportation sustainability). Transportation and Traffic Mathematical Models (macro-and micro-simulation software). Freight Transport (systems, chain, handling equipment, storage, terminals, capacity, operation and productivity, transportation logistics).

CIV261 Introduction to Transportation & Traffic Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Transportation planning: Introduction to transportation planning. Stages of the urban and regional transportation plans, Data collection process required for the transportation plans, Stages of the travel demand forecasting process using the traditional sequential approach, Trip generation - trip distribution; Modal choice; Network assignments; Network equilibrium; Traffic studies (volume, speed, and density); Traffic flow characteristics; Intersection control; Conflict point at intersection; Traffic signal design, Weaving for intersection.

CIV271 Computer Applications in Geotechnical Engineering

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Theory of Finite Difference and its application in geotechnical problems: Seepage, Consolidation, and Beam on Elastic Foundation. Analysis of Geotechnical parameters based on factual site investigation report using excel spread sheet. Preparation of

Geotechnical applications using Excel spread sheet: Seepage, Bearing capacity of shallow foundations, Settlement of shallow foundations, Capacity of axially loaded piles. Student – edition Software applications in Slope stability, and Seepage analysis. The main items of final Design Report issued for different geotechnical structures.

CIV311 Finite Element Method

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite CIV112, CIV113

Direct perturbation method in deriving stiffness matrix. Assemblage of stiffness matrices of discrete elements and minimum matrix band width. A-Method in deriving element shape functions. Different stress-strain relationships (. D, plane stress, and plane strain). Lagrangian method in deriving elements shape functions. Energy approach in deriving stiffness matrix. Application of energy method in deriving stiffness matrix for multi-node truss and beam element. Application of energy method in deriving stiffness matrix for Plane stress and plane strain element. Applications using computer software.

CIV312 Concrete Structures Design (2)

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV113, CIV211

Floor systems - Design of solid reinforced concrete one-way and two-way slabs - Design of one-way and two-way hollow block slabs - Design of floor beams - Design of paneled beams - Design of slab type and cantilever type stairs - Analysis and design of sections subjected to combined flexure and axial compression - Design of slender columns - Serviceability limit states.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CIV316 Computer Aided Structural Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV312

Introduction and application of the available commercial software packages in structural engineering. Converting structural problems to numerical models. Solving and results analysis. Introduction to drawing commercial software packages. Integration of drawing with the structural software's. Detail drawings using commercial software. A design project is an integral part of this course.

CIV318 Planning and scheduling for Construction

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV217

Role of the civil engineer in the construction process, Construction Project definition and work breakdown structure. Scheduling and control models and techniques such as: bar charting, critical path method for scheduling and managing engineering project tasks; Arrow diagram method, Precedence diagram methods, Line of balance, program evaluation and review techniques, fast tracking, Documentation and reporting, time control, progress monitoring and evaluation and computer applications.

CIV321 Ground Improvement

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV232

Geotechnical problems with soft and loose soils, Soil improvement techniques. Mechanical stabilization densification: Deep and shallow compaction, Techniques, Compaction equipment, In-situ soil parameters after densification. Preloading: Consolidation analysis,

Preloading with and without drains. Design and construction of soil reinforcement: History of soil reinforcement, reinforcing materials, Physical and mechanical properties, Utilization methods, Advantages and limitations, and construction techniques, Analysis and design of reinforced embankments constructed on soft soils, Analysis and design of reinforced earth walls. Grouping: types, properties, and techniques. Criterion for choosing suitable technique for soil improvement.

CIV322 Principles of Water Resources Engineering

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Water-Resources Engineering provides comprehensive coverage of the principles of hydrology (Precipitation, Infiltration, Runoff, Evaporation), principles of hydraulics (flow in closed conduits, open channel flow, flow in rivers, lakes and estuaries, and groundwater flow), and principles of water-resources planning, and management estimation of water demands and quality for different purposes, water supply from different sources, and feasibility of water resources projects)). Presented from first principles relevant to the practice of water resources engineering and reinforced by some design applications. Laboratory and field work on selected topics.

CIV324 Hydraulic Structures

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Classification of crossing structures – Bridges on waterways: types, hydraulic design, heading-up calculations, bridge scour calculations and scour countermeasures, empirical dimensions, drawings. Culverts: types, culvert hydraulics, hydraulic design of culverts, scour



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



calculations, empirical dimensions, drawings, loads calculations for the different cases of loading. Syphons and Aqueducts: hydraulic design, drawings, calculation of loads for the determined cases of loading.

CIV325 Applied Hydrology

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Different Applications of Hydrology in Civil Engineering. Design storm, Rainfall statistical analysis. Hydro-morphology: Watershed characteristics, Morphological parameters, Time parameters. Surface runoff: Losses estimates (SCS method) Peak flow estimate (Rational Method), Storm hydrograph, Unit hydrograph, Mass curves. Soil loss estimation and Sediment yield. Protection works against flash floods: Storage and detention works, Road's crossing works, Direction change works, Sediment traps, Storm water drainage systems. Subsurface hydrology: Soil-water relations, Characteristics and types of aquifers, groundwater control systems.

CIV344 Design of Transportation Structures

3 Cr. Hrs. = (2 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV244

Introduction to transportation facilities and structures: Roads – rail tracks - bridges – breakwaters – quay walls – airport land side. Design of highways: road compounds, loads, materials requirements, design factors, design methods. Design of railways: track compounds, loads, materials requirements, design of track elements. Design of coastal structures: ports and harbors layout, port compounds, design of breakwaters, design of berthing structures. Design of airports: airport land site components, pavement types, design of airfield pavements.

CIV347 Design of Environmental Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV222

Introduction to physical, chemical, and biological characteristics of waters and wastewaters, and fundamental principles of water and wastewater treatment including hands-on laboratory exercises. Process design of treatment/remediation systems; comparison of alternatives and preliminary cost evaluation.

CIV391 Field Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is civil engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

CIV411 Earthquake Engineering

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Seismology, and measurements of the magnitude and energy of earthquakes. Dynamic response of SDOF to general dynamic loads. Duhamel Integral for un-damped and damped system. Dynamic response of SDOF to ground excitation. Response spectrum curves. Combined response spectrum curve for spectral displacement,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Pseudo velocity, and Pseudo acceleration. Construction of the codes design spectral curves. Orthogonality properties of the mode shapes. Normalization of the mode shapes. Modal superposition method. Analysis of shear frames using modal superposition method. Response spectrum analysis for buildings subjected to earthquakes.

CIV413 Design of Prestressed Concrete and Bridges

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV311

Pre-stressed concrete concepts. Pre-stressing losses. Statically determinate pre-stressed structures. Design of end anchorage zone. Limit the state of flexure and shear. Statically indeterminate pre-stressed structures. Bridge loading and load combinations. Bridge planning and systems. Design of concrete box-girder bridges. Basics of precast concrete.

CIV415 Dynamics of Structures

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV311

Types of dynamic loads and the formulation of the equation of motion. Single degree of freedom systems, free and forced vibrations of multi degree of freedom systems. Response of structures to earthquakes. Design response spectra for structures, Design criteria for seismic resistant structures, and Seismic response of tall buildings.

CIV431 Problematic Soil and Rock Mechanics

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV321

Definition and Subject of the Discipline. Nature of discipline and interdisciplinary connections. Discontinuity and granularity.

Multicomponent structure. Mechanical Models of Rocks and Soils. Description of the models. The concepts of rheology of a continuum. The model of an elastic body. Linear rheological models. Piecewise linear models. Terzaghi's hydrodynamic model. Discrete model for rocks and soils. Shear resistance of soils. Properties of Rocks and Soils. Physical properties of rocks. Physical properties of soils. Rheological properties of rocks. Rheological parameters of soils. The properties of frozen soils. Viscoelasticity in Soil and Rock Mechanics. Distribution of stresses in the substratum. Deformations of the substratum and slopes. The in-situ state of a rock mass. Excavations in a rock stratum. Problems associated with drilling. Discrete models of rock strata. Groundwater Flow. Equations of groundwater movement. Two-dimensional groundwater flow problem. Some practical problems. Seepage in scarps and slopes. Drainage of the ground and excavations. Water flow in rock strata. Outline of the Theory of Consolidation of Porous Deformable Media. Brief outline of the history of the theory of consolidation. Quasi-stationary problems. Dynamic problems of the theory of consolidation. Thermo-consolidation. Plasticity and Limit States. Constitutive relations for elastic-plastic models of rocks and soils. The limit state conditions. Limit analysis. Examples of application of approximate methods. The method of characteristics. Mechanics of the Clay Fraction. Data and assumption. Physical fundamentals. Clay particles and ground water. The primary structure of the clay-water fluid. Movements of a structure element. Action of isotropic pressure (consolidation). Action of the stress deviator. Rheological models of primary clay. Structural changes of clay-water fluid. The oriented clay-water fluid. Clayey soils. Creep in clayey soils. Collapsible soil, swelling soil.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CIV441 Construction Estimating and Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV318, FIN231

The role of the estimator not only in terms of predicting project cost, but also by recognizing potential risk that impacts the financial bottom line of an estimate. Introduction to cost estimating in construction, Direct and indirect costs Detailed cost estimation for civil works. Cost of construction equipment, excavation, and earthmoving operations. Cost breakdown structure, Presentation of commonly accepted practices and new estimating technologies, which are widely used in the estimating profession. Quantity surveying, Bill of quantities, Construction specification writing types and uses. Construction Tenders and bidding. Risk estimation and analysis. Productivity Estimations and applications. Construction economy. Cash flow, Markups and profits, bonus cost, penalty cost, Time-Cost trade off, and Earned value management. Cost controls.

CIV442 Management of Project Resources

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV318

Introduction to project procurement management, project resources management; critical project resources, material management: planning& control; Procurement& acquisition costs; resources management information systems; inventory analysis, inventory factors. Construction productivity, Resources loading, leveling and allocation and optimal schedules.

CIV443 Insulation Works

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV214, CIV312

traditional, state-of-the-art, and possible future thermal building insulation materials, with respect to properties, requirements and possibilities. Basic thermal transport properties are treated, including solid state, gas, radiation, and convection conductance. The advantages and disadvantages of miscellaneous building insulation materials and solutions are discussed. Examples of insulation materials are mineral wool, expanded polystyrene, extruded polystyrene, polyurethane, vacuum insulation panels, gas insulation panels, aerogels, and future possibilities like vacuum insulation materials, Nano insulation materials and dynamic insulation materials. Various properties, requirements and possibilities are compared and studied. Among these are thermal conductivity, perforation vulnerability, building site adaptability and cuttability, mechanical strength, fire protection, fume emission during fire, robustness, climate ageing durability, resistance towards freezing/thawing cycles, water resistance, costs, and environmental impact.

CIV444 Methods and Equipment for Construction

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV441, CIV442

Study of construction methods, Engineering fundamentals and production of equipment, moving earth, and related equipment; tractors, bulldozers, clearing land, and ripping rock. Scrapers. Excavating equipment; draglines, clamshells, hydraulic excavators, loaders, and trenching machines. Trucks and wagons. Belt conveyor systems. Cranes; derrick cranes, mobile cranes, and tower cranes.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Piles and pile driving equipment. The production of crushed stone aggregate. Equipment capability and selection. Analysis of Equipment Cost. Design and construction of formwork systems; horizontal formwork. And vertical formwork. Concrete technology; mixing and batching concrete, transporting concrete, and placing and compacting concrete, and administration with particular emphasis on the influence of new developments in technology.

CIV445 Advanced Composite Materials

3 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Types of Fibers and Polymers – Advanced Composite Materials (ACM): Advantages, Disadvantages, Applications of ACM in the construction field – Stiffness and strength characteristics of ACM – Failure modes of ACM in different directions – Strengthening of concrete elements using ACM: (flexural strengthening, shear strengthening, axial strengthening) according to the Egyptian code of practice.

CIV451 RC halls and industrial buildings

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV312

Choice of concrete structures for halls and industrial buildings- Design of framed structures – Crane girders - Brackets and corbels - North-light structures - Concrete arches - Flat plates and flat slabs.

CIV452 RC high rise buildings

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV312

Introduction – Structural systems (Moment resisting frames – Shear

walls – Dual systems) – Wind loads – Earthquake loads – Seismic design and detailing concepts – Structural analysis for gravitational and lateral loads - Frames with limited ductility – Frames with enough ductility – Design of shear walls.

CIV453 Prestressed concrete and RC bridges

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV312

Prestressed concrete: Introduction - Materials used in prestressed concrete - Methods of prestressing (post-tensioning and pre-tensioning) – Partial losses of prestress - Analysis and design of prestressed concrete sections subjected to flexure – Ultimate flexural capacity - Cable profile - Limit state of deflection and camber - Design for shear - End anchorage for post-tensioned members. Concrete bridges: Loads on bridges - Design of concrete slabs under wheel loads - Slab bridges – Slab-girder bridges - Box-girder bridges.

CIV454 Liquid containing structures

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV312

Introduction to reinforced concrete water tanks - Design of uncracked concrete sections subjected to axial tensile forces, bending moments and eccentric tensile forces - Design of ground and elevated rectangular tanks - Design of ground and elevated circular tanks - Design of deep beams - Design of circular beams - Design of structures supporting water tanks.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CIV455 Quality Control and Repair of Structures

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CIV214, CIV312

Quality control measures. Statistical analysis to judge the concrete quality. Causes of deterioration of concrete structures – Evaluation of concrete structures – Repair and strengthening materials (types, selection, and testing) – Bond between repair and strengthening materials and substrate concrete – Different repair and strengthening techniques – Protection and maintenance of concrete structures – Repair and strengthening of different concrete elements (footing – column – beam – slab etc.) – Structural analysis of repair and strengthening – Design of repair and strengthening – Case studies. Causes of concrete defects. Cracks: causes, evaluation, and repair methods. Different methods of repair and strengthening of reinforced structural elements. Repair materials: types and selection. Corrosion of reinforcement causes and repair methods. Conventional and advanced repair technique using fiber reinforced polymer. Shotcrete materials, equipment, and technique.

CIV461 Risk and Safety Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CIV441

Introduction to project risk management, Introduction to advanced concept of the systematic process of identifying, analyzing, and responding to risk and safety management of construction projects. Focuses on management and planning aspects of construction safety, including fall protection, scaffolding, excavation, hand and power tools, cutting and welding, and others. Risk management during construction project life, risk analysis, risk evaluation, risk assessment, risk

prevention in construction projects, Safety and health considerations on construction project, safety regulations and safety management. Environmental Risk Assessment Methodology, Environmental Impact Assessment Environmental Health Risk Assessment. National and International regulations.

CIV462 Legal and Contracts Issues in Construction Projects

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite CIV441

Construction contracts basics and definitions. Types of construction contracts; cost-based contracts and Price given in advance contracts. Methods of contractors' selection, tender types. Legal Aspects of Construction Projects "Egyptian Law", Legal Aspects of Construction Projects "FIDIC". Construction Claims: Definition & Classification, Generation and Procedure of Claims, Claim categories. Dispute resolution techniques; Mediation, Conciliation, Adjudication, Arbitration, Litigation ... etc.

CIV482 Dynamic Floor Vibrations

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Basic vibration terminology. Acceptance criteria for human comfort and its historical development. Walking excitation. Rhythmic excitation. Natural frequency for steel frame system. Natural frequency for different reinforced concrete floor system. Design for walking excitation. Design for rhythmic excitation. Design for sensitive equipment. Evaluation of vibration problems and remedial measures. Along and across wind acceleration for tall building. Steady state analysis and power-spectrum-density analysis for floor system



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



subjected to deterministic and probabilistic equipment vibration.

CIV491 Graduation Project 1

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 130 Cr. Hrs.

Identification of a real-life problem related to the program in general and the concentration in specific, Setting the overall objectives of the project and specific objectives of Project (Collecting data from the field, market and/or literature, proposing engineering solutions, developing conceptual ideas/designs, conducting preliminary analyses, comparing different ideas based on technical aspects, Selection of the solution approach.

CIV492 Graduation Project 2

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite CIV491

This graduation project may be seen as a continuation of the first part (CIV 491: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.

CIV499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Chemical Engineering

CHG231 Separation Processes

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CHG132

Fundamentals of vapour-liquid equilibrium, Flash distillation, Continuous distillation, and the McCabe-Thiele construction, including consideration of (the feed line, the reflux ratio, non-ideal systems), Batch distillation, Plate distillation column design, Absorption and stripping of dilute mixture in plate columns, Liquid-liquid extraction, • Fundamentals of interfacial mass transfer, Absorption and stripping of dilute mixture in packed columns, Design of packed columns.

CHG232 Chemistry of Petrochemical Processes

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CHE221

fundamental topics of mass/mole balances, thermodynamics, chemical kinetics, and transport phenomena in quantitative fashion through the use of advanced mathematical concepts.

CHG251 Chemical Products Design and Development

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Chemical Products. What are chemical products – examples: ball point pen ink, incandescent light bulb. Key importance of physical properties. Physical property categories checklist. Physical Properties. Molecular size and shape. Dispersive forces, polarity, hydrogen

bonding. Property estimation. Gases, liquids, solids. Crystal growth and shapes. Multiphase systems – foams, emulsions, suspensions. Designing Volumetric Behavior. Density, volume, thermal expansion, compressibility, volume change on phase change. Effect of temperature, pressure, and concentration. Ideal gas law – compressed air propellant for shaving cream can bag-on-valve. Volume change during shipping – temperature in the back of a truck. Stokes' law – stable multiphase products from equal densities, high viscosity, or small radii. Compressibility of liquids – hydraulic fluids, Pascal's law. Poiseuille's equation – fluid movement. Volume change upon freezing and melting – bursting pipes. Thermal expansion of solids in contact with each other. Designing Thermal Behavior. Heat capacity – effect of temperature. Absorptivity and emissivity – temperature of the Earth. Heat of vaporization – cooling of an aerosol can. Insulation – thermal conductivity of multiphase systems. Heat transfer – cold packaging, heat transfer fluids. Combustion – fuels. Heat perception – counter irritants. Designing Phase Equilibrium Behavior. Phase diagram – solid, liquid, vapor, supercritical. Water activity – microbial activity. Vapor-liquid equilibria – shaving cream propellants, azeotropes. Solid-liquid equilibria – freezing point depressants. Solubility parameter model. Solvent selection. Evaporation and drying – hand sanitizer, fragrance fixatives. Designing Rheological Behavior. Viscosity – flow of fluids. Non-Newtonian behavior – shear thinning, shear thickening. Power law fluids – anti-icing fluids. Thickeners – polymers, gums. Stokes' law again – skin feel. Squeeze flow – fluids between solid surfaces, lubricants. Effect of temperature – viscosity index improvers. Designing Interfacial Behavior. Surface tension – pure liquids and mixtures. Creating surfaces – bubbles, drops, nucleation. Young's



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



equation – contact angles, wetting and spreading. Zisman plots – critical surface tension for wetting. Kelvin equation – phase behavior and curved surfaces. Ostwald Ripening – activity, pressure, and concentration. Capillary rise – ink on paper. Interfacial tension – behavior of detergents. Surfactants – molecular structure, general behavior. Critical micelle concentration – effectiveness, efficiency. HLB – surfactant selection. Packing parameter – structure formation. Designing Sensory Behavior. Taste – bittering agents, flavoring chemicals. Smell – odor threshold, perfume notes, odorants. Sound – speed of sound, Hertzian impact. Perception – human sight, human touch. Human strength - grip, finger. Designing Optical Behavior. Electromagnetic spectrum – visible light, colors. Light and chemicals – reflection, refraction, transmission, absorption. Invisible light – optical brighteners, infrared reflective coatings. Ultraviolet – skin protection, chemical reactions. Chromophores – electronic transitions. Effect of pH – indicators. Colorants – pigments, dyes. Inks, paints, cosmetics. Sources – carmine. William Henry Perkin. Designing for Environmental, Health and Safety. Toxicity – concentration not chemical, LD50, LC50. Dose-response curves. Degradation in the environment – branching, biodegradability rules. ThOD – theoretical oxygen demand. Flammability – combustion, flash points, mixtures. Flame retardant additives. Designing for Reactivity. Reactivity – with oxygen, light, water. Autooxidation – free radical formation. Preservatives – antimicrobials, free radical scavengers. Corrosion – chemical reactions, electrochemistry. Corrosion inhibitors. Designing for Mechanical Behavior. Applied forces – compression, tension, torsion. Deformation – stress, strain, modulus. Stress-strain curves – strength, yield, fracture. Metals, plastics, elastomers, glasses. Reinforcements – glass fibers, carbon fibers. Composite materials. Designing for Electromagnetic Behavior. Electricity – flow of electrons. Conductors, insulators, semiconductors. Conductivity – metals, polymers. Flow of ions – batteries.

CHG271 Fundamentals of mass & energy balance

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The course will focus on two key principles: 1) the conservation of mass, and 2) the conservation of energy. Application of these two principles is essential in the design and analysis of chemical engineering systems. We will first consider basic units, variables and conceptual representations used to describe chemical processes, and then apply the conservation of mass to chemical systems in the form of mass balances. The study of mass balances will include systems in which chemical reactions are occurring as well as systems containing multiple phases (gas, liquid) at thermodynamic equilibrium. Finally, we will incorporate the conservation of energy in the form of energy balances to analyze chemical systems undergoing heating and/or phase change.

CHG352 Environmental and Safety Management

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: -

Environmental impact assessment of oil and gas field, risk securing techniques, concept of air and water pollution in petroleum industry, flaming impact, oil spill control, solid waste and sludge control, impact of drilling activity, emissions during drilling, production, storage and LPG plant operation, noise pollution in oil exploring and exploiting, prevention and control. Occupational health and safety administration. Design procedure for operation, maintenance, modification, and emergencies, safety by contractor, accident and incident reporting, investigation and follow-up, and reappraisal of the system.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CHG353 Thermodynamics

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Thermodynamic properties of pure substances. Definitions of work, heat, and energy. First and second laws of thermodynamics and its application to fixed mass systems and control volumes. Analysis of thermodynamic cycles and their components.

CHG357 Advanced Reaction Engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

chemical kinetics and transport phenomena, review of elements of reaction kinetics, rate processes in heterogeneous reacting systems, design of fluid-fluid and fluid-solid reactors, scale-up and stability of chemical reactors and residence time analysis of heterogeneous chemical reactors.

CHG370 Transport phenomena

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CHG 271

Viscosity and the Mechanism of Momentum Transport. Velocity distributions in laminar flow. The Equations of change for isothermal systems. The equations of continuity, motion and mechanical energy in rectangular and curvilinear coordinates. Use of the equations of change to set up steady flow problems. Velocity distributions with more than one independent variable. Velocity distributions in Turbulent flow. Interphase transport in isothermal systems. Thermal conductivity and the mechanism of energy transport. Temperature distributions in solids and in laminar flow. The equations of change for non-isothermal systems. Temperature distribution with more than one independent

variable. Heat exchangers

CHG371 Renewable Energy Resources Interfacing

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

society's present needs and future energy demands, examine conventional energy sources and systems, including fossil fuels and nuclear energy, and then focus on alternate, renewable energy sources such as solar, biomass (conversions), wind power, geothermal, and hydro.

CHG391 Industrial Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite ---

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

CHG421 Reservoir Simulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MAT131- PGE 352

The course gives the theoretical basis and practical fundamentals for the mathematical modelling and numerical simulation of fluid flow in petroleum reservoirs. The governing laws and equations required for the modelling of single-phase and multi-phase flow in porous media, such as mass conservation, Darcy, equation of state, rock



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



compressibility, capillary pressure, and relative permeability, are reviewed. By combining these laws and equations, the corresponding partial differential equations are derived. The numerical methods for solving the governing partial differential equations are presented. It also demonstrated how numerical simulation can help us to forecast the reservoir performance in response to different field-development scenarios. The role of input data of reservoir simulators on the accuracy of prediction is another aspect which is reviewed in this course. Through several exercises and assignments, an overview of a commercial reservoir simulator is given.

CHG422 Petroleum Economics

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisites: MAT312- PGE 232- PGE 352

Introduction and definition of basic concepts, world supply and demand. Egypt Petroleum Policies and laws, petroleum resource and reserves classification. time value of money, basic interest equations, present and net present value, ABC transaction, payout, payback time and rate of return. Engineering economics, factors, and their uses. Evaluation of alternatives. Cash flow analysis. Risk analysis. EMV calculations

CHG454 Project Planning and Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Recommended processes, tools and techniques, oil and gas project management case studies, class exercises, team working, production of business case and project plan, video, presentation, and rapid response assessment based on a situational analysis.

CHG455 Instrumentation and Process Control

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

application, hardware, installation, and performance of process measurement instrumentation and control valves.

CHG456 Material Synthesis and Characterization

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to feedback control systems. Characteristics of closed loop systems. Advantages and disadvantages of feedback. Obtainment of transfer functions along with illustrative examples. Block diagram reduction. Signal flow graphs. Sensitivity to parameter variation. Performance of control systems. Standard test signals. Time response of first and second order systems and response specs. Identifications of systems from time response. Static error analysis. Classical controllers P, PI, PD, PID. Routh - Method for stability analysis. Root locus. Frequency response. Identifications of systems from frequency response. Design of PID controllers and compensators. State space representation in canonical forms. State feedback gain matrix design method. Observability and controllability analysis.

CHG 457 Petroleum Refining Engineering

3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC251- PGE343

Introduction, Composition of petroleum, physical properties and Classification of Crude Oils, laboratory tests, refinery feedstocks and products. Evaluation of crude oil properties and Design of crude oil distillation column. Thermal and Catalytic cracking. Catalytic



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Reforming. Hydro-treating and Hydrocracking. Isomerization, Alkylation and Polymerization. Treatments of petroleum products.

CHG458 Principles of Enhanced Oil Recovery

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: PGE 343- PGE 352

The subject is enhanced oil recovery (EOR) used to improve recovery beyond that expected by pressure depletion. Water injection, hydrocarbon (HC) gas injection, and combined water/gas injection (WAG) are the most common EOR methods used in the industry today. Other EOR methods (typically more expensive and technically more complicated) covered are non-hydrocarbon (CO₂ and N₂) injection, compositional effects e.g vaporization, and developed miscibility, both in conventional reservoirs and naturally fractured reservoirs. The course will primarily consider Water Flooding: Selection criteria, displacement theories and performance calculations. Selection and efficiency of various flood patterns. Practical considerations for water flood design. Immiscible Displacement by Gas Injection: Surface installations; compression and treatment methods. Special applications of gas injection. Thermal Recovery Methods: steam and hot water displacement. In-situ combustion. Miscible Flooding: Thermodynamic miscibility, ternary diagram, first and multiple contact miscibilities. Carbon dioxide, nitrogen and water alternating gas flooding. Chemical injection: polymers, miscellar polymer, alkaline and surfactants.

CHG474 Biomass

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Biomass fiber morphology, cellulose, hemicellulose and lignin chemistry and their chemical analyses. It also covers biomass

pretreatment/fractionation, enzymatic hydrolysis of lignocellulose and biochemical conversion of hydrolysate to ethanol or butanol.

CHG491 Graduation Project 1

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite ---

Under supervision, the student should approach his graduation project within his Senior year. The purpose of this graduation project is to provide students with an opportunity to engage in an activity that will allow them to demonstrate their ability to apply the knowledge and skills they have gained throughout their years in the educational system. The project is designed to ensure that students are able to apply, analyses, synthesize, and evaluate information and to communicate significant knowledge and understanding. Problems/topics to be considered should be materials engineering oriented, in any of the related disciplines offered by the faculty.

CHG492 Graduation Project 2

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite CHG491

This graduation project may be seen as a continuation of the first part (CHG 491: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.

CHG499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Architecture Engineering

ARC010 Introduction to History of Art and Architecture

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

The course is an introduction to art and Architecture from Pre-Historical periods to the modern times in the East and the West. It explains how art and architecture have developed through different cultures, religious beliefs, aesthetic values, and behavioral patterns. This course introduces Design thinking, types, characteristics, methods, strategies, and factors for successful thinking in art and architecture. Also introduce Fundamental design principles as a way to demystify design and provide a basic introduction to all aspects of the design process from context to concepts, drawing, making, iterating, building a narrative and finally presenting. An introductory class intended for students without a design background geared towards enabling more effective collaboration with designs based on innovative solutions throughout all of historical eras.

ARC021 Free Hand Drawing & Sculpture

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Pencil sketching - introduction to orthogonal projection- introduction to the color theory – freehand –introduction to shade and shadow – concept sketching with markers - basic concepts of three-dimensional design and integration of aesthetic and functional design criteria.

ARC022 Architectural Drawing & Perspective

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite

Students will learn the necessary skills needed to deliver professional architectural drawings in the form of plans, elevations, and sections. Students learn the basics of one-point, two-point perspective and axonometric drawings. The exercises include scaling, dimensioning, and lettering. Students will also learn presentation techniques including line drawings and tone drawings, as well as adding human effects such as furniture and plants to the final drawings. In addition to one point and two-point perspective.

ARC023 Design Fundamentals & Abstraction

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ARC022

Two- and three-dimensional principles of design: Unity, Emphasis, Proportion, Balance, Rhythm, Texture/Color/Value, Artistic Trends, Styles, Three-dimensional aspects of objects: space, plane, form, volume, surface/interface, Perception / cognition principles, Design Process, From problem definition to Idea generation, analysis, verification and communication.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC032 Introduction to Building Construction

3 Cr. Hrs. = (1LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The course introduces the different structural methods. Building to this, the course captures the fundamental concepts of the distribution of loads. The course also builds on the fundamentals of surveying and building construction. This course places an emphasis on the integration of spatial, visual, and environmental performance aspects of buildings. Innovative environmental solutions will be illustrated throughout the course

ARC111 Visual Perception, Art, and Design

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course introduces students to Visual Studies; the perception, creation, and evaluation of visual compositions. Theory of Color; Investigate various color theories, color relations and schemes. The principles of shade and shadow; Exercises on shade and shadow of architectural elements. Principles and techniques of design. Illustrate systems and methods of perspective drawing. Creation of form-making, and Study of perspective drawing with CAD techniques. Students also learn presentation techniques including line drawings and tone drawings, as well as adding human effects such as furniture and plants to the drawings.

ARC112 Architectural Drafting

4 Cr. Hrs. = (1 LCT + 7 TUT + 0 LAB + 0 OTH) – SWL = 255 – ECTS = 8

Prerequisite ARC111

This course introduces and trains students to use different drafting

skills in order to be able to deliver architectural design drawings in different techniques as well as the knowledge of different projection systems.

ARC113 Artistic taste

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

From 2D to 3D – Introduction to 3D max/Rhino – Introduction to Revit.

ARC121 Architectural Studio 1

4 Cr. Hrs. = (1 LCT + 6 TUT + 1 LAB + 0 OTH) – SWL = 255 – ECTS = 8

Prerequisite ARC112

This course introduces the students to the fundamentals of Architectural Design as well as the scope and vocabulary of architecture. Also, the course presents the career range of architects and the role of the architect in the community. It aims to prepare students with all the basic knowledge & skills they need to be able to deal with the design process. The course introduces the generic issues that influence and shape architectural design and aims at developing the skills to address them. The studio focuses on such elements as tectonics, design method and representation, human scale, space, form and light, function, place, and time. The course also focuses on the basics of building construction with emphasis on different building components and materials in traditional construction

ARC124 Digital Presentation for Architects

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite

From 2D to 3D – Introduction to 3D max/Rhino – Introduction to Revit.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC131 History and Theory of Ancient Architecture

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite UC1

The course focuses on studying the factors and features for prehistoric architecture, Mesopotamian Architecture, Ancient Egyptian Architecture, Greek Architecture - Roman Architecture – Lessons Learned from History (Programming of Building Types – building Systems and Techniques- Design Elements and Geometry). The course works both chronologically as a history of phases and styles, and methodologically, examining the contextual issues that give each period a distinctive architecture. Students will learn to understand and make critical judgments on buildings and be ready for more specialized studies in the history of architecture.

ARC132 History and Theory of Medieval Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ARC131

This course studies Early Christian, Byzantine, Romanesque, Gothic, Renaissance, Baroque, Rococo, and till the Industrial Revolution. As well as identify, analyze, compare, and judge the formulation and preprogramming of building types, various architectural elements and styles, building material and constructions techniques, vernacular aspects embodied and associated arts. Special emphasis is put on Coptic (Egyptian) Architecture.

ARC135 Appropriate Building Materials & Technology

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ARC031

Why natural building, the skills necessary for the evaluation of what truly makes a material “natural and green”, the structural role of stone, clay, sand, and straw in an earthen wall. Thermal properties: insulation vs. thermal mass. Natural building techniques. Considerations for ecological and sustainable impact. The selection of materials for and design various components of green/natural building materials and systems and to evaluate the building performance according to relevant standards. Environmental control, life safety and building service systems, consisting of electrical, lighting, heating, ventilation, air-conditioning, water and waste, acoustics, fire safety and fire protection, and vertical transportation. The course covers basic principles, applications, and performance of environmental control systems, and addresses these systems as they impact building planning and design, and occupant health and comfort. Sustainable design strategies, energy efficiency, optimization of indoor environmental quality and economic soundness.

ARC141 Introduction to Building Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course focus on Construction methods: Masonry, Concrete, Timber, And Steel. Illustrate Building elements and components: walls, openings, floors, roofs, and foundations. Give theoretical background in building technologies, Introduce to Climate-responsive design, Lighting, Acoustics and Ventilation. And its relationship with environment and human needs in order to achieve better construction



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



efficiency.

ARC151 Climatic Considerations in Buildings

2 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 8

Prerequisite - - -

Students are introduced to different strategies as well as environmental factors that affect buildings in different climatic regions in order to reach sustainable architecture. Different techniques, treatments and examples are studied and analyzed.

ARC152 Introduction to Environmental Behavior Studies

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite

Culture and the environment behavior relationship, Socio –spatial behavior: personal space, privacy and territoriality (design and social interaction)• Social interactions and the built environment (types of activities and spatial patterns of activities)• Conceptualizing the environment and understanding people, Environment perception and cognition, Residential environments and behavior, public environments and behavior, Urban design and behavior.

ARC153 Aesthetics of Architecture & Urbanism

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite

Philosophy and theories of architecture and aesthetics, the content and form, essence for architecture and urban design, judging architecture, the language of architecture, expression and abstraction, the sense of details, architecture, and morality.

ARC161 Human Aspects Design Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC023

Introduction to basic Environment-Behavior issues related to architectural design, Nature of the design process and human factors involved in design decisions, Architectural Programming and Post-Occupancy Evaluation, Human, and socio-cultural factors in design: Perception, Cognition and way finding, Behavioral uses of spaces, User's needs, Ergonomics, proxemics, Design for the disabled, Effects of cultural processes on architecture and urban design.

ARC162 Form & Function Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC161

Design with History, Design with Material, Paradox and Anticlimax, Design with Nature and Climate, Design with Geometry, Exotic and Multicultural Design, Architecture Design Association with Other Arts.

ARC212 Interior Design and Modern Art

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course introduce to the principles of interior space design; Formation and influential factors such as physical determinants, visual perception, color, functional requirements; Exploration of concepts and contemporary design movements; Design of interior spaces and application of architectural treatments in interior spaces; Detailed studies focusing on interior elements and associated systems; Aspects involved in the execution of interior design including furniture, finishing materials, technical installations and treatments. Also, the course aims



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



to train the students to effectively use various illustration media to express their work and express themselves including manual, digital, and mixed media.

ARC222 Architectural Studio 2

4 Cr. Hrs. = (1 LCT + 4 TUT + 1 LAB + 0 OTH) – SWL = 255 – ECTS = 8

Prerequisite ARC121 , ARC131

This course is meant to direct the students throughout the process of design starting from deriving the concept and reaching to fully developed multi-layered design allowing students understand the different aspects incorporated with the design process covering Utilitarian, Structural, Socio-cultural, Environmental and Economic aspects. Also, the course aims to train the students to effectively use various illustration media to express their work and express themselves including manual, digital, and mixed media as well as the written word. The course also focuses on the relationship between different building materials and joints between different surfaces and building components.

ARC223 Architectural Studio 3

4 Cr. Hrs. = (1 LCT + 4 TUT + 1 LAB + 0 OTH) – SWL = 255 – ECTS = 8

Prerequisite ARC222

This course focuses on the ways in which the nature of the structural system, method of construction and building materials affect and inform the process of design and the final form. By means of experimental physical models, students should be able to select building materials and methods of appropriate physical/formal characteristics to create an iconic building. This course encourages to develop a project with a comprehensive approach to programmatic organization, energy load considerations, building material assemblies,

exterior envelope, and structure systems. The course also integrates working drawings as a discipline in order to help students produce a set of basic construction drawings.

ARC229 Green Cities and the Built Environment

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 9

Prerequisite -----

This course examines the basics, tools, and models necessary to enhance urban built environments, particularly the existing urban structure, in socially and environmentally sustainable ways. This course particularly focuses on low income/informal areas/communities, examining issues of spatial distribution and social justice, and aiming ultimately in using green initiatives to empower these communities.

ARC233 History of Islamic Architecture

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ARC132

Critical review of literature of Islamic architecture and analyzes its historical and theoretical frameworks. Challenges the tacit assumptions and biases of standard studies of Islamic architecture and addresses historiographic and critical questions concerning how knowledge of a field is defined, produced, and reproduced. Studying the different features and values of the historical Islamic periods; Umayyad and Abbasid architecture; Early and classic architecture in North Africa and the Middle East; Evolution of Islamic architecture: Fattimid, Ayyubid, Bahari Mamluk, Circassian Mamluk, and Ottoman architecture.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC234 Theory and Criticism of Modern and Contemporary Architecture

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ARC233

This course will Re-interpreting Historical Traditions through The Modern Movement and models developed through the 19th and 20th centuries (such as Functionalism, International Style, Deconstruction and Post-modernism). Contemporary architectural design and present architectural thought. Also, the course will introduce to the Critique of Modernism, The Rise of Post-modern, and Theory of 1969–1979, Pluralism of Thought, the 1980s Millennial Excursions, and 1990s and beyond the new millennium. This course will Overall perspective of contemporary architecture; Review, analysis and criticism of concepts, philosophies, ideologies, and models developed through the 19th and 20th centuries.

ARC235 History and Theory of City Planning

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ARC234

This course illustrates principles, approaches and basic theories and historical background in the field of city planning throughout the different historical era starting from prehistoric architecture, ancient Egyptian, Mesopotamia real state city planning, Greek and roman city planning, Medieval city planning, Islamic city until the Contemporary trends in cities design

ARC237 Contemporary Building Materials

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite

Module #1: Brick, Stone, gypsum, lime, cement, mortar. Module #2: Fresh and Reinforced Concrete, Production and Processes, Special Types of Concrete, Pre-stressed Concrete. Module #3: Wood, Pre-engineered steel, Ceramic products, Aluminum, Glass, Stainless steel. Module #4: External finishes, Flooring, False Ceiling, Glass, Fiber-Composite Materials, Polymers, Insulation Materials, Resins, Rubber, Adhesives.

ARC238 Illumination & Ventilation

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Lighting principles for different uses. Lighting fixtures and fixations, moist air properties and conditioning processes. Air-conditioning systems. Indoor and outdoor design conditions (Indoor air quality, thermal, comfort, and weather data. Space air diffusion and duct design. Heat transmission in building structures. Solar radiation. Infiltration and ventilation. Cooling/heating load calculations. Building energy calculations.

ARC242 Sanitary Installations & Architectural Acoustics Cancelling

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ARC141

Introduction to plumbing systems, hygienic facilities design, piping installations placing. Plan procedures, drawing, structure of water systems and interpretation. Plumbing fixtures, traps, sanitary draw-of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



taps, and flushing devices. disposal of wastewaters from buildings, hydraulic as applied to plumbing, materials for drainage elements. Sanitary & storm water drainage systems. Backflow prevention, building sewers. Statutory and private water supplies, pressure boosting, pressure reducing. Protection of potable water supply, thermal insulations, equipment for fire-water supply, water service pipes. General principles of natural gas supplies, requirements for gas...

Students are introduced to the science of architectural acoustics. Mathematical methods as well as simulation techniques are reviewed to assess the acoustical performance of architectural spaces. Basic knowledge of sound pressure levels, reverberation times, ...etc are covered. Electronically played sound and its sources and distribution is also discussed.

ARC245 Theory & Criticism of Modern & Contemporary Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ARC244

Re-interpreting Historical Traditions- The Modern Movement and Anti-Ornament- New Responses to Site- New Technique, Materials and Visions- Organic Design Approaches- The Purpose of Manifestos- The Responsibility for Housing- Industry and Commerce- Modernism Outside of Europe- Critique of Modernism - The Rise of Post-modern Theory 1969–1979 - Pluralism of Thought – the 1980s- Millennial Excursions - 1990s and beyond the new millennium.

ARC263 Vernacular Design Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC162

Architectural forms for a historically sensitive setting. Relationship between construction and context. The aim will be to propose new spatial models for the present-day inhabitation of a heritage site. Architectonic thresholds; relationships between foundations and topography, the domestic interior and the weathered exterior, traditional craft, and contemporary construction. Regulating color, material, and roof shape. The studio will question these parameters and test their limitations. Students will use their precedent studies to inform their proposals for new construction methods and future modes of inhabitation on the site. The studio work is composed such that students proposing new architectural form in a conservation area, analyze existing building typologies, utilize precise surveying technology in both analogue and digital form, engaging actively with real stake holders including community groups, local municipality, and heritage authorities, learn how to navigate and write requirements and regulatory framework, developing present-day forms of dwelling.

ARC264 Green Architecture Design Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC263

Sustainable material selection, Passive and active solar systems, Day lighting, Water conservation, Natural ventilation, Climate factors in regional design, Evaluation tools (such as LEEDS), Building performance measurement, Alternative energy systems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



ARC271 Introduction to Urban Design

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite-----

A studio-based course that provides an overview of the design of urban areas. Students learn theories and principles of urban design and issues concerning process and practices. the physical and social structure of cities, models of urban form analysis, city and urban design, contemporary theories of urban design, suburbs, and metropolitan areas, implementation strategies, urban problems, projects analyzing the evolution of urban place, factors of high-quality urban design and development.

ARC272 Landscape Architecture

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ARC271

Form and space generation in landscape architecture. Elements of Landscape Architecture. The integration of both the building and the environment through the theories and principles of landscape design. Students with an in-depth understanding of how the two disciplines can be combined to produce integrated sustainable solutions. This is followed by the theoretical and historical backgrounds of landscape studies, site analysis plant materials and landscape elements.

ARC301 Knowledge Based Systems

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Topics include knowledge-based programming methodologies, knowledge-based engineering techniques, expert system development environments and representative expert system applications.

ARC302 Geometric Modeling

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduces the theories of three-dimensional geometric modeling and associated computer-aided design as well as visualization applications in architecture, urban design, and computer graphics production.

ARC303 Introduction to Shape Grammars

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Introduction to the shape grammar formalism and its relationship to some key issues in a variety of other fields, including art and design, philosophy, history and philosophy of science, linguistics and psychology, literature and literary studies, logic and mathematics, and artificial intelligence.

ARC321 Independent Studies: Smart Building Information Systems

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course focuses on different work methodologies related to smart architecture. Critical analysis of information and choice of argumentation in smart buildings. Work methodologies and pedagogical interest

ARC324 Tourism Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course examines the relationship between tourism and the built



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



environment; It helps students strategically plan and design the suitable facilities that contribute to the tourism; from historical monuments to exotic holiday destinations. It sheds light on the cultural, economic, and sustainable development in a specific region. Through case studies, the course explores the touristic experience, representation and meaning of a place within distinct cultural contexts.

ARC325 Environmental Design Studio 1

3 Cr. Hrs. = (1 LCT + 4 TUT + 1 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite ARC223

This course is a practical application of the environmental design elements; it will introduce the students to environmental science, in which basic equations are used as a quantitative approach of environmental design. Topics covered include ecological design principles, indoor environmental quality, energy conservation in buildings, and water Systems and preservation. The impact of buildings upon the global environment through their demand for ever-diminishing sources of energy and the consequences of pollution and global warming and on the quality of the internal environment and indoor thermal comfort. Course material combined with an understanding of appropriate environmental systems is a must. Environmental awareness and sustainability are studied and addressed throughout the course and within given projects.

ARC326 Environmental Design Studio 2

3 Cr. Hrs. = (1 LCT + 4 TUT + 1 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite ARC325

This course is the second part of a practical application of the environmental design elements in order to develop their architectural concept, character and language is of particular importance. Different

Design tasks and projects are studied and applied in order to apply the gained knowledge of design thinking as well as knowledge of the environmental conditions and treatments.

ARC327 Special Problems in Building Construction

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Exploring special problems in building construction and the life cycle of the building to gain a sustainable Architecture.

ARC328 Digital Architecture 2

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite - - -

The course introduces students to the importance of culture and heritage in architectural design and development process. It develops students' analytical and descriptive skills in order to understand the meaning and significance of Human Heritage as a product of Culture and Civilization, with special reference to Egyptian Architectural Heritage.

ARC329 Design of Eco Lodges & Hotels

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The theoretical foundation of the course is based on real examples of ecotourism and eco-accommodations provided through the course, the students will analyze and identify the common features that guarantee the design of sustainable eco-accommodation facilities. The practical part of the course is based on the contribution of the students to real life project in the region of the university.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC3331 Design of Water Sports Facilities

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The course introduces and trains the students on the design of indoor and outdoor watersports leisure facilities types and aquatic centers. Building programming, use of sea water or pipes-water, water treatments, construction techniques and sustainability measures.

ARC3332 Design of Eco Lodges

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The theoretical basis of the course is established on design analysis of real examples of eco lodges and ecotourism provided across the course. The students will recognize and analyze the main characteristics that ensure the design of sustainable Eco touristic accommodation facilities and associated Eco touristic activities. The practical part of the course is founded on the contribution of the students to real-life projects in the region of the university.

ARC333 Acoustics

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Sound, noise, and vibration. Principles of sound generation, propagation, and reception. Properties of materials for sound absorption, reflection, and transmission. Room acoustics design theory, the effect of shape, form, geometry, and material selection on acoustics. Design implications for performance and gathering spaces. Use of computer modeling techniques. room acoustics, the urban soundscape, sound isolation, noise control, the acoustics of

performing arts spaces. 3D computer acoustics modeling and naturalization (acoustic simulation).

ARC335 20Th Century Egyptian Architecture and Arts

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Students are introduced to the art and architecture of Egyptian architects in the twentieth century. Different schools of thought as well as artistic movements are to be discussed and reviewed in order to learn the factors that led to such creativity. Different examples as well as site visits to examples of such masterpieces are to be conducted to gain firsthand experience.

ARC336 Architecture, Culture and Heritage

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The course introduces students to the importance of culture and heritage in architectural design and development process. It develops students' analytical and descriptive skills in order to understand the meaning and significance of Human Heritage as a product of Culture and Civilization, with special reference to Egyptian Architectural Heritage.

ARC343 Working Drawing Studio 1

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

This course aims to develop students' ability to comprehend basic building components and construction details leading to the practical execution of building projects, whereby students are required to present a complete set of construction documents for a public-use



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



architectural project. The course focuses on integrating the design concept and functional aspects of the building with the various systems and technical installations (electrical, plumbing, mechanical and HVAC) that govern its operation.

ARC344 Working Drawing Studio 2

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC343

This course aims to enhance students' ability to achieve an adequate understanding and coordination for various techniques of building components and finishing methods in relation to other technical installations. Students are to undertake professional drafting and presentation techniques, both manually and digitally (CAD).

ARC351 Heritage Conservation Projects

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Through an interdisciplinary learning process, which combines technical knowledge with humanistic knowledge and pointing to a professional able to gather aesthetic and functional qualities. It provides the students with practical case studies in the realm of conservation and restoration. The course focuses on the nature and type of projects, through a true involvement in real case studies in heritage areas. The course practices integrate the conservation processes with the necessary requirements of feasibility.

ARC352 Restoration & Upgrading of Heritage Buildings

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

In a seminar approach, the course will introduce different general

topics of restoration and upgrading of heritage and historic buildings. This includes the planning process, updating the building systems appropriately, accommodating life safety and security needs, provision of accessibility, etc. The course also tackles fine restoration techniques include the restoration of organic material such as wood, paper and leather. In addition to the fine restoration of non-organic material such as stones, metals, pottery, and glass. The course also includes hands-on training in real-life projects.

ARC353 Documentation of Heritage Buildings & Areas

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course introduces students to techniques employed in the field of historic preservation for recording and documenting cultural resources. Course work gives students a basic knowledge of recording and documentation processes necessary for professional working in the field of historic preservation.

ARC354 Sustainable Buildings Rating Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Students are introduced to different sustainable buildings rating systems such as LEED and Green Pyramid Rating System. Detailed review of the systems is completed in addition to practical assessment and evaluation of existing buildings.

ARC355 Illumination and Ventilation in Buildings

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

This course study Lighting principles for different uses .Fundamentals



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



of day-lighting and artificial lighting are introduced: physics of light propagation and solar radiation, photometry and colorimetric (visual perception, photometric quantities, chromatic systems), sun course, physics of windows (light and heat transfer, glazing types), electric lighting (lamps and luminary's characteristics). More advanced and design-oriented topics are presented and practiced through the design project: benefits and availability of daylight, visual and thermal comfort, primary and advanced lighting design strategies, design, and assessment tools for lighting management

This course also will study Moist air properties and conditioning processes. Air-conditioning systems. Indoor and outdoor design conditions (Indoor air quality, thermal, comfort, and weather data. Space air diffusion and duct design. Heat transmission in building structures. Solar radiation. Infiltration and ventilation. Cooling/heating load calculations. Building energy calculations.

ARC356 Architectural Acoustics

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

A design research studio. A workshop on abstraction and folding techniques in model making. Relation between model making and digital thinking. Introduction of high-end software. Designing thematic and conceptual environments to reveal the enriching relation between the digital and tectonic worlds. Basic knowledge in understanding computational design; an understanding of new architectural geometries; an understanding of digital media as a design medium rather than a medium for representation; familiarity with fabrication technologies.

ARC357 Digital Design & Fabrication Studio 1

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite ARC216ARC252

A design research studio. A workshop on abstraction and folding techniques in model making. Relation between model making and digital thinking. Introduction of high-end software. Designing thematic and conceptual environments to reveal the enriching relation between the digital and tectonic worlds. Basic knowledge in understanding computational design; an understanding of new architectural geometries; an understanding of digital media as a design medium rather than a medium for representation; familiarity with fabrication technologies.

ARC361 Environment & Sustainability

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The late 20th century marked a paradigm shift in environmental practices. This course highlights some of the environmental aspects that need to be strategically rethought of. Those include the environmental legislation, practice of pollution prevention, industrial ecology, and cost benefit analysis.

ARC362 Smart Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Course topics include the design of smart spaces, smart buildings, and smart service design; public space (smart urban furnishing), technological innovation consulting, home (Smart household appliances) and prospective design.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC363 Green Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite

In this course, students learn how to apply “the green concept” to the fields of architecture and construction by exploring dimensioning, measuring, and architectural sustainability. Knowledge about ecosystems, sustainable technical cycles, and building ecology, in particular energy saving and building construction and design aspects. The areas of work range from building design and the application of materials.

ARC365 Interior Design Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC264

Principles of interior design, including unity, balance, proportion, scale, and rhythm, contextual analysis, color psychology, client analysis, selecting finishes through mood and sample board as well as various other presentation techniques. The understanding and use of anthropometric and ergonomics. concepts and requirements will be intensified through hands on projects for space planning and design.

ARC366 Smart Architecture

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite -----

This course introduces some main issues of buildings' performance. It focuses on two main topics. The first one is smart building information systems. It aims to Exploring the Humanities: Introduction to modes of thought found within humanities and social sciences. The second topic is about building control and diagnostics. It concentrates on the

empirical evaluation of the built environment (building components and systems, interactions between building, occupants, and environmental conditions) in view of multiple performance criteria (thermal, visual and acoustic performance). All this will be achieved through the use of computation tools in all processes of building design, construction and operating.

ARC467 Smart Building Information Systems

4 Cr. Hrs. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite -----

This course introduces some main issues of buildings' performance. It focuses on two main topics. The first one is smart building information systems. It aims to Exploring the Humanities: Introduction to modes of thought found within humanities and social sciences. The second topic is about building control and diagnostics. It concentrates on the empirical evaluation of the built environment (building components and systems, interactions between building, occupants, and environmental conditions) in view of multiple performance criteria (thermal, visual and acoustic performance). All this will be achieved through the use of computation tools in all processes of building design, construction and operating.

ARC368 Landscape Design Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC265

The study of plant materials used in landscape design. Emphasis is placed on major categories of herbaceous plants and woody plants as they pertain to landscape usage. Identification techniques introduced and used. The course also introduces students to various materials used in landscape construction projects. The nature, structure and/or



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



composition of the material, its typical application in the landscape and construction techniques with emphasis on sustainable materials are also discussed. Emphasis is on the use of materials in the landscape and the development of drawn construction details.

ARC369 Urban Design & Landscape

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

A design studio introduces skills needed to build within contemporary cities, study and analysis of visual elements, urban form, space, and path visual analysis. Introduces Students to learn how to build appropriately through analysis of landscape form, space generation and climate for a chosen site and conceptualize design decisions through drawings and models.

ARC371 Working Drawings & Detailing

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ARC236-ARC237

Appropriating architectural drawings, working with design software, making mathematical calculations, and determining specific materials and measurements needed to build structural designs. Detailing and preparing drafting sheets and calculations for building and workshop drawings.

ARC372 Feasibility Study & Project Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Stages of a project, analysis of the commercial viability of any project, analysis of the financial feasibility of new projects under certainty conditions, criteria for evaluating projects.

ARC373 Urban Planning

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ARC271

This course is an introduction to the studies of urban planning. It addresses the basic definitions, objectives, and fundamentals in this field. Issues covered include the theories of planning practice and Housing studies at the urban level of towns and cities. The course also presents an overview of the following principal topics: Components of urban environments, site analysis, urban conservation, urban networks and processes, public participation, and sustainable development.

ARC375 Community Development and Participatory Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The course focuses on community development on the urban level on different scales. Factors affecting the deterioration and upgrade of such communities are discussed using examples. A practical field study is conducted on a small scale. Emphasis is given to participatory design as well as public participation policies and techniques.

ARC376 Implementation & Project Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

In this course, students explore building management with a practical, hands-on approach through case studies and class exercises. They learn to scope, plan, lead and manage a project, including scheduling, budgeting, and managing risk until the project closes. You'll also address the common reasons projects fail and how to overcome them.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC377 Building Finance

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course introduces the types of cost estimation from the conceptual design phase through the more detailed design phase of a building project. In addition, the course highlights the importance of controlling costs and how to monitor project cash flow. Students will work on a break-even analysis of construction tasks in a project. It includes an understanding of economics and the mathematics of money, an essential component of every project. Topics covered include the time value of money, the definition and calculation of the types of interest rates, and the importance of Cash Flow Diagrams.

ARC378 Real Estate Marketing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Strategic marketing planning, action planning, developing, and promoting effective content marketing. Specific techniques of .branding, testing, analytics and attribution

ARC381 Professional Practice and Legislations

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite -----

Leadership strategies in the professional practice of architecture, how architecture fits among associated professionals and the opportunities for professional engagement relative to the encapsulated expertise of an architectural office. Key learning topics include the architect's skill set, non-traditional creative uses of the architect's skill set, the leading edge of traditional practice, virtual building technologies and their

relationship to practice. Types of architecture firms. Design process management. Business management of architecture firms. Procurement of architectural services. Architects' administrative role. Architecture practice stakeholders. Building contracts and legal aspects. Building codes. Introduction to real-estate investment concepts. Applications for design projects.

ARC382 Building Economics and Cost Benefit Analysis

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The study of the application of economic analytical methods to the comprehension of the functions of urban areas as well as buildings with an emphasis on the role of public policies with the urban framework. Economic analytical methods are applied as a remedial procedure aimed at urban dilemmas such as public transportation, social service funding, housing, and equitable distribution of resources. Topics include the basic theories of economics, economic analytical tools, the economic determinants and the urban capacity of the city and the economics of urban development.

Furthermore, the course defines the concept of feasibility studies and the importance of conducting necessary economic studies as a precursor to the determination of design criteria. Related issues include the economics of land use, preliminary and operating costs and overheads, and economic returns. The course also discusses the project development cycle, preliminary feasibility studies, the aspects and principles of feasibility studies (marketing, technical, financial, organizational, social gain, human resources and time/cost relationships) with emphasis on Cost-Benefit Analysis.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC383 Digital Design & Fabrication Studio 1

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ARC223

Design research studio. A workshop on abstraction and folding techniques in model making. Relation between model making and digital thinking. Introduction of high-end software. Designing thematic and conceptual environments to reveal the enriching relation between the digital and tectonic worlds. Basic knowledge in understanding computational design; an understanding of new architectural geometries; an understanding of digital media as a design medium rather than a medium for representation; familiarity with fabrication technologies.

ARC384 Digital Design & Fabrication Studio 2

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ARC383

An advanced design research studio. An innovative consciousness will be developed for advanced themes and topics of digital environment. Architectural thinking and space in relation to digital environment will be further elaborated and discussed through a design project. knowledge of advanced themes and topics of digital environment, different computational design approaches, complex parametric design models, complex representation techniques like animations.

ARC391 Field Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is

Arc. Engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

ARC392 Laws & Regulations for Professional Practice

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Ethics of professional practice, regulations of conduct, firm practices, classes, and characteristics of structures with respect to which persons performing building design, registration qualifications in syndicates and/or chambers of architecture, continuing professional development options and registering/practicing internationally and international accreditation, contracting, fees and suing legal cases. The course may also include topics such as: architectural management and professionalism, business & financial management, regulatory frameworks, building contracts and procurement, and project briefing.

ARC404 Selected Topics in Architecture & Urban Design

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

A studio-based course that focuses on different topics in architecture and urban design through project-based learning. These topics include the study and analysis of relationships between place and space, and urban realms.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC426 Design of Water Purification Stations

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

An introduction to the types of water and water pollutants and water consumptions. An overview of the stages of water purification, the design of water purification plant, water distribution, dry and wet wastewater flows, and treatments. The practical parts of the course include an introduction to the planning and design of plants and networks, design of wastewater treatment plant, pump stations, chambers and tanks, deep and shallow wells.

ARC427 Environmental Design and Technology Studio

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ARC223, ARC344

This course aims to define the principles of environmental design in architecture while providing a combination of knowledge, experience and facilities which enable students to relate ecological awareness to innovation and design. The relationship between Built and Natural environments is explored and specific solutions are created. Topics include the environmental analysis of a site, ecological systems and processes, the fundamental and design principles of sustainable architecture in addition to various related topics of current interest.

Furthermore, the course aims at applying such knowledge in the development of Design Projects from an Environmental overview.

ARC437 Documentation of Heritage Buildings

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite -----

This course will help to understand the importance of documentation of

historic sites and built heritage and analysing their tangible and intangible factors. The discussions and onsite studies will illustrate some of the key methods for identification, documentation and recording of historic sites and built heritage. The students will be exposed to the approaches, methods, schools and skills for documentation and recording of historic sites and built heritage. This course also focuses on the professional development of those institutions and individuals whose task it is to look after cultural heritage.

It aims at sharing applied knowledge in architectural records for heritage buildings, providing the basic understanding of heritage documentation management process, as well as the hands-on experience that helps students make informed decisions that ensure the protection of cultural heritage sites.

The module consists of interactive, participatory sessions, both theoretical and practical. Study visits and applied work on sites will complement the work carried out in the classroom. All- day site visits will be held under the guidance of architectural documentation experts.

ARC438 Heritage Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite -----

It focuses on teaching the skills required for the management of heritage sites across the world and how to work effectively with archaeologists, architects, conservators, marketing, and education specialists while also fundraising and supervising specific projects.

Concepts, heritage practices, analyzing historic buildings and sites, community actions and the role of stakeholders, are also outlined through this course



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC439 Restoration and Upgrading of Heritage Buildings

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite -----

This course defines and explores the concepts and practicalities of conservation, restoration and preservation including the suitability of repairing, maintaining, servicing, adaptation, and strategic management of heritage buildings. It also considers historic construction and repair techniques and the decisions we need to make today to ensure the appropriate longevity of our built heritage. The problems and methods of historic preservation in urban, suburban, and rural environments. A conceptual framework is advanced for comprehending and managing the full range of problems and techniques encompassing the field of historic preservation. Topics include the development of historic preservation, together with its international parallels and antecedents; problems of urban, suburban and rural preservation; techniques for developing, conducting and evaluating comprehensive surveys of preservation resources; national, state and local governmental programs; legal and economic aspects of preservation; historic district zoning and neighbourhood preservation. Conservation philosophy, legislative framework, scientific understanding, and awareness of the importance of regional vernacular styles and materials are all at the heart of this course.

ARC454 Heritage Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Concepts, heritage, and practices, analyzing historic buildings, public history meaning and value, community activism.

ARC458 Feasibility Studies and Project Management

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Concept of feasibility studies and the importance of conducting necessary economic studies as a precursor to the determination of design criteria. Related issues include the economics of land use, preliminary and operating costs and overheads, and economic returns. The course also discusses the project development cycle, preliminary feasibility studies, the aspects, and principles of feasibility studies (marketing, technical, financial, organizational, social gain, human resources and time/cost relationships). Risk Definition and Accident Theory. Principle of Risk Management: Identification of Risks. Preliminary Risk Analysis (PRA). Failure Modes, Effect and Criticality Analysis (FMECA). HAZOP. Methods of System Analysis.

What is Risk Assessment. Risk Control. Apply hierarchy of Control. Monitoring and Review. The Process of Fire Risk Management. Regulations and agencies, non-governmental organizations, fires and explosions, pressure relief systems, process.

ARC462 Digital Design & Fabrication Studio 2

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ARC373

An advanced design research studio. An innovative consciousness will be developed for advanced themes and topics of digital environment. Architectural thinking and space in relation to digital environment will be further elaborated and discussed through a design project. knowledge of advanced themes and topics of digital environment, different computational design approaches, complex parametric design models, complex representation techniques like animations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC464 Energy Producing Architecture

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Module#1: Sustainable energy systems, energy storage, energy distribution networks, energy efficiency and energy policy, energy policy and economic framework. electricity, CO2 emissions. Module#2: Technology, components, systems sizing, applications for Photovoltaics, Solar Thermal, Wind Energy, Biomass, Biogas, Biofuels, Geothermal Heat Pumps and Hydropower. Module#3: .Energy Efficiency in the Built Environment

ARC473 Research Methods in Architecture & Urban Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Research & Design Cooperation, Types of Research, Delivery of Research Topic and Title, Research Question/Hypothesis, Writing Research Proposal (Structure & Planning), Data Gathering and Analysis, Research and Methodology, Abstract Writing, Literature Review, Empirical Research Process, Strategies and Tactics, Qualitative and Quantitative Methods, Techniques and Tools, Presentation Techniques.

ARC474 Housing

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Contemporary and classical theories, approaches and concerns in the field of housing, with particular emphasis on Third World countries, Roots of housing problem, and typology of housing, Basic housing theories and their impact on the economics of the housing sector,

Mechanisms and forces shaping the housing market, and affecting both supply and demand at various levels, The economics of housing projects are examined as related to the stages of decision-making, feasibility studies, multi-level policies and role of actors, in order to present further insight into the different considerations, alternative approaches and definitions applicable in this field, Housing problems and housing communities crisis in developing countries with emphasis on the challenges present on the local level, Remedial approaches that consider the complex nature of comprehensive population and urban development are demonstrated and the importance of various social, cultural, economic, organizational and managerial aspects is discussed. Forms of unofficial housing settlements and its related issues, international housing policies and approaches are also outlined through research-based studies.

ARC475 Digital Design & Fabrication Studio 3

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite ARC384

Advanced use of computational models in the architectural design process, use of CAD/CAM in exploring new forms, structures, materials, new soft tools transforming the design process, ability to deal with complexity and precision of solid models, making of complex forms, understanding how the act of making (fabrication/manufacturing) by CAM determines the transition of CAD model from virtual (immaterial material) space to physical (material), customization of fabrication, exploration of various advance fabrication techniques to point out how these techniques effect the end product (from form to structure, from material to performance).



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC476 Sustainable Urbanism

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Investigation of issues and fundamental theories in urbanism pertinent to the domain of environmental sustainability; Definitions, concerns and process; Environmental evaluation; Environmentally responsive approaches and resources efficiency; Applying environmental sustainability in architectural and urban design.

ARC477 Urban Sociology

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite -----

Urban sociology studies is to consider the way that cities shape social life, considering spatial context as fundamental to understanding the social world. Over the semester, this course will explore three essential components: the city formation, the geographical and physical structure and composition of the city, and the city social organization among its residents. Through this course, it will be pivoted between an examination of macro-level processes of the shape and character of the city, and the micro-level processes through which the urban context shapes the lives and social interactions of those who reside within it. The course is arranged both chronologically and theoretically, in order to highlight the interplay of historical changes in the city urban landscape with theoretical perspectives and empirical practices of the time.

ARC478 Sustainable Landscape

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

From functional, environmental and aesthetic considerations to

everything in between, this course is designed to train the students, either in teams or as individuals, to construct landscapes that fit well sustainably with a specific climate and ecosystem and are made to last.

This flexible course equips student to deliver productive and lasting results. It aims to provide student with the process of designing landscape within a specific environmental conditions, basic landscape maintenance procedures, Proper planting of trees and shrubs, maintenance of deciduous and evergreen trees and shrubs, the knowledge of procedures to promote conservation and restoration in the landscape venue and Protect native ecosystems in the urban and rural-urban fringe.

ARC479 Smart Architecture & Digital Fabrication Studio

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ARC371

X-Urban Design, Self-sufficient Buildings, Digital Matter, Advanced Interaction.

ARC481 Site Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Objectives and functions of site management. overview of the construction industry, the fundamentals of construction project planning, importance of quality control, initial planning all the way through to completion, site safety, resource allocation, workforce supervision, quality management, site security management, legal and contractual obligations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC483 Real Estate Marketing

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Strategic marketing planning, action planning, developing and promoting effective content marketing. Specific techniques of .branding, testing, analytics and attribution

ARC 484 Advanced Building Systems

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course aims to develop a fundamental understanding of the relationship between the building envelope or façade, building performance (energy consumption) and indoor thermal and visual comfort. This course introduces the latest and major innovations in building technologies and structural, enclosure, telecommunications, mechanical, lighting, and interior systems that affect the total Building Performance.

ARC485 Applications of GIS

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

An introduction to the concepts of GIS and its applications in urban design and studies. The course outlines the historical and chronological development of GIS, types of geographical information, basic and advanced data models, geo-references and coordinate systems, hardware and software for GIS communication and applications and data collection and data quality. Remote sensing methods and techniques in addition to GIS and Virtual Reality applications are also discussed. The course includes applied GIS case studies.

ARC486 Contemporary Practices

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite HUM142 - ARC354

Talks and presentations are invited from different establishments relevant to the program. The guest speaker should discuss the organization, management, and recent technologies implemented in his/her industrial establishment. Students exercise writing brief technical reports on the guest presentation and deliver their own presentation about the topic. Students will be required to present seminars on the subject/s assigned to (or chosen by) them about the latest technology and theory relevant to the program. The grade depends on organization, quality, and content of both the presentation and the report prepared by the student. Topics vary from semester to another according relevant to theme & time frame

ARC491 Graduation Project 1 Architectural Design& Digital Architecture

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite: 130 Cr. Hrs.

Students undertake a major project as part of the program. The aim of the project is to provide the students who work in groups, with an opportunity to implement appropriate concepts and techniques to a particular design in the field of digital architecture. Students are required to select and research the expected project to be designed and implemented in the following course Graduation Project-. The student should give an oral presentation to be approved.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ARC492 Graduation Project 2 Architectural Design & Digital Architecture

6 Cr. Hrs. = (2 LCT + 4 TUT + 6 LAB + 0 OTH) – SWL = 360 – ECTS = 11

Prerequisite: ARC491

All students undertake a major project as part of the program. The aim of the project is to provide the students who work in groups, with an opportunity to implement the appropriate concepts.

ARC493 Graduation Project 1 Environmental Architecture and Technology

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite: 130 Cr. Hrs.

The studio content is a comprehensive one. It challenges the students' ability to produce comprehensive projects that demonstrates each student's capacity to make design decisions across the different scales of expertise gained throughout their five years of education. Through this course the student is asked to show his gained experiences considering the environmental architecture and eco/smart cities approaches. The student should give an oral presentation to be

approved.

ARC494 Graduation Project 2 Environmental Architecture and Technology

6 Cr. Hrs. = (2 LCT + 4 TUT + 6 LAB + 0 OTH) – SWL = 360 – ECTS = 11

Prerequisite: ARC491

All students undertake a major project as part of the program. The aim of the project is to provide the students, who work either in groups or as individuals, with an opportunity to implement the appropriate concepts and techniques to a particular design in the field of environmental architecture & building technology. The final presentation of the completed projects is to use multimedia to interpret the concepts of environmental architectural design consciously and comprehensively. The student should give an oral presentation to be approved.

ARC499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ---

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Urban Design

URB111 Introduction to Urban Design

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ARC012

The course provides an overview of the design of urban areas. Students learn theories and principles of urban design and issues concerning process and practices. the physical and social structure of cities, models of urban form analysis, city and urban design, contemporary theories of urban design, suburbs, and metropolitan areas, implementation strategies, urban problems, projects analyzing the evolution of urban place, factors of high-quality urban design and development.

URB161 Sustainability in Urbanism

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite URB111

This course examines how the concept of sustainable development applies to cities and urban regions and gives students insight into a variety of contemporary urban planning issues through the sustainability lens. Ways to coordinate goals of environment, economy, and equity at different scales of planning. An exploration of several leading attempts to incorporate sustainability principles into plans, planning, and urban design. The course provides students with a comparative examination of several attempts to modify urban form and address the multiple goals (social, economic, environmental) of

sustainable urbanism.

URB211 Introduction to Site Planning

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB161

This course aims for planning studies to apply technical knowledge to social problems: the problems of cities of the developing world; problems of the environment and the design of spaces. The course will discuss the survey of city planning in response to physical, social, and economic problems; major concepts and procedures used by city planners and local governments to improve the urban environment, theoretical and practical matters involved in planning sites within the context of natural systems.

URB212 Urban Design & Landscape

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB111

A design studio introduces skills needed to build within contemporary cities, study and analysis of visual elements, urban form, space and path visual analysis. Introduces Students to learn how to build appropriately through analysis of landscape form, space generation and climate for a chosen site and conceptualize design decisions through drawings and models.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



URB231 History & Theory of Urbanism

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite URB161

introduces the students to the key ideas, precedents and theoretical discourse in urban design, both current and historical. It provides a critical understanding of discipline and an intellectual framework through which students can establish a position on future urban design practice. These issues include design process and urban morphology; economic and political frameworks; technological, industrial and infrastructural development; and socio-political policies in design. It provides you with a comprehensive overview of urban design practice and a detailed understanding of the mechanisms producing and affecting urban space. Examples from local and international contexts are presented.

URB253 History & Theory of City Planning

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

The city in history, what is a city? The evolution of “organic” patterns, the straight and the curved: design alternatives, Modernism and the planned picturesque, Laying out the grid, The grid in the 20th century, The political diagram, The functional diagram, The secular/socialist diagram, Post-modern cities, Today’s cities.

URB254 Urban Sociology

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Cultural sociology, classical sociology of architecture, sociology of architectonic artifacts, urban sociology and sociology of space,

sociology of the architect. .Discussion of case Studies

URB262 Sustainable Urbanism & Landscape

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB161

The context and the process within which sustainable landscape environments are conceived and designed, from concept to preparation of construction documents stage and to apply this knowledge in a specific landscape design project with emphasis on establishing sustainable sites consideration.

URB282 Housing Design Studio & GIS in Housing

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Context, history and framework of regional, city and urban planning. Concepts, features and characteristics of human settlements. Interrelationship between socio-cultural contexts and housing processes. Design of housing areas and housing units. Design of ‘appropriate’ and ‘responsive’ residential environments within specific resources. Concepts and system components of GIS. Creation and management of a geo-database. GIS analysis and applications in housing projects.

URB313 Urban Design Studio

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB212 - ARC245

The development of new urban settlements all over the country. Different types of urban design projects in new areas fit within a larger urban planning context, which students develop on the macro-scale.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



URB314 Eco-Urban Design Studio 1

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB313

Methods and practices of the urban design professional from a multidisciplinary perspective, and with a particular focus on environmental sustainability. The relationship between urban design and global pressures of population and climate change is a key focus, as well as urban shifts in infrastructure, technology and transport. It focuses on the design interventions to transform the existing built environment and systems of provision (energy, water, food, transport, information) for a sustainable, low carbon, resilient future. The aim is to identify opportunities that can become sites of design intervention to shift the path of innovation on a new trajectory: towards sustainable, resilient conditions.

URB321 Landscape Architecture

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Form and space generation in landscape architecture. Elements of Landscape Architecture. The integration of both the building and the environment through the theories and principles of landscape design. Students with an in-depth understanding of how the two disciplines can be combined to produce integrated sustainable solutions. This is followed by the theoretical and historical backgrounds of landscape studies, site analysis plant materials and landscape elements.

URB322 Landscape Architecture Studio 1

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB212

Form and space generation in landscape architecture. Elements of Landscape Architecture. The integration of both the building and the environment through the theories and principles of landscape design. Students with an in-depth understanding of how the two disciplines can be combined to produce integrated sustainable solutions. This is followed by the theoretical and historical backgrounds of landscape studies, site analysis, plant materials and landscape elements.

URB323 Landscape Architecture Studio 2

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB322

Discipline, discourse and culture of Landscape Architecture. The studio exposes the students to a breadth of design approaches in Landscape Architecture. Theoretical and practical body of knowledge to foster the understanding of design processes that engage with contemporary design issues. Specific techniques for design generation, modes of drawing and making, and relevant communication techniques to position students works in relation to the studio theme and broader design practice.

URB324 Community Development

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Community: meaning and definition, community structure and organization, historical development of urban areas, urbanization and spread of urban communities, urbanization in developing countries,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



governmental programs for urban community development; neighborhood and district, quality of urban environment, private sector involvement community participation in urban development,

URB3225 Participatory Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

human-centered design, co-design, and user-generated design participatory tools and techniques, engaging the local community, housing led urban regeneration, metropolitan communities, contested suburban communities, sustainable community development, social enterprises and community driven initiatives, culture led urban regeneration,

URB326 Urban Economics

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Principles of planning and urban economics, urban structure, growth and the development process/social end equity issues/urban land use and transportation policies/economy, work force and human capital development/ urban public finance and governance.

URB332 Green & Water Elements Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

An overview of parks, bridges, squares, and borders design/ Significance and characteristics of water: plasticity, motion, sound and reflectivity/ Aesthetics, visual characteristics and spatial definitions of water elements design/Functional use of water in architecture: climatic control, consumption, irrigation, sound control, recreation,

etc./Materials, plantation, construction drawings and insulation.

URB333 Design of Public Spaces

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Module#1 Contemporary urban interior: squares, meeting and symbolic places, interstices, green spaces, and semi-public areas/ Module#2 Social engagement: processes and actions. involving multiple stakeholders with human (or community) -centered design tools and approaches/ Module #3 Equipment and furniture, materials and technologies: material aspects, technological components, sensory components of space, environmental and social sustainability / Module #4 Communication, identity and territory: city branding and narrative design, territorial scale or with the identity and the tangible and intangible heritage of the places, strategic and systemic approach/ Module #5 Events and temporary settings: design for collective communicative, expository, celebratory and cultural events.

URB335 Housing Projects in Developing Countries

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The course includes a holistic view of social housing projects in developing countries. By introducing the different elements required for developing a social housing project students will learn how to achieve more sustainable projects that fulfil the needs of all stakeholders. Social housing policies try to address the housing problem but far too often their implementation does not reach people in real need. Both better policies and their adequate translation into programs and projects are necessary to improve the overall living conditions of people in developing countries.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



URB336 Independent Studies: Global Trends in Urban Planning

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The course will consider current trends in global urbanism. It will explore contemporary urbanization processes, theoretical debates in global urban studies, and selected empirical aspects of global urban dynamics. The course will have three components. (. Overview of current debates in global urban studies (including planetary urbanization, comparative urbanism, regional and area studies approaches) (. Selected empirical themes requiring a global perspective on urban processes e.g., urban policy; neo-liberalization; urban-rural interactions; gentrification/urban transformation; transport-oriented development; financing urban growth; urban regions (. Field work requiring independent research to develop a transnational and comparative approach to a selected urban problem.

URB337 Vegetation & Gardening

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

The course introduces & reviews succession planting techniques and how to prepare plants for gardening, covering a range of topics in gardening, horticulture or farming programs.

URB351 Horticulture

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB212

Theoretical and practical knowledge in plant sciences; sustainable and professional practices. Foundation in the natural sciences and

horticulture; biology, plant science and soils. The course introduces students to the latest technology and trends in the field of horticulture.

URB352 Irrigation & Draining Systems

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite URB351

Design of irrigation and drainage systems such as surface, subsurface of irrigation and drainage. Fundamental of irrigation structures and elements of sprinkler and drip irrigations. Introduction to the drainage types and factors influencing selection and design. The application of engineering principles to support useful plant life, with minimum degradation of soil and water resources. The environmental impact of irrigation and drainage projects in general. Advanced and innovative concepts on irrigation and drainage planning and design are discussed.

URB371 Environmental Impact Assessment

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Development and environmental degradation, EIA Functions, International and National Laws, EIA steps, Social Impact Analysis, Risk Assessment, Environmental Management Systems (in accordance with ISO 1400. , Environmental Impact Assessments, Life cycle assessment, Project Implementation and Environmental, Performance, Corporate social responsibility and environmental reporting.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



URB372 Sustainable Urban Development

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite

Theoretical frameworks and global institutions for sustainability and sustainable development, foundational analysis for urban sustainability analysis. Thematic issues will be explored in urban environment, including water and sanitation, waste management, climate change and disaster management, and energy and transport issues, and urban biodiversity. Experiences and lessons learnt on managing cities.

URB391 Field Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The training topic/discipline is to relate to actual field work/building projects.

URB415 Eco-Urban Design Studio 2

4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite URB314

Methods and practices of the urban design professional from a multidisciplinary perspective, and with a particular focus on environmental sustainability. The relationship between urban design and global pressures of population and climate change is a key focus, as well as urban shifts in infrastructure, technology and transport. It focuses on the design interventions to transform the existing built environment and systems of provision (energy, water, food, transport, information) for a sustainable, low carbon, resilient future. The aim is to identify opportunities that can become sites of design intervention to shift the path of innovation on a new trajectory: towards sustainable,

resilient conditions.

URB438 Urban Sociology for Globalizing Urban World

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The course discusses Urbanization and the new peak in the contemporary world with the rise of mega cities, studying these large urban areas using a variety of concepts. The class will review debates and present social science models of cities to analyze and compare contemporary developments in these various urban realms.

URB434 Design of Pedestrian Areas

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

What is Pedestrian-Oriented Design?/Link Between Land Use and Transportation Decisions/Elements of a Walkable Environment /"Linear" and "Nodal" Structures / Interconnected or Isolated Streets/ "Seams" and "Dividers"/Mixed-use Districts, Corridors, and Centers/Civic Districts and Centers/Employment Districts, Corridors, and Centers / Residential Districts and Neighborhoods/ Schools/Creating Pedestrian Supportive Areas/Creating and Maintaining Community and Neighborhood Identity/Retrofitting an Existing Circulation System/Planning New Development - Connected vs. Unconnected Street System / Traffic Management that Considers Pedestrians /Pedestrians and Bicyclists: Maintaining a Safe Alliance/ Parking Considerations / Public Open Space and Parks /Designing for Various Disabilities and Ages / Eliminating Barriers for Disabled /Grades /Walkways / Ramps and Intersections/ Textural, Audible, Vibrating and Visual Cues at Crossings / Surfaces /Crossings/ Creating a Pedestrian Realm/Sidewalk Design/Lighting/Landscape /



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Public Open Space and Parks/Signage/ Public Art

URB435 Housing

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ARC 254

Urban Strategies and Planning, Urban Environment, Sustainability and Climate Change, Managing & Financing Urban Infrastructure, Urban Land Governance, Urban Competitiveness and Resilience, Urban Housing, Equity and Social Justice.

URB461 Environmental Engineering Design in Urbanism

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite URB232 - URB323

Environmental design research in relation to architecture and urban design. Topics include urban climatology and the theories of occupant comfort and wellbeing; the physics and architecture of natural light, airflow and thermal processes; the ecology and environmental performance of materials; renewable energy technologies in the urban environment; and the science and art of measurement and performance assessment. Sustainability of natural resources and the need for relying upon renewable energy resources are pointed out.

URB473 Research Methods in Urban Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Research & Design Cooperation, Types of Research, Delivery of Research Topic and Title, Research Question/Hypothesis, Writing Research Proposal (Structure & Planning) , Data Gathering and

Analysis, Research and Methodology, Abstract Writing, Literature Review, Empirical Research Process, Strategies and Tactics, Qualitative and Quantitative Methods, Techniques and Tools, Presentation Techniques.

URB474 Eco- Neighborhood Studio

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 8

Prerequisite - - -

Core values and broader socio-political forces driving community development (CD) efforts, including current and historical trends, CD process and role of the field in shaping neighborhood change and planning efforts. Issues of public health, schools, neighborhood safety, sustainability

URB485 Contemporary Sustainable Practices in Urbanism

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ARC323 - ARC347

Evidence-based sustainable urban design and planning practices. Multidisciplinary frameworks of sustainable urbanism, as well as the best practices for sustainable urbanism and the technical knowledge base and skills necessary for implementing sustainability at a multi-scalar level in the city. A holistic and integrative methodological approach to sustainability thinking involving complex social, cultural, political, economic, and scientific issues applied to a wide range of urban contexts and spatial patterns and conditions. Metropolitan Sustainability and Urbanism. Public Space and City Life, and Informal Cities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



URB486 Professional Practices in Urbanism

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite URB485

principal aspects of practicing as a designer on urban-scaled projects. Fundamental to this is collaborative project and team structures and working within a multidisciplinary context. A research-based course aims at looking at urban development and major projects from outside the design professions to understand the complex context within which the city is shaped.

URB491 Graduation Project 1 Urban Design & Landscape Architecture

4 Cr. Hrs. = (2 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 225 – ECTS = 8

Prerequisite URB314 - URB323 - ARC347

Students undertake a major project as part of the program. The aim of the project is to provide the students who work in groups, with an opportunity to implement appropriate concepts and techniques to a particular design in the field of environmental architecture & building technology. Students are required to select and research the expected project to be designed and implemented in the following course Graduation Project-. The student should give an oral presentation to be approved.

URB492 Graduation Project 2

6 Cr. Hrs. = (2 LCT + 4 TUT + 6 LAB + 0 OTH) – SWL = 360 – ECTS = 11

Prerequisite URB491

All students undertake a major project as part of the program. The aim

of the project is to provide the students who work in groups, with an opportunity to implement the appropriate concepts and techniques to a particular design in the field of urban design & landscape architecture.

URB493 Thesis of Graduation Project

3 Cr. Hrs. = (1 LCT + 4 TUT + 0 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The thesis writing course is a capstone project, presenting a well-argued piece of research/ dissertation on a precise urban theme or topic of the GRADUATION PROJECT on hand and independently selected by the student. The student acquires the main scientific writing skills of typical dissertations through the course to finally submit a scientific paper of 10,000 words. The student goes through the formulation of the different phases of writing starting from having an argument, writing an abstract, developing methodologies and then going through literature review, together with critical analysis of information and relevant case studies to end with developing empirical/ applied studies. A dissertation on the project is submitted on which the student is examined orally.

UBR499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to filed.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Petroleum & Gas Engineering

PGE111 Organic chemistry of petroleum

3 Cr. Hrs. = (3 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: CHE142

A study of the structure, properties, preparation, and reactions of different classes of organic compounds, including aliphatic hydrocarbons, alcohols, carbonyl compounds, amines, and aromatic compounds, with applications of this material to environmental and industrial processes. Special emphasis is placed on reaction mechanisms and fundamental principles to gain an understanding of the basic principles of organic reactions. Examine the carbon cycle and the life cycle of the organisms that are responsible for the eventual accumulation of organic materials in sediments. The processes involved in the simultaneous preservation and transformation of organic materials into coal, petroleum, natural gas, kerogen and other dispersed organics will be reviewed in light of modern concepts of thermal maturation processes. The structures of naturally occurring organic materials in sediments will be discussed.

-PGE121 Materials Science and Engineering

3 Cr. Hrs. = (2 LCT + 1 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: CHE142

Fundamental principles of structure and properties of materials utilized in the practice of engineering. Properties of materials as related to

atomic, molecular, and crystalline structures. Metals, ceramics, multiphase systems, and polymeric materials. Relationships between structure and electrical, mechanical, thermal, and chemical properties

PGE122 Mechanics of materials

3 Cr. Hrs. = (2 LCT + 1 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: MAT112- MAT122

This course will offer students opportunities to perform preliminary design and analysis of structures and mechanical components and to select materials to meet design objectives and constraints. To do so, students will extend their knowledge of and ability to apply solid and structural mechanics topics including general states of stress and strain, elasticity, coordinate transformations, energy methods, effects of combined loading and mechanical testing. The use of multiple failure criteria including yielding, brittle failure, fatigue and fracture as part of design calculations to meet stiffness, strength and other performance criteria is emphasized.

PGE113 Introduction to petroleum & gas engineering

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisites: PGE 112

Introduction; origin, migration, and accumulation of petroleum; reservoir fluids properties; exploration; drilling technology; reservoir engineering; well completions; production engineering. Natural gas,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



composition, classification, treatment processes, hydrates, its effect and control, gaseous treatment, gaseous acids injection, sulphur recovery, nitrogen removal, liquid hydrocarbons recovery.

PGE214 Introduction to petroleum geology

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisites: - PGE 112

Fundamental concepts of petroleum geology from deposition/maturation of source rocks to hydrocarbon generation, migrate on and accumulation, reservoirs, traps, and seals. Outline of exploration and production techniques in the petroleum industry. Principles of hydrocarbon production, introduction to techniques of subsurface geological analysis applied to the evaluation and quantification of oil and gas reservoirs.

PGE223 Corrosion in Petroleum & Gas Field

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: PGE 121- PGE 113

The course examines the types of corrosion and corrosion control in the gas and oil field including corrosion definition, costs & importance of corrosion, principles of aqueous corrosion, applications of electromotive series, Corrosion mechanism, causes of corrosion cells, polarization and factors of polarization, high temperature corrosion, stress corrosion cracking; sulfide stress corrosion cracking, chloride stress corrosion cracking, caustic stress corrosion cracking, environmentally induced cracking. Hydrogen damages and corrosion losses, corrosion environments, microbial corrosion, corrosion monitoring, standard testing, principles of cathodic protection, design sequences of cathodic protection, monitoring of cathodic protection,

anodic protection, example of cathodic & anodic protection, organic coatings, metallic & inorganic coatings, corrosion economics, field case study.

PGE231 Natural Gas Engineering I

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC 256- PGE 113

Introduction, Gas Production: Upstream, Reservoir- Well Completion, Properties of Natural Gas: Phase Behavior, Well inflow performance relationship (IPR), Skin factor, Productivity Index, Gas well testing, Wellbore Performance: TPR Curve, Single Phase; Multi Phase flow, Choke Performance: CPR Curve, Sonic and Subsonic Flow, Well Deliverability: Nodal Analysis, Natural Gas Production: Downstream, Surface Facilities, Principle of Separator, Design of Separator: Vertical, Horizontal; Two Phase Separation, Three Phase Separation, Natural Gas Processing: Dehydration of Natural Gas, Design of Dehydration, Sweetening Processes, Mercury removal, Water-hydrocarbon system - hydrate formation and inhibition, Compressor design and energy calculation, Transportation and Measurement, Pipeline Design

PGE232 Natural Gas Engineering II

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: PGE 231

Fundamentals of gas liquefaction, Liquefaction cycles: Joule-Thompson, turbine expansions and external refrigeration, Hydrocarbon recovery units, Materials, equipment performance and selection, Natural gas liquefaction plants, gas condensate, LNG storage, storage reservoir and regasification plants.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



PGE233 Operation research

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: MAT131

Definition, Area of application, Linear programming: formulation, graphical solution, simplex method, sensitivity analysis, duality, Transportation, Assignment, Goal programming, CPM/ MSPT techniques, Introduction to Queuing theory, Solving operations research problems using available software.

PGE241 Drilling Engineering I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisites: MEC251- PGE 112

Oilwell drilling, equipment and methods, components, system assemblies and arrangement. Drilling process analysis: Hoisting, rotation, pumping, component and system loads, dimensioning, safety factors. Directional control of wellbore. Drill string load analysis, drill string dimensioning (static and dynamic) , critical oscillations. Circulation of drilling fluids, challenges in the drilling process, pressure in the sedimentary formations, pressure, stabilize the wellbore with pressure control equipment, hydraulic optimization, casing, casing analysis. Loads, including dimensioning of the rig, the drill string and the drilling fluid.

PGE251 Basic reservoir engineering

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC251- PGE 112

Reservoir fluid properties, coring practices and reservoir rock properties, fundamentals of fluid flow, reservoir fluid distribution, reservoir classification, reservoir drive mechanisms, oil and gas well

performance, including inflow and outflow concepts, pressure buildup analysis, oil displacement concepts, estimation of oil-in-place and gas-in-place.

PGE261 Wastewater treatment in petroleum industry

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: CHG 352

The course studied wastewater treatment in petroleum refining industry which includes introduction of petroleum refinery, list of oil refineries in egypt, wastewater management in petroleum refining industry, refinery wastewater pollutant sources, control & treatment technology in refining industry. It also illustrates physio-chemical treatment and typical refinery wastewater treatment, desalter oil/water separation, powdered activated carbon treatment system, chemical oxidation system, microfiltration or ultrafiltration, reverse osmosis, and ion exchange process for wastewater treatment in petroleum refining industry. It further illustrates effluent environmental standards for petroleum oil refineries, and water quality standards.

PGE334 Natural gas handling and networking

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 232

Natural Gas Transportation chains: Pipelines, LNG, Chemical Conversion, Electricity. Natural Gas Pipelines: Design, Construction, Operations, offshore.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PGE342 Drilling Engineering II

3 Cr. Hrs. = (2 LCT + 1 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 112

The course covers in-depth methods for planning extended reach and horizontal wells. This includes survey calculation techniques, directional surveying techniques, survey errors, selection of bottom hole assembly, stuck pipe and fishing, torque and drag analysis in bore holes, flotation of casing and liners and loads on the drill string. The course also covers innovative drilling techniques like the use of coil tubing, snubbing, underbalanced drilling (UBD), managed pressure drilling (MPD) and controlled mud level (CML) drilling. Further, wellbore hydraulics, cementing operations, well completion, drilling automation, kick off and trajectory change, formation damage causes and prevention. Blow out prevention and control

PGE343 Petroleum Production

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: MEC251- PGE 241

Well completion: various completion designs, reservoir and mechanical considerations. Production analysis for pipe and reservoir fluid flow, methods of artificial lift. Perforations, production packers, tubing strings, liners, subsurface completions, production control equipments and completion fluids. Wellhead and subsurface components installation. Surface production facilities. Piping systems, valves, chokes, fittings, separators, stock tanks, gathering systems and individual well flow rate allocation. Fluid Separators: separator components, types and factors influencing separator capacity. Production system analysis and design for single/multiphase fluid flow

performance relationship. Tubing and flow line behavior: Tubing size, maximum possible flow rate and flow line size. Sand control procedures. Well stimulation

PGE344 Drilling fluids

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisites: MEC251-PGE 241

Why Use a Drilling Fluid , Drilling Fluid Types , Primary Functions of a Drilling Fluid , Secondary Functions of a Drilling Fluid , Properties of a Drilling Fluid: Viscosity, Mud Weight, pH, Solids & Sand, Fluid Loss, Rheology(plastic viscosity, yield point and Gel Strength, Polymers, Water Sensitive Clay – Encapsulation ,Water Sensitive Clay – Inhibition, Planning a Fluid System , Mud Systems – Hard Rock , Mud Systems – Sedimentary, Mud Systems – Broken & Fractured , Casing Packs , Lost Circulation , Cementing, Volumetric Calculations, Environmental concerns.

PGE345 Horizontal drilling

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 342

Introduction to Horizontal Drilling (Directional Drilling) , Fundamentals of Directional-Well Trajectory Design, Determination of Well Trajectory from Survey Data, Introduction of Methods and Tools for Controlling the Well path While Drilling, Torque-and-Drag Force Modeling for Directional Drill strings, Introduction to the Geo-mechanics in Directional Drilling, Borehole Stability Analysis for Inclined Wells.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PGE352 Applied reservoir engineering

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: PGE 251

Primary reservoir characteristics related to well testing analysis, Original and average reservoir pressure estimation methods, type curves, Transient well testing application to different field case scenarios. Oil well testing: radial flow theory, wellbore storage and skin, drawdowns, buildups, curve shapes, type curve solutions, pseudo steady state, steady state, average pressure estimates, PI and IPR relationships. Gas well testing: pressure, pressure squared, real gas pseudo pressure solutions, rate sensitive skins, multi-rate testing, gas well deliverability. Description of coning, cusping, and over/under running, critical rates calculations, breakthrough times, horizontal well applications. Gas reservoirs: volumetric, water drive and compaction drive-oil reservoirs: water drive, water flood, gravity drainage, gas cap expansion, combination drive, naturally fractured and critical reservoir fluid reservoirs

PGE346 Well stimulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: PGE 343- PGE 352

Introduction to stimulation operations, Formation damage mechanisms and their identification, Acids reactions and their selection for carbonates and sandstones, Acids and additives used in matrix stimulation, Acid fracturing design basics. Function of packer, completion, perforating and work over fluids, Perforating, Principles of jet perforating, Introduction, Principles and mechanics of hydraulic fracturing, theory and data sheet, Fracture initiation and propagation pressures, Fracture fluid option and additives, Fracture proppants,

Sand production and control, Mechanisms for sand production, Prediction of sanding tendency and sand failure analysis, Sand control by critical production rate prediction, Gravel packing of open and caused holes, Sand consolidation, Well diagnosis, Well bore and reservoir problems affecting well performance, Investigative/evaluation techniques, Measurement of hydraulic fracture conductivity.

PGE391 Industrial Project

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 100 Cr. Hrs.

The project is to be completed within the student's junior year. The student is requested to consider a simple engineering problem that is materials engineering related. The student should analyze the problem and find a systematic approach towards solving the problem. Practical work to achieve the goals are accomplished, the stages and results are analyzed. By the end the student is requested to submit a technical report and make an oral presentation to persuade the audience of his approach.

PGE423 Materials selection in oil & gas industry

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 122- PGE 223

Materials design parameters, classes of materials; Design concepts including function, material, shape and process, Fundamentals of materials selection, Property charts for materials selection for the oil and gas industry, Shape factors in material selection, Materials selection under multiple constraints, Selection of materials processing and design, Case studies



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PGE435 Oil and Gas property evaluation

2 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisites: MAT131- PGE 251

Reserve estimation, decline analysis, petroleum property evaluation including interest calculations, cost estimation, and tax evaluation. Overview investment decision analysis and computer applications in property evaluation.

PGE436 Petroleum engineering design

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisites: PGE 343- PGE 352- PGE 448

Comprehensive engineering problems in design involving unconventional reservoir

characterization, production, drilling, completion, and hydraulic fracturing.

PGE437 Computer applications in oil and gas industry

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 447- PGE 448

This applied course on computer functionality focuses on developing skills in the areas of data management, electronic communication and time management, documentation, analysis, and visualization that are required in the petroleum industry. Students will be exposed to petroleum-specific software as well as commonly used office software. In addition to file management techniques and best practices, security considerations such as identifying threats, safeguarding data and intellectual property, and responsible digital citizenship and etiquette are also included.

PGE438 Selected topics in petroleum and gas engineering

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: -

PGE447 Well Testing

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisites: PGE 352

Introduction to transient testing, basic concepts of well testing, Diffusivity Equation and its boundary conditions, Exponential integral (line source) solution and its logarithmic approximation, Bounded circular reservoir solution, Depth of investigation, Drawdown testing and semilog analysis, Semilog plot of pwf versus $\ln t$, Determination of permeability, k , and skin factors, Early, middle and late time pressure behavior, Drawdown test in a developed reservoir, Buildup testing and the horner plot, Principle of superposition, Reservoir pressure response during buildup, Semilog plot of pws versus $\ln [tp + t)/ t]$, Determination of permeability and reservoir pressure, Computation of skin factor from last flowing pressure, Analysis of buildup test using drawdown theory, Other semilog plots (mdh, slider, etc), Linear discontinuities (sealing faults), Drawdown Pressure draw Down, Pressure Build-up, Average Pressure determination, Two Rate Testing, Multirate Tests. Multiwell Testing – Interference Test Analysis, Pulse Testing of the Hydraulically Fractured Wells. Testing of the heterogeneous reservoir- Linear discontinuity, faults and barriers, permeability anisotropy, Composite systems, layered reservoirs (with cross flow). Naturally fractured reservoirs. Use of type curves in all types of well testing techniques. Pressure derivative approach.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PGE448 Formation evaluation

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisites: ELE114- PGE 342

Introduction to well logging and its basic relationships. Principles, uses, tools and interpretation of spontaneous potential log, gamma ray log, porosity logs, resistivity logs, Sonic log, Neutron-Density logs and magnetic resonance imaging log, Cross-plots to identify to extract information necessary for drilling, production and reservoir engineering activities.

PGE449 Well control

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisites: PGE 342- PGE 352

Methods, techniques, equipment, and engineering calculations used in the control of oil and natural gas wells during drilling operations. Practical applications with rig floor simulator.

PGE471 Graduation Project I

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 130 Cr. Hrs.

Experimental and/or theoretical approaches with possible application

of computer techniques to integrate various components of the curriculum in a comprehensive engineering design experience. Design of a complete project including identification of a problem, formulation of design, preparation of specifications, and consideration of alternative feasible solutions both technically and economically.

PGE472 Graduation Project II

3 Cr. Hrs. = (1 LCT + 0 TUT + 6 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisites: PGE 471

This graduation project may be seen as a continuation of the first part (PGE 791: Graduation Project) of a major topic, or it might be a new subject that the student is considering proving his competence in materials engineering practice.

PGE499 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite: ----

Advanced topics related to the field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية علوم وهندسة الحاسبات

FACULTY OF COMPUTER SCIENCE & ENGINEERING



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Computer Science & Engineering

CSE011 Computer Skills

0 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 60 – ECTS = 0

Prerequisite ---

Types of computers – Computer hardware and software components – Data representation and number systems – Introduction to networking – Introduction to internet – Algorithm development – algorithm representation – flowcharts – stepwise refinement – problem solving methods and tools.

CSE012 Scientific Applications of Computers

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Windows-based operating environment, electronic mail, the World Wide Web, computerized library skills. Word processing and electronic spreadsheets. Desktop Publishing and Computer Graphics.

CSE013 Introduction to Information systems & technology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

An Introduction to Information Systems. Computer Hardware. Data Resource Management. Telecommunications and Networks. Electronic

Business Systems. Enterprise Business Systems& Electronic Commerce Systems. Decision Support Systems.

CSE014 Structured Programming

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

- Primitive data types, control structures, loops, and decisions.
- Functions and parameter passing, top-down design, arrays.
- Mechanics of compiling, running, testing, and debugging programs.

CSE015 Object Oriented Programming

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CSE014

Introduction to the Unified Modelling Language. Classes, subclasses, and inheritance. Concepts of encapsulation and information hiding. Polymorphism and Abstract classes. Implementation and reuse of application programming interfaces API. Operator overloading, delegates, and events. Searching and Sorting and Algorithms.

CSE081 Digital Branding

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Compare and contrast marketer control versus consumer control.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Examine consumer empowerment. Explore consumer participation and engagement. Examine content marketing and determine its value. Explore different strategies for content distribution. Identify some of the challenges associated with content marketing. Explore the concept of owned media and its importance to brands. Investigate the impact of own media decision making. Examine a range of owned media assets and determine their value. Investigate brand engagement and why it is important. Examine and evaluate a range of engagement platforms. Identify different levels of engagement. Explore strategies for shaping earned media.

CSE111 Data Structures

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CSE015

Arrays, stacks, queues, lists, doubly linked lists. Trees, dynamic storage allocation, graphs. Advanced Searching and Sorting and Algorithms.

CSE112 Design & Analysis of Algorithms

4 Cr. Hrs. = (3 LCT + 3 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite CSE111

Introduction. Fundamental techniques for designing and analyzing algorithms. Asymptotic analysis. Divide-and-conquer algorithms. Recurrences. Merge sort. Linear-time median. Greedy algorithms. Quick-sort algorithm. Dynamic programming. Graph algorithms. Graph search and Dijkstra's algorithm. Minimum Spanning Trees. Randomized algorithms. Hashing.

CSE113 Electric & Electronic Circuits

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite PHY212

Circuits and Circuit Elements: Concept of a circuit, V-I relationships for R, L and C. Series and parallel combinations of elements. Voltage and current sources. Stored energy, power dissipation Circuit Laws and Theorems: Kirchoff's Laws, loop, and nodal analysis. Time Varying Signals: The sinusoid, amplitude, phase, frequency. Response of L, C R to AC. AC Circuits: Phasor representation. Complex number notation. Analysis of ac circuits. Transient Response: First order R L and R C response. Stored energy. Time constants. Basic Diode Behavior. Diode Applications: Clipping, clamping, rectifiers, simple smoothing.

CSE131 Logic Design

3 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite - - -

Number systems and coding. Boolean Algebra. Combinational circuits. Decoders and multiplexers. Synchronous sequential circuits. Counters, Registers and Memory. Advanced Arithmetic Circuits.

CSE132 Computer Architecture & Organization

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE131 or ELE234

Design of Basic Computer; Design concepts of Processors; Basic Assembly Language; Design of Channels and Controllers; Interconnections; Memory Structures and Design; Memory Management; Cache Memory Systems; firmware Design; Reliability; Testing and Fault Tolerance; CISC Computer; RISC Computers; Computer Interfacing; Computer Architecture Examples.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CSE191 Field Training 1 in Computer Science

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

This course allows students to combine academic knowledge with practical experience by providing a range of internships in computer-related disciplines, such as Computer networks, software engineering, information systems, and information technology.

CSE192 Field Training 1 in Information Technology

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

Hands on professional network administration, where students can install, support, and manage the networks and computer systems. They implement and maintain network hardware and software, troubleshoot network problems, and ensure network security, availability & performance standards.

CSE211 Web Programming

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **CSE015**

Web architecture and HTTP: History and architecture of the World Wide Web. •. Overview of the Hyper Text Transfer Protocol, other related protocols. •. Client-side scripting and Server-side scripting. •. Database Connectivity. •. Sending mail, cookies, and sessions.

CSE221 Database Systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE111**

Evolution of database management systems. Relational Data Model and Relational Algebra. Structured Query Language. Entity Relationship Modelling and Design. Tables Normalization. Forms/ Reports/ Menus Implementation.

CSE232 Operating Systems Administration

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE014**

Introduction to Operating systems such as Windows and LINUX/UNIX environments, administration of computer servers, usage of script languages in various operating systems, back up procedures and remote access, communication protocol used among different systems, managing information and system security.

CSE233 Operating Systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **CSE111**

Principles of operating systems, sequential processes, concurrent processes, concurrency, functional mutual exclusion, processor cooperation and deadlocks, processor management. Control and scheduling of large information processing systems, Resource allocation, dispatching, processor access methods, job control languages, Memory management, memory addressing, paging and store multiplexing, Multiprocessing and time sharing, batch processing, Scheduling algorithms, file systems, protection and security, design and implementation methodology, performance evaluation and case



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



studies.

CSE234 Embedded Systems

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE132**

Introduction: the importance of microcontrollers, the roles, and functions of microcontrollers. Acquaintance with microcontrollers and their simulators and debuggers. Understanding different addressing modes. Programming, debugging, and simulating assembly language programs. Developing a prototype for an embedded system. Interrupts and serial I/O. Memory Expansion. Microcontroller interfaces.

CSE241 Security of Information Systems

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Common attacking techniques. Common security policies. Basic cryptographic tools. Authentication and authorization. Access control. Software security. Operating system security. Legal and ethical issues in information systems security.

CSE242 Cryptography

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE112**

Computer Security Concepts: OSI security architecture, security attacks, security services, security mechanisms, network security model. Classical Encryption Techniques: symmetric cipher model, cryptanalysis, substitution techniques (Caesar, Monoalphabetic, Playfair, Hill cipher), transposition techniques, rotor machines, steganography. BlockCiphers and the Data Encryption Standard (DES): block cipher principles, Data Encryption Standard (DES), strength of

DES, differential and linear cryptanalysis. Public-Key Cryptography and RSA: principles of public-key cryptosystems, RSA algorithm. Diffie-Hellman Key Exchange: Discrete logarithm, key exchange and generation algorithm, attacks on Diffie-Hellman protocol. Cryptographic Hash Functions: applications of cryptographic hash functions, requirements and security, hash functions based on Cipher Block Chaining (CBC), Secure Hash Algorithm (SHA). Digital Signatures: essential elements, limitations of symmetric key, Digital Signature Standard (DSS). Distribution of public keys and X.50. Network Security Protocols: Authentication, key exchange, and key distribution protocols. Network Security Standards: IP security (IPsec), Secure Sockets Layer (SSL), Transport Layer Security (TLS), Hypertext Transfer Protocol Secure (HTTPS). Security analysis: Use of formal tools, e.g., Automated Validation of Internet Security Protocols and Applications (AVISPA).

CSE243 Secure Programming

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE241 or CSE344**

Introduction. Secure code development principles. Best practices. Security strategies and controls. Malicious code and defensive techniques. Code review and testing. Security documentation and error messages. Secure coding techniques. Access control. Input validation. Threat identifications and modeling. Vulnerability analysis. Automated code analysis. Risk assessment. Secure code development life cycle: development, maintenance, and refinement. Knowledge catalog: principles, guidelines, vulnerabilities, attack patterns, and historical risks. Coding errors. Breaking software. Web-applications threats and vulnerabilities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CSE251 Software Engineering****3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **CSE015**

Principles and techniques for the design and construction of reliable, maintainable, and useful software systems; Software life cycle, requirements specifications, and verification and validation issues; Implementation strategies (e.g. top-down, bottom-up, teams), support for reuse, and performance improvement; Concepts of software engineering: requirements definition, modularity; structured design; data specifications; functional specifications; verification, documentation; software maintenance; Software support tools;. Software project organization; quality assurance; management and communication skills.

CSE261 Computer Networks**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**Prerequisite **CSE014, CSE132**

Architecture and protocols of computer networks; Protocol layers; network topology; Data-communication principles, including circuit switching, packet switching and error control techniques; Sliding window protocols, protocol analysis and verification; Routing and flow control; Local and wide area networks; Network interconnection; Client-server interaction; Emerging networking trends and technologies; topics in security and privacy.

CSE262 Introduction to Telecommunications, Networking and Security**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **CSE014**

Introduction to telecommunications, networking, and security concepts. Technologies and protocols for networked applications and services, Command line and graphical interfaces for network configuration, Implementation and configuration of networked applications and services, securing wireless and wireline networks, network services, and protocols, Network analysis, Network virtualization, Integration and troubleshooting of networked apps, network security methods and services.

CSE271 Introduction to Parallel Computing**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **CSE112**

Introduction to Parallelism. Parallel Programming. Parallel Architectures. Parallel Algorithms. Parallel Applications. Other Parallel Models.

Interfacing techniques. Interfacing requirements. A typical microcontroller system is utilized in this course with typical software-based applications. Interfacing with USB, I2C, SPI, CAN, LIN.

CSE272 Parallel & distributed Systems**3** Cr. Hrs. = (**2** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **CSE132**

Motivations for parallel programming. Instruction Level Parallelism (ILP). Parallel Random-Access Machines (PRAM). Cluster computing



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and grid computing. Message passing systems and applications. Message Passing Interface (MPI) and configuration of MPI cluster. MPI programming algorithms and implementation of PRAM through MPI. Peer-to-Peer (P2P) systems, mobile agents. GPUs, Multi-Core, Distributed file systems. Distributed coordination systems. Replication and consistency. Fault tolerance. Grid computing paradigm. Cloud computing: properties and characteristics, service models, deployment models.

CSE281 Image Processing

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE015, MAT212**

Digital image fundamentals; Image enhancement in the spatial domain: grey level transformation; Histogram processing; Spatial filters; Image enhancement in frequency domain: D Fourier transform; Other transforms; Smoothing filters; Sharpening filters; Image restoration; Noise model; Estimating the degradation function; filters; Geometric transformations; Image segmentation: detection of discontinuities; edge linking and boundary detection; Thresholding; Region based segmentation ; Morphological image processing : operation concepts ; some basic algorithms, Image Compression.

CSE291 Field Training 1 in Computer Engineering

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 60 – ECTS = 4

Prerequisite - - -

Hands-on introduction to computer engineering practice and research, including computer hardware, robotics, and embedded systems. Internship in software, cloud computing, mobile computing, embedded systems, and information network companies. Establish a student organization that works with communities to develop/apply technology

to serve social community.

CSE292 Field Training 2 in Computer Science

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 60 – ECTS = 4

Prerequisite - - -

This course allows students to combine academic knowledge with practical experience by providing a range of internships in computer-related disciplines, such as Computer networks, software engineering, information systems, information technology, and more advanced topics.

CSE293 Field Training 2 in Information Technology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 60 – ECTS = 4

Prerequisite - - -

Hand on professional computational infrastructures analysis (e.g., networks, servers, and DBs), where students can apply modern techniques for analyzing and modeling the structure and dynamics of complex systems, including major attacks. The main focus will be on applying statistical algorithms, methods, and visualization techniques.

CSE311 Design of Compilers

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CSE015**

Fundamental concepts in automata theory and formal languages including grammar, deterministic and nondeterministic finite automata, regular expression, formal language, pushdown automaton, Turing machines, the halting problem, diagonalization and reduction, decidability, Rice's theorem, P, NP, and NP-completeness. Systems software, compilers, interpreters. Bytecodes. Lexical analysis: interface with input, parser and symbol table, token, lexeme, and patterns. Syntax



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



analysis: context-free grammars, ambiguity, precedence, top-down parsing, recursive descent parsing, transformation on the grammars, predictive parsing. Bottom-up parsing, operator precedence grammars, LR parsers. Regular expressions and semantics. Error detection, type-checking, and run-time environments. Code generation, code optimizations, code improvement techniques.

CSE312 Advanced Web Programming

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **CSE211**

Introduction to HTML5 and JavaScript. HTML5 and Forms. HTML5; Intro to Flash, Canvas, Local storage, and Geolocation. HTML5 and JavaScript. HTML5, CSS Animation. Adobe Muse and Dreamweaver.

CSE313 Mobile Programming

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **CSE015**

Mobile application development frameworks, Design techniques, Methodologies for mobile application development, Android development w/ Java, iOS development w/ Swift, Using Native React, RESTful and Non-RESTful apps, Creating Web/Cloud services, Mobile sensors, Security and trust management, Privacy and ethics, Usability.

CSE314 Android and iOS Development

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **CSE313**

Introduction to Android and iOS. Android Activities and UI Design. Advanced UI Programming. iOS Architecture and SDK Framework. Case studies and projects.

CSE315 Discrete Mathematics

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Propositional Logic. Predicate Logic and Quantification. Methods of Proof. Sets and Functions. Arithmetic Algorithms. Growth of Functions. Computational Complexity of Algorithms. Integer properties and Matrices. Mathematical Induction. Recursion. Sequences and Summations. Program Correctness. Graphs and their Applications. Trees and their Applications. Languages and Grammars. Finite-State Machines. Automata and Language Recognition. Turing Machines.

CSE321 Societal and Ethical Issues in Information Technology

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Overview of philosophical and professional ethics in computing, Societal and ethical issues in computing including privacy, intellectual property, computer security, computer crime, product liability, and the societal, environmental, and economic impacts of computers. Students develop skills in assuming and defending positions on societal and ethical issues through oral presentations and written reports.

CSE322 Big Data Analytics 1

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE121**

This course provides a broad and practical introduction to big data: data analysis techniques including databases, data mining, and machine learning; data analysis tools including spreadsheets, relational databases and SQL, Python, and R; data visualization techniques and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



tools; pitfalls in data collection and analysis. Tools and techniques are hands-on but at a cursory level, providing a basis for future exploration and application.

CSE323 Advanced database systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE221**

Query processing and optimization. Database tuning. Transaction processing. Concurrency control. Database recovery. Object databases: standards, languages, and design. Object-relational databases. Database security. Distributed database systems: architecture, data fragmentation, distributed read/update transparency, access primitives, integrity constraints, distributed database design, queries, optimization, concurrency, and reliability control. XML, semi-structured, federated, and Internet databases. Data warehousing. Introduction to data mining.

CSE324 IT Management and Operations

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course gives an overview of IT operations and the management of IT operations, Roles of IT Operations, Recent information technologies (virtualization, cloud, etc.), monitoring and tuning IT operations, Governance of IT operations.

CSE325 Database Systems Administration

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE221**

Introduction to the knowledge, skills, and tools needed to successfully

administer database systems. The conceptual and operational tools for analysis and resolution of problems such as performance, recovery, design, and technical issues are provided. Tools used to assist in the administration process, administer, backup, and recover Database instances, tuning and enhancing the performance of the Database. Also, introduces deployment and administration of a database on a server or the cloud.

CSE335 Real Time & Embedded Systems Design

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE234**

Introduction to automotive embedded networking - Automotive CAN network simulation using CANoe (Vector Germany) evaluation version - Principles of CAPL script to simulate external events and network communications - Introduction to CAN bus protocol - TIVA C embedded development using CAN bus - MISRA static code checking guidelines - MISRA and Code Composer Texas Instruments tools - Real Time Operating System on TIVA C - OSEK network management standard - OSEK NM simulation using CANoe - OSEK state machine C development - Introduction to AutoSar Automotive embedded development standard - AutoSar Real Time Environment (RTE) - AutoSar Basic Software (BSW) - AutoSar Software Components (SWC).

CSE344 Introduction to Cyber Security

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

This course provides an overview of Cyberspace, defines the scope of Cybersecurity, and addresses information classification and system compartmentalization. The course includes an appreciation of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



information confidentiality, integrity, and availability, and covers Cybersecurity architecture, strategy, services, hardware, software, and cloud services. The course also examines national security issues, critical infrastructure, and the potential for cybercrime and cyber terrorism, as well as the need for corporations to align their security with business needs and consider the threat from malicious employees, contractors, and/or vendors.

CSE351 Software Project Management

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

This course develops a foundation of concepts and solutions that support the planning, scheduling, controlling, resource allocation, and performance measurement activities required for successful completion of an information system project.

CSE352 Systems Analysis & Design

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite **CSE251**

The Systems Development Environment. Rapid Application Development. Introduction to agile methodologies. Managing the Information Systems project. Automated Tools for Systems Development. Determining & Structuring System Requirements. Structuring System Data & Logic Requirements. Designing Distributed and Internet Systems.

CSE353 Interaction Design

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Study of and practice with processes, principles, tools, models, and

techniques for designing interactions between humans and digital products and systems. Topics include physiological and psychological factors affecting interaction design, interaction design process, interaction models, styles and paradigms, design notations and representations, prototyping, and interaction design evaluation.

CSE361 Networks Virtualization and Administration

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE261 or CSE262**

Introduction to Data-center networking, Overview on Virtualization technologies and techniques, Software Defined Networking, Network Function Virtualization concepts, impact of virtualization on the design, deployment, and management of ICT services. Administration of virtualized networks.

CSE362 Industrial Networks

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **CSE261**

The course is presented through a layered top-down approach starting from the application layer down to the physical layer, focusing on basic networking concepts and typical application layer examples. Focusing on the Internet and the fundamentally important issues of networking, this course provides a foundation for students interested in computer science and electrical engineering, without requiring extensive knowledge of programming or mathematics. A typical outline of the course goes by the following sequence: Application layer (e.g., e-mail, the Web, PHP, wireless Web, MP3, and streaming audio). Transport layer essentials and requirements. Network layer functions and fundamentals of routing, congestion control, QoS, IPv4, and IPv6. Data



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



link layer and MAC Sublayer with emphasis on gigabit Ethernet, 80. 11, broadband wireless, and switching. Physical layer (e.g., copper, fiber, wireless, satellites, and Internet over cable). The course dissects and depicts the principles associated with each layer and then focuses on Fieldbus networks, Control Area Networks (CAN, LIN, FLEXRAY) and SCADA systems.

CSE363 Cloud Computing

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE261**

Trends of computing, introduction to distributed computing. Introduction to Cloud Computing: Cloud computing properties and characteristics, service models, deployment models; Attributes of Cloud computing: multi-tenancy; a single instance of software or other computing resource serving several clients, massive scalability; ability to support hundreds of thousands of clients at the same time, elasticity. Infrastructure-as-a-Service (IaaS): Introduction to IaaS, resource (i.e., server, storage, and network) virtualization, case studies; Platform-as-a-Service (PaaS): Introduction to PaaS. Cloud platform, management of computation and storage, case studies; Software-as-a-Service (SaaS): Introduction to SaaS, Web services, Web. 0, Web OS, case studies.

CSE373 Parallel programming

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE015**

Introduction. Parallel versus distributed algorithms. Message passing and shared memory. Parallel algorithm design: parallel graph algorithms, parallel searching, and sorting algorithms. Parallel computational algorithms. Basic distributed problems and protocols. Synchronous computation: communicators, pipeline, transformers,

waiting, guessing, synchronous problems. Algorithms in systems with no failures. Election: election in trees, rings, mesh networks, cube networks, and complete networks, universal election protocols. Message routing: shortest path routing, coping with changes, routing in static systems. Distributed set operations: distributed selection, distributed sorting. Stable properties detection. Continuous computations. Computing in the presence of faults: faults and failure, modeling faults, the crushing impact failure, localized entity and link failures, ubiquitous faults. Failure detectors. Parallel and distributed matrix algorithms. Optimization in parallel and distributed algorithms. Complexity analysis of distributed and parallel algorithms. Applications.

CSE382 Computer Graphics

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE281**

Introduction to computer graphics hardware, algorithms, and software. Graphics Programming, OpenGL. Displaying images. 3D transformations. Light and shading. Ray tracing. Hidden surface removal. Color technology. Image morphing. Texture mapping. Line drawing. Local illumination models. Curves and Surfaces. Geometric Modelling. Animation.

CSE383 Computer Vision

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE281**

Local Feature Extraction. Projective Geometry. Stereo Vision. Point Matching. 3D Reconstruction. Motion Detection. Object Recognition.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CSE392 Field Training 2 in Computer Engineering****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 60 – ECTS = 4

Prerequisite ---

Hands-on advanced topics in computer engineering practice and research, including computer hardware, robotics, and embedded systems. Internship in software, cloud computing, mobile computing, embedded systems, and information network companies. Establish a student organization that works with communities to develop/apply technology to serve social community.

CSE411 Theory of Computation & Compilers**3** Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE014**

Finite automata, Regular languages, converting DFA to NFA, Context-free languages, Pushdown automata, and Turing Machine. Lexical analysis; parsing theory; symbol tables; type systems; scope; semantic analysis; intermediate representations; runtime environments; code generation; and basic program analysis and optimization.

CSE424 Data Warehousing**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE323**

Introduction: Comparison of operational and decisional systems; Metadata. Data warehousing architectures: Corporate Information Factory; DW. 0. Multidimensional modeling and OLAP tools: Structure; Integrity constraints; Operations; Advanced concepts. Database optimization: Basic concepts; Phases and goals. Database physical design for analytical queries: Star-join and join indexes; Bitmaps; Materialized views; Implementations (relational and NOSQL).

Extraction, Transformation and Load: Data quality; Integration; ETL management.

CSE425 Big Data Analytics 2**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE322**

Map Reduce; Clustering algorithms for high-dimensional data; predictive analytics; Dimensionality reduction; Application of machine learning algorithms for analyzing structure of large graphs like social network graphs Technologies for extracting important properties of large datasets.

CSE426 Selected Topics in Data Science**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE322**

The course provides topics that are selected from different recent trends in Data Science that are not covered in the description of the courses listed in the curriculum.

CSE427 Selected Topics in Big Data**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE322**

The course provides topics that are selected from different recent trends in Big Data that are not covered in the description of the courses listed in the curriculum.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CSE436 Selected Topics in Embedded Systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE234**

Topics which are not included in the curriculum and seem to be needed should be suggested as an elective course by the Department Faculty Council.

CSE445 Selected Topics in Information Security

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE241 or CSE344**

Topics are selected from different areas in Information Security that are not covered in the description of the courses listed in the curriculum. This course will cover recent trends and issues in the field of Information Security and will be chosen at the discretion of the Program Administration Council and the Faculty Council.

CSE446 Information & Computer Networks Security

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE261, (CSE241 or CSE344)**

Attacks and threats, symmetric key cryptography, public key cryptography, authentication protocols, digital signature, viruses, worms, Trojan horses, malicious programs, computer crimes, web-security, firewalls, intrusion detection, TLS, IPsec, SET, digital homeland security, offensive and defensive tools, security issues in wireless technologies and mobile computing, ethics, and hacking in laws.

CSE447 Selected Topics in Computer Security

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE241 or CSE344**

Topics are selected from different areas in Information Security that are not covered in the description of the courses listed in the curriculum. This course will cover recent trends and issues in the field of Information Security and will be chosen at the discretion of the Program Administration Council and the Faculty Council.

CSE448 Cyber Forensics

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Computer and Cyber Forensic Basics- Introduction to Computers, Computer History, Software, Hardware, Classification, Computer Input-Output Devices, Basic Computer Terminology, Internet, Networking, Computer Storage, Cell Phone / Mobile Forensics, Computer Ethics and Application Programs, Cyber Forensic Basics-Introduction to Cyber Forensics, Storage Fundamentals, File System Concepts, Data Recovery, Operating System Software and Basic Terminology.

CSE453 Building Information Systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE 251**

Define the information systems basics that support different managerial levels using modern environments. -List deep understanding of database design and optimization in local/remote and centralized /distributed deployment models. -Propose and evaluate the information system components and infrastructure. -Operate modern computing, programming, information technology, and database design skills to



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



build information system. -Implement comprehensive computing knowledge of information systems to solve practical information problems. -Work in groups and manage team, time, and organizational skills to build information systems. -Retrieve modern information efficiently in building information systems. -Use the modern computing facilities in building information systems.

CSE454 Advanced Software Engineering

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE251**

Differences between structured and object-oriented paradigms. The Unified Modeling Language (UML). Use-case modeling. Class modeling: noun extraction, Class-Responsibility-Collaboration (CRC) cards. Dynamic modeling. State diagrams. Testing during the object-oriented analysis phase. CASE tools for object-oriented analysis and design. Object-oriented design: interaction diagram, detailed class diagram, clients of objects, detailed design, and program description languages.

CSE455 Selected Topics in Software Engineering

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE251**

Topics which are not included in the curriculum and seem to be needed should be suggested as an elective course by the Program Administration Council and the Faculty Council.

CSE463 Advanced Networking

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE261 or CSE262**

Network architectures/technologies, Principles of efficient and secure

networks for providing voice, data, and video and mobility applications. Hands-on knowledge of network components (host, router, switch, hub, bridges, etc.), network protocols (HTTP, IP, TCP, SQL, etc.), network interfaces (Ethernet, Serial, USB, Wi-Fi, BT, Zigbee, Cellular, etc.), network facilities (wired, wireless), services (DHCP, DNS, Proxy, etc.), network analysis and troubleshooting, network management and policies (maintenance, operations and provisioning), network security (hardening, firewalls, IDS, IPS, etc.) and networked applications (remote access, email server, web server, multicasting/streaming, etc.).

CSE464 Internet of Things

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE261**

Introduction to IoT. Concepts and architecture. Connected devices. Managing IoT resources in the cloud. Fog computing. Programming frameworks. Virtualization on Embedded boards. Collecting and managing data. Reliability, privacy, and security. IoT applications.

CSE465 Selected Topics in cloud computing

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE363**

Topics which are not included in the curriculum and seem to be needed should be suggested as an elective course by the Department Faculty Council.

CSE466 Selected Topics in IoT

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE464**

Topics which are not included in the curriculum and seem to be needed should be suggested as an elective course by the Department Faculty Council.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CSE467 Client/Server Technologies & Applications****3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite ---

Design of Information Systems and Fundamentals of the development of application software systems. The presentation of tools and methodology development are in line to obtain the skills to identify and solve specific information problems. Selected teaching strategy is to create skills for students to explore literature and to explore the problem originating from information and finding the right tools to solve it. Overall, the course aims to develop additional skills to build complex three-layer systems based on client / server technologies. Requirements: students to have training in programming, using programming environments and knowledge of basic algorithms and data structures.

CSE468 Web Server Administration**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite CSE262

Introduction to basic Linux command, Basic Windows Server commands; Administration of Apache Web Server and Internet Information Server, Domain Name Service (DNS) Configuration, Web server Management, Web server environment analysis and performance optimization.

CSE474 Distributed Information Systems**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CSE221, CSE261

An introduction to computer systems. Introduction to Internetworking, protocol stacks and data transport. Design and operation of distributed systems and applications. Central concepts in distributed systems, including transparency, scalability, middleware, synchronization, failure handling, consistency, and parallelism. Operating systems, scheduling,

processes, memory systems and cloud abstractions. Security considerations, basic cryptography, and network security. Basic designs and constraints of Internet-of-Things, including energy, scalability, privacy, and semantical interoperability. Analysis and presentation of a network based distributed system. Examining running networks with observing tools.

CSE475 High Performance Computing**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CSE271

Overview of existing HPC software and hardware. Basic software design patterns for high performance parallel computing. CUDA for parallel computing on the Graphics Processing Unit (GPU). Message Passing Interface (MPI) parallel programming. OpenMP and POSIX threads solution to enable parallelism across multiple CPU cores. Standard algorithms utilizing parallelism. Matrix and vector operations. Collective communications. The use of Graphics Processing Units (GPUs) for general purpose computations (GPGPU). Multi-GPU and Multi-CPU solutions. Optimizing HPC-based programs. Designing GPU-based systems. Applications.

CSE476 Selected Topics in high performance computing**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite CSE475

Topics which are not included in the curriculum and seem to be needed should be suggested as an elective course by the Department Faculty Council.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CSE484 Interactive Multimedia****3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE382**

Introduction to Multimedia Studies. Data Representation. Basic Compression Techniques. Video and Audio Data Compression Techniques. Multimedia Networks and QoS Support. Multimedia Wireless Networks, Heterogeneous Networks, and advanced QoS Support. Multimedia Applications. Topics in Multimedia Technologies.

CSE485 Computer Games Theory**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6Prerequisite **CSE382**

Preferences, Utility, and Goals. Strategic Form Non-Cooperative Games. Iterated Games. Extensive Form Non-Cooperative Games. Cooperative Games. Social Choice.

CSE486 Selected Topics in Computer Vision**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6Prerequisite **CSE383**

The course provides topics that are selected from different advanced and recent trends in Computer Vision that are not covered in the description of the courses listed in the curriculum.

CSE487 Mixed &Augmented Reality**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 165 – ECTS = 6Prerequisite **CSE382**

3D Vision. Approaches to Augmented Reality. Alternative Interface Paradigms. Spatial Augmented Reality. Lighting and Illumination Issues in Augmented Reality.

CSE488 Visualization &Animation**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE382**

Perception and its applications. Graphical perception. Visual encoding principles. Interaction principles. Single-view methods. Multiple-view methods. Item reduction methods. Attribute reduction methods. Tabular data. Visualization toolkits. Graphs and trees. Flow visualization. Geo-spatial visualization. Volume visualization. Vector visualization. High-dimensional Visualization. Visualizing relational data. Design and evaluation. Visualizing structure. Visualizing time. Scaling. Key-framing. Storyboarding. Animation software. Spacing and timing. Digital animation techniques. 2D and 3D animatic, special effects design, 3D paint techniques and integration. Sequence planning, non-photorealistic rendering. Kinematics, physically based dynamics modeling. Motion capture. Scene composition, lighting, and soundtrack generation. Visual effects process. Texture-mapping, rendering and camera tracking techniques. Live action films.

CSE493 Graduation Project 1**3** Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **SENIOR STANDING**

During the first of the two semesters, students will begin their work on the project and are expected to complete at least half the project by the end of the semester. Students will develop and work on their projects under faculty supervision.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CSE494 Graduation Project 2

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE493**

During the second of the two semesters, students will continue their

work on the project and are expected to complete the project by the end of the semester. Students will develop and work on their projects under faculty supervision.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Artificial Intelligence Science & Engineering

AIE111 Artificial Intelligence

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **CSE015**

Knowledge representation and organization, Search strategies & inference methods, and. AI problem solving tools and techniques. Agent Architecture, Multi-Agent Systems, Reasoning with uncertain or incomplete knowledge.

AIE121 Machine Learning

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE 111**

Linear Regression and regularization. Instance-based Learning and Decision Tree Induction. Maximum Likelihood (Linear and Logistic regression). Probabilistic (Bayesian) Inference (Linear regression, Logistic regression with the Laplace approximation, Intro to Sampling). Support Vector Machines. Artificial Neural Networks: perceptron, MLPs, back propagation, intro to Deep Learning. Ensemble learning, bagging, boosting, stacking, random forests. Clustering algorithms, k-means, Expectation-Maximization, Hierarchical Clustering, Dimensionality reduction techniques, SVD/PCA, Multi-dimensional scaling.

AIE122 Basics of Machine Learning and Data Science

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **MAT131**

Introduction to data science and machine learning landscapes, Data Collection and Manipulation, Developing and implementing programs using ready tools that facilitate model development and deployment to a variety of computing platforms.

AIE191 Field Training 1 in AI Science

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

Granting students practical employability skills required in the AI Science job market by providing training in companies that working in natural language processing and smart home components manufacturers to eventually be able to develop intelligent software and systems.

AIE212 Knowledge-based Systems

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE111**

Propositional and predicate logic, non-classical logic, computational intelligence (recap). Knowledge based systems (KBS): information



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



management, objectives, components, and types of KBS, expert systems. KBS Architecture: source of knowledge, types of knowledge, skills components, structure KBS, knowledge base, reasoning based on rules of inference mechanisms, forward and backward chaining, the reasoning in the presence of uncertainty, KBS based on fuzzy logic, application KBS, Semantic Web. Knowledge representation: representational models, predicate logic, rules, frames and objects, descriptive logic, semantic networks, ontologies, formal concepts, conceptual graphs. KBS development: development methodology, mechanisms of recovery and recycling of knowledge and tools to develop KBS: C Language Integrated Production System (CLIPS), Java Expert System Shell (JESS), Protégé, and Web Ontology Language (OWL).

AIE213 Optimization techniques

3 Cr. Hrs. = (**3** LCT + **3** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **MAT312**

Linear Algebra and Matrices. Probability Theory Review. Linear Programming. One-dimensional Search Techniques. Gradient-based Techniques. Quasi-Newton Methods. Constrained Optimization. Non-linear Constrained Optimization.

AIE231 Neural Networks

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE121**

Simple perceptron for classification, Backprop and Multilayer Perceptron for deep learning, Statistical Classification by deep networks, Regularization and Tricks of the Trade in deep learning, Error landscape and optimization methods for deep networks, Convolutional networks, Sequence prediction and recurrent networks, Bellman

equation and SARSA, Variants of SARSA, Q-learning, n-step-TD learning, Policy gradient, Deep reinforcement learning: applications, Reinforcement learning and the brain.

AIE241 Natural Language Processing

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE121**

Overview of NLP. Statistical Machine Translation. Word Alignment Models for Statistical MT. Machine Translation: Word Alignment, Parallel Corpora, Decoding, Evaluation. Modern MT Systems (Phrase-based, Syntactic). N-Grams, Final Project Discussion. Syntax and parsing. Competitive Grammar Writing. Dependency Parsing. Coreference Resolution. Computational Semantics.

AIE291 Field Training 1 in AI Engineering

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

This is an advanced course that grants students practical employability skills required in the AI Science job market by providing training in companies that work in natural language processing and smart home components manufacturers to eventually be able to develop intelligent software and systems.

AIE292 Field Training 2 in AI Science

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

This is an advanced course that grants students practical employability skills required in the AI Science job market by providing training in companies that work in natural language processing and smart home components manufacturers to eventually be able to develop intelligent



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



software and systems.

AIE314 AI-based programming

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE212**

Introduction to Artificial Intelligence, Classification and Regression Using Supervised Learning, Predictive Analytics with Ensemble Learning, Detecting Patterns with Unsupervised Learning, Building Recommender Systems, Logic Programming, Heuristic Search Techniques, Natural Language Processing, Probabilistic Reasoning for Sequential Data, Building A Speech Recognizer, Object Detection and Tracking, Artificial Neural Networks, Reinforcement Learning, Deep Learning with Convolutional Neural Networks, Genetic Algorithms, Building Games With Artificial Intelligence.

AIE315 Computational Logic

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE111**

Topics include the syntax and semantics of Propositional Logic, Relational Logic, and Herbrand Logic, validity, contingency, unsatisfiability, logical equivalence, entailment, consistency, natural deduction (Fitch), mathematical induction, resolution, compactness, soundness, and completeness.

AIE316 Evolutionary Algorithms

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE213**

Introduction: Simple example of Evolution, Comparison and Motivation. The Model of Biological Evolution. a. Genotypes and Phenotypes. b. Basics of the Neo-Darwinian Paradigm. Optimization. Evolutionary

Algorithms – General Overview. Genetic Algorithms. a. Basic Algorithm. b. Schema Processing Interpretation of Genetic Algorithms. c. Schema Theorem. d. Convergence Velocity Perspective. e. Practical Applications: From Airline Crew Scheduling to Car Crash Optimization. Evolution Strategies. a. Basic Algorithms. b. Convergence Velocity Perspective. c. Practical Applications. d. Advanced Techniques (mixed integer, multi objective). Genetic Programming. a. Basic Algorithm. b. Practical Applications. Advanced Topics. a. Mixed-Integer Representations. b. Self-Adaptation in Genetic Algorithms. c. Optimizing Evolutionary Algorithms.

AIE317 Artificial intelligence in medicine

2 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

an intensive introduction to artificial intelligence and its applications to problems of medical diagnosis, therapy selection, and monitoring and learning from databases.

AIE322 Advanced Machine Learning

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE121**

This course emphasizes practical skills and focuses on giving you skills to make these algorithms work. You will learn in depth the commonly used learning techniques including supervised learning algorithms (logistic regression, linear regression, SVM, neural networks), unsupervised learning algorithms (k-means, Gaussian Mixture Models, spectral clustering), reinforcement learning, as well as learn about specific applications such as anomaly detection and building recommender systems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**AIE323 Data Mining****3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE121**

Knowledge discovery in databases. Data mining process and Models. Data cleaning and preparation. Mining association rules, Classification, Prediction, and Clustering. Web mining and Text Mining. Data Warehouse and OLAP Technology for Data Mining. Model Evaluation and Cross Validation. Applications of data mining.

AIE332 Deep Learning**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE 231**

Deep Learning: A revolution in Artificial Intelligence, Limitations of Machine Learning, what is Deep Learning? Advantage of Deep Learning over Machine learning, 3 Reasons to go for Deep Learning, Real-Life use cases of Deep Learning, Review of Machine Learning: Regression, Classification, Clustering, Reinforcement Learning, Underfitting and Overfitting, Optimization.

AIE342 Advanced Methods for Data Analysis**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE 323**

Introduction and regression, the truth about linear regression, Error and validation, Kernel regression, the bootstrap, Degrees of freedom, smoothing splines, Additive models, Inference with linear smoothers, Logistic regression, Generalized linear models, Principal components analysis, other dimension reduction techniques, Clustering, High-dimensional regression, Time series.

AIE343 Machine Learning for Text Mining**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE323, AIE241**

Basic algorithms: the classical algorithms for text analytics, such as pre-processing, similarity computation, topic modelling, matrix factorization, clustering, classification, regression, and ensemble analysis. Domain-sensitive learning: learning models in heterogeneous settings such as a combination of text with multimedia or Web links. The problem of information retrieval and Web search is also discussed in the context of its relationship with ranking and machine learning methods. Sequence-centric mining: various sequence-centric and natural language applications, such as feature engineering, neural language models, deep learning, text summarization, information extraction, opinion mining, text segmentation, and event detection.

AIE351 Robotics Design**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE111**

This course presents an overview of robotics in practice and research with topics including vision, motion planning, mobile mechanisms, kinematics, inverse kinematics, and sensors. In course projects, students construct robots which are driven by a microcontroller, with each project reinforcing the basic principles developed in lectures. Students usually work in teams of three: an electrical engineer, a mechanical engineer, and a computer scientist. Groups are typically self-formed except for the first lab. This course will also expose students to some of the contemporary happenings in robotics, including current robotics research, applications, robot contests and robot web surfing.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**AIE392 Field Training 2 in AI Engineering****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **60** – ECTS = **4**

Prerequisite ---

Hands-on advanced topics in modern AI as well as some of the representative applications of AI including how to develop intelligent algorithms capable of learning, analyzing, and predicting future events. Internship in machine learning, data science, data analysis, deep learning, computer vision, and natural language processing companies. Establish a student organization that works with communities to develop/apply technology to serve social community.

AIE417 Selected Topics in Artificial Intelligence 1**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**Prerequisite **AIE111**

The course provides topics that are selected from different advanced and recent trends in Artificial Intelligence that are not covered in the description of the courses listed in the curriculum.

AIE418 Selected Topics in Artificial Intelligence 2**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**Prerequisite **AIE111**

The course provides topics that are selected from different advanced and recent trends in advanced topics Artificial Intelligence that are not covered in the description of the courses listed in the curriculum.

AIE419 Artificial intelligence for computer games**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite ---

Knowledge representation and organization, Search strategies

& inference methods, and. AI problem solving tools and techniques. Agent Architecture, Multi-Agent Systems, Reasoning with uncertain or incomplete knowledge.

AIE424 Intelligent Decision Support Systems**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**Prerequisite **AIE323**

Artificial intelligence in multi-criteria decision analysis (sorting, ranking, classification, programming in fuzzy environments and rule induction systems); - Intelligent systems in knowledge-based systems (knowledge discovery and representation, approximate reasoning, and management of uncertainty); - GIS-based multi-criteria decision analysis (spatial data mining and visual analytics). The objective of this course is to achieve a profound understanding of Intelligent Decision Support Systems in terms of their tools, current practices, and impacts. The students should acquire knowledge on how to design IDSS for different decision-making problems.

AIE425 Intelligent Recommender Systems**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**Prerequisite **AIE323**

Neighborhood-based Collaborative Filtering. Model-based Collaborative Filtering. Content-based Recommender Systems. Knowledge-based Recommender Systems. Evaluation of Recommender Systems.

AIE426 Decision Making under Uncertainty**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = **180** – ECTS = **6**Prerequisite **AIE323**

The course will cover computational methods for solving decision



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



problems with stochastic dynamics, model uncertainty, and imperfect state information. Topics include Bayesian networks, influence diagrams, dynamic programming, reinforcement learning, and partially observable Markov decision processes. Applications cover air traffic control, aviation surveillance systems, autonomous vehicles, and robotic planetary exploration.

AIE427 Statistical Pattern Recognition

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **AIE322**

Statistical Pattern Recognition: A Review. Statistical Decision Theory. Notes on Neyman-Pearson decision rule. Notes on error rate of a linear discriminant function. Parameter Estimation. Bayes Estimator for multivariate Gaussian density with unknown covariance matrices. Component analysis and Discriminants. Readings on Isomap and LLE. Principle Component Analysis (PCA). PCA for face Recognition. Non-parametric Technique. Curse of Dimensionality. A Problem of Dimensionality: A Simple Example. Feature Selection: Evaluation, Application, and Small Sample Performance. Decision Trees. Support Vector Machine. Error Rate Estimation, Bagging, Boosting, Classifier Combination. Logistic Regression. Unsupervised and semi-supervised learning. Clustering and Multidimensional Scaling.

AIE444 Question Answering Systems

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **AIE241**

Introduction to QA systems, Answer Validation, Sentence Annotation: Named Entity Annotation, Dependency Parsing, Semantic Role Labeling. Question Analysis, Question Classification, Query Construction, Sentence Retrieval: Sentences vs. Documents, Word

Relationship, Answer Extraction, Opinion and Polarity Classification.

AIE452 Cognitive Robotics

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **AIE351**

Robots: Beyond the computer metaphor in cognitive science. Varieties of embodiment. The evolution of robots. Developmental robotics. Learning intrinsic environment representations from sensory-motor interactions. Designing social robots. Eliza effect and its role in cognitive robotics: Robots and Autistic children. Theory of mind for robots. Internal value system in cognitive robotics architectures. Interaction theory in cognitive robotics.

AIE453 Planning Techniques for Robotics

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6

Prerequisite **AIE351**

Introduction: What is Planning? search algorithms: Uninformed A*, heuristics, weighted A*, Backward A*. interleaving planning and execution. planning representations: lattice-based graphs, explicit vs. implicit graphs. planning representations: PRM for continuous spaces. planning representations/search algorithms: RRT, RRT-Connect. search algorithms: IDA*, Beam Search, Multi-goal A*. search algorithms: Markov Property, dependent vs. independent variables, Dominant Relationship. planning representations: state-space vs. symbolic representation for task planning. search algorithms: symbolic task planning algorithms. planning under uncertainty.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



AIE454 Robot Kinematics & Dynamics

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE351**

Transformations. forward kinematics. inverse kinematics. differential kinematics (Jacobians). manipulability. basic equations of motion.

AIE455 Robot Mapping & Localization

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE351**

Introduction. SLAM entities: map, robot, sensor, landmarks, observations, estimator. Motion and observation models. EKF-SLAM. Operations of EKF-SLAM. Geometry (Rotation matrix - Reference frames - Motion of a body in the plane - Polar coordinates - Useful combinations). Probability. Generalities - Gaussian variables - Graphical representation.

AIE456 Human Robot Interaction

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE351**

The field of human-robot interaction (HRI) is fast becoming a significant area of research in robotics. The basic objective is to create natural and effective interactions between people and robots. HRI is highly interdisciplinary, bringing together methodologies and techniques from robotics, artificial intelligence, human-computer interaction, psychology, education, and other fields. This course is primarily lecture-based, with in-class participatory mini-projects, homework assignments, a group term project that will enable students to put theory to practice, and a final. The topics covered will include technologies that enable human-robot interactions, the psychology of interaction between people and

robots, how to design and conduct HRI studies, and real-world applications such as assistive robots. This course has no prerequisites, but some basic familiarity with robots is recommended (programming knowledge is not necessary but is useful for the term project).

AIE457 Mobile Robot Development

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE351**

This course investigates robot mobility, energetics, sensing, computing, software, payload, interface, and operating environment. The context is robotic pursuit of the Moon. Scope incorporates mechanism, electronics, software, locomotion, navigation, communication, sensing, power, and thermal considerations. Additionally, space systems address challenges of low mass, energetics, space environment, and reliability of design. Media is incorporated to chronicle and represent accomplishments. The course is appropriate for a broad range of student disciplines and interests. Course Learning Objectives include formulation, problem solving, robotics and developing space systems. Students work cooperatively in teams with guidance to produce mission-relevant results and practice technical communications through written and oral presentations. Teams generate term papers detailing the design, development, testing, and lessons learned.

AIE493 Graduation Project 1

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **SENIOR STANDING**

During the first of the two semesters, students will begin their work on the project and are expected to complete at least half the project by the end of the semester. Students will develop and work on their projects under faculty supervision.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



AIE494 Graduation Project 2

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = **180** – ECTS = **6**

Prerequisite **AIE493**

During the second of the two semesters, students will continue their

work on the project and are expected to complete the project by the end of the semester. Students will develop and work on their projects under faculty supervision.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Biomedical Informatics

BMD191 Field Training 1 In Biomedical Informatics

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite - - -

Hands-on introduction to the Biomedical informatics field that combines ideas from computer science and quantitative disciplines (statistics, data science, and decision science) to solve challenging problems in biology and medicine. Internships in health informatics are available through hospitals and health sector institutions.

BMD241 Human physiology

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Basic physiological functions include circulatory system, digestive system, excretion system, nervous system, reproduction system, and immune system. Physiochemical process for each system. Anatomy of the human body. Modelling of human physiological and anatomical systems.

BMD292 Field Training 2 In Biomedical Informatics

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **60** – ECTS = **4**

Prerequisite - - -

Hands-on advanced topics in the Biomedical informatics field that combines ideas from computer science and quantitative disciplines (statistics, data science, and decision science) to solve challenging problems in biology and medicine. Internships in health informatics are

available through hospitals and health sector institutions.

BMD310 Introduction to Programming for Biostatisticians

2 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **135** – ECTS = **4**

Prerequisite - - -

This course will focus on skills required for advanced computing applications in biostatistics. Students will learn statistical programming and methods such as loops, functions, macros as well as data visualization techniques in SAS and R. Furthermore, the course will introduce Linux and basic statistical programming in Python.

BMD311 Introduction to Bioinformatics

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Introduction to Bioinformatics and Biological Databases. NCBI Tools. Sequence manipulation and analysis. Sequence alignment theory and applications. Sequence alignment and matching. Multiple sequence alignment methods and algorithms. Evolution and Phylogenetic analysis. PCR primer Design. RNA Bioinformatics: secondary structure prediction. Comparative structure modelling.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BMD312 Clinical Informatics****3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **BMD311**

Overview of clinical informatics. Medical departments and terminologies. Classification of diseases and biomedical ontologies. Structure and organization of medical data and information, including physiochemical measurement, imaging, genetics, bioanalysis. Standards and regulations in biomedical informatics for data representation, safety, and privacy. Clinical information systems: design, implementation, and operation of clinical information system serving patients of a healthcare entity. Electronic medical records: architecture and design, interoperability, implementation, and operation.

BMD313 Dental informatics**2** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Informatics. Dental Informatics. Data Management. Information Extraction. Dental Imaging and digital data.

BMD320 Data Analysis Using R**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **4**Prerequisite **BMD310, PHS231, PHS236, MAT316**

As R statistical software is becoming a leading tool in data analysis, and as R software requires programming knowledge, this course aims to teach basics of R software programming and trains students to conduct statistical analysis on R for different dataset types and different statistical methods.

BMD351 Biomedical Data Acquisition**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **CSE111, BMD241**

Overview of biomedical equipment and types. Physiological (physiochemical) measurements (ECG, EEG, EMG, ECG, etc.), and related devices. Medical imaging, including X-ray, ultrasound, MRI. Life support equipment, including incubators, ventilators, dialysis, heart-lung machines, etc. Laboratory equipment, including bio-analyzers, PCR, and DNA sequencers.

BMD361 Biomedical Statistics**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **BMD311**

Review probability theory and statistical methods. Research methodology in biomedical sciences. Cohorts and groups establishment and power analysis. Hypothesis testing and its applications to group comparisons. Application of classification and clustering techniques in biomedical informatics. Biostatistics efficient association tests.

BMD413 Structural bioinformatics**3** Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**Prerequisite **BMD311**

Modelling of Protein and Nucleic Acid Structures. Protein Structure Classification and Databases. Prediction of Protein Structure: Homology Modelling. Prediction of Protein Motion: Molecular Dynamics Simulation. Modelling of Small Molecule Ligands and aspects in Ligand-Protein Interactions. Molecular Docking and Prediction of Protein Binding Site. Recent Approaches in Structural Bioinformatics and Drug Discovery.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BMD414 Selected Topics in Biomedical Informatics 1:
Data Analysis & Visualization****3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **BMD311**

Introduction to Data Analysis. The NumPy Library. Introduction to Pandas Library. Pandas Reading and Writing data. Pandas In-depth. Machine Learning with scikit-learn. Combining and importing data. Data exploration. Visualizing trends. Plotting 2D arrays. Statistical plots with Seaborn.

**BMD415 Selected Topics in Biomedical Informatics 2:
Data Mining & Machine Learning****3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **AIE121, AIE323**

Linear Classification. Non-linear Classification. Clustering Techniques. Dimensionality Reduction and Feature Extraction. Mining unstructured data: text as an example. Finding Similar Items.

BMD421 Biomedical Information systems**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **BMD311**

Hospital information systems: design, implementation, and operation of clinical information system including medical and non-medical components. Structure of complex organizations. Concepts of business processes. Design and implementation of business workflows in hospital information systems. Healthcare information systems on the population scale. Sharing biomedical data among different healthcare entities. Use of geographical information systems. Role of large-scale information systems in public healthcare.

BMD422 Systems Biology**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **BMD311**

Introduction to Complex Systems and Systems biology. Mathematical representation of Biological Systems. Topologies of Biological Networks. Types of Biological Networks. Mathematical Modeling of Biological Networks. Differential Equations for Modeling of Biological Networks. Recent topics in Systems Biology: Synthetic biology. Recent topics in Systems Biology.

BMD431 Medical Image Informatics**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **CSE281**

Introduces the characteristics of medical images and basic techniques for analyzing medical images, including ultrasound images, X-ray images, and MRI images. The course also tackles extra challenges of medical imaging, including noise patterns, movement, tissue structure, and elasticity. Applications of medical image processing in computer aided diagnosis. Management of technical images, including DICOM standard and PACS system.

BMD452 Biomedical text processing**3** Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 180 – ECTS = 6Prerequisite **BMD311**

Basics of text processing: text parsing, text retrieval, tagging, natural language processing, and information extraction. Medical texts and public databases. Medical Languages systems. Mining biomedical literature: gene name extraction, disease name identification, relation identification.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BMD462 Bio-inspired Computing

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **BMD311**

An introduction to self-adapting methods also called artificial intelligence or machine learning. Schemes for classification, search and optimization based on bio-inspired mechanisms are introduced. This includes evolutionary computation, artificial neural networks, and more specialized approaches like e.g., swarm intelligence and artificial immune systems. Further, an overview of alternative traditional methods will also be included. Bio-inspired hardware and computers. Applications in robotics, problem solving, and optimization problems.

BMD493 Graduation Project 1

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **SENIORSTANDING**

All students undertake a major project as part of the program. The aim of the project is to provide the students - in groups - with an opportunity

to implement the appropriate concepts and techniques to a particular design. Students are required to choose and research the expected project to be designed and implemented in course project-. The student is expected to give an oral presentation to be approved.

BMD494 Graduation Project 2

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite **BMD493**

All students undertake a major project as part of the program. The aim of the project is to provide the students - in groups - with an opportunity to implement the appropriate concepts and techniques to a particular design. Students are required to design and implement the project initiated in in course project-. The student is expected to give an oral presentation to be approved.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية العلوم FACULTY OF SCIENCE



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Geological sciences

GES111 Physical Geology

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Physical geology is the study of the Earth system, minerals, rocks, structural geology, plate tectonics, geologic time, geological processes, and landforms. This course is designed to give a basic understanding of geology and geological techniques for both geology and non-geology majors.

GES112 Mineralogy and Minerals Optics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course covers topics including, Composition of the Earth crust, Definition of a mineral, Crystals and crystallographic properties of minerals, Genesis of minerals, Physical properties of minerals, Chemical properties of minerals, Crystal chemistry of minerals, Genesis, and occurrence of minerals in nature, Classification of minerals, Systematic mineralogy.

GES119 Laboratory Safety and Good Laboratory Practice

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Material safety data sheets. Good lab practices. Good manufacturing practices. Fire safety. Regulatory agencies. Safe use of lab equipment & chemicals. Using emergency equipment. Safety planning.

GES211 Sedimentation and Stratigraphy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **GES111**

This course covers topics including, Introduction, Types and origin of sediments and sedimentary rocks, Types of weathering and factors control these types, Transport of sediment grains (path, loads and gravity flow), Texture and structures of sediments, Sedimentary environments, Fundamental principles of stratigraphy, Stratigraphy and facies, Stratigraphic units, Dating and correlation.

GES212 Structural Geology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **GES111**

This course covers topics including, Determining top and bottom of rocks, Stress and strain, Types of stress at different plate boundaries, Factors affecting the mechanical properties of rocks, Types of deformation (Folds-Cleavage, foliation, and lineation), Brittle deformation and relationship of fractures to principal stress axes, Joints, Faults and their identification, Salt diapirs, Importance of structures in quarries, mineral deposits, oil and gas traps, groundwater aquifers, and engineering projects. Reading geologic maps, Interpretation of sequence of deformation events and construction of structural cross sections, Stereographic projection, Representation of orientation data on rose, point, and contour diagrams, Construction of structure contour maps.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**GES213 Geomorphology****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

This course presents the concept and importance of geomorphology in geography, as the student will recognize structural and surface forms resulting from surface erosion, with learn practical aspects of geomorphologic study and training students on geomorphologic projects applied on water resources, coastal beaches and spatial changes in dry land and vegetation, as well as the impact of floods on land forms and effects of floods on human populations, as well as training students on flood modeling path to develop solutions to avoid any damages of floods.

GES214 Igneous and Metamorphic Petrology**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **GES112**

This course covers topics including, Forms and structures of extrusive and intrusive igneous rocks, Composition and textures of igneous rocks, Crystallization of igneous minerals from silicate melts, Origin of igneous rocks, Magmatic evolution and igneous rocks diversity, Classification of igneous rocks, Igneous rock associations, Metamorphism and agents of metamorphism, Mineral paragenesis, Types of metamorphism, Textures of metamorphic rocks, Mineral composition of metamorphic rocks, Progressive regional metamorphism and metamorphic zones, Metamorphic facies, Metamorphism of different rock types, Mineral deposits associated with metamorphic rocks, Plate tectonics and metamorphism.

GES215 Medical Geology**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES111**

This course covers topics including, Basic concepts of Medical Geology, interaction between abundances of elements and isotopes and the health of humans and plants, Natural distribution and occurrence of elements, Anthropogenic sources, Uptake of elements, particularly trace elements from the food to humans, Biological response on elements, particularly trace elements, Geological aspects on the nutrient supply, Transport of elements in air with a focus on volcanic activity, radon problems and natural aerosols of dam and health effects, Environmental epidemiology with special consideration to experimental framework, Environmental medicine in relation to the natural environmental influence on human health, Risk assessment of exposure for trace elements in the environment, Relationship between the risks with exposure for trace element in our environment and other health risks.

GES216 Radioactive Mineralogy**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES112**

This course covers topics including, Definition of Radioactive Minerals- Naturally Occurring Radioactive Isotopes- Precautions for storing radioactive Minerals-Caveats on the Calculation of radioactivity in minerals, Calculation of Radioactive Activity, Radiation Dose Estimation, Radioactive Isotope Activities.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**GES217 Carbonate Depositional System****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES211**

This course covers topics including, Carbonate rocks in the modern and geologic record including patterns and processes of sedimentation and diagenesis as well as depositional models, Field study of modern and Pleistocene carbonate rocks and their depositional environments of the Egyptian northern coast.

GES218 Natural Disasters**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES111**

This course covers topics including, Basic understanding of geology and how it affects the human race, Analysis of threats associated with living on a dynamic planet, Focus on the origins and physical natures of hazardous geological events, taught using case studies of actual disasters, intended to convey how we can minimize our vulnerability to disasters by applying lessons learned from past earthquakes, volcanic eruptions, floods, landslides, and sinkhole collapses.

GES311 Geological Survey and Field Mapping**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **GES213**

This course covers topics including, Nature of field work, Identification of topographic and geomorphic features in the field, Field relations of sedimentary, igneous, and metamorphic rocks, Field relations of ore minerals, Measurement of distance, angles, and directions, Measurements of differences in elevation, Study of the surveying instruments, Details on the use of the Plane Table Alidade and Stadia Rod methods of measuring stratigraphic sections.

GES312 Hydrogeology**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **GES212**

This course covers topics including, Introduction and historical review, The hydrologic cycle, climatic elements and associated balances, Subsurface zonation and origin of groundwater, Aquifers and properties, Wells and springs and hydrologic measurements, Groundwater flow systems, mathematical and graphical approaches, Hydro-chemical characteristics, Hydro-geologic functions of rocks, relationships and impacts, Review of hydro-geologic conditions of Egypt and selected countries in the Arab World and Middle East.

GES313 Subsurface Geology**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES213**

This course covers topics including, Basic concepts of subsurface geology, Overview of subsurface geological and geophysical tools, subsurface mapping, Faults in subsurface, Subsurface maps, Subsurface cross sections, Integration and interpretation of all subsurface geological data, Creation of subsurface 2D and 3D geological models.

GES314 Geology of Egypt**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES317**

This course covers topics including Precambrian Rocks of Egypt, Distribution of basement rocks in Egypt, Tectonic evolution of basement rocks, Classification of the basement rocks of Egypt, geosyncline versus plate tectonic model classifications, The basement rock units of Egypt,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Gneisses and migmatites, ophiolites-mélanges, metasediments, arc-metavolcanics, arc-granitoids, Dokhan volcanics, Hammamat Sediments, Felsites, Younger gabbro's, Younger granites and post-granite dykes, Mineral deposits and ornamental stones in the Basement complex, Phanerozoic plutonism and volcanicity. Phanerozoic Rocks of Egypt. Tectonic framework of Egypt, The Paleozoic surface exposures and subsurface successions in Sinai, the Eastern Desert and the Western Desert of Egypt, The Triassic at Areif El-Naga, other exposures and subsurface sections, The Jurassic exposures in Northern Sinai and the Gulf of Suez region, The distribution and stratigraphically Paleontology of the Cretaceous rocks in Egypt, The Paleocene exposures in Egypt, The Eocene rocks in Sinai, the Western Desert, the Eastern Desert and the Nile Valley of Egypt, The Oligocene facies in Egypt, The Neogene stratigraphy of Egypt, The Quaternary in Egypt, Subsurface stratigraphy of oil fields in Egypt.

GES315 Marine Geology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **GES216**

This course covers topics including, Introduction, Origin and Morphology of Ocean Basins and Margins, Oceans Basin Tectonics, Sources and Composition of Marine Sediments, Seawater Chemistry, Animals of the Pelagic and Benthic Environments, Biochemical Processes in Seawater, Effects of Waves and Currents, Sea Level Processes and Effects of Sea Level Change, Imprint of Climatic Zonation on Marine Sediments, Deep-Sea Sediments, Paleoceanography.

GES316 Environmental Geochemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course focuses on geochemical processes that occur at or near the surface which are of particular importance to environmental quality and therefore to humans. During the first few weeks of the course students explore some important principles that serve as the foundations of geochemistry. The next several weeks of the course explore the application of geochemical tools in sediments, soils, and waters. In the final part of the course students apply these tools to answer a question of interest as part of a course research project.

GES317 Pedology

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **GES211**

This course covers topics including, Concept of soil, factors of soil formation, introduction to soil morphology and systems of soil classification, discussion of major soil groups of world and soils of Egypt.

GES318 Forensic Geosciences

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **GES111**

This course covers topics including, Introduction to geologic, geophysical, and geochemical techniques used by forensic investigators.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**GES319 Journal Club****2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

Each meeting of the journal club will have an assigned presenter. This person will provide the instructor with the title and citation information for the paper they have chosen to present at least one week in advance of their presentation. It is expected that the audience members will have read the paper prior to each meeting. The presenter will present (using presentation software such as PowerPoint or Keynote, overheads, or a suitable alternative) the background and context of the paper, the paper itself, and interpret the implications of the paper.

GES321 General Geophysics**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

A comprehensive introduction to the physical study of the Earth, concentrating on descriptive and interpretative aspects of both pure and applied geophysics, including discussion of earthquakes and seismology, gravity, geomagnetism, the thermal state of the Earth and plate tectonics.

GES322 Environmental Geophysics**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES321**

This course covers topics including, Introduction to environmental and geotechnical geophysics, Survey of applied geophysical methods including seismic, gravity, magnetic, electrical, and electromagnetic techniques.

GES411 Engineering Geology**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **GES212**

This course covers topics including, Advanced soil and rock mechanics, Engineering classification of soils, Engineering classification of rocks, Site investigation techniques, In-situ tests and monitoring techniques, Mechanical properties of sedimentary, igneous, and metamorphic rocks, Rocks and soils slope stability analysis and protection measures.

GES412 Soil, Water and Air Pollution**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **GES316**

This course covers topics including, Chemical principles and processes involved in the generation and movement of contaminants, sources, fate, and chemical behavior of some of the most important classes of chemical pollutants.

GES413 Isotopes Geology**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **GES316**

This course covers topics including, Introduction, Classification of isotopes, Theory and law of radioactive decay, Age dating of igneous and metamorphic rocks, Important examples of dating methods (Rb-Sr, Sm-Nd, K-Ar, U-Pb), blocking temperature, Uranium-series disequilibrium and its applications, Application of radioactive disequilibrium in dating of rocks and minerals, Stable isotopes, isotopic fractionation and its applications, Study of oxygen, hydrogen, Sulphur and carbon isotopes, Marine O and H records as tracers of global events: glacial-interglacial climate change.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



GES414 Water Resources and Sustainability

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **GES312**

This course covers topics including, Fundamental concepts and theories related to the occurrence, movement, storage, quality, and sustainability of water resources, real-world issues of water resources sustainability, water risks, contamination, remediation, health, economics, and disputes; the water-energy nexus water security; and efforts to improve sustainability of water resources.

GES415 Remote Sensing and Gis Methods

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **GES317**

This course covers topics including, History and fundamentals of remote sensing (RS), Energy, sensor, platforms, aerial and space platforms, Electro-magnetic radiation (EMR) and spectrum, EMR interaction with atmosphere and earth surface, rocks water, and soil, Imaging spectrometry and spectral characteristics. Satellites classification and sensors, Resolution and Multi Spectral Scanning, Current Satellites, Radar, Speckle, Back Scattering, Side Looking Airborne Radar, Synthetic Aperture Radar, Radiometer, Geometrical characteristics and Sonar remote sensing systems, Image processing analysis, Integration and applications of RS and GIS.

GES416 Environmental Geology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **GES316**

This course covers topics including, Introduction and definitions, Concepts of environmental geology, Geological sites and processes,

Mineral resources and environmental impacts, Natural hazards, Climate change, Pollution, Waste disposal, Methods of disposal and site selections, environmental impacts of mining and the extractive industries, Medical problems related to geology and ecosystem interaction, Land evaluation and site assessment, Techniques used to monitor human-geosphere interactions: field mapping, GIS, remote sensing and geochemical techniques, Developing solutions or management plans for environmental problems.

GES417 Economic and Mining Geology

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **GES214**

This course covers topics including, Mining Geology: Introduction, Stages of exploration program, Sampling of ore body, Indicators of ore deposits, Structural control of ores, Evaluation of ore body, Types of mining operations and mine features, Calculations of reserve estimations, Average assay, Surface and subsurface mining, Mine safety and hazards, tonnage–grade relationship, Impact of mine water and mine waste on environment. Economic Geology: Introduction, Major genetic classification of mineral deposits, Relationship between plate tectonics and ore deposition, Origin of mineral fluids, Ore deposits associating mafic and ultramafic rocks, Pegmatites and hydrothermal deposits, Porphyry ore deposits associating felsic rocks, Sedimentary ore deposits (mechanical, chemical, and biochemical), Laterites, supergene sulfides enrichment and karst deposits, Ore deposits of Egypt.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



GES418 Hydrogeochemistry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **GES312**

This course covers topics including, Definitions and Concepts, Groundwater Aquifers, Sources and Origin, Flow Routes, Chemical Components of Ground Water, Rock interactions, Destructive and Constructive Impacts, Graphical Representations, Hydro-geochemical Classifications and Functions, Quality Assessment for Human Uses, Laboratory Exercises.

GES419 Graduation Project

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

This project will be done in a specific topic of petroleum or mining geology.

GES428 Practical Training and Internship

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

The course provides the student with an opportunity to gain knowledge

and skills from a planned work experience in the student's chosen career field. In addition to meeting Core Learning Outcomes, jointly developed Specific Learning Outcomes are selected and evaluated by the Faculty Internship Advisor, Work-site Supervisor, and the student. Internship placements are related to the student's program of study and provide learning experiences not available in the classroom setting. Internships provide entry-level, career-related experience, and workplace competencies that employer's value when hiring new employees. Internships may also be used as an opportunity to explore career fields. Students must meet with an Internship Education Program Advisor prior to registering.

GES495 Special Topic

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Biological sciences

BIO119 Laboratory Safety and Good Laboratory Practice

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Material safety data sheets. Good lab practices. Good manufacturing practices. Fire safety. Regulatory agencies. Safe use of lab equipment & chemicals. Using emergency equipment. Safety planning.

BIO131 Biology I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The nature of living matters. Molecules – simple and complex. Bonding. Living matter. Biochemistry. The cell – animal and plant. Cell communication, membranes, and their importance. Types of energy. Redox reactions. Photosynthesis. Darwin and his theories. Natural selection and evidence for evolution.

BIO132 Developmental Biology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Introduction. Fertilization. Embryology. Early Development. Axis Formation. Sex Determination. Germline Development. Neural Development. Organ Development. Development and Disease. Environmental Influences. Evolutionary Developmental Biology.

BIO133 Evolutionary Biology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Introduction to Evolution. A Short History of Evolutionary Thought. Origins. Extinction. Evidence for Evolution. Darwinian Natural Selection. Mutation and Genetic Variation. Selection and Mutation. Genetic Drift. Sexual Selection. Mechanisms of Speciation. Origin of Life and Cells.

BIO151 Entomology

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Insects and their relatives. Insect evolution. The integument. The insect's head, Eyes, and antennae. The insect thorax. The insect's abdomen and abdominal appendages. Circulation, storage, and excretion. Respiration. Nervous system. Reproduction.

BIO211 Nucleic Acid Synthesis and Metabolism

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Structure of nucleic acid. Anabolism and catabolism of nucleic acids. Formation and properties of nucleic acid chains. Role of nucleotides in cellular functions. DNA replication. DNA damage and repair mechanisms. DNA dependent RNA synthesis. mRNA structure. tRNA formation, processing, and function. rRNA formation, processing, and function. RNA folding (secondary, tertiary, and quaternary structures). RNA dependent DNA and RNA synthesis.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BIO221 Molecular Biology I****3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The molecular nature of genes. An introduction to gene function. DNA replication in prokaryotes. DNA replication in eukaryotes. Transcription in prokaryotes (Operons, Major shifts in prokaryotic transcription and DNA protein interactions). Transcription in eukaryotes (RNA polymerases and their promoters, General transcription factors, Transcription activators and Chromatin structure and transcription). Post-transcriptional events (Splicing, Capping and polyadenylation). Regulation of gene expression in prokaryotes. Regulation of gene expression in eukaryotes. Translation and translation control in prokaryotes. Translation and translation control in eukaryotes. Post-translational modifications.

BIO231 Vertebrates**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Origin of vertebrates. Evolution of vertebrates. Ecology of vertebrates. Behavior of vertebrates. Specialization of vertebrates.

BIO232 Urban Botanicals**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Introduction to Urban Botanicals. Using of botanicals in bio art. Succulents. Cacti. Role of flowering plants in bio art.

BIO233 Introduction to Bio Materials**3** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite

Introduction, Basic Properties of Materials, Biological Systems, Characterization of Biomaterials, Metals: Structure and Properties, Polymers, Ceramics, Paper Presentation Group Report, Natural Biomaterials, Surface Modification, Sterilization of Biomedical Implants, Cell-biomaterial Interactions, Drug Delivery Systems, Tissue Engineering Lecture 16 Clinical Applications Group Report, Paper Presentation.

BIO234 General Microbiology**3** Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**Prerequisite **BIO131**

Introduction. Introduction to microorganisms. Historical overview of microbiology. Introduction to microscopy. Prokaryotic and eukaryotic microorganisms. Introduction to bacteria. Cellular Biochemistry. Chemical components of cells. Bacterial cell structure. Prokaryotic Diversity. Principles of classification. Phylogeny of bacteria. Bacterial Metabolism. Principles of nutrition. Major catabolic pathways. Regulation of metabolism. Microbial Growth and Reproduction. Bacterial cell division. Growth of bacterial populations. Control of bacterial growth. Microbial Genetics. Bacterial genomes. Gene expression and regulation. Transformation and recombination. Drug resistance. Introduction to Virology. Taxonomy of viruses. Viral replication. Bacteriophage versus animal virus replication. Viruses and cancer. Viroid and prions. Immunology. Innate and acquired immunity. Humoral and cell-mediated responses. Immunization. Microbial Ecology. Populations and communities. Microbial habitats. Symbiosis. Epidemiology and Public Health. Transmission and infection. Disease



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



by transmission mechanisms. Disease management. Topics in Applied Microbiology. Examples: food microbiology, industrial microbiology, forensic microbiology, environmental bioremediation, genetic engineering. Laboratory Topics. Basic Techniques in Microbiology. Laboratory operations and safety. Laboratory reporting techniques. Microscopy. Bacteria: Transfer, culture, and isolation techniques. Aseptic techniques. Inoculation of media and plates. Tube transfers. Streak plate and spread plate techniques. Colony and Cellular Morphology. Agar plate colonial characteristic and agar slant growth. Individual cell characteristics (coccus, bacillus, and spirillum microscopic recognition). Differential Staining. Negative staining. Gram staining. Endospore staining. Bacterial Growth. Serial dilution. Growth rate determination (direct/plate counts). MPN (most probable number) analysis. Antibody-Antigen reactions. ELISA (enzyme-linked immunosorbent assay). Control of Microbial Growth. Disc diffusion assays. Antiseptics, disinfectants, and antibiotics. Probiotics. Practical Case Study. Characterization and identification of a microorganism using the techniques learned throughout the laboratories, as well as the information given in the theory lectures. Identification of typical species present in various samples (e.g., water, food, etc.). Other laboratory topics may also include Bacterial transformation. Bacteriophages. Macrophages and phagocytosis.

BIO235 Comparative Animal Anatomy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite

Lecture topics: Homeostasis. Endocrine system. Nervous system. Gastrointestinal System. Hepatic system. Practical topics. Glucose Homeostasis. Thyroid function. Endocrine anatomy and histology. Neuroanatomy and histology. Neurophysiology. Gastrointestinal

anatomy and histology. Gut Absorption. Accessory organs to the GIT anatomy and histology. Liver function.

BIO241 Biology II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The Diversity of Life. Prokaryotes. Eukaryotes. Plant cell types. Plant structure, physiology, and reproduction. Animal anatomy & physiology. Tissue types. Organ systems. Chromosomes. Mitosis and Meiosis. Egg and sperm formation. Genes and environment.

BIO242 Paleobotany

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Origins of life, and evolution. Diversification of the Land Flora - Evolution of stem/leaf/root organography. The earliest land plants. The first leaves. The first trees. Changes in reproductive biology lead from spores to seeds and pollen. The evolution of flowering plants. The response of plants to continental rearrangements. The contributions and response of plants to changes in climate. Introduction and geological context. Fossil formation. Classification and modes of fossil preservation.

BIO311 Molecular Biology II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIO221**

The molecular nature of genes. An introduction to gene function. DNA replication in prokaryotes. DNA replication in eukaryotes. Transcription in prokaryotes (Operons, Major shifts in prokaryotic transcription and DNA protein interactions). Transcription in eukaryotes (RNA



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



polymerases and their promoters, General transcription factors, Transcription activators and Chromatin structure and transcription). Post-transcriptional events (Splicing, Capping and polyadenylation). Regulation of gene expression in prokaryotes. Regulation of gene expression in eukaryotes. Translation and translation control in prokaryotes. Translation and translation control in eukaryotes. Post-translational modifications.

BIO312 Principles of Genetic Analysis

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

Introduction to Molecular genetics. Chromatin & Chromosomes. Genome, Transcriptome, Proteome. Genome structure, stability, and organization. Prokaryotic versus Eukaryotic Genomes. Accessing Genomes. Mapping genomes. Molecular genetics of development. Types of mutations and identification of disease genes. Epigenetics. Methods and experimental tools used in modern molecular genetics.

BIO313 Introduction to Bioinformatics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction to Bioinformatics and Biological Databases. NCBI Tools. Sequence manipulation and analysis. Sequence alignment theory and applications. Sequence alignment and matching. Multiple sequence alignment methods and algorithms. Evolution and Phylogenetic analysis. PCR primer Design. RNA Bioinformatics: secondary structure prediction. Comparative structure modelling.

BIO314 Basic Genomics

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

Assembly of sequences. Genome Annotation. Categories of functional genes. Distribution of sequence classes. Common features of genomes. Genomic features specific to individual species. Genomic features shared by bacterial genomes. Genomic features shared by eukaryotic genomes. Variation among eukaryotic genomes. Forward and reverse genetics. Large scale gene expression studies. Epigenetic modifications and their role in gene expression and regulation.

BIO315 Fundamentals of Proteomics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Protein structure. Protein purification. Mass spectrometry. Protein séquence determination. Protein synthèses. Post transnational modification. Protein targeting. Identification of phosphorylated protéines. Characterization of multi-protein complexes. Protein-protein interactions and quantitative proteomics. Proteomics and the study of diseases. Functional proteomics.

BIO316 Gene Expression Analysis

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction to qPCR analysis. Introduction to microarray analysis. oligonucleotide microarrays. Two-channel microarrays. Differential gene expression using microarrays. Experimental design. RNA-Seq. Analysis of qPCR data. Downstream analysis. Pathways. GO analysis. Genes group analysis.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BIO317 Introduction to biotechnology****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction, History and scope of biotechnology, Review of DNA replication, transcription, and translation. Review of DNA replication, transcription, and translation continued, Natural and artificial mechanisms of DNA transfer. Introduction to vectors, Selectable markers, Cloning vectors, Expression vectors, Shuttle vectors, Creation of recombinant DNA molecules, Creation of genomic and cDNA libraries. Library screening, Ligation, Restriction endonuclease digestion and mapping, Gel electrophoresis, Northern blotting, Southern blotting. Polymerase Chain Reaction (PCR). DNA sequencing and sequence analysis. Production of monoclonal antibodies, Immunoblotting. DNA microarrays, Protein microarrays. Introduction to bioinformatics. Applications of biotechnology: Genetically engineered foods, Bioremediation and Medical biotechnology. Applications of biotechnology: DNA fingerprinting, Molecular diagnostics, Molecular forensics, and Transgenic organisms. Ethical issues in biotechnology and the future of biotechnology

BIO318 Bioinformatics**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Bioinformatics: What and why? Genomic sequences. Biological databases. Advanced BLAST. Sequence alignment. Gene and protein structure prediction. Genomics and Proteomics. Molecular phylogenetic. Bioinformatics tools. Linking genes and disease. Interpreting genetic variations. Interpretation of array data

BIO319 Journal Club**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

At each meeting of MJC will have an assigned presenter. This person will provide the instructor with the title and citation information for the paper they have chosen to present at least one week in advance of their presentation. It is expected that the audience members will have read the paper prior to each meeting. The presenter will present (using presentation software such as PowerPoint or Keynote, overheads, or a suitable alternative) the background and context of the paper, the paper itself, and interpret the implications of the paper.

BIO320 Gene therapy**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Molecular bases of gene therapy. Fundamentals of gene transfer. Viral vectors for gene therapy. Non-viral gene transfer. Targeting: Transduction targeting; Transcriptional targeting; Inducible and tissue-specific promoters. Transduction of antisense constructs; Antisense oligonucleotides; Ribozymes; Intracellular antibodies; RNA interference. Cancer gene therapy. Gene therapy targeting cancer neo angiogenesis. Immunological cancer gene therapy. Gene therapy of inherited or acquired diseases. Safety issues in preclinical and clinical gene therapy. Ethical issues concerning fetal or germinal cell gene therapy.

BIO321 Microbial biotechnology**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to microbial biotechnology. Bacterial genes, genomes, and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



genetics. Manipulation of gene expression in prokaryotes. Strain isolation and screening. Direct mutagenesis and protein engineering. Industrial Application of Microorganisms. Recombinant microbial biotechnology products. Large scale production of proteins from recombinant microorganism. Production of small biological molecules. Production of biopolymers, antibodies & Vaccine. Microbial insecticides. Biotechnology regulation and ethics.

BIO322 Cellular structure & cell communication

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Molecular organization of cells. The Cytoskeleton. The cell microenvironment. Extra Cellular Matrix & Integrin's. Cell Adhesion. Cell Junctions. Cell Communication. Signal transduction. Cell-matrix signaling. Intracellular signal pathways. Second messenger pathways. Tools & methods used in cell biology.

BIO323 Biofarming

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Introduction to bio-farming. Integrated farm management systems. Organic management issues. Organic soil management. Weed management. Pest and disease management. Livestock management. Pasture. Crops. Crop nutrition. Bio-farming problems. Environmental concerns

BIO324 Plant biotechnology

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Introduction to plant biotechnology. Organization and expression of plant genome. Plant tissue cultures. Molecular biology techniques and their application to molecular mapping, molecular markers, plant breeding and plant biotechnology. Production of plant secondary metabolites. Functional analysis and gene discovery in plant biotechnology. Regulation of gene and protein expression in plants. Molecular control of plant development. Molecular biology and electron transport in photosynthesis and respiration in plants. Transport of plant compounds. Molecular regulation of abiotic stress responses. Molecular recognition and regulation during biotic interactions.

BIO325 Advanced Microbiology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BIO234**

Microbiology: Science. Microscopy. Cell Structure & Taxonomy. Diversity of Microorganisms, Part 1: Acellular & Prokaryotic Microbes. Diversity of Microorganisms, Part 2: Eukaryotic Microbes. Chemical & Genetic Aspects of Microorganisms. Biochemistry: The Chemistry of Life. Microbial Physiology & Genetics. Controlling the Growth of Microorganisms. Controlling Microbial Growth in Vitro. Environmental Microbiology. Epidemiology & Public Health. Microbiology in Healthcare Facilities. Healthcare Epidemiology: Nosocomial Infections & Infection Control. Pathogenicity & Host Defense Mechanisms. Infectious Diseases. Pathogenesis of Infectious Diseases. Major Viral, Bacterial, and Fungal Diseases of Humans.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



BIO326 Botonica: Imaging the Green Planet

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **165** – ECTS = **6**

Prerequisite

Biotech Culture. Open-Source DNA and Bioinformatics Bodies. Ornamental Biotechnology and Parergon Aesthetics. Embodying the Chimera: The Transgenic Involution. Biotechnology and Subjectivity. Life Transformation—Art Mutation. Why I Breed Plants. Art: in vivo and in vitro. Proteins. Skin Culture.

BIO331 Cellular and Developmental Genetics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Introduction to cellular and developmental genetics. Early Developmental genetics. Germline Developmental genetics. Neural Developmental genetics. Organ Developmental genetics. Development and Disease. Descent with modification. Speciation and its mechanisms. Population genetics and genetic variation. Mendelian inheritance and probability. Principles of animal development. Cell fate and differentiation.

BIO332 Evolutionary Genomics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Introduction to Evolutionary genomics. A Short History of Evolutionary Thought. Descent with modification: A Darwinian view of life. Speciation and its mechanisms. Levels of selection, sexual selection, and social evolution. Population genetics and genetic variation. Evolution at the molecular level and genome evolution. Mendelian inheritance and probability. Gene interactions, sex determination and sex-linked inheritance. Genetic linkage and

gene mapping. Maternal inheritance and organelles. Genetics of complex characters and human genetics.

BIO411 Quantitative Genomics

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

Introduction to Genome Biology. Introduction to Quantitation. Molecular evolution and sequence alignment. DNA Sequencing, Error, and Quality Control. Genome Assembly. Genome Annotation. Population genomics. Comparative Genomics. Genome Wide Association Studies. Inferring Function from Conservation. Transcriptomics. Epigenetics.

BIO412 Molecular Sequence Analysis

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

First generation sequencing technology. Pairwise sequence alignment. Dot plots. Human genome project and GenBank. BLAST. Multiple sequence alignment and phylogeny. Second generation sequencing technology. Third generation sequencing technology. High throughput sequencing. Gene expression: approaches and statistics. Metagenomics. Data display.

BIO413 Computational Genomics

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

DNA sequencing. Genome Assembly. Variant Calling. Sequence Alignment. BLAST. RNA-Seq. Transcriptome Analysis. Epigenomics. Regulatory Genomics. Human Population Genomics. Polymorphisms. Association Tests.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BIO414 Biological Data Analysis

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Molecular biology of genes. Gene expression. RNA-seq. RNA-seq read mapping. Differential expression analysis. mRNA isoform expression. Probability, likelihood, and inference. Regression as probabilistic inference. Inferring hidden variables. Cluster analysis. Data exploration and visualization.

BIO415 Genomic Data Manipulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Quantitative methods (review, for language: probability distributions, hypothesis tests parametric/nonparametric, permutation; will recur over following weeks as problems/examples). Programming (Python; problem sets based on quantitative methods). Computational methods (programming paradigms, practice, and practicalities, basic algorithmic). Bioinformatics programming (problem sets based on statistical methods, curated bioinformatics resources, NCBI, Gene Ontology, model organisms). Classical sequencing (NCBI, Ensembl, BioMart; HMMs/gene calling, binding site detection, chromatin features, comparative genomics). High-throughput sequencing (SRA/ENA, projects like 1KG and TCGA; technology/base calling, assembly, primers/libraries/multiplexing). Transcriptional assays (RNA-seq and microarrays: GEO, Array Express, MeV, Gene-Pattern; matrix processing/decomposition, similarity/distance measures, meta-analysis/normalization). Structure (PDB, SCOP/CATH, Pfam, SMART, Prosite, PRIDE; template/structure matching and domain prediction). Proteomics and metabolomics (Peptide Atlas, GPMPD; mass spec,

peptides and fragment signatures, modification networks, brief FBA). Physical and genetic interactions (Bio-GRID, Int-Act, MINT, HPRD, etc.; network motifs, clustering). Network/systems biology). High-throughput sequencing/metagenomics).

BIO416 Computational Molecular Biology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The Central Dogma: Some Algorithms Introduction. Regulatory Motifs. Sequence Alignments. Sequencing Genes. Sequencing Proteins. BLAST. Microarrays. Phylogeny. Clustering. Gene Annotation. Evolution. Haplotype Mapping.

BIO417 Statistical Learning in Bioinformatics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Parameters. Estimating & Reliability. Normal Curve & Reliability. Tests of Significance. sampling from single population. Group comparison t-test. Contingency tables. Chi-square test. Analysis of variance. Multiple range analysis. Regression Analysis. Correlation Analysis.

BIO418 Molecular genetics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Introduction to Molecular genetics. Chromatin & Chromosomes. Genome, Transcriptome, Proteome. Genome structure, stability, and organization. Prokaryotic Genomes. Eukaryotic Genomes. Accessing Genomes. Mapping genomes. Molecular genetics of development. Types of mutations and identification of disease genes. Epigenetics. Methods and experimental tools used in modern molecular genetics.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



BIO419 Graduation Project

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

Literature survey. Data collection. Finding a research question. Establishing the first prototype.

BIO420 Genetic engineering

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

DNA amplification and sequencing. Vector system, Restriction enzymes and ligation. Hybridization (southern blot, northern blot, and western blot). Transposon mutagenesis. Genetic engineering of microbes. Genetic engineering of plants. Genetic engineering of animals. Transgenic animals. Bioinformatics. Molecular diagnostics. Nucleic acids as therapeutic agents. Molecular Vaccines

BIO421 Biological Databases

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Introduction to biological databases. Information retrieval. Sequence databases. BLAST. Mapping databases. Perl. Protein and RNA databases. Heterogeneity in databases. Data complexity of biological data. Provenance issues. Evidence issues. Correctness issues.

BIO422 Genomic Regulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Organelle genomes, evolution, composition, regulation, and maintenance. DNA replication in prokaryotes and eukaryotes. Gene

regulation in prokaryotes. Promoter architecture. Signaling by nutrients and stress in prokaryotes. Roles of RNA in prokaryotic gene regulation. Gene regulation in eukaryotes. Sequence-specific transcription factors families. Mechanisms of transcriptional stimulation – coactivators, repressors, and chromatin remodeling. Signaling to the nucleus; tissue-specific and developmental gene regulation. The co-transcriptional regulation of mRNA processing. The mechanism and control of eukaryotic protein synthesis.

BIO423 Biological Data Structures

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Introduction to data structures and algorithms. The role of algorithms in the problem-solving process. Divide and conquer problem-solving strategies. Java collections framework and Array based lists. Computational time complexity. Computational space complexity. Introduction to sorting algorithms, insertion sort, bubble sort. Trees, tree traversal, tree implementation strategies. Introduction to graphs. Graph algorithms and implementation strategies. Strategies for choosing and implementing the right data structure and algorithm. Comparison and analysis of existing resources.

BIO424 Dynamics of Quantitative Biology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Particles Dynamics in Two and Three Dimensions (Constrained motion), Motion of a System of Particles (Linear Momentum of a System of Particles), Angular Momentum, Composition of Angular Velocities, Moving Axes, Orthogonal Transformations, Instantaneous Axis of Rotation, and Instantaneous Center of rotation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



BIO425 Molecular immunology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Cells of the immune system. Antibodies and antigens. Innate Immunity & Cell mediated immunity. Antigen receptors. B lymphocyte & T lymphocyte development. Antigen Presentation. Asthma and Allergy. Leukemias and Lymphomas. Transplantation Immunology. Tumor Immunology. Autoimmune diseases. Immunodeficiency Disorders.

BIO426 Stem cell biology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Basics of stem cell biology. Stem cell epigenetics. Embryonic Stem (ES) cells. Induced Pluripotent Stem (IPS) Cells. Control of ES and IPS cell differentiation. Mesenchymal Stem Cells. Hematopoietic stem cells. Tissue-specific stem cells. Cancer stem cells. microRNAs and stem cell regulation. Clinical applications of stem cells. Ethical considerations.

BIO427 Computational biochemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Biochemical databases. Principles of sequence alignment. Analyzing DNA Sequences. Molecular mechanics and Molecular Dynamics. Protein folding recognition. Predicting secondary structure of proteins. Predicting 3D structure of proteins. Ligand docking. Ligand design. Analysis of ligand-receptor interactions. BLAST.

BIO428 Practical Training and Internship

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = **210** – ECTS = **8**

Prerequisite ---

The course provides the student with an opportunity to gain knowledge and skills from a planned work experience in the student's chosen career field. In addition to meeting Core Learning Outcomes, jointly developed Specific Learning Outcomes are selected and evaluated by the Faculty Internship Advisor, Work-site Supervisor, and the student. Internship placements are related to the student's program of study and provide learning experiences not available in the classroom setting. Internships provide entry-level, career-related experience, and workplace competencies that employer's value when hiring new employees. Internships may also be used as an opportunity to explore career fields. Students must meet with an Internship Education Program Advisor prior to registering.

BIO429 Nano-Biotechnology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Nanomaterial in biotechnology: nanoparticles, quantum dots, nanotubes, and nanowires. Production of various types of nanostructured materials with usage and potential within biotechnology. Using biomaterials and biomolecules as bases for inorganic structures. Introduction to surface physics and biomaterials. Methods for derivatization and characterization of surfaces and other carrying structures. Theory and methods for studies of the interaction with surfaces and fibers of biomolecules. Applications within bio-separation, diagnostics, drug delivery and bio-implants. Theory for how lipid/polymer nanoparticles can be utilized as model membranes and for



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



formulation/administration of drugs. Molecular prints of biomolecules. Production and applications of inorganic replicas of biological materials. Enzyme reactors based on nanostructured materials. Nano-biotechnological applications in health and disease.

BIO430 Tissue engineering

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Overview of tissue engineering. Tissue / organ structure and function. Tissue engineering strategies. Tissue engineering design. Cells as design elements. Stem and progenitor cell technologies. Cell- and soluble factor-based signals as design elements. Extracellular matrix as a critical design element. Tissue development, repair, and regeneration. Tissue transplantation. Cell and tissue mechanics. Molecular delivery and transport.

BIO431 Recombinant DNA technology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Isolation of total genomic DNA. Meaning of recombinant DNA technology. Restriction and ligation of DNA molecules. Molecular cloning. Strategies of bacterial transformation. cDNA libraries. Cell competency. Screening libraries. Electrophoresis and hybridization techniques. Model organisms. Gene expression vector systems. In vitro mutagenesis.

BIO432 Industrial biotechnology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Microbes and enzymes of industrial importance. Different types of

bioreactors and bioreactor design. Microbial growth, substrate degradation and product formation kinetics. Instrumentation, Sterilization of air, media, and reactor. Pharmaceuticals and Fine Chemicals. Glycoscience and Bio-therapeutics. High fructose corn syrup, Cheese making, and single cell production. Vaccines production and metal leaching. Bioenergy. Gaseous fuels: Bio-hydrogen, Bio-methane, and Microbial fuel cell. Liquid fuels: Bioethanol, Biodiesel and Bio-butanol. Aerobic and Anaerobic wastewater treatment processes.

BIO433 Cell culture principles and techniques

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Cell culture equipment and safety. Sterile and aseptic technique. Biology of the culture cell. Cell culture media. Cell differentiation. Primary cultures. Feeding cells. Sub-culturing cells. Cell counting. Cryopreservation. Cytotoxicity assays. Tissue culture applications.

BIO434 Biotechnological applications in food industry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

What is the difference between food technology and food biotechnology? How biotechnology techniques relate to food? Recombinant proteins in food. Plant biotechnology in foods. Animal biotechnology in foods. Microbial biotechnology. Diagnostic systems in foods. Cell culture and food (brewing, dairy biotechnology, food additives). Cell culture and foods (microbial products used in food). Industrial cell culture. Ethics and safety of food biotechnology products. Regulations of food biotechnology.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



BIO435 Animal biotechnology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Preservation and maintenance of animal cell lines. Gene transfer into animal cells. Transgenic animals and gene knockouts. Transgenic animals in agriculture and nutritional science. Gene editing. Stem cell therapies. Vaccine technology. Reproductive technologies. Reproductive cloning. DNA technologies. Bioinformatics. Challenges facing the various animal industries and the potential biotechnology solutions to these problems.

BIO436 Transgenics

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to genetically modified organisms. Transgenes. Transgenic animals. Transgenic plants. DNA Microinjection. RNA Microinjection. Embryonic stem cell transfer. Micromanipulation techniques. Generating transgenic mice. Transgenic animal technology. Transgenic

applications. Transgenic legalities.

BIO437 Plant-Animal Interactions

3 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 1 OTH) – SWL = 165 – ECTS = 6

Prerequisite

course introduction. Evolution, Natural Selection, Species Interactions. The history of plant-animal interactions. Antagonisms: plant-insect interactions. Antagonisms: mammalian herbivory. Antagonisms: granivory. Mutualism: Pollination by animals. Refining mini research project. Mutualism: seed dispersal by vertebrates. Sharpening mini research project. Ant-plant interactions. Students' presentation: mini research project (Topics students' presentation: mini research project (Topics students' presentation: mini research

BIO495 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Environmental sciences

ENV111 Environmental Biology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Introduction to Environmental Science. Sustainability. Population Ecology. Community Relationships and Evolution. Investigating Biodiversity. Human Population Dynamics. Sustainable Communities. Agriculture and the Environment. Global Climate Change. Waste and Recycling. Non-renewable Energy Sources. Biofuels.

ENV112 Environmental Ethics

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

How should human beings relate to the natural world? Do we have moral obligations toward nonhuman animals and other parts of nature? And what do we owe to other human beings, including future generations, with respect to the environment? This course will examine such questions in light of some of our current ethical theories: considering what those theories suggest regarding the extent and nature of our environmental obligations; and also, whether reflection on such obligations can prove informative about the adequacy of our ethical theories.

ENV113 Energy and Environmental Technology

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite - - -

Classification of Energy. Applications of Solar Energy. Introduction to Solar Photovoltaics. Bio Energy Sources. Wind Energy. Small Hydro Power Systems. Ocean and Geothermal Energy. Contemporary issues.

ENV211 Principles of Ecology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Ecology and the ecosystem concepts. Evolution and classification of earth's biodiversity. Biochemical processes in living organisms. Ecosystem ecology and biogeochemical cycles. Climate and terrestrial biomes. Aquatic ecosystems and life zones. Soil environment; formation and composition. Organismal and population ecology. Community ecology.

ENV311 Environmental biotechnology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Basic Microbiology and Microbial Growth. Metabolism and Bioenergetics. Microbial Diversity. Microbial Ecology. Microbial Molecular Biology. Principles of Genetic Engineering. Environmental genomics. Waste management & recycling. Bioremediation & Phytoremediation. Biosensor & Biofilm. Microbial fuel cell.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



ENV312 Hazardous Waste Management

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB) - SWL = 150 - ECTS = 5

Prerequisite: **PHS221**

This course is a comprehensive and historical overview of hazardous waste management. Topics investigated include a detailed investigation into solid waste generation and collection, as well as evaluation of strategies implemented to deal with waste, including recycling, recovery landfilling, and incineration.

ENV313 Geographic Information Systems and Spatial Analysis

3 Cr. Hrs. (2 LCT + 0 TUT + 2 LAB) - SWL = 150 - ECTS = 5

Prerequisite: **PHS325**

Building on Human Geography, this course covers the conceptual foundations of spatial analysis in public health and will highlight spatial data manipulation and visualization using GIS software. This course will have an intensive lab component and will use data in generating maps and data and communicating this data to a general audience.

ENV314 Enviromental Field Study

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) - SWL = 105 - ECTS = 5

Prerequisite: ---

General sampling Design. Descriptive statistics. Learning to use Excel for data entry and analysis, sampling design field trip. Sampling design and data analysis. Sampling spatial pattern analysis. Estimating the abundance of mobile organisms. Ecological monographs Species Diversity analysis. Interspecific association analysis. Habitat Choice.

ENV495 Special Topic

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) - SWL = 165 - ECTS = 6

Prerequisite: ---

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Chemistry

CHE111 Organic Chemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Chemical bonds, Lewis structures, formal charge, functional groups. Conformations of molecules. Physical properties (melting, boiling, solubility) in relation to structure. Stereochemistry, stereo-chemical concepts. Acids and bases, pKa, the relation between structure and acid/base strength. Alkenes, alkynes conjugated systems, arenes, aromaticity, absorption of light. Electrophiles, nucleophiles. Addition, substitution, and elimination reactions. Reactions classifications (SN1, SN2, E1, E. Reactions of alcohols, amines, ethers, epoxides. Carboxylic acids and derivatives (esters, amides) and their reactions. Reactions of aldehydes and ketones. Radicals and reactions involving radicals. Reactions of arenes. Carbohydrates, amino acids, peptides, proteins, lipids. Bulk polymers, addition polymers, condensation polymers.

CHE119 Laboratory Safety and Good Laboratory Practice

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Storage and transportation of chemicals, Risk management principles, Risk assessment techniques (HAZOP, HAZON, Fault Tree Analysis, Consequence Analysis), Onsite and offsite. emergency management, Human error Analysis and Accident Analysis.

CHE141 Physical Chemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This is a course in basic Physical Chemistry, with emphasis on elementary thermodynamics and chemical kinetics. Gases, ideal and otherwise: equations of state. Thermodynamics: temperature, system, surroundings, types of processes and reversibility. First Law: internal energy, work, heat, sign conventions. State functions vs. path-dependent variables. Heat capacity at constant volume. Equipartition principle: extensions to polyatomic molecules. Enthalpy: heat capacity at constant pressure. The Joule and Joule-Thomson experiments. The Carnot heat engine. Second Law: entropy, spontaneity. Gibbs and Helmholtz free energies: chemical potential. The approach to equilibrium: phase changes, chemical reactions. Reaction kinetics: rate laws. Measurement of reaction rates. Integration of rate laws. Determination of rate laws. Rate laws and equilibrium constants for elementary reactions. Temperature dependence of rate constants. Reaction mechanisms. Chain reactions and free-radical polymerization. Catalysis. Enzyme catalysis.

CHE142 Engineering Chemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Topics include Modelling Concepts and Tools. Fluid Flow, Thermodynamics and Heat Transfer. Chemical Engineering Design and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Professional Skills. Properties and Applications of Materials. Chemistry for Engineers. Electrical, Electronic and Computer Systems. Chemical and Biochemical Processes. Other Engineering Modules or Modules Outside Main Discipline. Introduction to Energy Engineering.

CHE143 Environmental Chemistry for Public Health

2 Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **None**

This course introduces students to environmental chemistry, the study of the distribution and interactions of matter (chemicals) in the environment, both outdoors and indoors. This is a chemistry course with a holistic/systems outlook, focusing on how chemistry can help understand contemporary environmental issues, and can offer solutions to these issues.

CHE211 Advanced Organic Chemistry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite: - - -

Advanced Organic Chemistry will be focused on the understanding of structure, reactivity, and underlying mechanisms of organic chemistry. The basic mechanisms of organic chemistry underlie the function of biopolymers, drugs, and manmade “smart” materials. A mechanism-focused curriculum will be a convincing demonstration of the pervasiveness and interdisciplinary nature of modern organic chemistry. This course shall provide the students with an understanding of the reactivity of organic and organometallic species that goes beyond arrow-pushing formalism.

CHE212 Applied Chemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite: - - -

Fundamentals (Chemical Reactions, Stoichiometry, Reaction Yields, Thermochemistry Equilibrium, Equilibrium Constants, LeChatlier's Principle, Kinetics Rate Expressions, Temperature Effects, Catalysis. Industrial Considerations [Reaction Evaluation (Selection, Economic Feasibility, Thermodynamic Feasibility, Kinetic Feasibility)]. [Chemical Plant Operation (Material Balance, Energy Flow, Raw Materials, Safety, Pollution)]. Inorganic Commodity Chemicals (Sulfuric Acid, Phosphoric Acid, Chlorine Manufacture, Solvay Process). Synthesis Gas Processes, The Petrochemical Industry, Pollution Control.

CHE213 Advanced Organic Chemistry [Dyes & Aromatic]

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite: - - -

Advanced Organic Chemistry will be focused on the understanding of structure, reactivity, and underlying mechanisms of organic chemistry. The basic mechanisms of organic chemistry underlie the function of biopolymers, drugs, and manmade “smart” materials. A mechanism-focused curriculum will be a convincing demonstration of the pervasiveness and interdisciplinary nature of modern organic chemistry. This course shall provide the students with an understanding of the reactivity of organic and organometallic species that goes beyond arrow-pushing formalism.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CHE221 Inorganic Chemistry****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Inorganic nomenclature. Descriptive inorganic chemistry. Important industrial processes include availability of raw material and environmental aspects. Solid state structure and the properties of solid substances. Coordination compounds. The relationship between chemical bonding in Inorganic compounds and electronegativity, charges, size, polarizability, basic molecular orbital theory as well as basic band structure theory. Within these topics, the following is treated: chemical bonding, structure, thermodynamics, synthesis. Communication training with feedback.

CHE231 Quality Control**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Define quality in terms of processes, Requirements, and Improvement. Evolution of quality systems in manufacturing, Artisan – Apprentice and Inspection. Quality Control [Statistical Quality Control, Statistical Process Control]. Total Quality Management. Understanding and monitoring sources of variation (with piece, piece-to-piece, time-to-time). Constructing control charts (center line, spec limits, control limits, sample size). Define and understand costs associated with quality. Prevention costs. Appraisal costs. Costs of failure. Understand and describe quality systems [ISO 9000, Supplier Certification, ISO 17025, and ISO 14000].

CHE232 Chemical Properties and Analysis**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Topics include Introduction and Review: The Analytical Process,

Chemical Measurements, Experimental Error. Chemical Equilibrium, Part 1 (Fundamentals, Acids, and Bases): Chemical Equilibrium, Activity and the Systematic Treatment of Equilibrium, Monoprotic Acid-Base Equilibria, Polyprotic Acid-Base Equilibria, Acid-Base Titrations. Electrochemistry: Fundamentals of Electrochemistry, Electrodes and Potentiometry, Redox Titrations, Electroanalytical Techniques. Chemical Equilibrium, Part 2 (Complexation, Precipitation, Advanced Topics): EDTA Titrations, Gravimetric Analysis, Precipitation Titrations, and Combustion Analysis, Advanced Topics in Equilibrium.

CHE233 Environmental Chemistry**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Stratospheric Chemistry: The Ozone Layer. The Ozone Holes. The Chemistry of Ground-level Air Pollution. The Environmental and Health Consequences of Polluted Air—Outdoors and Indoors. The Greenhouse Effect. The Chemistry of Natural Waters. The Pollution and Purification of Water. Toxic Heavy Metals. Pesticides. Dioxins, Furans, and PCBs. Other Toxic Organic Compounds of Environmental Concern. Wastes, Soils, and Sediments.

CHE234 Analytical Chemistry I**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

- Introduction to different types of volumetric analysis. - Acid-base (Aqueous titration). - Acid-base (non-Aqueous titration). - Complex formation titration (Complexometry). - Precipitate formation titration (Precipitometry), - Redox titration. - Gravimetric methods of analysis.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CHE241 Renewable Energy and Sustainability****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

When the students successfully complete this course, they will be able to: Describe the principles of operation of the broad spectrum of renewable energy technologies. Analyze energy technologies from a systems perspective. Articulate the technical challenges for each of the renewable sources and discuss economic, technical and sustainability issues involved in the integration of renewable energy systems.

CHE242 Polymer Chemistry and Reaction Kinetics**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

The course gives a general introduction to polymers. Focus is placed on the classification and systematics of synthetic polymers and biopolymers. Polymer chemistry: Polymerization, kinetics, structure, and decomposition. Polymers in solution: thermodynamics, phase equilibria, diffusion, viscosity, polyelectrolytes, and gels. Solid state polymers: crystalline and amorphous polymers, thermodynamics, phase transitions and mechanical properties. Methods for characterizing and analyzing solid polymers and polymers in solution. In addition, statistical treatment of flexible chain molecules, thermodynamics and rheology of polymer systems are discussed.

CHE300 Chemical Kinetics**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Topics include Introduction: elementary chemical engineering, chemical reactors classification. Kinetic models applications to the conception of

ideal chemical reactors: “batch,” tubular reactors in the plug flow regime, perfectly stirred reactors in isothermal conditions; influence of the type of reactor on the products selectivity in complex reactions. Heterogeneous catalysis and catalytic reactors: chemical kinetics of heterogeneous catalytic reactions, kinetic at the catalytic pellet level. Non ideal reactors cause of the non-ideality, experimental approach of the time distribution, model of the tubular reactor with axial diffusion. Experimental techniques: chromatography, mass spectrometry, spectroscopy, fluorescence, photolysis, shock tubes, flow tubes. Thermodynamic and kinetic approaches of complex systems of dedicated examples: reactions in the atmosphere and in flames, autocatalysis, inhibition, estimate of thermodynamic data and kinetic parameters.

CHE311 Molecules and Reactions**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **CHE141**

The following topics will be covered: (. properties of gases, (. internal energy, enthalpy & the First Law, (. entropy, free energy & the Second and Third Laws, (. phase equilibrium, (. simple mixtures, (. chemical equilibrium, (. molecular motion in gases and liquids, (. theory of reaction rates and experimental techniques, and. (. reaction mechanisms.

CHE312 Chemistry of Petrochemical Processes**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

The following topics will be covered: Production technologies of synthesis gas, olefins, and aromatic. Manufacture of important petrochemicals derived from base chemicals and synthesis gas. Production technologies of important polymers and plastics.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CHE313 Heterocyclic Compounds****2** Cr. Hrs. = (**2** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Classification of heterocyclic compounds. Nomenclature of monocyclic heterocyclic compounds as well as fused systems. Bonding, Structure, and geometry in heterocyclic compounds: three, four, five and six membered heterocycles Aromaticity – Basicity. Chemical reactions of heterocyclic compounds-ring opening reactions-ring opening with rearrangement reactions synthesis of saturated heterocycles. Unsaturated aliphatic heterocycles: azirines – oxiranes – diazirines. Aromatic heterocycles: azetes – diazete – oxete -thiaete and related compounds. Five membered heterocycles(pyrrolo-furan-thiophene): Aromaticity, chemical reactivity, and synthesis. π -Deficient heterocyclic compounds: Six membered heterocycles(pyridine): Aromaticity, chemical reactivity, and synthesis. Five and six membered heterocycles with two heteroatoms: chemical reactivity and synthesis. Benzo fused heterocycles and their derivatives: chemical reactivity and synthesis.

CHE314 Optical Organic Chemistry**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Spectroscopic methods for structure analysis such as mass spectrometry, nuclear magnetic resonance spectroscopy, infrared spectroscopy, and ultraviolet spectroscopy. Fundamentals of the NMR phenomenon, relationship between NMR spectra and molecular structure. Recording of routine spectra (^1H and ^{13}C), essentials of data processing (e.g., weighting functions). 1D NMR techniques: Decoupling, DEPT, relaxation measurement, magnetization transfer, NOE difference spectra. 2D NMR techniques: Homo- and heteronuclear correlation (COSY, TOCSY, HSQC, HMBC), measurement of the nuclear Overhauser effect (NOESY, ROESY). Emphasis is on learning the

practical use of NMR equipment.

CHE315 Applied Organic Chemistry [Stereo, Lipids & Carbohydrates]**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Stereochemistry: Optical, Geometrical and Conformational Isomerism: Optical activity, Polarimeter, Specific rotation, Enantiomers, Diastereomers, Optical activity in Lactic and Tartaric acid, R and S configuration of Optically active compound and E and Z designation of Geometrical isomers. Resolution of racemic mixture. Lipids: Fatty acids, neutral fats, long-chain alcohols, and long-chain bases. Soaps & Detergents, Fats & Oils, Waxes, Phospholipids, Prostaglandins, Terpenes, Steroids, Lipid Soluble Vitamins, Biosynthetic Mechanisms. Carbohydrates: Introduction, Classification, Configuration and Chemical reactions of mono, oligo, and poly saccharides, especially of Glucose, Fructose and Starch. Conversion of higher to lower and lower to higher aldose (Killiani Synthesis, Ruff & Wohl's Degradation). Conversion of Aldose to Ketose. Manufacturing of Cane Sugar from Sugarcane with flow sheet.

CHE316 Textiles & Dyes**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

This course is designed for students whose career direction will require knowledge of textiles as part of the professional prerequisites of industry. Terminology, organization, and structure of this multi-faceted industry will be highlighted. Working fabric specimens (fabric swatches) will be used in conjunction with the assignments to enhance the combined textbook/hands-on format. Many changes are brought about constantly by technical advancements in the ever-changing environment of this highly technical industry. Major changes and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



development in the world of textiles will be covered. The mounting emphasis of textiles as a major international industry will be examined, as well.

CHE317 Rubber, Detergents & Soap

1 Cr. Hrs. = (1 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 60 – ECTS = 2

Prerequisite - - -

Introduction, raw materials, classification and uses of rubber, Soaps, and Detergents. Rubber: fundamental aspects of rubber technology in a logical manner, from Material Selection, Compounding, Vulcanisation, Processing (conversion of raw materials into finished products), through to Mechanical Properties, Environmental Resistance, Testing and Specifications, Evaluation of product failure. Soap: Kinetics and phase reactions in soap boiling, physico-chemical properties of soap solutions, plants and processes employed in soap manufacture, recovery of by-products, various households and industrial soaps, soap additives, metallic soaps, miscellaneous application of soap-based products, testing and evaluation of soaps. Detergents: Chemistry and technology of synthetic detergents (anionic, cationic, non-ionic, and amphoteric), detergent additives, formulations and processing of detergent powders, tablets, liquid, and pastes for household and industrial applications, biosurfactants and enzyme detergents, dry cleaning systems. Environmental Issues: Biodegradation of surfactants, eutrophication and ecological aspects, eco-friendly washing systems, natural saponin based surfactants, modern trends in detergent formulations, testing and evaluation of synthetic surfactants.

CHE318 Scientific Writing

2 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

How do I write a thesis, and prepare other professional materials for presentation or publication? Topics covered in this course include

searching the scientific literature; scientific writing style; writing graduate level papers, proposals, projects, and thesis components; preparing scientific presentations; presentation of data; using visual aids; and using word processing, spreadsheet, and presentation software.

CHE319 Journal Club

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Each meeting of the journal club will have an assigned presenter. This person will provide the instructor with the title and citation information for the paper they have chosen to present at least one week in advance of their presentation. It is expected that the audience members will have read the paper prior to each meeting. The presenter will present (using presentation software such as PowerPoint or Keynote, overheads, or a suitable alternative) the background and context of the paper, the paper itself, and interpret the implications of the paper.

CHE320 Chemistry of Pesticides

1 Cr. Hrs. = (1 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 60 – ECTS = 2

Prerequisite - - -

. Pesticide classification on use, chemical nature, formulation, toxicity, and action etc. Various methods in Pesticide Formulation Analysis. Principles, operation, and application of various chromatographic techniques. Pesticide Dissipation, Residue Dynamics, Different methods/ Steps in residue analysis. Confirmative analytical techniques in residue analysis. Different terminologies are used in Pesticide Residue Analysis. Maximum Residue Levels in pesticide. Pesticide Management.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CHE321 Synthetic Frontiers of Inorganic Chemistry and Ligand Design

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CHE221**

Reaction Mechanism: Substitution in octahedral and square planar complexes; lability, trans-effect, Conjugate base mechanism, racemization, Electron Transfer Reactions: inner sphere and outer sphere mechanism, Marcus theory. Inorganic photochemistry: Photo-substitution and photoredox reactions of chromium, cobalt and ruthenium compounds, Adamson's rules. Lanthanides and Actinides: Spectral and Magnetic Properties, NMR Shift reagents. Organometallic Chemistry: electron rule, metal carbonyls, nitrosyls, carbonyl hydrides, isolobal analogy, dioxygen, and dinitrogen compounds. Metal alkyls, carbenes, carbynes, alkenes, alkynes, and allyl complexes. Hydrides, Metallocenes, Metal arene complexes. Carbonylate anions, agnostic interaction, Oxidative addition and reductive elimination, insertion, and elimination reactions. Homogeneous and heterogeneous catalysis. Fluxional molecules. Metal-Metal bonding and Metal clusters.

CHE322 F-Block and Nuclear Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Nuclear theory. Radioactive decay, nuclear stability and mass-energy relationships, Interaction of radiation with matter, detection methods, nuclear reactors, neutron activation analysis, Applications of radioactivity, nuclear medicine, dating techniques-. f-block elements. Lanthanides and actinides –abundance and distribution, General properties including oxidation states, electronic configurations, Magnetic and spectral properties, Extraction and separation of

lanthanides and actinides, Coordination chemistry of f-block.

CHE323 Materials and Nanoparticles

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

The course should give a basic introduction to chemical and physical principles in the synthesis of inorganic Nano-structured materials. In addition, basic principles of finite size effects will be covered. The course will also cover different methods for synthesis and characterization of different nanostructures and Nano-structured bulk materials. Prerequisites include general knowledge in chemistry, physics, and material science. The course forms the basis for teaching in TKP4190 Fabrication and Applications of Nanomaterials.

CHE324 Molecules in Action

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CHE311**

The Periodic table, introductory quantum theory, Stoichiometry (within compounds and reaction stoichiometry), atomic structure, chemical bonding, coordination compounds, the phases of matter, solution chemistry, acid-base chemistry, solution equilibrium, thermodynamics, and thermochemistry.

CHE325 Spectroscopy and Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction and Principles of Quantum Mechanics. Symmetry and Spectroscopy. Atomic Structure and Spectroscopy. Molecular Rotations. Molecular Vibrations. Magnetic Resonance Spectroscopy. Mass Spectrometry. UV-Visible Spectroscopy.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CHE326 Chemistry of materials****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

In Chemistry of Materials, the students will learn the fundamental principles of the structure and properties of materials and the relationships between structure and electrical, mechanical, thermal, and chemical properties. The students will learn about metals, ceramics, multiphase systems, and polymeric materials.

CHE327 Molecular materials**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Polymer structure, thermodynamics for polymer solutions and polymer melts, adhesion, physically and chemically cross-linked gels, polymeric semiconductors, rheological concepts and relations, linear and non-linear viscoelasticity, electro-rheology.

CHE328 Synthesis and Characterization techniques of nanomaterials**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course describes the most recent advances in the synthesis, fabrication, and characterization of nanomaterials. Topics to be covered: zero-dimensional materials, including nanoparticles, quantum dots and nanocrystals; one-dimensional materials including nanowires and nanotubes; two-dimensional materials including self-assembled monolayers, patterned surfaces, and quantum wells; three-dimensional materials including nano-porosity, nanocomposites, block copolymers and supra-crystals. Emphasis is made on the fundamental surface and

size-related physical and chemical properties of nanomaterials and their applications in bio-sensing, nanomedicine, catalysis, photonics, and Nano-electronics.

CHE329 Solid state chemistry**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Fundamentals regarding the solid state, including selected structural examples. Theoretical and practical crystallography. Unary and binary phase diagrams. X-ray diffraction, thermal analysis, and introduction to other characterization techniques.

CHE330 Organometallic chemistry**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The theory of structure, bonding, and reactivity of transition metal compounds. This includes different types of ligands and their bonding modes, ligand substitutions and reactivity, and their roles in fundamental organometallic reactions important for catalysis (such as oxidative addition, reductive elimination, insertions, and beta-hydride elimination). The nature of catalysis includes basic principles, how its efficiency is measured (e.g., using TON and TOF), the advantages and disadvantages of homogeneous and heterogeneous catalysis and how to evaluate for which is operating in a particular reaction. Notable catalytic reactions, such as various forms of coupling reactions and hydrogenation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CHE331 Skills for Chemists****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

How to draw chemical structures- Use of CHEMDRAW? Exercise – Draw the structure of Palytoxin or similar natural products in Chemdraw and do structure checking. How to write and draw equations (both chemical and mathematical). Exercise- Write the derivation of the Hydrogen atom energy function quantum mechanical Hamiltonian in microsoft word using equation editor and bring a hard and submit the soft copy online. How to find compound related data in the literature? How to find vendors, physical data, and chemical reaction data etc. Exercise- find vendors for PNA monomers. Use and management of mined data- End note –Students had to organize documents after retrieving all papers in e-format in week 4 and submit the same. Use of spectral databases and how to report compound data and procedures. Students had to submit experimental procedures in JOC format online for a synthetic procedure (such as cross coupling reaction or epoxidation). Use of other specialized databases- CCDC, PDB, other nuclei NMR databases. Search- all structures in the CCDC for Ir-Ir / Mo-Mo/ S- S/ bonds reported in crystal structures. Data integrity and recording experiments in the lab notebook. Students have to download a spectrum from SDBS and report proton and carbon spectra in JACS format. Plagiarism and scientific integrity –how to check for copycats-use of turnitin and ithenticate. How to write new and views (reviews)? Students were asked to write a review on a current topic (Nobel prize winners on 20. How to make presentation slides and present reviews to an audience? Refereeing scientific papers: How to spot errors? Overall summary and critical writing on a topic of the students' interest.

CHE332 Laboratory and Industrial Hazards**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Storage and transportation of chemicals, Risk management principles, Risk assessment techniques (HAZOP, HAZON, Fault Tree Analysis, Consequence Analysis), Onsite and offsite. emergency management, Human error Analysis and Accident Analysis.

CHE333 Theory, Analysis and Mechanisms**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Measurement Principles and Electronics: Introduction to the analytical process, Basic electronics, Signals, and noise. Basics of Spectroscopy: Introduction to Spectroscopic Methods. b. Components of Optical Systems. Atomic Spectroscopy: An Introduction to Optical Atomic Spectroscopy, Atomic absorption spectroscopy, Atomic Emission Spectroscopy. Molecular Spectroscopy – Electronic transitions: Introduction to UV-Vis molecular spectroscopy, Applications of UV-Vis spectroscopy, Fluorescence, phosphorescence and chemiluminescence. Molecular Spectroscopy – Vibrational excitation: IR absorption spectroscopy, Applications of Infrared Spectrometry. Molecular Spectroscopy – Nuclear transitions: NMR. Additional Instrumental Methods for Organic Structural Analysis: Mass Spectrometry. Separation Science: Fundamentals of chromatographic separations, Gas chromatography, High performance liquid chromatography.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CHE334 Green Chemistry and Sustainable Manufacturing****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

This course will present the fundamentals of the 12 principles of green chemistry and explore relevant examples of their practical use in commercial applications. This course will explore examples from a wide spectrum of industrial sectors including construction, personal care, pharmaceuticals, and electronics. Through examples, students will be presented with the premise that green chemistry offers organizations a boost to innovation and faster time to market. Course content will include lectures, readings, and site visits to the Warner Babcock Institute for Green Chemistry.

CHE335 Atmospheric Chemistry**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

A detailed overview of the chemical transformations that control the abundances of key trace species in the Earth's atmosphere. Emphasizes the effects of human activity on air quality and climate. Topics include photochemistry, kinetics, and thermodynamics important to the chemistry of the atmosphere; stratospheric ozone depletion; oxidation chemistry of the troposphere; photochemical smog; aerosol chemistry; and sources and sinks of greenhouse gases and other climate forcers.

CHE336 Unit Process**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

An introduction to Organic Chemistry from a mechanistic perspective. Structure, bonding, and function, e.g., physical properties and reactivity. Stereochemistry, kinetics and thermodynamics, spectroscopy (nuclear magnetic resonance, infrared, ultra-violet/visible, and mass spectrometric techniques). Substitution and elimination reactions of saturated functional groups -the chemistry of alkanes, alkyl halides, alcohols, and their derivatives. Laboratory: Practical techniques.

CHE338 Analytical chemistry (instrumental analysis)**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Introduction to quantitative techniques that include volumetric and gravimetric methods of analysis and data processing, and analysis and modeling using mathematical tools. Topics will also cover modern electrochemical techniques and instrumentation with emphasis on their applications in analytical chemistry. Topics include potentiometry, specific ion electrodes, DC and AC polarography, pulse polarography, coulometry, chronocoulometry, cyclic voltammetry, and rapid scan voltammetry.

CHE339 Advanced Physical chemistry**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Advanced class that deals with the essence of heterogeneous catalysis, including electro-catalysis and photo-catalysis. The lectures address principle of catalysis to discuss terminology, definition, and efficiency.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Discussion continues on concept of potential, the solid-state physics, preparation, and characterization of various classes of solid materials, kinetics, reaction mechanism, and various applications.

CHE340 Thin films nanostructure and surface science

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

The contents of the course are designed to first deal with the underlying basic science, nucleation & growth, and epitaxy, then to establish a correlation between the deposition parameters and the resulting crystallographic structure, micro/Nano structure and the novel properties of the fabricated thin films and nanostructures.

CHE341 Reactivity

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CHE111**

An introduction to Organic Chemistry from a mechanistic perspective. Structure, bonding, and function, e.g., physical properties and reactivity. Stereochemistry, kinetics and thermodynamics, spectroscopy (nuclear magnetic resonance, infrared, ultra-violet/visible, and mass spectrometric techniques). Substitution and elimination reactions of saturated functional groups -the chemistry of alkanes, alkyl halides, alcohols, and their derivatives. Laboratory: Practical techniques.

CHE342 Statistical Thermodynamics

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CHE141**

This course will cover the subject of quantum and classical statistical thermodynamics. The course will focus on systems in equilibrium but some limited non-equilibrium topics such as time correlation functions

will be introduced. To prepare and be successful for the close book tests, you must become proficient in solving problems and understanding the underlying theory behind them. Sometimes a particular topic is more clearly explained in one book than in some others. Several textbooks on this topic are available. We will not follow one particular book in this course; however, an abbreviated list of textbooks that I have used to prepare lectures appears later on this syllabus with their corresponding ISBN #. This course is demanding; we will cover a large amount of material this semester. You must spend enough time to keep up with the lectures. If you fall behind it will be extremely hard to catch up because topics are interconnected.

CHE343 Reactor Design

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Fundamentals of material and energy balances as applied to chemical reactor design for ideal reactors. Defining problems, analyzing data, and designing chemical processes. Rate laws and their derivation. Topics of heterogeneous catalysis, biological catalysis, and non-ideal reactor schemes.

CHE344 Macro Molecular Science

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

The synthesis, characterization, microstructure, rheology, and properties of polymer materials. Polymers in solution and in the liquid, liquid-crystalline, crystalline, and glassy states. Engineering and design properties, including viscoelasticity, yielding and fracture. Forming and processing methods. Recycling and environmental issues. Synthesis, properties and processing of Nano-sized metal, metal oxide and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



semiconductor powders. It will also include some organic/inorganic and Nano biomaterials. The emphasis will be on particle properties and the use of these particles to make Nano-structured shapes.

CHE345 Silicon Technology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

It provides the science, technology, and manufacturing of semiconductor silicon materials. Every known property of silicon is detailed. A complete set of binary phase diagrams is included. Practical aspects such as materials handling, safety, impurity, and defect reduction are also discussed in depth. Fundamentals in the areas of silicon precursor compounds, polysilicon, silicon crystal growth, wafer fabrication, epitaxial and CVD deposition are addressed by experts in these fields. Materials properties covered include electrical, optical, and mechanical properties, deep level impurities and carrier lifetime, and thermochemistry, as well as specific sections on oxygen, carbon, and nitrogen impurities.

CHE346 Thermochemistry & Kinetics

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Fundamental Theory of Thermodynamics [Energy concepts, simple systems, and profound fundamentals, Equations of state and thermodynamic variables, First law: heat, work and energy conservation, Thermochemistry, Entropy]. Applications of Thermodynamics [The second (and more interesting) law of thermodynamics, Applying the laws of thermodynamics to boring systems, Phase equilibria in one-component systems, Solutions and multicomponent phase equilibrium, Chemical equilibrium, which you

already know, Qualitative thermochemistry: developing an intuition]. Special Topics [Thermo meets quantum: an introduction to statistical thermodynamics, Introduction to kinetic principles, Statistical rate theory and transition state theory, The Michaelis-Menton model of enzyme kinetics].

CHE347 Electrochemistry & Surface Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

This course deals with structure of solid surfaces, adsorbate overlayers, physical and electronic properties of surfaces, bonding, and reactions of atoms/molecules on clean single crystal surfaces, kinetics and thermodynamic aspects of surfaces, adsorption and catalysis on surfaces, surface science approach to heterogeneous catalysis, imaging, and spectroscopic methods of investigating clean surfaces and surface processes, photoelectrochemistry and electrocatalysis on surfaces.

CHE348 Fluid Flow, Heat & Mass Transfer

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

This course provides one of the fundamental phenomena and concept that must be given to chemical engineering students. Through this course, student will learn the concept and operations of heat and mass transfer devices which are typically inseparable from any chemical engineering industrial processes and design. Students will also have the opportunity to utilize the basics and mathematics that they have learned so far and use these techniques to solve the complex problems in heat and mass transfer operations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**CHE349 Thermal & Nuclear Analysis****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Y will learn the fundamentals of reactor physics and gain a unique perspective on the derivation of the neutron transport equation, and understand some approximations to this equation, including neutron diffusion. We will solve many application problems that incorporate elements of nuclear physics, radiation interactions, critical eigenvalues, diffusion theory, and transport theory. Definition of thermal analysis and overview of methods; Differential scanning calorimetry - principle and applications; Differential thermal analysis - principle and applications; Thermogravimetry - principle and applications; Simultaneous thermal analysis; Methods based on the dimensional changes of the sample (dilatometry, TMA, DMA); Chemiluminescence - principle and applications; Other thermoanalytical methods.

CHE350 Glass, Ceramic & Cement**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

a) General: Definition & scope of ceramics and ceramic materials, classification of ceramic materials – conventional and advanced ceramics. b) Pottery & Whitewares: Classification and type of pottery & whitewares, elementary idea of manufacturing process technology including body preparation, basic properties, and application areas. c) Glass: Definition of glass, glass raw materials and their functions, elementary concept of glass manufacturing process specially for container glass, different types of glasses, application of glasses. d) Refractories: Definition of refractory, properties of refractories, classification of refractory, manufacturing process, basic areas of

application specially in steel plant. e) Cement & Concrete: Concept of hydraulic materials, raw materials and manufacturing process, basic compositions, setting and hardening, concrete. f) Advanced Ceramics: Engineering ceramics, ceramics used in advanced applications, ceramics for medical and scientific products, ceramics for electrical and electronic, aerospace.

CHE411 Synthesis and Pericyclic Reactions**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **CHE211**

The course will involve a discussion of molecular organic photochemistry and pericyclic reactions. Initially, we will study in brief the fundamental principles of photochemistry. In the following lectures we will discuss the primary photochemical reactions of n , π^* states. In the second half of our course, we will be focusing on the primary photochemical reactions of π , π^* states, where we will discuss in detail the pericyclic reactions. We will end our course by studying some important applications of photochemistry.

CHE412 Fundamentals of Magnetic Resonance**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Spectroscopy is the study of the interaction of electromagnetic radiation with matter. There are two oscillating components in radiation, namely an oscillating electric field and an oscillating magnetic field which are mutually perpendicular and also perpendicular to the direction of propagation of radiation. The study of interaction of electric field component of radiation with the electric fields present in matter is the subject of optical spectroscopy. The study of magnetic field component of radiation with magnetic properties of the nuclei and their modifications



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



due to the surrounding electric fields present in molecular systems is the subject nuclear magnetic resonance spectroscopy. In this course an elementary account of nuclear magnetism will be presented along with the necessary quantum mechanical tools to understand nuclear angular momentum and the magnetic moment. This will be followed by an elementary description of some of the most important experimental techniques in one- and two-dimensional NMR that have evolved since the first report of successful NMR in. Simple analysis of NMR spectra for molecular structure determination will be provided, emphasizing chemical intuition. Modern NMR instrumentation and data processing fundamentals will also be given.

CHE413 Agro-Based Industries & Industrial Processes

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Fats, oils, and waxes. Sugar. Ethanol, beer, wines vinegar, citric acid, and yeast. Furfural. Starch, dextrin, and glucose. Pulp and paper, Natural fibers. Wood products. Gums, resins, and essential oils. Tea, coffee; fruits and vegetable processing. Leather. Tallow. Milk processing. Animal feed production. Food waste management. Waste management in the agro-based industries.

CHE414 Unit Processes in Organic Chemistry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Plastics processing industry, including thermoplastics and thermosets. Description, classification, and properties of common plastics and processes and current trends in the industry. Refinery Introduction and Crude Oil Composition, Physical Properties and Classification of Crude Oils, Overall Refinery Flow, Separation Processes. Distillation of Crude

Oil, Distillation in Light Ends Unit, Deasphalting, and Dewaxing Processes, Thermal Conversion Processes, Catalytic Conversion Processes. Catalytic Cracking and Hydrocracking, Catalytic Reforming, Alkylation, Polymerization, and Isomerization, Finishing Processes: Hydrotreating and Blending, Natural Gas Processing.

CHE415 Petroleum & Polymer Processing

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Plastics processing industry, including thermoplastics and thermosets. Description, classification, and properties of common plastics and processes and current trends in the industry. Refinery Introduction and Crude Oil Composition, Physical Properties and Classification of Crude Oils, Overall Refinery Flow, Separation Processes. Distillation of Crude Oil, Distillation in Light Ends Unit, Deasphalting, and Dewaxing Processes, Thermal Conversion Processes, Catalytic Conversion Processes. Catalytic Cracking and Hydrocracking, Catalytic Reforming, Alkylation, Polymerization, and Isomerization, Finishing Processes: Hydrotreating and Blending, Natural Gas Processing.

CHE416 Inorganic Polymers

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Introduction. Characterization of Inorganic Polymers. Polyphosphazenes. Polysiloxanes and Related Polymers. Polysilanes and Related Polymers. Ferrocene-Based Polymers, and Additional Phosphorus- and Boron-Containing Polymers. Miscellaneous Inorganic Polymers. Inorganic-Organic Hybrid Composites. Preceramic Inorganic Polymers.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CHE417 Formulation Chemistry & Technology****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

The meaning of cosmetics and cosmetology. Cosmetology as a science and academic discipline. EU legislation in the field of cosmetic products (cosmetics). Boundaries and possibilities of cosmetics. Definitions cosmetic ingredients, cosmetic product, a comparison with the drug and medicine. Borderline products. Prohibited, regulated, and authorized agents for cosmetic products. International labeling of cosmetics ingredients (INCI). Basic functional cosmetic ingredients hydrophilic - species, chemical nature, properties. Basic lipophilic functional cosmetic ingredients - species, chemical nature, properties. Hydrophilic colloids in cosmetics - species, chemical nature, properties. Surfactants in cosmetics - species, chemical nature, properties. Basic specific cosmetic ingredients - species, chemical nature, properties. Types and marketing of cosmetic products. Principles of technology of liquid cosmetics and frame formulation. Principles of technology of emulsion cosmetics and frame formulation. Principles of technology of gel cosmetics and frame formulation. Principles of technology of suspension cosmetics and frame formulation.

CHE418 Fine Chemicals for Pharmaceuticals**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Industrial Organic Chemicals & Carbon Source, Petroleum Refining Process, Introduction to Petrochemicals, C2 Chemistry/Chemicals, Chemistry/Chemicals from Propylene, Chemicals from BTX, Surfactants Handout, Halogen Compounds Handout, Synthesis of Fine Chemicals.

CHE419 Graduation Project**4** Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite ---

Literature survey. Data collection. Finding a research question. Establishing the first prototype.

CHE421 Electronic States of Atoms and Molecules**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **CHE221**

After reviewing basic quantum mechanics, including the “simple hydrogen atom” (i.e., single electron moving in the Coulomb field of the nucleus), we will move on to more advanced topics including relativistic corrections to the simple picture, atoms in electromagnetic fields, multi-electron atoms, and electronic states and vibrations of simple molecules. Topics include Review of Quantum Mechanics and Simple One-Electron Atoms. Additional Interactions in One-Electron Atoms. Multi-Electron Atoms. Molecules.

CHE422 Electronic Spectra and Photochemistry of Tm Complexes**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Basic principles: Absorption of light –photochemical laws – photostationary states – rate law – photolysis – quantum yields – actinometry – scavenging of reaction intermediates – flash photolysis – single photon techniques – flow techniques – picosecond transient kinetics. Kinetics of photoluminescence: Thermal effects of photoluminescence – luminescence yield – time resolved detection of excited states – radiative and non-radiative transitions – energy transfer.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Photoredox reactions: Charge transfer complex – theory of electron transfer reactions – reactivity of CTTM, CTTL excited states – medium effects. Ligand field photochemistry: General features of ligand field photochemistry – reaction of excited states of dn metal complexes. Organometallic photochemistry: Excited states in organometallic compounds – metal carbonyls – compounds with or M – C bonds – hydride complexes.

CHE423 Electronic Properties of Materials

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

This course offers an overview of the electronic, optical, and thermal properties of materials. It covers the fundamental concepts of band structure and bonding of materials, electrical and thermal conduction in metals, semiconductors, and dielectrics. The interaction between light and matter will be addressed and important concepts introduced. Specific topics that will be covered include Crystal Structures & Lattices, Reciprocal Lattice, Free Electron Theory, Introductory Band Theory, Semiconductor Materials, Dielectric Materials, Electronic Devices, Introductory Phonons & Thermal Properties, Introductory Light Matter Interactions.

CHE424 Supramolecular and Nanoscale Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

knowledge on nanotechnology based alternate source of energy. advanced materials for renewable and green energy. Solar technology. importance of energy storage techniques. the role of nanotechnology in improving efficiency in energy usage.

CHE425 Molecular modeling and simulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Topics will span three core techniques: molecular dynamics, Monte Carlo, and first principles (ab initio) methods. Introduction to molecular modelling. Aims and problems of molecular modelling. Standard tools of molecular modelling. Molecular mechanics. Finding equilibrium structures. Geometry optimization. Simulations under real conditions. Visualization and molecular properties. Applications of molecular modeling. Simulation of large molecules. Ligand-receptor docking. Trends in molecular modeling.

CHE427 Photochemistry of nanomaterials

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Physics and Chemistry of Nanomaterials. Electronic Structure of Nanomaterials. Solution Chemistry of Nanomaterials. Adsorption in Nano-porous Materials. Nano-porous Catalytic Materials. Self-assembly and Colloidal Phenomena. Nanostructured Fuel Cells and Solar Cells. Scattering Theory and Diffraction. Electron Microscopy and Nuclear Magnetic Resonance (NMR).

CHE428 Practical Training and Internship

4 Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite ---

The course provides the student with an opportunity to gain knowledge and skills from a planned work experience in the student's chosen career field. In addition to meeting Core Learning Outcomes, jointly developed Specific Learning Outcomes are selected and evaluated by



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



the Faculty Internship Advisor, Work-site Supervisor, and the student. Internship placements are related to the student's program of study and provide learning experiences not available in the classroom setting. Internships provide entry-level, career-related experience, and workplace competencies that employer's value when hiring new employees. Internships may also be used as an opportunity to explore career fields. Students must meet with an Internship Education Program Advisor prior to registering.

CHE429 Nanosurface chemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

Intermolecular forces and forces between surfaces. Surface tension, wetting, contact angles, and monomolecular films. Adsorption from gas, liquid and solution, and interactions between proteins and surfaces. Surface analysis. Reactions at interfaces. Formation of nanoparticles: Nucleation and micellar formation. Electrical double layers, electro kinetics and stability of dispersions and emulsions. Adhesion mechanisms and technology.

CHE430 Advanced instrumental analysis

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The course will provide students with the knowledge and skills needed to conduct laboratory research, understand instrument design, and analyze instrumental results. Over the duration of the course, you will be expected to learn the theory behind a range of instrumental techniques, instrumentation hardware and data analysis techniques. The class will cover the theory of spectroscopic techniques, mass spectrometry, ion mobility, high performance liquid chromatography, gas chromatography and computational modeling.

CHE431 Advanced Separations and Mass Spec.

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Solid Waste analysis and characterization, Hazardous waste Characterization Environmental legislation for solid and hazardous waste disposal and transport Risk Assessment, Waste minimization and resource recovery, Waste stabilization techniques, Chemical, physical and biological treatment Landfill design for Sanitary and Hazardous Wastes, Incineration.

CHE432 Hazardous Waste Management

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

Solid Waste analysis and characterization, Hazardous waste Characterization Environmental legislation for solid and hazardous waste disposal and transport Risk Assessment, Waste minimization and resource recovery, Waste stabilization techniques, Chemical, physical and biological treatment Landfill design for Sanitary and Hazardous Wastes, Incineration.

CHE433 Nanoscale sensors and biosensors

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Topics include Introduction to biosensors. Applications of biosensors. Transducers and sensor systems. Bio-receptors and their immobilization. Synthetic receptors and nanomaterials for biosensors. Design parameters for catalytic biosensors. Design of affinity biosensors. Microfluidics and arrays. Surface Plasmon resonance for bio-affinity monitoring. Patenting and litigation in the field of biosensors.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Commercializing biosensors. Ethics and future prospects. The course will also cover the major types of electronic nano-biosensors for biological signal detection and their applications in the field of neural engineering and early disease detection.

CHE434 Application of membrane technology and surface science

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Topics include Introduction to Membrane Science. Membrane Structures and Functionality. Transport in Membranes. Materials Science of Membranes. Membrane Formation. Membrane Modification. Membrane Characterization. Membrane Processes (MF, UF, NF, RO, Gas Separation). Modules and System Design.

CHE435 Pharmaceutical nanotechnology

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

This course offers an introduction to the interdisciplinary field of nanomedicine for students with physical, chemical, or biological sciences background. This course will emphasize emerging nanotechnologies and biomedical applications including nanomaterials, Nano-engineering, nanotechnology-based drug delivery systems, Nano-based imaging and diagnostic systems, nano-toxicology, and translating nanomedicines into clinical investigation.

CHE436 Industrial chemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite ---

Fundamentals [Chemical Reactions, Stoichiometry, Reaction Yields,

Thermochemistry, Equilibrium, Equilibrium Constants, LeChatlier's Principle, Kinetics, Rate Expressions, Temperature Effects, Catalysis]. Industrial Considerations [Reaction Evaluation, Selection Economic Feasibility, Thermodynamic Feasibility, Kinetic Feasibility, Chemical Plant Operation, Material Balance, Energy Flow, Raw Materials, Safety, Pollution. Industrial Metallurgy [Ferrous Metals, Non-Ferrous Metals, Alloys]. Inorganic Commodity Chemicals [Sulfuric Acid, Phosphoric Acid, Chlorine Manufacture, Solvay Process]. Synthesis Gas Processes [Synthesis Gas Production, Steam Reforming, Shift Reactions, Methanation, Ammonia, Synthesis, Oxidation, Nitric Acid, Fertilizers, Methanol, Synthesis, Derivatives, Formaldehyde, Acetic Acid. The Petrochemical Industry [Petroleum Refining, Distillation, Cracking, Reforming, Hydro-treating, Alkylation and Isomerization, Steam Cracking, Ethylene-Based Processes, Ethylene Oxide and Ethylene Glycol, Polyethylene, Vinyl Chloride and PVC, Propylene-Based Processes, Acrylic Acid and Acrylonitrile, PP and Ziegler-Natta Chemistry, C. Based Processes, Butadiene, Isobutylene, BTX Processes, Styrene and Polystyrene, Polyethylene Terephthalate (PET), Phenol, Adipic Acid and Nylon, Phthalic Anhydride. Pollution Control [Automotive Exhaust Emission Control].

CHE441 Processes At Surfaces

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Physical and chemical weathering and soils. Hillslopes and mass movement processes. Fluvial processes. Glacial processes.

CHE442 Catalysis With Green Technologies

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Definition of terms; the concept of catalysis; mechanism of catalysis; role of catalysis in the chemical industry; types of catalysis; properties



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



of catalysts; methods for characterization of catalysts; factors that determine industrial use of catalysts; catalyst deactivation; catalyst recycling and management; examples of industrial applications of catalysts: Wacker process, catalytic cracking with zeolites, catalytic reforming, Fischer-Tropsch process, Harber process, Contact process, Ziegler-type catalysts in polymerization.

CHE443 Introduction to Quantum Chemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

In this course, you will learn the basics of how to describe the electronic structure of atoms and molecules and their time-dependent behavior in the framework of quantum mechanics.

CHE444 Molecular Modeling and Simulation

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

Topics will span three core techniques: molecular dynamics, Monte Carlo, and first principles (ab initio) methods. Introduction to molecular modelling. Aims and problems of molecular modelling. Standard tools of molecular modelling. Molecular mechanics. Finding equilibrium structures. Geometry optimization. Simulations under real conditions. Visualization and molecular properties. Applications of molecular modeling. Simulation of large molecules. Ligand-receptor docking. Trends in molecular modeling.

CHE445 Dynamic Electrochemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to electrochemistry: Nernst equation, electrode kinetics, dynamic electrochemistry, the Butler-Volmer and Tafel equations. Over-

potentials. Kinetic and mass transport controlled electrochemical processes. Mass transport by migration, convection, and diffusion. Conductivity. Solid state electrochemistry. Ion conducting and electronically conducting polymers. The electrochemical double layer. Potentiostatic and Galvano-static electrochemical methods including chronoamperometry, coulometry, cyclic voltammetry, chronopotentiometry, ac impedance spectroscopy, spectroelectrochemistry and hydrodynamic methods. Surface confined electrochemical processes. The fundamentals of corrosion. Homogeneous and heterogeneous electrocatalysis. Electrochemical processes coupled to chemical steps. Nanostructured and surface modified electrodes. Introduction to batteries, fuel cells and electrochemical solar cells. Electrochemical processes of particular relevance to energy conversion.

CHE446 Computational Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to molecular modeling and applications. Simulation methods: nanoscale to mesoscale simulations. Force fields: knowledge-based, classical, polarizable potentials. Environment: Vacuum, implicit, explicit, and polarizable solvents. Systems: Protein-ligand docking, interactome based drug discovery. Free energy calculations in the context of simulation and potential functions.

CHE447 Applications of Quantum Chemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

In this course, you will learn about the primary perturbative methods in quantum mechanics: degenerate and non-degenerate time-independent perturbation theory, the semi-classical WKB



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



approximation, time-dependent perturbation theory, the adiabatic approximation, and scattering theory. We will use these methods to study a variety of systems that do not admit analytic solutions, including the fine structure of hydrogen, tunneling rates, radiative decay, and molecules. We will also investigate the quantum mechanical description of a particle in a magnetic field, and discuss the symmetries associated with multi-particle systems in detail.

CHE448 Nanochemistry & Solar Energy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

knowledge on nanotechnology based alternate source of energy. advanced materials for renewable and green energy. Solar technology. importance of energy storage techniques. the role of nanotechnology in improving efficiency in energy usage.

CHE449 Metal Corrosion & Its Protection

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

The course concerns fundamental theory of the thermodynamics and kinetics of the corrosion process of metals and alloys as well as polymer materials both in atmosphere and water solutions. Focus is put on electrochemical aspects and the influences of the properties of the metals and their oxides on the corrosion behavior, which is exemplified by different corrosion types. Existing corrosion protection strategies, including surface treatments and coatings are described and choice of material is discussed from a corrosion point of view.

CHE495 Special Topic

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Physics

PHY111 Physics I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course starts with the basics of classical mechanics and its extension into other area of physics. Classical Mechanics topics are Motion in One Dimension, Vectors, Motion in Two Dimensions, The Laws of Motion (Newton's First Law, Newton's Second Law, and Newton's Third Law), Circular Motion and Other Applications of Newton's Laws. Energy and Energy Transfer, Potential Energy, Linear Momentum and Collisions, Rotation of a Rigid Object about a Fixed Axis, Angular Momentum, Static Equilibrium and Elasticity, Universal Gravitation, Fluid Mechanics, Temperature.

PHY119 Laboratory Safety and Good Laboratory Practice

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Material safety data sheets. Good lab practices. Good manufacturing practices. Fire safety. Regulatory agencies. Safe use of lab equipment & chemicals. Using emergency equipment. Safety planning.

PHY211 Physics II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course starts with the basics of classical mechanics and its

extension into other area of physics. Classical Mechanics topics are: Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Direct Current Circuits, Magnetic Fields, Sources of Magnetic Field, Faraday's Law, Inductance, Alternating Current Circuits, Electromagnetic Waves, The Nature of Light and the Laws of Geometric Optics, Image Formation.

PHY212 Introduction to Engineering Physics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Scalars and vectors. Force and motion. Motion in one, two, and three dimensions. Energy and momentum. Rotational motion and gravity. Solids and fluids. Vibrations and waves. Electricity and magnetism. Geometric and optics.

PHY213 Biological Imaging: The Use of Microscopy to Observe & Photograph Life

3 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **1** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Light microscope. Fundamental limits in light microscopy. Special optical elements. Digitizing image data. Laser sources for microscopy. Wavelength expansion through nonlinear techniques. Difference between 3D imaging and 2D imaging. filmmaking techniques, web design, 3D technology.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PHY221 Introduction to Nanoscience

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite CHE141CHE221

What is nanotechnology? Definitions, History of nanotechnology, Context of nanotechnology. Motivation for nanotechnology: Materials, Devices, Systems, Issues in miniaturization, other motivations. Scaling laws: Materials, Forces, Device performance, Design. Nano-metrology: Imaging nanostructures, Nonimaging approaches, other approaches, Metrology of self-assembly. Raw materials of nanotechnology: Nanoparticles, Nanofibres, Nanoplates, Graphene-based materials, biological effects of nanoparticles. Nano-devices: Electronic devices, Magnetic devices, Photonic devices, Mechanical devices, Fluidic devices, Biomedical devices. Nano-facture: Top-down methods, Molecular manufacturing, Bottom-up methods, Intermolecular interactions. Bio-Nanotechnology: Biomolecules, Characteristics of biological molecules, Mechanism of biological machines, biological motors, The cost of control, Bio-photonic devices, DNA as construction material. New fields of nanotechnology: Quantum computing and spintronics, Nanomedicine, Energy, Three concepts. Implications of nanotechnology: Enthusiasm, Neutrality, Opposition and skepticism, A sober view of the future.

PHY231 Electromagnetic Wave

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite PHY211

Review of vector algebra and calculus, coordinate transformations. Fundamental electromagnetic concepts: Maxwell's equations, Lorentz force relation, electric and magnetic polarizations, constitutive relations, boundary conditions, Poynting theorem in real and complex forms, energy relations. Solution of the Helmholtz equation: plane, cylindrical, and spherical waves, potentials. Electromagnetic theorems: uniqueness, duality, reciprocity, equivalence, and induction theorems, Huygen's and Babinet's principles. Superposition behaviour of

electromagnetic waves (interference of electromagnetic waves and their devices). Behaviour of electromagnetic wave at boundaries (dielectric, metals) reflection transmission and absorption. Polarization of electromagnetic waves. Guided fields: waveguides, dispersion, phase and group velocities, attenuation, inhomogeneous waveguides, and resonant cavities.

PHY232 Modern Physics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite PHY 211

Quantization of Charge, Light, and Energy. Which include Quantization of Electric Charge ((e/m) and millikan's experiments), Blackbody Radiation and Plank's quantum idea of light wave, The Photoelectric Effect (concept of photon energy), X-Ray Spectra and its production, X Rays, and the Compton Effect (concept of photon momentum), Derivation of Compton's Equation. The Nuclear Atom. Rutherford's Nuclear Model, Rutherford's Prediction and Geiger and Marsden's Results, Atomic Spectra, The Bohr Model of the Hydrogen Atom, The Franck-Hertz Experiment, A Critique of Bohr Theory and the "Old Quantum Mechanics." The Wavelike Properties of Particles. The de Broglie Hypothesis, Measurements of Particle Wavelengths, Wave Packets, The Probabilistic Interpretation of the Wave Function, The Uncertainty Principle (development of The Gamma-Ray Microscope, Some Consequences of the Uncertainty Principle, Wave-Particle Duality, Two-Slit Interference Pattern. Relativity I: The Experimental Basis of Relativity, Michelson-Morley Experiment, Einstein's Postulates, The Lorentz Transformation, Calibrating the Space-time Axes, Time Dilation and Length Contraction, The Doppler Effect, Transverse Doppler Effect, Relativistic Momentum, Relativistic Energy, Mass/Energy Conversion and Binding Energy.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**PHY281 Biophysics****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

Mechanical properties of matter including the elastic properties of bones and tissues. Statics and dynamics study in human body. Heat transfer, temperature, and thermal properties of the materials. Radiation is used in the life sciences, X-rays, computerized tomography CT, magnetic resonance imaging, PET, radiation therapy, food preservation by radiation, isotopic tracers, measure the radiation dose and carbon dating. Circulation of the blood, blood pressure and power produced by heart. Non-viscous and viscous fluids. Electricity and nervous system. Force, work, energy, and power in biological systems. Transport of molecules by diffusion, respiratory system, surfactants and breathing, diffusion and contact lenses.

PHY311 Introduction to Quantum Mechanics**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**Prerequisite **PHY232**

Review of Classical Theories: Harmonic Oscillator, Boltzmann Distribution Function, Maxwell's Equations and EM Waves, the basics of modern physics. Schrödinger-Wave Equation, Operator Algebra and Basic Postulates, Eigen-equation, Eigen-function and Eigenvalue, Properties of Eigen-functions, Commutation Relation and Conjugate Variables, Uncertainty Relation. Bound States in Quantum Well, Wire and dots: Electrons in Solids, 1D, 2D, and 3D Densities of States, Particle in Quantum Well, Quantum Well, wire and dots. The Quantum Treatment of Harmonic Oscillator: Energy Eigen-function and Energy Quantization, The Properties of Eigen-functions, HO in Linearly Superposed State, The Operator Treatment of HO, Creation and Annihilation Operators and Phonons. Scattering and tunneling of 1D

Particle, scattering at the Step Potential, scattering from a Quantum Well, Tunneling, Direct and Fowler–Nordheim Tunneling, Resonant Tunneling, The Applications of Tunneling, Metrology and Display, Single-Electron Transistor. Schrödinger Treatment of Hydrogen Atom, Angular Momentum Operators, Spherical Harmonics and Spatial Quantization, The H-Atom and Electron–Proton Interaction, Atomic Radius and the Energy, Eigen-function, Eigen-function, and Atomic Orbital. Molecules and Chemical Bonds, Ionized Hydrogen Molecule, H₂ Molecule and Heitler-London Theory, Ionic Bond, van der Waals Attraction, Polyatomic Molecules and Hybridized Orbitals.

PHY312 Statistical Mechanics**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**Prerequisite **PHY311**

Basic concepts: including heat, micro and macro-states. Basic concepts of probability theory and statistical distributions. Boltzmann definition of entropy. First law and Second Law of Thermodynamics. Thermodynamic potentials: Enthalpy, Helmholtz, Gibbs, etc. Maxwell equations. Examples: thermodynamic gas cycles, thermal machines, and refrigerators. Statistical weight of microstate, microcanonical ensemble. Examples: Entropy of mixing, binary alloy, Schottky defects, paramagnetic spins. Canonical ensemble, Boltzmann distribution and partition function. General definition of entropy. Lattice vibrations in crystals. Third law of thermodynamics. Partition function for the classical ideal gas. Maxwell velocity distribution equipartition theorem. Grand canonical ensemble. Quantum gases Bose-Einstein, Fermi-Dirac and photon distributions, free electron gas, black body radiation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PHY313 Electrodynamics****3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **PHY231**

Electrostatics: Coulomb's law, The electrostatic field, Magneto-statics, Ampère's law, The magneto-static field. Electrodynamics: Equation of continuity for electric charge, Maxwell's displacement current, Electromotive force, Faraday's law of induction, Maxwell's microscopic equations, Maxwell's macroscopic equations. Electromagnetic Waves: Introduction, The wave equations, The wave equation for E, The wave equation for B, The time-independent wave equation for E, Plane waves. Electromagnetic Potentials, Introduction, The electrostatic scalar potential, The magneto-static vector potential, The electrodynamic potentials. Electromagnetic Fields and Matter: Introduction, Electric polarization and displacement, Electric multipole moments, Magnetization and the Magnetizing field, Energy and momentum, The energy theorem in Maxwell's theory, The momentum theorem in Maxwell's theory. Electromagnetic Fields from Arbitrary Source Distributions: Introduction, the magnetic field, the electric field, the radiation fields, Radiated energy, Monochromatic signals, Finite bandwidth signals. Electromagnetic Radiation and Radiating Systems: Introduction, Radiation from extended sources, Radiation from a one-dimensional current distribution, Radiation from a two-dimensional current distribution, Multipole radiation, The Hertz potential, Electric dipole radiation, Magnetic dipole radiation, Magnetic quadrupole radiation, Radiation from a localized charge in arbitrary motion, The Lienard-Wiechert potentials, Radiation from an accelerated point charge.

PHY319 Journal Club**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

Each meeting of the journal club will have an assigned presenter. This person will provide the instructor with the title and citation information for the paper they have chosen to present at least one week in advance of their presentation. It is expected that the audience members will have read the paper prior to each meeting. The presenter will present (using presentation software such as PowerPoint or Keynote, overheads, or a suitable alternative) the background and context of the paper, the paper itself, and interpret the implications of the paper.

PHY321 Crystallography and Bonding**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **CHE141CHE221**

Crystal structures; points, directions and planes; unit cell; Bravais lattice; basis; symmetry- translation, rotation, inversion; 32 Crystallographic Point Groups; 230 Space Groups; real and reciprocal Lattices; Brillouin zones; application of reciprocal lattices to diffraction- scattering from electrons, atoms, crystals; structure factor; van der Waal's, ionic, covalent and metallic bonding; classical versus quantum mechanical picture of bonding; particle-wave duality, metallic solid; covalent solid; structures of metals and alloys, structure of ceramics, structure of polymers, structure determination by x-ray diffraction, importance of defects on properties; point and line defects.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PHY322 Solid State Physics****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**Prerequisite **PHY321**

Fundamentals regarding the solid state, including selected structural examples. Theoretical and practical crystallography. Advanced topic in solid state physics.

PHY323 Solar Photovoltaic Energy Conversion I**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**Prerequisite **PHY232**

The course provides an overview of the Solar Photovoltaic Energy Conversion. Students learn the following subjects: SOLAR CELL FUNDAMENTALS. Semiconductors, p-n Junction, Generation of Electron-Hole Pair by Photon Absorption, Photoconduction. SOLAR CELL CHARACTERISTICS. I-V Characteristics, Effect of Variation of Insolation and Temperature, Energy Losses and Efficiency, Maximizing the Performances, Cell size, Energy Payback Period (EPP). CLASSIFICATION OF SOLAR CELL. On the Basis of Thickness of Active Material, On the Basis of Junction Structure, On the Basis of Type of Active Material, Single Crystal Silicon Solar Cell, Multicrystalline Silicon Solar Cell, Gallium Arsenide Cell, Copper Indium Diselenide Cell, Amorphous Solar Cell. SOLAR CELL, MODULE, PANEL, AND ARRAY CONSTRUCTION. Solar Cell, Solar PV Module, Solar PV Panel, Solar PV Array.

PHY324 Nanochemistry and physics**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**Prerequisite **PHY221CHE141CHE221**

A. Introduction to nanophysics and nanotechnology – scaling laws and limits to smallness; quantum nature of nano-world; Nano fabrication

(top-down and bottom-up process); nanoscopy (electron microscopy, atomic force microscopy, scanning tunneling microscopy). B. Properties and application of dielectric and metal nanostructures - individual nanoparticles and nanoclusters; nanostructured materials; carbon nanostructures; nano-magnets. C. Properties and application of semiconductor nanostructures - fabrication of semiconductor nanowires and quantum dots; electronic and optical properties (2D and 3D quantum confinement); optical spectroscopy of semiconductor nanostructures (local probe techniques); quantum dots nanowire- and quantum-dot-based electronic and photonic devices.

PHY325 Functional materials**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**Prerequisite **PHY221CHE141CHE221**

The course is focused on the properties of materials used in modern technology. The topics covered include review of crystal structures, bonding, and physical properties (electrical, magnetic, optic etc.) of materials. Focus is given to the relationship between properties and crystal structure. Properties of Gases:1 Introduction, Kinetic Theory of Gases, Energy Distribution in Particle Systems: Maxwell-Boltzmann Distribution Law, Gas Laws, Heat Capacity, Mean Free Path, Viscosity, Thermal Conduction, Diffusion, Molecular Sizes, Properties of Gas Mixtures, Plasma – The Fourth State of Matter. Transformation Kinetics: Diffusion in Solids, Introduction, Thermodynamics, Transformation Kinetics, Reaction Rates, Kinetics of Homogeneous Reactions in Gases, Diffusion in Solids. Mechanical, Thermal and Magnetic Properties of Solids: Introduction, Total Energy of Metallic Crystals, Elasticity and Compressibility, Expansion, Heat Capacity, Magnetism. Transport Properties of Solids. Optical Properties of Solids: Introduction, Thermal Conduction, Electrical Conduction, Metallic Conductors, Insulators, Semiconductors, Optical Properties of Solids. Properties of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Liquids and Melts: Introduction, X-ray Spectra of Liquids and Melts, Models of Pure Liquids and Melts, Melting Points of Solid Metals, Density and Volume, Thermal Expansion, Heat Capacity, Transport Properties of Liquids, Diffusion, Viscosity, Thermal Conduction, Electrical Conduction.

PHY326 Nanostructure materials: properties, self-assembly and applications

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PHY221**

Introduction to nanotechnology and the two approaches (bottom up and top down) followed for the synthesis of nanomaterials. Synthetic methodologies which include Sol-gel, Micromulsion, CVD, PVD, Molecular beam epitaxy, Vapor (solution)-liquid-solid growth, (VLS or SLS), Spary Pyrolysis, Template based synthesis, Lithography. Various kind of Nanostructures which includes Carbon fullerenes and carbon nanotubes (CNT), Metal and metal oxide nanowires, Self-assembly of nanostructures, Core-shell nanostructures, Nanocomposites. Physical Properties of nanomaterials which includes Photocatalytic, Dielectric, Magnetic, Optical, Mechanical.

PHY327 Physics of nanoparticles and nanostructures

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite **PHY 325, PHY 311**

Part one: Absorption and scattering of Electromagnetic waves from Nanoparticles based on bulk properties: Brush up: Maxwell's equations, constitutive relations, propagation of homogeneous plane waves, Reflection and Transmission through slab, Absorbance, Ripple structures, analogy between slab and a particle. Single and multiple oscillator models for bulk dielectric function of insulators,

semiconductors with electronic and vibrational contributions, metals, polar and glassy materials, magnetic materials. Small particles, size parameter, quasi-static approach to polarizability of uncoated and multiply coated ellipsoidal particles, surface modes for various materials, scattering cross sections. Maxwell-Garnett theory for collection of particles, size distribution effect. Part two: Electronic Phenomena in Nanostructures: Brush up: Electronic structures and effective mass theory for bulk Si, Ge, GaAs; Excitons. Boltzmann electron transport in bulk. Electron energy states in quantum confined systems, semiconductor heterojunctions, DEG systems, Quantum Wires, Quantum dots. Transmission in nanostructures: Tunneling in planar barrier, Resonant Tunnel diodes. Ballistic transport, Landauer formula, electron transport in Quantum wave-guide structures. Single electron phenomena: electronic states in quantum dots, without and with magnetic fields, single electron tunnelling and Coulomb blockade, single electron transistor.

PHY328 Spintronics nanostructure physics and technology

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PHY325PHY311**

Introduction: History and overview of spin electronics, Classes of magnetic materials, the early history of spin, Quantum Mechanics of spin, the Bloch sphere, Spin-orbit interaction, exchange interaction. Spin relaxation: Spin relaxation mechanisms, Spin relaxation in quantum devices like quantum dots, the spin Galvanic effect. Spin dependent transport: Basic electron transport, Spin-dependent transport, spin dependent tunnelling, Andreev Reflection at ferromagnet and Superconductor Interfaces: Basic theory of Andreev reflections, Point-Contact Andreev Reflection, Ferro-



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



magnet/Superconductors/Ferro-magnet double junctions, crossed Andreev reflections. Spintransfer torques: Spin injection: Advances in Spintronic Materials, Technology and Devices.

PHY329 Spectroscopy of nanomaterials

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PHY325PHY324**

Part I. Optical spectroscopy: Introduction, Spectroscopy methods, Classification on radiation, Classification of objects, Scheme of optical spectrometer Typical recorded characteristics, Color spaces, Practical application. Part II. Optical emission spectroscopy: Main types of methods, Sources for signal creation, Schemes of optical emission spectrometers, the main components of spectrometers, Features, advantages and disadvantages of glow discharge optical emission spectroscopy, Comparison of GDOES with other methods, Main control parameters, Calibration and application of standard samples, Software principles, Practical application. Part III. Energy-dispersive X-ray spectroscopy, Interaction of electron beam with matter, Main principles of the WDS and EDS spectroscopy, Construction of the X-ray detector, Main components of the detector, Types of the EDS analysis, Features of thin films investigation. Part IV. Photoelectron and Auger-electron spectroscopy, Different processes after X-ray initiation, Main principles of the XPS and UPS spectroscopy, Construction of the apparatus for XPS, Quantitative and qualitative analysis of nanomaterials including nanocomposite films, Ways for optimization of the analysis, Main principles, and features of AES spectroscopy. Part V. Raman and Fourier-transformed infra-red spectroscopy, Main vibrations of the molecules, Types of scattering, Main principles of Raman analysis and FTIR, Optical schemes of the spectrometers, Examples of practical application, Order of phase identification using standard samples and

literature data.

PHY330 Thin films nanostructure and its application

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PHY325PHY311**

Part 1: Role of Thin films and Nanostructures in Technology and Devices; Vacuum Evaporation-Hertz- Knudsen equation, evaporation from a source and film thickness uniformity. Glow discharge and Plasmas-Plasma structure, DC, RF, and microwave excitation; Sputtering Processes - Mechanism and sputtering yield, Sputtering of alloys; Reactive sputtering. Part 2: Nucleation and Growth: Adsorption, Surface diffusion, models for 3D and 2D nucleation, coalescence and depletion, grain structure and microstructure and its dependence on deposition parameters. Role of energy enhancement in nucleation; Self-assembly: mechanisms and controls for nanostructures of 0 and 1 dimension. Part 3: Epitaxy: Structural aspects of epitaxy, homo- and hetero-epitaxy, lattice misfit and imperfections; epitaxy of compound semiconductor, theories of epitaxy, Role of interfacial layer, Artificial semiconductors, Band-gap engineering, Super lattice structures; Strained layer epitaxy. Part 4: Diffusion: types & mechanism, steady state and non-steady-state diffusion, Fick's laws, factors affecting diffusion coefficients, CVD Deposition-Thermodynamics of CVD, gas transport, growth kinetics, Plasma chemistry, plasma etching mechanisms; etch rate and selectivity, orientation dependent etching; Part 5: Growth of structures of high structural quality and multilayers of simple and complex systems: Molecular Beam Epitaxy, Atomic layer Deposition, Pulsed Laser Ablation, Ion-assisted Ion-beam Deposition, Ion-implantation Interdiffusion and Reactions in Thin Films, Diffusion during film growth, Diffusion barriers.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PHY331 Plasmonic and nanophotonics****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6Prerequisite **PHY325PHY324**

Introduction to Nano-photonics and Plasmonic. Basis of Nano-photonics and Plasmonic. Fundamentals of Nano-photonic and plasmonic Devices. Fundamentals of Nano-photonic Fabrication. Fundamentals of Nano-photonic Systems. Fundamentals of Nano-Bio-photonics.

PHY341 Electronics I**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4Prerequisite **PHY211**

Describe the meaning of the key electrical variables (charge, voltage, current and power). Apply fundamental circuit laws (Ohms law, Kirchhoffs laws) and key electrical circuit theorems (series and parallel elements, voltage/current divider, Thevenins and Nortons theorems, superposition, nodal and mesh analysis) to predict the behaviour of DC and AC resistive circuits. Analyze RLC circuits in the steady-state and transient conditions using differential equations and phasor analysis. Explain the concept and characteristics of resonance in RLC circuits. Analyze simple circuits using diodes, including half- and full-wave rectifier circuits. Apply simple models of bipolar and field effect transistors, and operational amplifiers, to predict the behaviour of simple amplifier circuits. Explain and model the frequency-dependent behaviour of circuits containing a single capacitor or inductor. Explain the principles of operation and key performance characteristics of AC and DC motors. Explain the operation of the circuits using transistors in switching mode to achieve speed control of a DC motor. Demonstrate practical skills in the construction and testing of simple electrical and electronic circuits.

PHY361 Fundamentals of Energy Systems**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6Prerequisite **PHY111**

Topics include Energy Sources & World Energy Status: Energy Sectors: Domestic, Transportation, Agriculture, Industry Sector, Energy Scenario, World Energy Present Situation, Availability of Conventional & Non-Conventional Energy Resources. Conventional Energy Sources: Fossil Fuel, Hydro Resources, Nuclear Resources, Coal, Oil, Gas, Thermal Power Stations, Comparison of various conventional energy systems, their prospects and limitations, Advantages and Disadvantages of Conventional Energy Sources. Non-Conventional Energy Sources: Solar Energy, Wind Energy, Energy from Biomass & Biogas, Ocean Thermal Energy Conversion, Tidal Energy, Geothermal Energy, Hydrogen Energy, Fuel Cell, Magneto Hydro-Dynamics Generator Advantages & Limitations of Non-Conventional Energy Sources. Fluid Properties and Classification of Fluid: Definition of Fluid, Distinction between solids & fluid and liquid & gas fluid continuum, Mass density, Specific Volume, Viscosity, Newton's law of viscosity, Newtonian and Non-Newtonian Fluids, Ideal and Real fluids, Steady & Unsteady Flow, Uniform & Non-Uniform Flow, Laminar & Turbulent Flow, Compressible & Incompressible Flow, Surface tension, Definitions, units, and dimension. Fluid Pressure & Its Measurement: Definition of pressure, units and dimensions, Pressure at a point, Pascal's law. 4 Hydrostatic pressure law. 5 Absolute and Gauge pressure. 6 Measurement of pressure, Simple Manometer & Differential Manometer theory and problems, Mechanical Pressure Gauge. Kinematics of Fluid Flow: Description of fluid flow, Lagrange and Eulerian approaches, Definition of path line, streamline, streak line, stream tube, Acceleration of flow. Dynamics of Fluid Flow: Concept of Inertia force and other forces causing motion, Derivation of Euler's



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



equation and Modification of Bernoulli's equation, problem on Bernoulli's equation without and with losses. Flow Measurements: Flow through Orifices; classification, Hydraulic Co-efficient of an Orifice and relation between them, Equation for Co-efficient of velocity, problems, Flow Through Pipes, Venturi Meter.

PHY362 Energy Conversion System

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Students learn the following subjects: Elements of Electro-Mechanical energy conversion: Salient aspects of conversions, Energy- Balance, Magnetic-field System; Energy and Co-energy, A Simple Electromechanical System, Energy in Terms of Electrical Parameters, Rotary Motion, Dynamic Equations, and system-model of a simple system. D.C. Generators: Simple Loop Generator, Practical Generator, Yoke, Pole Cores and pole shoes, Pole Coils, Armature Core, Armature Windings, Commutator, Brushes and Bearings, Armature windings, Measurement of Generator Efficiency. 15 Irons Loss in Armature. 1 Hysteresis Loss (Wh) Total Loss in a D.C. Generator, Generator characteristics: Characteristics of D. C. Generators, separately excited Generator. D. C. Motor: Motor Principle, Comparison of Generator and Motor Action, Significance of the Back e.m.f, Voltage Equation of a Motor, Condition for Maximum power, Torque, Armature Torque of Motor, Shaft Torque, Speed of D. C. Motor, Speed Regulation, Torque and Speed of D. C. Motor, Motor Characteristics, Characteristics of Series Motors, Characteristics of Shunt Motors, Compound Motors, Performance Curves, Series Motor, Comparison of Shunt & Series Motors, Power Stages. Speed Control of D.C. Motors: Factors Controlling Motor Speed, Speed Control of Shunt motors, Variation of flux or Flux Control Method, Armature or Rheostatic Control Method, Voltage Control Method, Speed Control or series Motors, Flux Control Method, Variable Resistance in series with motor, Measurement of Motor

Efficiency. Transformer: Working principle of a Transformer, Transformer Construction, Core-type Transformers, Shell-type Transformers, Elementary Theory of an ideal Transformer, D.M.F. Equation of transformer, Voltage Transformation Ratio (K), Transformer with losses but no magnetic Leakage, Transformer on No-load, Transformer on load, Transformer with winding resistance but no Magnetic leakage, Magnetic leakage, Transformer with resistance and leakage reactance, Estimation of Transformer Efficiency (at Full Load & Actual Load), Transformer three phase. Induction Motor: Classification of A.C. Motors, Induction Motor: General Principle, Construction, Squirrel-cage rotor, Phase-wound rotor, Production of Rotating field, Three-Phase supply, Mathematical proof, why does the rotor rotate? Slip, Frequency of rotor current, Starting Torque of a squirrel-cage motor, Starting Torque of a slip-ring motor, Torque/Speed Curve, Current /speed curve of on induction motor. Single-Phase Motors: Types of single-phase motors, Single-phase induction motor, Double-field revolving Theory, making single-phase induction motor self-starting, Types of capacitor-start motors, 1 Single-voltage, externally reversible motors, single-voltage, non-reversible type, Speed control of D.C. Motors, Transformer, Induction Motor.

PHY363 Energy and Environment

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

Students Learn the Following Subjects: Energy & Environment Balance. Introduction to Sources of Energy, Overview of Environmental Effects, Various Forms of Energy Extraction and Consumption. Energy. Patterns of Energy Consumption, The Laws of Energy Conversion, Work, Heat, And Internal Energy, Qualitative Presentation of Thermodynamic Barriers to Energy Use. Energy and The Industrial Society. Energy and Growth, Energy Flow in an Industrial Society, Primary Fuels: Wood, Coal, Oil, Natural Gas. Electrical Energy. Generation of Electrical



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Energy, Transmission of Electrical Energy, End Uses of Electrical Energy. Energy and Air Pollution. Sources of Air Pollution, Effects of Air Pollution, Controlling Air Pollution, Effects of Energy on Climate, Co₂ and the "Greenhouse Effect", Energy Transport and The Environment; Pipelines, Tankers, Oil Spills, Energy-Related Water Demand. Energy and Society. Renewable Energy Flows and The Problems of Matching Them with End Use Requirements, Energy Inequity and Energy Conflicts Energy Versus the Environment, Roles of Government and Private Industry.

PHY364 Solar Thermal Energy I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PHY111**

Students learn the following subjects: Basics in Solar Energy Systems: Different types of Renewable Energy Sources, Sun as a Source of Energy, Solar Radiation. Extra Terrestrial at Earth's Surface – Horizontal, Tilted Surface, Estimation of Radiation Alternation of Solar Radiation by Atmosphere, Effect of Orientation of Receiving Surface. Basic Sun-Earth Angles: Angle of Latitude, Declination Angle, Hour Angle, Inclination Angle, Zenith Angle, Solar Azimuth Angle, Tilt Angle, Surface Azimuth Angle, Angle of Incidence, Local Solar Time. Solar Radiation: Solar Radiation Data, Estimation of Monthly Average, Daily Total Radiation on Horizontal Surface, Estimation of Monthly Average, Daily Diffuse Radiation on Horizontal Surface, Monthly Average, Daily Global Radiation on Tilted Surface. Measurement of Solar Radiation: Measurement of Solar Radiation, Pyranometer, Pyrliometer, Sunshine Recorder, Radiation Characteristics of Opaque Materials, Radiation Transmission through covers and Absorption of Collectors. An Overview of Thermal Applications: Devices for Thermal Collection and Storage, Thermal applications. Liquid Flat-Plate Collectors (FPC):

Characteristic Features of FPC, Performance Analysis, Transmissivity - Absorptivity Product, Overall, Loss Coefficient and Heat Transfer Correlations, Collector Efficiency Factor, Effects of Various Parameters on Performance, Advantages of Flat Plate Collector, Alternatives to the Conventional Collector. Solar Air Heaters & Water Heater: Performance Analysis of Solar Air Heater, Types of Air Heaters, Collector with Non-Porous Absorber, Collector with Porous Absorber, Testing Procedure of Solar Air Heater, Application of Solar Air Heater, Solar Water Heating System: Thermosiphon & Forced Flow.

PHY365 Bio-Energy I (Biochemical Conversion Systems)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

The course provides an overview of Bio Energy. Students learn the following subjects: Basics in Biomass Study: Biomass- types and its advantages and drawbacks, Conversion Mechanisms, Fuel Assessment Studies. Biomethanation: Microbial systems, Phases in Biogas Production, Parameters Affecting Gas Production, Biogas Plants: Types, Design, Constructional Details and Comparison, Factors Affecting the Design. Methods for Maintaining Biogas Production: Insulating the Gas Plant, Composting, Hot Water Circulation Use of Chemicals, Solar energy systems. Commissioning and Management of Biogas Plant: Commissioning and Management of Biogas Plant, Community Plant, Biogas Appliances, Effect of Biogas on Engine Performance, Socio-Economic Aspects of Biogas, Cost-Benefit Analysis of Biogas Plant. Reactors: Immobilized Reactors, UASB Reactor, Fixed Film, Hybrid, Bi-Phasic Reactor. Economics and Environmental Aspects: Energy Effectives and Cost Effectiveness, History of Energy Consumption and Cost, Economic and competitive



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



issues for biogas energy, Policy, and market interventions (subsidies, credits, carbon markets etc.), Environmental Aspects of Bio-Energy Conversion. Municipal & Industrial Waste to Energy Conversion: Solid Waste, Waste Disposal, Industrial Solid Wastes, Hazardous Waste Management. Biofuel: Ethanol and Methanol production from Cellulosic Biomass, Biodiesel Production from Non-Edible Oil Seeds.

PHY366 Energy Storage System I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PHY361**

The course provides an overview of the Energy storage system. Students learn the following subjects: ENERGY STORAGE. Need of energy storage, Different modes of Energy Storage, Potential Energy, Kinetic Energy & Compressed Gas System, Electrical and magnetic energy storage, Chemical Energy storage, Hydrogen for energy storage, Solar Ponds for energy storage. ELECTROCHEMICAL ENERGY STORAGE SYSTEMS. Primary & Secondary Batteries, Solid-State and Molten Solvent Batteries, Lead acid batteries. Nickel Cadmium Batteries, Advanced Batteries. MAGNETIC AND ELECTRIC ENERGY STORAGE SYSTEMS. Superconducting Magnet Energy Storage (SMES) Systems, Capacitor and Batteries.

PHY367 Energy Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The course provides an overview of Energy Management. Students learn the following subjects: INTRODUCTION. Energy & Sources of energy, Energy consumption and GDP, Costs of exploration and utilization of depletable resources, energy pricing, National energy plan. ENERGY AUDIT. Energy audit concepts, Energy audit based on 1st law

and 2nd law of thermodynamics, Mass and Energy balances, Availability analysis, Evaluation of energy conserving opportunities, Economic analysis, and life cycle costing. ENERGY CONSERVATION. Energy conservation areas, Energy transmission and storage, Plant wide energy optimization Models, Data base for energy management, Energy conservation through controls, Computer aided energy management, Program organization and methodology. ENERGY USES. Electrical energy conservation in building lighting, heating, ventilating and air conditioning, Energy efficient motor, power factor improvement in power systems, Energy audit of Combustion process, Boilers, Turbines, compressors, Pumps, Heat exchangers, Condensers, Use of industrial wastes. Energy Economy interaction.

PHY371 Astronomy and Astrophysics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PHY111PHY211**

The course provides an overview of the Electronics. Students learn the following subjects: Humanity and the Cosmos. Tools of the Astronomer. The Solar System. Stars and Their Properties. Galaxies and Cosmology.

PHY400 Physical Computing

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Physical computing, microcontrollers, bread boarding, Arduino, programming, digital input, digital output. Reading: Physical Computing. Electricity and Programming: concepts, Ohm's Law, circuit diagrams, soldering, switch making variables, organization. Analog Input: transduction, transducers, resistors, variable resistors, types of variables, programming review. Programming: loops, for loops,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



functions, timing, intro to Processing. Analog Output: variable output using PWM, using servos and servo libraries. Programming II: drawing with variables, mouse interaction, conditionals (bounce). Motors: DC, high current, steppers, control, relays, transistors, steppers, H-bridge.

PHY411 Computational physics in nanoscience

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite **CSE014PHY311PHY324**

Review of Quantum Physics. Quantum Chemistry. Molecular Biology. Condensed Matter Physics. Quantum wells, Dot, and Wire. Nanostructure Electronic Properties. Plasmon. Quantum Hall Effect.

PHY412 Physics of semiconductor nanostructure

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PHY311PHY325PHY326**

The course deals with the physics and applications of semiconductor nanostructures, i.e., low-dimensional systems giving rise to quantum confinement effects for electrons and holes in one, two or three dimensions. The following subjects will be treated: First-principles calculations, band discontinuities. Hetero-structures, envelope-function method. Two-dimensional systems: quantum wells, superlattices, hetero interfaces. Optical properties. Absorption and emission, interband and intersubband transitions in quantum wells, semiconductor laser. Confined excitons and polaritons. Transport properties. Tunnelling and negative differential resistance, tunnelling diode, resonant tunnelling in double-barrier structures. Effects of electric and magnetic fields. Quantum Hall effect, integer and fractional. One- and zero-dimensional systems: quantum wires and quantum dots, electronic levels, transport and optical properties, correlation effects. Photonic confinement (semiconductor microcavities and photonic crystals, short mention). Semiconductor cavity QED and Jaynes Cummings model.

PHY413 Advanced characterization techniques of nanomaterials

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **PHY311PHY325PHY326**

This course aims at teaching the students underlying principles of analytical techniques that are commonly used for the evaluation of bulk properties as well as nanomaterials. These include surface analysis technique FTIR spectroscopy; optical properties evaluation by UV-Vis spectroscopy and ellipsometry techniques; crystallographic phase identification by XRD; microstructure investigation by Electron microscopy (SEM and HRTEM); surface area analysis by BET surface area analyzer; magnetic properties by VSM and particle size- surface charge analysis by DLS and zeta potential techniques. The course is planned in the form of theoretical and experimental modules for each analysis technique.

PHY414 Nanofabrication

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite **PHY311PHY325PHY326**

Introduction to Micro- and Nanofabrication. Fundamentals of techniques used in Nanofabrication. Reviewing Physical and Chemical Vapor Deposition. Treatments of Substrate Materials. Treatments of Thin-Film materials.

PHY415 Nanolithographic techniques

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite **PHY311PHY325PHY326**

Lithography: Substrate Cleaning and Preparation, Spin Coating, Photomasks, UV Light Sources, Contact Mask Lithography, Projection Photolithography, Basic Properties of Photoresists, Patterning by



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Lithography, Laser Interference Lithography, Resolution Enhancement Techniques, Extreme-UV Lithography, Nonoptical Lithography. Wet Chemical and Plasma Etching: Basic Principles of Wet Chemical Etching, Wet Chemical Etch of some Selected Materials like Silicon Dioxide Etch, Silicon Nitride Etch, Silicon Etch, Aluminum Etch, Copper Etch and Titanium Etch and so on. Plasma Etching Basic Construction of a Plasma Etcher, Free Radicals and Ions in a Plasma and Their Roles Inductively Coupled Plasma Etching Substrate Temperature Silicon Etching. Doping, Surface Modifications, and Metal Contacts: Thermal Budget, Doping by Thermal Diffusion, Ion Implantation, Thermal Oxidation of Silicon, Metal Contacts to Semiconductors. Metrology for Device Fabrication: Semiconductor Device Fabrication Metrology, Interconnect Metrology.

PHY416 Electronics II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PHY341**

Digital Electronics I. Number Systems- decimal, binary, hexadecimal, octal and BCD. Logic Gates, Boolean Algebra and Truth Tables. Combinational Logic: Introduction and Combinational Logic Circuit Analysis, Canonical and Standard Forms, Use Boolean Algebra to simplify Boolean expressions, Logic minimization using Karnaugh Map, Combinational Logic Circuit Design. Applications of combinational logic. Arithmetic circuits: Half Adder, Full Adder, 2-bit Adder, 2-bit Subtractor. Comparators. Encoders and Decoders: Priority Encoder, BCD to 7 segment decoders. Multiplexers and Demultiplexers: Multiplexers, Demultiplexers. Parity Checkers. Digital Electronics II. Latches and Flip-Flops. SR NAND Latch. SR NOR Latch. D Latch. D Flip Flop. JK Flip Flop. Counters. Ripple Counter. Truncated Ripple Counter. Synchronous sequential circuits. Synchronous Counter Design. State

reduction using Implication Table. Shift Registers. Ring Counter. Johnson Counter. Programmable Logic Devices. Data Conversion Circuits. Digital to Analog Converters (DAC). Analog to Digital Converters (ADC). Digital Electronics Circuits. Stepper Motor circuit. 12H/24H Digital Clock circuit. BCD to Seven Segment Display circuit. Overview: Nano devices, Nano materials, Nano characterization. Definition of Technology node, Basic CMOS Process flow. MOS Scaling theory, Issues in scaling MOS transistors: short channel effects, Description of a typical 65 nm CMOS technology. Requirements for Non classical MOS transistor. MOS capacitor, Role of interface quality and related process techniques, Gate oxide thickness scaling trend, SiO₂ vs High-k gate dielectrics. Integration issues of high-k. Interface states, bulk charge, band offset, stability, reliability - Qbd high field, candidates, CV and IV techniques. Metal gate transistor: Motivation, requirements, Integration Issues. Transport in Nano MOSFET, velocity saturation, ballistic transport, injection velocity, velocity overshoot. SOI – PDSOI, FDSOI and Ultrathin body SOI - double gate transistors, integration issues. Vertical transistors - FinFET and Surround gate FET. Metal source/drain junctions - Properties of schotky junctions on Silicon, Germanium, and compound semiconductors -Work-function pinning. Germanium Nano MOSFETs: strain, quantization, Advantages of Germanium over Silicon, PMOS versus NMOS. Compound semiconductors - material properties, MESFETs Compound semiconductors MOSFETs in the context of channel quantization and strain, Hetero structure MOSFETs exploiting novel materials, strain, quantization.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**PHY417 Nanoelectronics device and materials****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**Prerequisite **PHY341PHY416**

Overview: Nano devices, Nano materials, Nano characterization. Definition of Technology node, Basic CMOS Process flow. MOS Scaling theory, Issues in scaling MOS transistors: short channel effects, Description of a typical 65 nm CMOS technology. Requirements for Non classical MOS transistor. MOS capacitor, Role of interface quality and related process techniques, Gate oxide thickness scaling trend, SiO₂ vs High-k gate dielectrics. Integration issues of high-k. Interface states, bulk charge, band offset, stability, reliability - Qbd high field, candidates, CV and IV techniques. Metal gate transistor: Motivation, requirements, Integration Issues. Transport in Nano MOSFET, velocity saturation, ballistic transport, injection velocity, velocity overshoot. SOI – PDSOI, FDSOI and Ultrathin body SOI - double gate transistors, integration issues. Vertical transistors - FinFET and Surround gate FET. Metal source/drain junctions - Properties of schotky junctions on Silicon, Germanium, and compound semiconductors -Work-function pinning. Germanium Nano MOSFETs: strain, quantization, Advantages of Germanium over Silicon, PMOS versus NMOS. Compound semiconductors - material properties, MESFETs Compound semiconductors MOSFETs in the context of channel quantization and strain, Hetero structure MOSFETs exploiting novel materials, strain, quantization.

PHY419 Graduation Project**4** Cr. Hrs. = (2 LCT + 0 TUT + 4 LAB + 0 OTH) – SWL = **210** – ECTS = **8**

Prerequisite ---

Literature survey. Data collection. Finding a research question. Establishing the first prototype.

PHY421 Solar Photovoltaic Energy Conversion II**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**Prerequisite **PHY323**

Students learn the following subjects: Solar Cell Fabrication Technology: Preparation of Metallurgical, Electronic & Solar Grade Silicon, Production of Single Crystal, Multicrystalline, Gallium Arsenide, Copper Indium Diselenide, Amorphous Solar Cell, Wafering & Doping, Thin-Film Modules-method of Manufacture, Procedure of Masking, Photolithography & Etching, Role of Nanotechnology in Solar Cell, Module Lamination & Fabrication. Solar PV System: Classification, Stand-Alone Solar PV System, Grid Interactive Solar PV System, Hybrid Solar PV System, Battery technology, Introduction : Basic Concepts, Components of Battery, Operation of Battery, Battery Characteristics, Classification of Batteries, Classical batteries : Lead Acid, Nickel Cadmium, Zinc Manganese dioxide, Inverter, Classification of Inverter, Single Phase Series Inverter, Single Phase Full Bridge Inverter, Single Phase Inverter Output Voltage Control, Single Pulse Width Modulation, Multiple Pulse Width Modulation. Smart Grid Technology: Evolution of Electric Grid, Concept of Smart Grid, Definition of Smart Grid, Need of Smart Grid, Functions Smart Grid, Opportunities and Barriers Smart Grid, Difference between Conventional Grid and Smart Grid, Concept of Resilient Grid and Smart Grid, Role of Smart Meter in Smart Grid, Real Time Pricing, Smart Appliances, Automatic Meter Reading(AMR),



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Smart Sensors, Smart Grid Life Cycle, Regulatory & Cost Recovery, Strategy & Planning, Technology Integration, Business Process Readiness, Compliance & Risk Management. Solar PV Applications: Grid Interactive PV Power Generation, Water Pumping, Lighting, Medical Refrigeration, Village Power, Telecommunication and Signaling.

PHY422 Solar Selective Materials

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **PHY111**

The course provides an overview of solar selective materials. Students learn the following subjects: Characterization of Selective Surfaces. Description of Types of Absorbers. Intrinsic or “mass absorbers.” Semiconductor-metal tandems. Multilayer absorbers. Metal-dielectric composite coatings. Surface texturing. Selectively solar-transmitting coating on a blackbody-like absorber. Temperature Range of Absorber Materials. Mid-temperature selective surfaces ($100^{\circ}\text{C} < T < 400^{\circ}\text{C}$). High-temperature selective surfaces ($T > 400^{\circ}\text{C}$).

PHY423 Nano-photonics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **PHY221**

Introduction to Nano-photonics: Modern optical science and technology and the diffraction limit – Breaking through the diffraction limit – Nano-photonics and its true nature. Basis of Nano-photonics: Optical near fields and effective interactions as a base for Nano-photonics – Principles of operations of Nano-photonic devices using optical near fields – Principles of nanofabrication using optical near fields. Fundamentals of Nano-photonic Devices: Excitation energy transfer – Device operation: Nano-photonic AND gate & nano-photonic OR gate – Interconnection with photonic devices – Room temperature operation.

Fundamentals of Nano-photonic Fabrication: Adiabatic nanofabrication – Nonadiabatic Nano-fabrications: near field optical CVD and near field photolithography – Self assembling method via optical near field interactions – Regulating the size and position of nanoparticles using size dependent resonance – Size controlled, position controlled and separation-controlled alignment of nanoparticles. Fundamentals of Nano-photonic Systems: Introduction – Optical excitation transfer and system fundamentals – Parallel architecture using optical excitation transfer – Interconnections for Nano-photonics – Signal transfer and environment – tamper resistance – Hierarchy in Nano-photonics and its system fundamentals.

PHY428 Practical Training and Internship

4 Cr. Hrs. = (**2** LCT + **0** TUT + **4** LAB + **0** OTH) – SWL = **210** – ECTS = **8**

Prerequisite - - -

The course provides the student with an opportunity to gain knowledge and skills from a planned work experience in the student's chosen career field. In addition to meeting Core Learning Outcomes, jointly developed Specific Learning Outcomes are selected and evaluated by the Faculty Internship Advisor, Work-site Supervisor, and the student. Internship placements are related to the student's program of study and provide learning experiences not available in the classroom setting. Internships provide entry-level, career-related experience, and workplace competencies that employer's value when hiring new employees. Internships may also be used as an opportunity to explore career fields. Students must meet with an Internship Education Program Advisor prior to registering.

PHY461 Solar Thermal Energy II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PHY364**

Students learn the following subjects: Concentrating Collectors: Flat-



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



plate Collectors with Plane Reflectors, Tracking lodes & Analysis of Cylindrical Parabolic Collector, Compound Parabolic Collector (CPC), Paraboloid Dish Collector, Central Receiver Collector. Other Solar Thermal Devices: Solar still basin & multiple effect, Solar Cookers, Box Type, Paraboloid Dish, Scheffler Type, Solar Dryers: Cabinet Type Dryer & Indirect Driers, Solar Ponds & its Analysis. Other Applications of Solar Energy: Solar Distillation, Solar Pumping, Solar Cooking, Solar Cooling & Refrigeration. Thermal Energy Storage: Sensible Heat Storage, Latent Heat Storage, Thermo-Chemical Storage. Applications: Thermal energy storage: various methods and applications, Solar ponds: thermal applications, Thermal Power Conversion, Solar Cooling and Heating, Solar Desalination, Drying, Solar Pumping.

PHY462 Bio-Energy II (Thermo-Chemical Conversion of Biomass)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PHY365**

Students learn the following subjects: Biomass: Biomass Composition, Properties of Biomass, Thermal degradation: Steps, Arrhenius law, Kinetics, Gas Producers. Gasification: Principles of Gasification, Pre-Treatment of Biomass, Physical Treatment: Mechanically Grinding & Chipping, Moisture Removing or Adding, Application of Binding Agent, Steaming, Torrefaction, Chemistry of Gasification, Types of Gasifiers and Zones, Updraft Gasifier – Principles – Design – Application, Downdraft Gasifier - Principles – Design – Application, Cross Draft Gasifier - Principles – Design – Application, Open core Gasifier - Principles – Design – Application, Fluidized Bed Gasifier - Principles – Design –Application – Models. Gasifier Applications: Engine system: Requirements, Thermal application: System, Requirements. Combustor: Wood Burning Stoves, Principle of Wood Burning Stoves,

Design: Wood Burning Stoves. Pyrolysis: Pyrolysis Plants, Principle of Pyrolysis Plants, Products Recovery from Pyrolysis Plants. Cogeneration: Principle & Classification (Topping Cycle, Bottoming, Cycle, Combined cycle, Rankine Cycle) of Cogeneration.

PHY463 Energy Storage System II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **PHY366**

The course provides an overview of the Energy storage system. Students learn the following subjects: SENSIBLE HEAT STORAGE (SHS). Mediums for SHS, Stratified storage systems, Rock-bed storage systems, Thermal storage in buildings, Energy storage in aquifers. LATENT HEAT THERMAL ENERGY STORAGE PHASE. Change Materials (PCMs): Selection criteria of PCMs, Solar thermal LHTES systems, Energy conservation through LHTES systems, LHTES systems in refrigeration and air conditioning systems, Areas of Application of Energy Storage, Food preservation, Waste Heat Recovery, Solar Energy Storage, Green House Heating, Power Plant Applications, Drying and Heating for Process Industries. FUEL CELL. Introduction to Technology Overview, Critical Functions of Cell Components, Fuel Cell Types, Characteristics and Advantages/Disadvantages of Fuel Cell, Fuel Cell Calculations, Fuel Processing Calculations, Applications of Fuel Cells.

PHY464 Introduction to Electric Power Systems

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite **PHY313PHY341**

Students learn the following subjects: fundamentals of energy-handling electric circuits, power electronic circuits such as inverters, and electromechanical apparatus. modeling of magnetic field devices and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



description of their behavior using appropriate models. simplification of problems using transformation techniques. analysis of power electric circuits, magnetic circuits, and elements of linear and rotating electric machinery. use of lumped parameter electro-mechanics to understand power systems. models of synchronous, induction, and DC machinery. the interconnection of electric power apparatus and operation of power systems.

PHY465 Wind Energy

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite PHY111PHY211

The course provides an overview of Wind Energy. Students learn the following subjects: Basics of Wind: Causes of wind, Types of Winds, Planetary or Permanent Winds, Trade Winds, Westerlies Winds, Polar Winds, Periodic Winds, Sea Breeze Winds, Land Breeze Winds, Monsoon Winds: Summer, Winter, Local, Local & Regional Wind System, Meteorology of Wind: Global Circulation, Forces influencing Wind – Pressure Gradient Force & Coriolis Force, Power in the Wind. Wind Measurement Techniques: Measurement & Instrumentation, Wind Data Presentation, Power Law Index, Betz Constant, Terrain value, Wind data Characterization, Mean Wind Speed, Wind Speed Distribution: Diurnal Pattern, Depression & Anti-Cyclones and Annual Pattern, Wind Turbulence Characteristics: Short-term fluctuations & Long-term fluctuations, Wind Direction Distribution, Wind Shear, Wind Data Statics, Weibull, Rayleigh & Normal Distributions. Wind Resource Assessment: Atmospheric Boundary Layer, Atmospheric Stability, Wind Power Conversion, Wind Power Estimation, Site Survey & Analysis. Windmill Site Selection & Micro Siting Aerodynamics & Windmill Blade. Wind Energy Conversion: Wind Mill, Basic Components of Wind Mill Conversion System, Types of Wind Mills – Based on: Application, Wind Flow Direction, Tower Type & Height, Rotor, Controls, Axis, Number & Types of Blades, Speed, Inventor & Make, Development of Wind

Turbine, Wind Turbine Terminology, Tip Speed Ratio, Tip Loss, Lift / Drag / Axial Thrust, Slip Stream Theory, Rotor Solidity, Power & Torque co-efficient, Co-efficient of Performance, Efficiency, Wind Turbine Performance Analysis.

PHY466 Other Renewable Energy Sources

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite PHY111PHY211

Students learn the following subjects: Geothermal Resources: Hydrothermal Resources, Geo-pressured Resources, Hot Dry Rock Resources, Magma Resources, Advantages & Disadvantages of Geothermal Energy. Applications of Geothermal Energy: Electric Power Generation, Industrial Process Heat, Space Heating for various kinds of buildings. Tidal Energy: Origin & Nature of Tidal Energy, Tidal Energy Technology, Advantages & Limitations of Tidal Energy, Environmental Impacts. Wave Energy: Energy & Power in Waves, Wave Energy Technology, Heaving Float Type, Pitching Type, Heaving & Pitching Float Type, Oscillating Water Column Type, Surge Devices, Advantages & Disadvantages of Wave Energy. Ocean Thermal Energy: Ocean Thermal Conversion Technology (OTEC), Open Cycle OTEC System, Closed or Anderson OTEC System, Environmental Impacts.

PHY467 Energy Efficiency in Building and Ecob

3 Cr. Hrs. = (2 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

The course provides an overview of Energy Efficiency in Building. Students learn the following subjects: Energy Conservation in Buildings: Criticality of resources (Energy & Water), Heat Loss and Heat Gain and its evaluation, Thermal Comfort Improvement Methods, IAQ Requirements, Electrical Energy Conservation, Opportunities and Techniques for energy conservation in Buildings. Thermal Behaviour of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Building: Orientation and Planning for Environment, Principles of Heat, Thermal Insulation, Humidity and Condensation, Humidity and Condensation, Admittance Method, Building energy Simulation, Load Calculation. Efficient Lighting and Daylighting: Principles of Lights, Artificial Lighting, Natural Lighting, Lighting and Visual ability, Light sources and Luminaries, Lighting System Design, Impacts of Lighting efficiency, Installed Interior and Exterior Lighting Power. Energy Conservation in Air Conditioning System: Energy Conservation in pumps/fan/ blowers, Refrigerating machines, Heat Rejection Equipment, Energy efficient motors, Insulation. Indoor Environmental Requirement and Management: Thermal Comfort of Building, Air

Conditioning Requirement, Illumination Requirement, Auditory Requirement, Energy Management Options. Service Hot Water & Pumping: Mandatory Requirements of Service Hot Water, Solar Water Heating, Equipment Efficiency, Supplementary Water Heating System, Piping Insulation, Swimming Pools.

PHY495 Special Topic

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Mathematics

MAT110 Basic Mathematics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Basic nutritional definitions and terms - Relationship between nutrition and health- Importance of balanced diet- Signs of good nutrition- Food Pyramids-Basic energy and macronutrients and micronutrients needs. Classes of macronutrients and micronutrients and deficiency problems.

MAT111 Mathematics I

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The calculus part covers functions, Properties of functions, Type of functions, Invers function, Limits, Continuity, Derivatives, Rate of change, Higher derivatives, Applications of differentiation: L'Hopital's Rule, Mean Value Theorem, Related rates, Maximum and minimum. The Linear Algebra part covers Systems of Linear equations, Theory of matrices, Determinants, and Examples and Applications in Systems of Equations, Economics, Physics, Geometry, and Chemistry.

MAT112 Mathematics II

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The calculus part covers Riemann integration, Techniques of integration, Improper integrals, Multiple Integrations, Applications of

integration. The algebra part covers, Mathematical logic, Sets and Relations, Techniques of proof, Complex numbers.

MAT113 Pre-Calculus

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Sets and relations, Properties of Real Numbers, polynomial, rational, exponential, logarithmic and trigonometric functions, and their graphs.

MAT121 Dynamics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Particles Dynamics in Two and Three Dimensions (Constrained motion), Motion of a System of Particles (Linear Momentum of a System of Particles), Angular Momentum, Composition of Angular Velocities, Moving Axes, Orthogonal Transformations, Instantaneous Axis of Rotation, and Instantaneous Center of rotation.

MAT122 Statics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Vector algebra, Moment of force, Couples, Equivalent forces and couples, Equilibrium of rigid body in two dimensions, Friction, Center of gravity, relative motion, Impulsive forces, resisted motion, Simple harmonic motion, Changing mass problems, Projectile motion under gravity.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**MAT123 Mechanics**

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 –

ECTS = 6

Prerequisite ---

Vector algebra, Moment of force, Couples, Equivalent forces and couples, Equilibrium of rigid body in two dimensions, Friction, Center of gravity, relative motion, Particles dynamics in two and three dimensions (Constrained motion), Motion of a system of particles (Linear momentum of a system of particles), Angular momentum, Composition of angular velocities, Instantaneous axis of rotation and instantaneous center of rotation.

MAT131 Probability and Statistics I

3 Cr. Hrs. = (2 LCT + 2 TUT + 1 LAB + 0 OTH) - SWL = 195 - ECTS

= 6

Prerequisite ---

Sets, Techniques of counting, Probability spaces, Independence and dependence, Conditional probabilities, Random variables, Expectation, variance, and moments, Moment generating functions, Independence of random variables, Conditional expectation, Discrete and continuous distributions, Joint and marginal distributions

MAT211 Mathematics III

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

First order differential equations: Basic concepts, Separable, Exact, Linear. Second order differential equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant coefficients, Nonhomogeneous ODEs. Higher-Order Linear differential equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant

coefficients.

MAT212 Linear Algebra

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Matrices and Gaussian elimination, Vector Spaces, Vector calculus, Orthogonality, Determinants, Eigenvalues and Eigenvectors, Positive definite matrices, Computations with matrices, Linear programming, and Game theory.

MAT214 Pure Mathematics for Business

4 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 195 – ECTS = 8

Prerequisite ---

Functions, Types of Functions, and Graphs. Limits, continuity, and Differentiation. Sequences and Series. Metrics and Determinants. System of Linear Equations. Linear Programming. Techniques Integration.

MAT215 Mathematics of Finance

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Topics covered are Functions and Types of Functions. Limits, Sequences, Series, and Applications (Interest Rates and Annuities). Matrices, Determinants, and linear System of Equations. Leontief Economic models. Linear Programming.

MAT216 Introduction to Risk and Insurance

3 Cr. Hrs. = (3 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Topics covered include Part 1: Risk and its Treatment. Basic concepts



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



of risk. Risk management. Part 2: The insurance industry. The insurance Mechanism. Types of insurance. Part 3: Law and the insurance contracts. Fundamental Legal principles. Analysis of insurance contracts. Part 4: Government Regulation of insurance. Government Regulation of insurance. Characteristics of the insurance industry in Egypt and developing countries. Part 5: Morality tables life insurance premiums. Mortality tables. Pure endowment and commutation symbols. Life annuities. Life insurance. Annual and gross premiums. Moments and products of inertia, the theorem of parallel and perpendicular axes, Angular momentum of rigid body about a fixed point and fixed axes, Newton's laws of motion, Conservation of angular momentum, Conservation of energy, Three dimensional rigid body (Euler's equations of motion, Motion of rigid body under no forces, Eulerian angles, Motion of a symmetrical top, General three dimensional rigid body motion, Accelerated coordinate system.

MAT221 Rigid Body Dynamics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Moments and products of inertia, the theorem of parallel and perpendicular axes, Angular momentum of rigid body about a fixed point and fixed axes, Newton's laws of motion, Conservation of angular momentum, Conservation of energy, Three dimensional rigid body (Euler's equations of motion, Motion of rigid body under no forces, Eulerian angles, Motion of a symmetrical top, General three dimensional rigid body motion, Accelerated coordinate system.

MAT231 Probability and Statistics II

3 Cr. Hrs. = (2 LCT + 1 TUT + 2 LAB + 0 OTH) - SWL = 195 - ECTS = 6

Prerequisite **MAT131**

Normal distribution, Law of large numbers, Central limit theorem,

Distributions derived from Normal distribution: Chi-squared, Student-t, and F distributions, Statistical estimation, Point estimation, Confidence intervals, Test of hypotheses, Fitting straight lines, Analysis of variance, Stochastic models, Poisson processes.

MAT232 Statistics and Data Analysis

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

Examining relationships between two variables using graphical techniques, Simple linear regression, and correlation methods. Producing data using experiment design and sampling. Elementary probability and the basic notions of statistical inference including confidence interval estimation and tests of hypothesis. One and two sample t-tests, one-way analysis of variance, inference for count data and regression. Methods of counting and probability, Random variables and their probability distribution, Special probability distributions, Sampling distributions.

MAT312 Differential Equations

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **MAT112**

First order differential equations: Basic concepts, Separable, Exact, Linear. Second order differential equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant coefficients, Nonhomogeneous ODEs. Higher-Order Linear Differential Equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant coefficients, Partial differential equations, and Laplace transforms.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**MAT313 Differential Equations and Numerical Analysis****4** Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **8**Prerequisite **MAT112**

First order differential equations: Basic concepts, Separable, Exact, Linear. Second order differential equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant coefficients, Nonhomogeneous ODEs. Higher-Order Linear Differential Equations: Homogeneous linear ODEs, Homogeneous linear ODEs with constant coefficients, Solution of equation by iteration, Interpolation Numeric integration and differentiation, Linear system (Solution by iteration), Method for first ODEs, Multistep Method.

MAT314 Discrete Mathematics**4** Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **8**

Prerequisite - - -

Sets, Relations, Functions, Techniques of proof, Enumerative Combinatorics, Introduction to Graph Theory, Network flow and matching, Introduction to Number Theory.

MAT315 Numerical Analysis**3** Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6**Prerequisite **MAT112**

The main objective of this course is to familiarize the students with the fundamental concepts of Numerical computations which will be used as background knowledge for the understanding of specialized courses in the fields of artificial intelligence and computer engineering.

The course will develop numerical methods aided by technology to solve algebraic, transcendental, and differential equations, and to calculate derivatives and integrals numerically. It also sheds light on curve fitting including regression and interpolation models. The course will further develop problem solving skills needed in computer engineering and science.

MAT316 Statistical Modelling**3** Cr. Hrs. (**2**LCT+**0**TUT+**3**LAB + **0** OTH) - SWL=**150**- – ECTS =**5**Prerequisite: Biostatistics **PHS236**

This course addresses the appropriate selection of variables to recreate statistical models, model integrity, the concept of the r2 statistic with application to linear regression and logistic regression models.

MAT495 Special Topic**3** Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

Advanced topics related to field.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

Department of Public Health Sciences

PHS021 Public health Geography

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite: **None**

Definitions and History. Spatial Factors affecting Human health. Classification of geographical distribution of infectious and Chronic Diseases. Spatial Relationship between chronic diseases and professional type. Climate change and future distribution of infectious and chronic Diseases

PHS131 Basic Epidemiology

2 Cr. Hrs. (1 LCT + 2 TUT + 0 LAB + 0 OTH) - SWL = 150 – ECTS = 5

Prerequisite: **None**

This course is an introduction to the basic principles and methods of epidemiology. This course emphasizes critical thinking, analytic skills, and subsequent application to clinical practice and research. Topics covered will include outcome measures, methods of adjustment, surveillance, quantitative study designs.

PHS132 Medical terminology and Professional Writing and

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB) - SWL = 105 – ECTS = 4

Prerequisite: LAN021

This course provides the basic tools of analytical reasoning, teaching students how to think effectively. Although this course is philosophical by nature, it is essential to every major discipline, including medicine and the health sciences. The course will introduce a wide range of

reasoning skills, such as verbal argument analysis, formal logic, quantitative reasoning, scientific methodology, and creative thinking. This course will also introduce students to writing and other communication tools that scientists employ, which will prepare students for effective communication. This course will cover writing for an academic journal, creating effective graphs, researching scientific databases, scientific posters, as well as communication ethics.

PHS133 Professionalism in Public Health

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 105 – ECTS = 4

Prerequisite: **None**

This course will help students understand the concept of professionalism and how it relates to their own competence, confidence, commitment, and awareness as a professional. The course will introduce key ethical frameworks and concepts relevant to public health research and practice. The course will also use a case-based approach to ethical dilemmas in several domains, including resource allocation and distributive justice, autonomy and paternalism, health promotion and disease prevention, research ethics, clinical care, and emerging issues in public health ethics. The course will cover professionalism in communication, interpersonal relationships, integrity and appropriate professional practices, confidentiality, population or patient safety, appropriate lab safety practices and safety in the field.

PHS134 Health Psychology:

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 3

Prerequisite **None**



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

This course introduces the basic concepts of health psychology, including the different medical disorders and diseases and their impacts on psychological health psychological functioning of individuals. This course will also examine physical limitations and adaptations, accessibility issues, psychological treatments, depression and illness, traumatic injuries, as well as neuromuscular diseases, cancer, and chronic pain, and promotion of health behaviors.

PHS135 Communication, Behavioral Change and Sociocultural Dimensions

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **None**

This course covers Hoefstede's dimensions of culture, theories of behavioral change, diffusion of innovation and communication strategies and approaches for collaborating with communities. The course is meant to equip the students with the knowledge and skills for change management in diverse cultures.

PHS200 Field Training Experience

1Cr Hrs=(**4** field+**0** LCT+**0**TUT+**0**LAB)-SWL=**90**– ECTS =**3**

Prerequisite **None**

Training to prepare students to consider public health as a career to ensure a future where the community benefits from a more diverse and better trained public health workforce. During their internships/fellowships, students work in a variety of public health settings including community organizations, health departments, university-based programs, provide students with opportunity to apply theories, principles, and skills learned in the first two levels of the program, and it should provide the internship supervisor with an opportunity to assess the professional strengths and weaknesses of students.

PHS211 Basics of Nutrition

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150**– ECTS = **5**

Prerequisite: **BMS144**

An integrated overview of the physiological requirements and functions of protein, Fat , carbohydrates and the major vitamins and minerals that determine health and diseases, with an emphasis on human populations. Topics covered major nutrients - their dietary sources, intake levels, physiological roles, and their requirements, as well as the role of nutrition in health/growth, and the relationship between diet and chronic illnesses.

PHS221 Introduction to Environmental and Occupational Health

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **CHE143**

This course covers the relationship between people and the environment, how the environment affects physical well-being, and ways of influencing the quality of the environment and enhancing health protection. This course also introduces major concepts and issues in occupational health and safety. Students identify a conceptual framework for working with populations of workers and identify work-related hazards are controlled.

PHS231 Research Methods in Public Health

2 Cr. Hrs (**1**LCT+ **2** TUT+**0** Lab) - SWL= **150** – ECTS = **5**

Prerequisite: **None**

This course prepares students to design their own empirical research and evaluate other public health research. The course begins with a strong foundation in social science, describing the several theoretical approaches used in public health. The course also explores the details



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

of public health research design, covering qualitative, comparative, and quantitative research design and analysis methods.

PHS232 Health Informatics

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **3**

Prerequisite: **None**

This course introduces public health students to the interdisciplinary field of health informatics - the optimal usage of knowledge, data, and information in the advancement of individual health, health care, public health as well as health-related research. This course also evaluates health informatics from a stakeholder perspective, examining the role of information professionals and the extent to which technology can help meet the health information needs of various users such as healthcare services providers, clinicians, health educators, consumers, patients, and caregivers.

PHS233 Introduction to Communicable Diseases and Surveillance

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **BMS171**

An introduction to the cycle of communicable disease, methods of transmission and epidemiology, and principles of public health surveillance, its different uses, and legal basis for disease reporting. This course will explore the steps in establishing a surveillance system, as well as the steps to evaluate this system. This course will also highlight and compare surveillance systems from a local, governorate, national and international level.

PHS234 Introduction to Non-Communicable Diseases

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **BMS135**

This course explores global non-communicable diseases (NCD), disease burden and associated risk factors, and the interplay between various NCDs in terms of morbidity and mortality, paying close attention to NCDs that significantly impact the global burden of disease.

PHS235 Health Promotion and Education

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **PHS135, PHS134**

An exploration of the various topics that affect the profession of health education and health promotion. This course will introduce the historical origins of health education and public health, examine learning theories, and will critically examine emerging issues and trends in the field and professional responsibilities of public health educators. It will also cover behavioral change, communication, and disease prevention

PHS236 Biostatistics

3 Cr. Hrs. (**2** LCT+ **1** TUT+ **2** LAB+ **0** OTH) - SWL= **150**– ECTS = **5**

Prerequisite: **None**

This course provides public health students with the biostatistical methods and principles necessary in understanding and interpreting public health data, with the aims of policy evaluation and formation. Topics covered in this course include descriptive and analytic statistics, graphical, tabular, and mathematical data presentation, sampling, statistical comparison of groups, correlation, and regression, parametric and non-parametric tests. Classroom instruction will include lectures, group discussions, critical reading of published research, and analysis of data using a chosen statistical software. The statistical packages



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

used will include SPSS, Satsdirect, SAS, and STATA.

PHS241 Healthcare Systems and Primary Healthcare

2 Cr. Hrs (**2**LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS =**4**

Prerequisite: **None**

This course addresses the roles of patients, physicians, hospitals, insurers, and pharmaceutical companies along with the interaction between the government and these different groups. The course aims to provide skills for critical and analytical thought about the Egyptian health care system and the people in it. This course examines the structure of health care systems in different countries as well, focusing on financing, reimbursement, delivery systems and adoption of new technologies. A special focus is given to the relative roles of private sector and public sector insurance and providers, and the effect of system design on cost, quality, efficiency, and equity of medical services. Current national health care policy initiatives will steer topics covered in the course.

PHS251 Introduction to Healthcare Management

2 Cr. Hrs (**2**LCT + **1** TUT + **0** LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **None**

The course provides an overview of how health care institutions are organized and governed, the role of management, clinical and support staff in these organizations. It addresses the management systems designed for their efficient and effective operation. Using case studies, students learn concepts and theories in health care management and integrate health care management theory with real world situations.

PHS261 Principles of Genomics

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) - SWL = **135** – ECTS =**5**

Prerequisites: **None**

This course introduces genetics and new genomic technology, and highlights how they impact the community, individual health, public health, and health service delivery. The course will introduce genomic testing and screening methods, examine the utility of genomics throughout the life stages, consider the interplay between genes and environment; debate the various ethical and social issues associated with genomic technology, and finally investigate current and future service delivery issues. This course also assesses genomic technology from clinical, financial and policy perspectives.

PHS311 Global demographics and Burden of Disease

3Cr. Hrs (**2**LCT+ **2** TUT+**0**LAB+ **0** OTH) - SWL=**150**- ECTS =**5**

Prerequisite: **PHS131, PHS236**

This course explores how human populations grow and how they change by birth, death, and migration. It examines how and why birth and death rates change, and how governments and other groups attempt to consider the effects of birth rates, death rates, and migration on public health, the economy, the environment, and other aspects of human well-being. The course then introduces students to the concepts, technical components, and quantitative methods for burden of disease measurement. This course focuses on constructing aggregate measures such as years of life lost (YLL), years lived with disability (YLD), and disability-adjusted life years (DALYs). Furthermore, this course will discuss a range of measurement techniques that combine information on mortality and nonfatal health outcomes for a host of different diseases. This course will provide students with an understanding of the methodological and empirical



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

basis for quantifying burden of disease estimates for national and global health priorities. Students will learn how to use sparse data covering mortality, morbidity, causes of death, individual health status, and condition-specific epidemiology to determine levels of health within different populations, particularly in developing countries.

PHS312 Global Climate Change

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **PHS221**

This course aims to address the complexity of climate change as a global environmental challenge. This course will combine the evidence-based science and the fundamental physical processes underlying climate change, its potential impacts such as sea level change and vegetation/precipitation changes, analysis, as well as abatement/mitigation/adaptation technologies, communication tools and policy solutions.

PHS313 International Studies in Public Health

3Cr. Hrs (**2**LCT+ **2** TUT+**0**LAB+ **0** OTH) - SWL=**135**– ECTS =**5**

Prerequisite: **None**

This course introduces students to theories of globalization and their impact on healthcare, particularly in low- and middle-income countries (LMIC), laws and ethics, and international health security, explore the overall political makeup of the international system, gain insight into development issues and the challenges faced by developing countries. It also examines the workings of economic systems from the perspective of the incentives facing the firm and consumer and introduces the economics of information and organization which is used to evaluate resource allocation under the specific institutional environment of different economic systems. The course also samples aspects of international and human rights laws that are pertaining to health.

PHS314 Health Inequities

2Cr. Hrs (**1**LCT+ **2** TUT+**0**LAB+ **0** OTH) - SWL=**135**– ECTS =**5**

Prerequisite: **PHS329**

This course teaches the students to address systemic differences in health and wellness that are, actionable, unfair, or unjust, to explore policies and strategies for changing the culture of organizations, engaging community members, and negotiating with political pressures strategically, to examine what frames influence public health work. Discuss how values, assumptions, and interests affect the capacity for addressing health inequities, Explore the transformation of public health during the last 150 years, including the forces that advanced or limited the field in various countries and settings. The course examines the importance of class structure, racism, and gender inequity in the development of health inequities and explores the principles of social justice and ways to influence the institutions and agencies that generate health inequity.

PHS315 Communicable Disease Prevention and Control

3 Cr. Hrs (**2** LCT+**2** TUT+**0**LAB+ **0** OTH) - SWL=**150** – ECTS =**5**

Prerequisite: **PHS131 ,PHS233**

BMS171 Foundations of Infections and Infestations

This course discusses the major methods for transmission of communicable disease, their risk factors and disease characteristics, the disease geographical distribution, methods for controlling and preventing transmission.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS316 Global Politics of Public Health

3Cr. Hrs (2LCT+ 2TUT+ 0LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: [PHS135](#)

This course will critically examine how international powers and policy instruments of international and supranational institutions, new global actors, and emerging economies are transforming the process and content of health policy. It will also highlight challenges facing the World Health Organization in fulfilling its mandate, and critically assess recent attempts at institutional and policy reform.

PHS317 Health and Livability

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 135 – ECTS =5

Prerequisite: [None](#)

This course introduces health and livability, principles of public health, how to measure public health referring to principles of epidemiology, social determinants, and planning for health. Further, it will refer to planning and measuring livable city.

PHS318 Mortality Surveillance Methods & Strategies

3Cr. Hrs. (2LCT+ 2TUT+ 0LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: [None](#)

Reliable and timely information on cause-specific mortality is a critical part of identifying emerging health problems and a fundamental component of evidence-based health policy development, implementation, and evaluation. Efforts to measure population-level impact of global epidemics, including HIV/AIDS, and develop effective responses are complicated by a lack of dependable mortality data in countries with the highest burden of disease.

This course will provide participants with a basic understanding of the importance and usefulness of mortality data and introduce a range of

approaches to collecting such data. The advantages and limitations of the various methods will also be discussed.

PHS 319 Motivational Interviewing in Public Health Settings

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 90 – ECTS =3

Prerequisite: [None](#)

This course is designed to introduce students to Motivational Interviewing, its concepts, and to the subsequent skills required for helping people to change.

PHS320 Cellular and molecular biology I (from molecules to tissues)

Prerequisites: [BMS144](#), [PHS261](#)

This course introduces the proteome and methods of investigating and analyzing it. The course covers an introduction to mass spectrometry equipment and how it functions, the type of data the equipment delivers after analyzing and the principles of interpreting its output and using it for further statistical analysis.

PHS321 Air and Water Pollution:

2 Cr. Hrs. = (1LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 105- ECTS =4

Prerequisite: [CHE143](#), [PHS221](#)

Highlighting all the major, practical aspects of air pollution control, Students will learn about the environmental effects of air pollution, air pollution meteorology, measurement and control of emissions, pollution prevention, laws and regulations, and compliance enforcement, types, sources and nature of water pollution, water quality management practices, water supply and treatment water quality criteria and standards. Highlighting all the major, practical aspects of air pollution



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

control, Students will learn about the environmental effects of air pollution, air pollution meteorology, measurement and control of emissions, pollution prevention, laws and regulations, and compliance enforcement, types, sources and nature of water pollution, water quality management practices, water supply and treatment water quality criteria and standards.

PHS322 Food Safety, Food Security and Surveillance of Foodborne Disease

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **PHS211**

An investigation into food safety and quality issues, including microbiological and viral threats from food, and the mitigation of food safety 8 threats in food handling facilities. Also covered are allergen control, modern plant sanitation techniques and pest management, and laws related to food safety.

PHS323 Management of Mass Gatherings

2 Cr. Hrs. (**1** LCT+ **2** TUT+ **0** LAB+ **0** OTH) - SWL= **135**– ECTS = **5**

Prerequisite: **PHS315**

This course covers the public health guidelines for mass gatherings and the national preparedness plans for such events in Egypt and other countries.

PHS324 Occupational Safety

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS221**

Exploring occupational safety and ergonomics, students will learn safe work practices in a variety of settings, including offices, industry, and construction. Hazard identification, prevention and communication are also covered in both home and workplace. Associated with occupational

safety and health in these locations as well as in the home. This course will also cover biomechanical principles behind physical activity.

PHS325 Health Geography

3 Cr. Hrs. (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS236**

An advanced course exploring the natural (climate and environmental pollution) and social environments and determinants of health (housing, transport, availability and accessibility to healthcare, legislation). This course also investigates and follows the media to highlight changes in public perceptions and attitudes towards health and health geography. This course will also cover both urban and rural health issues.

PHS326 Air Quality Management

3 Cr. Hrs. (**2** LCT + **0** TUT + **2** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **None**

Highlighting all the major, practical aspects of air pollution control, this is a multidisciplinary course merging science, technology, and regulatory aspects associated with air pollution. Students will learn about the environmental effects of air pollution, air pollution meteorology, air quality management, ambient air quality monitoring, measurement and control of emissions, pollution prevention, laws and regulations, emission inventories, and compliance and enforcement.

PHS327 Microbes, Man and the Environment

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **PHS221, PHS233**

This course delivers the basic principles of microbiology, virology, and mycology, explores how microbes play a critical role in the global ecosystem and how they evolved from more primitive life forms to colonise new environmental niches. Topics covered include diversity of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

energy-generating systems of microbes, microbial structure, replication and motility, carbon and Nitrogen cycling in the ecosystem, microbial associations with plant roots. Legumes, rhizobia and nitrogen fixation, microbial associations with animals and insects: ruminants and hind gut fermenters. Cellulose digestion, methanogens and chytrids, termites and leaf cutter ants. Human-microbe interactions, bacterial pathogenicity, bacterial exotoxins and endotoxins, viral diseases of man, microbial pathogens of plants and insects, colonisation and invasion strategies, antimicrobial agents; targets and modes of action and microbial biotechnology covering microbes and food, food spoilage and toxins, the use of microbes in food and beverage production, exploitation of natural microbial communities in the treatment of sewage, exploitation of bacteria for plant transformation for the production of genetically modified crops, and the use of bacterial toxins and resistance genes for novel pest and weed control.

PHS328 Water Quality and Disease Control

3 Cr. Hrs. (**2** LCT + **0** TUT + **2** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **None**

This course covers the principles of science and engineering used in the evaluation and control of water quality. The course covers current legislation, types, sources and nature of water pollution, water quality management practices, water supply and treatment, hydrologic concepts, effects of waste discharge on water, lake management, and water quality criteria and standards.

PHS329 Health Determinants

2 Cr. Hrs. (**1** LCT + **2** TUT + **0** LAB + **0** OTH) - SWL = **135** – ECTS = **5**

Prerequisite: **PHS135**

This course introduces the students to how social factors, both contextual (e.g., poverty, housing, education) and interpersonal (e.g.,

racism, social support, stigma) are important contributors to health outcomes, how these factors influence health, both individually and in combination, and how this information can lead to the development and implementation of more effective health promotion programs and policies.

PHS331 Advanced Epidemiologic Methods

3 Cr. Hrs. (**1** LCT + **2** TUT + **3** LAB + **0** OTH) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS131, PHS236, PHS231**

This course aims to teach the students to critically read and interpret epidemiologic studies that apply advanced methods for analysis and interpretation, recognize how advanced methods relate to and build upon more traditional epidemiologic methods and demonstrate an ability to identify appropriate situations for the application of various advanced epidemiologic methods. The course discusses the problems caused by missing data, describes mechanisms of how missing data arise, and analytical methods used to analyse datasets with missing data. The course introduces the concept of casual inference, teaches students to use directed acyclic diagrams to represent possible causal pathways, and describes analytical approaches exploring causality in epidemiological data. Students learn to distinguish effect modification from confounding, understand the concept of effect modification on additive and multiplicative scales, describe the importance of effect modification in generalizing results from studies, and demonstrate methods of presenting effect modification. The course also explores how random measurement error affects the estimates of associations between exposure and outcome variables, shows how this relates to regression dilution bias, and recall methods used to deal with random measurement error.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS332 Clinical Epidemiology

3Cr. Hrs. (**2**LCT+ **0** TUT+**3**LAB+ **0** OTH) - SWL= **135**

Prerequisite: **PHS131**

This course aims to deliver an understanding of the use of the term clinical epidemiology and how to frame clinical questions, develop an ability to evaluate results of clinical trials, understand the use of diagnostic tests and develop an understanding of the use of clinical decision analysis. The course covers assessing the validity of studies, communicating the benefits and harms of treatments, diagnostic studies, sensitivity, specificity and predictive values, ROC curves, likelihood ratios, pre and posttest probabilities.

PHS333 Prevention and Control: Vaccines and Immunization

2 Cr. Hrs. = (**1** LCT + **2**TUT + **0** LAB) - SWL = **105** – ECTS =**4**

Prerequisites: **PHS233**

This course addresses vaccine development and testing, historical perspectives, current global immunization schedules. The students learn to utilize epidemiologic methods and study designs to assess both individual and population-level vaccine efficacy and to develop and implement strategies to address the challenges of achieving and maintaining high vaccine coverage in diverse communities .

PHS334 Epidemiology of Non-Communicable Diseases, Mental Health and Ageing

2 Cr. Hrs. (**1** LCT+**2** TUT+**0** LAB+ **0** OTH) - SWL= **135** – ECTS =**5**

Prerequisite: **PHS131**

This course will focus on the considerable and increasing burden of disease due to chronic diseases, mental health, substance use (alcohol, tobacco, other drugs), risk factors (obesity, lack of physical activity), and

injuries within the developing world. It will present methods for measuring the burden of non-communicable disease, review approaches to program and service development to modify risk factors, present lessons learned from successful developing country programs, and discuss implications for health services development and international development policies.

PHS336 Questionnaire Design and Validation

2 Cr. Hrs. (**1**LCT+ **0** TUT+**3**LAB+ **0** OTH) - SWL= **135** – ECTS =**5**

Prerequisite: **None**

This course introduces students to theories underpinning questionnaire design and methods of developing constructs and domains of questions. The course also teaches methods of cross-cultural adaptation and translation of questionnaires, and how to evaluate, validity and reliability of a questionnaire tool.

PHS337 Cancer Epidemiology

3 Cr. Hrs. (2LCT+2TUT+0LAB + 0 OTH) - SWL=135 – ECTS =5

Prerequisite: **PHS131**

This course aims to provide knowledge in the epidemiology of cancer covering cancer incidence and mortality rates, survival statistics and burden of disease, cancer screening, familial and hereditary cancers, environmental and biological carcinogenic hazards, and the process of carcinogenesis. The course also covers survival analysis methods and cancer registry training.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS338 Molecular and Genetic Epidemiology

3 Cr. Hrs. (**2**LCT+**0**TUT+**3**LAB + **0** OTH) - SWL=**150** – ECTS =**5**

Prerequisite: **PHS131, PHS261**

This course provides an overview of the growth of molecular and genetic data sources since the Human Genome Project and the public Health implications of these advances, the role of high throughput equipment in providing genomic data suitable for public health research and practice, the move to the 4P personalized healthcare model and the integration of genomic data into public health research and practice. The course also covers the basic principles of genetic epidemiology; Hardy-Weinberg equilibrium, haplotypes, genetic mapping measures, linkage disequilibrium, data quality control, study design, population stratification. The course also includes an overview of gene association studies, linkage and segregation studies, and genome wide association study designs.

PHS341 Cultural Competency in Healthcare Administration

3 Cr. Hrs. (**2** LCT+ **2** TUT+ **0**LAB) - SWL=**150**– ECTS =**5**

Prerequisite: **PHS134**

This course will discuss the concept of culture, how it changes and influences everyday life, health disparities, and what best practices for enhancing cultural competencies in healthcare organizations and systems. This course will discuss the concept of culture and how systems should incorporate strategies to mitigate those aspects of cultural alienation that result in adverse health outcomes. The course will examine organizational structures and processes that should incorporate cultural competence, and students will explore how all professional roles in health care settings (providers and administrators)

should address service adjustments and measure effectiveness of care and quality of health outcomes across multicultural populations.

PHS342 Health Care Ethics & Law

3 Cr. Hrs. (**2**LCT+ **2** TUT+ **0**LAB) - SWL=**150**– ECTS =**5**

Prerequisite: **PHS133**

This class is designed to introduce the legal and ethical environment of Management of Health Services Institutions. The course will examine ethical decision-making by leaders in healthcare administration. A student will learn to draw on ethical principles and virtues, theories, caring and empathy to make complex ethical decisions. The course will address many of the ethical issues within healthcare organizations, including patient concerns, balancing of the fiscal and ethical responsibilities of healthcare organizations. It will then cover legal issues facing health service administrators including the government regulation of healthcare, informed consent, hospital and provider individual and corporate negligence, Egyptian contract law, the legal basis for hospital governance, and the principals and basis for health care malpractice insurance.

PHS343 Health Economics

4 Cr. Hrs. (**3**LCT+ **2** TUT+ **0**LAB) - SWL=**165**– ECTS =**6**

Prerequisite: **None**

The goal of the course is to expose students to health economics in order to develop an understanding of economic principles as applied to health and health care. Emphasis will focus on developing countries in general and Egypt in particular. Students should apply economic concepts and techniques to analyze issues in health and health care; and understand the principles and techniques of economic evaluation of health interventions using the basic principles of epidemiology.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS345 Health Care Quality Management

3 Cr. Hrs. (**2**LCT+ **2** TUT+ **0** LAB) - SWL= **150** – ECTS =**5**

Pre-requisites: **None**

The purpose of this course is to familiarize the student with the concept of quality and the process of Quality Improvement across the HealthCare continuum. This course focuses on the history and evolution of quality, its terms, principles, theories, and practices. The student is introduced to a diverse collection of methods of improving quality, including but not limited to continuous Quality Improvement and Total Quality Management, and to the guidelines for implementing quality management and the continuous quality improvement processes. Students will be familiarized with Six Sigma and other tools that are an integral component of Process Improvement and Customer Satisfaction. Learners explore the role of leadership in the success of quality and performance improvement initiatives. Quality management (including patient safety, risk assessment and prevention, peer review, and patient experience and satisfaction) and performance improvement and management concepts, systems, practices, and technologies are examined.

PHS346 Introduction to Laboratory Science and Safety

2 Cr. Hrs. = (**1** LCT + **0**TUT + **3**LAB + **0** OTH) - SWL = **135** – ECTS =**5**

Pre-requisites: **None**

The course introduces lab safety strategies, infection control, principles of waste disposal in the lab, techniques of handling lab equipment, logbook procedures and other essential lab procedures.

PHS347 Health Risk Assessment and Management

3Cr. Hrs. (**2**LCT+ **0** TUT+**3**LAB+ **0** OTH) - SWL= **150**

Prerequisite: **PHS131, PHS221**

This course addresses the basic concepts and principles of health risk assessment, hazard identification and characterization. the different types of data from in vivo/animal, epidemiological and in vitro studies as well as exposure data that are used in risk assessment, how the relevance and reliability of the data is assessed, and how different kind of evidence is integrated (for example from animal and epidemiological studies), the principles on how to derive health-based guidance values such as Acceptable Daily Intake (ADI) and to derive Margins of Safety values based on the data are exercised and how to derive health based guidance values such as Acceptable Daily Intake (ADI) based on the data. The course reflects on the role of health risk assessment in regulatory decision making.

PHS351 Human Nutrition & Metabolism

3 Cr. Hrs. = (**2** LCT + **2**TUT + **0** LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **PHS 261, BMS 101**

The course discusses in depth the nutritional, biochemical, and physiological aspects of carbohydrates, lipids, proteins, vitamins, and minerals. It focuses on the absorption mechanisms and transportation of the different nutrients.

PHS352 Assessment of Nutrition Status

3 Cr. Hrs. = (**2** LCT + **0**TUT + **3** LAB) - SWL = **150**

Prerequisite: **PHS 261**

Methods and tools used in screening and assessment of nutritional status of individuals and population groups are studied. Assessment methodology includes dietary surveys, dietary intake analysis,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

anthropometric measures, biochemical measures, and clinical evaluations. Standards of evaluation and validity of procedures used in national surveys and other pertinent studies will be discussed.

PHS353 Nutrition along Lifecycle

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS 351**

The course focuses on the nature, composition, and specific needs of individuals throughout their life span. It covers the physiological changes and requirements during infancy, childhood and adolescence, adulthood, and the elderly with special emphasis on the needs during periods of physiological stress such as pregnancy and lactation.

PHS354 Theories & Techniques of Nutrition Education

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS 351, PHS 353**

The course discusses the various methods and techniques used in nutrition education of the individual and the community. It focuses on the selection of the appropriate method of communication according to the target group of the education program. The student will be trained in the development of educational material that suits the conditions prevailing in the region.

PHS355 Community and Public Health Nutrition

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **PHS 135, PHS 352**

Corequisite: **PHS 353**

This course will introduce Community and Public Health Nutrition and the role of the Community and Public Health Nutrition professionals. It offers a comprehensive perspective on nutritional epidemiology,

assessment of the food supply and environment, collection, analysis, and interpretation of dietary intake data for communities and populations, and program planning, implementation, and evaluation. The distinction between population-based and individual-based approaches to prevention and alleviation of diet-related conditions, and the barriers to improving the nutrition status and health of diverse population groups will be emphasized. Other topics covered include food and nutrition policies and legislation, and food assistance programs and Hunger in the context of SDGs

PHS356 Clinical Nutrition 1

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB) - SWL = **165** – ECTS = **6**

Prerequisite: **BMS135**

The course includes an introduction to nutrition in health care and hospital nutrition. Students will understand principles and application of medical nutrition therapy as related to specific disease states. Topics include the nutrition care process, nutrition screening and assessment in hospital settings, and an introduction of therapeutic diets.

PHS357 Obesity Control and Prevention

3 Cr. Hrs. (**2** LCT+ **2** TUT+ **0** LAB) - SWL= **150**– ECTS = **5**

Prerequisite: None

Obesity is one of the major global public health problems. This course will focus on definition and classification of obesity, its global burden and consequences as well as exploring the basic principles of, and latest trends in, weight management. This course includes coverage of assessment techniques, behavioral and non-behavioral treatment approaches, and prevention strategies.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS 358 Food Laws and Regulations

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 90 – ECTS = 3

Prerequisite: None

The course explores the history, importance, development and enforcement of local, national, and international food laws and regulations that affect the food processing industry and food consumers and how they contribute to a safe, nutritious, and wholesome food supply. In addition, the course will give students a comprehensive awareness of the different types of food standard, especially those in connection with food quality, safety, and labelling, marketing, grading, food additives as well as toxic and harmful substances in foods and international trade.

PHS 359 Food Marketing and Consumer Behavior

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 90

Prerequisite: None

Psychological and environmental (physical and social surroundings) factors influence our food choices, often beyond physiological signals such as hunger and satiety. In this course students will learn about basic marketing and consumer psychology principles, which can help promote new food products and create healthier food environments in the long

PHS361 Cellular and Molecular Biology I

3 Cr. Hrs. = (1 LCT + 2 TUT + 3 LAB + 0 OTH) - SWL = 150 – ECTS = 5

Prerequisites: BMS144

This course aims to build knowledge of the cell and the important biological molecules from a bottom-up approach starting with molecular components to cellular organelles. Topics covered include: the chemical basis of life, DNA and RNA structure, peptides, enzymes, hormones,

the cell membrane, ribosomes, mitochondria, cell replication and signaling, cell division and the cell cycle, techniques in molecular biology.

PHS362 Human immunology and immune markers

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 135 – ECTS = 5

Prerequisites: BMS144

This course aims to introduce students to key aspects of the human immune system and human immunology. Topics covered include the development of the human immune system and the nature of human immune responses, key concepts of Autoimmunity and Autoimmune Diseases, with focus on Systemic Lupus Erythematosus (SLE), key roles of the immune system in cancer development and current Cancer Immunotherapy.

PHS363 Legal, ethical & Social Issues in Applied Genetic

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) - SWL = 105 – ECTS = 4

Prerequisites: None

The course considers issues of human confidentiality, autonomy, disclosure, informed consent, and natural justice within an ethical framework. The course explores the impact of genomic technologies on individual lives and those of demographic and ethnic groups. There will also be an opportunity to discuss the social implications of the availability of genetic testing and screening, especially in the context of reproductive technologies taking into account demographic and ethnic differences. The course also discusses the pertinent issues related to the development of new genomic technologies.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

AL ALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
AL ALAMEIN
INTERNATIONAL UNIVERSITY

PHS364 Structure and Function of the Human Genome

3 Cr. Hrs. = (1 LCT + 2TUT + 3LAB + 0 OTH) - SWL = 165 – ECTS =6

Prerequisites: [PHS261](#)

This course aims to introduce the students to the structural units of the human genome and their normal variations, as well as the pathogenic variations. The course also covers chromosomal structure and cell division stages, inherited abnormalities, gene functions and the concept of sequence, RNA role as messenger and cell signaling

PHS365 Pathophysiology II from Tissues to Organ Systems and healthy Humans

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB) - SWL = 135 - ECTS = 5

Prerequisite: [BMS135](#), [PHS361](#)

This course builds on what is taught in PHS Cellular and Molecular Biology I from molecules to tissues by continuing further in a bottom-up approach from tissue structure and function to organs and organ systems, and finally the human being in health and in disease.

PHS366 Library Preparation for Sequence Analysis

2 Cr. Hrs. (1LCT+ 0 TUT+3LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: [PHS364](#)

In this course, students learn how to assemble a library on the software used for sequencing data for various equipment.

The course will provide a focus on applications relevant to Public Health.

PHS367 Introduction to proteomics & mass spectrometry

2 Cr. Hrs. (1LCT+ 0 TUT+3LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: [PHS322](#)

This course will help students develop knowledge of proteomics as well as the current trends within the protein technology and proteomics field.

PHS368 Genome Sequencing Technology

Prerequisites: [PHS364](#)

The course explores the technology of gene sequencing and its progress over time, how the currently available equipment operates, the microflow of the samples inside the machine, sample preparation, library building, setting up the sequencing project, interpreting the sequencing data, using the manufacturer's software and third-party software, analyzing sequencing data. The course will provide a focus on applications relevant to Public Health.

PHS369 Genome Wide Association Studies

3Cr. Hrs. (1LCT+ 2 TUT+3LAB+ 0 OTH) - SWL=165- ECTS =6

Prerequisite: [PHS364](#)

This course will introduce students to the basic principles of analyzing genotyping individuals at common variants across the genome using genome wide SNP by next-gen sequencing approach

PHS391 Motivational Interviewing in Public Health Settings

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 90 – ECTS =3

Prerequisite: [None](#)

There has been increased interest in motivational interviewing (MI) to address chronic diseases and other public health conditions as smoking, diet, or diabetes management. The course will provide students with an in-depth overview of MI and provide opportunities to practice core technique



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS400 Capstone Project

4 Cr. Hrs. (0LCT+ 0 TUT+12LAB+ 0 OTH) - SWL=150 – ECTS =5

Prerequisite: [Senior Standing](#)

Students use their previous learning and acquire skills to develop, implement and analyses a public health project in their area under the guidance of a faculty staff member. The students may work singly or in groups and may collaborate with other students of the Faculty of Public Health from different specialties.

PHS411 Maternal, Neonatal, Child and Adolescent Health

3 Cr. Hrs. = (2 LCT + 2TUT + 0 LAB) - SWL = 150 – ECTS =5

Prerequisites: [None](#)

This course Provides a public health perspective of maternal and child health. Includes information on indicators of maternal, infant, and child health; risk factors for pregnancy complications, infant and child morbidity and mortality; and impact of maternal and child health on life course disease risk. The course is designed so that students understand

the clinical and social causes of high maternal and newborn mortality and morbidity. Exposes students to the clinical, program and policy interventions that address these issues, and evaluates the strength of the evidence supporting these interventions.

PHS412 Sexual and Reproductive Health

3 Cr. Hrs. = (2 LCT + 2TUT + 0 LAB) - SWL = 150 – ECTS =5

Prerequisites: [None](#)

The course addresses the basic biological mechanisms that underlie male and female reproduction and that pertain to reproductive health issues, such as contraception, infertility, sexually transmitted diseases,

and reproductive aging. The course addresses the social and economic aspects of human fertility, will explore fertility transitions in India, China, the USA, and Sub-Saharan Africa, will examine major distal and intermediate determinants of fertility and will consider policies affecting fertility around the world.

PHS413 NCDs, Mental and Geriatric Health

2 Cr. Hrs. = (1 LCT + 2TUT + 0 LAB) - SWL = 150 – ECTS =5

Prerequisites: [None](#)

Students will examine a variety of perspectives and contextual factors used to explore issues and concepts of mental health. Distribution patterns, risk factors, organization of health systems, and societal efforts toward prevention and treatment will also be reviewed. A focus will be placed on understanding the social determinants of mental health and exploring issues from a population and public health perspective. The prevalence and distribution of mental disorders and substance use disorders, gain an understanding of prominent risk factors for mental disorder and harmful substance use and preventive strategies to decrease risk throughout the life course, explore common mental health issues and challenges that arise during the life course and public health approaches to promote mental health and develop an understanding of the structure and organization of public services, policies and supports (including healthcare services, social services, and legislation) that exist to address mental illness and substance use disorder.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS414 Gender-based Violence Research, Practice and Policy

2Cr. Hrs. (1LCT+ 2 TUT+0LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: PHS135

This course explores gender-based violence (GBV), including intimate partner violence, sexual violence, and sex trafficking. Topics include the following as they relate to GBV: epidemiology, theoretical frameworks, structural risks and gender equity, policy, prevention and intervention, perpetrators, populations with unique needs, and health consequences spanning sexual and reproductive health, STI, and HIV. Prepares students to undertake meaningful scholarly, community-based, programmatic or policy work in the field. Emphasizes active learning and facilitates application of knowledge and skills gained to real world issues.

PHS415 Population Structure

2Cr. Hrs. (1LCT+ 0 TUT+3LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: None

This course aims to examine the population pyramids of various countries, population subgroups, the factors influencing the population structure and the shape of the pyramid, and how this reflects on a nation's health and welfare.

PHS416 Mass Communication in Public Health

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB) - SWL = 90 – ECTS =3

Prerequisite: None

The purpose of this course is to provide students with an understanding of how the media can be used to promote healthy public policy. The primary focus of the course is on "media advocacy." Students will learn how to frame issues from a public health perspective.

term.

PHS417 survival analysis

2 Cr. Hrs. (1LCT+ 0 TUT+3LAB) - SWL=135- ECTS =5

Prerequisite: PHS236

This course will introduce fundamental concepts and techniques of survival analysis including censoring, hazard and survival functions, Kaplan-Meier curves, and log rank tests. Parametric inferences are introduced using the exponential and Weibull distributions.

PHS418 Community Social and Behavioral Interventions

3Cr. Hrs. (2LCT+ 0 TUT+3LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: None

The course exposes students to strategies for collaborating with communities, identifying community needs, community development and participatory approaches, action research and developing frameworks for improving uptake of health services and preventive interventions.

PHS419 Reproductive and perinatal epidemiology

3Cr. Hrs. (2LCT+ 2TUT+0LAB+ 0 OTH - SWL=135- ECTS =5

Prerequisite: None

This course is intended to examine methodological approaches and challenges in reproductive or perinatal epidemiology. Topics will cover design, measurement, and analysis in studies of fecundity and fertility, pregnancy and maternal health, and birth outcomes.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS421 Environmental Policy, laws and Management

2 Cr. Hrs. (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **None**

This course revisits and evaluates the key global environmental challenges of previous courses and covers a wide range of policies and environmental management frameworks. The course covers technical, statutory, social, and political policies.

PHS422 Organizational Behavior and change

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **PHS324**

In this course, students will examine the behavior of individuals and groups as part of the social and technical system within workplace settings. The course will cover individual and group behavior, communication, conflict and various management styles, motivational techniques, and coordination in the work environment. Students will learn how to apply these concepts to the development of an organization's human resources.

PHS423 Microbiological and Chemical sampling and analysis

3 Cr. Hrs. (**2** LCT + **0** TUT + **2** LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **None**

This course will explore instrumental microbiological analysis techniques on real samples, including issues such as lab storing techniques. Also examined are instrumental chemical analysis techniques on real samples and sampling of different types of test materials (water, sediment, soil, and air). Relevant ISO / standard routines for sampling and analysis will also be reviewed. Sample storage, sample preparation and quality assurance will also be covered.

PHS424 Capstone Project 1

3 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB) - SWL = **90** – ECTS =**3**

Prerequisite: **SENIOR STANDING**

students will use their field experience to write an integrative learning final paper, a thesis paper, under the guidance of a coordinator/advisor. Completion of this course, along with completion of the necessary credits, will result in the student obtaining their BPH.

PHS425 Industrial Psychology:

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) - SWL = **135** – ECTS =**5**

Prerequisite: **None**

This course will explore applications of psychology in workplace settings. The focus of this course will be on industrial and organizational psychology, such as job analysis, description, and evaluation; employee selection; performance evaluation; motivation; job satisfaction; leadership; and group and team development through reading, writing, discussion, exercises, and research.

PHS426 Ecosystems Management

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB) - SWL = **180** – ECTS =**7**

Prerequisite: **None**

This course is a critical review of the scientific foundations, measures, and goals of ecosystem management for conservation. This course will also incorporate human dimensions as this has a strong social component. Also examined is the efficacy of conservation management within a socioeconomic framework, including stakeholder and roles of ecologists in the process. Students will do this through the investigation of an existing ecosystem management example (fieldwork).



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS427 Environmental Risk Assessment

3 Cr. Hrs. (**2** LCT + **0** TUT + **2** LAB) - SWL = **150** – ECTS = **5**

Co-req: **PHS423**

This course will explore the definition of environmental risk and its major elements as well as management. This course will address methods of managing complex environmental risks with the aim of promoting sustainability.

PHS428 Capstone Project 2

3 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB) - SWL = **90** – ECTS = **3**

Prerequisite: **SENIOR STANDING**

students will use their field experience to write an integrative learning final paper, a thesis paper, under the guidance of a coordinator/advisor. Completion of this course, along with completion of the necessary credits, will result in the student obtaining their BPH.

PHS431 Humanitarian Assistance

2 Cr. Hrs. (**2** LCT+ **1** TUT+**0** LAB+ **0** OTH) - SWL= **135**– ECTS = **5**

Prerequisite: **Human Rights (University Prerequisites)**

This course aims to provide knowledge and competence in humanitarian action, disaster prevention, preparedness, and response; and thereby enhance human resource capacity for managing the humanitarian emergencies arising from natural disasters and complex emergencies worldwide. It addresses the laws governing humanitarian action, historical and contemporary perspectives, roles, and agendas of the major stake holders in political, social, and economic context. It further addresses the role of the military in humanitarian interventions, repatriation, and reintegration; tracing post-conflict rehabilitation and demobilization; Managing the transition to sustainable development,

economic stabilization, and sustainable livelihoods; and exit strategies in humanitarian assistance programs.

PHS433 Clinical Trials Design and Analysis

3 Cr. Hrs. (**1** LCT+ **2** TUT+**3** LAB+ **0** OTH) - SWL= **150** – ECTS = **5**

Prerequisite: **PHS231, PHS 236**

The course aims to teach the principles of clinical trial design, covering randomization, blinding, two arm designs, cross-over designs, multiple arm designs, innovative clinical trial designs as hybrid designs and adaptive designs. The course also addresses Phases of clinical trial, and the journey of drug development and approval, International Clearing House Good Clinical Practice (ICH GCP) guidelines and management of clinical trial implementation, EU Directive for clinical trials, and site monitoring. Methods of statistical analysis of clinical trial data will be taught.

PHS434 Systematic Reviews and Meta-analysis

3 Cr. Hrs. (**1** LCT+ **2** TUT+**3** LAB+ **0** OTH) - SWL= **150** – ECTS = **5**

Prerequisite: **PHS231, PHS236, MAT316**

This course aims to teach the students how to conduct a meta-analysis starting from developing focused literature search strategy to extracting the studies and reviewing them for inclusion/exclusion criteria, to data extraction and conducting meta-analysis using various software platforms. The students will understand and interpret fixed-effects, random-effects, and meta-regression methods and results; and recognize heterogeneity and approaches to quantification and reporting of among-study variation



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS435 Preparing datasets for analysis

2Cr. Hrs. (1LCT+ 0 TUT+3LAB+ 0 OTH) - SWL=135- ECTS =5

Prerequisite: [PHS232](#)

This course distills expert knowledge and skills mastered by professionals in Health Big Data Science and Bioinformatics. Students will learn exciting facts about the human body biology and chemistry, genetics, and medicine that will be intertwined with the science of Big Data and skills to harness the avalanche of data openly available at your fingertips and which we are just starting to make sense of. It will investigate the different steps required to master Big Data analytics on real datasets, including Next Generation Sequencing data, in a healthcare and biological context, from preparing data for analysis to completing the analysis, interpreting the results, visualizing them, and sharing the results.

PHS436 Outbreak Investigation

3 Cr. Hrs. (1LCT+ 2 TUT+3LAB+ 0 OTH) - SWL=150 – ECTS =5

Prerequisite: [PHS315](#)

The focus of this course is on understanding routine and unusual disease outbreaks and the application of methods for their detection and investigation and control in resource limited and developed settings. The course uses case studies to teach epidemiologic disease pattern recognition, identification of aberrant patterns, and interpretation of epidemic and surveillance data to inform outbreak investigation and disease control. The course explores a number of outbreaks from around the world in case studies, lectures, discussion forums, webinars, and readings to teach principles of outbreak detection, verification, investigation, communication, and control. You will learn about outbreak data analysis and interpretation, outbreaks in vulnerable populations as well as the role of the laboratory.

PHS437 Psychosocial Epidemiology

2 Cr. Hrs. (1LCT+ 2 TUT+0LAB+ 0 OTH) - SWL=150 – ECTS =5

Prerequisite: [PHS134](#)

This course provides an overview of psychosocial trauma and recovery processes at the community level, explores social disorders of public health importance and their wide implications. The course also covers quality of life concepts and the development and use of quality-of-life questionnaires. This course also explains the basics of community development and participatory approaches when collaborating with communities.

PHS438 Qualitative Research

3 Cr. Hrs. (1LCT+ 2 TUT+3LAB+ 0 OTH) - SWL=135 – ECTS =5

Prerequisite: [None](#)

This course teaches the students how to conduct qualitative research, various methods of qualitative data collection, practical interviewing and focus group skills, different methods of qualitative data analysis including grounded theory, discourse analysis, IPA, and thematic framework analysis.

PHS439 Evidence Based Practice

2 Cr. Hrs. (1LCT+ 2 TUT+0LAB+ 0 OTH) - SWL=135 – ECTS =5

Prerequisite: [PHS434](#)

This course is designed to teach evidence-based practice (EBP) skills that will enable staff to conduct extensive evaluations of existing literature to improve patient care. The students learn to explain the origins, processes an application of evidence based healthcare practice in the students area of practice, demonstrate how to develop PICO style questions for the implementation of evidence based healthcare process, discriminate between the different types and levels of evidence, describe the strengths and deficiencies of each, construct literature



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

search strategies, critically appraise research articles and articulate methods to combine evidence in the production of guidelines and recommendations.

PHS441 Research Methods in Health Administration

4 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB) - SWL = **165** – ECTS = **6**

Pre-requisites: **PHS 236, PHS 231**

The course builds on an earlier introduction of research methods and provides students with the higher-level knowledge and skills needed to critically review, use, and conduct research. It provides a comprehensive overview, in relation to health administration, of theoretical underpinnings of research; the asking of research questions; literature reviews; the design, implementation and appraisal research on operational efficiency of health establishments and the consequent expectancy effects that may produce biases like the Hawthorne experiments.

PHS442 Human Resource Management in Health Systems

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **None**

This course builds upon earlier courses of workplace safety and psychology of the workplace, emphasizing the various functions of human resource management in the context of health systems, including compensation and benefits, staffing, recruitment and selection, research, labor relations, training and development, health and safety, planning, mediation and arbitration, the influence of government legislation on industry, and human rights legislation and employment equity.

PHS443 Project Management in Health Systems

3 Cr. Hrs. (**2** LCT+ **2** TUT+ **0** LAB) - SWL= **150**– ECTS = **5**

Pre-requisites: **None**

This course provides a systematic and thorough introduction to all aspects of project management. Projects are an increasingly important aspect of modern business. Therefore, the course underlines the importance of understanding the relation between projects and the strategic goals of the organization. The course also discusses the technical, cultural, and interpersonal skills necessary to successfully manage projects from start to finish. It emphasizes that project management is a professional discipline with its own tools, body of knowledge, and skills. Concepts are reinforced by case studies covering a wide variety of project types related to health services. Focusing on the introduction of new products and processes, it examines the project management life cycle, defining project parameters, matrix management challenges, effective project management tools and techniques, and the role of a project manager.

PHS444 Interprofessional Collaboration

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Pre-requisites: **None**

This course brings together students with diverse health sciences backgrounds including healthcare administration, health informatics, nutrition, and global health to work collaboratively to learn the fundamentals of policymaking as applied to public health program planning and evaluation. This course is designed to provide students with an overview of the steps needed to plan, implement, and evaluate public health programs. Students then work in interprofessional groups to identify a public health problem, describe the context, map potential solutions, and plan a pilot public health program before making a



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

comprehensive report that builds upon expertise from interprofessional peers.

PHS445 Professional Practice Internship

6 Cr. Hrs. = (**6** LCT + **0**TUT + **0**LAB) - SWL = **105**- ECTS =**4**

Prerequisite: **PHS 360**

This course allows students to gain experience, apply knowledge and skills, and gain professional competence and confidence by completing health administration-related experiences under the supervision of preceptors. Typically, this internship takes place in an approved health system that prepares the student to function within a hospital, health-system, or a similar setting. Given the variability of required experiences and sites, the day-to-day activities of the student will depend on the preceptor but must include core tasks to be defined in the syllabus.

PHS451 Diet and Meal Planning

2 Cr. Hrs. = (**1** LCT + **0**TUT + **3**LAB) - SWL = **120** – ECTS =**4**

Prerequisite: **PHS211**

Diet planning principles and dietary guidelines are key concepts in selecting foods when formulating diets for individuals in order to achieve and support optimal health. Food groups and the nutritive values of different types of foods are important tools in selecting foods for planning an adequate balanced diet. The course aims at giving the student the principles of diet and meal planning in order to be able to construct diets used in the nutritional care of various physiological and pathological states.

PHS452 Nutrition and Non-Communicable diseases

2 Cr. Hrs. = (**2** LCT + **0**TUT + **0** LAB) - SWL = **105**- ECTS =**4**

Prerequisite: **PHS351**

The course focuses on the role of nutrition in the development of non-Communicable diseases such as diabetes mellitus, cardiovascular diseases, cancer, and obesity. The course emphasizes the increasing prevalence of non-communicable diseases in developing and developed countries, the factors enhancing the prevalence and the role of nutrition in the prevention and treatment.

PHS453 Clinical Nutrition 2

3 Cr. Hrs. = (**2** LCT + **0**TUT + **3**LAB) - SWL = **165** – ECTS =**6**

Prerequisite: **PHS356**

This course integrates knowledge of pathophysiology of selected diseases with nutrition interventions and prevention of various disease states. Students are introduced to the skills required to plan and implement modified diets for selected medical conditions. The course incorporates understanding, and application of dietary modifications while considering the physiological, psychological, and social aspects of the individual. Course topics include obesity, cardiovascular disease, diabetes, cancer, renal disease, gastrointestinal diseases, and Nutrition Support.

PHS454 Food chemistry and analysis

3 Cr. Hrs. = (**2** LCT + **0**TUT + **3**LAB) - SWL = **150** – ECTS =**5**

Prerequisite: **None**

This course highlights the importance of studying chemistry of food components and chemical reactions that take place in the biological system. This course covers different topics including water in biological system, proteins and amino acids, carbohydrates and sugars and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

volatile compounds. Chemical reactions that take place in biological systems include enzyme and nonnon-enzyme reactions, oxidation of food and flavor reactions. The chemical changes in the composition of food under various circumstances such as storage or processing will be discussed. This course also introduces the theory and practice of the analysis of food composition and characteristics. Techniques and instrumentation used for the analysis of foods including spectroscopy, chromatography, and titration will be explored.

PHS455 Nutrition Seminar

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **SENIOR STANDING**

Reading and preparation of a paper and oral presentation on a selected subject in nutrition. This seminar provides a forum for discussion of topics of current relevance to students preparing for a career in nutrition. The final written paper should be appropriate for publishing in a relevant scientific journal.

PHS456 Food Technology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **3** LAB) - SWL = **150** – ECTS = **5**

Prerequisite: **None**

The course focuses on current food technologies and processing methods and the factors affecting the palatability and nutritive value of human foods. recent developments and applications of modern genetics as well as enzyme, cell, tissue, and organ-based biological processes to produce and improve foods, food ingredients, and functional foods will be emphasized. Other areas of strong interest are fermentation to improve foods, food ingredients, functional foods, and food waste remediation. The course includes field visits to food processing establishments.

PHS457 Malnutrition and Nutrition Interventions

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **105** – ECTS = **4**

Prerequisite: **PHS351**

The course deals with malnutrition as a spectrum of health problems including under nutrition at one end of the spectrum and over nutrition at the other end. The course will concentrate on macronutrient deficiencies and micronutrient deficiencies, the students will examine the aetiology, symptoms and diagnosis of the nutrition deficiency diseases prevailing in the community. As well as the nutrition interventions for the management, prevention, and control of these problems.

PHS458 Capstone Project

4 Cr. Hrs. = (**0** LCT + **0** TUT + **12** LAB) - SWL = **180** – ECTS = **7**

Prerequisite: **SENIOR STANDING**

Students use their previous learning and acquire skills to develop, implement and analyze a public health project in their area under the guidance of a faculty staff member. The students may work singly or in groups and may collaborate with other students of the Faculty of Public Health from different specialties.

PHS459 Nutritional Genomics

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB) - SWL = **90** – ECTS = **3**

Prerequisite: **None**

This course introduces nuclear receptors and their mechanisms of action, nutritional control of gene expression and functional genomic studies with relationships to nutrient intake and polymorphisms.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

PHS461 Genetic Susceptibility to Disease

3 Cr. Hrs. (**1**LCT+ **2** TUT+**3**LAB+ **0** OTH) - SWL=**150**- ECTS =**5**

Prerequisite: **PHS361, PHS364**

This course explores the various types of mutations and their role in disease. Topics covered include germline and somatic mutations, types of length mutations and single nucleotide polymorphisms (SNPs), how mutations are inherited and how they predispose to disease. Examples covered include BRCA1 and BRCA2 discovery, their role as tumor suppressor genes, epidemiology, and guidelines regarding their mutations.

PHS462 Data Analysis in Genetic Studies:

3 Cr. Hrs. (**1**LCT+ **2** TUT+**3**LAB+ **0** OTH) - SWL=**150**- ECTS =**5**

Prerequisite: **PHS338 OR PHS364**

The course is intended to give an understanding of concepts and methods related to analysis of genetic epidemiology data with focus on both family-related linkage analysis and population-based association studies. We will explain general concepts of genetic epidemiology, and demonstrate practical methods and tools needed for different kinds of genetic data. In the hands-on parts of the course, we will focus on the software PLINK (for association) and Merlin (for linkage analysis). For population-based association studies, the course will cover analysis of qualitative and quantitative traits, multifactorial analysis of SNPs: (logistic) regression, likelihood-ratio test. etc. and multiple testing. The course will also cover parametric Linkage-Analysis; pedigrees and inheritance modes of Mendelian diseases, LOD scores, two-point and multipoint analysis, power analysis for linkage, and clinical aspects of linkage analysis. The course will provide a focus on applications relevant to Public Health.

PHS463 Genetic Risk Assessment and Counselling

3 Cr. Hrs. (**1**LCT+ **2** TUT+**3**LAB+ **0** OTH) - SWL=**150**- ECTS =**5**

Prerequisite: **PHS364, PHS235**

This course introduces the web of causality in relation to genetic variation, gene x gene interaction, gene x environment interaction, heritable disorders, premarital counselling, familial cancers, counselling the cancer patient.

PHS464 Targeted Drug Development and Pharmacogenomics

3 Cr. Hrs. (**1**LCT+ **2** TUT+**3**LAB+ **0** OTH) - SWL=**150**- ECTS =**5**

Prerequisite: **PHS361, PHS364**

This course follows the process of drug discovery from target identification throughout target validation and development of the lead candidate, the concept of companion diagnostics and developing drugs for specific targets, the delivery of the drug to the target, and the concept of personalized medicine, how genetic factors can influence response and toxicity of a drug. Pharmacoeconomics is introduced and discussed in relation to specific drugs. The course will provide a focus on applications relevant to Public Health.

PHS465 Future Healthcare Models

2 Cr. Hrs. = (**1** LCT + **2** TUT + **0** LAB) - SWL = **105** - ECTS =**4**

Prerequisite: **None**

This course explores the 4P healthcare model and previous models including the biomedical model, the biopsychosocial model, the evidence-based model, and the patient centered model. The course introduces the four components of the modern healthcare model; preventive, predictive, personalized, and participatory and how the future progress of public health is aligned to these developments. The



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



جامعة العلمين الدولية
ALALAMEIN
INTERNATIONAL UNIVERSITY

concept of personalized medicine is introduced with focus on its preventive and predictive components. The recommendations and guidelines focusing on the introduction of public health genomics into routine healthcare are discussed.

PHS466 Predictive Multigene Assays

2 Cr. Hrs. (1LCT+ 2TUT+0LAB+0OTH) - SWL=150- ECTS =5

Prerequisite: BMD310, PHS462

This course presents the development of predictive models based on non-genetic factors as the Gail model, the development of molecular diagnostics, the progression to predictive multigene assays based on tumor signature, the use of multigene assays in conditions other than cancer. The course will provide a focus on applications relevant to Public Health. Examples of assays used in primary, secondary and tertiary prevention will be used.

PHS467 Capstone Project

4 Cr. Hrs. (0LCT+ 0TUT+12LAB+ 0OTH) - SWL=165- ECTS =6

Prerequisite: Senior standing

Students will use their learning and skills experience to develop a genetic epidemiology project and execute it with the purpose of writing an integrative learning final paper, a thesis paper, under the guidance of a coordinator/advisor. Completion of this course, along with completion of the necessary credits, will result in the student obtaining their BPH.

PHS468 Introduction to Metabolomics

2 Cr. Hrs. (1LCT+ 0TUT+3LAB+ 0OTH) - SWL=135- ECTS =5

Prerequisite: PHS364

This course introduces the basics of the field of metabolomics. Topics covered include an introduction to metabolomics, both targeted and

untargeted approaches, experimental design and the importance of quality control samples in untargeted metabolomics, analytical strategies applied in metabolomics with a focus on mass spectrometry, hands-on laboratory sessions focused on sample preparation and to include metabolic quenching and extraction procedures, intracellular and exometabolome samples, and polar and non-polar extraction methods, hands-on laboratory sessions focused on sample analysis for untargeted metabolomics studies using an Acuity UPLC coupled to a Xevo QToF mass spectrometer, data processing and data analysis, an introduction to metabolite identification. The course will provide a focus on applications relevant to Public Health.

PHS469 Introduction to Experimental Biology

2 Cr. Hrs. (1LCT+ 0TUT+3LAB+ 0OTH) - SWL=105- ECTS =4

Prerequisite: None

This course provides a focused introduction to methods of biological experiments in the lab or animal studies, as opposed to human clinical and population research. It also covers ethics of using experimental animals.

PHS 499 Special topics in Public health

2-3 Cr. Hrs. (2-3LCT+ 0TUT+0LAB) - SWL=135- ECTS =5

Prerequisite: None

This course provides specific topics in public health to be identified by the instructors and approved by the program director and academic council.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الطب

FACULTY OF MEDICINE



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Basic Medical Sciences

BMS041 Genetics (for nursing)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes chromosomes, nucleotides & nucleic acids. DNA structure, replication, replication problem & repair –. transcription & post-transcriptional modifications –. RNA structure, translation & and post-translational modifications. inheritance – congenital malformations - genetic code and mutation.

BMS046 Nutrition for Oncology Patients (for nursing)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes basics of clinical nutrition: micro & macronutrients, requirements, screening, ethics. enteral nutrition: formulations, routes, regimens, monitoring, guidelines & risk assessment. parenteral nutrition: indications, contraindications, solutions, administration, monitoring & complications. oncology nutrition: nutritional management of oncology patients, nutrition screening and assessment in oncology. nutrition support for oncology patients, medical and radiation oncology and surgical oncology, nutrition, and cancer prevention, esophageal and head and neck cancer, breast and reproductive cancer, prostate cancer and lung cancer, hematologic malignancies, brain tumors and palliative care, management of cancer cachexia–anorexia and other gastrointestinal toxicities associated with cancer treatments.

BMS101 Anatomy and Physiology (for Health Sciences) (1)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes gross anatomy, structure and properties of biological substances, cell biology, basic tissues, physiology of body symptoms, locomotor system, detailed anatomy of lower limb, upper limb, spine and trunk, head, and neck, human development, body fluids and defense mechanisms, cardiovascular and respiratory systems, skin, nervous systems, proprioceptive system.

BMS102 Anatomy and Physiology (for Health Sciences) (2)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BMS101**

This course includes detailed knowledge of applied anatomy of spine, upper limb and lower limb, and basics of gait and clinical kinesiology with the physiology of nerve and muscle systems. It will contain a detailed knowledge of the function of individual joints and muscles and their interactions. An introduction to pathological deviations and means of appropriate measuring instruments as well as knowledge of range of motion of joints in correspondence with prosthetic/orthotic treatment.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



BMS103 Anatomy & Histology (for Pharmacy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes anatomy of the autonomic nervous system. central nervous system. cardiovascular system. musculoskeletal system (bones and muscles) and histology of different organs and cell.

BMS111 Foundations of Normal Human Structure

6 Cr. Hrs. = (**60** LCT + **0** TUT + **30** LAB + **30** OTH) – SWL = **300** – ECTS = **11**

Prerequisite ---

This module is designed to prepare the students for studying the integrated modules: It includes anatomical terms, major body structures (skin, fascia, bones, muscles, nerves, vessels), general embryology, a brief overview of regional topographic anatomy of the whole-body regions, the basic structure of the cell, and basic tissues of the body in addition to a brief overview of some organs as a foundation to studying autonomic physiology & general pathology.

BMS112 General Anatomy for Dental Students

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

This course includes anatomical position planes and anatomical terminology. skin, superficial, and deep fascia, characteristics, and functions. bones: functions, classification, structure, blood supply and development. skeleton: different bones of appendicular and axial skeletons. joints: articular system with examples. study of important joints of the body. muscular tissue and system. study of important muscles of the trunk and limbs. nervous tissue and system; central,

peripheral. autonomic nervous system. special senses. cardiovascular and lymphatic systems. respiratory system. digestive system. urinary and genital systems. glandular system and hormonal balance. Introduction to human development.

BMS113 Anatomy of the Head & Neck for Dental Students

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **BMS112**

The course includes bones: skull, mandible & cervical vertebrae. scalp, face, parotid region & facial nerve. cranial cavity. temporal & infratemporal regions + CR V, pterygopalatine fossa & TMJ. submandibular region. triangles of neck, cervical & brachial plexuses. vessels & lymphatics of neck. cranial nerves & autonomic nerves of the head & neck. thyroid gland, prevertebral region & deep neck. nose & paranasal sinuses. mouth, tongue, palate, pharynx & larynx.

BMS114 Anatomy (for nursing)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The course includes introduction to the organ system & the body. anatomy of genitourinary tract. integumentary system and body membranes. musculo-skeletal system. nervous system. endocrine system. circulatory system. lymphatic system. respiratory system. digestive system. urinary system. reproductive system. senses.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**BMS115 Anatomy 1 (for physiotherapy)****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course includes bones of hand, forearm, and shoulder. muscles of upper extremity and its attachment; origin and insertion with nerve and muscle supply. brachial plexuses and anatomical variation. joints of upper extremity (capsule, collateral ligaments, bursae, etc.). most common congenital anomalies for upper extremity.

BMS116 Anatomy 2 (for physiotherapy)**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6Prerequisite **BMS115**

This course includes bones of foot, leg, hip, and pelvis. muscles of lower extremity and its attachment; origin and insertion with nerve and muscle supply. joints of lower extremity (capsule, collateral ligaments, bursae, etc.). most common congenital anomalies for lower extremity.

BMS117 Anatomy for Art 1**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course includes definition of anatomy. history of anatomy in art. the skin and factors affecting it. the skeleton. joint movements. muscles in action. body proportions. body fat distribution.

BMS122 General Histology for Dental Students**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

The course includes the cell (organelles & inclusions). tissues of the body: epithelial, connective tissue, muscular and nervous tissues.

vascular system. blood & lymphatic system. reticuloendothelial system. skin. digestive system i (oral cavity). digestive system ii (glands, salivary, pancreas, liver). endocrine glands. (Pituitary, suprarenal, thyroid, parathyroid).

BMS123 Cell Biology (for Health Sciences)**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

The course includes micro techniques & microscopy. membranous cell organelles. non-membranous cell organelles & the cytoskeleton. cell inclusions. cell cycle; mitosis & meiosis. cross talks between cells. stem cells.

BMS124 Histology 1 (for physiotherapy)**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

The course includes epithelial tissues. blood. cellular (or “loose”) connective tissue: dense connective tissue: dense irregular connective tissue. dense regular connective tissue: collagenous dense regular connective tissue and elastic tissue. cartilaginous tissues. hyaline cartilage. elastic cartilage. fibrocartilage. bones.

BMS125 Histology 2 (for physiotherapy)**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4Prerequisite **BMS124**

The course includes types of muscular tissues. skeletal muscle. cellular organization. striations. membranes. differentiation of fibers. innervation. nerve cells. basic structure and function. myelin. recognizing nerve cells. support tissue. Schwann cells. oligodendroglia. astroglia. microvasculature. blood-brain barrier. CNS blood vessels.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



basic skin structures. epidermis, dermis, appendages, glands. histology of skin wound healings.

BMS131 Foundations of Body Function & Biochemistry

5 Cr. Hrs. = (**45** LCT + **0** TUT + **30** LAB + **30** OTH) – SWL = **255** – ECTS = **9**

Prerequisite ---

This module is designed to prepare the students for studying the integrated modules: it includes biophysics: homeostasis, body fluid compartments and their ionic composition, function of cell membrane, membrane potential, intercellular communication, and signal transduction, passive and active transport, osmosis, and filtration. physical laws governing blood flow - physiology of the autonomic nervous system (ANS) - biochemistry of carbohydrates, lipids, proteins, enzymes - in addition to an overview of metabolism.

BMS132 Physiology for Dental Students (1)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

The course includes homeostasis, body fluid compartments and their ionic composition, function of cell membrane, membrane potential, intercellular communication, and signal transduction. passive and active transport, osmosis, and filtration. autonomic nervous system. nerve & muscle & blood

BMS133 Physiology for Dental Students (2)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **BMS132**

The course includes neurophysiology (sensory system). endocrines, regulation of body temperature & metabolism. blood & cardiovascular system. respiration. digestive system (particularly salivary glands &

deglutition). kidneys.

BMS134 Physiology (for nursing)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The course includes cell structure and function, excitation & conduction, fluid & acid base balance, energy balance & temporary regulation, autonomic nervous system, cardiovascular system, muscle physiology, blood vessels, body defense, respiratory system, urinary system, digestive system, endocrine system, reproductive system.

BMS135 Pathophysiology (for health science)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite ---

The course includes Common disease categories & diagnostic methodology. Pathogenicity, epidemiology of infectious disease. Pathogenesis of congenital and genetic disorders. Etiology and diagnosis of neoplastic diseases. Pathogenesis of cardiovascular and circulatory diseases. Pathogenesis of blood and lymphatic disorders. Pathogenesis and types of reproductive diseases. Etiology and pathogenesis of pulmonary diseases. Diseases of the gastrointestinal tract and accessory organs. Basic endocrinology and endocrine disorders. Types and pathogenesis of neurologic diseases. Disorders of the musculoskeletal system. Diseases of the urinary and renal systems.

BMS136 Physiology 1 (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

The course includes cell structure. epithelia and glands. connective tissue, ligaments, and tendons. cartilage and muscles. nerve tissue. skin



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



and appendages. blood.

BMS137 Physiology 2 (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BMS136**

The course includes physiology of the cardiovascular system. respiration. kidney, endocrine glands. nervous system. lymphoid tissue and immunity. alimentary canal; liver and pancreas: nutrition and digestion.

BMS141 Foundations of Molecular Biology & Genetics

2 Cr. Hrs. = (**15** LCT + **0** TUT + **15** LAB + **15** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

This module is designed to prepare the students for studying the integrated modules: It includes Nucleic acids chemistry, structure of nucleotides, DNA & chromatin structure, DNA replication & telomerase, DNA replication, End Replication problem, DNA repair, transcription and post Transcriptional modifications, RNA Structure, Translation and Post-translational modifications. DNA extraction, electrophoresis, fingerprinting & PCR. Genetics: Genome & chromosome structure, Normal karyotyping, Genetic Code and mutation, Mendelian & non-Mendelian inheritance, Regulation of gene expression. Molecular biology techniques, Molecular biology of cancer. & Bioinformatics.

BMS143 Biochemistry for Dental Students

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

The course includes principles of biomedical importance: acid base balance. physiological buffers. solutions. carbohydrate chemistry. lipid chemistry. amino acid chemistry. protein chemistry. proteins of

extracellular matrix. cell membrane. immunoglobulin. nucleic acid chemistry. molecular biology. enzymes.

BMS144 Biochemistry (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

The course includes the structure and function of carbohydrates. structure and function of lipids. structure and function of amino acids and proteins. structure and function of nucleic acids. enzyme kinetics and the use of cofactors and coenzymes. metabolic pathways including glycolysis, TCA, electron transport system, fatty acid, and amino acid pathways.

BMS145 Biochemistry & Nutrition (for nursing)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite - - -

The course includes introduction to biochemistry, physio-chemical principles, cell membrane structure, composition, and function. protein, nucleic acid & protein synthesis, carbohydrate and biological oxidation, lipid chemistry and metabolism, water & electrolyte balance, amino acids chemistry & metabolism, vitamins & minerals metabolism, iron metabolism, constituents of food, water, protein, minerals, cookery roles & preservation of nutrients, principles of nutrition and balanced, diet, role of nurse in nutritional program.

BMS147 Biochemistry 1 (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The course includes biochemistry of water. carbohydrates chemistry i. carbohydrates chemistry ii. steroids. bile acids. steroid hormones.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



amino acids i. amino acids ii. biochemistry of protein i. biochemistry of protein II.

BMS148 Biochemistry 2 (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **BMS147**

The course includes Physicochemical principles I (acids and bases). Physicochemical principles II (acids and bases). Carbohydrate chemistry. Lipid chemistry I. Lipid chemistry II. Protein chemistry I. Protein chemistry II. Vitamins I. Vitamins II. Enzymes I.

BMS151 Foundations of Pathology

5 Cr. Hrs. = (**45** LCT + **0** TUT + **45** LAB + **15** OTH) – SWL = **255** – ECTS = **9**

Prerequisite - - -

This course is designed to prepare the students for studying the integrated modules: it includes introduction to pathology, cell injury, cell death & adaptation, inflammation and tissue repair, hemodynamic disorders and thromboembolism, neoplasia.

BMS161 Foundations of Pharmacology

5 Cr. Hrs. = (**60** LCT + **0** TUT + **15** LAB + **-15** OTH) – SWL = **240** – ECTS = **9**

Prerequisite - - -

This course is designed to prepare the students for studying the integrated modules: it includes pharmacokinetics. pharmacodynamics. adrenergic system. cholinergic system. autacoids, cancer chemotherapy.

BMS162 General Pharmacology (for nursing)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **BMS134**

The course includes introduction to pharmacology, classification of drugs, drugs, politics & culture, mechanism of drug actions, drug metabolism, degenerative disease agents, anticoagulation. herbal & alternative therapies, antiarrhythmic, anti-inflammatory, antihistaminic, immunosuppression for organ transplantation anticoagulants.

BMS171 Foundations of Infections & Infestations

3 Cr. Hrs. = (**3** LCT + **0** TUT + **=30** LAB + **15** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This module is designed to prepare the students for studying the integrated modules: It includes the classification, structure, physiology, and pathogenesis of medically important microorganisms (bacteria, viruses, and fungi), in addition to the general principles and taxonomy of parasites (helminths, protozoa and arthropods).

BMS172 Foundations of Immunology

2 Cr. Hrs. = (**30** LCT + **0** TUT + **6** LAB + **6** OTH) – SWL = **102** – ECTS = **4**

Prerequisite - - -

This course is designed to prepare the students for studying the integrated modules: It includes basic immunology. Overview of the immune system. tissues & cells of the immune system. innate immunity. immunogens, antigens, and self-molecules. adaptive immunity: cell mediated immune response. adaptive immunity: humoral immune response. complement. applied immunology. hypersensitivity. self-tolerance and autoimmune diseases. transplantation immunology. tumor immunology. immunodeficiency. immunity to microbes. immunization.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**BMS174 Microbiology (for nursing)****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course includes introduction to microbiology, bacterial variations & antimicrobial chemotherapy, methods of sterilization & sterilization, host parasite relationship & immunity, isolation & identification of bacteria, specimen collection & transport, health care associated infection, drug therapy consideration throughout lifespan, the microbiology laboratory, specimen collection & transportation isolation & identification of bacteria, infection control.

BMS201 Blood & Lymphatic System Module**5** Cr. Hrs. = (65 LCT + 0 TUT + 35 LAB + 8 OTH) – SWL = **258** – ECTS = **9**Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the blood and lymphatic system, in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, parasitology and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Domains include: 1) red blood cells, erythropoiesis, and hemoglobin, 2) platelets and their role in hemostasis, blood coagulation. 3) white blood cells and lymphoid tissues. Contents: Anatomy (lymph nodes & spleen). Histology (RBCs, hemopoiesis, platelets, WBCs, Lymphatic organs). Physiology of blood. Biochemistry. Pathology of blood & lymphatic system. Microbiology/immunology. Parasitology (Blood parasites). Pharmacology (treatment of anemias, anticoagulants & therapy of bleeding/ coagulation problems).

BMS202 Locomotor System & Integument Module**8** Cr. Hrs. = (91 LCT + 0 TUT + 50 LAB + 50 OTH) – SWL = **397** – ECTS = **15**Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with knowledge and skills related to the musculoskeletal system, peripheral nerves, and skin, in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, parasitology and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Domains include: 1) Bones and joints, 2) Muscles and nerves, 3) The skin. Topics include Anatomy of limbs (bones, joints, muscles & nerves), Histology (cartilages, bones, muscles, peripheral nerves & skin), Physiology of bones, muscles, nerves & skin, Biochemistry (calcium, vit. D, purines, muscle metabolism), Pathology (Bones, soft tissues), Microbiology/ Parasitology (joint & skin immunology, organisms & parasites of bones, muscles & skin), Pharmacology (analgesics, therapy of gout & rheumatoid, muscle relaxants)

BMS203 Respiratory System Module**6** Cr. Hrs. = (74 LCT + 0 TUT + 24 LAB + 24 OTH) – SWL = **290** – ECTS = **11**Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the respiratory system in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, parasitology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Domains include: 1) Upper respiratory passages, 2) Lung ventilation/ airway obstruction, 3) Respiratory gases, 4) Pulmonary infections & infestations. Topics include Anatomy, Histology & Pathology (upper & lower respiratory tracts,



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



respiratory muscles), Respiratory physiology, Biochemistry (cell respiration, surfactant, pH/ buffers, antioxidants), Microbiology/ immunology (pulmonary immunology, bacteria, viruses, fungi & parasites). Pharmacology (therapy of cough, asthma, respiratory infections, TB).

BMS204 Cardiovascular System Module

8 Cr. Hrs. = (**102** LCT + **0** TUT + **33** LAB + **18** OTH) – SWL = **393** – ECTS = **15**

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the cardiovascular system, in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Domains include Cardiac structure, electricity & arrhythmias, The heart as a pump, Coronary ischemia, The vascular system: Blood pressure – hyperlipidemia and vascular diseases. Topics include Anatomy/ Embryology/ Histology (mediastinum, heart & blood vessels), Physiology & Pathology of the CVS, Microbiology of carditis, Pharmacology (Drug therapy of arrhythmias, heart failure, hyperlipidemia, ischemic heart diseases, hypertension).

BMS205 Clinical Neuroanatomy & Neurophysiology (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BMS101**

The course includes detailed anatomy and physiology of the central and peripheral nervous system, and graduate into applied neuroanatomy and neurophysiology to understand course of neurological diseases, and genetic and congenital abnormalities. There will be special emphasis on

neuroanatomy and neurophysiology of the upper limb. Human neuroanatomy will be introduced via pathological cases and will be illustrated by the use of new medical imaging techniques. A study of the neurophysiological principles of sensori-motor interaction as they relate to posture, motor control and cognition. Brief knowledge of upper limb biomechanics.

BMS211 Neuroanatomy (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite - - -

This course includes an overview of the topography and structural organization of the brain and spinal cord. basic features of development of the nervous system and common malformations occur in the nervous system. spinal cord and peripheral nervous system. functional anatomy of sensory and motor processing and higher cerebral functions such as language. principles of the blood supply of the nervous system.

BMS212 Anatomy 3 (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BMS115**

This course includes: the thorax. the skeleton of the thorax. the esophagus, trachea, and main bronchi. the pleurae and lungs. the pericardium and heart. the abdomen. abdominal walls. the abdominal viscera and peritoneum. the liver, biliary passages, pancreas, and spleen. blood vessels, lymphatic drainage, and nerves of the abdomen. the pelvis. the bones, joints, and walls of the pelvis. blood vessels, nerves, and lymphatic drainage of the pelvis. the ureter, bladder, and urethra. male genitalia. female genitalia. the rectum and anal canal. the head and neck. the skull and hyoid bone. the brain, cranial nerves, and meninges. the ear. the neck. the mouth, tongue, and teeth. the pharynx and larynx. muscular and vascular structure.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BMS213 Anatomy for Art 2

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes the anatomy of the skull & cervical vertebrae. muscles of facial expression – muscles of the neck. head shapes & facial proportions. anatomical features of the eyes, nose, mouth, and ears. gender differences. effects of aging.

BMS231 Physiology and Pathophysiology (1) (for Pharmacy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite

This course includes physiology: autonomic nervous system. central nervous system. blood. Introduction to pathophysiology foundations, common disease categories & terminology. cell injury & inflammation. vascular and hematological disorders. immune system disorders. disease of respiratory system. types and pathogenesis of neurologic diseases.

BMS232 Physiology & Pathophysiology (2) (for Pharmacy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS231**

This course includes physiology and pathophysiology: cardiovascular system. urinary tract and its physiological functions. endocrine system and hormones. pathogenesis of cardiovascular and circulatory diseases. immune system disorders. cellular proliferation (neoplasia and cancer). basic endocrinology and endocrine disorders. diseases of

the renal system (including fluid and electrolyte imbalance. diseases of the digestive system & liver.

BMS234 Neurophysiology 1 (for physiotherapy)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes Electrophysiology of the neuron. Resting Membrane and Action Potential. Neuromuscular Junction / Synapses. Nerve Conduction. Neurotransmitters, Receptors and Pathways.

BMS235 Neurophysiology 2 (for physiotherapy)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **BMS234**

This course includes the sensory system. the motor system. higher functions of the brain.

BMS241 Biochemistry 3 (for physiotherapy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS148**

This course includes introduction to metabolism- bioenergetics. tricarboxylic acid cycle. glycolysis- hmp. carbohydrates metabolism: glycogen metabolism- gluconeogenesis. hyperglycemic and hypoglycemic coma. lipolysis, lipogenesis. cholesterol metabolism- ketone body metabolism, lipoproteins metabolism. insulin and diabetes. hepatic encephalopathy.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BMS242 Human Genetics (for physiotherapy)****1** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ---

This course includes linkage and explains why linkage interferes with independent assortment. parental and recombinant phenotypes. crossing over and unlink genes. Explain why a recessive sex-linked gene is expressed in human males. Principles of Genetics. transmission genetics problems, and predictions about inheritance of genetic.

BMS243 Biochemistry 4 (for physiotherapy)**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **BMS241**

This course includes heme metabolism: catabolism and types of jaundice. nucleoprotein metabolism: gout. vitamins estimation. glucose estimation. urine report and physical properties. protein in urine, glucose in urine. acetone in urine and bile salts in urine. colorimetry principle, cholesterol estimation and clinical enzymology.

BMS251 General Pathology for Dental Students (1)**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

This course includes concepts of cellular injury. inflammation and repair. circulatory disturbances. pulmonary disturbances. immunity and hypersensitivity.

BMS252 General Pathology for Dental Students (2)**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **BMS251**

This course includes disorders of growth. neoplasia. developmental and

genetic mechanisms of disease. nutritional diseases. specific infectious diseases. viral infections.

BMS261 Pharmacology for Dental Students (1)**1** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ---

This course includes general pharmacology: different routes of administration. pharmacokinetics. pharmacodynamics. drug-receptor interactions. drugs acting on the autonomic nervous system: introduction to autonomic nervous system. sympathomimetics. sympatholytics. parasympathomimetics. parasympatholytics. drugs acting on autonomic ganglia. autocoids.

BMS262 Pharmacology for Dental Students (2)**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **BMS261**

This course includes chemotherapy & antibiotics. renal pharmacology. drugs acting on the cardiovascular system. drugs acting on the central nervous system – analgesics - local anesthetics. drugs acting on endocrine glands.

BMS271 General Microbiology for Dental Students**1** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ---

This course includes general characteristics and basic differences between cellular and acellular microorganisms, pro - and eukaryotes, general characteristics of fungi, algae and viruses, relation between cell structure and function, microbial growth and reproduction, microbial physiology, microbial taxonomy, microbial diversity, roles of microorganisms in different ecosystems, fundamental principles of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



microbial genetics, economic and industrial importance of microorganisms, microbial interactions with humans. the practical aspects of this course include general good personal hygiene practices, sterilization methods, microscopic examination of microorganisms, preparation and preservation of microbial cultures, isolation of microorganisms, pure culture techniques, evaluating the microbial motility, methods to cultivate the anaerobic bacteria, isolation of bacteriophage, applying different methods to enumerate the total microbial load in a sample. risk assessment in microbiology labs.

BMS272 Oral Microbiology & Immunology

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS271**

This course includes Bacteria: Oral microbial flora, dental plaque, biofilm formation. Staphylococci & Methicillin resistant staph aureus. Streptococci & pneumococci. Neisseria & Corynebacterium diphtheria. Mycobacteria – Dental unit waterline contamination. Spirochetes. Anaerobic bacteria – prion disease & dentistry. Fungi: probiotics, prebiotics & psychobiotics. Viruses: Basic virology. Bloodborne viruses: Hepatitis, HIV. Oncogenic viruses. Viruses of oral mucosa. Herpes viruses.

BMS301 Central Nervous System Module

9 Cr. Hrs. = (118 LCT + 0 TUT + 40 LAB + 18 OTH) – SWL = 446 – ECTS = 17

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module provides the students with sufficient knowledge and skills related to the central nervous system in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, parasitology, and

pharmacology in a logical sequence, with emphasis on points of clinical relevance. Topics are grouped around themes which include: 1) the sensory system, 3) the motor system, 3) cranial nerves, 4) sleep & arousal, 5) higher brain functions, 6) brain diseases and tumors. Topics include Anatomy (Head & neck – CNS), Histology of CNS, Neurophysiology, Neuropathology, Microbiology/ Parasitology (Bacteria, viruses, fungi & parasites of CNS), Neuropharmacology

BMS302 Special Senses Module

2 Cr. Hrs. = (29 LCT + 0 TUT + 11 LAB + 2 OTH) – SWL = 102 – ECTS = 4

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the organs of special senses (the orbit/ eye, the ear, smell, and taste) in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, parasitology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Topics are grouped around clinically relevant themes.

BMS303 Endocrine System & Metabolism Module

3 Cr. Hrs. = (43 LCT + 0 TUT + 11 LAB + 8 OTH) – SWL = 152 – ECTS = 6

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the endocrine glands (the pituitary, thyroid, parathyroids, endocrine pancreas and adrenal glands) in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Topics are grouped around clinically relevant themes.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**BMS304 Digestive System & Nutrition Module**

8 Cr. Hrs. = (108 LCT + 0 TUT + 37 LAB + 16 OTH) – SWL = 401 – ECTS = 15

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the digestive system and nutrition (the abdominal walls, peritoneum, mouth, tongue, pharynx, esophagus, stomach, small intestines, large intestines, rectum and anal canal - accessory glands, the salivary glands, liver, pancreas and intestinal glands) in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Topics are integrated around clinically relevant themes.

BMS305 Urogenital System Module

7 Cr. Hrs. = (96 LCT + 0 TUT + 31 LAB + 12 OTH) – SWL = 349 – ECTS = 13

Prerequisite **FOUNDATIONS 1ST YEAR**

This integrated module is designed to provide the student with sufficient knowledge and skills related to the urinary and genital systems, in a scheme that integrates gross anatomy, embryology, histology, physiology, biochemistry, pathology, microbiology, immunology, and pharmacology in a logical sequence, with emphasis on points of clinical relevance. Topics are grouped around clinically relevant themes (the upper urinary system, pelvic walls and peritoneum, lower urinary tract, male genital system & female genital system).

BMS311 Anatomy for Art 3

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes the anatomy of the thoracic cage, the spine, and the pelvic skeleton. muscles of the back, thorax, and abdomen. surface features of the back and trunk. movements of the trunk. bones of the lower limbs. superficial muscles of the lower limbs. surface features of the lower limbs. joint movements of the lower limbs.

BMS341 Introduction to Nutrition (for physiotherapy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course includes Applied nutrition curriculum definitions. Nutritional terminology. Nutrients and energy. Diet planning. Food pyramid. carbohydrate. Fat. Protein. Water soluble vitamins. Nutrients and energy.

BMS351 Parasitology and Virology (for Pharmacy)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite

General introduction to parasitology. Intestinal protozoa: Entameba histolytica, Balantidium coli, Trichomonas vaginalis, Giardia lamblia. Blood protozoa: Leishmania, Trypanosome, Plasmodium and Toxoplasma; pathogenesis, life cycles, treatment, prevention, and control. Trematodes: Fasciola and Heterophusheterophus; Liver, intestinal flukes: etiology, pathogenesis, life cycles, treatment, prevention, and control. Blood flukes: Schistosmiasis, etiology, pathogenesis, life cycles, treatment, prevention, and control & Snails. Cestodes: etiology, pathogenesis, life cycles, treatment, prevention, and control. Intestinal and tissues nematodes (etiology, pathogenesis, life cycles, treatment, prevention, and control).



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Introduction to Arthropodes (types, diseases they cause or transmit and their control). Study the physiology of muscles and nerves. Study neurobiological principles for evaluation. Study the basics of electrophysiological evaluation. Types of electrical evaluation. Nerve conduction velocity. Electromyography. An introduction to virology including general characteristics, viral replication, classification as well as methods of cultivation of different viruses.

BMS352 Pathology 1 (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes pathogenesis of diseases. concept of health, illness, and disability. theories of health and illness. health promotion and disease prevention. clinical pathology (cardiac system) pathologies of cardiac muscle coronaries and valves. clinical pathology (pulmonary system) pathologies of infectious and inflammatory diseases. obstructive and restrictive pulmonary diseases. pathology of diabetes and dyslipidemia.

BMS353 Pathology 2 (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **BMS352**

This course includes pathology of musculoskeletal system. biologic response to trauma. aging of musculoskeletal system. diseases of muscles, bones, and joints. deformities. infectious disease of musculoskeletal system. pathology of neurological system. degenerative central nervous system diseases. stroke. traumatic brain injuries. traumatic spinal cord injuries.

BMS361 Pharmacology 1 (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes drug receptors dynamics and pharmacokinetics. drugs affecting the cardiovascular system. Introduction to Autonomic Pharmacology. drugs affecting the cholinergic system. sympathomimetics and sympatholytics. antihypertensive drugs. drugs used in the treatment of angina pectoris. drugs used in heart failure. antiarrhythmic drugs. drugs affecting the blood. drugs affecting the pulmonary system. insulin and hypoglycemic drugs.

BMS362 Pharmacology 2 (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **BMS361**

This course includes drugs affecting the central nervous system. antiseizure drugs. general anesthetics. local anesthetics. pharmacologic management of Parkinson's disease and other movement disorders. antidepressant agents. opioid analgesics and antagonists. skeletal muscle relaxants. drugs affecting the musculoskeletal system. chapter. drugs affecting eicosanoid metabolism, disease-modifying antirheumatic drugs, and drugs used in gout.

BMS431 Electrodiagnosis (for physiotherapy)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course includes studying the physiology of muscles and nerves. study neurobiological principles for evaluation. study the basics of electrophysiological evaluation. types of electrical evaluation. nerve



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



conduction velocity. electromyography.

BMS411 Human anatomy for forensic science students

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

This course is a study of human anatomy which develops a basic understanding of the structure and function of body organs and systems and their interactions. Other topics include nutrition, metabolism, and growth and development. Students will: describe the structure and function of various human organs and systems; explain how human organs and systems interact [Scientific Literacy]; describe the relationship between and processes related to nutrition and metabolism; and recognize the stages of growth and development.

BMS461 Applied Pharmacology (for nursing)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes principles of pharmacology, drug actions, reactions, drug interactions. fundamental pharmacological principles and quality use of medications. applied pharmacokinetics. application of pharmacology knowledge to common diseases and conditions. pharmacovigilance and combining medications. medications in emergency nursing. medications in mental health nursing. medications in addiction nursing. medications in obstetrics & gyn. medications in chronic care nursing / primary health care as appropriate to the student's practice. legal and ethical issues, including scope of practice, access, cost, and clinical efficacy. patient teaching and education. pharmacology as a vehicle for evidence-based nursing practice.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Clinical Medical Sciences

CMS111 Foundations of Human Behavior & Psychology

1 Cr. Hrs. = (7.5 LCT + 0 TUT + 0 LAB + 15 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Overview of psychology and behavioral science, psychodynamic theory of personality, Learning theories as a base of behavioral therapy, Attention and perception, Memory, cognition and intelligence, Emotion and motivation, personality types, Stress, psychological development during infancy, childhood and adolescence, psychological challenges during adulthood.

CMS112 Foundations of Clinical Practice: History & Examination / Basic Life Support

1 Cr. Hrs. = (0 LCT + 0 TUT + 30 LAB + 0 OTH) – SWL = 60 – ECTS = 2

Prerequisite - - -

This course enables the students to obtain and record relevant medical history, perform full physical general examination appropriate to the age, gender, acute and chronic clinical condition while being culturally sensitive, and apply basic life support.

CMS113 Medicine and Surgery (for nursing)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes cardiovascular disease. endocrinology. diabetes &

metabolism. gastroenterology. nephrology & urology. hematology/medical oncology. respiratory system diseases. principle of general surgery/ wound healing. orthopedic surgery. surgical management of thyroid. surgical management of thyroid. neoplasm & its management. cardio thoracic surgery. E.N.T surgery.

CMS181 Foundations of Biomedical Research & Biostatistics

1 Cr. Hrs. = (15 LCT + 0 TUT + 15 LAB + 0 OTH) – SWL = 60 – ECTS = 2

Prerequisite - - -

Basic statistics, Standard deviations and Standard error means, Confidence Intervals. Variables: Dependent and independent variables, SPSS & statistical tests. Types of studies. Scientific writing.

CMS182 Biostatistics (for nursing)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **3**

This course includes an introduction to statistics. descriptive statistics. frequency distribution /graphic presentations. measures of central tendency. measures of variability. measures of relationships. inferential statistics. testing of hypothesis. qui-square methods. t e= test. analysis of variance. evaluating the significance of correlation coefficients. parametric & nonparametric tests.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CMS201 Integrated Clinical Module 1 (hematology & lymph/locomotor & skin)

2 Cr. Hrs. = (15 LCT + 0 TUT + 30 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CMS112**

This integrated module introduces students with clinical data related to anemias. bleeding/ coagulopathies – blood transfusion. diseases of WBCs. clinical lab tests. bone & joint diseases. examination of joints – dermatomes. nerve injuries. fractures. radiology of musculoskeletal system.

CMS202 Integrated Clinical Module 2 (pulmonology/cardiovascular)

2 Cr. Hrs. = (15 LCT + 0 TUT + 30 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CMS112**

This integrated module introduces students with clinical data related to common respiratory problems & diseases. history taking and clinical examination of the respiratory system. common cardiovascular problems & diseases. history taking and clinical examination of the CVS.

CMS203 Clinical Methods 1 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes Testing visual acuity. External examination (lids). Examination of pupil function. Testing ocular motility. Measurement of refraction. Measurement of intra-ocular pressure. Testing color vision.

CMS241 Obstetrics & Gynecology (for nursing)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes physiology & management of labor. abnormal uterine action. bleeding during pregnancy. pregnancy induced hypertension. uterine fibrosis. uterine & vaginal prolapse. infection of female genital organs. female infertility assisted reproductive techniques. surgical management of early pregnancy complications care for women with gynecological problems. pelvic inflammatory disease. epidemiology and etiology of miscarriage & ectopic pregnancy. sexually transmitted diseases.

CMS251 Anatomy of the Eye 1 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes basic knowledge of the anatomy of the eyeball with description of all its layers and contents. The course also includes clinical correlation with the contents of the eyeball.

CMS252 Physiology of the Eye (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

This course includes Physiological principles of accommodation. Physiological principles of binocular vision. Physiological principles of intra-ocular pressure. Physiological principles of color vision. Ocular pharmacology.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



CMS253 Histology of the Eye (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite ---

This course includes Histology of different layers of the eye and clinical application of histology of different eye structures.

CMS254 Anatomy of the Eye 2 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CMS251**

This course includes anatomy of the orbit & its contents and relations with adjacent structures. anatomy of the conjunctiva, extra ocular muscles, and lacrimal system.

CMS301 Integrated Clinical Module 3 (neurology/endocrine)

2 Cr. Hrs. = (15 LCT + 0 TUT + 30 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CMS112**

This module introduces students with clinical data related to common neurological problems & diseases. Common diseases of the eye & ear. History taking and clinical examination of the nervous system. Common endocrine problems & diseases. History taking and clinical examination of the endocrine system.

CMS302 Integrated Clinical Module 4 (gastroenterohepatic/urogenital)

2 Cr. Hrs. = (15 LCT + 0 TUT + 30 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CMS112**

This integrated module introduces students with clinical data related to common problems & diseases of the digestive system & liver. History

taking and clinical examination of the respiratory. Common urogenital problems & diseases (male & female). History taking and clinical examination of the urinary & genital systems.

CMS303 Clinical Methods 2 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CMS203**

This course includes slit lamp examination of anterior segment of the eye. examination of the angle of anterior segment of the eye (goniopathy).

CMS304 Clinical Methods 3 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CMS303**

This course includes fundus examination by indirect ophthalmoscopy. funduscopy (by 3 mirrors). direct ophthalmoscopy.

CMS305 Pediatric Medicine & Surgery (for nursing)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes digestive. & Immunological disorders. respiratory system. disorders. cardiovascular & hematological disorders. genitourinary/renal function. neurological disorders. musculoskeletal disorders. metabolic & endocrine disorders. wound healing/ trauma management. surgical management of thyroid. neoplasm & its surgical management. orthopedic surgery. cardio thoracic surgery. ENT surgery.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CMS311 Sleep Lab & Polysomnography (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes organic brain disorders. schizophrenic disorders. affective disorders. neurotic disorders. phobia disorders. obsessive compulsive disorders. hysterical disorders. psychiatric emergencies. suicidal behavior. violence/panic attack. personality disorders. mental retardation. ethical and legal issues in psychiatry.

CMS312 Psychiatric medicine & Mental Health (for nursing)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes organic brain disorders. schizophrenic disorders. affective disorders. neurotic disorders. phobia disorders. obsessive compulsive disorders. hysterical disorders. psychiatric emergencies. suicidal behavior. violence/panic attack. personality disorders. mental retardation. ethical and legal issues in psychiatry.

CMS313 Theory of Internal Medicine (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes diabetes mellites. pathology. types. complications and treatment. hypo and hypertensive disorders. vascular and lymphatic disorders. dyslipidemia.

CMS314 Theory of Cardiopulmonary Diseases (for physiotherapy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course includes chronic obstructive lung disorders. chronic restrictive lung disorders. specific and nonspecific lung abscess. physical therapy evaluation for patient inside icu. ischemic heart diseases. congenital heart diseases. rheumatic heart diseases and valve complications.

CMS315 Rheumatology (for physiotherapy)

1 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ---

This course includes systemic lupus erythematosus. rheumatoid arthritis. spondyloarthritis. systemic sclerosis. rheumatic fever. dermatomyositis. idiopathic inflammatory myopathies.

CMS316 Dermatology (for physiotherapy)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course includes orientation & introduction to dermatology. integumentary system anatomy and physiology. classifications & signs and symptoms of skin diseases. stages of wound healing. immunological mediators for skin diseases. midterm exam. dermatomyositis. psoriasis. acne. alopecia. vitiligo. skin infection.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CMS321 Cardiothoracic Surgery (for physiotherapy)****1** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ---

This course includes major types of cardiothoracic surgery, median sternotomy, posterolateral and anterolateral thoracotomy. pathoanatomical background of those kind of surgeries. complications and post-operative standard care. monitoring patients following surgeries. investigations and laboratory test prior to surgeries.

CMS322 Radiology 1 (for physiotherapy)**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ---

This course includes Uses of x ray as an imaging modality for chest and abdomen. Uses of C.T. as an imaging modality. MRI in chest and abdomen diagnosis introduction and interpretation. Spinal trauma types. Heart and big vessels imaging. Echo for heart. angiograph.

CMS323 Surgery (for physiotherapy)**3** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **165** – ECTS = **6**

Prerequisite ---

This course includes skin anatomy and physiology. burn (def, pathology, complications). wound healing and its complications. complications of general surgery. breast disorders & mastectomy. lymphedema. upper abdominal surgery. hernia (types, management). prostate disorder, surgery. hand burn. scar management and skin grafting and flap.

CMS342 Obstetrics & Gynecology (for physiotherapy)**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes anatomy of female genital tract. anatomy of pelvic floor & rvf. physiology of pregnancy. normal labor. caesarian section. antenatal care. displacements of the uterus. dysmenorrhea. chronic pelvic pain. prolapse.

CMS351 Ocular Neuroanatomy & Physiology (for Health Sciences)**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes anatomy of visual pathway. manifestations of affection of different parts of visual pathway. pupil abnormalities. neurological field defects.

CMS352 Ocular Diseases (for Health Sciences)**3** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes red eye (causes, clinical picture, and management). common diseases of anterior segment of the eye. common diseases of posterior segment of the eye. ocular emergencies.

CMS353 Applications of Laser (for Health Sciences)**3** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes types of lasers used in eye practice. laser applications in anterior segment diseases. laser applications in posterior segment diseases. laser in refractive surgery.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CMS354 Squint 1 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes the action of extra-ocular muscles. causes and types of squint. clinical picture of different types of squint.

CMS371 Investigations of the crime scenes for forensic science students

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **6**

Fire dynamics; Fire investigations: scene security, scene examination and detection of ignitable liquid residue & recording; evidence of fire cause, Explosion investigations; scene examination; search pattern and search techniques; Reporting, Essential tools for analytical laboratory facilities and methods, the interpretation of data generated from fire debris examination, Forensic Botany: Soil & pollen medicolegal aspects, Forensic Botany: Soil & pollen medicolegal aspects.

CMS381 Epidemiology (for nursing)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes disease & populations. strategies & uses of epidemiology. infectious diseases and outbreak of infections. investigations. measuring disease & death. age standardization. screening validity & reliability. confounding and its control. effect modifications & causalities. public health screening program. epidemiological measures. epidemiologic reports. ethical & legal issues of epidemiologic data. environmental & occupational epidemiology.

CMS382 Community Medicine (for nursing)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**

Prerequisite **BMS114, 134, 174, 162, 135**

This course includes basic principles & concepts. measurements of health. sociocultural dimension of health. environment & health. health care management. health care system. demography & population dynamics. food hygiene, pasteurization, fortification, additives and adulteration and preservation. adolescent & school age. health of elderly. nutrition in health & disease. health of crippled & handicapped. occupational health.

CMS383 Public Health (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **45** – ECTS = **2**

Prerequisite **PMB303 MEDICAL MICROBIOLOGY**

This course includes a general introduction to public health and epidemiology. communicable diseases: causes & control. non-communicable diseases (e.g., heart, cancer, cerebrovascular, liver, diabetic, renal diseases, peptic ulcer, homicide, anemia; risk, prevention & control). social; mental; environmental health. occupational health, food, water & milk microbiology (transmitted diseases; malnutrition; risk; prevention and control), nosocomial infection, family health, bioterrorism & genetic pollution. waste disposal (sewage treatment; disposal of wastewater, dry refuse, and radioactive materials). disaster & public health (types of disasters; impact on public health; causes; characteristics; prevention and control).



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CMS402 Genral Medicine and Dermatology (1) for dentistry

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite ---

This course includes diseases of the cardiovascular system. diseases of the pulmonary system. diseases of the gastro-intestinal system; liver diseases. diseases of the blood and blood-forming organs; HIV.

CMS403 Genral Medicine & Dermatology (2) for dentistry

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **CMS402**

This course includes arthritis & rheumatology. endocrine diseases. neurological diseases. oncology. skin & venereal diseases.

CMS404 General Surgery, ENT and Ophthalmology (1) for dentistry

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite ---

This course includes wounds and wound healing. hemorrhage, blood transfusion and fluid therapy. specific and non-specific infections. ulcers, sinuses, and fistulae. trauma. principles of pre-operative and postoperative care. postoperative complications.

CMS405 General Surgery, ENT & Ophthalmology (2) for

dentistry

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **CMS404**

This course includes head trauma. congenital diseases of head & neck. diseases of lips, palate, tongue & salivary glands. diseases of the thyroid gland. diseases of the eyes and eye surgery. ear, nose, and throat surgery for dentists. diseases of the paranasal sinuses.

CMS406 Clinical Methods 4 (for Health Sciences)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 150 – ECTS = 6

Prerequisite **CMS304**

This course includes measurement of IOP by application tonometer. measurement of IOP by indentation tonometry, measurement of IOP by air - puff tonometer.

CMS407 Emergency Medicine (for nursing)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes resuscitation. trauma care. emergencies treated medically. emergencies treated surgically. toxicology. environmental emergencies. psychosocial. signs and symptoms. EMS. CPR. administrative/legal/ethical. procedures. emergency & community.

CMS411 General & Special Medicine (I)

10 Cr. Hrs. = (50 LCT + 0 TUT + 100 LAB + 100 OTH) – SWL = 550 – ECTS = 19

Prerequisite **PRECLERKSHIP PHASE**

A clinical rotation that gives the student sufficient knowledge and skills



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



in the following areas of medicine: Hepatology. Gastroenterology. Cardiology. Pulmonology. Hematology/ oncology. Rheumatology. Dermatology.

CMS412 Geriatric Medicine (for nursing)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes pharmacotherapy issues in the elderly. dementia. genitourinary conditions. population specific activities - wound care. osteoporosis, falls & fractures. cardiovascular conditions. respiratory issues - endocrine disorders. Parkinson issues & movement disorders. acute care problems in the elderly. gastrointestinal issues & nutrition. pain syndrome. psychiatric disorders. palliative care & end of life.

CMS413 Addiction Medicine (for nursing)

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

The course topics include, the characteristics of addiction as revealed in biographies, epidemiological studies, and ethnographies, how drugs work (in a very schematic fashion), role of heredity in behavior and alcoholism, whether heroin is an “enslaving” drug, the reward/dopamine explanation of cocaine addiction, drug craving, cigarette smoking, marijuana addiction as choice, values as a determinant of drug use, and drug policy. The readings are research studies published in scientific journals.

CMS414 Elective Clinical Training - Cardiology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in cardiology.

CMS415 Elective Clinical Training - Neurology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in neurology.

CMS416 Elective Clinical Training - Pulmonology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in pulmonology.

CMS417 Elective Clinical Training - Gastroenterology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in gastroenterology.

CMS418 Elective Clinical Training - Nephrology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in nephrology.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CMS419 Elective Clinical Training - Dermatology****5** Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in dermatology.

CMS4110 Clinical pathology for forensic science students**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6**

The Clinical pathology course deals with the identification of microbes from living samples. The samples can include body fluids like blood, urine, fecal matter, saliva and so on. A person practicing clinical pathology is responsible for observing the collected body sample and isolating or identifying microbes. Microbes like bacteria, virus, fungi, and protozoa are responsible for causing infection and harming the system of the host. These microbes soon find their way into the bloodstream of the host. Clinical pathology courses are designed to provide maximum help in the diagnosis of diseases and determine appropriate treatment protocols. Given below is detailed information on this important course that is crucial to the entire healthcare industry.

CMS421 General & Special Surgery (I)**10** Cr. Hrs. = (**50** LCT + **0** TUT + **100** LAB + **100** OTH) – SWL = **550** – ECTS = **19**Prerequisite **PRECLERKSHIP PHASE**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of surgery: General operative topic/ Incisions/wounds/ infections/ electrolytes. Plastic surgery. Vascular surgery. Abdominal wall & hernias. GI surgery. Pediatric surgery.

CMS422 Critical Care Medicine (for nursing)**3** Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – ECTS = **6**Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes introduction to critical care nursing, assessment of vital organs, medical technology and PT security, respiratory disorders, cardiovascular & neurology disorders, renal disorders, metabolic & nutritional disorders, hematological disorders, infectious disorders, gastrointestinal disorders, environmental hazards, toxicology & poisoning disorders, general disorders.

CMS423 Radiology 2 (for physiotherapy)**2** Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**Prerequisite **CMS322**

Uses x ray as an imaging modality. Uses of C.T. as an imaging modality. MRI in musculoskeletal diagnosis introduction and interpretation. Spinal trauma types. Inflammatory joint diseases in MRI, degenerative joint diseases (O.A) imaging, gouty arthritis introduction and imaging. Bone and joint infection types and imaging. Imaging modalities in traumatic knee injuries. Imaging modalities in traumatic ankle injuries. Imaging modalities used in lumbar disc prolapse, lumbar spondylosis, cervical conditions, spinal instability.

CMS424 Traumatology (for physiotherapy)**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes introduction to fracture and traumatology and its complications, fracture of clavicle, acromioclavicular joint injury, sternoclavicular joint injury, and shoulder dislocation, fracture of humerus (proximal end, shaft, and distal end) and both bones of



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



forearm. dislocation of elbow, fracture coronoid, fracture olecranon and fracture of radial head. fracture of scaphoid, carpal dislocation, fracture base of thumb, metacarpals, and boxers' fractures. hip dislocation and fracture neck of femur. fracture of tibial plateau, ligamentous injury of knee. meniscal injury of knee joint. fracture of tibia. fibula, and foot bones, fracture dislocation of the ankle.

CMS425 Orthopedic Surgery (for physiotherapy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course includes osteomyelitis. bone tumors (benign and malignant). rheumatoid arthritis. chronic synovitis. ankylosing spondylitis. reiter's syndrome. osteoporosis. frozen shoulder (adhesive capsulitis). acromioclavicular joint injuries. glenohumeral joint osteoarthritis. osteonecrosis. shoulder impingement syndrome and rotator cuff tear. superior labral anterior posterior lesions. carpal tunnel, ulnar tunnel, and stenosing tenosynovitis (trigger finger and thumb-bowler thumb- de quervain disease). congenital and developmental dysplasia of hip. chondromalacia patellae and patellofemoral malt racking. tendinitis and bursitis. sacroiliac dysfunction. spinal deformities (scoliosis- kyphosis). lower back pain and disorders of intervertebral discs. spinal stenosis. cervical disk derangement disorders and spondylosis and thoracic outlet syndrome.

CMS426 Pediatric Surgery (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

This course includes Importance of surgery. birth lesions. nerve lesion. head trauma. hydrocephalus. spina bifida. developmental dysplasia of hip D.D.H. scoliosis. foot & knee deformities. torticollis & upper limb

deformities. muscle disorders. orthopedic surgeries for C.P.

CMS427 Elective Clinical Training - General Surgery

5 Cr. Hrs. = (0 LCT + 0 TUT + 160 LAB + 0 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

A chance for the student to choose a field of choice to gain extra clinical training in general surgery.

CMS428 Elective Clinical Training - Special Surgery

5 Cr. Hrs. = (0 LCT + 0 TUT + 160 LAB + 0 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

A chance for the student to choose a field of choice to gain extra clinical training in special surgery.

CMS429 Elective Clinical Training - Anesthesiology

5 Cr. Hrs. = (0 LCT + 0 TUT + 160 LAB + 0 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

A chance for the student to choose a field of choice to gain extra clinical training in anesthesiology.

CMS431 Pediatrics (I)

6 Cr. Hrs. = (30 LCT + 0 TUT + 60 LAB + 60 OTH) – SWL = 330 – ECTS = 11

Prerequisite **PRECLERKSHIP PHASE**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of pediatrics: introduction, history taking and examination. growth and development. genetics. neonatology. allergic and rheumatic disorders. pediatric gastroenterology. liver and biliary diseases. respiratory diseases. cardiovascular diseases. hematology/



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



oncology. integrated management of childhood illness.

CMS432 Neonatology (for nursing)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes basic science & general neonatology. fetal medicine. systematic neonatology. respiratory system. cardiovascular system. gastrointestinal system and hepatobiliary system. renal system. endocrine and metabolic. hematology. neurology. nutrition. surgery and orthopedics. community neonatal.

CMS433 Pediatrics (for physiotherapy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course includes normal motor and mental development. hydrocephalus and microcephalus. cerebral palsy. epilepsy. neonatal care and related problems, brachial plexus palsy (birth injuries). genetic disorder. hemophilia. muscular disorders. congenital anomalies. facial palsy. juvenile rheumatoid arthritis.

CMS434 Elective Clinical Training - Pediatrics

5 Cr. Hrs. = (0 LCT + 0 TUT + 160 LAB + 0 OTH) – SWL = 310 – ECTS = 9

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in pediatrics.

CMS441 Gynecology & Obstetrics (I)

6 Cr. Hrs. = (30 LCT + 0 TUT + 60 LAB + -60 OTH) – SWL = 330 – ECTS =

11

Prerequisite **PRECLERKSHIP PHASE**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of obstetrics & gynecology: Normal pregnancy. Abnormal pregnancy. Normal labor. Abnormal labor. Normal and abnormal puerperium. Operative obstetrics.

CMS442 Advanced Obstetrics & Gynecology (for nursing)

3 Cr. Hrs. = (3 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 135 – ECTS = 6

Prerequisite **CO REQUISITE WITH NURSING SPECIALTY OF THE EDUCATIONAL TRACK**

This course includes maternal medicine. early pregnancy care. antenatal, natal, postnatal care, management of delivery. postnatal problems. postoperative care. subfertility. urogynecology & pelvic floor.

CMS443 Elective Clinical Training - Gynecology & Obstetrics

5 Cr. Hrs. = (0 LCT + 0 TUT + 160 LAB + 0 OTH) – SWL = 310 – ECTS = 9

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in gynecology & obstetrics.

CMS451 Ophthalmology

4 Cr. Hrs. = (20 LCT + 0 TUT + 40 LAB + -40 OTH) – SWL = 220 – ECTS = 8

Prerequisite **PRECLERKSHIP PHASE**

a clinical rotation that gives the student sufficient knowledge and skills in the following areas in ophthalmology: visual acuity - visual field (confrontation) - eye covering/ patching - lid examination – anterior



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



segment examination - pupil examination - fundus examination using direct ophthalmoscope (eye simulator) - extra-ocular muscles testing - ophthalmic equipment: slit lamp, indirect ophthalmoscope, direct ophthalmoscope, autorefractometer, Schiotz tonometer and its value in examination - ocular investigations. eyelid - lacrimal system - dry eye - watering and discharging eye – conjunctiva. cornea and sclera. defective vision (acute/gradual loss of vision). uveal tract. lens. glaucoma. red eye. neuro-ophthalmology. the retina. the optic nerve. intraocular tumors. errors of refraction. squint. the orbit. ocular trauma and emergencies. field of vision. the pupil. ocular manifestations /ptosis of systemic diseases.

CMS452 Elective Clinical Training - Ophthalmology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in ophthalmology.

CMS453 Refractive Surgery 1 (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes principles of refractive surgery. principles of excimer laser. principles of corneal topography.

CMS454 Squint 2 (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite ---

This course includes microkeratome and its operation. Excimer laser mechanics. fimto laser mechanics. cross linking apparatus.

CMS455 Refractive Surgery 2 (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6**

Prerequisite **CMS453**

This course includes microkeratome and its operation. Excimer laser mechanics. fimto laser mechanics. cross linking apparatus.

CMS461 Otorhinolaryngology

4 Cr. Hrs. = (**20** LCT + **0** TUT + **40** LAB + **-40** OTH) – SWL = **220** – ECTS = **8**

Prerequisite **PRECLERKSHIP PHASE**

Clinical rotation that gives the student sufficient knowledge and skills in the following areas of otorhinolaryngology: Otology & audiology 40%. Rhinology 20%. Laryngology & phonetics 30%. Head & neck surgery 10%.

CMS462 Elective Clinical Training - Otorhinolaryngology

5 Cr. Hrs. = (**0** LCT + **0** TUT + **160** LAB + **0** OTH) – SWL = **310** – ECTS = **9**

Prerequisite ---

A chance for the student to choose a field of choice to gain extra clinical training in otorhinolaryngology.

CMS471 Counterfeiting and Forgery for forensic science students

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **-0** OTH) – SWL = **105** – ECTS = **4**

Identification Documents and Secured Documents, Equipment Used in Document Examination, Materials Used in Secured document Manufacturing., Printing Techniques in secured documents., Printing Techniques in non-secured Documents., Security Features printed on Secured Documents., Constructing of Secured documents., Personalization of documents (Introducing personal details)., Personal



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



information as security features., Securing personal details., Security Features in Banknotes., Equipment Used for Security Features Examination., International Standards of documents (ICAO Standards), Electronic documents & biometrics., Documents that are not genuine., Examining documents for fraud.

CMS472 Counterfeiting and Forgery II for forensic science students

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **-0** OTH) – SWL = **105** – ECTS = **4**

What is Forensic Document Examination? Definition of forgery and counterfeiting., Moral forgery and Physical forgery., Alterations in Documents., Handwriting Examination and Comparison., Signatures types, analysis, and examination., Conclusion and Guidelines for Handwriting Comparison, Computer Generated Documents. Stamp Seal types, analysis, and examination., Comparison Documents., Report writing.

CMS481 Community Medicine

2 Cr. Hrs. = (**30** LCT + **0** TUT + **0** LAB + **-15** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PRECLERKSHIP PHASE**

This course includes community health. preventive medicine. occupational medicine. clinical epidemiology.

CMS501 Emergency Medicine

4 Cr. Hrs. = (**20** LCT + **0** TUT + **40** LAB + **40** OTH) – SWL = **220** – ECTS = **8**

Prerequisite **PRECLERKSHIP PHASE**

Clinical rotation in the emergency room to give the students' knowledge and skills of emergency, which includes fast focused action plan, focused disease triage, diagnosis, and treatment of people from newborn through old age, from times of health through all stages of

acute and traumatic illnesses.

CMS502 Differential Diagnosis 1 (for physiotherapy)

2 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **120** – ECTS = **4**

Prerequisite **- - -**

This course includes differential diagnosis in P.T. in traumatic conditions and deformities of hip and thigh. differential diagnosis in P.T. in traumatic conditions and deformities of knee and leg. differential diagnosis in P.T. for rheumatoid arthritis. Differential diagnosis in P.T. in neck pain and TMJ disorders. Differential diagnosis in P.T. in Low Back Pain. differential diagnosis in P.T. in traumatic conditions of wrist and hand. differential diagnosis in P.T. in osteoarthritis. Differential diagnosis in P.T. after amputations. differential diagnosis in Peripheral nerve injuries after orthopedic & traumatic conditions. differential diagnosis in P.T. after spinal deformities & P.T. in ankylosing spondylitis.

CMS503 Differential Diagnosis 2 (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **CMS502**

This course includes 1 Epidemiological Characteristics of Neurological Diseases. 2 Neuroradiology. 3 Developmental-Acquired Anomalies. 4 Cranial Nerve Disorders. 5 Pain. 6 Intracranial Tumors. 7 Demyelinating Disease and Brain Atrophy. 8 Cerebrovascular Disease (Stroke). 9 Spinal Disorders. 10 Peripheral Nerve Disorders. 11 Movement Disorders. 12 Neurotrauma. 13 Infections of the Central Nervous System.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**CMS511 General & Special Medicine (II)**

10 Cr. Hrs. = (50 LCT + 0 TUT + 100 LAB + -100 OTH) – SWL = 550 – ECTS = 19

Prerequisite **CMS411**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of Medicine: Endocrinology & Nutrition. Nephrology. Infections & Tropical diseases. Psychiatry. Neurology.

MS512 Neurology (for physiotherapy)

3 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 165 – ECTS = 6

Prerequisite - - -

This course includes introduction to the nervous system. upper and lower motor neuron lesions. neurological disorders: pyramidal, extrapyramidal, cerebellar, and lower motor neuron diseases (AHC disorders, neuropathies, myopathies, neuromuscular junction disorders).

MS513 Psychiatry (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

This course includes introduction to psychological evaluation methods. introduction to treatment methods and guidelines for the treatment of mental illness. evaluation and treatment of depressive diseases. assessment and treatment of schizophrenia. study the effect of stimuli on the main centers of the brain. study, causes and ways of treatment of mental illness for the elderly.

CMS514 Medical Laboratory (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

This course includes understanding lab values. complete blood count (CBC). electrolyte panel. kidney function. endocrine. acid-base disorders. liver function/hepatic panel. lipid panel. bleeding ratio/viscosity. 1 cardiovascular-specific labs.

CMS521 General & Special Surgery (II)

10 Cr. Hrs. = (50 LCT + 0 TUT + 100 LAB + -100 OTH) – SWL = 550 – ECTS = 19

Prerequisite **CMS421**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of surgery: Neurosurgery. Endocrine surgery. Breast. Cardiothoracic surgery. Male genital surgery. Urology. Orthopaedics.

CMS522 Neurosurgery (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

This course includes brain surgery. cervical disc prolapses. •lumber disc prolapses. brain and spine tumors. traumatic head injuries. peripheral nerve injuries.

CMS523 Radiology 3 (for physiotherapy)

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CMS423**

This course includes MRI brain and spinal cord. Vascular anatomy and Doppler. CSF fluoroscopy. CT brain and spine.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



CMS531 Pediatrics (II)

6 Cr. Hrs. = (**30** LCT + **0** TUT + **60** LAB + **60** OTH) – SWL = **330** – ECTS =

11 Prerequisite **CMS431**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of pediatrics: Nutrition. Infections & vaccinations. PICU. Nephrology. Endocrinology & diabetes. Neurology. Psychiatry.

CMS541 Gynecology & Obstetrics (II)

6 Cr. Hrs. = (**30** LCT + **0** TUT + **60** LAB + **60** OTH) – SWL = **330** – ECTS =

11 Prerequisite **CMS441**

A clinical rotation that gives the student sufficient knowledge and skills in the following areas of gynecology & obstetrics: Applied anatomy. Menstruation. Pediatric and adolescent gynecology. Menopause. Reproductive endocrinology & infertility. Endometriosis, adenomyosis & pelvic pain. Displacements, traumatic lesions & urogynecology. Gynecologic oncology. Human sexuality (normal & abnormal). Gynecological procedures.

CMS561 Introduction to Speech Therapy (for physiotherapy)

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite ---

This course includes Language. Definition. Categories. Stages of development. Language. MR def. etiology- types. Autism def. C/P. Aphasia def. types. Speech. Parameters, neurophysiology. Dysarthria def. etiology-types. C/P. BDMH def. etiology-types. C/P. Speech. Dyspraxia def. etiology-types. C/P. Dyslalia def. types, etiology.

Dysphagia. Phonation, types, indication of therapy.

CMS571 Clinical Toxicology & Forensic Medicine

2 Cr. Hrs. = (**15** LCT + **0** TUT + **20** LAB + **10** OTH) – SWL = **105** – ECTS = **4**

Prerequisite ---

A clinical course that gives the student sufficient knowledge and skills in the following areas of forensic & toxicology: Forensic toxicology: introduction to forensic toxicology, pharmacokinetics and metabolism, drugs of abuse, workplace drug testing, post-mortem toxicology, drug abuse in sport, drug-facilitated sexual assault, and driving under the influence of alcohol and drugs. Analytical toxicology, including sample preparation, spectroscopy, immunoassay, mass spectrometry, introduction to analytical separations, gas chromatography, high-performance liquid chromatography, capillary electrophoresis, and QA/QC (quality assurance and quality control) in the toxicology laboratory. Forensic medicine.

CMS581 Family Medicine

4 Cr. Hrs. = (**20** LCT + **0** TUT + **40** LAB + **40** OTH) – SWL = **220** – ECTS = **8**

Prerequisite **PRECLERKSHIP PHASE**

Revisiting common family-health problems: Prenatal care, child-health care, menopause, palliative end-of-life care. Chest pain, Hypertension, hyperlipidemia. Diabetes, Thyroid disorders. Nutrition & weight management. Sore throat, otitis media. Abdominal pain, dyspepsia, GE reflux. Vaginitis. Arthritis, osteoarthritis, lower back pain. Cognitive impairment, dizziness, fatigue, headache, anxiety, depression. Allergies, asthma, COPD, acute respiratory infections. Male genital problems, dysuria. Breast problems.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Medical Education

MED111 Personal & Professional Development: Learning & Thinking Skills

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 60 – ECTS = 2

Prerequisite ---

This self-developing course includes taking notes. mind maps and concept maps. time management. group dynamics. sources of information.

MED211 Personal & Professional Development: Communication Skills / Patient Doctor Relationship

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 60 – ECTS = 2

Prerequisite ---

The background principles for successful communication. E mailing and texting, Business letters, Report design and format, Summarizing and annotating, Creating fliers, brochures, and newsletters. Writing exposition: description, definition, and process analysis. Oral presentation. Being part of an effective group. Effective and productive discussion. Conflict management. The process of building and maintaining trust with patients. Strategies for dealing with difficult personalities. Delivering bad news.

MED411 Personal & Professional Development: Leadership skills

2 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 5 OTH) – SWL = 135 – ECTS = 4

Prerequisite ---

What is Leadership? Leadership Styles. Setting the Direction & Performance metrics. Communication Skills: Words, tone, body language - Active listening - Powerful questioning skills – Core principles of running effective meetings. Emotional Intelligence & Influencing Skills. Action Centered Leadership Model. Delivering results through others: Defining strategy, creating a plan - Deliverables, performance indicators, timescales. Leading the Team: Team-working, cooperation, morale, and team spirit -Anticipate and resolve group conflict - Team roles within a group. Leading & Managing the Individual: Performance objectives and responsibilities - Identify & develop individual capabilities and strengths - Manage performance.

MED511 Personal & Professional Development: Hospital Management & Health Economics

2 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 5 OTH) – SWL = 135 – ECTS = 4

Prerequisite ---

Application of general principles of management in hospital environment. Labor laws and human resources strategies. Managing hospital finances. Healthcare law and privacy concerns. Information technologies in healthcare management. Improving Medical Performance (Total Quality Management



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية طب الأسنان FACULTY OF DENTISTRY



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Basic Dental Sciences

BDS121 Dental anatomy I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Introduction and nomenclature, Maxillary and Mandibular permanent central incisor, and lateral incisor, Maxillary and Mandibular permanent canine, Pulp cavities of the anterior teeth, Maxillary and Mandibular first and second premolar, Pulp cavities of the premolars, maxillary first and second molar, maxillary and mandibular third molar,

BDS122 Dental anatomy II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **BDS121**

Pulp cavities of the maxillary and mandibular molars, Deciduous dentition, Essential differences between deciduous and permanent teeth, Occlusion of the deciduous teeth, Permanent mandibular first molar, second molar, mandibular third molar, Physiologic tooth form, Protecting the periodontium, Geometric concepts of crown outlines with introduction about the TMJ and oral physiology.

BDS211 Oral biology I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Stages of tooth development, Growth of teeth and bio-mineralization, Amelogenesis, Dentinogenesis, Tooth enamel, Tooth dentine, Embryology, Development of face and oral cavity,

BDS212 Oral biology II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **BDS211**

Tooth cementum, Alveolar process, Dental pulp, Oral mucous membrane, Salivary glands, Growth and development of maxilla and mandible, Tooth eruption, Shedding of deciduous teeth, Maxillary sinus, and lymph drainage.

BDS331 Oral pathology I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **BDS212**

Developmental Anomalies of Teeth. Dental Caries. Diseases of The Pulp. Cysts of Oral and Para-oral Region. Osteomyelitis. Bone diseases. White and Precancerous Lesions.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



BDS332 Oral pathology II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **BDS331**

Non-Odontogenic Tumors and Tumor-Like Lesion. Odontogenic Tumors. Salivary Glands Tumors. Metabolic and Endocrinal Disturbances. Developmental Anomalies of Oral Tissues. Viral, Bacterial and Mycotic Lesions. Giant Cell Lesions. Oral Manifestations of AIDS. Etiology of Oral Cancer. Pigmentation of the Oral Mucosa. Resorption of Teeth.

BDS341 Oral radiology I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Concepts of Radiology Imaging. Production of X-ray. The X-ray machine, Radiographic Techniques and Procedures.

BDS342 Oral radiology II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **BDS341**

Special Imaging Techniques. Concepts of panoramic radiography, Troubleshooting panoramic techniques, Special radiographic techniques. Radiation Health. Radiographic Image Interpretation. laser usage in dentistry.

BDS351 Nanodentistry

2 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite ----

Introduction to nanodentistry. The structure of material and physical properties. The different types of dental material. The usage of nanodentistry. The scope and the future of nanodentistry.

BDS261 Genetics

1 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ----

Introduction to genetics. Structure of the human genome. Cell cycles and their regulation. Mitosis and Meiosis. Chromosomal anomalies. DNA structure & replication. RNA transcription. Inheritance. Autosomal and sex-linked diseases. Genetic mutations and cancer.

BDS371 Nutrition

1 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite ----

Food Pyramid. Significance of balanced diet in relation to oral health. Effect of vitamins, minerals, trace elements, and antioxidants on oral health. Synergistic action of vitamin D and calcium on bone homeostasis. Effect of diet on the prevalence of caries and periodontal disease. Geriatric and pediatric nutrition awareness and oral health.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Prosthetic Dentistry

PDD131 Dental biomaterials I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Introduction: Scope of the Course: Objective, Requirements. Physical Properties. Mechanical Properties. The Structure of Perfect Solids. Polymers & Polymerization.

PDD132 Dental biomaterials II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD131**

Introduction, Impression materials (non-elastic impression materials, Elastic impression materials), Gypsum products, Model and die materials, Dental waxes, Investing and casting procedures (Dental casting investments, casting procedures and casting defects),

PDD211 Removable prosthodontics I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD132**

- Introduction, Anatomical landmarks, Trays, Casting, Record blocks, Mandibular movements, Jaw relation, Articulators, Selection of teeth, Arrangement of teeth.

PDD212 Removable prosthodontics II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD211**

Complete Denture. Arrangement of teeth, Posterior palatal seal, Relief, Denture processing, Retention, Repair, Maxillofacial prosthetics.

PDD221 Fixed prosthodontics I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD132**

Introduction Terminology, basic principles of tooth preparation, Preparation of full metal cast crown, Ceramo-metal preparations, Onlay Preparations. Partial coverage preparations

PDD222 Fixed prosthodontics II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD221**

Working Casts and Removable Dies. Dental Waxes and Waxing Procedures. Casting, finishing, polishing, Pontics. Fixed Partial Denture Connectors. Occlusion in fixed prosthodontics. Porcelain Inlay and Onlay Preparations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PDD233 Dental biomaterials III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD132**

Denture base polymers, Denture lining materials, Dental amalgam, Restorative casting metals, Base metal casting alloys for removable prosthetics, Stainless steel, Metal joining in dentistry, Dental cements, Direct esthetic restorative materials, Dental porcelain. Dental ceramics.

PDD271 Occlusion

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Mandibular movements, types of articulators, importance of face-bow transfer, mounting casts on the articulator. Functional anatomy of masticatory system, Biomechanics of mandibular movements.

PDD313 Removable prosthodontics III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD212**

Removable Partial Denture. Introduction to removable partial denture, Classification, Components of partial denture, Base, Occlusal rests and similar parts, Direct retainers, Indirect retainers, Connectors, Stress breakers, Principles of designing, Materials used in partial dentures, Acrylic removable partial dentures.

PDD314 Removable prosthodontics IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD313**

advanced preparation for overdenture and advanced design for partial denture.

PDD323 Fixed prosthodontics III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD222**

Impression Materials. Final Impressions, Interocclusal record (Bite registration). Tissue management methods, Provisional restorations. Ceramo-metal restorations (metal alloys, framework designs and porcelain application)

PDD324 Fixed prosthodontics IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD323**

Color science and shade selection, All Ceramic Restorations, Machined Ceramic Restorations. Porcelain Laminate Veneers. Restoration of Endodontically treated teeth

PDD552 Geriatric dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to geriatric dentistry. The importance of geriatric dentistry field. Different types of elder cases according to the mental state. How to control and manage elderly patients. The special hazards from dental care to the elders.

PDD353 Forensic dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Introduction to forensic dentistry. The scope of forensic dentistry. The role of the dentist is to investigate different cases. Different prints can



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



be done by oral cavity. The analysis of DNA and its role in forensic dentistry.

PDD415 Removable prosthodontics V

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD314**

Clinical Complete Denture. Introduction to removable prosthodontics, Diagnosis & treatment planning, Impressions, Mandibular movements, Maxillomandibular relation, Selection of Teeth, Trial of dentures, Denture delivery, Post insertion complaints, Relining and rebasing, Repair, and additions.

PDD416 Removable prosthodontics VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD415**

Clinical Removable Partial Dentures. Introduction to partial dentures, Diagnosis and treatment planning, Mouth preparation, Impression for RPD, Jaw relations, Trial and adjustments, Delivery and adjustments, Post insertion care, Relining of RPD, Repairs and additions.

PDD425 Fixed prosthodontics V

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD324**

Diagnosis and treatment planning. History taking, clinical examination, radiographic examination, charting, diagnostic casts and diagnostic Wax-Up. Try-in , Cementation in fixed prosthodontics , Post insertion care and follow up.

PDD426 Fixed prosthodontics VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD425**

Advanced Occlusion. Advanced preparation for tilted teeth , telescopic preparations, and advanced design for partial denture. . Resin- Retained fixed partial dentures.

PDD517 Removable prosthodontics VII

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD416**

Maxillofacial Prosthodontics. Introduction, Congenital cleft palate, acquired cleft palate, Splints, Stents, Mandibular resection, Radiotherapy.

PDD518 Removable prosthodontics VIII

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD517**

Advanced Prosthodontics. Geriatrics, Speech, Single dentures, Over dentures, Immediate dentures, Swing lock RPD, Prosthetic attachments, TMJ, Implant dentures.

PDD527 Fixed prosthodontics VII

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD426**

Fixed Partial Denture Designs. Esthetics in fixed prosthodontics. Management of extensively damaged teeth. Prosthetic aspects of dental implants. Failures of fixed partial dentures.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PDD528 Fixed prosthodontics VIII

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD527**

Considerations for periodontally compromised teeth. Preparations for Special Situations. Fixed Partial Denture Repair. Fixed Partial Denture Removal. Orthodontic Adjuncts to Prosthodontics. Post insertion Care and Follow up.

PDD561 Esthetic Dentistry I

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite - - -

Introduction to esthetics in dentistry. An explanation of the esthetic zone. The different smile design techniques. Restorations for restoring esthetic zone.

PDD562 Esthetic Dentistry II

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PDD561**

The psychology effect behind esthetic restoration?

PDD371 Dental Photography

2 Cr. Hrs. = (**1** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **120** – ECTS = **4**

Prerequisite - - -

Introduction to dental photography. Equipment selection. Extraoral Photography. Intraoral and mirror photography. Image editing. Incorporating images in documents and presentation slides
Sharing images and storage.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Conservative Dentistry

CDD211 Operative dentistry I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PDD132**

Objectives of Operative Dentistry, Dental Caries and Locations. Classification of Cavities, Nomenclature and Terminology. – Principles of Cavity Preparation. Outline form, Resistance form, Retention form, Convenience form, Removal of decay, Finishing of enamel margin, Cavity debridement. Cavity Preparation for Amalgam. Class I cavity preparation, Class II cavity preparation, Class V cavity preparation. Instruments and instrumentation. Hand cutting instruments.

CDD212 Operative dentistry II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD211**

Cavity Preparation for Amalgam, Composite Glass Ionomer Restoration, and Gold Inlay. Class I, II and V.

CDD221 Endodontics I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD211**

Introduction to Endodontics. History, Scope of endodontics, Modern endodontics. Principles of Endodontic radiography. Pulp space Anatomy and Access cavities. Nomenclature. Types of canal configurations, Pulp space anatomy of upper and lower teeth, Alterations in internal anatomy.

CDD313 Operative dentistry III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD212**

Introduction to Direct Composite Restoration, Posterior Composite Resin Restorations, Anterior Composite Restorations, Management of Dentin Hypersensitivity. Leakage of restorative materials.

CDD314 Operative dentistry IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD313**

Preliminary Considerations in Operative Dentistry , Biological Considerations in Operative Dentistry, Treatment Plan, Minimal Invasive Operative Dentistry Concepts.

CDD322 Endodontics II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD221**

Endodontic Instrument. Cleaning and shaping of Root Canal System. Obturation of Root canal system. Endodontic Radiography and radiographic interpretation.

CDD323 Endodontics III

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD322**

Pre-endodontic preparation , Isolation of teeth. Different systems of rotary files. Different methods of instrumentation and



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



obturation.

CDD415 Operative dentistry V

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD314**

Introduction to Cariology, Management of Incipient Carious Lesions
Management of Moderate and Deep Carious Lesions
Adhesion to Enamel and Dentin, Glass Ionomer Restorations

CDD416 Operative dentistry VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD415**

Esthetic restorations and technique. Treatment of vital discolored
. Indirect Restorations, Dentine adhesives. Direct & Indirect teeth
Laminate Veneers.

CDD424 Endodontics IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD323**

Diagnosis and treatment planning Pulpal and periapical pathology.
Endodontic microbiology .Endodontic pharmacology and intracanal
medication.

CDD425 Endodontics V

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD424**

.Regenerative Management of open apex Vital pulp therapy.
Endodontics Geriatric Endodontics. Endodontic Periodontal
Interrelationship, Perio endo lesions

CDD517 Operative dentistry VII

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD416**

Compomers. Operative dentistry and periodontium. Dentine adhesives.
Esthetic restorations. Restoring badly destructed teeth.

CDD518 Operative dentistry VIII

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD517**

Attrition; abrasion and erosion; failure of composite resin restorations;
composite inlays; laminate veneers; operative dentistry and
periodontium.

CDD526 Endodontics VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite **CDD425**

Emergency treatment. Traumatic injuries. Root resorption. Procedural
accidents. Endodontic Retreatment . Success and failure

CDD527 Endodontics VII

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **CDD526**

Bleaching Discolored teeth. New technology and advances in
Endodontics. Manipulation of curved canals .Use of microscope in
Endodontics. Use of laser in Endodontics. Surgical Endodontics.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Oral & Maxillofacial Surgery

OMS 331 Psychology and Hypnosis

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Dental anxiety definition and management. Definition of Hypnosis and its role in managing dental anxiety during dental treatment.

OMS411 Oral and maxillofacial surgery I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Basic Principles of Oral Surgery. Anatomical Consideration. Local Anaesthesia. Extraction of Teeth. The Use of Elevators in The Extraction of Teeth.

OMS412 Oral and maxillofacial surgery II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **OMS411**

Impacted Teeth. General Anesthesia in Dentistry. - General Assessment. Preparation and Premedication.

OMS421 Local anesthesia

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

The student will acquire a working knowledge of commonly used local anesthetic agents and techniques. The course introduces the students to the problems of local anesthesia and indication and

contraindications and the chemical structures of the anesthesia.

OMS513 Oral and maxillofacial surgery III

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **OMS412**

Acute Infections. Deep Infections of the Face and Neck. Osteomyelitis. Cysts of the Jaws. Pre-prosthetic Surgery. Sulcus-Deepening Procedures. Ridge-augmentation. Re-Implantation & Transplantation of Teeth.

OMS514 Oral and maxillofacial surgery IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **OMS513**

Maxillary Sinus Involvement and its Dental Implications. Surgical Correction of Protruding and Receding Jaws. Cleft Lip and Palate. Management of Medically of Compromised Patients in Oral Surgery. Oro-Facial Pain and TMJ Disorders. Affections of the Salivary Glands. Tumors of The Oral Cavity. Maxillo-Facial Injuries.

OMS 354 Implant dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Introduction to implant dentistry. The structure of implant. The different types of implants. The usage of dental implant. The hazard of different implantation methods.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department Orthodontics & Pedodontics

OPD351 Special Care in Dentistry

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Introduction to special care in dentistry. The different types of patients require special care. When to refer the special care. Manipulation of the special care cases. How to understand and treat the handy capped patient.

OPD331 Preventive and community dentistry

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Introduction, Objectives of the course. Epidemiology. Epidemiological Studies. Measuring of Dental Caries. Biostatistics and Research Methods. Dental Health Education. Epidemiology of Periodontal Diseases.

OPD511 Orthodontics I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Introduction to the course and Department. Craniofacial Growth and Developments. A Brief Review of the Embryology of the Stomatognathic System. Theories of Craniofacial Growth Mechanisms. Ossification, Intramembranous & Enchondral. Normal Function of the Oral Cavity. Etiology of Malocclusion. Classification of Malocclusion. The

Prevalence of Malocclusion. Diagnostic Procedures (Chart Analysis). Diagnostic Aids in Orthodontics. Treatment Objectives. Treatment Planning. Study Cast Analysis. Cephalometric Radiography. Cephalometric Analysis. Cephalometric Tracing. Diagnostic Value of Cephalometrics. Cephalometric Analysis Currently Used for Diagnostic Purposes. Steiner's analysis, Tweed diagnostic triangle, Wits' appraisal of Jacobson.

OPD512 Orthodontics II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite OPD511

Orthodontic Tooth Movement (. Orthodontic Tooth Movement (. Orthodontic Vs Orthopedic Forces. Timing of Orthodontic Treatment. Four phases of growth and four phases of treatment (Bjork's concept), Final Assignment. Seminar, small group setting (5 –6 groups), Each student is asked to prepare a review on diagnosis and treatment planning of different classes of malocclusion, A representative of each group is asked to present a summary of what the group agreed upon as the final perception on the topic, A plenary session is conducted to formulate a final diagnostic chart and treatment planning as perceived by the 5th year class.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



OPD521 Pedodontics I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite CDD416

Introduction, Objectives of the course. Examination, Treatment plan, X-ray for the children. Development of the occlusion for children. Interceptive orthodontic treatment. Behavior management of children. Preventive Orthodontic. Restorative Dentistry. Stainless Steel Crown. Formocresol Pulpotomy for Children. Advanced Restorative Dentistry.

OPD522 Pedodontics II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite OPD521

Early childhood Caries. Traumatic Injuries for Anterior Teeth. Pulp Therapy. Oral Surgery for Children. Handicapped Children. Periodontal Diseases for Children. Gingivitis, Periodontal diseases in children.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Oral medicine, Periodontology, Diagnosis & Oral Radiology

OMR321 Oral diagnosis I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Diagnostic process, Initial interview, Patient history, Examination techniques, Extraoral clinical examination, Oral clinical examination, Clinical and laboratory aids to diagnosis, Diseases of teeth, Diseases of lymph nodes, Diagnosis and differential diagnosis of oral ulcers, Diagnosis and differential diagnosis of red and white lesions, Biopsies, Cheilitis, Tongue changes, Orofacial pain.

OMR322 Oral diagnosis II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite OMR321

Identification of Dental, Mandible, Maxilla, Skull, Mass disaster, Sex, Race, Occupation, Habits, Genetic markers. Dental Record, Post mortum, Bite Marks, Oral Trauma, Soft tissue trauma, Bone injuries, Medical Ethics, Malpractice.]

OMR341 Laser in dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ---

Introduction to laser in dentistry. The structure of laser and physics behinds. The different types of dental laser. The usage of dental laser.

The hazard of different types of lasers.

OMR351 Infection control in dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite ---

Introduction to infection control. The importance of infection control. Methods of cross infection in dental clinics. Different methods for infection control and sterilization. Prevention of infection via lab work. Different types of detergents. Different types of autoclaves.

OMR411 Oral medicine I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite BDS332

Oral Mucosal Disease. Ulcerative, Vesicular, and Bullous Lesions. Red and White lesions of the Oral Mucosa. Pigmentation of Oral Tissues. Diseases of the Tongue. Orofacial Pain and Temporomandibular Joint Disease. Salivary Gland Disease.

OMR412 Oral medicine II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite OMR411

Systemic Disease: Diseases of the Cardiovascular system. Diseases of the Gastrointestinal Tract. Diseases of the liver. Renal Disease.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Leukocyte disorders. Red blood cell disorders. Bleeding and Clotting Disorders. Immunologic Diseases. Endocrine Disease and Dysfunction. Diabetes. Sexually Transmitted and Blood Borne Infections.

OMR431 Periodontics I

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

The Normal Periodontium. Classification & Epidemiology. Etiology of Periodontal diseases. Periodontal Pathology. Treatment of Periodontal disease.

OMR432 Periodontics II

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite OMR431

This course addresses clinical periodontal charting, diagnosis, plaque control aids, principles of periodontal surgery, and treatment of periodontal diseases: prognosis, treatment plan. Also, this course addresses clinical gingival curettage, gingivectomy technique, periodontal flap and osseous surgery, treatment of furcation involvement, periodontal-endodontic interrelationship, mucogingival surgery, and chemotherapeutic agents.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



كلية الصيدلة

FACULTY OF PHARMACY



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Medicinal Chemistry

PMC101 Pharmaceutical Analytical Chemistry I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite - - -

The course covers the basic knowledge required for quantitative analysis like expressing solution concentration, pH concepts, and buffer solutions, along with gravimetric and titrimetric analytical techniques like acid-base, complexometric, precipitation (argentometric), and redox titrations. The course also includes an introduction to electrochemistry and electrochemical techniques with an emphasis on potentiometry and potentiometric titrations.

PMC102 Pharmaceutical Organic Chemistry I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite - - -

This course is intended to give pharmacy students a brief introduction to organic chemistry, its impact, and its applications in the pharmaceutical industry & drug development. The students will learn how to classify the medicinal agents according to their structure and know the chemical properties & reactivity of each class as haloalkanes in general anesthesia (as halothane), alkenes & alkynes in many synthetic pharmaceutical agents such as hormonal & antitumor agents (as tamoxifen & clomiphene). Stereochemical aspects will be covered to understand the isomeric effect on drug action through binding affinity to different biological receptors (such as thalidomide, adrenaline &

citalopram). Some drugs such as beta-blockers that are synthesized from alkyl halides will be studied through different elimination & substitution reaction techniques. Practical skills of the students will be developed through the identification & preparation of several pharmaceutical agents (such as aspirin & paracetamol).

PMC103 Pharmaceutical Organic Chemistry II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PMC102

This course extends the knowledge of organic compounds to study the aromatic hormones and drugs either being naturally occurring or synthesized & how aromaticity affects their properties and reactivity (such as NSAIDs & other analgesics). Practical skills in pharmaceutical organic synthesis will be developed through the preparation of several pharmaceutical agents (such as benzocaine & diphenyl urea) as well as indicators (such as phenolphthalein, fluorescein, and methyl orange).

PMC104 Pharmaceutical Analytical Chemistry II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PMC101

The course covers the instrumental techniques for quantitative analysis like electrochemical, spectroscopic, and chromatographic techniques with an emphasis on UV/Visible absorption spectroscopy, spectrofluorimetry, flame spectroscopy, and liquid chromatographic techniques.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**PMC205 Pharmaceutical Organic Chemistry III****2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **PMC103**

This course continues with the study of the structure, properties, composition, reactions, and preparation of carbon-containing compounds of pharmaceutical interest. Topics include carbohydrates (monosaccharides, disaccharides, and polysaccharides) and their structure, synthesis, and reactions. Additional topics to be covered include phenols and sulphonic acids. The course also addresses chemistry of heterocyclic compounds as well as spectroscopy and elucidation of chemical structures using different spectroscopic techniques (IR, NMR, and mass spectroscopy).

PMC306 Medicinal Chemistry I**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **PMC205**

The course is designed to inaugurate the basics of medicinal chemistry; it includes an overview relating physical and chemical properties of drugs to their biological actions. An introduction to the concept of drug development throughout studying the biochemical aspects of chemotherapeutic agents is tackled. Intended goals are achieved by studying different classes of antibiotics (β -lactam antibiotics, tetracyclines, aminoglycosides, macrolides, and chloramphenicol analogs), antibacterial sulfonamides, quinolones and dihydrofolate reductase inhibitors. The course is also tailored to include antiparasitic, antimycobacterial and antifungal agents. This course comprises a thorough study of antiviral and antineoplastic drugs. The chemistry and relevance of antiseptic agents is also highlighted.

PMC307 Medicinal Chemistry II**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**Prerequisite **PMC306**

The course aims to deliver necessary understanding of certain drug classes relating their distinct physicochemical properties to corresponding pharmacokinetic and pharmacodynamics actions. The course discusses the chemical structure of non-steroidal anti-inflammatory drugs, polypeptide hormones, opioid and non-opioid analgesics, antiallergenic and antiulcer drugs, steroidal hormones, and related drugs. Additionally, oral antidiabetic agents, thyroid hormones and anti-thyroid drugs, vitamins and anti-aging therapies are likewise apprehended. The practical part of the course is designed to endorse a student's professional skills.

PMC408 Medicinal Chemistry III**3** Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**Prerequisite **PMC307**

The course is customized to focus on the influence of chemical structure on biological aspects of some drug classes including those acting on central nervous system (sedative-hypnotics, anticonvulsants, anxiolytics, general anesthetics, muscle relaxants, antidepressants, analeptics, and sympathomimetic agents). The chemistry of cholinergic, adrenergic, cardiovascular agents and diuretics is discussed in relevance to drug development and innovation. The course is delivered to comprise sufficient awareness about drug metabolism, non-computational and computer aided drug design. Students are anticipated to hypothesize molecular modifications of lead drugs to improve their bioavailability and pharmacodynamics. The practical part of the course upgrades students' professional attributes.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PMC409 Quality Control of Pharmaceuticals

2 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**

Prerequisite **PMC104**

The course covers quality control and quality assurance concepts of analytical chemistry with emphasis on pharmaceutical compounds like analytical method development and validation, quality control of raw materials and finished products, in process quality control, pharmacopeial methods of stability and stability testing of drugs, and performance assessment and calibration of instruments used in pharmaceutical analysis.

PMC511 Advanced Instrumental Analysis

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PMC104**

This course provides in-depth coverage of instrumental analysis as a field of analytical chemistry that investigates analytes using scientific instruments. The course addresses an introduction to Spectrometry, quantum Chemistry and spectroscopy. It addressed applications of spectrophotometry, spectrophotometers, and Lasers. Further, the course introduces mass spectrometry and its Instrumentation. Additional topics include quadrupole, time-of-flight, ion mobility mass spectrometry. The course addresses quantum chemistry, molecular modeling and exploring chemistry with electronic structure methods. Introduction to analytical separation techniques including advanced High Performance Liquid Chromatography.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Pharmacognosy

PPC101 Botany & Medicinal plants

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite - - -

This course introduces botany as the branch of biology that deals with the study of plants, including their structure, properties, and biochemical processes. Medical ethnobiological sciences, including ethnobotany, and ethnopharmacology are introduced. The course addresses general principles of botany including morphology and systematics. The course provides a background on plant nomenclature & classification of plant crude drugs, and medicinal plants with an emphasis on families yielding important phytopharmaceuticals. Plant anatomy, physiology, structure & modifications of its tissues are addressed. The course also discusses perspectives on the role of plant secondary metabolites.

PPC102 Pharmacognosy

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPC101

This course introduces pharmacognosy as the study of medicines or crude drugs produced from natural sources such as plants, microbes, and animals with a special emphasis on herbal drugs in the Egyptian market. It addresses the scope, history & role of pharmacognosy in modern medicines. It addresses key medicinally important drugs derived from different plant organs as well as the identification and authentication of genuine herbal drugs. An emphasis is made on pharmacognostical features, major constituents, folk uses, clinically

proven uses, benefits & precautions of specific medicinal plants. The course also addresses emerging Areas in Pharmacognosy.

PPC303 Phytochemistry

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPC102 - PMC103

This course introduces phytochemistry as the chemistry branch addressing plants, plant processes, and plant products. The course provides a definition of bioactive plant molecules, and natural product chemistry in drug discovery and adds insights into structure activity relationships of some natural scaffolds and marketed semisynthetic drugs along with the chemistry, pharmacological actions, and uses of different natural product classes. The course discusses methods in natural product chemistry and methods used for the isolation, preparation, identification, and analysis of natural products. The course puts an additional emphasis on marines and chemistry of anticancer natural products.

PPC404 Herbal and alternative Medicine

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite PPC102

The course aims to enable students to attain the systematic approach for herbal prescribing through a comparative study of both traditional and scientifically based uses of herbal drugs in the treatment of various clinical disorders. It covers topics such as traditional systems of herbal medicine and an introduction to complementary and alternative



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



medicines with emphasis on homeopathic remedies, nutritional supplements, aromatherapy & medical herbalism, and their effect on maintaining optimum health and prevention of chronic diseases. WHO regulations for herbal medicine and guidelines for prescribing herbal medicinal drugs based on pharmacological properties of these drugs including therapeutic uses, dosage, adverse reactions, the toxicity of herbal constituents, contraindications, and drug interactions will be discussed. Special concern is given to the possible mode of action of the herbal drugs based on experimental and clinical pharmacological studies. Important natural products and phytomedicines used in the treatment of different body systems diseases are given in more detail. Important bioactive plant molecules (sources and mechanism of action) will be outlined. Cosmeceuticals and miscellaneous supportive natural therapies for stress, ageing, cancer, and debility will be highlighted.

PPC505 Biotechnological Production of herbal Drugs

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PPC102**

Introduction to biotechnology. Downstream processes for plant cell and tissue culture. Bioengineering, and biomedical engineering. Blue biotechnology (Marine). Red biotechnology (Medical). Green biotechnology (agricultural). Nucleic acid isolation. Genetic engineering techniques. Different pharmaceutical applications in biotechnology with special emphasis on biopharmaceuticals produced using plants as an expression system using recombinant DNA technology. The course also outlines the general steps involved in manufacturing of genetically

engineered medicines and defines plant molecular farming for producing Pharma-crops. Omics technology and its applications will also be discussed.

PPC506 Pharmaceutical Herbal Quality Control

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PMC205 - PMB202 – PPC303**

The course will offer an introduction to the concept of quality control of herbal medicines. Quality control and approval testing per pharmacopeial standards and currently accepted international regulations and specifications will be covered. Physicochemical, spectroscopic, and chromatographic testing in addition to different methods for authentication, extraction, standardization, and analysis of herbal raw materials as well as standardization and stability testing of finished products will be also discussed. Microbiological controls and bioanalytical methods together with method verification and validation will be outlined. Integration of product specifications and SOP-system with emphasis on the creation of SOPs and testing plans will be introduced within the context of documentation and raw data archiving conforming with GMP. The impact of good agricultural practices, collection practices, post-harvesting treatments and manufacturing practices (GAP, GCP and GMP) on the production of phytopharmaceuticals on industrial scale will be also discussed. The course familiarizes students with international efforts to ensure safe, effective, and evidence-based herbal products.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Pharmaceutics & Industrial Pharmacy

PPH101 Pharmacy Orientation & Medical Terminology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course will provide a comprehensive overview of the pharmacy profession, examining various aspects of the past, present, and future of pharmacy practice to provide students with a global view of the pharmacy profession. The role of the pharmacist will be further defined through a variety of topics, including basic principles of pharmacy practice, professionalism, patient-centered care and education, pharmacy law, ethics, and interprofessional issues.

The course introduces basic information on prescriptions and dosage forms. The basics of medical and pharmaceutical terminology are also introduced. The course will start to shape student attitudes about pharmacy practice as they begin to chart a course for their pharmacy education and future career.

PPH102 Physical Pharmacy

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite ---

This course provides the physicochemical background to the design and use of pharmaceutical dosage forms. It addresses the introductory aspects of the subject by covering the fundamentals of physical pharmacy including states of matter, phase equilibria, solution and

solubility, and colligative properties. The course also addresses buffers, surfactant, rheology, and their applications in pharmacy.

PPH203 Pharmaceutics I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPH102

This course goes beyond the introductory aspects of the subject to show how basic physicochemical principles are essential to an understanding of different aspects of physical pharmacy including incompatibilities, colloids, suspensions, emulsions, and extracts. An introduction to pharmaceutical calculation is introduced with applications in producing pharmaceutical preparations consisting of several different ingredients in a vehicle to produce a product.

PPH204 Pharmaceutics II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPH102

The course addresses solid and semisolid drug dosage forms including ointments, creams, suppositories, powders and granules and capsules tablets. An emphasis is made on tablet coating, the process where coating material is applied to the surface of the tablet to achieve the desired properties of dosage form over the uncoated variety, and on methods and processes of microencapsulation.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PPH305 **Pharmaceutics III**

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PPH102**

This course introduces the students to several dosage forms including parenteral ophthalmic products and pharmaceutical aerosols. The course also addresses reaction kinetics for pharmaceutical products by investigating the stability of drugs and the mode of action of their degradation through the examination of rate of reaction.

PPH306 **Industrial pharmacy**

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PPH102**

This course covers the applications of size reduction, size enlargement and size separation in the pharmaceutical industry. It also addresses heat transfer, distillation, and evaporation in the context of applications for the pharmaceutical industry. The course also addresses the filtration and crystallization process for particle formation in the pharmaceutical industry and how it plays an important role in defining the stability and drug release properties of the final dosage form. An emphasis is provided on emulsification and extraction techniques. The course also addresses drying and industrial nanotechnology.

PPH407 **Biopharmaceutics & Basics of Pharmacokinetics**

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PPH305**

The course addresses biopharmaceutics and pharmacokinetics as pharmaceutical disciplines useful to improve the outcome of drug

therapies, assist drug product development, and establish pharmacokinetics-pharmacodynamics models and in vitro-in vivo correlations. An emphasis is made on the pharmacokinetics of drugs administered by IV route, compartmental models, and renal and hepatic clearance. The course addresses how noncompartmental pharmacokinetics can be used in computing the pharmacokinetic parameters of a drug from the time course of measured drug concentrations. Bioavailability and bioequivalence are introduced with discussion of their implication in Egyptian the pharmaceutical industry.

PPH511 **Radiopharmaceuticals**

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PPH305**

This course provides an overview of radiopharmaceuticals as radioisotopes bound to biological molecules able to target specific organs, tissues, or cells within the human body. Topics covered include basic principles of nuclear medicine physics, radiation protection, safety, and regulation practice. This is in addition to instrumentation, measurement, calculation, and dosimetry. The course also covers radiopharmacy and radiopharmaceutical chemistry including radioisotope production and radiopharmaceutical preparation - generators, cyclotron, reactors - small-scale production for clinical use, labeling, dispensing - operational level 1a, 1b, 3a. Third, the course covers therapeutical radiopharmacy (Radioisotope for therapy and radiopharmaceutical preparation). Finally, the course covers regulatory aspects of radiopharmaceuticals including qualification and validation in radiopharmaceutical manufacturing, quality, safety and GMP in radiopharmaceutical practice.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Pharmacology & Toxicology

PPT301 Pharmacology I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite **BMS232**

This course introduces the general principles of pharmacology including pharmacokinetics and pharmacodynamics. Topics related to the activity of drugs affecting the autonomic nervous system as well as autacoids and local hormones will be discussed including muscarinic agonists and antagonists, adrenergic agonists and antagonists, histaminergic and serotonergic agents, as well as drugs modifying the activity/availability of eicosanoids and cytokines.

PPT302 Pharmacology II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite **PPT301**

This course introduces the students to the pharmacological properties of drugs affecting the cardiovascular and central nervous system (CNS) functions. Topics discussed include anti-hypertensive and anti-anginal drugs, drugs for heart failure and arrhythmias, diuretic agents, pharmacological agents affecting the blood, as well as lipid-lowering drugs. In terms of CNS-acting drugs, anxiolytic and hypnotic drugs, general anesthetics, narcotic analgesics, anti-epileptic drugs, antipsychotic drugs, antidepressant drugs, together with anti-parkinsonian drugs will be discussed.

PPT403 Pharmacology III & Biostatistic

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite **PPT301**

This course covers the principles of chemotherapy with emphasis on the different classes of antibiotics including inhibitors of cell wall synthesis, drugs affecting bacterial protein synthesis, intermediary bacterial metabolism, and bacterial DNA synthesis as well as urinary tract antiseptics. Chemotherapy of tuberculosis will be discussed together with antifungal and antiviral agents, chemotherapy of protozoal infections and helminthiasis, in addition to Cancer chemotherapy. In parallel, an

Introduction to descriptive and inferential statistics will be provided that will encompass the interpretation of estimates, confidence intervals and significance tests. Other, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance will be highlighted. Emphasis is placed on the proper selection and application of statistical methods appropriate to clinical data. The course includes a laboratory session demonstrating the use of software for statistics to apply tests discussed in the lecture.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PPT404 Basic and Clinical Toxicology****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5Prerequisite **PPT403**

This is a general toxicology course covering the management of toxicity and specific responses of target organs including the liver, kidney, eye, and respiratory system. Different toxin types such as heavy metals, animal and plant toxins, and pesticides will be discussed. Some emphasis will be given to forensic toxicology and the pathology of toxicity including the mutagenicity and teratogenicity of different xenobiotics.

PPT505 Drug Nutrient interaction**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course focuses on the different potential aspects of biological processes where the consumption of certain food items can affect drug pharmacokinetics of pharmacodynamics. Identification of interactions at the level of drug absorption, metabolism, and/or elimination will be a priority. The effect of nutrition on the body's response to drugs; and conversely, the impact of drugs on the nutritional status will be discussed. Common herb-drug interactions will be reviewed. The students will be exposed to the different available resources for identifying common drug-nutrient and drug-herb interactions.

PPT506 Drug abuse and misuse**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PPT403 - PPT404**

After introducing the students to the basic concepts and definitions, this course covers epidemiology, etiology, and maintenance of drug

misuse. The pharmacological effects as well as the societal, economic, and public health impact of drug misuse will be discussed. The course aims at offering the student the necessary tools for the identification and assessment of drug misuse as well as those for its treatment and management.

PPT507 Drug-Drug Interactions**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PPT403**

This course covers the major aspects of interactions among agents used to treat common ailments. Frequent pharmacokinetic and pharmacodynamic interactions of drug classes used for gastrointestinal diseases, cardiovascular diseases, CNS disorders, infectious diseases, as well as endocrine disorders will be discussed. The students will be trained to identify the interactions and use resources available to aid and support this process in their practice.

PPT508 Pharmacogenomics**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PPT403**

In this course, the students will be exposed to the principles of Pharmacogenomics together with their pharmacokinetic, pharmacodynamic, and clinical implications. New insights into the incorporation of pharmacogenomics in drug development from the industry and regulatory perspectives will be highlighted. Emphasis will be placed on translating pharmacogenomic research to therapeutic potentials in cancer, cardiovascular diseases, psychiatric disorders, diabetes, and HIV.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Microbiology & Immunology

PMB201 General Microbiology & Immunology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite -----

The course gives an overview of general microbiology, including the history of microbiology. The course also covers the study of prokaryotes, classification of bacteria, Bacterial morphology, the structure of bacterial cells, biological requirements and growth, bacterial products, bacterial physiology, continuous culture, microbial genetics, and mutation through different mutagenic agents. The course also covers an introduction to virology including general characteristics, viral replication, classification as well as methods of cultivation of different viruses. Moreover, the course includes a study of the morphology and characteristics of different fungi, their nature, the chemical composition of the cell wall, fungal reproduction as well as classification of fungi. The students will also receive an introduction to immune system function and structure, innate and adaptive immunity, in addition to tissues, cells and soluble components of the immune system. The students will also gain knowledge of the complement system, antibodies, antigens, MHC, immune reactions against grafts, cancer immunotherapy and immune system aberrations (hypersensitivity, autoimmune diseases, immune deficiencies). Serological reactions and their applications (precipitation, agglutination, complement fixation, ELISA, immunofluorescence, and radioimmunoassay) will also be covered in the course.

PMB202 Pharmaceutical Microbiology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PMB201**

The course covers classes of chemotherapeutic agents and antibiotics, the advantages and disadvantages of each class and the basis of selection of the most appropriate chemotherapeutic agent for treatment of different diseases. The course also includes sterilization methods & their validation, non-antibiotic antimicrobial agents: antiseptics, disinfectants, and preservatives. The students will also be exposed to the evaluation of different antimicrobial agents: antibiotics & non-antibiotics, together with microbiological quality control of pharmaceutical products.

PMB303 Medical Microbiology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PMB202**

The course gives the students an overview of the taxonomy of microorganisms. The students will learn the different Gram-positive and Gram-negative pathogens, their pathogenesis, symptoms, laboratory diagnosis, prevention, and treatment. The students will also be exposed to chlamydia, rickettsiae, spirochetes, mycoplasma and other miscellaneous pathogenesis, symptoms, laboratory diagnosis, prevention, and treatment. The course will also cover viral diseases and fungal diseases in terms of their mode of transmission, pathogenesis, symptoms, laboratory diagnosis, prevention, and treatment.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PMB404 Biotechnology****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PMB202**

The course includes a general introduction to biotechnology and fermentation. In addition, the students will be introduced to microbial growth processes, including the mode of fermentation processes; design of a fermentor; achievement and maintenance of aseptic conditions in the fermentor. The course also covers major biotechnological products and bioconversion processes, biodegradation, bioremediation, biotransformation, biopolymers, bioinsecticides, bioleaching, biosensor and biosurfactants. The students will also be introduced to genetic engineering applications, recombinant DNA, cloning, hybridizations, and sequencing.

PMB505 Public Health**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PMB303**

This course provides a pharmacy-focused and equity-driven approach to the fundamentals of public health with specific emphasis to pharmacy students. It is organized into two sections: Public Health Fundamentals and Public Health in Pharmacy Practice. The first section covers key concepts of public health and epidemiology. Communicable diseases: causes & control as well as non-communicable diseases (e.g., heart, cancer, cerebrovascular, liver, diabetes, renal diseases, peptic ulcer, homicide, anemia) risk, prevention, and control will be discussed. Aspects such as social, mental, environmental, and occupational health will be explained. The students will gain an understanding of food, water, and milk microbiology, including transmitted diseases, risk, prevention, control, and malnutrition. Other aspects of the course also include nosocomial infection, family health, bioterrorism, and genetic pollution.

Topics such as waste disposal (sewage treatment; disposal of wastewater, dry refuse, and radioactive materials) will be discussed. The course will also cover disaster and public health, including types of disasters, impact on public health, causes, characteristics, prevention, and control. The course will also address determinants of health, pharmacy within public health, public involvement, and behavioral theories. The second section of the course, Public Health in Practice, focuses on several areas of current public health practice. Students will appreciate how pharmacists and pharmacies are key contributors to putting public health in action; Examples of pharmacy-related public health programs with a scientific theoretical foundation will be discussed in light of national and international needs, strategies and the legal basis for pharmacy and public health.

PMB506 Antibiotics stewardships**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **PMB202**

The course introduces different guidelines for stewardship programs including CDC and WHO guidelines. The principles of antimicrobial prescribing, antimicrobial resistance is also detailed in addition to responses to adverse and allergic reactions to antibiotic therapy. Rational use of antibiotics in urinary tract infections, community-acquired respiratory tract infections, skin and soft tissue infections, bloodstream infections, antimicrobial surgical prophylaxis, acute pharyngitis in adolescents and adults, acute infectious diarrhea, ventilator-associated pneumonia, and acute otitis media will also be discussed.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PMB509 Infection control

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **PMB303**

The course will recap basics of microbiology and immunology, sterilization and disinfection and give an overview of the principles of epidemiology. The course will introduce the students to evidence-based

infection control principles and practices as well as emerging and re-emerging infections. The course will also focus on Multidrug Resistant Organism (MDRO) as well as the prevention and control of common healthcare associated infections. The components of an effective infection control program, role of Infection Control Committee, IC Professionals and IC Link Officers will also be discussed.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



Department of Biochemistry

PBC201 Biochemistry I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite **PMC103**

The course provides an overview of the chemistry and characteristics of different biomolecules and their correlation to the different functional aspects of various cellular structures and processes. The chemistry of carbohydrates, lipids, amino acids, proteins, and enzymes is covered with relevance to cell structure, organelles, and biological membranes.

PBC202 Biochemistry II

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite **PBC201**

This course focuses on the detailed study of different metabolic reactions in the human body covering biological oxidation, carbohydrate metabolism, proteins, and amino acids metabolism, as well as lipid metabolism. Special attention is given to metabolic pathways implicated in disease conditions and drug action. The course attempts to leverage team-based learning and peer learning through structured tutorial activities to enhance the students' knowledge and skills in this field.

PBC403 Clinical Biochemistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4

Prerequisite **PBC202**

In this course the pathological implications of biomolecule metabolic defects are discussed. As well, in-born errors in metabolism will be described together with metabolic disorders of calcium and phosphate in addition to endocrine abnormalities. Students will be trained in identifying the necessary investigative tests to characterize the metabolic errors as well as common metabolic abnormalities associated with hepatic, renal and myocardial dysfunction.

PBC504 Clinical Nutrition

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite **PBC202**

In this course the students will be provided with the necessary knowledge and skills to manage patient nutrition for therapeutic purposes. The necessary background of basal metabolic rate, nutritional requirements for pediatrics and geriatrics, vitamins and minerals, and enteral and parenteral nutrition will be discussed. Specific clinical situations such as nutritional care for obesity, diabetes mellitus, cardiovascular, renal, and hepatic disorders will be highlighted in addition to dietary care for cancer patients, pregnant and lactating women.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Department of Pharmacy Practice & Clinical Pharmacy

PPP201 Pharmacoeconomics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course addresses the principles of pharmacoeconomics as well as issues in applying pharmacoeconomic theory in different settings. Topics include the terminology used in pharmacoeconomics, research methods frequently used in pharmacoeconomics, and the role of pharmacoeconomics in the drug development process and health care decision making of relevance to pharmacy practice. It also discusses the theoretical and empirical aspects of key health economics issues, including the demand and supply for health and health services, health insurance, models, and related topics with specific emphasis to the Egyptian healthcare system.

PPP202 Pharmacy Administration

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite -----

This course covers the managerial aspects in pharmacy practice with an emphasis on financial, operational, and human resource management, to provide the knowledge and skills necessary for initiating and maintaining a successful pharmacy practice. It provides an overview of the daily operational, financial, marketing, and human resource management tasks that every pharmacy manager should

know. Further, it provides students with a working knowledge of fundamental aspects of pharmacy practice leadership including, but not limited to strategic planning, and decision-making issues. The course provides an overview of the key steps in writing a business plan, with an emphasis on planning for pharmacy-based services.

PPP303 Pharmacy Skills and Patient Counseling

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite PPH101

This course helps pharmacy students learn the principles, skills, and practices that are the foundation for clear communication and the essential development of shared decision making and trust between them and their future patients. The course content guides students from theory and basic principles to practical skills development to the application of those skills in everyday encounters. Students learn the process of communication including the types of messages (verbal or nonverbal), barriers, and the significance of participants' backgrounds as well as demonstrating appropriate listening behaviors and responses. Students are provided with opportunities to conduct an efficient, effective patient interview and patient education session while using assertiveness to deal with difficult situations. This will be emphasized while addressing written, verbal, and nonverbal communication.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PPP304 Pharmacotherapy I****2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **PPT301 – PPT302 (co-requisite)**

The course provides a study of the clinical presentation, diagnostic criteria, classification criteria and latest evidence-based management guidelines for the most common **cardiovascular and pulmonary disorders**, including hypertension, dyslipidemia, coronary artery syndromes, thromboembolic disorders, heart failure, stroke, arrhythmia, asthma, chronic obstructive pulmonary disorders, and others. The course also gives an overview of the management of these disorders in special populations.

PPP305 Integrated Case Based Learning I**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPT301 – PPT302 (co-requisite)**

The course will enable the students to implement clinical pharmacy tools to real case scenarios. The course will also enable students to detect drug-related problems, and screen for anticipated drug interactions. The course will advance students' skills in managing complicated cases of cardiovascular and pulmonary diseases & implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required. The course will run as a capstone pharmacotherapy course integrating patient cases and drug information requested in a team-based collaboration.

PPP306 Community Pharmacy Clerkship I**2** Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **0.5** OTH) – SWL = **90** – ECTS = **3.5**Prerequisite **After third year of the program**

The clinical clerkship rotation provides two-week experience (2 weeks x 5 days x 8 hrs./day = 80 training hours for each rotation = 2 credit hours). The students will be under the supervision of a community pharmacist who provides patient-oriented pharmaceutical services. Students will observe and participate in the day-to-day operations of a community pharmacy, including the dispensing of drug products, adjudication of pharmacy insurance claims, and patient counseling, both prescription and over the counter. Additional co-curricular activities include service to the public, cultural and social awareness, and self-awareness.

PPP407 Pharmacotherapy II**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Co-requisite **PPT403**

The course provides a study of the clinical presentation, diagnostic criteria, classification criteria and latest evidence-based management guidelines of the various and most common infectious diseases, including upper and lower respiratory, urinary tract, sepsis, skin & soft tissue, tuberculosis, meningitis, and various other infections. The course also gives an overview of the criteria required for the appropriate selection of antimicrobial regimens based on the nature of each infection and the patient-related factors. The course also addresses antibiotic stewardship programs.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PPP408 Integrated Case Based Learning II****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPT403**

The course will enable the students to implement clinical pharmacy tools to real case scenarios. The course will also enable students to detect drug-related problems, and screen for anticipated drug interactions. The course will advance students skills in managing complicated cases of the course provides a study of the clinical presentation, diagnostic criteria, classification criteria and latest evidence-based management guidelines of the various and most common infectious diseases. & Implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required. These infectious diseases include upper and lower respiratory, urinary tract, sepsis, skin & soft tissue, tuberculosis, meningitis, and various other infections. The course also gives an overview of the criteria required for the appropriate selection of antimicrobial regimens based on the nature of each infection and the patient-related factors. The course also addresses antibiotic stewardship programs. The course will run as a capstone pharmacotherapy course integrating patient cases and drug information requested in a team-based collaboration.

PPP409 Pharmacotherapy III**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **PPT302**

The course provides a study of the clinical presentation, diagnostic criteria, classification criteria and latest evidence-based management guidelines of the various and most common **neuropsychiatric disorders**. These neuropsychiatric disorders include Parkinson's, Alzheimer's, epilepsy, Multiple sclerosis, schizophrenia, depression

anxiety disorders and others. The course also gives an overview of the management of these disorders in special populations.

PPP410 Integrated Case Based Learning III**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPT302**

The course will introduce the student to implementing clinical pharmacy tools to real case scenarios, detect drug related problems, screen for anticipated drug interactions. The course will advance students' skills in managing complicated cases of **neuropsychiatric disorders** & implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required. The course will run as a capstone pharmacotherapy course integrating patient cases and drug information requested in a team-based collaboration.

PPP411 Pharmaceutical Care**2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPP303**

This course focuses on applications of the Pharmacists' Patient Care Process (PPCP) in collaborating with patients through comprehensive medication management including a five-step process: collect, assess, plan, implement, and follow-up.

Students will practice role playing scenarios while collaborating with simulated patients. They will learn to understand and obtain practical experience, to evaluate, implement, and monitor drug therapy, to optimize the delivery of pharmaceutical care, and to improve the therapeutic outcomes in patients with a variety of disease states. The course teaches students to apply and tailor a counseling framework to the needs of an individual patient and conduct motivational interviewing with patients. Further, students evaluate and use a variety of resources to consult with patients who have limited health literacy. Successful



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



completion of this course will give students the opportunity to develop confidence to provide effective and appropriate patient-centered pharmaceutical care in the pharmacy practice environment.

PPP412 Principles of Drug Information

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ----

This course teaches students how to locate up-to-date drug information and literature effectively and efficiently. The course succinctly examines key drug information principles - the proper approach for answering drug/health information questions. The course covers activities related to tertiary, secondary and primary drug information sources along with their applications to address various pharmacotherapeutic issues.

PPP413 Hospital Pharmacy

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPH305

The course provides an overview of institutional patient care including the organization of hospital pharmacy, the drug distribution systems & hospital committees. The course introduces the students to the aseptic techniques and guidelines governing preparation, formulation & storage of IV admixtures. The course acquaints students with the preparation, components & complications of specialized nutritional support (parenteral & enteral nutrition). Ambulatory care practice is also addressed. The students should practice some technical services like safe handling of cytotoxic drugs, identify renal dialysis fluids, and distinguish different types of medical gases and blood products.

PPP414 Community Pharmacy Clerkship II

2 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 0.5 OTH) – SWL = 90 – ECTS = 3.5

Prerequisite After the fourth year of the program

The clinical clerkship rotation provides two-week experience (2 weeks x 5 days x 8 hrs./day = 80 training hours for each rotation = 2 credit hours). The students will be under the supervision of a community pharmacist who provides patient-oriented pharmaceutical services. Students will observe and participate in collecting necessary subjective and objective information, assessing the collected information, developing an individualized patient-centered plan, implementing the plan, monitoring, and evaluating the effectiveness of the plan – modifying as needed. Students will contribute to the day-to-day operations of a community pharmacy, including the dispensing of drug products, adjudication of insurance claims, and patient counseling, both prescription and over the counter. Additional co-curricular activities include service to the public, cultural and social awareness, and self-awareness.

PPP515 Clinical Pharmacokinetics

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5

Prerequisite PPH407

The course will introduce the student to the changes in drugs absorption, distribution, metabolism, and elimination with time following one-compartment IV bolus, oral absorption, IV infusion and multiple IV dosing. The lectures will provide students with principles of linear and non-linear pharmacokinetic models and their application. The course will address Therapeutic Drug Monitoring (TDM) principles with various drugs such as antibiotics, digoxin, immunosuppressants, methotrexate, antidepressants, theophylline, lidocaine, and phenytoin & their relevant pharmacokinetics aspects & dosage adjustments in the different clinical situations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY

**PPP516 Community Pharmacy****3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **5**Prerequisite **PPP412**

This course is designed to meet the needs of pharmacists collaborating with patients who present to a community pharmacy with a minor illness. It aims to provide students with comprehensive knowledge and skills to assess and manage patients who are present with a minor illness or refer as appropriate. These minor ailments include respiratory system, ophthalmic & otic conditions, headaches, gastroenterology, dermatology, pediatrics & musculoskeletal disorders.

PPP517 Pharmacotherapy IV**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = **90** – ECTS = **4**Prerequisite **PPT403**

The course provides a study of the clinical presentation, diagnostic criteria, classification criteria and the latest evidence-based management guidelines of the various and most common **oncologic & hematologic disorders**. These disorders include anemias, breast cancer, malignant lymphoma, acute leukemia, oncologic emergencies, and others. The course also gives an overview of the management of these disorders in special populations.

PPP518 Integrated Case Based Learning IV**2** Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPT403**

The course will introduce the student to implementing clinical pharmacy tools to real case scenarios, detect drug related problems, screen for anticipated drug interactions. The course will advance students' skills in managing complicated cases of oncologic & hematologic diseases & implementing evidence-based medicine using SOAP notes &

appropriate clinical scores whenever required. The course will run as a capstone pharmacotherapy course integrating patient cases and drug information requested in a team-based collaboration.

PPP519 Pharmacy Seminars I**1** Cr. Hrs. = (0 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = **30** – ECTS = **1**Prerequisite **PPP412**

This course uses a seminar format to provide students with the fundamentals of safe medication management regardless of pharmacy practice environment. The content builds on a system perspective to address the problems of medication errors and quality in health care, problem resolution, methods/techniques of assessment, and quality management. The course also introduces the science of health informatics including modern applications and how it relates to patient safety.

PPP520 Pharmacotherapy V**3** Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **150** – ECTS = **5**Prerequisite **PPT301**

The course provides a study of the clinical presentation, diagnostic criteria, classification criteria and latest evidence-based management guidelines of the various and **most common gastrointestinal, hepatic, and renal disorders**. These disorders include **acute & chronic kidney injury, different types of viral hepatitis, hepatic encephalopathy, inflammatory bowel disorders** and various **endocrine diseases**. These disorders include pituitary, adrenal & thyroid gland disorders, diabetes mellitus and obesity. The course also gives an overview of the management of these disorders in special populations.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**PPP521 Integrated Case Based Learning V****2** Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **105** – ECTS = **4**Prerequisite **PPT301**

The course will introduce the student to implementing clinical pharmacy tools to real case scenarios, detect drug related problems, screen for anticipated drug interactions. The course will advance students' skills in managing complicated cases of gastrointestinal, hepatic & renal diseases & implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required. The course will run as a capstone pharmacotherapy course integrating patient cases and drug information requested in a team-based collaboration.

PPP522 Pharmaceutical Ethics and Legislation**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite - - -

The purpose of this course is to introduce principles of law and ethics in pharmacy with a focus on those laws and ethical situations that are most encountered in a community pharmacy practice setting. The course will examine the Egyptian laws that impact the practice of pharmacy while emphasizing the legal and ethical principles applied by pharmacists in their interactions with patients and other health professionals. Students will learn the governmental framework within which pharmacy is practiced, as well as acquire an understanding of the laws, regulations, and ethical responsibilities applicable to pharmacists so that they will be able to protect the public and ensure patients' well-being in pharmacy practice and research.

PPP523 Pharmacoepidemiology**2** Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**Prerequisite **PPP412**

This course teaches students how to analyze up-to-date drug information and literature effectively and efficiently. The course provides a balanced approach covering critical elements of clinical research, biostatistical principles, data analysis, and scientific literature evaluation techniques for evidence-based medicine pharmacy practice. The course provides an understanding of the foundational principles of study design and statistical methods. Students learn to evaluate the veracity and implications of the inherently limited primary literature findings they use as sources of drug information to make evidence-based decisions together with their patients. The course provides a special emphasis on critiquing clinical practice guidelines, systematic reviews, and meta-analyses.

PPP524 Pharmacy Seminars II**1** Cr. Hrs. = (**0** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **30** – ECTS = **1**Prerequisite **PPP411**

This will include the presentation of various patient cases & scenarios. The designing and presenting of effective presentations are highlighted in an interprofessional format. Effective communication for patient interviewing is covered with an emphasis on collaboration with other health professionals. Students are presented with cases where the contribution of different workers in the health field is discussed.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

**PPP525 Patient Safety and Informatics****2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ----

This course is a comprehensive examination of the causes of and means to prevent medication errors. It helps students understand the system-based causes of medication errors, including pharmaceutical trademarks, drug packaging and labeling, and error-prone abbreviations and dose expressions, as well as the patient's role in preventing medication errors. The course also examines preventing medication errors in relation to specific medications, patients, and conditions; reducing risk and creating a just culture of safety through medication error reporting systems; disclosing medication errors to patients; conducting risk analysis and treatment; and following the clinical bioethics of safe medication practices. The course also introduces and discusses pharmacy informatics as the scientific field that focuses on medication-related data and knowledge within the continuum of healthcare systems—including its acquisition, storage, analysis, use and dissemination—in the delivery of optimal medication-related patient care and health outcomes.

PPP526 Pediatric Pharmacotherapy**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course offers an introduction to pediatric disorders, pediatric pharmacokinetics, and neonatology. Medication safety in children will be covered together with special aspects of communication with children and their caregivers. The latest evidence-based approaches for the management of dermal, cardiovascular/pulmonary, gastrointestinal, renal/endocrine, neuropsychiatric, and infectious disorders in children

will be covered. Finally, an overview of vaccination requirements will be addressed.

PPP527 Geriatric Pharmacotherapy**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course covers challenges in geriatric care like polypharmacy and comorbidities. It provides the student with tools for geriatric assessment and emphasizes the identification of adverse drug events and medication management in geriatric patients.

PPP528 Patient care & Biometric**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ----

The course is designed to teach students to apply the elements of the pharmaceutical care cycle to case studies exploring the problem-solving skills needed to practice pharmacotherapy, management, informatics, and missions. Emphasis on the generation, development, use, and integration of data, information, knowledge, technology, and automation in the medication use process. Emphasis on the provision of population-based care using evidence-based principles and culturally sensitive methods that apply across local, national, and international borders. Identify drug-therapy problems; Patient needs; Literature/landmark trials; Drug and disease knowledge. Overview resources to utilize to obtain rapidly changing information.

PPP529 Project management in clinical trials**2** Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4Prerequisite **AFTER 3RD YEAR OF THE PROGRAM**

The course covers the following: Overview Assignment of Course Project Introduction to the Drug Development Process. Introduction to



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



FDA Regulatory Process. Good Clinical Practices (GCP). Clinical Trial Applications. Clinical Trial Protocol Development and Set-Up. Statistical Design of Clinical Trials and Data Management. FDA Regulations for clinical trials. Introduction to Project Management for Clinical Trial Professionals: Human Subject Protection (HSP) and Informed Consent for Clinical Trials: Adverse Event Management in Clinical Trials. Practical Issues with Clinical Project Management.

PPP530 Clinical trials & monitoring

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite **AFTER 3RD YEAR OF THE PROGRAM**

The course starts with addressing regulation, human subject protection, and Good clinical practice (GCP). ICH and FDA guidelines for good clinical practice and clinical trials are covered. The roles and responsibilities of participants in clinical trials are covered with an emphasis on the Institutional Review Board. The role of clinical investigators in clinical trials is covered starting with protocol preparation. The topic of informed consent is addressed including key elements and how to monitor it. Study design and statistical issues are covered. Study monitoring, including adverse events and safety monitoring, is covered.

PPP531 Writing for the Health and Human Sciences

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

Prerequisite -----

The course focuses on the rhetorical principles and writing practices necessary for producing effective charting, reports, policies, and educational materials in the context of the healthcare industry. The material presented will most benefit those pursuing a career in healthcare and human services. This course prepares the student to communicate medical knowledge through writing without being

misunderstood and to think and write objectively about patients, in addition to detail-oriented record-keeping.

PPP632 Advanced Community Pharmacy Practice

4 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **1** OTH) – SWL = **180** – ECTS = **7**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0**

The clinical clerkship rotation provides four-week experience (4 weeks x 5 days x 8 hrs./day = 160 training hours for each rotation = 4 credit hours). The students will be under the supervision of a community pharmacist who provides patient-oriented pharmaceutical services. Common activities include dispensing medications, evaluating medical information, evaluating medication orders, preparing/updating pharmaceutical care plans, performing patient counseling, and taking/documenting medication histories. Additional co-curricular activities include education of and service to the public, cultural and social awareness, and self-awareness.

PPP633 Institutional (hospital) Practice

8 Cr. Hrs. = (**0** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **360** – ECTS = **14**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0**

This clinical clerkship rotation provides eight-week experience (8 weeks x 5 days x 8 hrs./day = 320 training hours for each rotation = 8 credit hours). The students will be under the supervision of a clinical pharmacist who provides patient-oriented pharmaceutical services.



Common activities of this rotation include dispensing medications, evaluating medical information, evaluating medication orders, preparing/updating pharmaceutical care plans, performing patient counseling, and taking/documenting medication histories.

PPP634 Acute medicine experiences

8 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **360** – ECTS = **14**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0**

This clinical clerkship rotation provides eight-week experience (8 weeks x 5 days x 8 hrs./day = 320 training hours for each rotation = 8 credit hours). The students will be under the supervision of a clinical pharmacist who provides patient-oriented pharmaceutical services. Acute medicine experiences have a primary emphasis on caring for acutely ill hospitalized patients (i.e., not in associated long-term care facilities). Examples include Internal Medicine, Surgery/Transplantation, Cardiology, Oncology, Neurology, Gastroenterology, Infectious Disease, Nutritional Support, Pharmacokinetics, Pediatrics/Neonatology, Women's Health, Critical Care, Emergency Medicine, Psychiatry, Family Medicine, and Geriatrics. In order to fulfill graduation requirements, at least two of these experiences (rotations) must be completed.

PPP635 Project (Part I)

1 Cr. Hrs. = (0 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = **60** – ECTS = **1**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR**

MORE THAN 2.0

In this part, the students will learn how to formulate a research question and to review the literature as well as research methods, study plan/designs, data collection, data analysis, biostatistics, and dissemination of results. The students will then proceed to work on their projects and proposals. They will meet with their mentors on a regular basis to discuss the progress of their projects and challenges they are facing, receive feedback and guidance from mentors, and participate in small group work.

PPP636 Outpatient medicine experiences

8 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **360** – ECTS = **14**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0**

This clinical clerkship rotation provides eight-week experience (8 weeks x 5 days x 8 hrs./day = 320 training hours for each rotation = 8 credit hours). The students will be under the supervision of a clinical pharmacist who provides patient-oriented pharmaceutical services. Outpatient medicine experiences have primary emphasis on caring for patients in the community (i.e., not in hospitals). Examples include Clinics (such as primary care, hematology, family medicine, infectious disease, oncology, transplantation, allergy/immunology, dental, geriatrics, and psychiatry), Geriatrics/Consulting, Home Health, Public Health, and Wellness. In order to fulfill graduation requirements, at least two of these experiences (rotations) must be completed.

PPP637 Elective experiences

8 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = **360** – ECTS = **14**

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL**



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0

This clinical clerkship rotation provides eight-week experience (8 weeks x 5 days x 8 hrs./day = 320 training hours for each rotation = 8 credit hours). The students will be under the supervision of a clinical pharmacist who provides patient-oriented pharmaceutical services. Electives can consist of an experience from any of the following categories: Advanced Community, Acute Medicine, Outpatient Medicine, or Indirect/Non-Patient Care Rotations. The only stipulation is that students cannot complete more than two experiences in either the Advanced Community or Indirect/Non-Patient Care categories. Indirect or Non-Patient rotations are quite varied in content. Examples include Drug Information, Toxicology, Managed Care, Research, Nuclear, Industry, Compounding, Administration, and Association Management. In order to fulfill graduation requirements, at least two of these experiences (rotations) must be completed.

PPP638 Project (Part II)

1 Cr. Hrs. = (0 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 60 – ECTS = 1

Prerequisite **STUDENTS MUST SUCCESSFULLY COMPLETE ALL**

REQUIRED DOCTOR OF PHARMACY COURSEWORK IN THE FIRST 5 PROGRAM YEARS AND HAVE A CUMULATIVE GPA EQUAL TO OR MORE THAN 2.0

In this part, the students will proceed through the project plan in sequential and/or overlapped manner under the supervision of their mentors, gather, categorize and/or tabulate data. Each student/group of students will collect the data, analyze, and present them, write the findings of their project in a dissertation to be submitted to their mentor for evaluation and potential dissemination or publishing.

PPP639 Special Topics in Pharmacy

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite -----

This is a capstone course where students will be exposed to current and emerging topics in pharmacy. The topics will be revised periodically to reflect hot topics in pharmacy on a national and global scales.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



نائب رئيس الجامعة للشؤون الأكاديمية

Vice President for Academic Affairs



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Social Sciences & Humanities Courses

LAN010 Arabic for Non-Arabic Speakers

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

The Program includes sixteen educational levels distributed at six stages represented in the beginner stage that includes the first, second and third levels; elementary stage including the fourth, fifth and sixth levels; intermediate stage including the seventh, eighth and ninth levels; upper-intermediate stage including the tenth, eleventh and twelfth levels; advanced stage including the thirteenth, fourteenth and fifteenth levels; and the high advanced stage including the sixteenth level. Whoever successfully passes the Program is awarded a Certificate of Proficiency for non-Arabic speakers. This is an English beginner course (A. where students will learn how to interact effectively in English and improve their speaking, reading, writing and listening skills. It will allow them to use key spelling and grammatical rules and construct accurate English sentences. Students' pronunciation will be developed, and they will be able to comprehend spoken English. It will enable them to pass English proficiency exam to lead to following level.

LAN021 English 0

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This is an English beginner course (A. where students will learn how to interact effectively in English and improve their speaking, reading, writing and listening skills. It will allow them to use key spelling and

grammatical rules and construct accurate English sentences. Students' pronunciation will be developed, and they will be able to comprehend spoken English. It will enable them to pass English proficiency exam to lead to following level.

LAN022 English 1

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This is an English elementary course (A. where students will learn how to interact effectively in English and improve their speaking, reading, writing and listening skills. It will allow them to construct accurate complex English sentences. It will also enhance their communicative skills in both written and oral forms.

LAN011 Arabic Language Skills

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Basic Arabic skills (Basic grammar rules). Writing: Essay; Dialogue; Narration; Report; Letters; Summarization; and. Common writing, expression and orthography errors. Reading: Proper reading strategies (scanning, research selective reading, analytic reading and mind mapping for read texts). Articulation and oral performance.



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



PSY103 Introduction to Psychology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Introducing Psychology. Psychological Science. Brains, Bodies, and Behavior. Sensing and Perceiving. States of Consciousness. Growing and Developing. Learning. Remembering and Judging. Intelligence and Language. Emotions and Motivations. Personality. Defining Psychological Disorders. Treating Psychological Disorders. Psychology in Our Social Lives.

SOC105 Introduction to Sociology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

The History of Sociology. Culture and Social Interaction. Socialization and Marriage and Family. Groups and Organization. Political System. Work and the Economy. Health and Illness. Deviance, Crime, and Social Control. Media, Technology and Social Stratification. Social Movements, Social Change and Globalization.

SOC107 Community Participation in Developing Modern Egypt

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Distinguish between community participation and social responsibility. Community participation in history, including: active participation at all stages - self-mobilization - participation in decision-making - contribution to resources - ownership - the right to participate (rights-based entry). Different areas of community participation: institutions and individuals. Participatory Impact Assessment (PIA). Social responsibility in history. Different areas of social responsibility: institutions and individuals.

Governance in history. Different areas of governance: institutions and individuals. Community participation to build knowledge societies. Opportunities, tools and means of community participation in the digital age: global experiences.

PSC111 Introduction to Political Sciences

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Background on politics as a science or as a field of knowledge. Introduction about the development of political thought. Political systems. International relations.

LAN112 Critical Thinking

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Define critical thinking, explore different thinking habits, Truth and Knowledge, Inductive and Deductive Reasoning, apply critical thinking skills to problem-solving scenarios, Questions for critical thinking, Evaluating claims, Consistency and contradiction, and Scientific reasoning.

LAN113 Egyptian Literary Heritage

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Influential factors in Egyptian literature. Expat cultures and the effect of translation in literary itinerary. Scholars of Egyptian literature. The artistic prose and schools inform each school. The art of Maqama, its foundation and development in Arabic literature. Methods of artistic prose. Scientific Encyclopedias and their role in maintaining the Arab



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



and Islamic heritage.

LAN114 Literary/Artistic Appreciation

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

History of philosophy of beauty through ancient civilizations and even modern theories. Aesthetics in the fine arts and literature in General, including literature, music, and Visual Arts. Human and aesthetic requirements through history. How to appreciate the arts and bringing out their aesthetic values and canvases. Art schools and literary and intellectual trend.

LAN115 Modern Arab Literature

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Literature and society. The emergence and development of Arabic modern novel. The emergence and development of modern Arabic poetry. The emergence and development of modern Arabic theater. The emergence and development of Arabic short story. Schools of modern Arabic criticism – similarities and diversity in modern Arabic literature.

LIB116 Research Skills and Analysis

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Concepts in search and research. Types of knowledge sources. International aggregated databases. Different researches methods. Searching for information. Surface web and deep web. Documentation software for research sources. Statistical analysis and its software. Ethics of scientific research, and plagiarism checking software. Open

science and the consequent open access to knowledge.

GEO114 The Character of Egypt

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Egypt international stature through history. Historical determinants of Egypt. Geographic determinants of personality Egypt. Social determinants of personality Egypt. Scholars of writers and intellectuals and their roles in building up the Entity of Egypt.

LAN120 German Language

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course focuses on the basic linguistic and communicative structures of the German language. Students will be introduced to all aspects of life and personal interaction. The course will adopt an integrated approach to language learning equally based on the four skills of reading, writing, listening and speaking as well as the acquisition of grammar structures and vocabulary. Audio and visual materials will also be used to supplement the textbook and provide students with a better insight into the German language, its culture and the life of its people. The course will also help students utilize their learning strategies. This should, in-turn, allow students to develop greater learner autonomy.

LAN122 English 2

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

This course seeks to introduce students to academic English at an



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALAMEIN INTERNATIONAL UNIVERSITY



intermediate level. This course will provide students with English language skills for academic purposes. Students will develop their English language and learn how to apply it in a range of different academic contexts. It will focus on reading and writing in an academic context which includes learning techniques such as speed reading and note taking.

LAN130 French Language

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The course emphasizes on developing the student's writing, reading and conversations skills in French to enable the student to deal with the simple life situations.

LAN140 Chinese Language

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The course emphasizes on introducing the students to the Chinese language and its symbols through writing, reading and conversation in order to deal with the simple life situations.

HIS112 History of Arab World

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Define civilization and its origins. Foundations of Islamic civilization. The political system. Administrative system. Judicial systems. Financial systems. Military systems. Social life. Cultural life. Islamic arts. Effect of Islamic civilization on European civilization.

HIS111 Introduction to History of Civilizations

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Define civilization and its origins. Foundations of Islamic civilization. The political system. Administrative system. Judicial systems. Financial systems. Military systems. Social life. Cultural life. Islamic arts. Effect of Islamic civilization on European civilization.

HIS113 Introduction to History of Arab-Islamic Civilization

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Define civilization and its origins. Foundations of Islamic civilization. The political system. Administrative system. Judicial systems. Financial systems. Military systems. Social life. Cultural life. Islamic arts. Effect of Islamic civilization on European civilization.

LAN150 Egyptian Ancient Language

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The course consists of the identification of the principles of the Ancient Egyptian language through a historical introduction to the most significant features of this Language, alphabets, glyphs, nominal phrase, types of its predicates, verbal phrases in the past and present tense, sentence order and the different parsing of personal pronouns. The parsing cases of nouns (second object, genitive case, vocative, apposition, coupling and separation); The parsing cases of adjectives, negation, possessive pronouns and demonstrative pronouns; Deciphering the Ancient Egyptian Language; Overview of the three



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



Ancient Egyptian scripts in which the Ancient Egyptian Language was written: Hieroglyphic, Hieratic and Demotic scripts; Introduction to the Ancient Egyptian Language: alphabets, audio translation, characters and signs; and. The application on phrases from the Ancient Egyptian scripts.

ECO205 Fundamentals of Economics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Introduction to economics. Measurement of macroeconomic activity. Income and expenditure. Balance of national income. Inflation. Financial policy. Money and monetary policy. International Trade. Economic development.

SOC216 Principals of Statistics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Definition and topic of statistics. Definition of variable. Types of variables. Characteristics of variables. Samples and their types. Tabulation. Graphs. Central tendency Measurements. Dispersion Measurements. Correlations. Regression.

PSE207 Contemporary Global Issues

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

The Arab-Israeli conflict. Ethnic conflicts. The problem of minorities in the Arabic region. Water poverty. Environmental problems. Immigration dimensions. Terrorism and international organizations.

GEO216 Geography of Egypt and Middle East

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Physical geography of Egypt: Geologic Structure and Landforms. Water resources. Natural resources. Climate characteristics. Natural Vegetation. Soil. Human geography of Egypt: Administrative regions. Population. Economic characteristics. Urban and rural settlements. Geopolitical characteristics. Geography of Middle East: Physical characteristics. Human characteristics. Economic characteristics. Geopolitical characteristics.

LAN160 Spanish language

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

DVA014 Introduction to the Arts

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

A comprehensive introduction to the History of Art, Architecture, Painting, Sculpture and Graphic art in the European Renaissance. Study the history of art in the European Renaissance of the 14th –17th centuries in European countries especially Italy and France as pioneers of their epoch. Study political, economic, and social conditions as reflected in architecture, painting, sculpture and graphic.

GEO217 Climate Change and Sustainability

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite ---

Climate Change: definitions, drivers, impacts and UN policies. Global



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



warming: definitions, drivers and impacts. Impacts of global warming on Egypt: Water resources, Agriculture, Tourism and Population. Sustainability: History, concepts, Strategies, Innovations. Instruments for Sustainability Development. Practical Issues for Green Growth and environmental attitudes. Applied project.

ADL123 First Aid

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

This course will teach the student how to recognize medical emergency and the appropriate decision making in emergencies regarding first aid care. The student will learn how to provide care for injuries or sudden illness until professional medical help arrives in cases of unconsciousness, cardiopulmonary resuscitation (CPR), choking, wounded and bleeding, and shock.

LAN020 Professional Report Writing

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Professional Report Writing, PRW, aims to improve the student's writing skills in a professional context. The course helps students produce different kinds of reports and master the tools for good writing skills such as summarizing, paraphrasing, interpreting illustrations, citation, and documentation

PSE209 Arab-African Issues

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Prerequisite - - -

Arab- African Cooperation. Security of Red Sea region. Ethiopian-Eritrean relations. Separatist movements in Africa. Horn of Africa and foreign

intervention in it. African Unity for Sustainable Development. Border problems. Ethnic conflicts in Africa and their Arab implications. Water Poverty. Environmental problems. Extremist movements and organizations in the continent.

LAN170 English for specific purposes

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

English for Specific Purposes, ESP, courses aim at introducing students to subject-specific areas (student's field of study), developing their language skills in an academic and professional context, and addressing the specific needs of professionals in the workplace. Each course content is pertinent to the student's area of study in order to meet the specific needs of workplace, with reference to terminology, syntax and discourse.

PHS061 Introduction to Human Nutrition

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

This introductory course provides an overview of the principles of human nutrition and functions of macro and micronutrients, digestion and absorption, effects of nutrient deficiencies and toxicities, requirements, food sources, nutrient interactions, dietary guidelines, and the role of nutrition in health and disease.

DVA221 Trends in Contemporary Art

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4

Major art movements from the 1880s to the present. dominant trends in art making as well as some of the critical theory that surrounds it.

PSC101 Human rights and fighting corruption

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4



EGYPTIAN NATIONAL UNIVERSITIES

مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



The course discusses the theory of human rights in national and international laws, which includes the concept of human rights and their development and classification. It also, offers theories on the nature and foundations of ethical judgments as well as the applications on contemporary moral issues.

PSC102 Principles of International Law

2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **90** – ECTS = **4**

This course will introduce students to the definition, legal binding character, and sources of international law. It will also deal with the aspects of its applications in peace and war, particularly, the matter of international recognition of the State, its responsibility, succession and means of international disputes settlement.



aiu.edu.eg

2 0 2 0

3