كتالوج وصف المقررات

CATALOG OF COURSE DESCRIPTION

أكتــــوبر OCTOBER 2020

جامعة العلمين الدولية ALALAMEIN INTERNATIONAL UNIVERSITY

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المجلد الثالث: كتالوج وصف المقررات VOL. 3: CATALOG OF COURSE DESCRIPTION



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Department Coding

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

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	



مشروم إنشاء الجافعات المصرية الإهلية





Code	Department	Faculty	
СОМ	Department of Public & specialized Communication: Public Communication	Faculty of Media & Communication	
CSE	Computer Science & Engineering	Faculty of Computer Science & Engineering	
СТН	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	
ном	Hospitality Management	Faculty of Tourism & Hospitality	
IMC	Marketing Communication: Marketing Communication	Faculty of Media & Communication	
INT	International Law	Faculty of International Law Studies	
МАР	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	



مشروم إنشاء الجافعات المصرية الاهلية





Code	Department	Faculty	
МКТ	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	
PHE	Physical Engineering	Faculty of Engineering	
РНҮ	Physics	Faculty of Science	
РМВ	Microbiology & Immunology	Faculty of Pharmacy	
РМС	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	
RTP	Department of Media Production & Digital Communication: Radio & Television Production	Faculty of Media & Communication	
SHS	Social Sciences & Humanities	Vice President for Academic Affairs	

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Code	Department	Faculty
TOG	Tourism Guidance	Faculty of Tourism & Hospitality
TOS	Tourism Studies	Faculty of Tourism & Hospitality
VDD	Visual Digital Design	Faculty of Arts & Design

Legend to Read Course Data

LCT	Lecture	محاضرة
LAB	Laboratory	معمل
TUT	Tutorial	درس
OTH	Other	أخرى
CNTACT	Contact Hours	ساعات اتصال
СН	Credit Hours	ساعات معتمدة
SWL	Student Work Load	حمل عمل الطالب
ECTS	European Credit System Points	نقاط معتمدة في النظام الأوربي



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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: 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 in the accounting cycle. Prepare financial statements for a service or merchandising business organizations. 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. internal controls and how they are important to organizations. Accounting for uncollectible receivables. Compute the cost of inventory under the periodic and perpetual inventory systems. Accounting for plant assets - including the calculation and recording of depreciation and the purchase, lease, and disposal of plant assets. Accounting for current liabilities. Accounting for bonds as a long-term liability and investment. Account for stock transactions. Cash Flow Statement. Financial Ratio Analysis.

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 the 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. Management control systems and responsibility accounting. Management control systems in decentralized organizations. Capital budgeting.

ACC113 Introduction to Accounting (For Non-Business Students)

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

Prerequisite - - -

The contents of the course include: 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 in the accounting cycle. Prepare financial statements for a service or merchandising business organizations. Preparing journal entries for merchandise



transactions from both the buyer's and seller's point of view. Preparing bank reconciliation and the necessary entries based on the reconciliation. Internal controls and how they are important to organizations. Accounting for uncollectible receivables. Compute the cost of inventory under the periodic and perpetual inventory systems. Accounting for plant assets – including the calculation and recording of depreciation and the purchase, lease, and disposal of plant assets. Accounting for current liabilities. Accounting for bonds as a long-term liability and investment. Account for stock transactions. Cash Flow Statement. Financial Ratio Analysis.

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.

ACC212 Principles of Cost Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **ACC112**

Prerequisite ACC112

This course includes: Introduction to cost concepts. Job order costing. Process costing. Cost allocation. Activity base systems. Measuring cost for planning. Measuring cost for control and performance evaluation.

ACC213Costing Systems in Hospitality Organizations3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) - SWL = 150 - ECTS = 6

Prerequisite - - -

specific implementation of accounting systems based on internal costs to different areas of hospitality management, such as lodging, food and beverages, spa & leisure, and 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 hospitality industry by identifying, controlling and evaluating critical sources of cost and revenue.

ACC311 Intermediate Accounting 2

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

Prerequisite - - -

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.

ACC312 Tax Accounting

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

Prerequisite ACC311

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.

ACC315 Accounting for Governmental and Non-For-**Profit Organizations**

3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) - SWL = 150 - ECTS = 6 Prerequisite ACC311

. 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.

ACC316 **Accounting for Financial Institutions**

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite ACC311

. The first part of the courses deals with accounting for banks with

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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 its financial statements, as well as the auditing 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 study also how to account for potential risks arising from insurance and reinsurance activities.

ACC317 **Internal Control in Hospitality Firms**

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. 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 on how to evaluate the system and detect and any deficiency in the system.

ACC318 Internship

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

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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 return to school. Keep track of and accurately report internship hours worked.

ACC411 Advanced Financial Accounting

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **ACC311**

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). Balanced Scorecard and Strategy Map. The theory of constraints. Activity Based Management. Measuring & Managing Performance. Behavioral & Organizational issues in MPACS. 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 **ACC311**

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.

ACC415 Accounting Information for Decision Making

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

Prerequisite - - -

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 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 test 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 - - -

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 - - -

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

12 Cr. Hrs. = (6 LCT + 0 TUT + 0 LAB + 5 OTH) - SWL = 480 - ECTS = 11

Prerequisite - - -

Completion of a graduation project.



EGYPTIAN NATIONAL UNIVERSITIES

مشروم إنشاء الجامعات المصرية الأهلية



ALALAMEIN INTERNATIONAL UNIVERSITY

جامعة العلمين الدولية

Department of Management

MGT121 Principles of Management (For Non-Business Students)

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

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.

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 **MGT132**

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.

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MGT221 Human Resorce Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MGT133**

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

2 Cr. Hrs. = (2 LCT + 1 TUT + 0 LAB + 0 OTH) – SWL = 105 – 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 Hospitality Organizations 3 Cr. Hrs. = (3 LCT + 1 TUT + 0 LAB + 0 OTH) - SWL = 150 - ECTS = 6

Prerequisite - - -

This course has been designed to give you the particular skills you would need to run a hospitality business. It will cover content specific to hospitality 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 Entrepreneurship in Hospitality Organizations

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

Prerequisite - - -

This course has been designed to give you the particular skills you would need to run a hospitality business. It will cover content specific to hospitality 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.

MGT225 Catering and Food Management

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

Prerequisite - - -

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.

MGT226 Supply Chain Planning

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

Prerequisite - - -

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.

MGT321 Operations Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **APPLIEDSTATISTICS1**

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 measurement and considerations associated with it, and maintenance problems, reengineering 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 - - -

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 MGT132

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 **MGT331**

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.

MGT325 Human Rsource Development

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MGT231**

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 **MGT231**

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.



مشروع إنشاء الجامعات المصرية الأهلية

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY



MGT327 Strategic Human Resources

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MGT231**

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 Negotiation Skills

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

Prerequisite - - -

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

MGT329 Operations Research and Decision Making

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

Prerequisite MGT133

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 measurement and considerations associated with it, and maintenance problems, reengineering processes. interview, diversity, testing, selection, performance appraisal, training and development, and career management.

MGT421 Project Planningand Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MGT331**

The course describes in a readily understandable way on 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 **MGT231**

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 **MGT335**

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 **MGT231**

. 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 - - -

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.

MGT426 International Business

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MGT132**

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 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – 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 return to school. Keep track of and accurately report internship hours worked.



MGT428 International Supply Chain Management

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

Prerequisite - - -

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.

MGT429 Graduation Project

12 Cr. Hrs. = (6 LCT + 0 TUT + 0 LAB + 5 OTH) - SWL = 480 - ECTS = 11Prerequisite - - Research seminars.



FIN101 Fundamentals of Microeconomics

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

Prerequisite - - -

The Central Concepts of economics. The Modern Mixed Economy. Basic Elements of Supply and Demand. Overview of Macroeconomics. Measuring Economic Activity. Consumption and Investment. Business Cycles and Aggregate Demand. Open-Economy Macroeconomics. Unemployment and the Foundations of Aggregate Supply and Inflation.

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 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.

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.

FIN331 Financial Management

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **FIN221**

. 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 FIN221

money market. primary market and associated issues. capital market for debt. capital market for equity.



FIN333 Investment

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **FIN221**

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 **FIN221**

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.

FIN401 Money and Banking

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

Prerequisite - - -

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 - - -

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 **FIN221**

Investment Background. Development in Investment Theory. Valuation Principles and Practices. Analyzing and Managing Common Stocks. Analyzing and Managing Bonds. Derivative Securities Analysis. Defining and Evaluating Asset Management.



FIN432 Management of Financial Institutions

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **FIN322**

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 institution 3. Identify the main types of risk financial institutions are exposed to 4. Apply different methods to measure those risks to suit different contexts 5. Propose methods to manage the 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 **FIN323**

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 **FIN221**

-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

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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 - - -

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.

FIN437 Internship

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

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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 return to school. Keep track of and accurately report internship hours worked.

FIN439 Graduation Project

12 Cr. Hrs. = (6 LCT + 0 TUT + 0 LAB + 5 OTH) - SWL = 480 - ECTS = 11Prerequisite - - -Research seminar.



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 + **0** TUT + **1** 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.



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, Crosstabulation 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 - - -

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 the. 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

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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 ...

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.

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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 - - -

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.

MKT447 Internship

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **3** OTH) – SWL = **225** – 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 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 return to school. Keep track of and accurately report internship hours worked.

MKT449 Graduation Project

12 Cr. Hrs. = (6 LCT + 0 TUT + 0 LAB + 5 OTH) - SWL = 480 - ECTS = 11

Prerequisite - - -

Research seminars.



مشروم إنشاء الجامعات المصرية الأهلية



Department of Business Information Systems

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

BIS151 Introduction to Information Systems and Technology

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

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. . الأعمال الالكترونية. نظم الاعمال الالكترونية. نظم دعم القرار أجهزة الحاسب الآلي. إدارة موارد البيانات. الاتصالات والشبكات. نظم الإعمال الالكترونية. نظم دعم القرار

BIS251 Business Information Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **BIS151**

Information Systems in global business. Organizational Strategy, Competitive Advantage, and Information Systems. Social issues in information systems. Emerging technologies in Information Systems. Enterprise Information Systems. Business intelligence. E-commerce and E-business. Systems development Methodologies for Information Systems.

BIS252 Information Systems Analysis and Design

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

Prerequisite **BIS151**

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

BIS350 Hotel Information Systems

3 Cr. Hrs. = (**3** LCT + **1** TUT + **0** 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.

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. 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 + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – 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 E-Government and E-Learning to C2C E-Commerce and Collaborative Commerce. Web. 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.

BIS354 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.

BIS356 Information Technology Governance

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – 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. Selfassessment of the maturity of IT governance.

BIS357 Information Systems in Healthcare Organizations

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

BIS358 Introduction to Computer Programming

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

Prerequisite - - -

Introduction to 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.



BIS359 Applications in Computer Programming

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

Prerequisite - - -

Two-dimension arrays. Introduction object oriented programming. Introduction to dynamic data structure. Recursion. Exception handling. Database connectivity. Program I/O. Packages. Interfaces.

BIS452 Intelligent Decision Support Systems

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

Prerequisite GMT339

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.

BIS453 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.

BIS454 Information Technology Management

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

Prerequisite - - -

Strategy and technology. Digital innovation. Disruptive innovation. Moore's law; hardware ecosystem. Network effects. Social media; the sharing economy. Software ecosystem. Data communications. Cloud computing. XML and Web services. Business intelligence and Data Mining. Enterprise Systems and process design. Business value of IT. Mobile industry ecosystem.

BIS458 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 or supply chain. Supply contracts and collaboration.



كلية الإعلام والاتصال

FACULTY OF MASS MEDIA & COMMUNICATION

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EGYPTIAN NATIONAL UNIVERSITIES جامعة العلمين الدولية

مشروم إنشاء الجامعات المصرية الاهلية



Department of Public & specialized

ALALAMEIN INTERNATIONAL UNIVERSITY

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.



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 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 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 ending 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.



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, that 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.



COM425 Techniques of Political Communication3 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 publics. It includes special training on 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 seem to 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 Specia 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, that 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 جامعة العلمين الدولية

مشروم إنشاء الجامعات المصرية الاهلية



Department of Public & specialized

ALALAMEIN INTERNATIONAL UNIVERSITY

Communication

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 of understanding 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 tested 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.

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EGYPTIAN MATIONAL UNIVERSITIES

مشروم إنشاء الجامعات المصرية الأهلية

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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 as 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 crossmedia 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 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

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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 tests; their command of qualitative and quantitative research tools as well as their reporting and presentation of findings.

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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 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 tests 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

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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 for 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

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like the RACE, ROSIE and ROPE formulas. Grunnig'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.

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, that 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 agencies 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 qual. suitable research methods will be required from the students in preparation of their graduation projects. This course will assist the students to properly conclude the SWOT analysis of the environment of their project.

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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 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 due 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, that 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 quest speakers and field trip.

IMC464 Consumer Relationship Management

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

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Prerequisite - - -

مشروم إنشاء الجامعات المصرية الاهلية

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 the 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.

Brand Strategy IMC466

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 جامعة العلمين الدولية

مشروم إنشاء الجامعات المصرية الاهلية



Department of Public & specialized

ALALAMEIN INTERNATIONAL UNIVERSITY

Communication

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

Prereauisite - - -

Course pre-requisite. This course addresses a current or timely topic, that 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

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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 of 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 mix of modern radio stations and the most popular forms of programs among listeners.

Global Television Channels BRC413

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 the 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, that 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.

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 جامعة العلمين الدولية

مشروم إنشاء الجامعات المصرية الاهلية



Department of News Editing & writing

ALALAMEIN INTERNATIONAL UNIVERSITY

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

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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 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 to the purpose of the interview. Students will study techniques of research required to make 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 build up students writing skills in print 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

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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 helps students focus their skills by exploring sports writing, social networking and selfmarketing 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 between information and entertainment. Students will also learn about various influences within sports journalism and how to avoid ethical

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dilemmas. 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's 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 trains the students to report and write on contemporary business and economic issues. This course teaches students how to understand what's 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 for various formats.

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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 wellorganized, 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 on 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 work place 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 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.



Department of News Editing & writing

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, 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 on 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 at highlighting 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 fulfill 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 at developing 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.

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, and 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



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Department of Media Production & Digital Communication

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

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 possible 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 the news gathering. Students will be introduced to and learn to evaluate methods of news gathering from electronic sources, includes 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 camera in different settings as well as other required equipment. Besides student must Identify the different types of shots and its technical uses, and 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 know-how of operating two different video editing software applications. The Course aims at providing 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

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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 sequence, 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 studying critically 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, types, areas of use and stages of production. The student also studies

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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 mainly 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, sound tracks and visual contexts in subtitling, prepare for and carry out 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 at introducing the whole process of presentation in Radio & TV News reading, with concentration on continuity, program presentation, interviewing and hosting talk shows. The course provides



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 work place 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.

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

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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 work place 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.



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 work place 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 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.



Department of Media Production & Digital Communication

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 - - -

Adverting 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.

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MAP354Applications in Cross Media Advertising4 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 of 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 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 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 a 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.

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, that 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 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.

MAP452Advertising Management Graduation Project4 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 4 OTH) - SWL = 210 - ECTS = 8Prerequisite IMC 344

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

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 a role of a 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 work place 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 work place 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.



Department of Media Production & Digital Communication

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 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

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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. The 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 preproduction 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 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 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 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.

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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 on the electronic transmission and compressing methods of audio and video files.

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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 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 work place 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

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leave with solid hands-on knowledge that they can implement immediately upon graduation.

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.



كلية الدراسات القانونية الدولية

FACULTY OF INTERNATIONAL LEGAL STUDIES

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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



recklessness. The course will also highlight of the causes of permissibility like the Legitimate Defense, the use of authority and the right of exercising 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 Cancelation, 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

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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, blackmail, 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, evolvement determinants, implications, etc. The course addresses also 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.

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.



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.



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 deal also 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



course will concentrate mainly 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 spot 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,

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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

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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 insofar 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

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and the contract of commercial agency and. On other hand, its 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.



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, and with the assistance of, experienced lawyers.


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 gives an introduction to 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 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 gives an introduction to 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 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

مشروم إنشاء الجامعات المصرية الاهلية



Al Alamein

INT214 Sea Law

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

Prerequisite - - -

This course gives an introduction to 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 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

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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 of 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.

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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 crimes0.

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., generally 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 the 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.



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., generally 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 the 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.



كلية السياحة والضيافة

FACULTY OF TOURISM & HOSPITALITY

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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 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

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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 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 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.



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. Custer networks and value chains use in enhancing a 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

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likely to affect the extent of these impacts. The market of for recreation, 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.

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TOS313 Human Resources Management for Tourism 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.

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TOS321Tourist 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 for recreation and leisure. Significance and impacts of planning for leisure and recreation. Processes and techniques of recreation



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.

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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 value of 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 of 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.



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 of 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.

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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 to 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 tourism 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

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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. Possible sources of markets. Case studies from the industry.

TOS471Digital Marketing for Tourism and Recreation3 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.



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 workplace. Prepare and host VIP visits and formal occasions. Interact respectfully with people from many cultures, nations and regions. Dinning 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.



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.



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.

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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. Healthy 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

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

Factors affecting cost and availability of goods including 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.



Inventory management principles. The purchasing function. 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

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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 process. 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 including 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 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.



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 using 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 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. 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.



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 guests 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-controls. Technology in menu planning.

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 designation 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 Life Style. 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 Ioyalty.

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 customerfriendly 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 & 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 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.

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Virtual Reality in Hospitality HOM373

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.

Gamification in Hospitality and Tourism HOM374

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

Prereguisite - - - -

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. Ad 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.

Video Marketing in Hospitality HOM378

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

Prerequisite - - - -

YouTube marketing strategy. YouTube analytics. YouTube advertising. Building a perfect video marketing. Video sharing. Video marketing content. Video marketing tips. Video marketing tools. Video marketing sites.

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 anagement 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:

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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 return 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 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



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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 Reengineering. Training for Total Quality Management.

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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 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

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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.

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 tourism sector. Finance resources. Selecting the 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 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. Byer 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 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 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 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.

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 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.



HOM486Strategic 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 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 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 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.



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TOG111History 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 noblemen 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.

TOG161Ancient 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. The 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.

TOG171 Tourism Guidance Skills

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

Prerequisite - - -

Introduction about the tourism industry and its types. The history of the tourism guidance profession. The definition of the tourism guidance and its principles. The types of tour guides. The ways of management of touristic tours and trips. The aspects of the 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.

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Al Alamein

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.

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 ad 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.

TOG263Ancient 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.

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,

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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.

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 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 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 the 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.



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EVD111 History of Design

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

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** 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

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Snap; Modify Tools in AutoCAD; Layers; Orthographic and Isometric in AutoCAD. Sections – Terminology; Cutting Plane; Section Lining; Kind of Sect ions; 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 architecture with an emphasis on problem solving for small residential spaces. Elements and principles of design are explored as well as human factors, colour theory and the art of lighting. Students are introduced to residential space planning, furniture layouts, the development of colour schemes and the selection of finishes, furnishings and materials.

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, discourses the implications of socio-cultural and psychological factors that govern different interior furniture layout for various activity performance and the distances between them.



EVD213 Representationand 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 furniture rendering. Manual furniture rendering techniques. Furniture rendering using computer software. Computer software used in furniture rendering. Effective presentation of furniture. Latest in furniture rendering Techniques. Final Project

EVD214 Engineering Drawing II: Introduction to Cad

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **3** 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 Sect ions; 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 - - -

This course reinforces concepts and skills developed in Interior Architecture 1/ Housing. It focuses on solving functional and aesthetical issues of the interior residential environment. It emphasizes on 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 impact on the design of interior spaces.

EVD217 Representation and Rendering Techniques II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

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 soft-ware used in 3d drawing furniture. Basics of. D 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.

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 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.

EVD219 History of Interior Design I

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **3** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This course is a historical study of interior architecture 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. 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 MATIONAL UNIVERSITIES

مشروم إنشاء الجامعات المصرية الأهلية



Al Alameir

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 in 3D models.

EVD227 Furniture Design Studio II

4 Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite - - -

Course overview/ introductions. Present and explore the development of concept. Design Development through drawing and model making. Introduction to materials. Documentation of ideas in 2 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 **MAD121MAD122PHY111MAD221**

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, semiotic 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 colour theory. It instructs students of the interior architecture considerations in colour design such as colour attributes and temperature, setting the emotional tone, focusing or



diverting attention, visually reshaping or unifying a space. It also teaches inter-activeness of colour relationship, colour hierarchy and proportions, harmony, contrast; monochromatic, analogous and complementary schemes. Students understand colour effects: visually, psychologically, physiologically and symbolically; they also develop colour vocabulary and they become proficient in colour mixing and its use for interior architecture design.

EVD236 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, 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, 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 Technology II

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 used in furniture rendering. Effective presentation of furniture. Latest in furniture rendering Techniques. Final Project.

EVD239 Id Graphics I

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

Prerequisite - - -

This course gives a 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, colour and line types.

EVD311 Interior Design Studio Ili

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite - - -

This course focuses on solving functional and aesthetical issues of several types of commercial and office simple interior architecture. It emphasizes on environmental factors, orientation, styles, space

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planning, 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, perspectives. Computer aided drafting skills are incorporated in the design.

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.

EVD313 Environmental Control

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 2 OTH) – SWL = 135 – ECTS = 4

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.

EVD314 History of Interior Design II

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **3** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

Overview/ Introduction to the history of furniture (Neolithic, Ancient Egyptian, Ancient Greek, Medieval, Renaissance, Jacobean, Colonial, Rococo, Revival, Art Nouveau, Bauhaus, Art Deco, Modern. Features of furniture from periods and styles. The development and evolution of period furniture both religious and domestic. The influence of technology on furniture from specific periods. The influence of historical styles and technology on contemporary furniture and design. Application of acquired knowledge and vocabulary to analyze the influence of historical styles and technology on contemporary furniture and design. Final Project.

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 of flooring, ceiling and walls, of aperture and doors.

EVD316 Interior Design Studio Iv

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) - SWL = 255 - ECTS = 8

Prerequisite - - -

This course focuses on solving functional and aesthetical issues of several types of educational and healthcare facilities. It follows the

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theme of sustainability in design and emphasizes on 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 - - -

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).

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 on environmental factors, orientation, styles, space planning, 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, perspectives. Computer aided drafting skills are incorporated in the design.

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EVD319 Furniture Detailsand Construction

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – 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 of flooring, ceiling and walls, of aperture and doors.

EVD321 Furniture Design Studio Ili

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite - - -

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 - - -

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' analysis of the social and physical implication of interior objects and George Wagner's

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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 - - -

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 in 3D models.

EVD324 History of Styles I

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

EVD325 Furniture Working Details I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) - SWL = 180 - 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).

EVD326 Furniture Design Studio Iv

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite - - -

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 on 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 - - -

This theoretical course encompasses new trends in interior architecture design to forecasting 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 works 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.

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Al Alamein

EVD328 History of Styles II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

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 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 - - -

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 Sect ions; Convention Practice in Section View; Aligned Section. Final Project.

EVD331 Design Studio II

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

Introduction. 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.

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 illustrate the various types of tender documents used in the profession. It also instills in them the basic knowledge of profession ethics that they will carry on through the remainder of their interior architecture career.

EVD333 Id Graphics II

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

Prerequisite - - -

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 colour 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 threedimensional (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 basic. 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 ray-tracing. Students will also learn the importance of file backup and management.

EVD336 Design Studio IIi

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – 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.

EVD337 Interactive Design

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

Prerequisite - - -

Fundamental web concepts in regards to 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 a 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 the safety protocols and the use of tools. He/ she will get acquainted to 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 - - -

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, colour 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.

EVD412 Contemporary Design in Interiors

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

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 Cross Cultural Design

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – 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.

EVD415 Environmental and Design for Sustainability

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

Prerequisite - - -

the nature of health. safety in the workplace. community expectations, safety legislation; procedures for dealing with emergencies; terms hazard, risk, risk assessment, risk management, and an understanding of the procedures for assessing and managing risk; main types of hazard encountered in studios and workshops - chemical, physical, and biological; Importance of controlling risk and how this is done.

EVD416 Forecasting and Futuristic Design

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

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

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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, colour 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 - - -

This course represents the final stage of undergraduate interior architecture design. It exploits students' expertise and previous experience throughout their course of study to accomplish their final interior architecture design project – The Graduation Project.

EVD418 Business of Design

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

Prerequisite - - -

This course is a comprehensive introduction to the 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 the safety protocols and the use of tools. He/ she will get acquainted to 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 - - -

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 fastchanging pace covering Arts and Crafts, Art Nouveau, Modern, Art-Déco, Industrial Design, Late Modern, Postmodern, Deconstruction, Parametric, Futuristic and Cybertecture. 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 - - -

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, colour, 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 lead to apply the media of Oil Painting. - Elements of painting. - Colour and tone. -Painting media as: Oil/ Pastel/ Acrylic/ Watercolor/ Ink. - Painting styles: Modernism/ Impressionism/ Abstract styles. - Still life.



EVD424 Forecasting Furniture Design

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

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, plot at 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 - - -

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 advertising industry. The course allows 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 Management

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

Prerequisite - - -

Design Management course aims to integrate the innovation processes, multidisciplinary decision-making, a human- cantered mind set and business strategies, to create effective products and services 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 Communication Assessing Visual Design Effectiveness.



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EVD431 Design Studio Iv

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8

Prerequisite - - -

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 asks 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 Id Graphics 3 (Cad - Cam)

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

Prerequisite - - -

This course gives a 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, colour 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 - - -

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.

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EVD437 Renewable Energies

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

Prerequisite - - -

This course is a comprehensive introduction to the Design Management. Management principles. New and emerging design management practices. New applied technologies. Project data management. Organizational management. Design appraisal applications.

EVD438 Projects Management

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

Prerequisite - - -

¹This 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.



Department of Visual Digital Design

VDD111 Illustration 1

4 Cr. Hrs. = (**1** LCT + **1** TUT + **0** LAB + **6** OTH) – SWL = **240** – ECTS = **8** Prerequisite

This course reveals the 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, colour, tone, line and shape as well as mixed-media.

VDD112 Design Basics 1

4 Cr. Hrs. = (**1** LCT + **1** TUT + **0** LAB + **6** 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 in design and aims to help student to develop creative methods of thinking and a critical approach to his 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 Illustration 2

4 Cr. Hrs. = (1 LCT + 1 TUT + 0 LAB + 6 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 Design Basics 2

4 Cr. Hrs. = (1 LCT + 1 TUT + 0 LAB + 6 OTH) – SWL = 240 – ECTS = 8 Prerequisite VDD112

erequisite VDD112

This course provides the students with the critical thinking skill needed to analyses and evaluate design in a cultural perspective to their view and move their research from the realm of the traditional user-product environment into the cultural context. this master 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.



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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 combing 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 in a creative and innovative perspective through visual imagery. It also provides the students with the concepts, theories, aesthetics and skills of visual communication design. Visual Communication course depends basically on the ability to ideas visualization and visual persuasion.

VDD213 Design Studio I

4 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **6** OTH) – SWL = **255** – ECTS = **8** Prerequisite

This course concerns mainly about building brand identity and design assets as tangible elements that will determine how brand is perceived. These elements such as logo, Slogan, patterns, colour 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 provides the student with the basics and principles that enables him to use, edit and manipulate sound effects, voice overs and music to convey certain messages. Sound design course aims to help student to create professional audio-video projects which are entertaining, persuading and fascinating. This includes any normal and day to day sounds that could be edited and manipulated to create a whole new meaning.

VDD215 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 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.

VDD216 Web Design 1

3 Cr. Hrs. = (**1** LCT + **2** TUT + **4** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **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 in the world of web design and covers from how HTML works to more advanced structures and concepts of web design before finally creating quality layout.

VDD221 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 Sound Design

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

Prerequisite - - -

This is a practice-oriented course and an introduction to sound editing and sound design. Students are involved in all aspects of sound for film production: original on- set sound recording, post-production sound, dialogue editing, creation of sound effects, sound design, music recording and mixing and final film soundtrack mixing. The course will cover the basics of sound, microphones, and analogue-to-digital conversion. Lectures, readings, and film clips will be used to illustrate the language of film sound, as practiced by film directors, sound designers, and editors. Students will learn to edit sound assignments with Pro Tools and current technologies.

VDD311 Digital Media Literacy

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

Digital media literacy course provides students with the knowledge, skills and practice to become professional communicators in the creative industries. This course focuses in 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.

VDD312 Design Studio II

4 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 6 OTH) – SWL = 255 – ECTS = 8

Prerequisite VDD213

Although some of advertising media can be placed today but, the main concept of advertising communications still the same. It is the way of



conveying 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 enables 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.

VDD313 History of Advertising

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **2** OTH) – SWL = **210** – 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 the advertising with the cultural, social and technological changes in the recent past and nowadays. The course covers theoretical frameworks and apply them to specific advertisements.

VDD314 Information Design and Info Graphics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6** 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 use simplify, organize and visualize information to be presented through graphic elements, sound and motion in media.

VDD315 Design Studio Ili

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 a real world.

VDD316 Branding 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 branding process.

VDD317 Consumer Psychology

3 Cr. Hrs. = (**2** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH231**

This course introduces the psychological process behind the 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 with 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 relationship between business and its audience.

Introduction to Marketing **VDD319**

3 Cr. Hrs. = (**1** LCT + **2** TUT + **4** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

This course focuses on the core concepts and tools in marketing including Market Research and its importance to strategy, brand strategy. positioning, social media, integrated marketing communications. the course also provides opportunities for the practical studies and examines current marketing systems from a managerial point of view.

VDD321 Game 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

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development process from sketch 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 Development

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

Prerequisite - - -

It is an introductory course 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 Design Studio II

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8 Prerequisite 216

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. It will also enhance their skills in the field of digital art creation using Photoshop.



VDD324 History of Gaming

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

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 specially 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 Special Effects for Gaming

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** 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. 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 adding visual effects such as rendering, lighting, rigging, and compositing techniques.

VDD326 Design Studio IIi

4 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **4** OTH) – SWL = **255** – ECTS = **8** Prerequisite **VDD323**

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 adding visual effects such as rendering, lighting, rigging, and compositing techniques.

VDD327 Game Analysis

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

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 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, interestingly enough 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 I

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6** Prerequisite

This course allows students to develop professional skills in video, animation, film, and television pre-production, production, and postproduction. 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 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.

VDD411 Design Studio Iv

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) – SWL = 255 – ECTS = 8 Prerequisite VDD315

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 new generation of radio copywriters who deeply understand the cultural aspects, and has the ability to use language effectively to communicate in 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

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 based on mixed research methodology; A 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 has to conclude the advertising messages and present a brand creative strategy that includes 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 advertising

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industry. The course allows 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**

Social media advertising course is 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 II

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 postproduction. 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 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.

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 marketing 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, wed design and internet banners), 3D advertising (packaging, displays, ambient and interactive ads) in addition to radio and audio video advertising. Student should also design a complete presentation to explain his project and justify his point of view.

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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 involve 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 why during the design process.

VDD421 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 multiplayers games. It will allow him to communicate and synchronize with a game server different players 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

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 based on mixed research methodology; A 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 has to 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 thinking, analyses and evaluate strategy for better decision making.

VDD424 Game Marketing and Production

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.

VDD425 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 threedimensional (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 basic. 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 ray-tracing. Students will also learn the importance of file backup and management.

VDD426 Social Gaming

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

Social gaming course is 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 problemsolving 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 present 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.

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 plans for gaming according to culture research and the cutting edge technology. This course allows students to be professional leaders in game development, creative problem solvers and decision makers.

VDD428 Future Studies

2 Cr. Hrs. = (1 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 135 – ECTS = 4

Prerequisite - - -



Department of Fashion Design

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. - It provides 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 this period on our modern era. - It introduces the students to the 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 Museums Study

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

Prerequisite - - -

The origins of museums and the leaders who helped shape the field. History and memory. Surviving controversy. The changing role of museums. 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 and their role in creating products and services of value. - Explore and interrelate a range of strategic, tactical and operational issues associated 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 fibre. Production of cotton. Protein fibres. Brief idea about cultivation. Sources and applications. Introduction to manmade fibres. 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 - - -

Intro Early History of Costume, Ancient Middle East. A. Etruscan/ Egyptian period. B. Greek period. C. Roman period. Medieval Europe. The Renaissance in France, Italy and England. 17th Century France, Italy, England. The 18th Century in France, Italy, England, America.



Characteristic 19th Century styles--Europe and America. Twentieth Century Characteristics--Europe and America. Important economic, sociological and psychological factors relation to dress in each period.

FSH214 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 freshman 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 freshmen 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 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 Principals of Pattern Drafting (Dart Manipulation, Added Fullness, Contour). Students will learn Techniques such as Pivoting and Slashand-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/Seams. And Darts, Pleats, 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 jewellery 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 jewellery hand tools and jewellery 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 Doesn't Move. Drawing Figures of Different Sexes. Observation of Real Life. Being Independent of Outside Influences.

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

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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 Doesn't 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 jewellery 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, coldjoining and soldering to make a jewellery piece.

FSH224 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 freshman 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 freshmen 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.

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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. = (2 LCT + 2 TUT + 0 LAB + 2 OTH) - SWL = 180 - ECTS = 6

Prerequisite - - -

You will be able to identify jewellery from the Belle Epoque to today by period. You will know the major fashions and jewellery 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 jewellery designers. You will have a broad understanding of the importance and mythology behind different gems, materials and motifs used in European jewellery. You will have seen prominent contemporary jewellers at work, and have gained an insight into their personal inspirations and impact on today's

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collectors.

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 solder. - when to use them and how to prepare them. - the different soldering methods. - chip / pallion, probe / pick, stick feed, sweat and paste. - how to use them and which one to use for a particular join.

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.

FSH311 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.

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Al Alamein

FSH312 Fashion Illustration II

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

FSH313 Apparel Supplements

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

Prerequisite - - -

This course introduces the 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. In this course, basic understanding comprehends and analyses the links between apparel supplements with using research in design practice. 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 Design Studio Ili

3 Cr. Hrs. = (**1** LCT + **2** TUT + **4** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

Mastery of 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 II

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 Techniques. Tools and Menus. Layers. Image Menu. Photoshop Editing. Filters.

FSH317 History of Costumes II

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

Prerequisite - - -

Main issues surrounding fashion in contemporary culture. Theories that provide the analytical tools for the investigation of fashion as object,



image and idea. Exploring mainly design, images and ideas from European costume history, opera / plays. Creation a contemporary visionary costume design integrating profound knowledge of European costume history, opera / 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 handle 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 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

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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.

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. Jewellery 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 freshman 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 freshmen to think creatively through design and art, and the world around them, as they secure a skillful level of craftsmanship in the

MASH



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 caving (Beginners and Intermediate level). Qualities and properties of different forms of wax. Using wax carving tools to achieve your designs. Making finished wax carved masters 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 and affordably and much more.

FSH326 Design Studio Ili

4 Cr. Hrs. = (1 LCT + 0 TUT + 4 LAB + 4 OTH) - SWL = 255 - ECTS = 8

Prerequisite - - -

- This course is a comprehensive. - The idea of working and sensitive media 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-Coolmeter-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.

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 ebusiness. - Introduction of Textile CAD Overview of textile product development process Importance of computer aided design in fashion supply chain Introduction to graphic file and colour model. - Application of Textile CAD Software Yarn design and simulation Woven, Knitted, and Printed fabric design Simulation of yarn, fabric colour and structure effects. - Introduction to Clothing CAD Software and hardware of apparel CAD/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.


FSH329 Enamelling for Contemporary Jewellery 3 Cr. Hrs. = (2 LCT + 0 TUT + 1 LAB + 3 OTH) - SWL = 180 - ECTS = 6

Prerequisite - - -

You will be set 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 scraffito (scratching through a layer), using stencils (stickers or wet paper) and glass beads, sticks or chips. • Producing pendants or buttons from a copper coins.

FSH411 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 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/equipment. Senior Standing, BS Fashion and Textile Design, Textile Design majors ONLY.

FSH413 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 vapour and air permeability. - Thermal conductivity and dynamic heat. - Skin contact characteristics. - Static electricity. - Fibre and fabric handle. -



New comfortable fibres and textile structures, multifunctional materials. - Predictability of clothing comfort performance. Textile comfort test methods and assessing (human perception analysis, hpa).

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 / collaborative skills appropriate for fashion styling production collaboration;. Evidence 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, brasso, 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 of cotton fabric using different dyes. - Direct, reactive, vat, azoic colours, etc. by different styles of printing. - Printing of other natural fibres except cotton. - Wool,

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silk, etc. and regenerated cellulosic i.e. viscose rayon, cuprammonium rayon, etc. by different styles of printing using suitable dyes. - Printing of synthetic fibres. - Polyester, nylon, acrylic, etc. by different styles of printing using suitable dyes. - Printing of blended fabrics. Polyester/cotton, polyester/wool, cotton/viscose, polyester/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/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.

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 to learn how to plan a product in relation to current trends. From the colour 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 Business and Design Management

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

Prerequisite - - -

o Illustrative Methodology. Jewelry Design Techniques. Fundamentals of Jewelry Manufacturing & Pricing. Introduction to CAD-Matrix Software. Jewelry Mounting Techniques. Rendering Software. Communication. Supervisory Management. Financial Management. Marketing Management. Operations. Entrepreneurship.

FSH421 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, started in TFD

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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.

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/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 gives an introduction to 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 process through discussion and studio based practice, culminating in a personalized project.

FSH424 Wearable Art

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

Prerequisite - - -

This course will explore fashion as conceptual art on the canvas of the body. We will explore how to design and create clothing and costumes; how to adapt and design patterns; sew and construct garments and accessories; decorate with paint and dye, printed photos, appliqué, embroidery, beadwork, neon wire, quilting and stuffing; and explore experimental and soft sculpture techniques. Students may also work with props and backdrops, special effects makeup, and other elements to create a complete look. Art fashion can be exhibited as art, or used to create characters for performance, photographs and videos, or to develop your own iconic look and become a living work of art.

FSH425 Jewellery Costing

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

Prerequisite - - -

This course also gives an introduction to 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 process through discussion and studio based practice, culminating in a personalized project.

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, jewellery trade practices such as requirements gathering and customer sign-off, all the way to the end communication with the jeweller and beyond with in depth jewellery 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/equipment. Senior Standing, BS Fashion and Textile Design, Textile Design majors ONLY.

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FSH428 Introduction to Diamonds

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

Prerequisite - - -

Introduction to Diamonds and their Properties. Diamond Grading Tools. Distinguishing Diamonds from Simulants and Synthetics. Grading Diamonds. Helping the Consumer Choose a Diamond. Understanding Colored Diamonds. Diamond Industry Trends.

FSH429 Jewellery Business and Design Management

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

Prerequisite - - -

Illustrative Methodology. Jewelry Design Techniques. Fundamentals of Jewelry Manufacturing & Pricing. Introduction to CAD-Matrix Software. Jewelry Mounting Techniques. Rendering Software. Communication. Supervisory Management. Financial Management. Marketing Management. Operations. Entrepreneurship.



EGYPTIAN NATIONAL UNIVERSITIES

مشروم إنشاء الجامعات المصرية الاهلية



Department of Cinema, Theatre & Animation Design

جامعة العلمين الدولية

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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 combing letterforms and layout design in all forms of information design in digital or/and 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.

CTH213 Visual Communication I

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

This course concerns mainly about building brand identity and design assets as tangible elements that will determine how brand is perceived. These elements such as logo, Slogan, patterns, colour schemes and Typography. In addition to communicative tools that convey values, meanings and messages like; Visuals, packaging, design, business cards and paper systems.

CTH213 Visual Communication

2 Cr. Hrs. = (**2** LCT + **1** TUT + **0** LAB + **2** OTH) – SWL = **120** – ECTS = **6** Prerequisite

This course concerns mainly about building brand identity and design assets as tangible elements that will determine how brand is perceived. These elements such as logo, Slogan, patterns, colour schemes and Typography. In addition to communicative tools that convey values, meanings and messages like; Visuals, packaging, design, business cards and paper systems.



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CTH213 Visual Communication

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

This course concerns mainly about building brand identity and design assets as tangible elements that will determine how brand is perceived. These elements such as logo, Slogan, patterns, colour 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.

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CTH216 Writing Studio: Intensive

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **180** – ECTS = **4** Prerequisite 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 in the world of web design and covers 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 II

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

Prerequisite - - -

This course introduces students to communicate in a creative and innovative perspective through visual imagery. It also provides the



students with the concepts, theories, aesthetics and skills of visual communication design. Visual Communication course depends basically on the ability to ideas visualization and visual persuasion.

CTH221 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 use in order to learn the technical skills required to complete each task.

CTH223 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.

CTH224 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

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and post production (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.

CTH225 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. In particular students will examine a range of practical techniques such as: ADR, Foley, effects creation and film music composition, through producing all aspects 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. In order to promote investigative learning and research, students will complete readings and listening and perform practical exercises.

CTH226 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.

CTH227 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/feedback, scene structure, rewriting and other tools of the trade.

CTH228 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 combing letterforms and layout design in all forms of information design in digital or/and printed materials, such as; posters, magazines, books and websites.

CTH229 Basics: Studio Production

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH223**

Teaching and Learning Methods.

CTH232 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 the media that are familiar with, then lay the foundation of this changes. The course questioning the characteristics of the outcomes and reflect the principles of exploring the meaning of the term medium and how that meaning has developed.

CTH234 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 the acting in the old professional theatre. The course offers an introduction to the cultural context of stage playing and acting, the critical language and the different kinds of training and professional practice also included in this course. The course reflects the different theatres over times while taking in consideration the recent and modern schools in acting.

CTH235 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 endeavours. 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



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Al Alamein

actors display.

CTH236 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 and that elicit a response and allow the audience to empathize with the characters as they witness the performance.

CTH237 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 lead to the successful execution of a photo shoot.

CTH238 Visual Storytelling

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **3** OTH) – SWL = **180** – 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/feedback, scene structure, rewriting and other tools of the trade.

CTH239 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 apprehend 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 ultimately provide students with the methods of analysis necessary to interpret media content in order to have control over the messages delivered in media.



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 a digital communication and film making.

CTH311 **Animation Studio 1**

3 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 4 OTH) – SWL = 195 – ECTS = 6 Prereauisite

Digital media literacy course provides students with the knowledge, skills and practice to become professional communicators in the creative industries. This course focuses in 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 1

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 2 OTH) - SWL = 180 - ECTS = 6 Prerequisite VDD213

Although some of advertising media can be placed today but, the main concept of advertising communications still the same. It is the way of conveying 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 enables 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 the advertising with the cultural, social and technological changes in the recent past and nowadays. The course covers theoretical frameworks and apply 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 of people with different cultural backgrounds. The course aims to provide students also with basic skills to use 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 going 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 2

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 branding process.

CTH317 Storyboarding for Animation 2

3 Cr. Hrs. = (**1** LCT + **0** TUT + **2** LAB + **4** OTH) – SWL = **195** – ECTS = **6** Prerequisite **CTH231**

This course introduces the psychological process behind the 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 with the processes of selecting, purchasing, using or engaging of 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 relationship between 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 textures, and demonstrates essential methods for efficiency and optimization of visual effects to be used in a digital communication and film making.

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Al Alameir

CTH321 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 sketch 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.

CTH322 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 into the art of writing for film as well as interpreting cinematic and drama texts for their adaptation into the audio-visual forms.

CTH323 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 are mandatory and vital to the learning experience and momentous to the development of awareness throughout this course. In this course, students gain an understanding into musical composition and acquire a convenient appreciation of the role composers provide to propagating the film's content as and as elaborate tools for meaning delivery.

CTH324 Film History

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

CTH325 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.



CTH326 Intermediate: 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 in order to achieve intended moods, atmospheres and meanings. Students also gain closer insights into set designs and layouts.

CTH327 Script Interpretation

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

Prerequisite CTH322

This course is a study of different dramatic structure and methods of script analysis as a preparation for writing, directing, designing, performing through criticizing and analyzing scripts for plays and films. The course offers students with 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 pass a skilful experience to those tools and elements.

CTH328 Digital Sound Design

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **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 post production stage with

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a close examination of Foley and ADR. Students are also introduced into 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 in order to ensure efficient utilization of music in their films.

CTH329 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 to the visual and digital effects by which the director's vision may be elaborately and effectively delivered.

CTH330 Dramaturgy I

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

Prerequisite - - - -

This course teaches the role of the 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, prepare 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 a dramaturg balances research with the practical demands of performance.

CTH331 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



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.

CTH332 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, 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.

CTH333 Theatre Lighting Design II

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

Prerequisite - - -

This course familiarizes students to the world of scenography and introduces them to theory and 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.

CTH334 Stage Directing and Acting Theories I

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH238**

. 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.

CTH335 Playwriting I

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH236**

. 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 a 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 the playwriting.

CTH336 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, colour application, texture, and intelligent lighting. This course will prepare the students to



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 the automated lighting in the third millennium.

CTH337 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.

CTH338 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 number of 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 through how theatre and drama rely on the commitment of people from a variety of backgrounds. The student's will carry on 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.

CTH339 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.

CTH411 Graduation Project 1

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

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

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planning and executing an ad campaign for a brand to achieve a specific goal. The dissertation based on mixed research methodology; A 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 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 cross road 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 the dramatic works. the course will explain the dramatic theory in the context of the worlds 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 previous produced scenes and shot and start working on it to create the final product. This course will give the students the chance to test their knowledge and start collecting feedback and then self- directing. The course is very beneficial to the students to finalize their short film stories and create an addition in their demo reels.

CTH415 Animation Studio 3

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 postproduction. 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 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.

CTH416 Graduation Project 2

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = 360 – ECTS = 11 Prerequisite GRADUATION PROJECTS 1

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.

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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 materials), 2d advertising design (posters, magazine ads, brochure, wed design and internet banners), 3D advertising (packaging, displays, ambient and interactive ads) in addition to radio and audio video advertising. 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 the 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 the 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 4

3 Cr. Hrs. = (**1** LCT + **0** TUT + **4** LAB + **2** OTH) – SWL = **195** – ECTS = **6** Prerequisite **CTH415**

The course provides an overview to the complete vision to the animation

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film with dialogue. Putting a voice to an animated character gives it a dimension and believability that can't 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.

CTH421 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 multiplayers games. It will allow him to communicate and synchronize with a game server different players 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.

CTH422 Graduation Project 1

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.



CTH423 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 post production stage.

CTH424 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.

CTH425 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 threedimensional (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 basic. 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 ray-tracing. Students will also learn the importance of file backup and management.

CTH426 Graduation Project 2

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = 360 – ECTS = 11 Prerequisite CTH422

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.

CTH427 Business of Filmmaking

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

CTH428 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 plans for gaming according to



culture research and the cutting edge technology. This course allows students to be professional leaders in game development, creative problem solvers and decision makers.

CTH429 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 meaning and creates a creative context and critically analyze its utilization of visual content and auditory stimuli.

CTH431 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 the 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.

CTH432 Instrumental and Vocal Performance II

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH377**

. In this course students will have learned the basics of music and will move on to the performance component and how to utilize their

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instrument or voice on stage to fulfil the required aesthetic effects. Students will get to perform multiple times on stage and will work with directors gaining practical experience on the making and production of musicals.

CTH433 Stage Directing and Acting Theories II

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

Prerequisite - - - -

The course expands the students understanding on their acting and directing skills through learning about the various schools of the 20th century and the regional differences in performance theatre. The course reflects the audience engagement, so students will gain an appreciation for the effectiveness of different rehearsal and actor training techniques. The student's will also demonstrate their directing skills as they come to master the various processes and steps involved in the production of a play on stage and apprehend the exact role of the involved crew.

CTH433 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.



CTH434 Dramaturgy II

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH392**

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.

CTH435 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.

CTH436 The Business of Drama and Theatre Design

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

Prerequisite - - -

This course is a 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

CTH437 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.

CTH438 History of the Play II

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **2** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CTH335**

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 it is created. The course will also teach students about developing ancient texts and their adaptation to fit the demands of the modern audience.

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CTH439 Graduation Project II

6 Cr. Hrs. = (2 LCT + 2 TUT + 2 LAB + 6 OTH) – SWL = 360 – ECTS = 11 Prerequisite CTH435

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.

CTH491 Professional Ethics and Regulations

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

Prerequisite - - - -

This course will introduce students to the moral responsibility of producing theatrical performances and the obligation to portray images, ideas and messages that do not seem ethically flawed. Students will also learn about the etiquette of the work place whether in terms of interactions with the entire play crew or with audience as well.



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Department of Mechanical Engineering

MEC011 Engineering Drawing (1)

3 Cr. Hrs. = (**1** LCT + **3** TUT + **2** LAB + **0** OTH) – SWL = **180** – 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). Introduction of assembly drawing. Computer aided drafting (CAD).

MEC012 Engineering Drawing (2)

3 Cr. Hrs. = (**1** LCT + **3** TUT + **2** LAB + **0** OTH) – SWL = **180** – 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 Plotting.

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,

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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 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. Nanomaterials, 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. = (**1** LCT + **3** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **MEC012**

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 a 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.

MEC112 Machine Construction

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **MEC111**

Loading Diagrams, General concepts of Stress and Strain, Types of Stresses (Normal Stresses and Shear Stresses), Combined Stresses, Theories of Elastic Failure, Safety Factor. Constructional details as affected by manufacturing, assembly, and strength considerations, Connections (Centering, Flanged, Riveted, Keyed, Splined, Screwed), Power Screw and its joints, Seals, Springs, Stress Concentrations, Reverse Engineering.

MEC120 Manufacturing Technology

4 Cr. Hrs. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 210 - ECTS = 8

Prerequisite MEC041

Machining: Principles of machining, turning machines and processes, drilling machines and processes, Shaping and planning 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 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.



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 planning 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 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. = (**3** LCT + **1** 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.

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 Machines and Vibrations

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **MEC221**

Mechanisms: Definitions, open-chain systems, closed-chain systems constraints, degrees of freedom, reference frames, inversions of four linkages (lower pair) mechanisms, slotted lever mechanism, steering mechanisms, inversions of mechanisms, Hook's joint, and synthesis of mechanisms. Kinematics: Kinematics of rigid bodies, position analysis, velocity analysis, acceleration analysis, rotation representations, Euler angles, rotation matrix, homogeneous transformation matrix, direct and inverse kinematics. Dynamics: Equilibrium of machines, D'Alembert's principle, force analysis, power analysis, Friction and inertia-effects, center of percussion, flywheel design. Cams: Types of cams, types of followers, kinematics and kinetics of cam. Gears: Concept of gear motion transmission, gear geometry and gear trains. Introduction, Vibration of single degree of freedom systems (free, damped, forced), Vibration isolation, Vibration of two degree of freedom systems (free, forced), Vibration absorber, Torsional vibrations (free, forced), Equivalent torsional systems.



MEC212 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, Buckling and Thermal Stresses), 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, Design of Pressure Cylinders. Use of interactive Finite Element computer programs for problem solving is illustrated and used.

MEC213 Stress Analysis

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

Prerequisite MEC131

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, Combined Stresses, Beams deflection. Statically indeterminate beams, Thermal Stresses.

MEC231 Engineering Economy

3 Cr. Hrs. = (**3** LCT + **1** TUT + **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

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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.

MEC235 Nanotechnology Basics and Health Risk

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

Prerequisite - - -

Introduction to Nano technology, engineering of Nano-materials with emphasis on structural, optical, photonic, magnetic and electronic materials. Synthetic methods and analytical characterization with design for applications.

MEC251 Fluid Mechanics

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite MAT112, MAT121

This course will provide the student with a basic understanding of fluid properties, fluid statics and dynamics, and fluid flow. The flow of incompressible fluids in pressure systems constitutes the major portion of this course. Fluid measurement is covered both in the lecture and the laboratory portion of the course.

MEC252 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, 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, Grav 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**, **MEC252**

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.

MEC271 Automatic Control

4 Cr. Hrs. = (3 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 210 – ECTS = 8

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.



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MEC272 Energy Resources

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

MEC273 Hydraulics and Pneumatics Control

3 Cr. Hrs. = (**3** LCT + **1** 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.

MEC314 Mechanical System Design

3 Cr. Hrs. = (**3** LCT + **1** 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.

MEC321 Doe and Quality Control

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

Prerequisite MAT211

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.

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.



MEC328 Revenue Management Pricing

3 Cr. Hrs. = (**3** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **135** – 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. = (**3** LCT + **1** 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 openhearth 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 Nano-materials 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-destructive testing, mechanical analysis (DMA, TMA), quick overview on polymer processing technologies.



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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. = (**3** LCT + **1** 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) causes 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. = (**3** LCT + **1** 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.

MEC341 Measurement and Instrumentation

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite ELE112

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. = (**3** LCT + **1** 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. = (**3** LCT + **1** 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

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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.

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.

MEC354Modelling and Simulation of Power Systems3 Cr. Hrs. = (3 LCT + 0 TUT + 1 LAB + 0 OTH) - SWL = 150 - ECTS = 6

Prerequisite - - -

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.

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.

MEC363 System Psychology and Biomechanics

1 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) - SWL = 75 - ECTS = 2

Prerequisite - - -

Introduction to Biomechanics of human movement, fundamentals of biomechanics and qualitative analysis, introduction to psychology.

MEC372 Sensors and Measurement Systems

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **MEC341 OR ELE212**

To build a measuring system for frequently occurring mechanical

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measurement problems by selecting or designing the appropriate measuring system components. to analyze the components of 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.

MEC381 Gait Analysis and Locomotion

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

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.

MEC391 Industrial Project

3 Cr. Hrs. = (**1** LCT + **0** TUT + **6** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite 100 CH

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. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – 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 provides an introduction to 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 for beginning level employment in clinical, pharmaceutical and biotechnology laboratories.

MEC412 Introduction to Nanosystems Design

3 Cr. Hrs. = (**3** LCT + **1** 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.

MEC428 Industrial Communication and Network Systems

1 Cr. Hrs. = (1 LCT + 0 TUT + 1 LAB + 0 OTH) - SWL = 45 - ECTS = 2

Prerequisite MEC325

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

1 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 75 – ECTS = 2

Prerequisite - - -

An overview of robotics and manufacturing automation technology and principles. Topics include: automatic production and assembly, 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.

MEC432 Material and Process Selection

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – 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. = (**3** LCT + **1** 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. = (**3** LCT + **1** 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. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6**

Prerequisite - - -

The use of heat treatment to produce required metallurgical properties,

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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.

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

2 Cr. Hrs. = (1 LCT + 1 TUT + 2 LAB + 0 OTH) – SWL = 120 – ECTS = 4 Prerequisite CSC014, 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).



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Al Alamein

MEC442 Microfabrication and Thin-Film Technology Laboratory

4 Cr. Hrs. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 7

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.

MEC451 Solar Energy and Voltaics

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **MEC272**

Intensity of Solar Radiation within the Outer Space, Calculation of the Solar Intensity on the Earth, Availability and Usability of Solar Energy, 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 MEC272

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 MEC272

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 Geothermal Energy

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

Prerequisite - - -

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MEC456 Propane and Natural Gas Energy

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

Prerequisite - - -

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.

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.

MEC471 Microcontroller and Embedded Systems

3 Cr. Hrs. = (**3** LCT + **1** 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 **MEC472** -**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 Vmodel: 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. = (**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: multisensor fusion, localization, navigation and mapping, obstacle recognition and detection. Planning and actuation: task decomposition, reactive behavior, preplanned knowledge and skill-based behavior. Knowledge-base: facts and procedures, acquisition, exploration, skill transfer, learning. Autonomous systems architecture: behavioral principles, expert systems, knowledge-bases, multi-level control concepts. Applications of autonomous systems.

MEC474 Modeling and Simulation of Mechatronics Systems

1 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 75 – ECTS = 2 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

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(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 Advanced Automatic Control

3 Cr. Hrs. = (3 LCT + 1 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.

MEC481 Rehabilitation of Robots

2 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 60 – ECTS = 4

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

MASH



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.

MEC491 Graduation Project 1

3 Cr. Hrs. = (**1** LCT + **0** TUT + **6** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite 130CH

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.



Department of Physical Engineering

PHE511Nuclear 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 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 gives also 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 by 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 is focusing 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-cooled reactors. thermal limits in fuel under reactor operation. materials in nuclear systems.



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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.

Renewable Energy Technology PHE516

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.

Leadership for Safe Nuclear Power Industry **PHE519**

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.

PHF521 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.

PHF522 **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.



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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 is focusing 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 is focusing 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.



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.

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 less 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 text books. 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, guality 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, brachitherapy, 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, 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, brachitherapy, 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

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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

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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.

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 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 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 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.

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 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 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.



Department of Biomedical Engineering

BME211 Structure and Function of the Body

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

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.

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. 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.".

BME222 Biomechanics 2: Biological Tissues

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – 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. = (3 LCT + 0 TUT + 1 LAB + -1 OTH) – SWL = 165 – 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 as photoacoustic imaging. The basic principles, instrumentation, and applications of each imaging modality.



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BME311 **Biomedical Sensors**

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – 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. = (**3** LCT + **1** TUT + **0** LAB + **0** OTH) – SWL = **150** – 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.

Introduction to Bio Engineering BME313

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

Prerequisite BME211

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.

BME315 **Biomedical Systems Analysis**

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – 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 + 2 TUT + 0 LAB + 0 OTH) – SWL = 150 – ECTS = 6

Prerequisite - - -

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.

BME321 Magnetic Resonance Imaging

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

Prerequisite - - -

Foundations, concepts and procedures of Clinical Magnetic Resonance Imaging.



BME322 System Psychology and Biomechanics

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

Prerequisite - - -

Fundamental background of tissue optics; Understanding of physics, strengths, and limitations of various existing bio-optical imaging technologies; Knowledge of emerging bio-optical imaging technologies for anatomic and functional studies.

BME323 Modern Optical Microscopy and Imaging

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

BME324 Intermediate Fluid Mechanics

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

Prerequisite - - -

Biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomimetic materials, hard and soft tissue-materials interactions, drug delivery, tissue engineering, and biotechnology.

BME325 Biomaterials and Medical Devices

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

Prerequisite - - -

Strategies of tissue engineering, and will focus on the diseases that

tissue engineering can address. Each lecture will identify a specific disease process (coronary artery disease, stroke, diabetes, etc.) and describe tissue engineered scaffolds that can alleviate the disease. Students will learn the underlying pathology of the disease; understand the latest advances in tissue engineering for treating the disease; and discuss prospective research areas for novel biomaterials to modify the disease process. In addition, students will gain an appreciation for clinical trials of tissue engineering.

BME326 Intro to Biomedical Signals and Electrical Circuits

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

Prerequisite - - -

Anatomy and physiology, Medical terminology, Radiation, Nuclear medicine procedures, Radio-pharmacology, Physics, Ethics.

BME327 Biological Performance of Materials

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

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BME328 Tissue Engineering

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – 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. = (3 LCT + 1 TUT + 1 LAB + 0 OTH) - SWL = 165 - 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. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – 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 = **195** – ECTS = **6** Prerequisite **100 CH**

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.

BME421 Bioregenerative Engineering

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

Prerequisite - - -

Foundations, principles, and technologies of molecular, cellular, and tissue regenerative engineering.

BME422 Regenerative Engineering Applications

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

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 (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.



Department of Electrical Engineering

ELE111 Electrical Circuits

4 Cr. Hrs. = (**3** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **210** – ECTS = **8** 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

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.

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).

ELE211 Electromagnetic Fields

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **MAT112**, **PHY211**

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, 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.

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ELE212 Electrical Measurements and Measuring Instruments

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

Prerequisite **ELE112**

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 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. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ELE111**

PN Junctions: construction and operation, I-V equation, biasing, circuit applications. Bipolar Junction Transistor (BJT): construction and operation, Types, I-V characteristics. Metal Oxide Semiconductor Field Effect Transistors (MOSFETs): construction and operation, I-V characteristics, biasing techniques. Logic gates using CMOS. FET applications: MOSFET as a resistance, MOSFET as a constant current source. Operational Amplifiers (OP-AMPs): difference amplifier, OP-AMP specifications, frequency characteristics. OP-AMP applications:

adder, subtracter, integrator, differentiator, electronic analogue computation, I to V and V to I converters, comparators, Schmitt trigger, OP-AMP oscillators. Sensors and transducers. Digital to Analog Converters (DACs) and Analog to Digital Converters (ADCs). 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 softwarebased applications. Interfacing with USB, I2C, SPI, CAN, LIN.

ELE231 Introduction to Embedded Systems

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

Prerequisite ELE233

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.

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ELE232 Fundamentals of Communication Systems

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

Prerequisite - - -

Basic concepts of communications. Communication system elements. Channel bandwidth. Analog modulation: AM, FM, and PM. FDM. Superheterodyne receiver. Pulse modulation: PAM, PCM, PTM. Nyquist theorem. Line coding. Eye pattern. Generative/non-regenerative repeaters, Passband digital modulation: ASK, FSK, PSK.

ELE233 Control Engineering

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

Prerequisite ELE213

Basic concepts of communications. Communication system elements. Channel bandwidth. Analog modulation: AM, FM, and PM. FDM. Superheterodyne receiver. Pulse modulation: PAM, PCM, PTM. Nyquist theorem. Line coding. Eye pattern. Generative/non-regenerative repeaters, Passband digital modulation: ASK, FSK, PSK.

ELE234 Logic Design

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

Prerequisite - - -

Review on 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).

ELE235 Industrial Networks

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

Prerequisite - - -

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 laver (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 IPv. * Data 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.

ELE271 Electrical Machines

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ELE112**

Principle of energy conversion: Electromechanical energy conversion,

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magnetically single excited systems, magnetically multi-excited systems, Torque and stored energy in magnetic fields, Multifed rotating systems. DC Machines: the generation of EMF torque, construction of DC machine, the magnetic circuit of the dc machine, armature windings, armature reaction, methods of excitation, load characteristics of dc generators and motors, efficiency, testing of dc machines. Transformers: transformer construction, fundamental laws, equivalent circuits, transformer efficiency, transformer testing, transformer connections and harmonics, auto transformers and tap changers, parallel operation, transformer cooling.

ELE272 Electrical Power Engineering

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

Prerequisite ELE112

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

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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

4 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **225** – ECTS = **8** 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 Fields

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 120 – ECTS = 4 Prerequisite MAT112, PHY211

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, 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.

ELE314 Waveguides

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ELE313**

The application of the concepts of modern network theory to wave-

MASH



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 **MAT313**, **ELE231**, **ELE232**

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, discrete-time Fourier series (DTFS), discrete-time Fourier transform (DTFT). Laplace transform. Applications.

ELE322 Advanced Semiconductor Devices

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

Prerequisite ELE232

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 **ELE322**

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 ELE323

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 to support the theoretical contents of the course.

ELE337 Analog and Digital Communication Systems

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

Prerequisite ELE322

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

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

Prerequisite - - -

Review on CTFT and DTFT. Z-transform, Region of convergence, Inverse Z-transform, Properties of Z-transform, Analysis and characterization of LTI systems using Z-transform. Discrete Fourier transform. Fast Fourier transform (FFT). Structures of digital filters. FIR filter design techniques: windowing and frequency sampling. IIR filter design techniques: S-to-Z domain transformation. Introduction to Multirate DSP systems, Introduction to adaptive filters.

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.

ELE381 Power Electronics and Motor Drives

3 Cr. Hrs. = (**2** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ELE112**

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 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.



ELE391 Industrial Project

3 Cr. Hrs. = (**1** LCT + **0** TUT + **6** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **100 CH**

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.

ELE421 Optoelectronics

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

Prerequisite PHY321

Light-matter interaction, Photons in semiconductors, level and. level lasers, gain coefficient, gain saturation, Heterojunctions, Fabry-Perot resonators, Double-heterostrcuture 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 ELE322

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,

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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

1 Cr. Hrs. = (1 LCT + 0 TUT + 1 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

IC Processing, Clean Rooms and Clean Room Technology, Bulk Crystal growth, Epitaxial growth, Photolithography, Etching, Oxidation process, Diffusion process, Chemical vapour 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 modeling.

ELE433 Biomedical Engineering

1 Cr. Hrs. = (1 LCT + 1 TUT + 1 LAB + 0 OTH) – SWL = 75 – ECTS = 2 Prerequisite ELE233

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 - - -

Introduction to mathematical modelling of physiological systems, Linear system approximation, Stochastic modelling, Cardiopulmonary system

MASH



models, Myocardial mechanics, Cardiac energy and power analysis models, Models of gastrointestinal tract motility, Models of respiratory mechanics and chemical control of respiration.

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 assessment and calculations.

ELE491 Graduation Project 1

3 Cr. Hrs. = (**1** LCT + **0** TUT + **6** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **130 CH**

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.



CIV111 Structural Mechanics

3 Cr. Hrs. = (**2** LCT + **2** TUT + **0** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite MAT121

Prerequisite IVIATIZI

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 CIV111, PHY111

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.

CIV113 Structural Analysis

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

Prerequisite - - -

Deflection using virtual work method. Analysis of statically indeterminate structures: general method of deformations (consistent deformations), three moments equation method and moment distribution method.

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Introduction to matrix methods: stiffness method.

CIV114 Civil Engineering Drawing

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

Prerequisite MEC012

Fundamentals of technical drawing, orthographic projections, sectional 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.

CIV131 Surveying (1)

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

Prerequisite MAT112

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

MASH



techniques, kinds and types of errors in surveying measurement, introduction to theory of errors.

CIV211 Concrete Structures Design (1)

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

Prerequisite - - -

Methods of design; Codes; Structural systems, load determination and distribution. Behavior and limit states design of reinforced concrete section subjected to bending moments. Design using limit states method; Section subjected to bending, shear, torsion and axial force; Reinforcement details for beams. Development and curtailment of reinforcement for beams. Serviceability limits states.

CIV212 Steel Structures Design (1)

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

Prerequisite - - -

Loads on steel structures, analysis and design concepts, steel grades and types, structural systems and general layout for multipurpose halls, local buckling and steel cross sections classifications, 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 **CIV113**

Concrete materials: Cement (Manufacture, Chemical composition, Hydration of cement, Physical and mechanical properties, testing of cement, Common types of cement), Aggregates (Types, Physical, chemical and mechanical properties), Mixing water, Reinforcing steel (Types, Properties, Standard specifications), 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.

CIV214 Concrete Technology (2)

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CIV211**

Concrete manufacturing: (Approval of materials source, Storage, Batching and mixing, Transportation, Pouring, Compacting, Curing, Construction joints, Formwork). Ready mixed concrete: (Production methods, Inspection, Quality control measures). Statistical analysis to judge the concrete quality. Hot weather concreting: (Definition, Problems, Precautions). Concrete flooring: (Floor types, Materials properties, Construction joints, Surface finish and preparation). Volumetric changes of concrete: (Elasticity, Creep). Durability of concrete: (Carbonation, Corrosion process, Permeability. Nondestructive testing: (Rebound hammer, Ultrasonic, Pulse velocity, Core, Steel detection, Radiation). Special types of concrete: (High performance, Polymer, Fiber and Lightweight concrete).



CIV215 Foundation Design (1)

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CIV213**

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.

CIV216 Computer Aided Structural Design

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

Prerequisite - - -

Introduction: Overview of F.E.M for Beam Element -Plates and Shells-Modeling of. D. Structures: (Beams - Frames - Trusses). Modeling of solid Slabs-One way, Two way and Hollow Blocks. Modeling of surfaces of revolution. Modeling of. D Frames (Steel and concrete). Modeling of foundations on elastic supports. Development of. D models for Retaining walls and Water tanks. Interface between F.E. programs and Auto- Cad program. Interface between F.E. programs and Column design programs. Sensitivity of structures to boundary conditions variation. A design project is an integral part of this course.

CIV218 Sustainability of Construction and Building Physics

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

Prerequisite - - -

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.

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Causes and defects of climate change, the different techniques to approach energy-efficient and energy-saving constructions applying the concepts of building physics.

CIV219 Geology

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

Prerequisite - - -

Earth composition. Major types of rocks and deposits. Soil and rock cycle. Minerals identification and classification. Clay minerals. Principles of structural geology: joints, faults, folds and landforms. Subsurface exploration: techniques and tests. Influence of geological origin on composition and structure of soils. Substance and mass properties of rock: compressibility, shear strength and permeability. Rock as a construction material. Weathering and engineering aspects of transported soils: alluvial, colluvial, glacial, coastal, aeolian, lacustrine and residual soils. Soil description and engineering classification.

CIV222 Fluid Mechanics for Civil Engineers

4 Cr. Hrs. = (3 LCT + 2 TUT + 1 LAB + 0 OTH) – SWL = 210 – ECTS = 8

Prerequisite - - -

Introduction. Fluid continum. Fluid as a continuum. Fluid statics. Pressure. Pascals Law. Kinematics of fluid flow. Introduction. Types of Fluid Flow. Dynamics of fluid flow. Basic equn -Integration. Energy Equation (Conservation of energy). Dimensional Analysis and Hydraulic similitude. Dimensional Analysis. Pi Theorem.

CIV232 Soil Mechanics (1)

3 Cr. Hrs. = (**2** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CIV112**

Introduction to geotechnical engineering, earth crust, soil and rock,

MASH



minerals, soil formation. Index properties and classification of soils. Weight-volume relation- ships. Soil structures. Moisture-density relation- ships. Hydraulic soil properties and permeability. Principle of total and effective stresses. Stress distribution due to external loads and analysis of total settlements. Outline of theory of consolidation. Shear strength of soil.

CIV311 Finite Element Method

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

Prerequisite MAT211

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. = (**3** LCT + **0** TUT + **1** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **CIV113**

Design of reinforced concrete slabs: solid slabs, ribbed slabs, panelled beams slab, flat slabs (beamless slabs), stairs; Design of sections under eccentric forces; Characteristics of interaction curves and their application in design; Design and reinforcement details of concrete slender columns. Design of reinforced concrete frames. Types and details of joints in RC structures.

CIV318 Sustainability of Construction and Building Physics

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

Prerequisite - - -

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.

CIV321 Ground Improvement

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

Prerequisite - - -

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. Grouting: types, properties, and techniques. Criterion for choosing suitable technique for soil improvement.



CIV331 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.

CIV391 Field 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 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.

CIV415 Programming in Structural Analysis

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

Prerequisite - - -

higher-level Theory of Structures. Emphasis is placed upon students gaining a real understanding of elementary plastic theory of structures

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with application for slab analysis and design; dynamics of structures; stability of structural elements and structural systems. The topics are linked to requirements of Australian Standards. The course also revises the most common software used in the workforce for Advanced Structural Analysis.

CIV431 Problematic Soil and Rock Mechanics

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

Prerequisite - - -

Definition and Subject of the Discipline. Nature of the 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. Twodimensional 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 claywater fluid. Clayey soils. Creep in clayey soils.

CIV441 Cost Estimation and Project Control

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

Prerequisite - - -

Prestressed concrete concepts. Prestressing losses. Statically determinate prestressed structures. Design of end anchorage zone. Limit state of flexure and shear. Statically indeterminate prestressed structures. Bridge loading and load combinations. Bridge planning and systems. Design of concrete box-girder bridges. Basics of precast concrete.

CIV442 Management of Project Resources

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

Prerequisite - - -

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. Resources allocation and leveling.

CIV443 Insulation Works

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

Prerequisite - - -

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 the 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.

CIV454 Sustainable Development

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

Prerequisite - - -

Cracking limit state; Design of Water tanks: design of sections, elevated, ground and underground tanks, circular and rectangular tanks, calculation of internal forces. Design and reinforcement details of corbels and deep beams. Lateral resistance of buildings: earthquake and wind. Design and detailing of shear walls and RC cores. Introduction of Prestressed concrete structures.



CIV455 Control of Industrial Pollution

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

Prerequisite - - -

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.

CIV461 Risk and Safety Management

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

Prerequisite - - -

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. 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 - - -

-Methods of contractors' selection, tender types. Construction contracts basics and definitions. Types of construction contracts; cost-based contracts and Price given in advance contracts. 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.

CIV491 Graduation Project 1

3 Cr. Hrs. = (**1** LCT + **0** TUT + **6** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite - - -

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 - - -

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.



Department of Chemical Engineering

CHG231 Separation Processes

4 Cr. Hrs. = (**3** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **210** – ECTS = **8** 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

4 Cr. Hrs. = (**3** LCT + **2** TUT + **1** LAB + **0** OTH) – SWL = **210** – ECTS = **8** 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. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – 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 equation - contact angles, wetting and spreading. Zisman plots - critical surface tension for

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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, dves, 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, vield, 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 Applied Chemistry

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

Prerequisite - - -

Physical chemistry: Gases, Liquids, Solids. Thermochemistry, Thermodynamics, Solutions, Ionic equilibrium, Electrochemistry. Applied chemistry: Corrosion of metals, Alloys, Water chemistry and treatment, Chemistry of cements, Chemistry of polymers, Fuels and Combustion, Environmental pollution and its control.

CHG352 Environment and Safety Management/P

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

Prerequisite - - -

Understand in detail about Environment, Health & Safety (EHS) Management. Explain the Objectives of Environment, Health & Safety Management. Describe the Types of EHS Management Plan. Explain about the Elements of EHS Management. Explain the Types of EHS Inspections. Describe the Strategies for EHS Management. Explain in detail about the EHS Management Process. Explain Ways of Effective EHS Program.

CHG353 Fuel Processing

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

Prerequisite - - -

equipment and processes primarily focused on the handling of fuel and its associated liquids. Main topics covered include fundamentals, fuel characterization, phase behavior, vapor-liquid equilibrium, basic thermodynamics, and water-hydrocarbon behavior, as well as all the key equipment to process fuel.



CHG357 Advanced Reaction Engineering

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

3 Cr. Hrs. = (**3** LCT + **1** TUT + **1** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CHE221**

Teaching and Learning Methods.

CHG371 Renewable Energy Resources Interfacing

2 Cr. Hrs. = (2 LCT + 1 TUT + 1 LAB + 0 OTH) - SWL = 135 - ECTS = 4

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 + **2** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

"Buckley Leverett displacement. One dimensional water oil displacement. Model components, types, and modern gridding methods. Two dimensional displacement. Grid orientation and refinement. Routine and special core analysis. Single phase up-scaling of geo-cellular model parameters".

CHG422 Petroleum Economics

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

Prerequisite - - -

"Cash Flow Components and Economic Indicators. Upstream Petroleum Economics. Midstream and Downstream Petroleum Economics. Managing and Mitigating Uncertainty and Risk. Sensitivities, Simulations and Decision Analysis. Valuing Petroleum Assets, Portfolios and Companies.

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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. = (**3** LCT + **1** 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. = (**3** LCT + **1** 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.

CHG457 Petroleum Refinery Engineering

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

Prerequisite - - -

Oil Refineryis concerned with the study of crude oil refining, natural separation methods, distillation, absorption, cracking, coking, waxes, improvement, fuel, lubricants, flow sheets, plant design, and economics.

CHG458 Principles of Enhanced Oil Recovery

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

Prerequisite - - -

fundamentals of miscible, chemical and thermal oil recovery methods. Enhanced Oil Recovery (EOR) projects are usually handled by multidisciplinary teams. This course targets technical staff not involved in detailed engineering design and non-technical staff involved in the legal, financial and decision-making aspects of EOR projects.

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.

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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 (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.


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. Overview of world art and architecture - Ancient Egyptian history of art and architecture - Greek and Roman history of art and architecture - Early Christian history of art and architecture in the West - Romanesque and Gothic history of art and architecture - Byzantine- Coptic history of art and architecture - Islamic history of art and architecture - 20th century history of art and architecture - Islamic history of art and architecture - Modern Art - Modern architecture - Modern Egyptian history of art and architect.

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 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.

ARC121 Architectural Studio 1

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

Prerequisite - - -

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.

ARC131 History and Theory of Ancient Architecture

2 Cr. Hrs. = (1 LCT + 2 TUT + 0 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite SPD 111

The course focuses on studying the factors and features for 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 ARC142

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.

ARC141 Introduction to Building Systems

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

Prerequisite - - -

Environment and human needs. Construction methods: Masonry, Concrete, Timber, Steel, building elements: walls, openings, floors, roofs. Introduction to Climate-responsive design, Lighting, Acoustics and Ventilation.

ARC212 Interior Design and Modern Art

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

Prerequisite - - -

This course is meant to direct the students throughout the process of

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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.

ARC222 Architectural Studio 2

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

Prerequisite - - -

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.

ARC223 Architectural Studio 3

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

Prerequisite - - -

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.

ARC233 History of Islamic Architecture

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

Prerequisite - - -

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.

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 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.

ARC235 History and Theory of City Planning

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

Prerequisite - - -

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 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 appliances placing. Gas installation for buildings, gas service pipes....

ARC242 Sanitary Installations

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

Prerequisite - - -

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 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 appliances placing. Gas installation for buildings, gas service pipes....

ARC271 Introduction to Urban Design

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

Prerequisite ARC012

The course provides an overview of the design of urban areas. Students learn theories and principles of urban design and issues concerning

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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 - - -

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.

ARC325 Environmental Design Studio 1

3 Cr. Hrs. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ARC216** - **ARC274**

This course is a practical application of the environmental design elements that the students studied in the Environmental Studies course. The development of architectural concept, character and language is of particular importance. 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. = (**2** LCT + **4** TUT + **0** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **ARC321**

This course is a practical application of the environmental design elements that the students studied in the Environmental Studies course. The development of architectural concept, character and language is of particular importance. 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.

ARC335 20Th Century Egyptian Architecture and Arts

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

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.

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 - - -

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.

ARC344 Working Drawing Studio 2

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

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.

ARC355 Illumination and Ventilation in Buildings

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

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.

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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 - - -

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 on design projects.

ARC373 Urban Planning

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

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 on design projects.

ARC375 Community DevelopmentandParticipatory Design

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

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 on design projects.

ARC381 Professional Practice and Legislations

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

Prerequisite ARC483

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

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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 on 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 - - -

This course is a practical application of the environmental and technological design elements that the students studied in the Environmental Studies and building technologies courses. The development of architectural concept, character and language is of particular importance. Course material combined with an understanding of appropriate environmental and technological systems. Environmental awareness and sustainability are studied and addressed throughout the course and within given projects. Smart systems applications in design.

ARC427Environmental Design and Technology Studio4 Cr. Hrs. = (2 LCT + 4 TUT + 0 LAB + 0 OTH) - SWL = 210 - ECTS = 8

Prerequisite ARC322A - RC343

This course is a practical application of the environmental and technological design elements that the students studied in the Environmental Studies and building technologies courses. The development of architectural concept, character and language is of particular importance. Course material combined with an understanding of appropriate environmental and technological systems. Environmental



awareness and sustainability are studied and addressed throughout the course and within given projects. Smart systems applications in design.

ARC437 Documentation of Heritage Buildings

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.

ARC438 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.

ARC439 Restoratio and Upgrading of Heritage Buildings

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.

ARC458 Feasibility Studies and Project Management

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

Prerequisite - - -

Strategic marketing planning, action planning, developing and promoting effective content marketing. Specific techniques of branding, testing, analytics and attribution.

ARC474 Housing

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

Prerequisite - - -

Strategic marketing planning, action planning, developing and promoting effective content marketing. Specific techniques of branding, testing, analytics and attribution.

ARC476 Sustainable Urbanism

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.

ARC477 Urban Sociology

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.

ARC478 Sustainable Landscape

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.



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.

ARC484 Advanced Building Systems

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

Prerequisite - - -

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.

ARC485 Applications of Gis

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

Prerequisite - - -

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.

ARC491 Graduation Project 1

3 Cr. Hrs. = (**1** LCT + **2** TUT + **3** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **ARC391, ARC492**

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.

ARC492 Graduation Project 2

4 Cr. Hrs. = (**2** LCT + **3** TUT + **3** LAB + **1** OTH) – SWL = **225** – ECTS = **8** Prerequisite **ARC484ARC494**

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 environmental architecture & building technology.



كلية علوم وهندسة الحاسبات

FACULTY OF COMPUTER SCIENCE & ENGINEERING

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Department of Computer Science & Engineering

جامعة العلمين الدولية

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CSE011 Computer Skills

0 Cr. Hrs. = (**1** LCT + **0** TUT + **3** 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 + 1 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 + 1 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. = (**3** 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. = (**3** 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. Creation, implementation, and reuse of application programming interfaces API. Operators, Operator overloading, delegates, and events.

CSE081 Digital Branding

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

Prerequisite - - -

Compare and contrast marketer control versus consumer control.

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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 owned media decision making. Examine a range of owned media assets and determine their value. Investigate brand engagement and why is it 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. = (**3** 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. Different Searching and Sorting and Algorithms.

CSE112 Design & Analysis of Algorithms

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

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, Superposition theorem, Thevenin, Norton theorems, loop analysis. Time Varying Signals: The sinusoid, amplitude, phase, frequency. Response of L, C R to ac. Phase relationships. ac Circuits: Phasor representation. Complex number notation. Analysis of ac circuits. Impedance, admittance, resonance. Power factor and power factor correction. Transient Response: First order R L and R C response. Stored energy. Time constants. Electric Machines: Force on a current carrying wire in a magnetic field, equivalent circuit and torque speed relationship of dc machines, torque speed relationship for induction, synchronous and stepper motors. Basic Diode Behavior: large and small signal diode models. Diode Applications: Clipping, clamping, voltage doublers, voltage multipliers, rectifiers, simple smoothing, ripple, regulators, zener diode. Transistors: BJT, JFET and MOSFET characteristics, similarities and differences. Switching Applications: on-state and off-state behavior, drive considerations for BJT and (power) MOSFET, inductive loads and techniques for controlling back emf, switching AC power, bridge topologies for motor control. Amplifier Applications: amplification, biasing, designing dc conditions. Small signal ideas, generation of simple model (gm based), equivalent circuits, coupling and decoupling, mid-frequency examples. Operational Amplifiers: advantages of - ideal performance. Basic circuit shapes, idea of feedback, follower circuits, virtual earth circuits, effect of finite gains. Use of superposition to handle multiple source amplifiers.



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Al Alamein

CSE131 Logic Design

3 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **ELE113**

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. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CSE131**

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.

CSE211 Web Programming

3 Cr. Hrs. = (**3** LCT + **0** 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.

CSE212 Theory of Computation & Compilers

3 Cr. Hrs. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 180 - ECTS = 6

Prerequisite CSE 014

Finite automata, Regular languages, converting DFA to NFA, Context-

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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.

CSE221 Database Systems

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

Prerequisite - - -

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.

CSE233 Operating Systems

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

Prerequisite - - -

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 studies.



CSE241 Security of Information Systems

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

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(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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSE241**

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.

CSE251 Software Engineering

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

Prerequisite - - -

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.



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CSE261 Computer Networks

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

Prerequisite - - -

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.

CSE271 Introduction to Parallel Computing

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

Prerequisite CSE112

Introduction to Parallelism. Parallel Programming. Parallel Architectures. Parallel Algorithms. Parallel Applications. Other Parallel Models.

CSE272 Embedded Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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. Interfacing techniques. Interfacing requirements. A typical microcontroller system is utilized in this course with typical software-

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based applications. Interfacing with USB, I2C, SPI, CAN, LIN.

CSE273 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 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. = (**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.



CSE311 Design of Compilers

3 Cr. Hrs. = (**2** LCT + **1** TUT + **1** 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. Byte-codes. Lexical analysis: interface with input, parser and symbol table, token, lexeme and patterns. Syntax 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. = (**3** LCT + **0** 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 Android Development

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CSE014**

Introduction to Android. Developing for Android: My First Android Application. Android Activities and UI Design. Advanced UI

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Programming. Toast, Menu, Dialog, List and Adapters. Multimedia Programming using Android. Database – SQLite. Location Based Services and Google Maps. Android Development using other Tools. Testing and Debugging Android Application. Installation of apk.

CSE314 IOS Development

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

Prerequisite - - -

iPhone and iPad Device Anatomy. iOS Architecture and SDK Framework. iOS and SDK Version Compatibility. Apple iOS Developer Program. Xcode.

CSE315 Discrete Mathematics

3 Cr. Hrs. = (2 LCT + 2 TUT + 0 LAB + -1 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 its Applications. Trees and its Applications. Languages and Grammars. Finite-State Machines. Automata and Language Recognition. Turing Machines.

CSE322 Big Data Analytics 1

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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 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. = (**3** LCT + **0** TUT + **3** 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 constrains, distributed database design, queries, optimization, concurrency and reliability control. XML, semistructured, federated, and Internet databases. Data warehousing. Introduction to data mining.

CSE344 Cyber Security

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite CSE242

This course provides an overview of Cyberspace, defines the scope of Cybersecurity, and addresses information classification and system compartmentalization. Course includes an appreciation of 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,

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and/or vendors.

CSE352 Systems Analysis & Design

3 Cr. Hrs. = (3 LCT + 0 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.

CSE362 Industrial Networks

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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 IPv. Data 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. = (**3** LCT + **0** TUT + **3** 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.

CSE374 Parallel programming

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

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static systems. Distributed set operations: distributed selection, distributed sorting. Stable properties detection. Continuous computations. Computing in 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.

CSE376 Real Time & Embedded Systems Design

3 Cr. Hrs. = (**3** LCT + **1** TUT + **2** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSE272**

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).

CSE382 Computer Graphics

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSC281**

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. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 180 - ECTS = 6

Prerequisite CSE281

Local Feature Extraction. Projective Geometry. Stereo Vision. Point Matching. 3D Reconstruction. Motion Detection. Object Recognition.

CSE424 Data Warehousing

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

Prerequisite 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **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. = (3 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 180 - ECTS = 6

Prerequisite 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.

CSE428 Data Analytics

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

Prerequisite - - -

An introduction to the field of data analysis, including its positioning in the wider world and the main methods and concepts of both its statistics and machine learning disciplinary facets.

CSE445 Selected Topics in Information Security

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSE 241**

Topics are selected from different areas in Information Security that are not covered in the description of the courses listed in the curriculum.

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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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSE 261CSE 241**

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

Prerequisite CSE241

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. = (**3** LCT + **0** TUT + **3** 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,

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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. = (3 LCT + 0 TUT + 3 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 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 the modern computing facilities in building information systems.

CSE454 Advanced software Engineering'

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

Prerequisite CSE251

Topics which are not included in the curriculum and seems to be needed should be suggested as an elective course by the Program Administration Council and the Faculty Council.

CSE464 Internet of Things

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **CSE363**

Topics which are not included in the curriculum and seems to be needed should be suggested as an elective course by the Department Faculty Council.

CSE466 Selected Topics in IoT

3 Cr. Hrs. = (**3** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **165** – ECTS = **6** Prerequisite **CSE465**

Topics which are not included in the curriculum and seems to be needed should be suggested as an elective course by the Department Faculty

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Council.

CSE467 Client/Server Technologies & Applications 3 Cr. Hrs. = (3 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 165 – 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 originated 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.

CSE475 Distributed Information systems

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

Prerequisite CSE251

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.



CSE477 Selected Topics in embedded systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite CSE272

Topics which are not included in the curriculum and seems to be needed should be suggested as an elective course by the Department Faculty Council.

CSE478 High Performance computing

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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 GPUbased systems. Applications.

CSE479 Selected Topics in high performance computing

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite CSE478

Topics which are not included in the curriculum and seems to be needed should be suggested as an elective course by the Department Faculty Council.

CSF484 Interactive Multimedia

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

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Computer Games theory CSE485

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

Prerequisite CSE383

مشروم إنشاء الجافعات المصرية الأهلية

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

Prerequisite 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **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. Geospatial 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 sound track 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 + **0** LAB + **0** OTH) – SWL = **120** – 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.

CSE494 Graduation Project 2

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

Prerequisite - - -

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

مشروم إنشاء الجامعات المصرية الأهلية



Department of Artificial Intelligence Science & Engineering

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

AIE111 Artificial Intelligence

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

Prerequisite CSE111

Knowledge representation and organization, Search strategies & inference methods, and. Al problem solving tools and techniques. Agent Architecture, Multi-Agent Systems, Reasoning with uncertain or incomplete knowledge;

AIE121 Machine Learning

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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.

AIE212 Knowledge-based Systems

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

Prerequisite AIE111

Propositional and predicate logic, non-classical logic, computational intelligence (recap). Knowledge based systems (KBS): information 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 **MCS212**

Linear Algebra and Matrices. Probability Theory Review. Linear



Programming. One-dimensional Search Techniques. Gradient-based Techniques. Quasi-Newton Methods. Constrained Optimization. Nonlinear Constrained Optimization.

AIE231 Neural Networks

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

Prerequisite CSE111

Overview of NLP. Statistical Machine Translation. Word Alignment Models for Statistical MT. Machine Translation: Word Alignment, Parallel Corpora, Decoding, Evaluation. Modern MT Systems (Phrasebased, Syntactic). N-Grams, Final Project Discussion. Syntax and parsing. Competitive Grammar Writing. Dependency Parsing. Coreference Resolution. Computational Semantics.

AIE314 AI-based programming

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** 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 (mixedinteger, 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 + 0 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. = (3 LCT + 0 TUT + 3 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.

AIE323 Data Mining

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

Prerequisite 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **AIE323AI241**

Basic algorithms: the classical algorithms for text analytics, such as preprocessing, similarity computation, topic modelling, matrix factorization, clustering, classification, regression, and ensemble analysis. Domainsensitive 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. Sequencecentric 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite 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.

AIE417 Selected Topics in Artificial Intelligence 1 3 Cr. Hrs. = (3 LCT + 0 TUT + 3 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. = (3 LCT + 0 TUT + 3 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite - - -

Knowledge representation and organization, Search strategies & inference methods, and. Al problem solving tools and techniques. Agent Architecture, Multi-Agent Systems, Reasoning with uncertain or incomplete knowledge;

AIE424 Intelligent Decision Support Systems

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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 achieving a profound understanding of Intelligent Decision Support Systems in terms of its 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. = (**3** LCT + **0** TUT + **3** 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 Recommender Systems.

AIE426 Decision Making under Uncertainty

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6** Prerequisite **AIE323**

The course will cover computational methods for solving decision 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. = (**3** LCT + **0** TUT + **3** 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. Nonparametric 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. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** LAB + **0** OTH) – SWL = **180** – ECTS = **6**

Prerequisite AIE351

. Robots: Beyond the computer metaphor in cognitive science. Varieties



of embodiment. Evolution of robots. Developmental robotics. Learning intrinsic environment representations from sensory-motor interactions. Designing sociable 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. = (**3** LCT + **0** TUT + **3** 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.

AIE454 Robot Kinematics & Dynamics

3 Cr. Hrs. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** 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. = (**3** LCT + **0** TUT + **3** 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 humanrobot 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. = (**3** LCT + **0** TUT + **3** 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 the 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 + **0** LAB + **0** OTH) – SWL = **120** – 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.

AIE494 Graduation Project 2

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

Prerequisite - - -

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.



Department of Biomedical Informatics

BMD241 Human physiology

3 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite **BIS241**

Basic physiological functions including circulatory system, digestive system, execration 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.

BMD311 Introduction to Bioinformatics

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

BMD312 Clinical Informatics

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

BMD351 Biomedical Data Acquisition

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

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BMD361 Biomedical Statistics

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

BMD414 Selected Topics in Biomedical Informatics 1: Data Analysis &Visualization

3 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite 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.

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BMD415Selected Topics in Biomedical Informatics 2:
Data Mining & Machine Learning

3 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **AIE121AIE323**

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. = (3 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 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. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6**

Prerequisite 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. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – ECTS = **6** Prerequisite **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. = (3 LCT + 2 TUT + 2 LAB + 0 OTH) – SWL = 195 – ECTS = 6

Prerequisite 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.

BMD462 Bio-inspired Computing

3 Cr. Hrs. = (**3** LCT + **2** TUT + **2** LAB + **0** OTH) – SWL = **195** – 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. = (*0* LCT + *0* TUT + *0* LAB + *0* OTH) – SWL = *90* – 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. = (0 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 6

Prerequisite - - -

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.





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Department of Geological sciences

GES111 Physical Geology

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

Prerequisite - - -

This course covers topics including, Internal structure of the earth, Minerals, rocks and rock cycle, Primary and secondary geologic structures, Weathering and erosion, External geologic processes (wind, torrential rain, rivers, seas and oceans, groundwater, glaciers), Fast internal geologic processes (earthquakes and igneous activity), Slow internal geologic processes (isostasy and plate tectonics) and their relationship to orogenic and epeiorogenic movements, Interpretation of topographic contour maps and identification of different geomorphic features, Drawing outcrops of horizontal and inclined strata on geologic maps, Drawing outcrops of folded and faulted strata on geologic maps, Construction of geologic cross sections.

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.

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

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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 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.

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 Stedia Rode 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.

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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, geosynclinal versus plate tectonic model classifications. The basement rock units of Egypt, Gneisses and migmatites, ophiolites-melanges, metasediments, arc-metavolcanics, arc-granitoids, Dokhan volcanics, Hammamat Sediments, Felsites, Younger gabbros, Younger granites and postgranite 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 Equpt. 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,

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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 work on applying 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



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investigators.

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 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.



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.



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 directly 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.



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Department of Biological sciences

جامعة العلمين الدولية

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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 mater. 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.

BIO211 Nucleic Acid Synthesis and Metabolism

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

Prerequisite - - -

Structure of a 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.

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. Behaviour of vertebrates. Specialization of vertebrates.

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 leading from spores to seeds and pollen. The evolution of flowering plants. The

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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 - - -

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.

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 sequence determination. Protein synthesis. Post translational modification. Protein targeting. Identification of phosphorylated proteins. Characterization of multi-protein complexes. Protein-protein interactions and quantitative proteomics. Proteomics and the study of diseases.

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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.

BIO319 Journal Club

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

Prerequisite - - -

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 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.

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

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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.

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, mainly 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-seg and microarrays: GEO, Array Express, MeV, Gene-Pattern; matrix processing/decomposition, similarity/distance measures, metaanalysis/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-

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test. Contingency tables. Chi-square test. Analysis of variance. Multiple range analysis. Regression Analysis. Correlation Analysis.

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.

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, 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.

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 directly 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.



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.

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.



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, arenas, 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. pathdependent 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



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.

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 mechanismfocused 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 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.

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 including 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-totime). 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 Equilbria, 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.

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.

CHE311 Molecules and Reactions

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

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.

CHE318 Scientific Writing

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

Prerequisite - - -

How to write a thesis, and to 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 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.

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 - - -

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: Photosubstitution 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 - - -

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.

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 -Drav the structure of Palvtoxin 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 has to download a spectrum from SDBS and report proton and carbon spectra in JACS format. Plagiarism and scientific integrity -how to check for copycatsuse 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 a 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 phosphorescence spectroscopy, Fluorescence. 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.

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.

CHE341 Reactivity

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.

CHE342 Statistical Thermodynamics

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

This course will cover the subject of quantum and classical statistical thermodynamics. The course will mainly focus on systems in equilibrium but some limited non-equilibrium topics such as time correlation

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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 other. Several textbooks on this topic are available. We will not follow one particular book in this course; however, an abbreviated list of text books 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 very 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



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.

CHE411 Synthesis and Pericyclic Reactions

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

Prerequisite - - -

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 about 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 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.

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 - - -

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, multielectron 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. 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 the efficiency in energy usage.

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 the Faculty Internship Advisor, Work-site Supervisor, and the student. Internship placements are directly 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.



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.

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 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. Overpotentials. Kinetically 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 Homogeneous and heterogeneous electrocatalysis. corrosion. 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: knowledgebased, 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 timeindependent perturbation theory, the semi-classical WKB 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.



PHY111 Physics I

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

Prerequisite - - -

This course starts with the basic 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 basic of classical mechanics and its

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extension into other area of physics. Classical Mechanics topics are: Electric Fields, Gausss Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Direct Current Circuits, Magnetic Fields, Sources of Magnetic Field, Faradays Law, Inductance, Alternating Current Circuits, Electromagnetic Waves, The Nature of Light and the Laws of Geometric Optics, Image Formation.

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-Nano-technology: 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 its 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.

PHY281 Biophysics

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **PHY111PHY211**

. Structure and function of plasma membrane / introduction. Transport across the cell membrane / Transport of ions through the cell membrane Osmotic fragility test. Membrane potential. action potential. Molecular theory of muscle contraction. Introduction to electrophysiology. Electrical changes during muscle contraction. Excitability changes during muscle contraction. Electrocardiography. Electroencephalography.

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 EMWaves, the basic 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 derWaals 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. Boltzman 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,

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paramagnetic spins. Canonical ensemble, Boltzman 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.

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 onedimensional 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 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 PHY311PHY313CHE141CHE221

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.

PHY322 Solid State Physics

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. 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 CHARACERISTICS. 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.

PHY341 Electronics I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite PHY 325

. 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 = **6** Prerequisite **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 &

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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 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, Torgue 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 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 Suns-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, Pyrheliometer, 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 the 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 issues for biogas energy, Policy and market interventions (subsidies, credits, carbon markets etc.), Environmental Aspects of Bio-Energy Conversion. Muncipal & 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 the 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,

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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.

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 Prizing, Smart Appliances, Automatic Meter Reading(AMR), 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 the 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 solartransmitting coating on a blackbody-like absorber. Temperature Range

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of Absorber Materials. Mid-temperature selective surfaces (100°C < T400°C). High-temperature selective surfaces (T>400°C).

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 directly 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: Flatplate 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: Bio-Mass: 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 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 the 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

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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 Ecbc

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

Prerequisite - - -

The course provides an overview of the 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 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.



MAT111 Mathematics I

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** 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. = (**2** LCT + **0** TUT + **2** 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.

MAT131 Statistics

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

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.

MAT211 Mathematics Ili

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. = (4 LCT + 0 TUT + 1 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

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Integration.

MAT215 Mathematics of Finance

3 Cr. Hrs. = (**3** LCT + **0** TUT + **1** 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 in 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

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

Prerequisite - - -

This course takes a non-calculus approach to probability and statistics; Topics include permutations and combinations, Events, Independence, Random variables, Measures of location and variability, Joint and conditional probability. The course also introduces descriptive and inferential statistics, including graphical methods and data description.

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 - - -

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.

MAT313 Differential Equations and Numerical Analysis

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

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, 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.





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MASH



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 - - -

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 - - -

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 - - -

The course will include gross anatomy, structure and properties of biological substances, cell biology, basic tissues, is physiology of body symptoms, locomotor system, detailed anatomy of lower limb, upper limb, spine and trunk, head and neck is 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**

The course will contain 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.



BMS103 Anatomy and Histology (for Pharmacy)

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

Prerequisite - - -

Anatomy: Autonomic Nervous System. Central Nervous System. Cardiovascular System. Musculoskeletal system (bones and muscles). Histology: Histology of different organs and cell.

BMS111 Foundations of Normal Human Structure

6 Cr. Hrs. = (60 LCT + 0 TUT + 30 LAB + -82 OTH) – SWL = 300 – ECTS = 11

Prerequisite - - -

Anatomical terminology & body tissues (skin, bones, joints, muscles, nerves & vessels): 10 lectures – five SGDs – four labs. General embryology (gametogenesis – 1st week – 2nd week – 3rd week – derivatives of germ layers – fetal membranes – teratogenic agents): 10 lectures – five SGDs – four labs. Regional topographic anatomy (head &neck – thorax – abdomen & pelvis – limbs): 10 lectures – 5 SGDs – six labs.

BMS112 General Anatomy for Dental Students

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

Prerequisite - - -

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

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 - - -

Introduction 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.



BMS115 Anatomy 1 (for physiotherapy)

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

Prerequisite - - -

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 = **6**

Prerequisite BMS115

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 - - -

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 cell (organelles & inclusions). Tissues of the body: epithelial, connective tissue, muscular and nervous tissues. Vascular system.

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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 - - -

Micro techniques & microscopy. Membranous cell organelles. Nonmembranous 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 - - -

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 = 4 Prerequisite BMS124

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. BASIC SKIN STRUCTURES. Epidermis, dermis, appendages, Glands. Histology of

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skin wound healings.

BMS131 Foundations of Body Function & Biochemistry

5 Cr. Hrs. = (**45** LCT + **0** TUT + **30** LAB + **-68** OTH) – SWL = **255** – ECTS = **9** Prerequisite - - -

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. Types of blood flow. Bernolli's principle. Vascular compliance and Laplace law. General organization of the autonomic nervous system (ANS). Function of the sympathetic and parasympathetic nervous system. Neurotransmitter & receptors of adrenergic and cholinergic system. Regulation of the ANS by higher centres. Applied physiology of the ANS. Mode of transmission and neurotransmitter release at synaptic junctions. Outline EPSP, IPSP and postsynaptic and presynaptic inhibition. Recognize the properties of synaptic transmission and types and action of neurotransmitters.

BMS132 Physiology for Dental Students (1)

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

Prerequisite - - -

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.

BMS133 Physiology for Dental Students (2)

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite BMS132

Autonomic nervous system. Nerve & muscle. 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 - - -

Cell structure and function, excitation & conduction, fluid & acid base balance, energy balance & temp 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 nursing)

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

Prerequisite - - -

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.



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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 - - -

Cell Structure. Epithelia and glands. Connective tissue, ligaments and tendons. Cartilage and muscles. Nerve tissue. Skin 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**

cardiovascular system. respiration. kidney and its function. 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 + -27 OTH) – SWL = 105 – ECTS = 4

Prerequisite - - -

Protein chemistry & amino acids. Enzymes. Carbohydrate chemistry. Lipids chemistry. Introductory overview of metabolism (2 lectures).

BMS143 Biochemistry for Dental Students

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

Prerequisite - - -

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 - - -

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 - - -

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 - - -

Biochemistry of Water. Carbohydrates chemistry I. Carbohydrates chemistry II. Steroids. Bile acids. Steroid hormones. Amino acids I. Amino acids II. Biochemistry of protein I. Biochemistry of protein II.



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BMS148 Biochemistry 2 (for physiotherapy)

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4 Prerequisite BMS147

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 + -83 OTH) – SWL = 255 – ECTS = 9 Prerequisite BMS121

Introduction to Pathology, Cell Injury, Cell Death & Adaptation. Inflammation and Tissue Repair. Hemodynamic Disorders and Thromboembolism. Neoplasia.

Foundations of Pharmacology BMS161

5 Cr. Hrs. = (60 LCT + 0 TUT + 15 LAB + -69 OTH) - SWL = 240 - ECTS = 9 Prerequisite BMS131

Pharmacokinetics. Pharmacodynamics. Adrenergic system. Cholinergic system. Autacoids. Cancer chemotherapy.

General Pharmacology (for nursing) BMS162

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

Prerequisite BMS134

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. = (39 LCT + 0 TUT + 22 LAB + -56 OTH) - SWL = 166 - ECTS = 6 Prerequisite - - -

General bacteriology – Virology – Mycology (40%). General parasitology: Helminths, Protozoa & Arthropods (20%). Pathology of infections (20%). Chemotherapy (20%).

BMS172 Foundations of Immunology

2 Cr. Hrs. = (30 LCT + 0 TUT + 6 LAB + -33 OTH) - SWL = 102 - ECTS = 4

Prerequisite - - -

Basic Immunology. Overview of the immune system. Tissues & Cells of the immune system. Innate immunity. Immunogens, antigens and selfmolecules. 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.

BMS174 Microbiology (for nursing)

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

Prerequisite - - -

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 + **-93** OTH) – SWL = **258** – ECTS = **9** Prerequisite **FOUNDATIONS 1ST YEAR**

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.

BMS202 Locomotor System & Integument Module

8 Cr. Hrs. = (91 LCT + 0 TUT + 50 LAB + -131 OTH) – SWL = 397 – ECTS = 15

Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (upper limb & lower limb). Histology (bone, cartilage, muscle & nerve, skin). Physiology (muscle & nerve). Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS203 Respiratory System Module

6 Cr. Hrs. = (74 LCT + 0 TUT + 24 LAB + -91 OTH) – SWL = 290 – ECTS = 11

Prerequisite FOUNDATIONS 1ST YEAR

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Anatomy (nose, sinuses, trachea, chest wall, pleura & lungs). Histology. Physiology of respiration. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS204 Cardiovascular System Module

8 Cr. Hrs. = (102 LCT + 0 TUT + 33 LAB + -125 OTH) – SWL = 393 – ECTS

= **15**

Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (pericardium & heart – arteries - veins). Histology. Physiology. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

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 program should include 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. The human neuroanatomy will be introduced via pathological cases and will be illustrated by 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 on upper limb biomechanics.

BMS211 Neuroanatomy (for physiotherapy)

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

Prerequisite - - -

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**

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 Pharaynx and Larynx. Muscular and vascular structure.

BMS213 Anatomy for Art 2

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

Prerequisite - - -

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 & Pathophysiology (1) (for Pharmacy)

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

Prerequisite BMS101

Physiology: Autonomic Nervous System. Central Nervous System. Blood. Introduction to pathophysiology foundations, Common disease categories & terminology. Cell injury & inflammation. Vascular and

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haematological 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

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 digestive system & Liver.

BMS234 Neurophysiology 1 (for physiotherapy)

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

Prerequisite - - -

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

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

Introduction to metabolism- Bioenergetics. Tricarboxylic acid cycle. Glycolysis- HMP. Carbohydrates metabolism: Glycogen metabolismgluconeogenesis. Hyperglycemic and hypoglycemic coma. lipolysis, lipogenesis. cholesterol metabolism- ketone body metabolism, lipoproteins metabolism. Insulin and diabetes. Hepatic encephalopathy.

BMS242 Human Genetics (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

linkage and explain why linkage interferes with independent assortment. parental and recombinant phenotypes. crossing ove rand 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

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 principal, 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 - - -

Concepts of cellular injury. Inflammation and repair. Circulatory disturbances. Pulmonary disturbances. Immunity and hypersensitivity.

BMS252General Pathology for Dental Students (2)2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) - SWL = 105 - ECTS = 4PrerequisiteBMS251

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 - - -

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

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 - - -

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 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, testing 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

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite BMS271

Bacteria: Oral microbial flora, dental plaque, biofilm formation. Staphylococci & Methicillin resistant staph aureus. Streptococci & pneumococci. Neisseria & Corynebacterium diphtheria. Mycobacteria – Dental unit waterline contamination. Spirochetes. Anerobic 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 + **-146** OTH) – SWL = **446** – ECTS = **17**

Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (CNS + head & neck). Histology. Physiology (sensory, motor & higher functions). Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS302 Special Senses Module

2 Cr. Hrs. = (29 LCT + 0 TUT + 11 LAB + -37 OTH) – SWL = 102 – ECTS = 4 Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (eye, ear, organs of smell & taste). Histology. Physiology of vision, hearing, smell & taste. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS303 Endocrine System & Metabolism Module

3 Cr. Hrs. = (**43** LCT + **0** TUT + **11** LAB + **-50** OTH) – SWL = **152** – ECTS = **6** Prerequisite **FOUNDATIONS 1ST YEAR**

Anatomy (pituitary, thyroid, parathyroid, adrenal, pancreas). Histology. Physiology. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS304 Digestive System & Nutrition Module

8 Cr. Hrs. = (108 LCT + 0 TUT + 37 LAB + -134 OTH) – SWL = 401 – ECTS = 15

Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (Mouth, salivary glands & pharynx + Digestive tracts + liver & pancreas). Histology. Physiology. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.



BMS305 Urogenital System Module

7 Cr. Hrs. = (96 LCT + 0 TUT + 31 LAB + -118 OTH) – SWL = 349 – ECTS = 13

Prerequisite FOUNDATIONS 1ST YEAR

Anatomy & embryology (urinary + male- & female genital). Histology. Physiology. Biochemistry. Pathology. Microbiology/ immunology. Parasitology. Pharmacology.

BMS311 Anatomy for Art 3

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

Prerequisite - - -

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 - - -

Applied nutrition curriculum definitions. Nutritional terminology. Nutrients and energy. Diet planning. Food pyramid. carbohydrate. Fat. Protein. Water soluble vitamins. Nutrients and energy.

BMS351 Pathology (for Pharmacy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **6** Prerequisite **BMS232**

Introduction to pathology and cellular injury. Cellular adaptations and cellular ageing. Immunopathology and amyloidosis. Infectious diseases.

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Inflammation and healing. Circulatory disturbances. Neoplasia. Haematopoietic system and disorders of erythroid series. Disorders of platelets. Basic transfusion medicine and disorders of leucocytes. Lymphoreticular tissues.

BMS352 Pathology 1 (for physiotherapy)

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

Prerequisite - - -

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**

. 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 - - -

Drug receptors dynamics and pharmacokinetics. Drugs Affecting the

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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

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.

BMS371 Parasitology (for Pharmacy)

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

General introduction to parasitology. Intestinal protozoa: Entamebea histolytica, Balantidium coli, Trichomonas vaginalis, Giardia lamblia. Blood protozoa: Leishmania, Trypanosome, Plasmodium and Toxoplasma; pathogensis, life cycles, treatment, prevention and control. Trematodes: Fasciola and Heterophusheterophus; Liver, intestinal flukes: etiology, pathogensis, life cycles, treatment, prevention and control. Blood flukes: Schistosmiasis, etiology, pathogensis, life cycles, treatment, prevention and control. Blood flukes: Schistosmiasis, etiology, pathogensis, life cycles, treatment, prevention and control & Snails. Cestodes: etiology, pathogensis, life cycles, treatment, prevention and control. Intestinal and tissues nematodes

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(etiology, pathogensis, life cycles, treatment, prevention and control). 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.

BMS431 Electrodiagnosis (for physiotherapy)

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

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.

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

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.



Department of Clinical Sciences

CMS111 Behavioral Science

1 Cr. Hrs. = (15 LCT + 0 TUT + 0 LAB + -14 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Diagnostic classification. Substance use disorders. Human sexuality. Cognitive, conversion and dissociative disorders. Biological therapy. Psychotherapy. Sociology and medicine. Mood, anxiety and somatoform disorders. Psychosomatic medicine and coping with physical illness. Schizophrenia and psychoses. Clinical assessment of mental patient. Ethical and legal issues. Child mental disorders. Aggression and violence.

CMS112 Foundations of Clinical Practice: History & Examination / Basic Life Support

1 Cr. Hrs. = (0 LCT + 0 TUT + 30 LAB + -28 OTH) - SWL = 60 - ECTS = 2

Prerequisite - - -

History taking. Doctor – Patient Interview. Vital signs. Local examination.

CMS113 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

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 + -28 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

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. Testing the significance of Correlation Coefficients. Parametric & Nonparametric tests.



CMS201 Integrated Clinical Module 1 (hematology & lymph/locomotor & skin)

2 Cr. Hrs. = (15 LCT + 0 TUT + 30 LAB + -42 OTH) – SWL = 105 – ECTS = 4 Prerequisite CMS112

Anaemias. 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 + -42 OTH) – SWL = 105 – ECTS = 4 Prerequisite CMS112

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 - - -

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

Physiology & management of labor. Abnormal uterine action. Bleeding

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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 eye ball with description of all its layers and contents. The course also includes clinical correlation with the contents of the eye ball.

CMS252 Physiology of the Eye (for Health Sciences)

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

Prerequisite - - -

Phtsiological principles of accommodation. Physiological principles of binocular vision. Physiological principles of intra ocular pressure. Physiological principles of colour vision. Ocular pharmacology.

CMS253 Histology of the Eye (for Health Sciences)

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

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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**

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 + -42 OTH) – SWL = 105 – ECTS = 4 Prerequisite CMS112

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 + -42 OTH) – SWL = 105 – ECTS = 4 Prerequisite CMS112

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**

Slit lamp examination of anterior segment of the eye. Examination of the

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angle of anterior segment of the eye (Goniocopy).

CMS304 Clinical Methods 3 (for Health Sciences)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **2** OTH) – SWL = **150** – ECTS = **6** Prerequisite **CMS303**

Fundus examination by indirect ophthalmoscopy. Fundoscopy (by 3 mirror). 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

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.

CMS311 Sleep Lab and Polysomnography (for Health Sciences)

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

Prerequisite - - -

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.

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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

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 - - -

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 - - -

Chronic obstructive lung disorders. Chronic restrictive lung disorders. Specific and nonspecific Lung abbess. 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 - - -

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 - - -

Course orientation& Introduction to dermatology. Integumentary system anatomy and physiology. Classifications & signs and symptoms of skin diseases. Stages of wound healing. Immunologically mediators for skin diseases. Midterm exam. Dermatomyositis. Psoriasis. Acne. Alopecia. Vitiligo. Skin infection.

CMS321 Cardiothoracic Surgery (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

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 - - -

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 - - -

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 - - -

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 - - -

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 - - -

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 - - -

Types of laser used in eye practice. Laser applications in anterior segment diseases. Laser applications in posterior segment diseases. Laser in refractive surgery.

CMS354 Squint 1 (for Health Sciences)

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

Prerequisite - - -

Action of extra-ocular muscles. Causes and types of squint. Clinical picture of different types of squint.

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

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



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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

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

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 waste water, dry refuse and radioactive materials). Disaster & public health (types of disasters; impact on public health; causes; characteristics; prevention and control).

Genral Medicine and Dermatology (1) for CMS402 dentistry

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

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.

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Genral Medicine and Dermatology (2) for CMS403 dentistry

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4 Prerequisite CMS402

Arthritis & rheumatology. Endocrine diseases. Neurological diseases. Oncology. Skin & venereal diseases.

General Surgery, ENT and Ophthalmology (1) **CMS404** for dentistry

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

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.



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CMS405 General Surgery, ENT and Ophthalmology (2) for dentistry

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

Prerequisite CMS404

Head trauma. Congenital diseases of head & neck. Diseases of lips, palate, tongue & salivary glands. Diseases of the thyroid gland. Diseases of the eves and eve 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

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

Resuscitation. Trauma care. Emergencies treated medically. Emergencies treated surgically. Toxicology. Environmental emergencies. Psychosocial. Signs and symptoms. EMS. CPR. Administrative/Legal/Ethical. Procedures. Emergency & community.

General & Special Medicine (I) CMS411

10 Cr. Hrs. = (50 LCT + 0 TUT + 0 LAB + -33 OTH) – SWL = 550 – ECTS = 19

Prerequisite PRECLERKSHIP PHASE

Hepatology. Gastroenterology. Cardiology. Pulmonology. Hematology/ oncology. Rheumatology. Dermatology.

Geriatric Medicine (for nursing) CMS412

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

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.

Addiction Medicine (for nursing) **CMS413**

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 largely research studies published in scientific journals.



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CMS414 Elective Clinical Training - Cardiology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 17 OTH) - SWL = 310 - ECTS = 9

Prerequisite - - -

In-depth study in a specialty of choice: Cardiology.

CMS415 Elective Clinical Training - Neurology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 17 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study in Neurology.

CMS416 Elective Clinical Training - Pulmonology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) – SWL = **310** – ECTS = **9**

Prerequisite - - -

In-depth study in Pulmonology.

CMS417 Elective Clinical Training - Gastroenterology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study in Gastroenterology.

CMS418 Elective Clinical Training - Nephrology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) - SWL = 310 - ECTS = 9

Prerequisite - - -

In-depth study in Nephrology.

CMS419 Elective Clinical Training - Dermatology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study in Dermatology.

CMS421 General & Special Surgery (I)

10 Cr. Hrs. = (**50** LCT + **0** TUT + **0** LAB + -**33** OTH) – SWL = **550** – ECTS = **19**

Prerequisite **PRECLERKSHIP PHASE**

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

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 of x ray as an imaging modality. Uses of C.T. as an imaging modality. MRI in musculoskeletal diagnosis introduction and interpretation. Spinal

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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, lumber 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 - - -

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 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 - - -

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

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disease). Congenital and Developmental Dysplasia of Hip. Chondromalacia patellae and patellofemoral malt racking. Tendinitis and Bursitis. sacroiliac Dysfunction. spinal deformities (scoliosiskyphosis). 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 - - -

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 + 0 LAB + 11 OTH) – SWL = **310** – ECTS = **9** Prerequisite - - -In-depth study in Urology.

CMS428Elective Clinical Training - Special Surgery5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) - SWL = 310 - ECTS = 9Prerequisite - - -

In-depth study in any of the following fields: Orthopaedics, urosurgery, neurosurgery, cardiothoracic surgery, vascular surgery, plastic surgery.



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CMS429 Elective Clinical Training - Anesthesiology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study in Anaesthesiology.

CMS431 Pediatrics (I)

6 Cr. Hrs. = (30 LCT + 0 TUT + 0 LAB + -20 OTH) – SWL = 330 – ECTS = 11 Prerequisite PRECLERKSHIP PHASE

Introduction, history taking and examination. Growth and development. Genetics. Neonatology. Allergic and rheumatic disorders. Paediatric gastroenterology. Liver and biliary diseases. Respiratory diseases. Cardiovascular diseases. Haematology/ 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

Basic science & general neonatology. Fetal medicine. systematic neonatology. Respiratory system. Cardiovascular system. Gastrointestinal system and hepatobiliary system. Renal system. Endocrine and metabolic. Haematology. Neurology. Nutrition. Surgery and Orthopaedics. Community neonatal.

CMS433 Pediatrics (for physiotherapy)

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

Prerequisite - - -

Normal motor and mental development. Hydrocephalus and microcephalus. Cerebral palsy. Epilepsy. Neonatal care and related

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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 + 0 LAB + 11 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study in Paediatrics.

CMS441 Gynecology & Obstetrics (I)

6 Cr. Hrs. = (30 LCT + 0 TUT + 0 LAB + -20 OTH) – SWL = 330 – ECTS = 11 Prerequisite PRECLERKSHIP PHASE

Normal pregnancy. Abnormal pregnancy. Normal labor. Abnormal labor. Normal and abnormal puerperium. Operative obstetrics.

CMS442 Advenced Obstetrics and 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

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 + 0 LAB + 11 OTH) - SWL = 310 - ECTS = 9

Prerequisite - - -

Visual Acuity - Visual Field (Confrontation) - Eye Covering/ Patching -

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Lid Examination - Anterior 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 Tumours. Errors of Refraction. Squint. The Orbit. Ocular Trauma and Emergencies. Field of Vision. The Pupil. Ocular Manifestations /ptosis of Systemic Diseases.

CMS451 Ophthalmology

4 Cr. Hrs. = (20 LCT + 0 TUT + 0 LAB + -13 OTH) – SWL = 220 – ECTS = 8 Prerequisite PRECLERKSHIP PHASE

Visual Acuity - Visual Field (Confrontation) - Eye Covering/ Patching -Lid Examination - Anterior 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 Tumours. 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 + 0 LAB + 11 OTH) – SWL = 310 – ECTS = 9

Prerequisite - - -

In-depth study 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 - - -

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 - - -

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

Microkeratome and its operation. Excimer laser mechanics. Fimto laser mechanics. Cross linking apparatus.

CMS461 Otorhinolaryngology

4 Cr. Hrs. = (20 LCT + 0 TUT + 0 LAB + -13 OTH) – SWL = 220 – ECTS = 8 Prerequisite PRECLERKSHIP PHASE

Otology & audiology 40%. Rhinology 20%. Laryngology & phonetics 30%. Head & neck surgery 10%.





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CMS462 Elective Clinical Training -Otorhinolaryngology

5 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 11 OTH) - SWL = 310 - ECTS = 9

Prerequisite - - -

In-depth study in Otorhinolaryngology.

CMS481 Community Medicine

2 Cr. Hrs. = (30 LCT + 0 TUT + 0 LAB + -27 OTH) – SWL = 105 – ECTS = 4 Prerequisite PRECLERKSHIP PHASE

Community health. Preventive medicine. Occupational medicine. Clinical epidemiology.

CMS501 Emergency Medicine

4 Cr. Hrs. = (20 LCT + 0 TUT + 0 LAB + -13 OTH) – SWL = 220 – ECTS = 8

Prerequisite **PRECLERKSHIP PHASE**

Cardio-circulatory: - myocardial infarction - shock - Congestive heart failure - Aortic aneurysm dissection - Hypertensive Crisis. Respiratory: asthma - pulmonary embolism and deep venous thrombosis pneumothorax. Neurological: Stroke - Peripheral Nerve injuries. Abdominal Emergencies: - Appendicitis - Bowel obstruction - Diseases of the gall bladder and biliary system - Acute abdomen - Gastrointestinal bleeding - Peritonitis. Orthopaedic: - Fractures. Nephrological - Kidney stones - Urosepsis. Toxicology: - Poison - Overdose - Chemical Ingestion. Trauma. Resuscitation.

CMS502 Differential Diagnosis 1 (for physiotherapy)

2 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 3 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Differential diagnosis in P.T. in traumatic conditions and deformities of

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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 = 4Prerequisite CMS502

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.

CMS511 General & Special Medicine (II)

10 Cr. Hrs. = (50 LCT + 0 TUT + 0 LAB + -33 OTH) – SWL = 550 – ECTS = 19

Prerequisite CMS411

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 - - -

Introduction to 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 - - -

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 - - -

understanding Lab Values. Complete Blood Count (CBC). Electrolyte Panel. Kidney Function. Endocrine. Acid-Base Disorders. Liver Function/Hepatic Panel. Lipid Panel. Bleeding Ratio/Viscosity. 1Cardiovascular-Specific Labs.

CMS521 General & Special Surgery (II)

10 Cr. Hrs. = (**50** LCT + **0** TUT + **0** LAB + -**33** OTH) – SWL = **550** – ECTS =

19

Prerequisite CMS421

Neurosurgery. Endocrine surgery. Breast. Cardiothoracic surgery. Male genital surgery. Urosurgery. Orthopaedics.

CMS522 Neurosurgery (for physiotherapy)

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Brain surgery. Cervical disc prolapses. •Lumber disc prolapse. 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

MRI brain and spinal cord. Vascular anatomy and Doppler. CSF fluoroscopy. CT brain and spine.

CMS531 Pediatrics (II)

6 Cr. Hrs. = (30 LCT + 0 TUT + 0 LAB + -20 OTH) – SWL = 330 – ECTS = 11 Prerequisite CMS431

Nutrition. Infections & vaccinations. PICU. Nephrology. Endocrinology & diabetes. Neurology. Psychiatry.

CMS541 Gynecology & Obstetrics (II)

6 Cr. Hrs. = (30 LCT + 0 TUT + 0 LAB + -20 OTH) – SWL = 330 – ECTS = 11 Prerequisite CMS441

Applied anatomy. Menstruation. Paediatric and adolescent gynaecology. Menopause. Reproductive endocrinology & infertility. Endometriosis, adenomyosis & pelvic pain. Displacements, traumatic



lesions & urogynaecology. Gynaecologic oncology. Human sexuality (normal & abnormal). Gynaecological procedures.

CMS561 Introduction to Speech Therapy (for physiotherapy)

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

Prerequisite - - -

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 + -32 OTH) - SWL = 105 - ECTS = 4

Prerequisite - - -

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 + 0 LAB + -13 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, hyperlipidaemia. Diabetes, Thyroid disorders. Nutrition & weight management. Sore throat, otitis media. Abdominal pain, dyspepsia, GE reflux. Vaginitis. Arthritis, osteoarthritis, low back pain. Cognitive impairment, dizziness, fatigue, headache, anxiety, depression. Allergies, asthma, COPD, acute respiratory infections. Male genital problems, dysuria. Breast problems.



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Department of Medical Education

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MED111 Personal & Professional Development:Learning & Thinking Skills

1 Cr. Hrs. = (0 LCT + 0 TUT + 0 LAB + 2 OTH) – SWL = 60 – ECTS = 2

Prerequisite - - -

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. Emailing 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).



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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,

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Embryology, Development of face and oral cavity,

BDS212 Oral biology II

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

Developmental Anomalies of Teeth. Dental Caries. Diseases of The Pulp. Cysts of Oral and Paraoral Region. Osteomyelitis. Bone Diseases. White and Precancerous Lesions:

BDS332 Oral pathology II

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

Prerequisite **BDS331**

Non-Odontogenic Tumours and Tumour-Like Lesion. -. Odontogenic Tumours: Salivary Glands Tumours. -. 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



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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 properities. The different types of dental material. The usage of nanodentistry. The scope and the future of nanodentistry.

BDS352 Management of scientific meeting

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

Special Imaging Techniques. Concepts of panoramic radiography, Troubleshooting panoramic techniques, Special radiographic techniques. Radiation Health. Radiographic Image Interpretation. laser usage in dentistry.



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Department of Prosthetic Dentistry

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PDD131 Dental biomaterials I

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

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 - - -

- 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 - - -

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 - - -

Introduction and Orientation. Principles of Tooth Preparation. Gold Inlay Preparations. Gold Onlay Preparations. Posterior ³/₄ Crown Preparation.

PDD222 Fixed prosthodontics II

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

Prerequisite - - -

Impression Materials. Final Impressions. Working Casts and Removable Dies. Dental Waxes and Waxing Procedures. Pontics. Fixed Partial Denture Connectors. Porcelain Inlay and Onlay Preparations.

PDD233 Dental biomaterials III

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

Prerequisite - - -

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.

PDD241 stomatology

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Crown outline function, tooth form protecting periodontium, muscle of mastication, Tempro-mandibular joint, TMJ positions, functions of saliva, mechanism of eruption, mechanism of shedding, Function and defense mechanism of oral mucosa.

PDD271 occlusion I

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

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 - - -

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 - - -

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 - - -

Impression Materials. Final Impressions. Working Casts and Removable Dies. Dental Waxes and Waxing Procedures. Pontics. Fixed Partial Denture Connectors. Porcelain Inlay and Onlay Preparations.

PDD324 Fixed prosthodontics IV

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

Prerequisite - - -

Impression Materials. Final Impressions. Working Casts and Removable Dies. Dental Waxes and Waxing Procedures. Pontics. Fixed Partial Denture Connectors. Porcelain Inlay and Onlay Preparations.

PDD351 digital dentistry

1 Cr. Hrs. = (**1** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **45** – ECTS = **2**

Prerequisite - - -

CAD/CAM. Virtual dentistry. Different methods of stents. Digital methods to check occlusion. Method to filing cases for patients.


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PDD352 Geriatric dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

Introduction to geriatric dentistry. The importance of geriatric dentistry field. Different types of elder cases according to the mental state. Hoe to control and handle the elder patients. The special hazards from the 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 to investigate different cases. Different prints can be done by oral cavity. The analysis of DNA and its role in forensic dentistry.

PDD354 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 implant. The usage of dental implant. The hazard of different implantation methods.

PDD415 Removable prosthodontics V

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

Prerequisite - - -

Clinical Complete Denture. Introduction to removable prosthodontics, Diagnosis & treatment planning, Impressions, Mandibular movements, Maxillomandibular relation, Selection of Teeth, Trial of dentures,

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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 - - -

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 - - -

Dental Ceramics. Porcelain Build-up. Restoration of Endondontically Treated Teeth.

PDD426 Fixed prosthodontics VI

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

Prerequisite - - -

advanced preparation for tilted teeth and telescopic preparation and advanced design for partial denture.

PDD517 Removable prosthodontics VII

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

Prerequisite - - -

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 - - -

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 - - -

Effects of Loss of Teeth. Diagnosis and Treatment Planning. Advanced Occlusion I. Porcelain Laminate Veneer Restorations. Color Science. Esthetics in Fixed Prosthodontics. Resin-Retained FPDs. All-Ceramic Crown Restorations. Management of Extensively Damaged Teeth. Tryin Procedures. Cementation of Fixed Partial Dentures. Failures of Fixed Partial Dentures. Fixed Partial Denture Designs.

PDD528 Fixed prosthodontics VIII

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

Prerequisite - - -

Considerations for Periodontally Involved Teeth. Preparations for Special Situations. Cementation Procedures for Different Restorations. Fixed Partial Denture Repair. Fixed Partial Denture Removal. Orthodontic Adjuncts to Prosthodontics. Post insertion Care and Follow up.

PDD561 ESTHETIC DENTISTRY

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Introduction to esthetic in dentistry. The explanation of the esthetic zone. The different smile design technique. The different restorations for restoring esthetic zone. The psychology effect behind esthetic restoration.



Department of Conservative Dentistry

CDD211 Operative dentistry I

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

Prerequisite - - -

. 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 - - -

Composite Restoration. Glass Ionomer Restoration. Cavity Preparation for Gold Inlay. Class I, II and V, Class III and IV.

CDD221 Endodontics I

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

Prerequisite - - -

Introduction to Endondontics. History, Scope of endodontics, Modern endodontic. Pulp space Anatomy and Access cavities. Nomenclature, Types of canal configurations, Pulp space anatomy of upper and lower teeth, Alterations in internal anatomy, Pulp space anatomy and access openings.

CDD313 Operative dentistry III

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

Prerequisite - - -

Composite Restoration. Glass Ionomer Restoration. Cavity Preparation for Gold Inlay. Class I, II and V, Class III and IV.

CDD314 Operative dentistry IV

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

Prerequisite - - -

Gold Inlay Restoration. Pulp Protection. Amalgam Restoration. Restoration of Vital Badly Destructed Teeth. Direct Gold Restoration, Dental Matrices.

CDD322 Endodontics II

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

Prerequisite - - -

Endodontic Instrument. Cleaning and shaping the Root Canal System. Obturation of the Root canal system. Endodontic Radiography. Isolation.

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CDD323 Endodontics III

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Endodontic Periodontal Interrelationship. Surgical Endodontics. Geriatric Endodontics.

CDD351 Comparative dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

knowledge regarding the experimental animals which can be used in dental research, how to choose the animal and how to deal with them during surgery.

CDD415 Operative dentistry V

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

Factors influencing selection of restorative materials. Attrition, Abrasion, Erosion. Failure of amalgam and composite. Leakage of restorative materials.

CDD416 Operative dentistry VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Esthetic restorations and technique. Treatment of vital discolored teeth. Deep-Carious Lesions.

CDD424 Endodontics IV

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Procedural Accidents. Retreatment of Failure. Bleaching Discolored Teeth.

CDD425 Endodontics V

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

Restoration of Endodontically Treated Teeth. Post and core systems. New technology in endodontics. Different methods of filing and obscuration. Peri-endo lesions. Microbial effect on endodontic treatment. Endodontic retreatment.

CDD517 Operative dentistry VII

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4

Prerequisite - - -

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 - - -

Attrition; abrasion and erosion; failure of composite resin restorations; composite inlays; laminate veneers; treatment of vital discolored teeth; deep-carious lesions; operative dentistry and periodontium.



CDD526 Endodontics VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

using of microscope for endodontic treatment. use of laser in endodontic. sterilization and isolation. removal of fracture instruments from canals.

CDD527 Endodontics VII

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

Prerequisite - - -

Advanced cases of endodontics. Different systems of rotary files. Manipulation of curved canals. Treatment of periapical lesions. Treatment of non-completely formed roots.



Department of Oral & Maxillofacial Surgery

OMS411 Oral and maxillofacial surgery I

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

Prerequisite - - -

Basic Principles to 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 ORAL AND MAXILLOFACIAL SURGERY I

Impacted Teeth. General Anesthesia in Dentistry. - General Assessment. Preparation and Premedication.

OMS421 Local anasthesia

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, 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 ORAL AND MAXILLOFACIAL SURGERY II

Acute Infections. Deep Infections of the Face and Neck. Osteomyelitis. Cysts of the Jaws. Preprosthetic 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 ORAL AND MAXILLOFACIAL SURGERY III

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.

OMS531 tissue and bone augmentation

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

Introduction to tissue and bone augmentations. Different types of bone augmentations. Method to manipulate affected soft tissue. Method to manipulate affected hard tissue. Method to plant new bone and tissue parts.



Department Orthodontics & Pedodontics

OPD351 Special Care in Dentistry

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) - SWL = 120 - ECTS = 4

Prerequisite - - -

Introduction to special care in dentistry. The different types of patient require special care. When to refer the special care. Manipulation of the special care cases. How to underatand and treat the handcapped patient.

OPD431 Preventive and community dentistry I

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, Research Methods. Dental Health Education. Epidemiology of Periodontal Diseases.

OPD432 Preventive and community dentistry II

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

Prerequisite **OPD431**

Measuring of Periodontal Diseases. Fluoride Occurrence in the environment. Prevention of Dental Caries. Prevention of Periodontal Diseases. Infection Control.

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 Anaslysis. 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 - - -

Orthodontic Tooth Movement (. 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 4th year class.

OPD521 pedodontics I

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

Prerequisite - - -

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 Injures for Anterior Teeth. Pulp Therapy. Oral Surgery for the Children. Handicapped Children. Periodontal Diseases for the Children. Gingivits, Periodontal diseases in children.



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Department of Oral medicine, Periodontology, Diagnosis & Oral Radiology

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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 - - -

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 laser.

OMR351 INFECTION CONTROL IN DENTISTRY

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

Prerequisite - - -

Introduction to the infection control. The importance of infection control. Methods of cross infection in dental clinics. Different methods for infection control and sterilization. Prevention of infection vial 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 - - -

Oral Mucosal Disease. Ulcerative, Vesicular, and Bullous Lesions. Red and White lesions of the Oral Mucosa. Pigmentation of the Oral Tissues. Diseases of the Tongue. Orofacial Pain and Temporomandibular Joint



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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. Leukocyte disorders. Red blood cell disorders. Bleeding and Clotting Disorders. Immunologic Diseases. Endocrine Disease and Dysfunction. Diabetes. Sexually Transmitted and Blood Borne Infections.

OMR531 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.

OMR532 Periodontics II

2 Cr. Hrs. = (1 LCT + 0 TUT + 3 LAB + 0 OTH) – SWL = 120 – ECTS = 4 Prerequisite OPD521

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.





FACULTY OF PHARMACY

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Department of Medicinal Chemistry

PMC101 General & Physical chemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

- Quantum theory and the electronic structure of atoms. - Periodic relationships among the elements. - Chemical bonding and molecular structure. - Calculations with chemical formulas and equations. - Thermochemistry. - Solutions and Gases. - Chemical kinetics. - Chemical and ionic equilibrium. - Qualitative analysis of anions and cations.

PMC102 Organic Chemistry I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

Introduction, type of chemical bonds, hybridization and their types. Representation of organic compounds, type of isomerism, electronic effects (inductive & mesomeric), and Steric effect. Alkanes, alkenes and alkynes (properties, nomenclature, preparations, and reactions). Alkyl halides (nomenclature, preparations, and properties), Nucleophilic substitution reactions mechanism, and reactions of organometallic compounds. Alcohols and ethers (properties, nomenclature, preparations, and reactions). Introduction on streochemistry, chirality and optical activity. - Conformational and geometrical isomerism. -Stereochemistry of cyclohexanes and stereochemistry in organic reactions. - Monosaccharides. - Reactions of carbohydrates. - Di- and polysaccharides.

PMC103 Organic Chemistry II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC1020**

Aromaticity and Nomenclature of benzenoid compounds. Reactions of benzene; electrophilic substitution and their Orientation. Alkyl benzene and Aryl halides. Aromatic nucleophilic substitutions. Aromatic Nitro Compounds. Amines and their diazonium salts. Phenols. sulphonic acids aldehydes and Ketones. Carboxylic acids and their derivatives. Polynuclear hydrocarbons. Heterocyclic chemistry. Spectroscopy and elucidation of chemical structures using different spectroscopic techniques (UV-Vis, IR, NMR and Mass spectroscopy).

PMC104 Analytical Chemistry I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

- Introduction to different types of volumetric analysis. - Acid-base (Aqueous titration). - Acid-base (Non-Aqueous titration). - Complex formation titration (Complexometry). - Precipitate formation titration (Precipitemetry), - Redox titration. - Gravimetric methods of analysis.

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PMC205 Analytical Chemistry II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC104**

- Different electrochemical methods of analysis. - UV/Visible Absorption spectroscopy. - spectrofluorimetry. - Flame spectroscopy. - Chromatography.

PMC306 Medicinal Chemistry I

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

Prerequisite PMC103

Antibiotics (β -Lactam antibiotics, Tetracyclines, aminoglycosides, chloramphenicol, macrolides). Sulfonamides and Dihydrofolate Reductase Inhibitors. Antineoplastic Drugs. Antimalarials. Antifungal Drugs. Antiviral Agents. Antiseptic Agents. Antiprotozoal Agents. Antimycobacterial Agents. Antileprotics. Diuretics. Oral Antidiabetic Drugs.

PMC307 Medicinal Chemistry II

4 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + -**2** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC306**

Vitamins. Steroidal Hormones. Thyroid Hormones & Anti thyroid drugs. Polypeptide Hormones. Opioid Analgesics. Non-Opioid Analgesics. Non-steroidal Anti- Inflammatory Drugs. Aging and Anti-Aging Therapies.

PMC408 Medicinal Chemistry III

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC307**

Adrenergic agents, cardiovascular drugs, Antihyperlipidemic agents and

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anticoagulants. Central nervous system stimulants, analeptics, sympathomimetic agents and antidepressants. CNS depressants, general anesthetics and sedative-hypnotics. Anxiolytics, muscle relaxants, anticonvulsants and antipsychotics. Cholinergics and anticholinergics, Antiparkinsonism drugs. Local anesthetics. Antiallergenic and antiulcer drugs. Non-computational drug design. Computer aided drug design. Drug metabolism.

PMC509 Drug discovery and development

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PMC 307 - PMC408

Introduction to Drug Design and Development: Drug Discovery as a Process, Target Identification and Validation, Target Validation and Drug Validation Practical's. Drug targets: Targets: Membrane Proteins, Targets: DNA, Targets: RNA, Targets: Enzymes. Lead Identification and Modification: Biological Assays: Lead Identification and High Throughput Screening, Lead Identification and Modification Practical's, Sources of active compounds, Biologics. Computer-Aided Drug Design: Molecular Modelling, Ligand-based Drug Design, Structure Determination, Structure-based Drug Design, Molecular Modelling Practical, Molecular Modelling Practical: Visualization.

PMC510 Advanced Instrumental Analysis

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PMC 205

Introduction and Fundamentals of Spectrometry. Quantum Chemistry and Spectroscopy. Applications of Spectrophotometry. Spectrophotometers and Lasers. Introduction to Mass Spectrometry. Mass Spectrometry Instrumentation. Quadrupole and time-of-flight mass spectrometry. Ion Mobility-Mass Spectrometry. Quantum



Chemistry and Molecular Modeling. Exploring Chemistry with Electronic Structure Methods. Introduction to Analytical Separations. High

Performance Liquid Chromatography. Chromatographic Methods. Advanced HPLC Methods.



Department of Pharmacognosy

PPC101 Botany & Medicinal plants

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

The scope & practice of botany & medicinal plants. Ethnobotany and ethnopharmacy. General principles of botany: morphology and systematics. Plant nomenclature & classification of medicinal plants. Families yielding important phytopharmaceuticals. Plant Anatomy and Physiology. Plant structure& modifications of its tissues. Plant crude drugs and their different classifications. Importance of plants in modern pharmacy and medicines. Evolutionary 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

Introduction of Pharmacognosy& its history. The scope of pharmacognosy & its role in modern medicines. Emerging Areas in Pharmacognosy. Medicinally important drug derived from different plant organs. Identification and authentication of genuine herbal drugs. Common herbal drugs in pharmacy market. Pharmacognostical features & Quality control of herbal products. Standardization & production of herbal products. What is make phytomedicines unique?

PPC303 Phytochemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC1030**

Introduction of phytochemistry. Definition of bioactive Plant Molecules. Natural products chemistry in drug discovery. Chemistry of different natural product classes. Methods in natural product chemistry. Isolation methods & bioassay guided isolation of natural products. Marines and chemistry of anticancer natural products. Toxicity of herbal constituents.

PPC404 Herbal and alternative Medicine

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PPC102

Traditional systems of herbal medicine. Introduction to Complementary & Alternative medicines. Homeopathic remedies. Aromatherapy & Medical Herbalism. WHO regulations for herbal medicine. Important natural products and phytomedicines used in the treatment of different body systems diseases. Bioactive plant molecules (sources and mechanism of Action). Miscellaneous supportive natural therapies for stress, ageing, cancer and debility.

PPC505Biotechnological Production of herbal Drugs2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4PrerequisitePPC404

- Introduction to Biotechnology. - Downstream Processes for Plant Cell



and Tissue Culture. - Biotechnology, Bioengineering, and Biomedical Engineering. - History of Biotechnology. - Blue Biotechnology (Marine). - Red Biotechnology (Medical). - Green Biotechnology (Agricultural). -Nucleic Acid Isolation. - Genetic Engineering Techniques. - Different pharmaceutical applications in biotechnology.

PPC506 Pharmaceutical Herbal Quality Control

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

Prerequisite PMC 205 - PMB 202 - PPH 306 - PPC 505

Introduction about quality controls. Quality control and approval testing in accordance with pharmacopeial standards. Physico-chemical, spectroscopic and chromatographic testing. Microbiological controls. Bioanalytical methods. Method verification. Method validation. Integration of products specifications and SOP-system. The creation of SOPs and a testing plan. Documentation and raw data archiving conforms with GMP.

PPC507 Applied and forensic medicine

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PPT 406 - PPT 407

Introduction and different fields of toxicology and antidotal therapy. Forensic chemistry, Chemotherapy. CNS stimulants, Mercury poisoning, Lead poisoning, Cyanide poisoning, methaemoglobineamia, Carbon monoxide poisoning, Digoxin toxicity, Salicylate poisoning, Cocaine and herion.



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PPH101 Pharmacy Orientation & Medical Terminology

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

Prerequisite - - -

Scope of pharmacy. Information resources. Prescription. Dosage forms. Ethics of pharmacy, self-care and self-medication. History of pharmacy.

PPH102 Physical Pharmacy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

State of matter. Phase equilibria. Solution and solubility. Colligative properties. Buffers in pharmacy. Surfactant and surface and activity. Rheology.

PPH203 Pharmaceutics I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PPH102**

•. Incompatibilities. •. Colloids. •. Solutions. •. Suspensions. •. Emulsions. •. Extracts.

PPH204 Pharmaceutics II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PPH102**

Ointments. Suppositories. Powders and granules. Capsules. Tablets and tablet coating. Microencapsulation.

PPH305 Pharmaceutics III

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PPH102**

Reaction Kinetics. Parenteral products. Drug stability. Aerosols. Ophthalmic dosage forms.

PPH306 Pharmaceutics IV (Industrial pharmacy)

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PPH102**

Size reduction and enlargement and size separation. Heat transfer, distillation and evaporation. Drying and industrial nanotechnology.

Filtration, crystallization. Emulsification and extraction techniques.

PPH407 Biopharmaceutics & Basics of



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Pharmacokinetics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4 Prerequisite PPH305

Pharmacokinetics of drugs administered by IV route. Compartmental models. Pharmacokinetics of drug absorption. Renal and hepatic clearance. Non-compartmental pharmacokinetics. Biopharmaceutical considerations in drug product design. Bioavailability and bioequivalence.

PPH508 Introduction to pharmaceutical, biotechnology and device industries

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4 Prerequisite REGISTRATION, AFTER 3RD YEAR OF THE PROGRAM

Introduction to Regulatory Affairs. FDA, EMA, TGA, and other regulatory authorities: Organization and Structure, Insight into the Agency Operations. Pharmaceuticals: Product Development Process and Regulations, Drug Classification & Generic Drugs; OTC Drugs, Post-Marketing Activities. Biologics Product Development and Regulatory policies. Medical Devices: Types of Submissions; Product Development Design Control, Overview of the Quality Systems Regulation, IVD Summary, Post Market Compliance for Medical Devices. Recalls and Field Corrective Actions.

PPH509 Current GMP

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

Prerequisite PPH 305

The Current Good Manufacturing Practice (CGMP) Regulations. Complying with the Law and Your Responsibilities: A Scheme of Systems for Manufacture of Drugs/Drug Products. The regulatory

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authorities Responsibilities and Roles. The Consequences of Not Complying with the regulation and Law. Principles of cGMP. Implications and Need to Comply. • Product processing. • Manufacture. • Quality control. • Storage/warehousing. • Transportation. • Delivery. Production/Processes. •Satisfy regulatory accreditation. • Standard operating procedures (SOP). • Document control system. Documentation. Personnel. Premises and Equipment. Quality Assurance and Management. Regulatory Expectations.

PPH510 Cosmeceuticals

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

Prerequisite PPH 305

This course consists of the introduction of the formulation and science aspects of cosmetic preparations such as skin, hair, colored cosmetics, deodorants and anti-perspirants, baby, and perfumes. Cosmeceuticals as products that have both cosmetic and therapeutic (medical or druglike) effects, and are intended to have a beneficial effect on skin health and beauty. Classification of cosmetic and cosmeceutical products. Cosmetic excipients: Surfactants, rheology modifiers, humectants, emollients, preservatives. Principles of formulation and building blocks of skin care products: Face wash, Moisturizing cream, Cold Cream, Vanishing cream and their advantages and disadvantages. Application of these products in formulation of cosmeceuticals. Antiperspirants & deodorants- Actives & mechanism of action. Principles of formulation and building blocks of Hair care products: Conditioning shampoo, Hair conditioner, anti-dandruff shampoo, Hair oils. Chemistry and formulation of Para-phylenediamine based hair dye. Principles of formulation and building blocks of oral care products: Toothpaste for bleeding gums, sensitive teeth. Teeth whitening, Mouthwash. Sun protection, Classification of Sunscreens and SPF. Role of herbs in cosmetics: Skin



Care: Aloe and turmeric. Hair care: Henna and amla. Oral care: Neem and clove. Analytical cosmetics: BIS specification and analytical methods for shampoo, skin- cream and toothpaste. Principles of Cosmetic Evaluation: Principles of sebumeter, corneometer. Measurement of. TEWL, Skin Color, Hair tensile strength, Hair combing properties Soaps, andsyndet bars. Evolution and skin benefits. Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms Comedogenic, dermatitis. Cosmetic problems associated with Hair and scalp: Dandruff, Hair fall causes. Cosmetic problems associated with skin: blemishes, wrinkles, acne, prickly heat and body odor. Antiperspirants and Deodorants- Actives and mechanism of action.

PPH511 Radiopharmaceuticals

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

Prerequisite PPH 305

Introduction to Radio-pharmacy: Basic principle of pharmacy and pharmaceuticals, Nuclear medicine physics, Radiation protection, safety and Regulation Practice, Instrumentation, measurement, calculation, dosimetry. Radiopharmacy and radiopharmaceutical chemistry: radioisotope production and radiopharmaceutical preparation - generators, cyclotron, reactors - small scale production for clinical use, labelling, dispensing - operational level 1a, 1b, 3a. Therapeutical Radiopharmacy: Radioisotope for therapy and

radiopharmaceutical preparation. Regulatory aspects of radiopharmaceuticals: Qualification and validation in radiopharmaceutical manufacturing Quality, Safety and GMP in radiopharmaceutical practice Sterile Radiopharmaceuticals and Endotoxins.

PPH512Application of nanotechnology in pharmacy2 Cr. Hrs. = (**2** LCT + **0** TUT + **0** LAB + **0** OTH) - SWL = **90** - ECTS = **4**Prerequisite *REGISTRATION, AFTER 3RD YEAR OF THE PROGRAM*

Introduction to Nanotechnology and nanomaterials. Pharmaceutical Nanotechnology Based Systems. Nano-crystalline materials. Raw Nano-materials and their use in drug encapsulation, bone replacements, prostheses. Nano-devices, examples include biosensors and detectors to detect trace quantities of bacteria, airborne pathogens, biological hazards, and disease signatures and some intelligent machines like respirocytes. General Applications: Intracellular targeting, Treatment of chemotherapy, Avoidance of Multi-drug resistance, Treatment of leprosy, Ocular drug delivery, Brain drug delivery, DNA delivery, Lymph targeting. Nanotechnology enabled drug delivery system with optimized physical, chemical and biological properties can serve as effective delivery tools for currently available bioactives. Cancer treatment. Implantable delivery systems. Site specific drug delivery. Molecular Diagnostics. Biosensor and bio-labels. Drug discovery. Other miscellaneous Applications.



Department of Pharmacology & Toxicology

PPT304 Pharmacology I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **BMS232**

- Pharmacokinetics. - Pharmacodynamics. - Muscarinic agonists and antagonists. - Adrenergic agonists and antagonists. - Histamine and serotonin. - Prostaglandins and eicosanoids. - Cytokines.

PPT305 Pharmacology II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite PPT304

Anti-hypertensive and anti – anginal drugs. Congestive heart failure and anti- arrhythmic drugs. Diuretic agents. Pharmacology of the blood. Lipid lowering drugs. Anxiolytic and hypnotic drugs. General anaesthetics. Narcotic analgesics. Anti-epileptic drugs. Neuroleptic drugs. Antidepressant drugs. Anti-parkinsonian drugs. Analeptics.

PPT406 Pharmacology III & Biostatistic

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

Prerequisite PPT304

Principles of chemotherapy. Antibiotics. Inhibitor of cell wall synthesis. Drugs affecting bacterial protein synthesis. Drugs affecting intermediary bacterial metabolism. Drugs affecting bacterial DNA synthesis. Urinary tract antiseptics. Chemotherapy of tuberculosis. Antifungal and antiviral agents. Chemotherapy of protozoal infections and helminthiasis. Cancer chemotherapy.

PPT407 Basic and Clinical Toxicology

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2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4
Prerequisite PPT406
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General toxicology. Management of toxicity. Target organs. Toxic responses to the liver. Toxic responses to the kidney. Toxic responses to the respiratory system. Toxic effects to the eye. Heavy metals. Animals and plant toxins. Mutation and teratogenicity. Pesticides. Forensic Toxicology and pathology.

PPT408 Drug Nutrient interaction

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

Prerequisite - - -

Identify the process of drug absorption and give an example of how food may impact absorption. State how grapefruit juice influences drug metabolism. Identify the most common food/nutrient-drug interactions. Review common herb-drug interactions. List available resources for identifying common drug-nutrient and drug-herb interactions. Effect of nutrition on the body's response to drugs; conversely, drugs can affect the body's nutrition. Foods can enhance, delay, or decrease drug absorption. Foods impair absorption of many antibiotics. They can alter metabolism of drugs; e.g., high-protein diets can accelerate metabolism of certain drugs by stimulating cytochrome P-. Effect of grapefruit on cytochrome P-450 34A, slowing metabolism of some drugs



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(e.g., amiodarone, carbamazepine, cyclosporine, certain calcium channel blockers). Diets that alter the bacterial flora may markedly affect the overall metabolism of certain drugs. Some foods affect the body's response to drugs. For example, tyramine, a component of cheese and a potent vasoconstrictor, can cause hypertensive crisis in some patients who take monoamine oxidase inhibitors and eat cheese. Nutritional deficiencies can affect drug absorption and metabolism. Severe energy and protein deficiencies reduce enzyme tissue concentrations and may impair the response to drugs by reducing absorption or protein binding and causing liver dysfunction. Changes in the gastrointestinal tract can impair absorption and affect the response to a drug. Deficiency of calcium, magnesium, or zinc may impair drug metabolism. Vitamin C deficiency decreases activity of drug-metabolizing enzymes, especially in older people. Effect of drugs on appetite, food absorption, and tissue metabolism. Some drugs (e.g., metoclopramide) increase gastrointestinal motility, decreasing food absorption. Other drugs (e.g., opioids, anticholinergics) decrease gastrointestinal motility. Some drugs are better tolerated if taken with food.

PPT508 Drug abuse and misuse

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PPT 406 - PPT 407

Introduction and definitions. Epidemiology of drug misuse. Aetiology and maintenance of drug misuse. The course of drug misuse. The pharmacological effects of drug misuse. The public health impact of drug misuse. Identification and assessment of drug misuse. The aims of the treatment and management of drug misuse. Drug misuse and the family. Economic impact of drug misuse. Psychoactive substances. Workplace drug testing. Human sport drug testing. Drug and driving.

PPT509 Drug Interactions

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

Drug interactions with agents used to treat. gastrointestinal diseases. Cardiovascular diseases. CNS Disorders. Infectious diseases. Endocrine disorders. Drug-drug interactions for: Non-steroidal. Immunosuppressant and cancer chemotherapeutic agents. Vaccines.

PPT510 Pharmacogenomics

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

Principles of Pharmacogenomics: Pharmacokinetic, Pharmacodynamic, and Clinical Implications. Incorporating Pharmacogenomics in Drug Development: Industry and Regulatory Perspectives. Translating Pharmacogenomic Research to Therapeutic Potentials. Pharmacogenomics in Cancer Therapeutics. Pharmacogenomics in Cardiovascular Diseases. Pharmacogenomics in Psychiatry Disorders. Role of Pharmacogenomics in HIV Infection. Role of Pharmacogenomics in Diabetes.



Department of Microbiology & Immunology

PMB201 General Microbiology & Imunnology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite *REGISTRATION*

Overview on the course taught in General microbiology during the whole semester, history of microbiology. Study of Prokaryotes; classification of bacteria, Bacterial morphology, Structure of bacterial cells, biological requirements, growth, bacterial products, bacterial physiology, continuous culture, microbial genetics and mutation through different mutagenic agents. An introduction to virology including general characteristics, viral replication, classification as well as methods of cultivation of different viruses. Study the morphological and characters of different fungi; their nature; chemical composition of cell wall; fungal reproduction as well as classification of fungi. Immune system function and structure. Innate and adaptive immunity. Tissues, cells and soluble components of immune system. Complement, antibodies, antigens, MHC, immune reactions against grafts, cancer immunotherapy. Immune system aberration (hypersensitivity, autoimmune diseases, immune deficiencies). Serological reactions and their applications agglutination, (precipitation, complement fixation. ELIZA. immunofluorescence, radioimmunoassay).

PMB202 Pharmaceutical Microbiology

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMB201**

Classes of chemotherapeutic agents and antibiotics, their advantages

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and disadvantages of each class and bases of selection of the most appropriate chemotherapeutic agent for treatment in different diseases. Sterilization methods & their validations. Non- antibiotic antimicrobial agents: antiseptics, disinfectants and preservatives. Evaluation of different antimicrobial agents: Antibiotics & non-antibiotics. 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 PMB 201

Introduction and taxonomy of microorganisms. Gram positive pathogens, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment. Gram negative pathogens, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment. Chlamydia and Rickettsiae, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment. Spirochetes, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment. Mycoplasma & other miscellaneous pathogens, pathogenesis, epidemiology symptoms, laboratory diagnosis, prevention, and treatment. Viral disease (mode of transmission, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment). Fungal diseases (mode of transmission, pathogenesis, symptoms, laboratory diagnosis, prevention and treatment).



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PMB404 Biotechnology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PMB202

General introduction to biotechnology and fermentation. Microbial growth processes (mode of fermentation processes; design of a fermentor; achievement and maintenance of aseptic conditions in the fermentor. Major biotechnological products and bioconversion processes. Biodegradation, bioremediation biotransformation, biopolymers, bioinsecticides, bioleaching, biosensor, biosurfactants. 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 = 4

Prerequisite PMB303

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 waste water, dry refuse and radioactive materials). Disaster & public health (types of disasters; impact on public health; causes; characteristics; prevention and control).

PMB506 Antibiotics stewardships

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PMB202

Introduction. The Principles of Antimicrobial Prescribing. Antimicrobial resistance. Antibiotic allergies. 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. Acute Otitis media.

PMB507Biologicals and Biosimilar Standardization2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - ECTS = 4PrerequisitePMB 504

Developments in biologicals standardization. International recommendations, guidelines, and other matters related to the manufacture and quality control of biologicals. Antigens and related substances. Blood products and related substances. Cytokines, growth factors and endocrinological substances. Diagnostic reagents.

PMB508 Genomics and bioinformatics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite *AFTER THE 3RD YEAR OF THE PROGRAM* Teaching and Learning Methods.

PMB509 Infection control

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

Prerequisite PMB 303

Basic microbiology & immunology. • Overview and principles of epidemiology. • Evidence-based infection control principles and



practices. • Emerging and re-emerging infections. • Prevention & control of common healthcare associated infections. • Components of an effective infection control program. • Role of Infection Control

Committee, IC Professionals and IC Link Officers. • Multi Drug Resistant Organism (MDRO). • Sterilization and Disinfection.



PBC201 Biochemistry I

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PMC103**

- introduction to the course: topics, objectives, grading and assessments [1]. - Cell structure and biological membrane. - amino acids & protein chemistry: Structure, function, classification. Practical: fragility test. - effect of different haemolytic agents. - Enzymes: Kinetic properties of enzymes. Practical: - Optimum conditions for salivary amylase activity. - Effect of Electrolytes on the activity of salivary amylase. - Effect of temperature on the activity of salivary amylase. -Effect of pH on the activity of salivary amylase. - Optimum conditions for peptic activity. - Comparative digestive power of pepsin with different acids. - Clotting and souring of milk. - Effect of time on catalase activity. - Effect of substrate concentration on catalase activity. - Identification of some enzymes as catalase, peroxidase, urease, amylase and sucrase in biological fluids. - Nucleic acids & protein synthesis. - Porphyrins: Specialized product of Amino acid. synthesis and degradation. Practical: - Determination of haemoglobin by acid hematin method (Sahli's method). - Minerals and Vitamins.

PBC202 Biochemistry II

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PBC201**

- Introduction to the course, assessment, topics, objectives. - Biological

oxidation. - Identification and classification of Carbohydrates. a) Carbohydrate chemistry, digestion and absorption. b) Metabolism. Practical: Determination of blood glucose level. - Identification of lipids and lipoproteins (Triglycerides). Practical: Determination of Plasma lipids and lipoproteins (Triglycerides). Determination of plasma total Cholesterol level. - Studying proteins and amino acids metabolism. -Describe inter-tissue metabolism of carbohydrates, lipids and proteins in the post absorptive state and in starvation.

PBC403 Clinical Biochemistry

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PBC202**

Introduction to the course, assessment, topics, objectives. Disorders of carbohydrate metabolism: •. Hyperglycemia: •. Hypoglycemia. Practical: -Determination of serum glucose level and oral glucose tolerance test. Metabolism of lipoproteins - LDL receptor: Practical: - Determination of serum total cholesterol, TAG, HDL, LDL and VLDL-cholesterol. Identification of Aminoaciduria, Glycinuria, Hyperoxaluria, Cystinuria, Cystinosis, Homocystinuria, Phenylketonuria (Types-V). Investigation of Renal Function. Practical: - Determination of serum urea, uric acid and creatinine. Investigation of Liver Function. Practical: - Determination of serum total proteins and albumin. - Determination of (ALT), ALP and bilirubin. Investigation of Myocardial Infarction: Practical: - Determination of Metabolic Disorders of Calcium & Phosphate. Practical: - Determination

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of serum calcium and phosphate. Studying Endocrine Abnormalities. Practical: - Determination of serum cortisol level. - Determination of serum thyroxine level. introduction to molecular biology.

PBC504 Clinical Nutrition

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite - - -

. Introduction to the course, assessment, topics, objectives. Nutritional Assessment: the systematic process of collecting and interpreting

information in order to make decisions about the nature and cause of nutrition related health issues. Practical: - Students complete a series of Practitioner Observation Visits, where they spend time in a range of different clinical settings observing established practitioners, and in other nutrition-related settings. Nutrition in Obesity. Practical: Design effective individualized nutritional interventions, using functional medicine models. Nutrition in Malnutrition. Nutrition principles and their application to disease prevention and treatment in adults. Clinical diseases. -. Cardiovascular disease. -. Diabetes. -. Oncology. -. Nutrition support methods. -. Aids/HIV.



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Department of Pharmacy Practice & Clinical Pharmacy

جامعة العلمين الدولية

ALALAMEIN INTERNATIONAL UNIVERSITY

PPP201 Pharmacoeconomics

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

Prerequisite - - -

The course provides the students with the basic concepts of health economics, learning basic terms of health economics and understand key principles. Topics cover the economic mechanisms of health care markets as market failures, and government intervention. The course covers the key components of health care financing, and some methods of how to contain health care expenditure. Alongside the major definitions in health technology assessment, students should have an overview about different types of economic evaluation, budget impact analysis and their uses. Moreover, students should get familiar with different methods of pricing among which value-based pricing.

PPP302 Integrated Case based Learning I

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite BMS232

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 cardiovascular diseases & implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required.

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PPP303 Integrated Case based Learning II

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite BMS232

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 infectious diseases & implementing evidence-based medicine using SOAP notes & appropriate clinical scores whenever required.

PPP304 Pharmacy Administration

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

Prerequisite - - -

Understand the basic principles of management, financial and human resources, drug promotion sales and marketing, business administration and accounting as well as the field of social, behavioral and environmental sciences and health policy that are relevant to pharmacy. Develop an understanding of the law relating to pharmacy and medicines, regulatory affairs, ethics of health care and its impact on relationships with patients and other health care professionals. Understand the factors affecting the delivery of pharmacy services. Application of management in the various pharmacy practice settings; hospital, etc.



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ALALAMEIN INTERNATIONAL UNIVERSITY



PPP405 Pharmacotherapy I

3 Cr. Hrs. = (2 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 150 – ECTS = 5 Prerequisite PPT305

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 cardiovascular disorders. These disorders include hypertension, dyslipedemia, angina syndromes, acute coronary syndromes, venothromboembolic disorders, heart failure, stroke and arrhythmia. The course also gives on overview on the management of these disorders in special populations.

PPP406 Integrated Case based Learning III

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

Prerequisite PPT305

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 diseases & implementing evidence based medicine using SOAP notes & appropriate clinical scores whenever required.

Pharmacotherapy II **PPP407**

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PPP406**

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. These infectious diseases include upper and lower respiratory, urinary tract, sepsis, skin & soft tissue, tuberculosis, meningitis and various other

infections. The course also gives on overview on 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 the antibiotic stewardship programs.

PPP408 Hospital Pharmacy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite PPH203 - PPH204 - PPH305 - PPH306

The course provides an overview on the institutional patient care including; the organization of the hospital pharmacy, the drug distribution systems & hospital committees. The course introduces the students to the aseptic techniques and the regulatory guidelines governing preparation, formulation & storage of IV admixtures. The course acquaints students with the preparation, components & complications of specialized nutritional support (parenteral & enteral nutrition). The ambulatory care practice is also addressed.

PPP409 Principles of Drug Information

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 45 - ECTS = 2

Prerequisite - - -

The course will introduce the students to the term drug information & identify services offered by drug information centers. Describe the skills required to perform medication information functions & identify the major factors that hindered this. Describe methods of searching, analyzing & providing medication information to patients & other healthcare professionals. Describe the various drug information resources & their advantage & disadvantages.

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PPP410 Pharmaceutical Care

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite PPP405

The course provides an overview of the pharmaceutical care implementation in the various endocrine & pulmonary diseases. The course will acquaint the students with the clinical presentation, diagnostic criteria, classification criteria and latest evidence based management guidelines of the various endocrine & endocrine disorders. These disorders include pituitary, adrenal & thyroid gland disorders, diabetes mellitus, obesity, asthma, chronic obstructive pulmonary disorders and others.

PPP411 Integrated Case based Learning IV

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

Prerequisite **PPP405**

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.

PPP512 Pharmacotherapy III

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite PPP407

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 on overview on the management of these disorders in special populations.

PPP513 Clinical Pharmacokinetics

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 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 principle of the linear and non-linear pharmacokinetic models and their application. The course will address various drug monographs such as: antibiotics, digoxin, immunosuppressants, methotrexate, antidepressants, theophylline, lidocaine and phenytoin & their relevant pharmacokinetics aspects & dosage adjustments in the different clinical situations.

PPP514 Community Pharmacy

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite PPH203 - PPH204 - PPH305 - PPH306

The course covers some social and business aspects of pharmacy practice. The communication skills & tools required in the community to assess a patients' problems. Overview of the various minor ailments & the required over the counter medications to treat them & the referral procedures. These minor ailments include; respiratoy system, ophthalmic & otic conditions, headaches, gastroenterology, dermatology, pediatrics & musculoskeletal disorders.

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PPP515 Integrated Case based Learning V

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite PPP407

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.

PPP516 Pharmacy Seminars I

1 Cr. Hrs. = (0 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 30 – ECTS = 1

Prerequisite **PPP409**

This will include the presentation of various patient cases & scenarios. The designing and presenting of effective presentations. Effective communication for patient interviewing. Basic elements of a well formatted CV & letter of intent.

PPP517 Pharmacotherapy IV

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5**

Prerequisite **PPP512**

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 oncologic & hematologic disorders. These disorders include anemias, breast cancer, malignant lymphoma, acute leukemia, oncologic emergencies and others. The course also gives on overview on the management of these disorders in special populations.

PPP518 Pharmacotherapy V

3 Cr. Hrs. = (**2** LCT + **0** TUT + **2** LAB + **0** OTH) – SWL = **150** – ECTS = **5** Prerequisite **PPP512**

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 others. The course also gives on overview on the management of these disorders in special populations.

PPP519 Pharmaceutical Ethics and Legislation

1 Cr. Hrs. = (1 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 45 – ECTS = 2

Prerequisite - - -

The course provides a study of the Egyptian practice legal system in terms of the basis of pharmacy law & the Egyptian food, drug and cosmetics acts: Definitions (drug, device, cosmetic, label, etc.). It addresses the professional behavior for pharmacist. Sale and supply of medicines: Evaluation and management of risk and provision of advice. Basic illegal acts as Adulteration and misbranding are highlighted. Prescription exemption & guidance for submission of medicines are also overviewed. Comprehend the laws and ethics of practice of the profession used during the manufacturing process.

PPP520 Integrated Case based Learning VI

2 Cr. Hrs. = (1 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 105 – ECTS = 4 Prerequisite PPP512 PHARMACOTHERAPY III

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 multiple disease states & implementing evidence based medicine using SOAP notes & appropriate clinical scores whenever required.

PPP521 Pharmacy Seminars II

1 Cr. Hrs. = (0 LCT + 0 TUT + 2 LAB + 0 OTH) – SWL = 30 – ECTS = 1

Prerequisite PPP409 PRINCIPLES OF DRUG INFORMATION

This will include the presentation of various patient cases & scenarios. The designing and presenting of effective presentations. Effective communication for patient interviewing. Seminars will address illicit drug use, topics of debate in the healthcare system. The basics of interviewing. Allowing students to design teaching materials.

PPP522 Pharmacoepidemiology

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

Prerequisite - - -

The course will introduce the student to epidemiology & descriptive study designs, cohort study design & randomized controlled studies. Overview of registries & writing protocol- study report, systematic review & meta-analysis. Evidence based medicine & its application in practice.

PPP523 Pharmacy skills and patient counseling

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

Prerequisite **REGISTRATION**

The pharmacist-patient relationship. Regulations concerning patient counselling. Legal issues affecting patient counselling. Overview of communication skills. The counselling environment and design. The use of Pharmacy technicians in patient counselling. Patient medication

profile development. The prescription label. Counselling the patient. Applying patient counselling to the practice setting.

PPP524 Patient safety and informatics

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

Prerequisite - - -

Introduction to Pediatrics. Pediatric Pharmacokinetics. Introduction to Neonatology. Medication Safety. Communicating with Children and Their Caregivers. Pediatric Dermatology. Cardiovascular/Pulmonary. Gastrointestinal. Renal/Endocrinology. Neuro/Psychiatric. Infectious Diseases/Immunology. Hematology/Oncology.

PPP525 Pediatric Pharmacotherapy

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

Prerequisite **REGISTRATION**

Introduction to Pediatrics. Pediatric Pharmacokinetics. Introduction to Neonatology. Medication Safety. Communicating with Children and Their Caregivers. Pediatric Dermatology. Cardiovascular/Pulmonary. Gastrointestinal. Renal/Endocrinology. Neuro/Psychiatric. Infectious Diseases/Immunology. Hematology/Oncology.

PPP526 Geriatric Pharmacotherapy

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

Prerequisite - - -

Challenges in geriatric care. Geriatric assessment. Adverse drug events and medication management. Cardiovascular disorders. Respiratory disorders. Renal and urologic disorders. Endocrine disorders. Gastrointestinal disorders and nutrition. Infections and antimicrobial stewardship.



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 PPP527
 Patient care & Biometric

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

 Prerequisite

 PPT 406

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 in 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 applies 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.

PPP528 Project management in clinical trials

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite *AFTER 3RD YEAR OF THE PROGRAM*

Overview Assignment of Course Project Introduction to the Drug Development Process. Introduction to 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.

PPP529Clinical trials & monitoring

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 90 – ECTS = 4 Prerequisite *AFTER 3RD YEAR OF THE PROGRAM*

Introduction and Objectives. Regulation and human subject protection. Regulation and GCPs. ICH guidelines for good clinical practice. FDA Regulations for clinical trials. Good clinical practice (GCP). Roles and responsibilities in clinical trials. Institutional review board. Clinical investigator. Clinical trials. Protocol preparation. Informed consent. Basic element of informed consent. Monitoring informed consent. Study design and statistical issues. Study monitoring. Adverse events and safety monitoring.

PPP631 Advanced Community Pharmacy Practice

5 Cr. Hrs. = (5 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 225 - ECTS = 9

Prerequisite - - -

Each of the clinical clerkship rotations provides five weeks' experience (5 weeks' x 5 days' x 8 hrs./day = 200 training hours for each rotation = 5 credit hours). In all rotations the students will be under the supervision of a clinical staff 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.

PPP632 Advanced Institutional (hospital) Practice

5 Cr. Hrs. = (5 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 225 - ECTS = 9

Prerequisite - - -

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.

PPP633 Acute medicine experiences (2 rotations)

10 Cr. Hrs. = (**10** LCT + **0** TUT + **0** LAB + **0** OTH) – SWL = **450** – ECTS = **19** Prerequisite - - -

Acute medicine experiences have primary emphasis on caring for acutely ill hospitalized patients (i.e. not in associated long-term care Examples facilities). include: Internal Medicine. Cardiology, Oncology, Neurology, Surgery/Transplantation. Disease. Gastroenterology, Infectious 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.

PPP634 Outpatient medicine experiences (2 rotations) 10 Cr. Hrs. = (10 LCT + 0 TUT + 0 LAB + 0 OTH) – SWL = 450 – ECTS = 19

Prerequisite - - -

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.

PPP635 Elective experiences

10 Cr. Hrs. = (10 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 450 - ECTS = 19

Prerequisite - - -

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.



نائب رئيس الجامعة للشئون الأكاديمية Vice President for Academic Affairs

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SHS010 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.

SHS021 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

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spoken English. It will enable them to pass English proficiency exam to lead to following level.

SHS022 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.

SHS101 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.

SHS103 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 Behaviour. Sensing and Perceiving. States of Consciousness. Growing and Developing. Learning. Remembering and Judging. Intelligence and



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Language. Emotions and Motivations. Personality. Defining Psychological Disorders. Treating Psychological Disorders. Psychology in Our Social Lives.

SHS104 Theory of Political Communication

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

Prerequisite - - -

communication theories and media influence, theories on research in the field of communication and information of political, social and economic circumstances. applications in communicative situations.

SHS105 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.

SHS106 Strategic Planning

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

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individuals. Community participation to build knowledge societies. Opportunities, tools and means of community participation in the digital age: global experiences.

SHS107 **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.

SHS111 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.

SHS112 **Critical Thinking**

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

Prereauisite - - -

Define critical thinking, explore different thinking habits, Truth and


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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.

SHS113 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 Magama, its foundation and development in Arabic literature. Methods of artistic prose. Scientific Encyclopedias and their role in maintaining the Arab and Islamic heritage.

SHS114 **Literary 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 appreciator the arts and bringing out their aesthetic values and canvases. Art schools and literary and intellectual trend.

SHS115 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

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emergence and development of Arabic short story. Schools of modern Arabic criticism - similarities and diversity in modern Arabic literature.

Search Skills and Analysis SHS116

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.

The Character of Egypt SHS117

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.

SHS120 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

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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.

SHS122 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 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.

SHS130 Frensh 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.

SHS140 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.

SHS141 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.

SHS142 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.

SHS143 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.

SHS150 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



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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 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.

SHS204 Urban Sociology

2 Cr. Hrs. = (2 LCT + 0 TUT + 0 LAB + 0 OTH) - SWL = 90 - 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.

SHS205 Basics 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.

SHS206 Fundamentals of Economics

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

Prerequisite - - -

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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.

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SHS207 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.

SHS209 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.

SHS216 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.

SHS217 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 worming: 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.

SHS218 Medical Geography

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

Prerequisite - - -

Medical Geography: 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.





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