Software Engineering Program

1] General Outlines of the Program

-Total number of credit hours is 129
-University requirements 12 CH
-Faculty requirements 54 CH
- Specialization requirements 54 CH
-Free electives 9 CH

2] University requirements:

12 CH: 6 Compulsory + 6 Electives

رقم المقرر	اسم المقرر	عدد الساعات المتعددة	محاضره	تمارين / عملي	المتطلب السابق
مواد إجبارية (6 ساعات 3 مقرر)					
أنس 111 HU111	لغة إنجليزية English 1	2	2	-/ -	.
أنس 112 HU 112	لغة انجليزية 2 English 11	2	2	-/ -	.
أنس 313 HU 313	حقوق الإنسان Human Rights	2	2	-/ -	.
مواد اختيارية (6 ساعات 2 مقرر)					
أنس 121 HU121	مبادئ الاقتصاد Fundamentals of Econon	3	3	-/ -	.
أنس 334 HU334	أخلاقيات المهنه Professional Ethics	3	3	-/ -	.
أنس 323 HU323	مبادئ المحاسبة Fundamentals of Accoun	3	3	-/ -	.
أنس 331 HU331	مهارات التفاوض والاتصال Communication & Negoti	3	3	-/ -	.
أنس 332 HU332	التفكير الإبداعي Creative Thinking	3	3	-/ -	.

3] Faculty requirements: 54 CH: 45 Compulsory + 9 Electives

رقم المقرر	اسم المقرر	عدد الساعات المعتمدة	محاضره	تمارين / عملي	المتطلب السابق
مواد إجبارية (42 ساعة = 13 مقرر)					
ريض111 MA111	رياضيات – 1	3	3	2/-	.
ريض112 MA112	تراكيب محددة	3	3	2 /-	.
ريض113 MA 113	رياضيات – 2	3	3	2 /-	رياضيات-1
احص121 ST 121	إحصاء واحتمالات – 1	3	3	2 /-	.
تقن111 IT 111	الكترونيات – 1	3	3	2/ -	.
نال 110 IS 110	مقدمة في المعلوماتية	3	3	2/ -	
حسب112 CS 112	برمجة الحاسبات – 1	3	3	2/ -	مقدمة في المعلوماتية
حسب111 CS 111	مقدمة في الحاسبات	3	3	2/ -	.
حسب221 CS 221	تصميم منطقي	3	3	2 /-	.
أنس 122 HU 122	مبادئ الإدارة	3	3	- /-	
حسب214 CS 214	هياكل البيانات	3	3	2/ -	برمجة الحاسبات1
تقن221 CS 221	تراسل البيانات	3	3	2 /-	رياضيات-2
حسب241 CS 241	نظم تشغيل – 1	3	3	2/ -	برمجة الحاسبات-1
حسب213 CS 213	برمجة الحاسبات – 2	3	3	2/ -	برمجة الحاسبات-1
تقن 222 IT 222	شبكات الحاسبات – 1	3	3	2/ -	تراسل البيانات

مواد اختيارية (9ساعات =3 مقررات)					
حسب316 CS 316	خوارزميات	3	3	2 / -	برمجة الحاسبات-1
نال 241 IS 241	النمذجة والمحاكاة	3	3	2 / -	-
احص122 ST 122	إحصاء واحتمالات – 2	3	3	2 / -	إحصاء واحتمالات-1
حسب361 CS 361	الذكاء الاصطناعي	3	3	- / 2	برمجة الحاسبات -1
تقن 331 IT 331	نظم الرسم بالحاسب – 1	3	3	- / 2	برمجة الحاسبات -1
نال 313 IS 313	تخزين واسترجاع البيانات	3	3	2 / -	نظم قواعد البيانات -1
نال 421 IS 421	التنقيب في البيانات	3	3	- / 2	نظم قواعد البيانات-1
نال 422 IS 422	مستودعات البيانات	3	3	2 / -	نظم قواعد البيانات -1

4] Specialization requirements: 54 CH: 42 Compulsory + 12 Electives

رقم المقرر	اسم المقرر	عدد الساعات المعتمدة	محاضره	تمارين/ عملي	المتطلب السابق
مواد إجبارية (42 ساعة = 13 مقرر)					
نال 240 IS 240	بحوث العمليات	3	3	2 /-	
نال 351 IS 351	هندسة برمجيات – 1	3	3	2 / -	-
نال 352 IS 352	هندسة برمجيات – 2	3	3	2 / -	هندسة برمجيات -1
نال 211 IS 211	نظم قواعد البيانات – 1	3	3	2 / -	-
تقن 223 IT 223	تكنولوجيا الإنترنت	3	3	2 / -	-
نال 333 IS 333	نظم المعلومات الإدارية	3	3	2 / -	أساسيات المعلوماتية
نال 321 IS 321	إدارة مشروعات البرمجيات	3	3	2 / -	-
نال 312 IS 312	نظم قواعد البيانات – 2	3	3	2 / -	نظم قواعد البيانات 1
نال 345 IS 345	تطبيقات الإنترنت	3	3	2 / -	تكنولوجيا الإنترنت
نال 453 IS 453	منهجيات تطوير نظم المعلومات	3	3	2 / -	هندسة برمجيات 2.
نال 434 IS 434	تأكيد جودة البرمجيات ونظم المعلومات	3	3	2 / -	هندسة برمجيات 2.
حسب396 CS 396	موضوعات مختارة فى هندسة البرمجيات	3	3	2 / -	
حسب498 CS 498	مشروع	6	3	6 / -	
مواد اختيارية (12 ساعات = 4 مقررات)					
نال454	هندسة المعلومات	3	3	2 / -	هندسة برمجيات 1.

IS 454					
نال 451 IS 451	نظم دعم اتخاذ القرار	3	3	2 / -	هندسة برمجيات .1
نال 414 IS 414	تأمين نظم المعلومات	3	3	2 / -	نظم قواعد البيانات 1
نال 415 IS 415	قواعد البيانات الشيئية	3	3	2 / -	نظم قواعد البيانات 1
نال 442 IS 442	التجارة الإلكترونية	3	3	2 / -	تطبيقات الانترنت-1
نال 435 IS 435	إدارة مراكز المعلومات	3	3	2 / -	
نال 460 IS 460	توثيق البرمجيات	3	3	2 / -	هندسة برمجيات .1
نال 332 IS 332	التقسيم الوظيفي للأعمال	3	3	2 / -	هندسة برمجيات .1

5] Free Electives (9 CH)

يختار الطالب مجموعة مقررات بما يعادل (9) ساعات معتمدة من أي مقررات تقدمها الجامعة

بموافقة المشرف الأكاديمي وبشرط ألا تكون من مقررات تخصص هندسة البرمجيات.

تفاصيل محتويات المقررات الدراسية

Course
Descriptions

HU 111 English – I

أنس 111 لغة إنجليزية – 1

The material reflects the stylistic variety that advanced learners have to be able to deal with ; The course gives practice in specific points of grammar to consolidate and extend learner's existing knowledge ; Analysis of syntax ; comprehension ; Skimming and scanning exercises develop the learners skills ; comprehension questions interpretation and implication ; the activities and games used develop listening ; speaking and writing skills through a communicative ; functional approach ; with suggested topics for discussion and exercises in summary writing and composition.

HU 112 English – II

أنس 112 لغة إنجليزية – 2

this course aims to give the student the basic rudiments of report writing ; The rationale for report writing ; the structure of reports ; and such details as physical appearance and linguistic style will be discussed ; In addition to writing reports ; student will also be given supplementary exercises ; as necessary ; to enhance their general writing skills.

HU 113 English – III

أنس 113 لغة إنجليزية – 3

this course is essentially a business English course. It aims to give the student the basic rudiments of business terms, reporting, and writing in general. Conversation is a core part in this course. Students are grouped in circles and guided conversations are commenced.

HU 121 Fundamentals of Economics

إنس 121 مبادئ فى الاقتصاد

Concept of economics. The economic problem. Supply and demand. Theory of demand including utility theory, theory of production, theory of cost, theory of firm including pricing theory. Economics of education. Economics of science and technology .Economics of automation including computerization.

HU 122 Fundamentals of Management

إنس 122 مبادئ فى الادارة

History of Management, planning, fundamentals of planning, making decisions, strategic planning, plans and planning tools. Organizing and managing human resources. Influencing, leadership, controlling. Production management and control. Quality management. Management of service industries.

HU 334 Professional Ethics

إنس 334 أخلاقيات المهنة

Social context of computing, methods and tools of analysis of ethical argument, professional and ethical responsibilities, risks and liabilities of safety-critical systems, intellectual property, privacy and civil liberties, social implications of the Internet, computer crime, philosophical foundations of ethics

HU 313 Human Rights

إنس 313 حقوق الإنسان

Introduction, human rights in the Roman empire and other ancient civilizations, human rights in Islam, analysis of civil, political, economic, social and cultural rights together with freedoms and liberties protected by various constitutions, the framework and evolution of international human rights law within the system established by the United Nations Organization, relation to its antecedents, establishing documents, processes of norm creation and application, and present methods and activities of monitoring.

HU 323 Principles of Accounting

إنس 323 أساسيات المحاسبة

This course covers basic financial accounting principles for a business enterprise. Topics include the accounting cycle, merchandising accounts, asset valuation, income measurement, partnership accounting, and corporate accounting.

HU 331 Communication & Negotiation Skills

إنس 331 مهارات التفاوض والاتصال

The course introduces students to theories of communication and how to translate theories into complete strategies for communicating with diverse audiences. The course focuses on written communications including memoranda, letters, executive summaries, and business and research reports. The course also

focuses on oral communications including listening, presentation skills, interviewing, conducting meetings, and interpersonal communication. Course content also includes negotiation, intercultural communication, and the importance of communication in team building.

HU 332 Creative Thinking

إنس 332 التفكير الإبداعي

In This course students will learn the tools and techniques that people in organizations can use to increase their creative capacity and to apply these creative resources to the world of work. The course will cover individual and organizational opportunities for creativity, options for overcoming blocks to creativity, analyze situations that require creative thinking, implement the products of the creative process, and use of various tools for enhancing creativity skills

MA 111 Mathematics – 1

ريض 111 رياضيات – 1

Limits and continuity , Differentiation , trigonometric functions; Applications of differentiation ; Integration ; Techniques of integration ; Applications of integration .

MA 112 Discrete Mathematics

ريض 112 تراكيب محددة

Sets; sequences , algorithms and preudocode , induction and recursion ; relations and functions ; Graphs , lattices, number systems and codes , Boolean algebra ; Formal logic; trees and languages; semi groups and groups

MA 113 Mathematics – 2

ريض 113 رياضيات – 2

Indeterminate forms; Taylor's formula and improper integrals ; Infinite series; Fourier series and Fourier integral ; parametric curves and vectors in the plane ; vectors, curves and surfaces in space; Binomial theorem ; Partial fractions; Partial different ion

MA 214 Mathematics – 3

ريض 214 رياضيات – 3

Matrices and operations; homogenizes and non homogenous linear equations; Determinants ; vector spaces and subspaces; Eigen values and eigenvectors ; Differential equations ; Applications; laplace transform ; z – transform ; Applications

ST 121 Probability and Statistics – 1

احص 121 إحصاء واحتمالات – 1

Sample space ; probability axioms ; combinational techniques ; conditional probability ; independence and Bayes theorem ; Random variables ; distribution functions ; moments and generating function ; Some probability distributions ; Joint distribution ; the Chebyehev inequality and the law of large numbers ; The central limit theorem and sampling distribution.

ST 122 Probability and Statistics – 2

احص 122 إحصاء واحتمالات – 2

Sampling; Estimation theory ; estimation mean, linear regression ; correlation; CHI,t, and F distribution ; Applications

CS 112 Programming – 1

حسب 112 برمجة الحاسبات–1

Structured program development: problem solving decision structure, repetition structures. Top–down and stepwise refinement. Subprograms: Procedures and functions. Structured data types: one–dimension arrays, sets, records, files: text files, random handling files. Dynamic data structures (pointers). Recursion.

CS 213 Programming – 2

حسب 213 برمجة الحاسبات–2

Object–oriented programming: data abstraction, encapsulation, classes, objects, templates, operator overloading, function overloading, inheritance, polymorphism, exception handling, and streams.

CS 214 Data Structures

حسب 214 هياكل البيانات

Built-in data structures. Stacks, queues, linked lists, and tree structures. Sorting algorithms, searching algorithms, and hashing. Abstract data types (ADT).

CS 221 Logic Design

حسب 221 تصميم منطقي

Basic logic concepts: Logic states, number systems, Boolean algebra, basic logical operations, gates and truth tables. Combinational logic: Minimization techniques, multiplexers and de-multiplexers, encoders, decoders, adders and subtractors, comparators, programmable logic arrays and memories, design with MSI, logic families, tri-state devices. Sequential logic: Flip flops, mono-stable multi-vibrators, latches and registers. , Counters .

CS 241 Operating Systems – 1

حسب 241 نظم التشغيل- 1

Types of operating systems. Operating Systems structures: system components and services, virtual machines. Process management: CPU scheduling: Scheduling concepts, performance criteria, scheduling algorithm. Memory organization and management for single user and multi-user system. Secondary storage management, Disk scheduling, virtual memory.

CS 313 Programming – 3

حسب 313 برمجة الحاسبات-3

Special-purpose programming languages, real-time languages, text processing languages, web programming, mark-up languages.

CS 316 Algorithms

حسب 316 خوارزميات

Algorithm concept: Analysis and complexity. Design methods, divide and conquer, binary search, merge sort, quick sort, selection, matrix multiplication, the greedy method. Dynamic programming: shortest paths, optimal search trees. Backtracking. NP-hard and NP-complete problems.

CS 361 Artificial Intelligence

حسب 361 الذكاء الاصطناعي

Knowledge Representations: Predicate Calculus, Structured Representations, Network Representations. State Space Search: trees and graphs, heuristic search, model based reasoning, case-based reasoning, reasoning with uncertain or incomplete knowledge. Overview of AI languages, Overview of AI Application Areas.

IS 110 Introduction to Informatics

نال 110 مقدمة في المعلوماتية

Introduction to computer and information systems. Types of computers. Computer hardware and software components. Data representation and number systems. Introduction to networking. Introduction to internet, hardware and software components for internet access. Algorithm development, algorithm representation, stepwise refinement, problem solving tools. Office tools.

IS 231 Fundamentals of Information Systems

نال 231 أساسيات نظم المعلومات

The main objective of this course is to teach students the fundamental concepts of the Information Systems (IS) and to make them aware of the importance and the role of IS in the organization. The course includes the following topics : The business and its components and environment, the management functions and considerations, the information systems types and components, the Information Technology (IT) and its impact on information systems, the IS development cycle, the information age and the information society, the IT indicators and the digital divide, and the contemporary applications of IT in IS: E-Business, E-Government, E-Commerce, E-Learning,

IS 211 Database Systems 1

نال 211 نظم قواعد البيانات 1

The main objective of this course is to provide students with the background to design, implement, and use database management systems. Topics Include: Evolution of database management systems, Relational Data Model and Relational Algebra, Structured Query Language, Entity Relationship Modeling and Design, ERM to RM Conversion, Tables Normalization, Forms /

Reports / Menus Implementation

Upon successful completion of this course, students will have the skills to analyze business requirements and produce a viable model and implementation of a database to meet such requirements.

IS 241 Modeling and Simulation

نال 241 النمذجة والمحاكاة

Fundamentals of computer simulation as a modeling technique are presented. Simulation will be versus mathematical modeling. The value of simulation as an experimental tool to support solving the problem and decision making process. Time management in simulation models (concepts of timing routine). Stochastic versus deterministic models. Discrete versus continuous simulation. Deterministic fixed time advance simulation. Stochastic discrete event simulation (event, activity and process-based models). Random sampling on computers. An overview of statistical methods in simulation experiments. Introduction to software tools for simulation purposes. The development of simulation models using procedural and simulation programming languages is stressed throughout the course.

IS 312 Database Systems 2

نال 312 نظم قواعد البيانات2

The main objective of this course is to provide students with an in-depth understanding of the design and implementation of database systems and the administration features of any DBMS. Topics Include: Review of Relational model, E-R Diagramming, Normalization, SQL, Review of Relational Algebra, Query Processing and Optimization, Transaction Processing, Concurrency Control and Recovery, Database Security and Authorization, Database Architectures, Distributed Databases: Architecture, Distributed transaction processing, Object Oriented Databases, Data Warehousing: Heterogeneous component systems, data scrubbing, DW Design. On-Line Analytical Processing (OLAP). Upon successful completion of this course, students will have advanced skills to effectively develop, implement and manage medium to large-scale database management systems.

IS 313 Data Storage and Retrieval

نال 313 تخزين و استرجاع البيانات

This course presents the study of file structures through an object-oriented approach allowing students to acquire the fundamental tools needed to design cost-effective and appropriate solutions to file structure problems. The course includes the following topics: indexing, consequential processing and the sorting of large files on disk and on tape, multilevel indexing and B-trees with its variants, indexed sequential access to files, hashing and extendible hashing. The course is supported with programming assignments on the studied topics.

IS 321 Software Project Management

نال 321 إدارة مشروعات البرمجيات

Evaluation, selection, and organization of technical projects. Concepts of the network-based project management methodology. Network development. Project planning, scheduling, and control. Project cost management. Resource constrained projects. A case study approach is adopted during the course. Commercial software packages will be used throughout the course. The course will also introduce some contemporary project management subjects such as: e-projects, and Intelligent project management.

IS 351 Software Engineering -1

نال351 هندسة برمجيات 1

Overview of software engineering, software requirement: requirement engineering processes, system models, software prototyping. Design: architecture design, distributed system architecture, object oriented design, user interface design.

IS 345 Internet Applications

نال 345 تطبيقات الأنترنت

The Principles of the internet and its protocols, Learning how to design of a simple home page using HTML. DHTML, CSS, the use of script language such as JavaScript and VB Script, The ADO and the XML.

IS 333 Management Information Systems

نال333 نظم المعلومات الادارية

The course is a practical, managerial-oriented approach to show how IT is used in organizations for the improvement of quality and productivity. It lays down the concrete and profound managerial framework in IT management. It features cases drawn from major corporations and small businesses to illustrate how Information Technology innovations can solve organizational problems and challenges. It contains `a variety of cases which highlight problems many corporations encounter, as well as international cases, written by prominent international figures in the field , to illustrate how IT can be adapted to conform to other cultures. It covers a substantial coverage of new technology and applications.

IS 334 Accounting Information Systems

نال334 نظم المعلومات المحاسبية

An overview of the principles of computerized accounting systems. Topics covered include concepts and fundamentals, Transaction information system functions, transaction cycles: Expenditure cycle, Revenue cycle, Production cycle and Human Resources cycle , transaction processing control; systems security, and new developments in computer-based systems,

IS 352 Software Engineering - 2

نال 352 هندسة برمجيات 2

This module aims at enabling the students to understand the range of life cycle approaches, methodologies, tools and techniques available for the design of various aspects of information systems. This module builds on the module Information Systems Analysis and Design I, which would be assumed to have given the students systems analysis skills using at least one systems analysis methodology and related tools and techniques. The course content includes the architectural design (including the identification of architectural

alternatives and evaluating them), software and information systems design & application architecture design; the design of IS interfaces

IS 414 Database Design – 1

نال 414 تصميم قواعد البيانات – 1

Phases of database design, Conceptual database design, Classification, specialization, and aggregation abstraction, The Entity-Relationship model, Extended Entity-Relationship model, View design in conceptual schema, Conceptual schema integration, Transforming conceptual schema to relations, Logical database design, Characteristics of good relation schema, Anomalies in relational schema, Functional dependencies, Inference rules for functional dependencies, Closure and minimal covers for functional dependencies, Normal forms, Transforming relations into third and Boyce-Code normal forms, Multi-valued dependencies and fourth normal form.

IS 421 Data Mining

نال 421 التنقيب فى البيانات

Knowledge discovery in databases, Data mining process, Data cleaning and preparation, Mining association rules, Classification, Prediction, Clustering, Web mining, Applications of data mining, Mining advanced databases.

IS415 Object Oriented Databases

نال 415 قواعد البيانات الشيئية

History of data models, Semantic data models, Problems in record-oriented models, Object data model, Classes and inheritance, Methods and messages, Multiple inheritance, Object queries, Object query language OQL, Indexing in object databases, Processing object queries, Object transactions, Concurrency control in object databases, Security in object databases, Using the object model in advanced applications.

IS 453 Information Systems Development Methodology

نال 453 منهجيات تطوير نظم المعلومات

This module aims at enabling the students to understand the broad principles and concerns that underpin a range of traditional and modern information systems and software development methodologies. This understanding is necessary for the student to be able to compare and contrast current and future tools, techniques, methodologies and life cycle models that are aimed at

supporting the information systems engineer in producing satisfactory information systems on time and within budget. This understanding will help the student in choosing as well as configuring his or her own methods and technique tool kit in response to a particular information systems development situation.

IS 442 E-Commerce

نال 442 التجارة الالكترونية

The course addresses what electronic commerce is, how it is being conducted and managed, and its major opportunities, limitations, issues, and risks, taking a managerial orientation and interdisciplinary approach. It contains sections on applications, supporting electronic commerce, technological infrastructure, and advanced topics like global electronic commerce and future directions. It emphasizes E-Commerce Application and Implementation through Business Models and Technology Essentials.

IS 447 E-Business

نال 447 الأعمال الإلكترونية

Basic concepts of E-Business ; Enterprise Resources planning ; Business on the internet ; Basics of E-Commerce ; Development of E- Business ; E-Business requirements ; Tools for E- Business ; Case studies and applications.

IS 434 Quality Assurance of Information Systems and Programming

نال 434 تأكيد جودة البرمجيات ونظم المعلومات

The aim of this course is to apply quality assurance requirements in all the systems development life cycle phases : IS planning – IS detailed analysis – IS design – IS construction & Software Engineering – IS implementation – IS testing – IS documentation – IS installation – IS maintenance & Follow-up. Also, the course will cover the Capability Maturity Model (CMM) requirements regarding quality assurance.

IS 435 Information Centre's Management

نال435 إدارة مراكز المعلومات

Operations in information centre's, organizational structure and management functions. personnel recruitment, advancement and appraisal. Budgeting, charges and financial analysis. Site selection and preparation,

Hardware and Software acquisition. Information centre standards, procedures and workflow. Job scheduling, resource allocation , users' needs, data communication and performance evaluation. IS project management techniques, project appraisal and selection.

IS 422 Data Warehouses

نال422 مستودعات البيانات

Introduction to Data Warehousing, Evolution of DSS, DW General Topics, Data Warehouse Structure: Granularity, Data Warehouse Design, Building Dimensional DW, OLAP tools, Aggregates, ELT- Extraction/Transformation/ Load processes and tools, Issues of DW Architecture, Enterprise DW vs. Data Marts, DW and Data Mining

IS 332 Business Functions Classification

نال 332 التقسيم الوظيفى للأعمال

A business firm is a formal complex organization that delivers products or services and seeks to maximize profits. A business model may include employees, departments, products, customers, accounts, vendors, suppliers, orders, warehouses, and so forth. A business works in a complex environment. This course helps the student to understand such a model and environment. This understanding is essential for the student who is going to develop information systems to serve the business. The major business functional areas include: manufacturing and production systems, sales and marketing systems, finance and accounting systems, and human resources system. The course covers the details and particularities of these systems. The input, processing, and output components of each system will be studied.

IS 454 Information Engineering

نال 454هندسة المعلومات

Basic Concepts of Information Engineering ; Information Architecture ; Information Engineering Projects ; Informatics Strategic Planning ; Development of Strategic Models ; Business Process Re-engineering ; IT Security and Quality ; IT Quality Standards ; Information Plans ; IRM ; Information Distribution and Integrity ; National and International Information Policies ; Human and Social Aspects of Information Engineering.

IS 444 Multimedia Information Systems

نال 444 نظم معلومات لوسائط المتعددة

Multi dimensional data structure (K-d tree, Point trees, M-X trees and R trees). Image database and the different techniques of compression and segmentation. An overview about the text/document database, Video database and Audio one.

IS 446 Internet Information Systems

نال 446 نظم معلومات الشبكة الدولية

This course is the advanced course of the last one, after this course we can learn ASP, ASP. Net, how to connect a different types of database (Oracle, SQL server and access) with my home page, java applet and application and in the end we can see the Internet security and the interface design.

IS 451 Decision Support Systems

نال 451 نظم دعم اتخاذ القرار

Problem solving, decision-making process , model building , types of computer based information systems Approaches and techniques to construct and implement an effective computer-based Decision Support Systems (DSS). Alternative software development tools or generators of a DSS. The role of computational tools (simulation, optimization, statistical and other quantitative models) and computer information systems (MIS, AI and ES) to support and enhance the capability of the DSS. Discussion and analysis of real life case studies of integrated DSS is stressed throughout the course.

IS396 Selected Topics in Software Engineering

نال 396 موضوعات مختارة فى هندسة البرمجيات

This course aims at introducing students to novel topics in software engineering that need to be identified in a responsive manner as technology and its use evolve and develop. This course is essentially a flexibility enhancing will be filled on a year-by-year basis.

IS 498 Project

نال 498 مشروع

This component is Final Year BSc project, which is essentially an exercise in systematic independent study and work, which must be executed and reported

on to a satisfactory standard. The project provides students with the experience of planning and bringing to fruition a major piece of individual or group work. The module aims to encourage and reward creativity, initiative, intellectual discipline, clarity of communicating ideas and application of effort. Group projects also give the students a valuable experience of co-coordinating work with and organizing a group that aims at a technical product. A wide range of tasks can be undertaken, but almost always leading to the implementation of an information system, software or other information technology artifact.

IT 111 Electronics – 1

تقن 111 إلكترونيات – 1

Introduction, Insulators, Conductors, Semiconductors, Resistors, Capacitors, Coils, Diodes, Application of diodes, Rectifiers, Power supplies, LEDs, Voltage regulators, Transistors, Amplifiers, Timers, Applications.

IT 221 Data Communication

تقن 221 تراسل البيانات

Data transmission concepts, Terminology and techniques, Types and sources of data, communication models, Standards. Data Transmission techniques, Transmission media and characteristics. Information theory, Information sources, Information measure, entropy, Source codes: return-to-zero and non-return-to-zero signaling, Analog and digital transmission, Optical fiber systems, Modems, modulation; Transmission impairments, Data encoding techniques, Multiplexing techniques.

IT 222 Computer Networks – 1

تقن 222 شبكات الحاسب – 1

Definition and objectives, Classifications, topologies, Architecture, standards, Applications, ISO-OSI model, Switching techniques, Error detection and Correction, Network protocols, Routing strategies and techniques, Flow control, Congestion control , Public switched data network. Internetworking ; Introduction to ISDN and B-ISDN.

IT 223 Internet Technology

تقن 223 تكنولوجيا الانترنت

Networking essentials, Internet TCP/IP suit, Internet domains, Addressing, Internet infrastructure and info-structure, Internet protocols, Internet hardware components, Internet accessing, Internet and Extranet, Video conferencing over Internet, Mailing Voice over IP; Multimedia communication over Internet, Audio, Video streaming Website design and application.

IT 331 Computer Graphics – 1

تقن 331 نظم الرسم بالحاسب

Introduction to Computer Graphics ; Overview of Graphics systems ; Line drawing algorithms ; Circle drawing algorithms ; Ellipse drawing algorithms ; Area filling algorithms ; Polygon filling algorithms ; Line clipping algorithms ; Polygon clipping algorithms ; Two dimensional transformations; (translation – rotation – scaling – general transformations – composite transformations) ; Three dimensional object representation and Projections ; Three dimensional modeling and transformations (translation – rotation – scaling – sheer – reflection – composite) ; Three dimensional Viewing and Camera Model.