

1.	School	Faculty of Information Technology and Systems
2.	Department	Computer Information Systems
3.	Program title (Arabic)	بكالوريوس في أنظمة المعلومات الحاسوبية
4.	Program title (English)	B.Sc. in Computer Information Systems

5. Components of Curriculum:

The curriculum for the bachelor's degree in Computer Information Systems consists of (132) credit hours distributed as follows

Number	Type of requirement	Credit Hours
First	University Requirements	27
Second	Faculty Requirements	24
Third	Department Requirements	81
Total		132

6. Numbering System:

A. Department number

Number	Department
01	Computer Information Systems (CIS)
02	Business Information Technology (BIT)

B. Course number

Domain number	Domain title	Domain number	Domain title
0	General	5	Applications
1	Languages	6	Distributed System and Communication
2	Information Systems and Management	7	Systems Development
3	Hardware and Fundamental Foundations	8	Specialized Topics
4	Theoretical Foundations	9	Special Topics and Project

C. Course number consists of 7 digits, for example: (5401231) Data Structure

School	Department	Level	Domain	Serial number
5	4	0	1	2
			3	1

First: University Requirements (27 Credit Hours):

Preparation Program Requirements

All students admitted to the university must apply for a degree examination in Arabic and English and the computer is prepared or approved by the university to determine their level. Based on the results of the examinations, either the student will study one or more of the requirements of the preparatory program.

(0 - 15 Credit Hours)

No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Basics of Arabic	5122099	3		Pass/Fail
2	Arabic Languages Skills	5122103	3	5122099	Pass/Fail
3	Basics of English	5111099	3		Pass/Fail
4	English Language Skills	5111103	3	5111099	Pass/Fail
5	Basics of Computing	5411099	3		Pass/Fail

Compulsory Requirements (18 Credit Hours)					
No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Military Science	5151100	3		
2	National Culture	5152101	3		
3	Learning & Research Skills	5191100	3	5111099	
				5122099	
				5411099	
4	Communication Skills	5191002	3	5191100	
5	Introduction to Philosophy and Critical Thinking	5131103	3	5191100	
6	Human Civilization	5102100	3		

Electives (9 Credit Hours)					
Elective courses: (9) credit hours to be chosen from the first, second and third groups mentioned below. The student has to choose one course from each of the groups.					
(First Group)					

No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Islam and Current Issues	5110099	3	---	
2	Great Books	5110100	3	---	
3	Arab-Islamic Civilization	5110101	3	---	
4	Jordan: History and Civilization	5310099	3	---	
5	Jerusalem	5310100	3	---	

Electives (Second Group)					
No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes

1	Physical Fitness Culture	5110102	3	---	
2	Islamic Culture	5111100	3	---	
3	Legal Culture	5141100	3	---	
4	Environmental Culture	5510099	3	---	
5	Health Culture	5510100	3	---	

Electives					
(Third Group)					
No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Appreciation of Arts	5142100	3	---	
2	Foreign Language	5161100	3	---	
3	Entrepreneurship & Creativity	5210099	3	---	
4	Electronic Commerce	5210100	3	---	
5	Special Subject	5310101	3	---	
6	Social Media	5410099	3	---	

Second: School courses: distributed as follows:

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
5401101	Calculus (1)	3	---	3	---
5401105	Discrete Mathematics	3	---	3	---
5401201	Computer Skills for Scientific Faculties	3	---	3	5411099
5401215	Advanced Programming	3	---	3	5401201
5401231	Data Structures	3	---	3	5401215
5401321	Database Management Systems	3	---	3	5401231
5402101	Fundamentals of IT	3	---	3	---
5402121	Web Applications Development (1)	3	---	3	5401201

Third: Specialty courses: (81) credit hours distributed as follows:

A. Obligatory specialty courses: (69) credit hours

B. Elective specialty courses: (12) credit hours

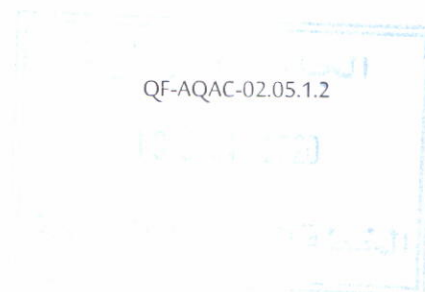
A. Obligatory specialty courses: (69) credit hours:

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
5401106	Linear Algebra	3	---	3	---
5401131	Principles of Statistics	3	---	3	---
5401204	Digital Logic	3	---	3	5401201
5401211	Object Oriented Programming (1)	3	---	3	5401215
5401303	Visual Programming	3	---	3	5401321
5401322	Information Security and Privacy	3	---	3	5401341
5401341	Theory of Algorithms	3	---	3	5401231
5401342	Artificial Intelligence	3	---	3	5401341
5401353	Human Computer Interaction	3	---	3	5401231

5401361	Computer Networks (1)	3	---	3	5401341
5401415	Data Warehousing and Data Mining	3	---	3	5401342 & 5401321
5401446	Information Retrieval	3	---	3	5401415
5401453	Information Systems Applications	3	---	3	5402232
5401457	Database Languages and Tools	3	---	3	5401321
5401462	Network Security	3	---	3	5401361 & 5401322
5401471	Systems Analysis and Design	3	---	3	5401321
5401472	Software Engineering	3	---	3	5401471
5401473	Operating Systems	3	---	3	5401341
5402203	Documentation and Ethics	3	---	3	5402101
5402232	Management Information Systems	3	---	3	5402101
5402352	Web Publishing	3	---	3	5402121
5402353	Web Applications Development (2)	3	---	3	5402352
5402496	Graduation Project	3	---	3	Department Approval and Complete (90) credit hours
5402498	Training	(8) Weeks		0	Department Approval and Complete (90) credit hours

B. Elective specialty courses: (12) credit hours:

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
5401312	Object Oriented Programming (2)	3	---	3	5401211
5401355	Computer Assisted Learning	3	---	3	5402232
5401442	Machine Learning	3	---	3	5401342
5401445	Natural Language Processing	3	---	3	5401342
5401455	Image Processing	3	---	3	5401341
5401485	Special Topics (CIS)	3	---	3	Depart. Approval
5402244	Operations Research	3	---	3	5401105
5402313	Smartphones Applications Programming	3	---	3	5401211 & 5401321
5402332	Decision Support Systems	3	---	3	5402232
5402335	Information Resources Management	3	---	3	5402232
5402351	Multimedia	3	---	3	5401215
5402354	e-Business	3	---	3	5402232
5402422	Project and Quality Management	3	---	3	5401321
5402452	Enterprise Resources Planning	3	---	3	5402232
5402454	Content Management Systems	3	---	3	5402353
5402455	Knowledge Management System	3	---	3	5402232 & 5401342
5402473	Business Intelligence	3	---	3	5401415



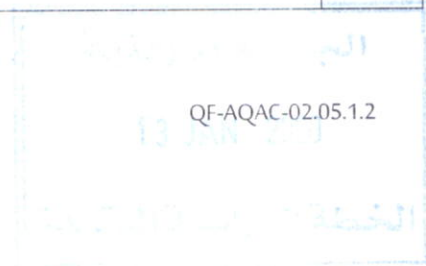
Fourth: Courses offered by other Department

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
5402101	Fundamentals of IT	3	---	3	---
5402121	Web Applications Development (1)	3	---	3	5401201
5402203	Documentation and Ethics	3	---	3	5402101
5402232	Management Information Systems	3	---	3	5402101
5402244	Operations Research	3	---	3	5401105
5402313	Smartphone Applications Programming	3	---	3	5401211 & 5401321
5402332	Decision Support Systems	3	---	3	5402232
5402335	Information Resources Management	3	---	3	5402232
5402351	Multimedia	3	---	3	5401215
5402352	Web Publishing	3	---	3	5402121
5402353	Web Applications Development (2)	3	---	3	5402352
5402354	e-Business	3	---	3	5402232
5402422	Project and Quality Management	3	---	3	5401321
5402452	Enterprise Resources Planning	3	---	3	5402232
5402454	Content Management Systems	3	---	3	5402353
5402455	Knowledge Management System	3	---	3	5402232 & 5401342
5402473	Business Intelligence	3	---	3	5401415
5402496	Graduation Project	3	---	3	Depart. Approval
5402498	Training	(8) Weeks		3	Depart. Approval

Fifth: Advisory Study Plan for CIS Department

First Year

First Semester			Second Semester		
Course No.	Course Title	Cr. Hours	Course No.	Course Title	Cr. Hours
5411099	Basics of Computing	0	5401106	Linear Algebra	3
5402101	Fundamentals of IT	3	5401201	Computer Skills for Scientific Faculties	3
5401101	Calculus (1)	3	5401131	Principles of Statistics	3
5401105	Discrete Mathematics	3	---	Compulsory or Elective Un. Req.	3
---	Compulsory or Elective Un. Req.	3	---	Compulsory or Elective Un. Req.	3
Total		12	Total		15



Second Year

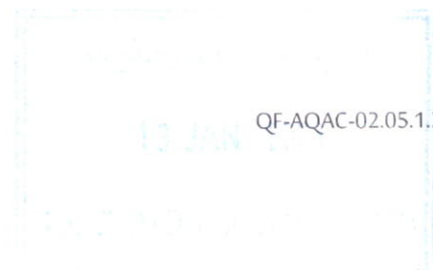
First Semester			Second Semester		
Course No.	Course Title	Cr. Hours	Course No.	Course Title	Cr. Hours
5401204	Digital Logic	3	5401211	Object Oriented Programming (1)	3
5401215	Advanced Programming	3	5401231	Data Structures	3
5402121	Web Applications Development (1)	3	5402352	Web Publishing	3
5402232	Management Information Systems	3	5402203	Documentation and Ethics	3
---	Elective Department Req.	3	---	Elective Department Req.	3
---	Compulsory or Elective Un. Req.	3	---	Compulsory or Elective Un. Req.	3
Total		18	Total		18

Third Year

First Semester			Second Semester		
Course No.	Course Title	Cr. Hours	Course No.	Course Title	Cr. Hours
5401321	Database Management Systems	3	5401342	Artificial Intelligence	3
5401341	Theory of Algorithms	3	5401322	Information Systems Security	3
5401353	Human Computer Interaction	3	5401361	Computer Networks (1)	3
5402353	Web Applications Development (2)	3	5401473	Operating Systems	3
---	Elective Department Req.	3	5401303	Visual Programming	3
---	Compulsory or Elective Un. Req.	3	---	Compulsory or Elective Un. Req.	3
Total		18	Total		18

Fourth Year

First Semester			Second Semester		
Course No.	Course Title	Cr. Hours	Course No.	Course Title	Cr. Hours
5401471	Systems Analysis and Design	3	5401472	Software Engineering	3
5401457	Database Languages and Tools	3	5401446	Information Retrieval	3
5401415	Data Warehousing and Data Mining	3	5402496	Graduation Project	3
5401453	Information Systems Applications	3	5402498	Training	0
5401462	Networks Security	3	---	Elective Department Req.	3
---	Compulsory or Elective Un. Req.	3	---	Compulsory or Elective Un. Req.	3
Total		18	Total		15



Course Description

5411099	Basics of Computing	(3) Credit Hours
Prerequisite: (None)		
An introduction to Computing and Information Technology, Topics covered include the basic Structure of digital computer systems, microcomputers, operating systems, application software, database technology, data communication and networks, and the Internet, hands-on learning using Windows, MS-office and the Internet, weekly practice in the lab.		
5401101	Calculus (1)	(3) Credit Hours
Prerequisite: (None)		
Functions: domain, operations on functions, graphs of functions; trigonometric functions; limits: meaning of a limit, computational techniques, limits at infinity, infinite limits ;continuity; limits and continuity of trigonometric functions; the derivative: techniques of differentiation, derivatives of trigonometric functions; the chain rule; implicit differentiation; differentials; Roll's Theorem; the mean value theorem; the extended mean value theorem; L'Hopital's rule; increasing and decreasing functions; concavity; maximum and minimum values of a function; graphs of functions including rational functions (asymptotes) and functions with vertical tangents (cusps); ant-derivatives; the indefinite integral; the definite integral; the fundamental theorem of calculus ; the area under a curve; the area between two curves; transcendental functions: inverse functions, logarithmic and exponential functions; derivatives and integrals; limits (the indeterminate forms); hyperbolic functions and their inverses; inverse trigonometric functions; some techniques of integration.		
5401105	Discrete Mathematics	(3) Credit Hours
Prerequisite: (None)		
Logical and Symbolic statements: true values of a statement; Connection tools, Truth table, Equivalent; Counting methods; Methods of proof: induction and recursion; Sets and operations; Languages; Relations: directed graph, characteristics of relations; Functions: characteristics, domain and range; Matrices: algebra of matrices, simple operations, determinants, Cramer's rule.		
5401201	Computer Skills for Scientific Faculties	(3) Credit Hours
Prerequisite: (5411099)		
Fundamental concepts of programming using C++; Basic structures of programming tools: variable names; Data types; Control structures; Arrays; Functions; Pointers; Introduction to classes and objects; Inheritance; Applications using C++, Weekly practice in the lab.		

5401215	Advanced Programming	(3) Credit Hours
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Prerequisite: (5401215)

Data type and structures; Abstract data types and encapsulation; Stacks; Queues; Recursion; Linked Lists; Binary trees; General trees; File organization: sequential and indexed files; Graphs: representation, traversing, shortest path; Sorting: exchange, insertion, quick sort, heap and others; Searching, weekly practice in the lab.

5401231	Data Structures	(3) Credit Hours
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Prerequisite: (5401215)

Data type and structures; Abstract data types and encapsulation; Stacks; Queues; Recursion; Linked Lists; Binary trees; General trees; File organization: sequential and indexed files; Graphs: representation, traversing, shortest path; Sorting: exchange, insertion, quick sort, heap and others; Searching, weekly practice in the lab.

5401321	Database Management Systems	(3) Credit Hours
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Prerequisite: (5401231)

Database (DB) Environment; DBMS architecture; Data modeling: Conceptual model, Entity relationship model (ERM), Extended ERM, Object Modeling Technique (OMT); Relational DBs; Database design; Database language: Structured Query Language (SQL); Views; Data Dictionary; Normalization process: 1NF, 2NF, 3NF; DB Integrity; DB Security; Modern DBMSs: Object-Oriented DBMSs; Physical Database design; Centralized and distributed Database systems; Case study, weekly practice in the lab.

5402101	Fundamentals of IT	(3) Credit Hours
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Prerequisite: (None)

This is an integrated course focusing on the main components of the Information Technologies. That includes the computer hardware (memory units, central processing unit, machine cycle ...), the numbering system (decimal, binary, octal, hexadecimal ...), main operations, and data representation. It also gives an introduction to programming, data communication and networks, multimedia, e-business, information systems, systems development and problem solving (algorithms, flowcharts, pseudo code ...). However, students are expected to acquire knowledge and skills in this area through weekly practice in the lab.

5402121	Web Applications Development (1)	(3) Credit Hours
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Prerequisite: (5401201)

This is a practical course that focuses on client-side programming. It introduces students to the tools and techniques used for building web-based applications. Students will gain an understanding of the fundamental aspects of the web-based development. Various development tools will be used to create interactive web applications. Also an introduction to server-side programming will be given. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.

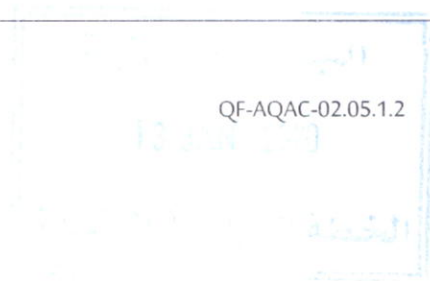
5401106	Linear Algebra	(3) Credit Hours
Prerequisite: (None)		
Matrices, basic algebraic operations, reduced forms, rank and inverse solutions of systems of linear equations. Determinants and their properties. Vector spaces, subspaces, intersection and sum of subspaces, linear independence, spanning set, bases and dimension, line transformations and matrices of linear transformations, eigenvalues and eigenvectors.		
5401131	Principles of Statistics	(3) Credit Hours
Prerequisite: (None)		
Describing statistical data by tables, graphs and numerical measures, Chebychev's inequality and the empirical rule, counting methods, combinations, permutations, elements of probability and random variables, the binomial, the Poisson, and the normal distributions, sampling distributions, elements of testing hypotheses, statistical inference about one and two populations parameters.		
5401204	Digital Logic	(3) Credit Hours
Prerequisite: (5401201)		
Main concepts of Logic Design; Boolean Algebra; Basic Definitions; Basic Theorems and Properties; Boolean Functions; Canonical and Standard Forms; Digital Logic Gates; Minimization Methods; Combinational Logic; Sequential Logic. Numbering Systems; Binary Codes; Boolean Algebra; Gate-Level Minimization; Algebraic Simplification; Karnaugh Maps; Don't-Care conditions; NAND and NOR Implementation; Combinational Logic; Adders and subtractors; Decoders and Encoders; Multiplexers and Demultiplexers; ROMs and PLAs; Sequential Logic; Flip Flops; Registers and Counters.		
5401211	Object Oriented Programming (1)	(3) Credit Hours
Prerequisite: (5401215)		
Object-Oriented (OO) Programming Environment; OO Building Blocks; Input/Output; Loops; Decisions; Functions; Arrays and Strings; Graphical User Interface; Data structures; Encapsulation; Advanced variables; Useful OO features; Classes and objects; Inheritance; Polymorphism; Exceptions handling; Files; Writing programs in JAVA languages, weekly practice in the lab.		
5401303	Visual Programming	(3) Credit Hours
Prerequisite: (5401321)		
Introduction to Visual Basic and Visual Studio environment: Controls, components, wizards; Language constructs and structures: Variables, assignment, arithmetic, selection, repetition, arrays, functions; Advanced controls: Frames, labels, Boxes and others; MDI models; VBasic DB: Data Report, data designer, data form, data object, queries, intellilist; Classes; ActiveX: Encapsulation, relationships, interfaces, automation, tools; API Applications: windows API, keyboard, mouse, display; Applications, weekly practice in the lab.		

5401312	Object Oriented Programming (2)	(3) Credit Hours
Prerequisite: (5401211)		
Object Oriented Design; Generic Programming; Advanced Graphical User Interface; Multithreading; Streams and Binary I/O; Relational Databases; Internet Networking; XML; Web Applications; Libraries; Multimedia: images, animation, audio and video, weekly practice in the lab.		
5401322	Information Systems Security	(3) Credit Hours
Prerequisite: (5401341)		
This is a breadth-based course that gives an overview of information security principles and practices, including security models, risk management, access controls, intrusion detection and prevention, cryptography, software vulnerabilities, security packages and ethical issues. It also highlights security and privacy issues related to computer operating systems (including distributed operating systems), distributed applications (as electronic commerce), embedded systems, database management systems and modern technology platforms as cloud systems. However, students are expected to apply the learned skills in this area through weekly practice in the lab.		
5401341	Theory of Algorithms	(3) Credit Hours
Prerequisite: (5401231)		
Definition of an algorithm, algorithm design and techniques, algorithm analysis, Concept of basic operation, concept of worst, best, and average case analysis, complexity analysis: big O, Omega and theta notations, recurrence equations and recursive algorithms, concept of algorithm correctness, basic searching and sorting algorithms, hashing, concepts of NP-completeness, classical NP-complete problems, weekly practice in the lab.		
5401342	Artificial Intelligence	(3) Credit Hours
Prerequisite: (5401341)		
Introduction to AI and application; Exhaustive Search methods; Heuristic search Methods; First Order Logic for knowledge representation; Programming in PROLOG; Production rule systems; Principles of expert systems; Expert systems Programming in PROLOG; Knowledge Acquisition, weekly practice in the lab.		
5401353	Human Computer Interaction	(3) Credit Hours
Prerequisite: (5401231)		
Designing, building, and programming graphical user interfaces, Human-centered software evaluation, Human-centered software development, HCI aspects of multimedia systems and Web-based systems, these topics are intended as an introduction to human-computer interaction. Emphasis will be placed on understanding human behavior with interactive objects, knowing how to develop and evaluate interactive software using a human-centered approach, and general knowledge of HCI design issues with multiple types of interactive software, practice in the lab.		

5401355	Computer Assisted Learning	(3) Credit Hours
Prerequisite: (5402232)		
Introduction to Computer use in teaching; Teaching Authoring Tools; Human computer interaction; Software and hardware requirements; Task analysis and design; Multimedia and task development; Internet in Education; Question answer design; Student computer interaction; Static and dynamic interaction; Computerized examination; Virtual teaching; Case Study, weekly practice in the lab.		
5401361	Computer Networks (1)	(3) Credit Hours
Prerequisite: (5401341)		
This course explores key concepts and essential technologies of computer networks and broad range of topics in networking, including: General overview: Networks applications, Network classifications and topologies, Network layers, Channel performance measures, transmission media, Communication Network Protocols and architecture; Data link layer: framing, error detection and correction, CSMA/CD, LAN IEEE standards; Network layer: IP service model, IP Addressing, subnetting, Host configuration DHCP, ARP Protocol, ICMP protocol; Transport layer: UDP protocol, TCP protocol, TCP reliable transfer and sliding window, TCP flow and congestion control; Application layer: DNS protocol, NAT protocol, HTTP protocol, persistent and non-persistent HTTP connection.		
5401457	Database Languages and Tools	(3) Credit Hours
Prerequisite: (5401321)		
This is an advanced course that covers a selected database language and a set of support tools for business applications. The students will be able to build database based applications and perform several tasks using advanced database tools. It will cover data definition language, data manipulation language, form design, reports design; triggers/procedures and the development based on case studies. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.		
5401442	Machine Learning	(3) Credit Hours
Prerequisite: (5401342)		
Introduction and learning bayesian learning, decision tree learning; learning sets of rules, genetic algorithms, analytical learning; reinforcement learning; applications, weekly practice in the lab.		
5401445	Natural Language Processing	(3) Credit Hours
Prerequisite: (5401342)		
Origins of Natural Language Processing (NLP); Language structure representation; The role of knowledge; Knowledge representation; Parsing techniques; Finite-state techniques; Recursive and augmented transition networks; Language ambiguity; Well-Formed constructs; Features and the lexicon; Language semantics; Applications, weekly practice in the lab.		

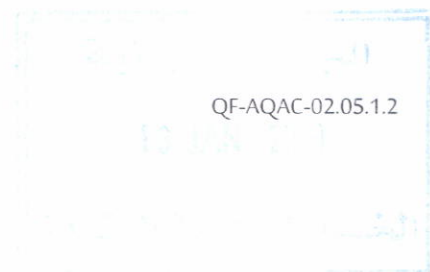
5401446	Information Retrieval	(3) Credit Hours
Prerequisite: (5401415)		
<p>The main objective of this course is to provide students with the basic concepts of information retrieval systems, their types and different techniques in storing, manipulating and retrieving data. It covers a range of topics including: Functional view of information retrieval, types of IRS, design issues of IRS (keyword-based retrieval, file structures, thesaurus construction, etc.), IR data structures and algorithms (lexical analysis, stemming, term weighting, associative indexing, Boolean operations, string searching and matching techniques, etc.), relevance feedback and query modification, applications and case studies.</p>		
5401453	Information Systems Applications	(3) Credit Hours
Prerequisite: (5402232)		
<p>The primary goals of this course are to introduce the student to the language of information systems, to begin understanding the role of technology in our world today, to explore career opportunities, and to be aware of tools that will help the student adapt to changes in Information Systems. The course also provides an introduction to systems and development concepts, information technology, and application software. It explains how information is used in organizations and how IT enables improvement in quality, timeliness, and competitive advantage. In addition, the course covers topics in Geographical Information Systems (GIS), information age, GIS software systems and applications.</p>		
5401455	Image Processing	(3) Credit Hours
Prerequisite: (5401341)		
<p>Introduction, Data structure for image analysis; Shape representation; Image preprocessing; Image formats; Recognition; Feature extraction; Processing primitives; Modeling (e.g. quad applications); Local and global operations; Clustering: hierarchical and non-hierarchical methods, clustering using neural networks and genetic algorithms; Classifications; Nearest neighbors; Neural nets; Image enhancement; Segmentation application and measurement; Image storage and retrieval; Applications.</p>		
5401415	Data Warehousing and Data Mining	(3) Credit Hours
Prerequisite: (5401342 & 5401321)		
<p>This course covers basic topics related to data warehousing and data mining, The first part of the course includes building the data warehouse team, developing the business model, tools for data warehouse creation, maintenance and delivery, analysis for business model creation, and multi-dimensional analysis. The second part of this course is to provide students with the basic concepts, methods, and new techniques of extracting knowledge from data. Including Knowledge discovery fundamentals, data mining concepts and functions, data pre-processing, data reduction, mining association rules in large databases, classification and prediction techniques, cluster analysis algorithms, data visualization, mining complex types of data (text mining, multimedia mining, Web mining), data mining languages, data mining applications and new trends.</p>		

5401462	Network Security	(3) Credit Hours
Prerequisite: (5401361 & 5401322)		
Divisibility and the Greatest Common Divisor, Euclidean Algorithm, modular arithmetic and discrete logarithm, Primes, primality testing, Chinese Remainder Theorem, cipher. Key management and exchange, hash functions (MD5, SHA-1, RIPEMD-160, HMAC), digital signatures, certificates and authentication protocols (X.509, DSS, Kerberos), electronic mail security (PGP, S/MIME), web security, protocols and standards for secure electronic commerce (IPSec, SSL, TLS, SSH, HTTPS, SET).		
5401471	Systems Analysis and Design	(3) Credit Hours
Prerequisite: (5401321)		
Introduction to systems development; Development life cycle; System Development feasibility; Development of fact finding methods; Context diagram; Data flow diagram; Decision tables and trees; Data dictionary; Installation; Training; Development Tools: Documentation, Maintenance, Conceptual design, DB design, Reverse engineering, Graphical user interface, Systems life cycle, System conversion, System charts and flow of control; Case study, weekly practice in the lab.		
5401472	Software Engineering	(3) Credit Hours
Prerequisite: (5401471)		
Software engineering processing methods; Software life cycle; Computer-based system engineering; software project management; requirements and specification: requirement engineering, requirement analysis, models, prototyping, formal and algebraic specification; Software design: Architectural design, object-oriented, function-oriented, real-time and user interface design; reliability; maintenance; portability; documentation; re-engineering and reverse-engineering; case study.		
5401473	Operating Systems	(3) Credit Hours
Prerequisite: (5401341)		
Definition and role of the operating systems; history of operating systems and development; functionality and structuring methods of a typical operating system. Concepts of a process vs. the concept of a thread; scheduling and dispatching and context switching; concurrent execution: the "mutual exclusion" problem and some solutions. Deadlocks: causes, conditions, methods for resolution. Memory management; virtual memory management, I/O management; files: data, metadata, operations, buffering, sequential, non sequential.		
5401485	Special Topics (CIS)	(3) Credit Hours
Prerequisite: (Department Approval)		
Selected topics in advance areas of Computer Information Systems; Report and Documentation required. Weekly practice in the lab.		



5402203	Documentation and Ethics	(3) Credit Hours
Prerequisite: (5402101)		
<p>This course introduces the student to the documentation and computing ethics. Topics include different types of technical reports, and documents such as books, articles, proposals, user manuals, project reports, memorandums, etc. in an ethical and professional way; ethical writing pertaining referencing, citations, quotation, plagiarism; computing ethics such as computer and information systems in the workplace, crimes, computer abuse and misuse, privacy, confidentiality, anonymity, intellectual property, professional responsibility and globalization (law, cyber-business, e-transactions); various code of ethics and guidelines to computing professional and user (CEI, ACM, IEEE, BCS, E-crime and T-Transaction laws in Jordan)</p>		
5402232	Management Information Systems	(3) Credit Hours
Prerequisite: (5402101)		
<p>This is an integrated course focusing on the main areas of the Management Information Systems (MIS). It will introduce the fundamentals of main management process i.e.: planning, organizing, leading / directing and controlling. It also provides an overview of the various functional departments in the organization, such as: production, marketing, finance, human resource management. The course will mainly focus on MIS aspects: Types, levels, structures, importance and recent trends. It will cover the applications of Information Technology (IT) for business, government and individuals. Also it will highlight the IT's global management, planning, change management, security issues and the risks. However, students are expected to acquire knowledge and skills in this area through weekly practice in the lab.</p>		
5402244	Operational Research	(3) Credit Hours
Prerequisite: (5401105)		
<p>This course focuses on applying advanced analytical methods to help make better decisions. It introduces mathematical modeling, analysis, and optimization in a holistic approach to improving the knowledge of systems and designing useful, efficient systems. Students will be exposed to a wide variety of applications and problems that can be addressed using Operations Research techniques. It will cover origin and scope, general linear programming, mathematical modeling, solution methods: graphical, simplex, sensitivity analysis: status of resources, change in coefficients, Duality Theory: properties, dual simplex; Special problems: transportation and assignment, other applications: CPM-PERT in project management and game theory.</p>		
5402313	Smartphone Applications Programming	(3) Credit Hours
Prerequisite: (5401211 & 5401321)		
<p>This course introduces students to understand what a mobile technology and mobile application are. Moreover, it covers the different mobile operating systems that operate in the market. In addition, it introduces the Android Developing Kit or any other mobile programming platform in order to develop mobile applications. Weekly lab session.</p>		

5402332	Decision Support Systems	(3) Credit Hours
Prerequisite: (5402232)		
<p>This course focuses on Decision Support Systems: Definition, frameworks, models, capabilities, components and enablers. It will also present the different types of DSS: group DSS; executive DSS; hybrid DSS and distributed DSS. The students will be able to use DSS development tools, build DSS, and apply DSS in business domains and cases. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.</p>		
5402335	Information Resources Management	(3) Credit Hours
Prerequisite: (5402232)		
<p>This course gives a strategic managerial perspective regarding the management of information resources (IR) for different organizational designs. It aligns the information systems strategy with business and organizational strategies. The students will know how to apply famous enterprise architecture frameworks (Zachman or TOGAF) to transform a vision into architecture then into an infrastructure. It covers common aspects of IR: Personnel, planning and control, technological trends, management implications, managing MIS departments, flow of information, reporting, team management and the effect of new trends on the strategic decisions. The students are required to play the role of a strategic manager and build a complete business strategy starting from a vision towards an infrastructure.</p>		
5402351	Multimedia	(3) Credit Hours
Prerequisite: (5401215)		
<p>Introduction: basic concepts of multimedia; Media types; Concepts and techniques; Multimedia information servers; Design support; Production and evaluation of multimedia information servers; Software and hardware requirements; Image compression; Image database: Feature-based retrieval, content-based retrieval; Audio signal processing; Speech analysis; Music analysis and synthesizing; Teleconferencing and video compression; Animation; Virtual reality; Web publishing; Multimedia Programming: Composition mechanisms, metaphors; Synchronization: aspects of synchronization, techniques; Interaction; Case study, weekly practice in the lab.</p>		
5402352	Web Publishing	(3) Credit Hours
Prerequisite: (5402121)		
<p>This is an introductory course to web applications and services. It covers the web-based design, creating and evaluating web-based information services, developing strategies for locating resources, HTML (Hyper Text Markup Language), general web-based concepts and introduction to modern web-based frameworks. The students will create and publish web-pages using development tools. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.</p>		



5402353	Web Applications Development (2)	(3) Credit Hours
Prerequisite: (5402352)		
<p>This is an advanced practical course that focuses on the programming of server-side applications, web server implementations, server side databases; database interfaces (DBIs) and active server pages. The students will develop web-based applications and services using a server side programming language as PHP, JSP or ASP.NET. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.</p>		

5402354	e-Business	(3) Credit Hours
Prerequisite: (5402232)		
<p>This course is an introduction to electronic business (electronic business enablers). It will build the core knowledge for the main concepts, technologies and tools related to e-Business, then to use this knowledge and apply it directly to make entrepreneurial e-business plan along with an e-Commerce websites that represents alive demonstration of the selected business model. The course will cover different electronic transactions that encompass business, government and customers. It will also provide an introduction to various related topics as electronic marketing, consumer behavior models and up to date advancements. However, students are expected to apply and acquire the knowledge and skills in this area through weekly practice in the lab.</p>		

5402422	Project and Quality Management	(3) Credit Hours
Prerequisite: (5401321)		
<p>This course intends to integrate the view of quality management concepts with project management foundations. It focuses on the philosophy and principles of quality management as concepts, history, statistical quality tools, software quality metrics, and software quality management practices. It will provide students with project management basics and best practices with more focus on software projects. Students will be able to estimate software project metrics; understand risk management; practice quality planning, control, improvement, and assurance. It also covers topics related to being an effective project leader and managing project teams. Students are expected to practice weekly in the lab to realize successful project quality plans.</p>		

5402452	Enterprise Resources Planning	(3) Credit Hours
Prerequisite: (5402232)		
<p>This course focuses on Enterprise Resource Planning systems and how they serve the different business processes. It will include an introduction to Financial and Management Accounting. Basic accounting processes such as balance sheet, income statement, accounts payable\receivable, and assets accounting. The students will have a holistic view of the end-to-end integrated business processes. It will also give a solid background in modern process-centric enterprise systems and their capabilities: such as computer aided manufacturing (CAM), computer aided design (CAD),</p>		

material requirements planning (MRP), master production schedule (MPS), capacity requirements planning (MRP), production activity control (PAC), computer integrated manufacturing (CIM) and flexible manufacturing systems (FMS). However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.

5402454	Content Management Systems	(3) Credit Hours
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Prerequisite: (5402353)

This introductory course explores the use of open source web-based content management systems such as Joomla, Moodle, Wordpress, and other online software solutions, which can be used to create dynamic and flexible websites and landing pages. Learners will explore the fundamentals of planning dynamic websites, CMS database management, developing CSS-controlled site templates, and creating database driven websites through the planning and creation of their own topic-based sites.

5402455	Knowledge Management System	(3) Credit Hours
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Prerequisite: (5402232 & 5401342)

The objective of this course is to prepare students to understand the current theories, practices, tools and techniques in knowledge management (KM) to deal with the challenges within the organization in managing knowledge. This course addresses contemporary issues in managing knowledge, intellectual capital and other intangible assets by discussing the fundamental concepts of knowledge and its creation, acquisition, representation, dissemination, use and re-use, the role and use of knowledge in organizations and institutions, KM systems and its application in knowledge generation and transfer, and in the representation, organization, and exchange of knowledge, knowledge codification and system development, its testing. Participants in this course will have the opportunity to study the theory and practical applications of KM within organizations from new technologies perspective. Finally, other topics related to ethical, managerial and legal issues in knowledge management will be discussed.

5402473	Business Intelligence	(3) Credit Hours
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Prerequisite: (5401415)

This course introduces Business Intelligence Systems (BIS) that focus on collecting, analyzing and converting raw business data into actionable information that drives business decisions. This course introduces BIS from both technical and managerial perspectives. Thus, techniques in data mining, data warehousing, online analytical processing (OLAP), data analysis, statistical reasoning and knowledge discovery will be examined from technical perspectives. Managerial perspectives discuss various applications in BIS, including customer behavior analysis, risk analysis, financial analysis, supply chains, and knowledge management. Additional issues like strategic and tactical planning will be examined. However, students are expected to apply the knowledge and skills in this area through weekly practice in the lab.

5402496	Graduation Project	(3) Credit Hours
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Prerequisite: (Department Approval and Complete (90) credit hours)

Project includes theoretical and practical aspects in Information Technology and Systems, related to the current problems and applications in Information Technology and Systems, research oriented, technical report, and presentation are required. A student who wishes to register to this course is required to complete (90) credit hours.

5402498	Training	(0) Credit Hours
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Prerequisite: (Department Approval and Complete (90) credit hours)

The student must be trained in an institution, for at least 8 weeks (150 actual training hours). The student must provide a report from the institution that shows the efficiency of this training, According to the regulations of the Dean's Council of the Faculty's Departments, or get a certificate in one of the information technology fields from a recognized institute. A student who wishes to register to this course is required to complete (90) credit hours.

