

1.	School	King Abdullah II School for Information Technology
2.	Department	Information Technology
3.	Program title (Arabic)	تكنولوجيا معلومات الأعمال
4.	Program title (English)	Business Information Technology (BIT)

5. Components of Curriculum:

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

Number	Type of requirement	credit hours
First	University Requirements	27
Second	Faculty Requirements	24
Third	Specialization Requirements	81
Total		132

6. Numbering System:

A- Department number

Number	Department
1	Computer Science (CS)
2	Computer Information Systems (CIS)
3	Business Information Systems(BIS)
4	Information Technology (IT)
5	Artificial Intelligence (AI)

B- Course number

Domain number	Domain title	Domain number	Domain title
0	General	5	Applications
1	Programming Languages	6	Distributed Systems And Communications
2	Information Systems and Management	7	Systems Development
3	Hardware Components and Theoretical Constructs	8	Specialized Topics
4	Computational Sciences and Algorithms	9	Special Topics And Project

C- Course number consists of 7 digits

School		Department		Level	Serial number	
1	9	0	4	X	X	X

First: University Requirements (27) credit hours distributed as follows:

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	Community Service	0300150	0	-	-
2	Computer Skills Placement Test	1902098	0	-	-
3	Basics of Computing	1932099	3	1902098	Pass/Fail
4	Arabic Placement Test	3201098	0	-	-
5	Basics of Arabic	3201099	3	3201098	Pass/Fail
6	Arabic Languages Skills	3201100	3	3201099	Pass/Fail
7	English Placement Test	3202098	0	-	-
8	Basics of English	3202099	3	3202098	Pass/Fail
9	English Language Skills	3202100	3	3202099	Pass/Fail
Compulsory Requirements					
(18 Credit Hours)					
No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Military Sciences	2220100	3		
2	National Culture	3400100	3		
3	Ethics and Humans Values	3410100	3		
4	Entrepreneurship Innovation and Scientific Research	3410101	3	3410100/1932099	
5	Life And Practical Skills	3410102	3	3410100/1932099	
6	Introduction to Philosophy and Critical Thinking	3400103	3	3410100/1932099	

C- 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 Contemporary Issues	0400101	3	-	-
2	Arab-Islamic Civilization	2300101	3	-	-
3	Jordan: History and Civilization	2300102	3	-	-
4	Great Books	3400107	3	-	-
5	Jerusalem	3400108	3	-	-

Electives (Second Group)

No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Environmental Culture and Development	0310102	3	-	-
2	Islamic Culture	0400102	3	-	-
3	Health Culture	0720100	3	-	-
4	Legal Culture	1000102	3	-	-
5	Physical Fitness Culture	1100100	3	-	-

Electives (Third Group)

No.	Course Title	Course No.	Credit Hours	Prerequisites	Notes
1	Electronic Commerce	1600100	3		
2	Appreciation of Arts	2000100	3		
3	Foreign Language	2200103	3		
4	Special Subject	3400106	3		

Second: School courses: distributed as follows:

- A. Obligatory school courses: (24) credit hours
- B. Elective school courses: (0) credit hours

A. Obligatory school courses: (24) credit hours:

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
1901101	Discrete Mathematics	3	-	3	-
1931102	Computer Skills for Scientific Faculties	3	-	3	Pass Qualification Exam or 1932099
1904101	Fundamentals of Information Technology	3	-	3	-
1904120	Web Applications Development	3	-	3	1931102
1902110	Object Oriented Programming	3	-	3	1931102
1901242	Data Structures	3	-	3	1902110
1902224	Database Management Systems	3	-	3	1902110
1915101	Linear Algebra for Computational Sciences	3	-	3	0301101
1902390	Seminar-Road to Software Industry	2	-	0	Pass 45 hours

B. Elective school courses: (0) credit hours:

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		

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

B. Obligatory specialty courses: (69) credit hours

C. 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		
0301101	Calculus I	3	-	3	----
1904472	IT Project Management	3	-	3	1902372
1904211	Mobile Programming	3	-	3	1904254
1901341	Theory of Algorithms	3	-	3	1901242
1901363	Computer Networks	3	-	3	1901242
1901473	Operating Systems	3	-	3	1901242
1902372	Software Engineering	3	-	3	1902224
1902474	Systems Analysis and Design	3	-	3	1902372
1904232	Management Information Systems	3	-	3	1904101
1904253	Web Server Programming	3	-	3	1904120
1904255	Statistical Packages	3	-	3	1901101
1904487	e-Payment Systems	3	-	3	1911322
1911322	Information Security and Privacy	3	-	3	1901363 + 1902224
1904345	Computer Ethics	3	-	3	1904101
1904351	Enterprise Resource Planning Systems	3	-	3	1904255
1904254	Advanced web development	3	-	3	1904120
1904354	e-Business	3	-	3	1904254
1904371	Business Intelligence	3	-	3	1904255
1904442	Simulation in Business	3	-	3	1901242
1904323	Knowledge Management Systems	3	-	3	1915101
1904481	Total Quality Management	3	-	3	1902372 and 1904255
1904484	Document Analysis & Recognition	3	-	3	1901101 and 1901341
1904496	Project-1	-	-	0	Pass 90 hours
1904497	Project-2	-	-	3	1904496
1904498	Training	6 Weeks		0	Pass 90 hours

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

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
1904235	Information Resource Management	3	-	3	1904232
1904453	Semantic Web	3	-	3	1904371
1904341	Operations Research	3	-	3	1904255
1904355	e-Learning & Applications	3	-	3	1904254
1904357	e-Government	3	-	3	1904254
1911221	Security Risk Management and Ethics	3	-	3	1911322
1904458	Software Packages	3	-	3	1901242
1904485	Special Topics	3	-	3	1901242
1902351	Multimedia	3	-	3	1901242 and 1915101
1904382	Information Retrieval	3	-	3	1904371
1904486	Enterprise Application Development	3	-	3	1901473
1904415	Database Languages & Tools	3	-	3	1902224
1602101	Accounting -I	3	-	3	
1607110	Principles of Microeconomics	3	-	3	
1905222	Data mining	3	-	3	1902224 and 1915101
1902214	Advanced Java Programming	3	-	3	1902110
1902353	Human Computer Interaction	3	-	3	1904120
1931460	Fundamentals of IoT	3	-	3	1901433+1901363
1905320	Artificial Intelligence	3	-	3	1901242
1901364	Advanced computer networks	3	-	3	1901363

Fourth: Courses offered by other faculties and departments (Math, Computer Science, Information Technology, Artificial Intelligence)

Course Number	Course Title	Contact Hours		Credit Hours	Pre-requisite
		Theoretical	Practical		
1901101	Discrete Mathematics	3	-	3	-
1931102	Computer Skills for Scientific Faculties	3	-	3	Pass Qualification Exam or 1932099
1902110	Object Oriented Programming	3	-	3	1931102
1902224	Database Management Systems	3	-	3	1902110
1901242	Data Structures	3	-	3	1902110
1915101	Linear Algebra for Computational Sciences	3	-	3	0301101
0301101	Calculus-1	3	-	3	-
1902390	Seminar-Road to Software Industry	2	-	0	Pass 45 Hours
1901341	Theory of Algorithms	3	-	3	1901242
1911322	Information Security and Privacy	3	-	3	1901363 and 1902224
1905320	Artificial Intelligence	3	-	3	1901242
1901363	Computer Networks	3	-	3	1901242
1901473	Operating Systems	3	-	3	1901242
1905222	Data Mining	3	-	3	1902224 and 1915101
1602101	Accounting -1	3	-	3	
1607110	Principles of Microeconomics	3	-	3	
1905222	Data mining	3	-	3	1902224 and 1915101
1902214	Advanced Java Programming	3	-	3	1902110
1902353	Human Computer Interaction	3	-	3	1904120
1931460	Fundamentals of IoT	3	-	3	1901433+1901363
1905320	Artificial Intelligence	3	-	3	1901242

1901364	Advanced computer networks	3	-	3	1901363
1911221	Security Risk Management and Ethics	3	-	3	1911322
1902351	Multimedia	3	-	3	1901242 and 1915101

Fifth: Advisory Study Plan

Year (1)

(First) Semester			(Second) Semester		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
0301101	Calculus -1	3	1904120	Web Application Development	3
1901101	Discrete Mathematics	3	1902110	Object Oriented Programming	3
1931102	Computer Skills for Scientific Faculties	3	1915101	Linear Algebra for Computational Sciences	3
1904101	Fundamentals of Information Technology	3		University Requirement	3
	University Requirement	3		University Requirement	3
	University Requirement	3			
Total		18	Total		15

Year (2)

(First) Semester			(Second) Semester		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
1901242	Data Structures	3	1904254	Advanced web development	3
1902224	Database Management Systems	3	1901341	Theory of Algorithms	3
1904232	Management Information Systems	3	1904371	Business Intelligence	3
1904255	Statistical Packages	3	1901363	Computer Networks	3
	University Requirement	3		University Requirement	3
	University Requirement	3		University Requirement	3
Total		18	Total		18

Year (3)

(First) Semester			(Second) Semester		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
1904253	Web Server Programming	3	1902474	Systems Analysis and Design	3
1904345	Computer Ethics	3	1904351	Enterprise Resource Planning Systems	3
1904354	e-Business	3	1911322	Information Security and Privacy	3
1902372	Software Engineering	3	1902390	Seminar-Road to Software Industry	0
1904211	Mobile Programming	3	1904323	Knowledge Management Systems	3
				Elective Specialization Requirement	3
Total	15	Total		University Requirement	3
			Total		18

Year (4)

(First) Semester			(Second) Semester		
Course Number	Course Title	Credit Hours	Course Number	Course Title	Credit Hours
1904481	Total Quality Management	3	1902497	Project-2	3
1904484	Document Analysis & Recognition	3	1902498	Training	0
1904442	Simulation in Business	3	1904472	IT Project Management	3
1902496	Project-1	0	1904487	e-Payment Systems	3
1901473	Operating Systems	3		Elective Specialization Requirement	3
	Elective Specialization Requirement	3		Elective Specialization Requirement	3
		15	Total		15

Course Description

Course Number: 1901101	Course Title: Discrete Mathematics	Credit Hours: 3
Prerequisite: (None)		
<p>Course Description This course studies the mathematical elements of computer science and their applications. Topics include propositional logic; predicate logic; mathematical reasoning; techniques of proof; mathematical induction; set theory; number theory; matrices; sequences and summations; functions, relations and their properties, elementary graph theory, and tree (graph theory). In each subject, its characteristics, forms, ways of representing it, the operations used in it, and ways of linking these subjects together are studied. Homework will be assigned.</p>		

Course Number: 1931102	Course Title: Computer Skills for Scientific Faculties	Credit Hours: 3
Prerequisite: (Pass Qualification Exam or 1932099)		
<p>Course Description This course studies the fundamental concepts of programming using C++. Topics includes: basic structures of programming tools, like: variable names, data types, input and output statements, and output formatting. Files. Selection statements structures. Repetition statements structures. Functions. Enumeration datatype and strings data type. Arrays; 1D and 2D. The lectures will be provided in the lab through active teaching methodologies individually or within groups.</p>		

Course Number: 1904101	Course Title: Fundamentals of Information Technology	Credit Hours: 3
Prerequisite: (None)		
<p>Course Description This course will introduce the fundamental knowledge of information technologies, and it works as an introductory course for computer-related courses. It is a combination between a theoretical and a practical course. In particular, the course provides students with a grounding knowledge on several areas of information technologies including cutting edge technologies, careers in IT, basic concepts of cloud computing and web technologies, and a general perceptive of project management. Students are also going to be introduced practically to hardware maintenance, software diagnostics and technical support. In addition, critical thinking methodologies and techniques will be discussed, including numbering systems, flowcharts and related case studies. Operating systems such as LINUX/UNIX with, memory allocation, and an introduction to networks and security, and block chain concepts. The final part is concerned with technical applications needed such as excel, advanced excel, technical writing, report generating and type writing. Technical sections will be taught on lab sessions and group works. Active learning methodologies will be applied through role playing, presentations and problem solving exercises.</p>		

Course Number: 1904120	Course Title: Web Applications Development	Credit Hours: 3
Prerequisite: (1931102)		
<p>Course Description</p> <p>This course aims to improve students' ability in Front-End Web applications development using client-side programming such as HTML 5, Cascading Style Sheet (CSS3), JavaScript. In addition, the students will learn the fundamental concepts of front-end web development frameworks such as Bootstrap and React front-end frameworks. The course will cover the Bootstrap framework, which is the most popular CSS framework for creating responsive mobile-first websites. This course will teach you how to create pages of a website using the Bootstrap v5 framework. In addition, the course also covers the basic concepts of the React framework such as Communicating with Props, Class-Based Components, State in React Components, Lifecycle Methods, Handling User Input with Forms and Events, Making API Requests with React, and Single Page Application Development. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1902110	Course Title: Object Oriented Programming	Credit Hours: 3
Prerequisite: (1931102)		
<p>Course Description</p> <p>The course aims to cover the fundamental concepts of OOP, such as Encapsulation and Information-Hiding, Inheritance, Polymorphism, and Abstraction. The course uses Java Programming language starting from the basic Java syntax based on Eclipse IDE. It focuses on the understanding and practical mastery of OOP principles and Java components, such as classes, objects, input/output, scanner objects (to read either from the keyboard or a file), loops, decision-making, array and multidimensional array, data abstraction, methods, method overloading, objects garbage-collector, an introduction to exception-handling, etc. Finally, it presents an introduction to JavaFX and its hierarchy based on Java inheritance OOP concepts, for developing rich client applications. Lectures will be given in the lab for practical application. This course is assessed through exams, practical tests and assignments.</p>		

Course Number: 1901242	Course Title: Data Structures	Credit Hours: 3
Prerequisite: (1902110)		
<p>Course Description</p> <p>This Course introduces the students to the concepts of data structures. Topics include: Pointers, and pointer operations. Array implementation of lists, stacks, and queues. Dynamic implementation of lists (singly, doubly, circular), stack operations and queue operations (and their implementation as linked lists). STL, like: vectors, pairs, maps, sets, lists, stacks, queue. Recursion. Tree dynamic, like binary search trees, segment, red-black, AVL trees. Hash Table and Collision resolution. Weekly lab assignments will be given to the students and to be discussed through active teaching methodologies, in addition to problem solving tasks.</p>		

Course Number: 1902224	Course Title: Database Management Systems	Credit Hours: 3
Prerequisite: (1902110)		
<p>Course Description The course aims to provide students with an overview of database management system architecture and environment, an understanding of the basic database design and implementation techniques, and a practical experience of designing and building relational databases. Furthermore, it enables applying conceptual design methodologies for databases and learning about the architecture and environments of the database management system. Students will practice using database tools to create and manage database schemas systems and formulate DDL, DML commands and run SQL queries. Advanced SQL topics such as creating database functions, database Stored Procedures and database Triggers will be covered. Also, students will learn how to manage database privileges and design suitable security and integrity constraints for database schemas. Furthermore, the course will provide the students with practice project to connect a relational DB using a programming language, in addition to practice using basic Oracle Forms and Oracle Reports. This course will use a combination of traditional lectures, active teaching methodologies, and hands-on lab lectures.</p>		

Course Number: 1915101	Course Title: Linear Algebra for Computational Sciences	Credit Hours: 3
Prerequisite: (0301101)		
<p>Course Description The course uses linear algebra as one of the most important tools in applied mathematics, data science, and artificial intelligence to help students learn how to handle vectors and matrices, solve matrix-vector equations, perform Eigen value and Eigen vector and diagonalization analyses and use principal component analysis to do dimension reduction on real-world datasets. It covers topics such as: solving systems of linear equations; matrices and matrix operations; homogeneous and non-homogeneous systems; Gaussian elimination; elementary matrices and a method for finding A^{-1}; determinants; Euclidean vector spaces; linear transformations from R_n to R_m and their properties; general vector spaces; subspaces; basis; dimension; row space; column space; null space of a matrix; rank and nullity; and inner product spaces. All analysis will be performed in python or any similar popular programming language. Lectures will be given in the lab for practical application. This course is assessed through exams, practical tests and assignments.</p>		

Course Number: 1902390	Course Title: Seminar-Road to Software Industry	Credit Hours: 0
Prerequisite: (Passing 45 Hours)		
<p>Course Description IT students increasingly demand and require coverage of emerging technologies to prepare themselves for subsequent employment and research. Industry and professional bodies are also concerned that IT education does not always prepare students adequately for the world of work. This professional practice seminar course aims to contribute to solving these two issues by providing real-world experiences, inspiring students to choose their career path, and exposing them to the trends, methods, and techniques that are of current interest in software industry through a weekly seminar series. Professionals from software companies are invited to present different aspects of</p>		

their companies and to share their first-hand experience with students. This course can enhance IT education and motivate students by covering leading-edge technologies and practices. After each seminar, students will submit a personal evaluation and short reports relevant to the seminar's presentation. Attendance and participation in 8 seminars, including the evaluation of each seminar and the short reports are the minimum requirements to pass the course.

Course Number 0301101	Course Title Calculus-1	Credit Hours 3
Prerequisite: (None)		
<p>Course Description 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); antiderivatives; 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.</p>		

Course Number: 1904472	Course Title: IT Project Management	Credit Hours: 3
Prerequisite: (1902372)		
<p>Course Description Students are expected to explore the processes, procedures, tools and techniques and results to create and execute an integrated project plan; it also expected to create project charter, determine requirements, defining creating and managing the project scope, and validating the deliverables. IT project managers are responsible for planning, organizing, allocating resources, budgeting and successfully executing organizations' specific IT goals. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904211	Course Title: Mobile Programming	Credit Hours: 3
Prerequisite: (1904254)		
<p>Course Description Mobile computing course aims at introducing the main concepts of programming mobile applications including the mobile development environment, user interfaces, activities, intents, content providers' / content resolvers, services, broadcast receivers, persistence, MBaaS, location, sensors, graphics, and other mobile development features, tools, and capabilities. This covers concepts from Android, Swift, among others. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number	Course Title	Credit Hours
1901341	Theory of Algorithms	3
Prerequisite: (1901242)		
<p>Course Description This is the first course in algorithms. The main goal is to introduce complexity analysis of algorithms with an emphasis on efficient design techniques for solving various computational problems. Topics include complexity analysis including big O, big omega, and big theta notations. Recurrence equations and recursive algorithms. Algorithm design techniques include sequential, divide-and-conquer, greedy, and dynamic programming. Sorting algorithms include insertion sort, merge sort, heap sort, and quicksort. Searching algorithms include breadth-first search and depth-first search. Graph-based algorithms including Kruskal's algorithm. Optimization problems include minimum spanning tree and multistage graph problems. Implementation of several algorithms. The assessment of this course is through exams, quizzes, and assignments.</p>		

Course Number	Course Title	Credit Hours
1901363	Computer Networks	3
Prerequisite: (1901242)		
<p>Course Description This course explores key concepts and essential technologies of computer networks and broad range of topics in networking. It includes 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. Weekly practice in the lab through active teaching methodologies</p>		

Course Number	Course Title	Credit Hours
1901473	Operating Systems	3
Prerequisite: (1901242)		
<p>Course Description This course introduces students to management of computer resources. It includes: definition and role of the operating systems, history of operating systems and development, functionality and structuring methods of a typical operating system; concepts of process versus thread, scheduling, dispatching and context switching, concurrent execution: the "mutual exclusion" problem and some solutions; deadlocks: causes, conditions, and methods for resolution; memory management; virtual memory management; mass-storage structure. The course will involve regular assignments and instructions on Linux Operating System to map different theoretical parts with Linux.</p>		

Students will get introduced to using a Linux machine, will learn key important Linux configurations, and will perform Linux performance evaluations for different system resources. The lectures taught in the lab through active teaching methodologies individually or within groups

Course Number: 1902372	Course Title: Software Engineering	Credit Hours: 3
Prerequisite: (1902224)		
<p>Course Description</p> <p>This course aims is to present software engineering as a body of knowledge. The course is designed to present software engineering concepts and principles in parallel with the Software Development Life Cycle (SDLC). The course will begin with an introduction to software engineering, giving students a definition of this body of knowledge, as well as a discussion of the main methodologies of software engineering including agile methods i.e., XP. Students will then learn about the five major phases of the SDLC: requirements gathering and analysis, design, coding/implementation, validation, and evolution. This includes software modelling using Unified Modelling Language (UML), a standardized general-purpose modelling language used to create visual models of object-oriented software, for requirements gathering and analysis, and design. Students will also learn about project management and quality management for the purpose of delivering high-quality software that satisfies customer needs and is within budget and schedule. Delivery will be by in-class lectures, recorded lectures, practical sessions in the lab, case studies from different domains (i.e., healthcare domain), and assignments. Assignments will include a term project illustrative of professional practice in developing computer information systems. One or two guest speakers with many years of experience in software engineering will be invited to share their first-hand experience with students.</p>		

Course Number: 1902474	Course Title: Systems Analysis and Design	Credit Hours: 3
Prerequisite: (1902372)		
<p>Course Description</p> <p>This course aims to provide students with a solid background in information systems analysis and design techniques through a combination of theory and practice. Students will be provided with the skills that are necessary for the analysis and design of information systems, and will apply these skills in a step-by-step manner leading from the recognition of a problem to the implementation of a solution on a case study. The course is divided into four major parts: Systems Analysis Fundamentals (Part I), Information Requirements Analysis (Part II), The Analysis Process (Part III), The Essentials of Design (Part IV). Delivery will combine traditional lectures with other active teaching methodologies, such as group discussions, group solving problems, analysis of cases and debates, case study from healthcare domain, and assignments. Assignments will include a term project illustrative of professional practice in computer information systems analysis and design.</p>		

Course Number: 1904232	Course Title: Management Information Systems	Credit Hours: 3
Prerequisite: (1904101)		
<p>Course Description This course aims at introducing the concepts of management information system and its resources. This course works as a road map for system management courses. The course covers fundamental concepts of MIS; by elaborating on the impact of IT on several sectors including: industry, strategy and finance. In industry, Porter's five forces models are studied and how they are used to gain competitive advantages. On the other hand, in strategy, RGT framework is discussed in addition to Porter's strategies. Breakeven point is studied as a part of the impact of IT in finance. The major business initiatives are covered including: Supply Chain Management (SCM), Customer Relationship Management (CRM), Enterprise Resource Planning (ERP) and Social Media (SM). OLTP and OLAP information processing tools which support business intelligence (BI) are also discussed. IT tools which are used to support OLTP are database and Database Management System DBMS. On the other hand, IT tools which are used to support OLAP are data warehouse and data mining tools. Decision Support Systems (DSS) and Expert Systems (ES) are discussed in terms of concept and usage. E-commerce models, marketing mix, and how to move money easily and securely are investigated through the course.</p>		

Course Number: 1904253	Course Title: Web Server Programming	Credit Hours: 3
Prerequisite: (1904120)		
<p>Course Description This course is intended to teach students the skills and techniques required to create fully functioning websites. Students will learn how to configure Internet services, design and publish dynamic and interactive web pages, implement both client and server-side scripting, and use data access technologies to manipulate databases. Specifically, students are introduced to the Visual Web Developer, and how to use it to design, build, configure server side websites built using ASP.Net. In addition, the VWD is used to introduce building DB-based web applications, and introduce the concepts of client state management and web services. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904255	Course Title: Statistical Packages	Credit Hours: 3
Prerequisite: (1901101)		
<p>Course Description This course aims at introducing the main statistical and probabilistic concepts for scientific applications. In addition, the course introduces different application fields of those concepts in the business intelligence and decision support systems. The course graphically introduces those concepts utilizing MATLAB as a programming environment for applying statistical/probabilistic methods and techniques. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1904487	Course Title: e-Payment Systems	Credit Hours: 3
Prerequisite: (1911322)		
<p>Course Description Financial technologies are drastically changing the financial services industries. This course provides an introduction to major techniques used in e-payment services such blockchain and cryptocurrencies, Bitcoin, Ethereum, smart contracts, decentralized applications, smart contracts, alternative and P2P lending and crowdfunding, and robo-advising. Students are expected to develop a broad understanding of the recent FinTech development and its impact in the financial industries. Students will also have hands-on and problem solving experiences that can be useful in e-payment applications. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1911322	Course Title: Information Security and Privacy	Credit Hours: 3
Prerequisite: (1901363 and 1902224)		
<p>Course Description This course introduces information security and privacy. The course covers topics related to cryptography such as symmetric and asymmetric encryptions, hash functions, digital signatures, key management, and public key infrastructures. Also, the course covers topics related to network security as packet sniffing, spoofing, TLS, IPSec, Firewalls, wireless networks security. Furthermore, topics related to Authentication, Authorization, Web security and Steganography will be covered. Risk analysis and ethics, and their applications to the development of a secure healthcare systems as a case study will be presented. Practical hands-on will be provided.</p>		

Course Number: 1904345	Course Title: Computing Ethics	Credit Hours: 3
Prerequisite: (1904101)		
<p>Course Description This course will consider the ethical issues that arise as a result of the increasing use of computers, and the responsibilities of those who work with computers, The course materials will include technical issues in using computer science and may focus on a particular area such as software design as well as more traditional topics such as philosophical theories (e.g. utilitarianism, deontological theories, and rights), privacy, intellectual property rights, freedom of speech and liability hacking, viruses, computer crime, and employee surveillance. Group discussions and case study analysis are discussed.</p>		

Course Number: 1904351	Course Title: Enterprise Resource Planning Systems	Credit Hours: 3
Prerequisite: (1904255 or 0301131)		
<p>Course Description This course introduces the concepts of integrated management of main business processes, often in real time and mediated by software and technology. In this course the main integrated system that will be discussed in the ERP system. ERP systems have many modules in a full integrated organization environment, however; for the purpose of this course three main modules will be discussed as follow; manufacturing, inventory and supply chain management. The course is an industrial course, lecturer from the industry take part of teaching cutting edge technologies in this domain such as SAP, Odoo, ERP next, Meta Fresh. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904254	Course Title: Advanced web development	Credit Hours: 3
Prerequisite: (1904120)		
<p>Course Description This course is designed to introduce a variety of technologies and techniques typically used in development of contemporary web-based systems, and to enable students to achieve a level of fluency in using these in a thoughtful and considered manner. Two web programming techniques will be introduced. The first is to use web-based embedded scripting language (PHP) on a web server (Apache) and a server-side database (MySQL), and the second is to use Ajax to manage asynchronous client-server communication and XML/JSON as data exchange languages. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1904354	Course Title: e-Business	Credit Hours: 3
Prerequisite: (1904254)		
<p>Course Description E-Business can be defined as business transacted via the Internet and World Wide Web. Each year, e-commerce accounts for billions of dollars in transactions between business and consumers and over a trillion dollars in business-to-business transactions. E-commerce experienced explosive entrepreneurial growth between 1995 and 2000 before the "bursting of the dot.com bubble". The impact of e-commerce is not just in the creation of Web-based businesses but represents the building of a new industrial order.</p> <p>This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1904371	Course Title: Business Intelligence	Credit Hours: 3
Prerequisite: (1904255)		
<p>Course Description Business Intelligence Systems have become increasingly important in today's competitive environment. According to recent studies, companies that use BI and manage their data as a strategic resource and invest in its quality are already pulling ahead in terms of reputation and profitability. This course will examine Business Intelligence (BI) technologies that help a company to improve its business. It discusses BI topics from both managerial and technical perspectives. Managerial perspectives discuss how BI affects the organization's decision-making process, while technical perspectives discuss the foundation for an intelligent system (i.e., Machine learning, Warehousing, Online Analytical Processing, Data Mining). Practical exercises and projects will be assigned to enhance students' experience in business intelligent systems. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904442	Course Title: Simulation in Business	Credit Hours: 0
Prerequisite: (1901242)		
<p>Course Description The purpose of the course is to have students understand the general principles of simulation model design and concepts of computer simulation. The course introduces students to simulation types, mathematical model types and simulation software and languages. The course covers in details simulation of discrete system (Discrete Event Simulation and simulation by different equations) and</p>		

simulation of continuous system using differential equations with practical examples in management, banking, manufacturing and computer networks. Both Python programming language and MS Excel software are intended to be used throughout the course. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.

Course Number: 1904323	Course Title: Knowledge Management Systems	Credit Hours: 3
Prerequisite: (1915101)		
<p>Course Description</p> <p>Knowledge management course will introduce the objectives of knowledge management, the definition of knowledge management, knowledge organization and structuring, knowledge management concepts, knowledge management implementation and applications covering AI, ML, Semantic Web ontologies among many. Knowledge modelling, building, exchanging/sharing methods will be covered as well in this course.</p> <p>This course is designed for data-oriented students with interest in machine interpretable methods for knowledge capture and sharing. It can be considered an introduction course for web-based knowledge graph technologies.</p> <p>This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904481	Course Title: Total Quality Management	Credit Hours: 0
Prerequisite: (1902372 and 1904255)		
<p>Course Description:</p> <p>This course introduces students to the use of quality management (QM) principles to the fast-paced, dynamic, and global software (Product) development. Many concepts are introduced such as quality assurance (PQA) types, models, structures, operations, controls and development environment. In addition to Software Quality Process Theory, Metrics Product and Quality Testing; Verification, Validation, Test Levels and Testing Types. Software Engineering Standards in Testing and Quality Control and Assurance are also explained.</p> <p>Metrics are covered with real-life examples. Students are introduced to TQM basic concepts, tools, static measurements and applications such as, Statistical Process Control, Hardware reliability, Function Point (FP) analysis, Defect Density Measurement, Customer Satisfaction Measurement and other Problem Solving and Decision Making. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.</p>		

Course Number: 1904484	Course Title: Document Analysis & Recognition	Credit Hours: 0
Prerequisite: (1901341 and 1901101)		
<p>Course Description The purpose of the course is to provide a comprehensive knowledge of theoretical background and practical applications of digital image processing techniques, analysis and enhancement both in the spatial and frequency domains. Students are given practical experience of utilizing digital image processing for real world examples of document analysis and recognition using MATLAB. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		
Course Number: 1902496	Course Title: Project-1	Credit Hours: 0
Prerequisite: (Passing 90 Hours)		
<p>Course Description This course represents the first stage of the graduation project, and it includes the theoretical aspects related to current problems and applications in IT. Student(s) should define, analyze the problem, and finally write a proposal. Then to present it to a predetermined committee in the department. It includes weekly meetings with the supervisors.</p>		
Course Number: 1902497	Course Title: Project -2	Credit Hours: 3
Prerequisite: (1902496)		
<p>Course Description This course represents the second stage of the graduation project. It includes the practical aspects: design, implementation, testing, and evaluation stages, and completing the project in its final version. A documentation of the whole project should be submitted for presentation and final examination. It includes weekly meetings with the supervisors.</p>		
Course Number: 1902498	Course Title: Training	Credit Hours: 0
Prerequisite: (Passing 90 Hours)		
<p>Course Description A student is required to train in one of organizations for not less than 6 weeks, presents a report from the organization to describe the effectiveness of the practice according to the training</p>		

regulations of Dean's council for KASIT Departments. Or have a specialized certificate in one of technological information subjects that considered and published from a certified organization.

Course Number: 1904235	Course Title: Information Resource Management	Credit Hours: 3
Prerequisite: (194232) ELECTIVE		
<p>Course Description</p> <p>Roles of information systems in the overall strategy and management of organizations; Organization management; Information resources: Personnel, planning and control, technological trends, management implications, managing MIS department; Outflow of information; Documents generation and distribution; Team management; New issues in MIS</p>		
Course Number: 1904453	Course Title: Semantic Web	Credit Hours: 3
Prerequisite: (194254) ELECTIVE		
<p>Course Description</p> <p>The Web Semantic course will introduce the notion of the Web Semantic, provide an overview of the underlying theory and technology, cover existing technologies and practices, and highlight current and potential applications. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		
Course Number: 1904341	Course Title: Operations Research	Credit Hours: 3
Prerequisite: (1904255) ELECTIVE		
<p>Course Description</p> <p>This course emphasizes the use of quantitative methods and techniques for effective decision-making. Model formulations and applications are used in solving business decision problems. Topics include: Linear Programming, Transportation, Assignment, CPM/PERT techniques, and Game Theory are covered. The course is an application oriented, it emphasizes learning by doing. Analytic techniques and computer packages will be used to solve problems facing business managers in decision environments</p>		
Course Number: 1904355	Course Title: e-Learning & Applications	Credit Hours: 3
Prerequisite: (1904254) ELECTIVE		
<p>Course Description</p> <p>This course introduces students to the concept of Electronic Learning and its applications within today's fast-paced, dynamic, and global environment</p>		

Course Number: 1904357	Course Title: e-Government	Credit Hours: 3
Prerequisite: (1904254) ELECTIVE		
<p>Course Description This course introduces the ways in which internet technologies are affecting how people interact with government, and how governments, in turn, are using and managing these technologies to better provide information and services to the public. It also emphasizes the benefits of adopting IT in e-government for all stockholders. It introduces the technology of e-government with an in-depth examination of current government development models and management challenges in the delivery of services and information, electronically. Furthermore, it will explore the skills and concepts needed to effectively manage e-government projects. Lastly, some successful practices of e-government projects will be addressed to emphasize the importance of implementing e-government.</p>		

Course Number 1911221	Course Title Security Risk Management and Ethics	Credit Hours 3
Prerequisite: (1911101 or 1911323) ELECTIVE		
<p>Course Description This course introduces students to the three key elements of risk management. Topics covered: risk analysis, risk assessment, and vulnerability assessment. Both quantitative and qualitative methodologies will be discussed as well as how security metrics can be modeled, monitored, and controlled. Several case studies will be used to demonstrate the risk management principles featured throughout the course. Risk assessments on the selected case study scenarios will be conducted by team work. Mitigation plans will be developed, and the results of their analysis will be presented, both in written reports and oral presentations. Ethical implications of security procedures will be studied as well.</p>		

Course Number: 1904458	Course Title: Software Packages	Credit Hours: 3
Prerequisite: (1901242) ELECTIVE		
<p>Course Description In order to develop students' skills which will enable them to get professional certificate, this course will introduce students to some certified software packages like SAP/3, Merlin MRP, Microsoft Management Packages and or any other software package that can add value to students. Weekly lab session.</p>		

Course Number: 1901364	Course Title: Advanced Computer Networks	Credit Hours: 3
Prerequisite: (1901363) ELECTIVE		
<p>Course Description This course explains and discusses advanced concepts of computer networks. Topics includes: VLANs, routing protocol; advanced TCP, silly window syndrome, adaptive timeout; network analysis, architecture, and design. network performance metrics measurements, polices and monitoring network management, SNMP protocol, SIM protocol, MIB protocol; asynchronous transfer Mode (ATM). Assessment will be through exams, assignments, and quizzes.</p>		

Course Number: 1902351	Course Title: Multimedia	Credit Hours: 3
Prerequisite: (1901242 And 1915101) ELECTIVE		
<p>Course Description This course aims to introduce the theoretical concepts of digital media including images, audio, animation and video. The difference between analog and digital media and the digital media storage process is discussed including the digital media encoding and decoding main concepts. An introduction to the different types of digital media compression techniques including the most popular file formats for each media type and digital memory issues. Lectures will be given in the lab for practical application. This course is assessed through exams, practical tests and assignments.</p>		

Course Number: 1904382	Course Title: Information Retrieval	Credit Hours: 3
Prerequisite: (1904371) ELECTIVE		
<p>Course Description The course aims at studying the theory, design, and implementation of text-based information systems. The course introduces IR core concepts on an abstract level, in addition to a design and an implementation of an IR system utilizing the acquired knowledge from the course. The course introduces several state-of-the-art IR concepts, as well as, trendy case studies in modern IR. After this course, students are expected to be able to design and implement a fully functional text-based retrieval system utilizing the acquired knowledge from this course. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1904386	Course Title: Enterprise Application Development	Credit Hours: 3
Prerequisite: (1901743) ELECTIVE		
<p>Course Description This course explores advanced application development techniques in a large enterprise wide setting. Topics include component development and reuse, distributed object technologies, multi-tier applications, data marshaling, transaction processing, concurrency problems and resolutions, load balancing and tuning, and application installation and deployment issues. This course uses</p>		

active teaching methodologies, such as weekly lab applied sessions, group work and technical projects. In addition, speakers from the industry will be invited to discuss case studies and show the latest trends on the industry.

Course Number: 1904415	Course Title: Database Languages and Tools	Credit Hours: 3
Prerequisite: (1902224) ELECTIVE		
<p>Course Description</p> <p>Develop database applications in a production environment using Oracle Developer 10g utilities which provides a comprehensive guide for developing database applications using Oracle 10g relational database and Developer 10g application development utilities. Database developments activities include using SQL commands to create tables and insert, update, delete and view data values. This course provides an overview of PL/SQL, explores the Developer 10g application development tools, and describes how to create an integrated database application, also it covers how to display application component in a Web browser and gives an overview to the database administration activities. This course uses active teaching methodologies, such as weekly lab applied sessions, group work and technical projects.</p>		

Course Number: 1602101	Course Title: Accounting Principles (1)	Credit Hours: 3
Prerequisite: (None) ELECTIVE		
<p>Course Description</p> <p>This course is an intensive study of the development of the accounting cycle, preparation of financial statements, and accounting for corporations. This course emphasizes international financial reporting standards and their application in understanding theories and policies relative to asset valuation, liability measurement, income determination, inventory costing methods, and internal control</p>		

Course Number: 1607110	Course Title: PRINCIPLES OF MICROECONOMICS	Credit Hours: 3
Prerequisite: (None) ELECTIVE		
<p>Course Description</p> <p>This course is an introductory course in microeconomics. Some of the issues covered include the foundations of economics, core concepts of microeconomics, Demand and Supply forces, the structure of product market, and production costs, and markets of resources.</p>		

Course Number: 1905222	Course Title: Data Mining	Credit Hours: 3
Prerequisite: (1902224 and 1915101) ELECTIVE		
<p>Course Description This course provides the students with an introduction to data mining, that is knowledge discovery from data (KDD). This course explores the concepts and techniques of knowledge discovery and data mining. The course will focus on issues relating to the feasibility, usefulness, effectiveness, and scalability of techniques for the discovery of patterns hidden in large data sets. The students will learn the basic concepts of data pre-processing, frequent pattern mining and association rules, classification, clustering, and outlier detection. Lectures will be given in the lab for practical application. This course is assessed through exams, practical tests and assignments.</p>		

Course Number: 1902214	Course Title: Advanced Java Programming	Credit Hours: 3
Prerequisite: (1902110) ELECTIVE		
<p>Course Description This course aims to introduce advanced programming skills based on core concepts of Object-Oriented Programming (OOP) and Design using Java programming language. It builds on the OOP course to finalize a Java full-stack application. This course starts with using some Java classes such as String, StringBuffer and StringBuilder, and StringTokenizer for string-processing. It also focuses on I/O operations using files and streams, and JavaFX for developing rich client applications. In addition to, GUI components, event-handling, Generics, exception-handling, multithreading, and JavaFX Event-Handler using Inner Class, Anonymous Class, and Lambda Expression. Finally, it introduces databases connectivity using JDBC. The JDBC case study is based on MySQL Database and Eclipse IDE. Lectures will be given in the lab for practical application. This course is assessed through project, exams, practical tests and assignments.</p>		

Course Number: 1902353	Course Title: Human Computer Interaction	Credit Hours: 3
Prerequisite: (1904120) ELECTIVE		
<p>Course Description This course aims to provide an introduction to various Human Computer Interaction related topics. This course explains the components and steps of designing, developing and evaluating interactive computer systems for human use. It also addresses the importance of Ergonomics, interaction design and its activities, data gathering and analysis, prototyping, evaluation paradigms and techniques universal design principles, and Non-traditional interfaces of all kinds. It also highlights the steps of designing graphical user interfaces to achieve usability and user experience in interactive systems. The course also presents the need to adopt ideas that serve users with special needs and impairments. The content of the course enables students to deploy interaction design principles into health related applications (healthcare and patient management), where students are required to show the interaction design activities, prototyping, evaluation paradigms and techniques, and</p>		

universal design principles in the project, which is considered one of the most important outcomes of the course where students apply everything they have learned in this course.

Course Number: 1931460	Course Title: Fundamentals of IoT	Credit Hours: 3
Prerequisite: (1901433 + 1901363)ELECTIVE		
<p>Course Description</p> <p>This course introduces the fundamentals of the Internet Of Things (IoT) and discusses how the Internet of Things IoT works. Topics covered span IoT networking, IoT smart objects, IoT Networking protocols, and smart object connections. In addition, the course explores IoT data networks, connection types, IoT security, and popular applications of IoT networks. Simulation-based hands-on exercises and project will be offered.</p>		

Course Number: 1905320	Course Title: Artificial Intelligence	Credit Hours: 3
Prerequisite: (1901242)ELECTIVE		
<p>Course Description</p> <p>The aim of the course is to enable students to solve problems using explicit knowledge and reasoning techniques and to develop expert systems for simple problems. Students will be able (1) to express knowledge of a simple domain in propositional and/or first-order predicate calculus, (2) to design and develop expert solutions to simple problems where AI techniques can be employed, and (3) to write simple programs in Prolog that reason about the available knowledge to achieve their goals. Furthermore, students will learn some simple blind and heuristic search algorithms such as depth-first, breadth-first, best-first, hill climbing, and simulated annealing and techniques on how to control search using production systems. They will also have the ability to decide the appropriate search techniques (blind or heuristic) for some problems. This course will use a combination of lectures, class discussions, reading and writing assignments, case studies analysis, and hands-on work.</p>		

