University Vice-Presidency

College of Computing and Informatics

STUDY PLAN PROJECT

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

January 2020

COLLEGE AT A GLANCE:

History:

A royal decree was issued by the custodian of the Two Holy Mosques, King Abdullah Bin Abdulaziz – Allah bless his soul –, on 10/8/2011 to launch the Saudi Electronic University (SEU) as a government educational institution. Based on the University's vision to align outputs with the labour market needs, the college of Computing and Informatics was established as one of the first colleges that have three departments: Information Technology, Computer Science, and Computing and Informatics to give graduates the knowledge and skill requirements necessary for the labour market by providing optimal academic environment that aims to prepare national specialist cadres in the field of computers. There is no doubt that Information Technology has become the main nucleus in the development process inside public and private organizations in the era of technology and information.

Mission:

To prepare qualified, professional, and excellent talents in the field of computer science and information technology, and contribute in serving the community by offering various learning programs, conducting scientific research that contribute in solving community problems in technology and informatics, as well as offering consultancy and training services in the college fields with the availability of qualified faculty members and excellent learning environment.

Vision:

A pioneer college in education and academic research at local and regional levels in the areas of computer science and information technology and through offering locally and internationally accredited programs using modern learning methods.

Values

- Excellence and innovation.
- Institutional commitment to academic standards
- Total Quality Management (TQM).

- Excellence in Education through continuous evolution.
- Industry and Academia Interaction for community welfare.
- Transparency and objectivity in the work

The CCI College's Goals

1. To keep pace with the academic and scientific advances in international universities in the field of computation and informatics.
2. To increase learners' academic and practical experience in their areas of specialization.
3. To enable graduates to compete in the fields of computation and informatics by providing them cognitive skills.
4. To support continuous development through local and international partnerships.
5. To connect programs through integrated courses that represent the most recent scientific and technological in the field.
6. To integrate academic programs and bridging the gap between applied science and information technology.
7. To participate in offering consultation and training programs in the fields of computer science to promote the college's role in serving the community.

A. PROGRAM IDENTIFICATION AND GENERAL INFORMATION

1. Program title:

Program of Science in Information Technology

2. Total credit hours needed for completion of the program:

127 Credit Units.

3. Award granted on completion of the program:

Bachelor of Science in Information Technology

4. Major tracks/pathways or specializations within the program:

Not exist.

5. Professional occupations

1- Software Developer
2- Database administrator
3- Network Administrator

4- Web Administrator and Developer
5- Technical support specialist
6- Site programmer and developer
7- Information system administrator
8- IT specialist

B. PROGRAM CONTEXT:

1. Rationales of the program:

The rationales of Bachelor program in Information Technology are summarized in the following points:

1- Contributing to the national strategic communication and IT plan.
2- The importance of information technology job for Saudi institutions and society.
3- The increasing job market needs in the Kingdom of Saudi Arabia for specialized workforce in IT.
4- The constant need in the labor market (public and private) to specialists in information technology.
5- Few number of Saudi universities offer BSc programs in IT.
6- The fulfilment of national high-quality projects, which aim to develop the IT in the Kingdom of Saudi Arabia.

2. Relevance of the program to the mission and goals of the institution:

The dependence of modern society and IT applications is growing manifold with every passing year. All nations are striving to equip their populations with latest tools and technologies in the domain of IT and software engineering. The program is designed to support the university mission of providing an excellent and qualified modern education for the kingdom and its population. The BSc in IT offers higher education based on the best applications and technologies of e-learning, to transfer and localize knowledge in the subject of IT.

3. Relationship to other programs:

a. Courses required from other programs

- MATH001 Introduction to Mathematics
- MATH150 Discrete Mathematics
- MATH251 Linear Algebra
- STAT101 Statistics
- MGT101 Principals of Management
- E-COM101 E-commerce

- ENG001 English Language Skills
- ENG103 Technical Writing
- COMM001 Communication Skills
- CI001 Academic Skills
- ISLM101 Islamic Culture 1
- ISLM102 Islamic Culture 2
- ISLM103 Islamic Culture 3
- ISLM104 Islamic Culture 4

b. Courses provided to other programs

- IT101 Introduction to IT and IS
- CS140 Computer Programming I
- CS141 Computer Programming II
- IT243 System Analysis and Design
- IT244 Introduction to Database
- IT201 Human Computer Interaction
- IT210 Computer Networks
- IT409 IT Security and Policies
- IT270 IT Project Management
- IT230 Web Technologies

4. Specific enrolment requirements: (IT skills, Language…):

None.

C. MISSION, GOALS & OBJECTIVES AND LEARNING OUTCOMES:

1. Program Mission:

Prepared well-educated and qualified students with the most current knowledge and skills in the various fields of information technology and to build their lifetime learning and careers, meet the labor market needs and conduct scientific research that contributes to the advancement of society's knowledge, solving community issues and meeting of future challenges in Information Technology.

2. Program learning outcomes

The program aims at building cadres able to:

1. Demonstrate a deep understanding of the main concepts and technologies related to information technology.
2. Realize the evaluation and assessment of tasks performed as IT professionals.
3. Describe and analyze the user needs and computing requirements appropriate to problems' solutions.
4. Apply the concepts, methods, tools and technologies mastered during the academic program.
5. Apply theories in modelling and designing IT systems using cutting edge tools and technologies.
6. Apply analysis, design, implementation, testing and evaluation principles of IT solutions to fit industrial requirements and support techpreneurship.
7. Carry out the assigned tasks with quality of work in accordance with international standards.
8. Communicate effectively, both orally and in written form, using appropriate media.
9. Identify the needs for continuous development of professional, legal and ethical skills with the ability to engage all group members.
10. Function effectively on teamwork projects and activities to accomplish a common goal.

3.Program Goals

The main goals of the BSIT program are:

1. Develop a technically proficient workforce capable of carrying out IT solutions to the best practices.
2. Provide students with soft skills and values to effectively communicate and collaborate with others professionally, ethically, legally as well as fulfill the needs of society.
3. Improve students' experience by empowering them with the necessary entrepreneurs' skills to develop innovative IT solutions and perform scientific research.

D. PROGRAM STRUCTURE AND ORGANIZATION

1. Program Structure by kind of requirements:

University requirements: 34 Credit Hours

Course Code	Course Title	Required or Elective	Credit Hours	College or Department
ENG001	English Language Skills	**Required**	16	Science and Theoretical Studies

CS001	Computer Essentials	**Required**	3	Computation and Informatics
COMM001	Communication Skills	**Required**	2	Science and Theoretical Studies
CI001	Academic Skills	**Required**	2	Science and Theoretical Studies
MATH001	Fundamentals of Mathematics	**Required**	3	Science and Theoretical Studies
ISLM101	Islamic Culture 1	**Required**	2	Science and Theoretical Studies
ISLM102	Islamic Culture 2	**Required**	2	Science and Theoretical Studies
ISLM103	Islamic Culture 3	**Required**	2	Science and Theoretical Studies
ISLM104	Islamic Culture 4	**Required**	2	Science and Theoretical Studies
		Total	34	

College requirements: 36 Credit Hours

Course Code	Course Title	Required or Elective	Credit Hours	College or Department
CS140	Computer Programming I	**Required**	3	Computation and Informatics
IT101	Introduction to IT and IS	**Required**	3	Computation and Informatics
MATH150	Discrete Mathematics	**Required**	3	Science and Theoretical Studies
ENG103	Technical Writing	**Required**	3	Science and Theoretical Studies
IT110	Computer Organization	**Required**	3	Computation and Informatics
CS141	Computer Programming II	**Required**	3	Computation and Informatics
STAT101	Statistics	**Required**	3	Science and Theoretical Studies

IT242	Software Engineering	**Required**	3	Computation and Informatics
IT241	Operating Systems	**Required**	3	Computation and Informatics
MGT101	Principles of management	**Required**	3	Administration and Finance
MATH251	Linear Algebra	**Required**	3	Science and Theoretical Studies
IT499	Practical Training	**Required**	3	Computation and Informatics
		Total	36	

Specialization requirements: 57 Credits Hours

Course Code	Course Title	Required or Elective	Credit Hours	College or Department
IT243	System Analysis and Design	**Required**	3	Computation and Informatics
IT244	Introduction to Database	**Required**	3	Computation and Informatics
IT201	Human Computer Interaction	**Required**	3	Computation and Informatics
IT210	Computer Networks	**Required**	3	Computation and Informatics
IT344	Database Management Systems	**Required**	3	Computation and Informatics
IT230	Web Technologies	**Required**	3	Computation and Informatics
IT270	IT Project Management	**Required**	3	Computation and Informatics
IT340	Network Management	**Required**	3	Computation and Informatics
IT342	Enterprise Systems	**Required**	3	Computation and Informatics
IT440	System Integration	**Required**	3	Computation and Informatics
E-COM101	E-commerce	**Required**	3	Administration and Finance
IT490	Senior Project I	**Required**	2	Computation and Informatics
IT491	Senior Project II	**Required**	4	Computation and Informatics
IT407	Professional Issues in IT	**Required**	3	Computation and Informatics
IT409	IT Security and Policies	**Required**	3	Computation and Informatics

IT4XX	Elective Course in IT 1	**Elective**	3	Computation and Informatics
IT4XX	Elective Course in IT 2	**Elective**	3	Computation and Informatics
IT4XX	Elective Course in IT 3	**Elective**	3	Computation and Informatics
IT4XX	Elective Course in IT 4	**Elective**	3	Computation and Informatics
		Total	57	

Tracks requirements:

None.

2 - Program Structure by levels:

Year 1

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 1	ENG001	English Language Skills	8		
	CS001	Computer Essentials	3		
	COMM001	Communication Skills	2		
		Total	13		

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 2	ENG001	English Language Skills	8		
	MATH001	Fundamentals of Mathematics	3		
	CI001	Academic Skills	2		
		Total	13		

Year 2

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 3	CS140	Computer Programming I	3	Pass First Common Year	
	IT101	Introduction to IT and IS	3		
	MATH150	Discrete Mathematics	3		
	ENG103	Technical Writing	3		
	IT110	Computer Organization	3		
	ISLM101	Islamic Culture 1	2		

Total	17		

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 4	CS141	Computer Programming II	3	CS140	
	MATH251	Linear Algebra	3	MATH150	
	IT242	Software Engineering	3	CS140	
	IT241	Operating Systems	3	IT110	
	MGT101	Principals of Management	3		
	ISLM102	Islamic Culture 2	2		
		Total	17		

Year 3

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 5	IT243	System Analysis and Design	3	CS141	
	IT244	Introduction to Database	3	CS141	
	IT201	Human Computer Interaction	3	IT101,IT242	
	IT210	Computer Networks	3	IT241	
	STAT101	Statistics	3		
		Total	15		

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 6	IT344	Database Management Systems	3	IT244	
	IT230	Web Technologies	3	IT201, IT244	
	IT270	IT Project Management	3	IT243	
	IT340	Network Management	3	IT210	
	E-COM101	E-Commerce	3		
	ISLM103	Islamic Culture 3	2		
		Total	**17**		

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites

Summer	IT499	Practical Training	3	Completion of 86 credit hours	
		Total	**3**		

Year 4

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 7	IT490	Senior Project I	2	IT230, IT344	
	IT440	System Integration	3	IT243, IT340	
	IT342	Enterprise Systems	3	IT201	
	IT4XX	**Elective Course in IT 1**	3	* See Note 1	
	IT4XX	**Elective Course in IT 2**	3	* See Note 1	
	ISLM104	Islamic Culture 4	2		
		Total	16		

Year	Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
Level 8	IT491	Senior Project II	4	IT490	
	IT4XX	**Elective Course in IT 3**	3	* See Note 1	
	IT4XX	**Elective Course in IT 4**	3	* See Note 1	
	IT407	Professional Issues in IT	3	IT270	
	IT409	IT Security and Policies	3	IT340	
		Total	16		

*** Note 1:** With respect to the elective courses, the department shall decide what to offer in each semester. The students are required to select two courses from two groups. In the 7th semester they will study one course from each group they have opted for. In the 8th semester, they will study the second course from each group selected by them thereby completing the 4 elective courses.

Elective Group A – Data Sciences			
Course Code	**Course Name**	**Credit Hours**	**Prerequisites**
IT446	Data Mining and Data Warehousing	3	IT344
IT445	Decision Support Systems	3	
IT443	Distributed Database System	3	
IT444	Database Administration	3	
Elective Group B – Networks and Security			
Course Code	**Course Name**	**Credit Hours**	**Prerequisites**
IT412	Introduction to Cyber Security and Digital Crime	3	IT340
IT413	Network Security	3	

IT415	Wireless Sensor Networks	3	
IT411	Computer Forensics	3	
Elective Group C – Advanced Development			
Course Code	**Course Name**	**Credit Hours**	**Prerequisites**
IT448	Mobile Application Development	3	IT230
IT442	Advanced Web Development	3	
IT447	Artificial Intelligence	3	
IT441	Multimedia System Development	3	

3. Field Experience (internship, cooperative program….):

a. Brief description

A summer period of 8 weeks spent as a trainee in industry, business, or government agencies for the purpose of familiarizing the student with the real job environment and enabling him to apply and relate his academic knowledge to a real work environment.

b. Semester:

The summer period of 8 weeks

c. Time allocation and scheduling arrangement

After the third year

d. Number of credit hours

Three credit hour

e. Intended learning outcomes

- Familiarizing the student with the real job world
- Apply and relate his academic knowledge to a real work environment

f. Assessment procedures

By an evaluation form filled by the employer, and a written report submitted by the student.

4. Project or Research Requirements (if any)

a. Brief description

- **IT490 Senior Project I**
  During this course the primary aim of students will be to choose a development project which they will work on during Senior Project 1 and Senior Project 2. To equip them with necessary skills and tools in research and analysis phases of this senior project, in the first four weeks, the students will be taught on how to review literature, conduct research and elicit requirements. These following details outline the desired objectives of tis teaching.
  This course will equip undergraduate Information Technologies students with the basic skills to conduct researches in the field of Information Technologies. The course aims to introduce the required techniques for conducting a research, implementing systems, writing technical reports and the skills for presenting the work for audiences. This course will particularly focus on topics, which are related to the field of information technologies. The course will also provide guidance to the students in selecting their projects, understanding the research process as well as the tools needed to support implementing the system and writing its documentation. The course discusses other issues including research methods that are normally used in researches such as experiments, survey, interview and simulations, understanding the importance of literature review, preparing visual presentations and other ethical issues such as plagiarism.

- **IT491 Senior Project II**
  This a continuation of the graduation project started in IT490. The focus will be in this part on low-level design, implementation, testing and quality assurance as well as management of the project.

b. Semester:

Semester 7 and 8.

c. Number of credit hours

2 (IT490) + 4 (IT491), the total is 6 hours.

d. Intended learning outcomes

On completion of this module, students should be able to:

- select an area for study appropriate to the programme of study;
- negotiate with a supervisor to define a problem to be solved;
- identify and review relevant literature;
- identify and implement an appropriate project methodology;
- manage the project using appropriate tools and techniques;
- deliver a solution as negotiated with the supervisor;
- evaluate the solution;

- give a presentation to an audience of peers and staff on aspects of the project;
- write a report presenting the problem and its solution;
- reflect upon the project experience.

e. Assessment procedures

The assessment will include the evaluation of the following items

- A complete written report by the student.
- Student commitment based on the supervisor report.
- Student's oral presentation and ddemonstration.

5. Admission Requirements for the program:

None

6. Attendance and Completion Requirements:

The course load is divided as follows: 25% face-to-face lectures and 75% e-learning activities based on the University's Distance Learning regulations.

To complete the program, a student has to successfully complete the 127 credit hours as specified in the above detailed study plan.

G. LEARNING FACILITIES AND EQUIPMENT:

1. Facilities required

The college has provided state of the art facilities to the students for imparting quality education. The campuses provide modern class rooms with electronic gadgets required for smooth execution of class hours. The students also avail the opportunities to interact with faculty during visiting hours who are required to be in their allocated office spaces which are also furnished with all facilities needed for blended learning environment including hardware and software which is needed.

2. Classrooms

It is mandatory for all classes to be held in properly designed classrooms during the face to face hour. Each class is equipped with electronic podium which has the facility to record the lecture as well as sound control apart from other features. Each classroom is connected with internet. Multimedia support is available in every class room. Each classroom is equipped besides these with general amenities like air-conditioning, sufficient lighting and proper sitting arrangements. All classrooms are regularly monitored to ensure that none of the assets is in bad or disorderly shape.

3. Equipment (including IT)

The most salient IT equipment includes:

1. State of the art latest computing machines and laptops for faculty members.
2. 24 hours uninterrupted high speed internet provision at all the campuses.
3. Provision of SEU portal accounts to all the students and faculty members.
4. Blackboard system as teaching software with accounts for all the teachers and students to manage their academic activities and conduct virtual sessions.
5. Attendance, grading, E-mail and other relevant softwares.
6. Access to Saudi Digital Library for all the students and faculty alike

Course Descriptions

1 - UNIVERSITY REQUIREMENTS

College	College of Sciences and Theoretical Studies		Department	
Course Name	English Language Skills	Course Code:	ENG001	
Credit Hours	16	Contact Hours	16	
Teaching Language	☐ Arabic		☒ English	
Track	University requirement			
Course Level	First or second Semester	Prerequisite	None	

Course Description:

The 4 weekly hours of contact time with the English instructors aims to support, compliment and reinforce the student's online learning. The contact hours serves as an essential support component such that students are guided throughout their English studies. In addition, a course textbook has been selected to support the students learning. The Q:Skills series from world famous Oxford University press has been chosen as the official textbook of the course which students purchase from a distributor. The textbook is an e-book which an adaptive book rather than the traditional textbook. The Q:Skills series is one of the leading EFL course textbooks available in the current marketplace. The Q:Skills series (Reading and Writing and Listening and Speaking). Clearly identified learning outcomes focus students on the goal of instruction, while thought-provoking unit questions provide a critical thinking framework. In this regard, the skills of reading, writing, are covered in the first two hours of face two while the listening and speaking book will be covered in the second portion of the face to face class. Therefore, all four skills are covered effectively. Thus, the overall goal of developing the students' ability to communicate as effectively as possible in the English language.

Course learning outcomes: Upon completion of this course, student should be able to:

1. Communicate effectively using basic English language skills.
2. Comprehend courses taught in the English language.
3. Undertake research protocol and access knowledge through search mainly print and electronic search engines available in the English language.
4. Learn about the culture of the English speaking world and be able to benefit from their experiences.

Grading:	☐ Mid-Term Exams	☒ Quizzes	☒ Assignments
	☐ Final Exam	☐ Project	☐ Lab Work

Text Book:	McVeigh, J. and Bixby, J (2015). Q: Skills for Success: Reading and writing and companion book 2 spekaing and listening (2 ed.). Oxford: Oxford University Press. ISBN 978-03919482057 $ iTools Online with iQ online pack (e-text).
Reference Book (s):	

College	**College of Computation and Informatics**		**Department**	
Course Name	**Essentials of Computers and Software**	**Course Code:**	CS001	
Credit Hours	3 credit Hours	**Contact Hours**	**4**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	**University requirement**			
Course Level	First or second semester	**Prerequisite**	**None**	

Course Description:

This course is an essential guide to computing concepts and provides the learner with a complete learning solution focusing on the most important, essential, and current concepts of information technology. Students are given a streamlined, concise, relevant approach to the fundamental issues surrounding the world of computing through a balance between theory and applied learning of these important topics.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain the basic information related to the computer and its major components
2. Use the computer and information technology such as computer networks and operating systems.
3. Effectively use Microsoft's core applications.
4. Communicate via the internet and access information using search engines.

Grading:	☒ **Mid-Term Exams**		☒ **Quizzes**		☒ **Assignments**	
	☒ **Final Exam**		☐ **Project**		☐ **Lab Work**	
Text Book:	Introduction to Computers and Information Technology (Second Edition), 2016. ISBN: 9781323144183.					

Reference Book (s):	

الكلية	**كلية العلوم والدراسات النظرية**		**القسم**	**قسم العلوم الإنسانية**
اسم المقرر	**مهارات الاتصال**	**رمز المقرر**	001 علم	
الساعات المعتمدة	**2**	**ساعات الاتصال**	**4**	
لغة التدريس	☒ **اللغة العربية**		☐ **اللغة الانجليزية**	
نوع المتطلب	متطلب جامعة			
المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**	

وصف المقرر

- تعريف طبيعة الاتصال وعناصره وأنواعه وخصائصه وأهدافه وكفاءة الاتصال ومعيقاته وأدواته, العلاقة بين الاتصال اللغوي والاتصال غير اللغوي.
- مفهوم الذات, والإفصاح عن الذات.
- مهارة الإقناع, المقابلات الشخصية, القدرات الشخصية التي تسعى إليها القطاعات.
- مهارة كتابة السيرة الذاتية.
- مهارة الإلقاء والعرض الفعال.

المخرجات التعليمية: بعد اجتياز المقرر يكون الطالب قادرا على:

1. الاتصال الفعال مع مختلف البيئات والثقافات.
2. استيعاب الاختلافات الثقافية في المجتمعات والبيئات المختلفة.
3. استخدام طرق تطوير الذات وتسويقها محليا وعالميا.
4. توظيف التكنولوجيا الحديثة في تطوير كفاءة عملية الاتصال.

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (مهارات الاتصال)، الطبعة الأولى 2016.		
المراجع			

الكلية	**كلية العلوم والدراسات النظرية**		**القسم**
اسم المقرر	**المهارات الأكاديمية**	**رمز المقرر**	001 نهج
الساعات المعتمدة	**2**	**ساعات الاتصال**	**4**

لغة التدريس	☒ **اللغة العربية**	☐ **اللغة الانجليزية**	
نوع المتطلب	متطلب جامعة		
المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**

وصف المقرر

يهدف هذا المقرر إلى مساعدة الطالب على إدارة ذاته وقدراته وإمكاناته بصورة تقوده إلى النجاح والتفوق والإبداع واكتساب عدد من الاستراتيجيات والأدوات البحثية وأدوات التعلم والتفكير بصورة إيجابية سليمة واستخدام سلسلة من الأدوات الحقيقية والإستراتيجية الفاعلة، التي تساعده على تحصيل المعرفة، وتنظيمها وسرعة استدعائها وإعداد البحوث العلمية وعرضها. كما يهدف المقرر إلى تعزيز أدوات واستراتيجيات التعلم الذاتي وأنماطه وطرقه وكذلك أدوات واستراتيجيات التعلم في بيئات التعلم الالكترونية.

المخرجات التعليمية :بعد اجتياز المقرر يكون الطالب قادرا على أن:

1. تعريف المفاهيم الأساسية المتعلقة بالمهارات الأكاديمية.
2. استخدام مهارات التعلم في دراسته الجامعية بإتقان.
3. تطبيق المهارات الأساسية للبحث العلمي.
4. توظيف التفكير السليم في المواقف الأكاديمية والحياتية المختلفة.

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**	
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**	
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (المهارات الأكاديمية الجامعية)، الطبعة الأولى 2019.			
المراجع				

College	College of Sciences and Theoretical Studies		**Department**	
Course Name	**Fundamentals of Math**	**Course Code:**	MATH001	
Credit Hours	**3**	**Contact Hours**	**4**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	**University requirement**			
Course Level	**First or second Semester**	**Prerequisite**	**None**	

Course Description:

This course will address the outcomes of introductory and intermediate algebra. Topics include: basic algebraic properties, integers, simplifying and factoring polynomials, solving and graphing linear equations and inequalities, solving systems of equations in two and three variables, func tions, rational expressions, quadratic and rational equations and inequalities, absolute value, graphing systems of equations and inequalities, and other selected topics. Applications will be emphasized, and numeric, algebraic, and graphical modes will be used.

Course learning outcomes: Upon completion of this course, student should be able to:

1. Demonstrate an understanding of basic mathematical concepts
2. Solve equation problems and algebraic expressions
3. Apply mathematical thinking skills
4. Develop and maintain problem solving skills

Grading:	☒ **Mid-Term Exams**		☒ **Quizzes**		☒ **Assignments**		
	☒ **Final Exam**		☐ **Project**		☐ **Lab Work**		
Text Book:	Bittinger, Marvin L., and Beecher, Judith A. (2013). *Introductory and intermediate a lgebra* (5th). Boston, MA: Addison-Wesley. ISBN: 978-0-321-71606-4.						
Reference Book (s):							

الكلية	**كلية العلوم والدراسات النظرية**	**القسم**	**قسم العلوم الإنسانية**
اسم المقرر	**ثقافة إسلامية 1**	**رمز المقرر**	سلم 001
الساعات المعتمدة	2	**ساعات الاتصال**	4
لغة التدريس	☒ **اللغة العربية**	☐ **اللغة الإنجليزية**	
نوع المتطلب	متطلب جامعة		
المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**

وصف المقرر

يعد مقرر الثقافة الإسلامية من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث تتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية

يتناول المقرر في وحداته موضوعات تشمل:

- تعريف الثقافة ومصطلحاتها
- الثقافة الإسلامية، نشأتها، ومنهجها

- مصادر علم الثقافة الإسلامية
- موضوعات علم الثقافة الإسلامية
- ركائز الثقافة الإسلامية
- أركان الإيمان الستة
- تابع اركان الإيمان الستة
- مكونات الثقافات الكبرى
- الثقافة الإسلامية والثقافات الأخرى
- التحديات التي تواجه الثقافة الإسلامية
- تابع التحديات التي تواجه الثقافة الإسلامية

المخرجات التعليمية

- **أن يقارن الطالب بين تعريفات الثقافة، والمصطلحات ذات الصلة.**
- **أن يشرح الطالب خصائص الثقافة الاسلامية التي تميزت بها عن غيرها.**
- **أن يعدد الطالب أهم المصادر التي تُستمد منها ثقافتنا الإسلامية.**
- **أن يصنف الطالب موضوعات علم الثقافة بحسب الاتجاه.**
- **أن يلخص الطالب أبرز الركائز التي تقوم عليها الثقافة الإسلامية.**
- **أن ينقد الطالب الثقافات الكبرى نقداً موضوعياً.**
- **أن يناقش الطالب أهم التحديات التي تواجه الثقافة الإسلامية وكيفية مواجهتها**

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (الثقافة الاسلامية).		
المراجع			

الكلية	**كلية العلوم والدراسات النظرية**		**القسم**	**قسم العلوم الإنسانية**
اسم المقرر	**ثقافة إسلامية 2**	**رمز المقرر**	سلم 002	
الساعات المعتمدة	2	**ساعات الاتصال**	4	
لغة التدريس	☒ **اللغة العربية**		☐ **اللغة الانجليزية**	
نوع المتطلب	متطلب جامعة			
المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**	

وصف المقرر

يعد مقرر الأخلاق وآداب المهنة في الإسلام من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث تتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته عدة موضوعات تشمل:

- **تعريف الأخلاق وأقسامها ومكانتها في الإسلام وأهمية دراستها.**
- **أسس الأخلاق السليمة.**
- **خصائص الأخلاق في الإسلام.**
- **الأخلاق عند غير المسلمين.**
- **وسائل اكتساب الأخلاق.**
- **المسؤولية الخلقية.**
- **صور من أخلاق النبي صلى الله عليه وسلم.**
- **النزاهة والأمانة ومكافحة الفساد.**
- **مفهوم أخلاقيات المهنة.**
- **دور أخلاق المهنة في العمل والإنتاج.**
- **الأخلاق الجامعة للمهنة.**
- **بعض مواثيق المهن المعاصرة.**

المخرجات التعليمية

1. **أن يوضح الطالب معنى الأخلاق ومكانتها في الإسلام.**
2. **أن يذكر الطالب أسس الأخلاق الإسلامية.**
3. **أن يصف الطالب أخلاق النبي صلى الله عليه وسلم.**
4. **أن يستنبط الطالب خصائص الأخلاق في الإسلام.**
5. **أن يصنف الطالب وسائل اكتساب الأخلاق الحميدة.**
6. **أن يقارن الطالب بين الأمانة، والنزاهة، ومكافحة الفساد.**
7. **أن يميز الطالب الأخلاق المتعلقة بالمهن.**

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (الثقافة الاسلامية).		
المراجع			

الكلية	**كلية العلوم والدراسات النظرية**	**القسم**	**قسم العلوم الإنسانية**
اسم المقرر	**ثقافة إسلامية 3**	**رمز المقرر**	سلم 003
الساعات المعتمدة	2	**ساعات الاتصال**	4
لغة التدريس	☒ **اللغة العربية**		☐ **اللغة الانجليزية**
نوع المتطلب	متطلب جامعة		

المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**

وصف المقرر

يعد مقرر النظام الاقتصادي في الإسلام وقضاياه من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث تتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته موضوعات تشمل:

- **مفهوم القضايا الاقتصادية وأهمية دراستها (مدخل للمقرر).**
- **التأمين: تعريفه وأركانه وخصائصه وحكمه.**
- **بورصة الأوراق المالية: تعريفها وأقسامها ودورها وأهدافها وحكمها الشرعي.**
- **غسيل الأموال: مفهومه وصوره وحكمه وآثاره.**
- **الخصخصة: مفهومها وأشكالها وأهدافها وضوابطها.**
- **صكوك الإجارة: تعريفها وخصائصها وأهدافها وحكمها.**
- **العولمة الاقتصادية: معناها وأهدافها وأدواتها وآثارها الاقتصادية وسياسات منظمات العولمة الاقتصادية.**
- **المعاملات المصرفية الإلكترونية: البيوع الإلكترونية والاعتماد المستندي الإلكتروني والأوراق التجارية الإلكترونية والتحويل المصرفي الإلكتروني ومخاطر التعاملات الإلكترونية.**
- **التكامل الاقتصادي: مفهومه وعوامل قيامه ومزاياه ومراحله ومتطلباته.**
- **التضخم الاقتصادي: مفهومه وأنواعه وأسبابه وآثاره وسبل التغلب عليه**

المخرجات التعليمية

1. **أن يحدد الطالب الأنظمة الاقتصادية .**
2. **أن يعرف الطالب بورصة الأوراق المالية.**
3. **أن يذكر الطالب معنى التأمين وحكمة و انواعه .**
4. **أن يوضح الطالب معنى غسيل الأموال و آثاره و حكمه.**
5. **أن يطلع الطالب على ماهية الخصخصة وصكوك الإجارة و أنواعها و حكمها.**
6. **أن يستنتج الطالب أنواع المعاملات المصرفية الإلكترونية و مخاطرها.**
7. **أن يعرف الطالب معنى التكامل الاقتصادي و أهمية و أسباب التضخم الاقتصادي و آثاره.**

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (الثقافة الاسلامية).		
المراجع			

الكلية	**كلية العلوم والدراسات النظرية**	**القسم**	**قسم العلوم الإنسانية**
اسم المقرر	**ثقافة إسلامية 4**	**رمز المقرر**	سلم 004
الساعات المعتمدة	2	**ساعات الاتصال**	4
لغة التدريس	☒ **اللغة العربية**		☐ **اللغة الانجليزية**
نوع المتطلب	متطلب جامعة		

المستوى	الفصل الأول أو الثاني من السنة الأولى	**المتطلبات السابقة**	**لا يوجد**

وصف المقرر

يعد مقرر النظام الاجتماعي وحقوق الإنسان في الإسلام من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث تتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته عدة موضوعات تشمل:

- **مفهوم المجتمع :تعريفه، الإنسان في الإسلام، أسس بناء المجتمع وعناية الإسلام به، سمات المجتمع الإسلامي، تقوية الروابط الاجتماعية.**
- **الأسرة في الإسلام: تعريفها، مكانتها، أهميتها، أسس بناء الأسرة، الزواج ومقاصده، حقوق الزوجين، حقوق الآباء و الأولاد الأقارب، مكانة المرأة وحقوقها في الإسلام.**
- **الشبهات حول النظام الأسري في الإسلام والرد عليها :تعدد الزوجات، الحجاب، ميراث المرأة، دية المرأة، الطلاق، تحديد النسل.**

المخرجات التعليمية

1. **التعرف على مفهوم المجتمع من منظور إسلامي**
2. **التعرف على حقوق الإنسان في الإسلام**
3. **التعرف على أهمية بناء الأسرة في الإسلام**
4. **التعرف على الزواج و أحكامه في الإسلام**
5. **التعرف على عناية الإسلام بالمرأة في الإسلام.**
6. **أن يوضح الطالب مفهوم تحديد النسل**
7. **أن يفرق الطالب بين تحديد النسل وتنظيم النسل**
8. **أن يوضح الطالب سمات المجتمع الإسلامي**
9. **أن يفرق الطالب بين ما هو متوافق مع الإسلام وما هو مخالف له في المواثيق الدولية لحقوق الإنسان**
10. **أن يوضح الطالب الطريقة الصحيحة لتكوين أسرة في الإسلام**
11. **أن يفرق الطالب بين الزواج الصحيح والزواج الفاسد.**
12. **أن يدرك الطالب حكمة التشريع الإسلامي في المسائل التي تتساوى أو تختلف فيها المرأة عن الرجل**
13. **أن يوضح الطالب وسائل تحديد النسل.**
14. **أن يدرك الطالب الفرق بين تحديد النسل وتنظيم النسل**

التقييم	☒ **الاختبارات الدورية**	☒ **الاختبارات القصيرة**	☒ **الواجبات**
	☒ **الاختبار النهائي**	☐ **المشروع**	☐ **معامل**
الكتاب الدراسي	المقرر الدراسي المؤلف من قبل الجامعة (الثقافة الاسلامية).		
المراجع			

2 - College requirements

College	Science and Theoretical Studies		**Department**	
Course Name	Discrete Mathematics	**Course Code:**	MATH150	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**3**	**Prerequisite**	Pass First Common Year	

Course Description:
This course introduces students to fundamental algebraic, logical and combinatorial concepts in mathematics. Topics include Boolean Logic, Predicate Logic, sets, mapping, relations, elementary counting principles, algorithm & proof techniques, graphs, and recursions.

course learning outcomes: Upon completion of this course, student should be able to:

1. Solve Boolean Logic and Predicate Logic problems.
2. Solve basic counting problems including permutations and combinations.
3. Apply the concept of recurrence to algorithms and counting problems.
4. Apply the concept of growth functions to compute the complexity of simple algorithms.
5. Identify specific types of graphs & trees and Apply several classic algorithms related to applications in graphs and trees.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Rosen, K.H. (2012). Discrete Mathematics and its Applications (7th ed.). New York, NY: McGraw Hill. ISBN: 978-0077431440 (print version).					
Reference Book (s):						

College	Science and Theoretical Studies			**Department**	
Course Name	Technical Writing		**Course Code:**	ENG103	
Credit Hours	3 credit Hours		**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**			☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**		☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**3**	**Prerequisite**		Pass First Common Year	

Course Description:
This course offers a general overview on principles and procedure of technical writing; attention to analyzing audience and purpose, organizing information, designing graphic aids, and writing such specialized forms as abstracts, instructions, and proposals. Students systematize and organize knowledge in ways that will help them in all of their courses. The course also emphasizes the elements of good writing style, appropriate grammar and mechanics, clarify of language and logical and cohesive development.

course learning outcomes: Upon completion of this course, student should be able to:

1. Identify the elements that affect writers' and users' perception of written documents.
2. Implement theories of document design.
3. Demonstrate the recursive nature of writing process.
4. Develop strategies for written and/or oral communication that foster mutual respect and responsibility.
5. Produce ethically responsible professional documents.
6. Develop effective arguments in professional documents using discursive and visual information.
7. Produce professional documents using various technologies

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Gurak, L. and Hocks, M. (2013). Strategies for Technical Communication in the Workplace. 2nd Edition. Pearson. ISBN: 978-0-205-24552-9					
Reference Book (s):						

College	College of Computing and Informatics	**Department**	IT

Course Name	Computer Programming, I	**Course Code:**	CS140	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐ **Dep. Elective**
Course Level	**3**	**Prerequisite**	Pass First Common Year	

Course Description:
This course is to introduce the students to the principles of computer analysis of problems, design of algorithms, programming and testing using the Java programming language. Topics include problem analysis, basics of Programming, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging.

Course learning outcomes: Upon completion of this course, student should be able to:

1. Explain the basic principles of programming, concept of language. Universal constructs of programming languages.
2. Design algorithms using pseudo-code, flowcharts, and structured charts.
3. Demonstrate Integrated Development Environment (IDE) for the editing, building, debugging, and testing of programs.
4. Develop a program based on specification using programming language elements including syntax, data types, conditional statement, control structures, procedures and arrays.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Big Java: Early Objects, 7th Edition, Cay S. Horstmann, Wiley and Sons, 2018, ISBN: 978-1-119-49909-1					
Reference Book (s):						

College	College of Computing and Informatics	**Department**	IT
Course Name	Introduction to IT and IS	**Course Code:**	IT101
Credit Hours	3 credit Hours	**Contact Hours**	**3**
Teaching Language	☐ **Arabic**	☒ **English**	

Track	☒ **College Req.**	☐ **Dep. Req.**	☐ **Dep. Spec**	☐ **Dep. Elective**
Course Level	**3**	**Prerequisite**	Pass First Common Year	

Course Description:
This course is an introductory course in information technology and information systems technology. The purpose of this course is to familiarize students with application of IT systems in various professional spectrums in the form of Information systems. Topics include basic hardware, software, data and overview of use of information technology in organizations. This course also provides an understanding of information systems and outlines the concepts of how IS can provide for competitive advantage. The course will also discuss about the management challenges facing organization today and how its affect to business and society.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain the significance of information technology and its applications in professional life.
2. Classify the business areas to which computers may be applied.
3. Illustrate how business requirements drive the information and knowledge needs of an organization for competitive advantage.
4. Demonstrate the use of emerging technology drivers such as Electronic Business, Data Mining and Networking solutions.
5. State the basic concepts of computer hardware and software.
6. Interpret the management challenges faced by information systems being implemented in organizations today, and how they affect business and society.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	"Introduction to Information Systems", 16th Edition. By: George Marakas and James O'Brien, 2012. Publisher: McGraw-Hill/Irwin Professional. ISBN-10: 0073376884 or ISBN-13: 978-0073376882					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	Computer Organization	**Course Code:**	IT110	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒ **College Req.**	☐ **Dep. Req.**	☐ **Dep.Spec**	☐ **Dep. Elective**

Course Level	3	Prerequisite	Pass First Common Year

Course Description:
This course offers a comprehensive understanding of the structure of computational systems. This course deals with the nature of computer hardware. The course will cover the structure of current computer systems at the level of functional organization, representation of data and programs, the design of the memory hierarchy, and the design of the I/O system. This course also will introduce basic assembly language.

Course learning outcomes: Upon completion of this course, student should be able to:

1. Describe the structure of computer systems.
2. Demonstrate various machine language concepts.
3. Develop assembly language programs.
4. Interpret the effects of good programming for efficient machine processing.
5. Analyse the relationship between computer system structure and performance.

Grading:	☒ Mid-Term Exams	25	☒ Coursework	25	☒ Final Exam	50
Text Book:	"The Architecture of Computer Hardware, System Software, and Networking: An Information Technology Approach", 5th Edition By: Irv Englander. Publisher: John Wiley & Son., 2014 ISBN-13: 978-1118322635.					
Reference Book (s):	"Computer Organization and Embedded Systems, 6th Edition By: Carl Hamacher, 2011. Publisher McGraw-Hill Education, ISBN-10: 0073380652 or ISBN-13: 978-0073380650					

College	College of Computing and Informatics		**Department**	IT
Course Name	Computer Programming II	**Course Code:**	CS141	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**4**	**Prerequisite**	CS140	

Course Description:
This course is the logical extension of Computer programming 1. In this course, students will be taught to work on complex data structures and algorithms. Major focus of this course is to prepare the transition from conventional functional programming to more relevant object oriented programming. Topic includes Concepts of object oriented (OO) programming: data abstraction, encapsulation, inheritance, and polymorphism. Also includes key data structures including stacks, queues, linked lists, binary trees, recursion and examples using some fundamental algorithms of computer science. Java programming languages will be used.

Course learning outcomes: Upon completion of this course, student should be able to:

1. Outline concepts such as inheritance, polymorphism and reusability with special emphasis on object-oriented programming.
2. Apply recursion concept in programming.
3. Design and implement programs using object-oriented programming concepts such as encapsulation, inheritance, polymorphism, abstract classes and methods.
4. Demonstrate dynamic data structures such us linked lists, stacks and queues, and binary trees.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Java How to Program (Early Objects), 11th Edition, Paul Deitel and Harvey Deitel, 2018. Publisher: Pearson. ISBN-13: 978-0134743356 or ISBN-10: 0134743350.					
Reference Book (s):						

College	Science and Theoretical Studies	**Department**	

Course Name	**Statistics**	**Course Code:**	**STAT101**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**5**	**Prerequisite**		

Course Description:
This course introduces the student to statistics with business applications. The course covers both descriptive and inferential statistics. Topics included are: measures of central tendency; measures of dispersion; graphical displays of data; linear regression; basic probability concepts; binomial and normal probability distributions; confidence intervals; and hypothesis testing of mean, proportion for one or two populations. The course also covers ANOVA and hypothesis tests for Goodness of Fit. These topics will be covered using a basic knowledge of algebra and Microsoft Excel.

course learning outcomes:

1. Define Statistics by examine the function, role and skill of Statistical uses.
2. State, reproduce and describe the issues and practices of Statistics that how they use the statistical data in Business.
3. Explain the issues and practices of Statistics that how they use the statistical data in Business. Compute and interpret descriptive measures of a data set.
4. Apply the concepts of statistics to a business situations.
5. Analyze the concepts of normal probability distributions.
6. Use the concepts of discrete and normal probability distributions.
7. Formulate testing of hypotheses in constructing and interpreting confidence intervals.
8. Analyze data sets using linear regression and correlation.
9. Recognize and evaluate proper and improper uses of statistical data in business.
10. Interpret results obtained from data analyzed using software packages.
11. Evaluate the data using business software packages and interpret the results.
12. Assess the numerical efficiency of Statistics in Business and research.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Mario F. Triola (2011). Elementary Statistics Using the TI-83/84 Plus Calculator. (3rd edition). Addison-Wesley, Pearson Education. ISBN: 978-0-321-64148-9.					
Reference Book (s):						

College	College of Computing and Informatics	**Department**	IT

Course Name	Software Engineering	**Course Code:**	IT242	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	4	**Prerequisite**	CS140	

Course Description:
Software engineering as an academic discipline is responsible for educating the IT practitioners in skills required to develop, operate and maintain software in systematic, orderly and successful manner. This course covers the fundamentals of software engineering, including understanding system requirements, finding appropriate engineering compromises, effective methods of design, coding, and testing, team software development, and the application of engineering tools.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain different software processes and how to choose between them.
2. Design in the large, including principled choice of a software architecture, the use of modules and interfaces to enable separate development, and design patterns.
3. Elicit requirements from a client and specify them
4. Demonstrate various quality assurance techniques, including unit testing, functional testing, and automated analysis tools.
5. Apply good coding practices, including documentation, contracts, regression tests and daily builds.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Roger Pressman, Software Engineering: A Practitioner's Approach, 8th edition, McGraw Hill, 2014. ISBN 0078022126.					
Reference Book (s):						

College	College of Computing and Informatics	**Department**	IT
Course Name	Operating Systems	**Course Code:**	IT241
Credit Hours	3 credit Hours	**Contact Hours**	**3**

Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**4**	**Prerequisite**	IT110	

Course Description:
The aim of this course is to famiarize students with principles, architecture and working of a standard operating system. After completing this course, students will appreciate the significance of operating system on program efficiency, synchronization, multi-tasking and other related topics. Topics include: Computer and operating system structures, Process and thread management, Process synchronization and communication, Memory management, Virtual memory, File system, I/O subsystem and device management and Selected examples in networking, protection and security.

course learning outcomes: Upon completion of this course, student should be able to:

1. Describe the OS mechanism for process management, timing, memory, I/O, file and concurrency management.
2. Identify the services of modern operating systems and use system calls.
3. Identify the POSIX that use the basic OS mechanism.
4. Recognize the impact of the interaction between design decisions and operating system features on the performance and robustness of the programs.
5. Assess the performance of the programs through well designed measurements using OS timings features.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Operating System Concepts, 10th Edition, Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Wiley and Sons, 2018					
Reference Book (s):						

College	Administration and Finance		**Department**	
Course Name	Principles of Management	**Course Code:**	MGT101	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**

Course Level	5	Prerequisite	None

Course Description:
This course combines management theory and practices, placing emphasis on the development and application of competencies required for effective leadership, including planning, motivating, organizational control, change management, and decision-making, using current domestic and global business issues in the context of ethical, team centered organizations. The course includes practice in conflict resolution and mediation, fostering improvement of working relationships, through the use of activities that integrate emotional intelligence and communication skills that help create a productive work environment.

course learning outcomes: Upon completion of this course, student should be able to:

1. Identify and explain the concept of management, functions, roles and skills of a manager.
2. Demonstrate an understanding of the structure of an organization in reference to its business policies.
3. Recognize the functions of planning, organizing and controlling and how they interrelate.
4. Apply knowledge and techniques of strategic planning and decision making.
5. Carry out organization's role in ethics, diversity, and social responsibility.
6. Apply knowledge and function effectively on teamwork activities, management skills to create a development plan.
7. Develop information technology skills for fast and effective means of communication to address business issues.

Grading:	☒ Mid-Term Exams	25	☒ Coursework	25	☒ Final Exam	50
Text Book:	Kinicki, A., & Williams, B. (2011). Management: A Practical Introduction. (5th). New York: McGraw-Hill Irwin. ISBN: 978-0-07-811271-3.					
Reference Book (s):						

College	Science and Theoretical Studies		**Department**	
Course Name	Linear Algebra	**Course Code:**	MATH251	
Credit Hours	3 credit Hours	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**4**	**Prerequisite**	Math150	

Course Description:
Topics include systems of linear equations, their applications, and solutions. Matrices, vectors, elementary operations on vectors, linear independence, spanning sets, and bases. Eigenvalues, eigen-vectors, and eigenspaces will be discussed. Example applications will be given, especially, in IT systems.

course learning outcomes: Upon completion of this course, student should be able to:

1. Use computational techniques and algebraic skills
2. Solve the system of linear equations using determinants and matrices
3. Apply the properties of eigen vectors and eigen values of matrices
4. Identify linear transformations of finite dimensional vector spaces
5. Classify special forms of matrices

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Anton, H., Rorres, C. (2010). Elementary Linear Algebra, 10e (Middle East Edition). Hoboken, NJ: John Wiley & Sons Ltd. ISBN: 978-0-470-56157-7 (print version); ISBN: 978-0-470-93284-1 (digital version).					
Reference Book (s):						

College	**College of Computing and Informatics**		**Department**	IT
Course Name	**Practical Training**	**Course Code:**	**IT499**	
Credit Hours	**[3]credit Hours**	**Contact Hours**		
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☒**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**

Course Level		Prerequisite	86 credit hours

Course Description:

A summer period of 8 weeks spent as a trainee in industry, business, or government agencies for the purpose of familiarizing the student with the real job world and enabling him to apply and relate his academic knowledge to a real work environment.

course learning outcomes: Upon completion of this course, student should be able to:

1. Record the functions and their execution as carried out in the field organization.
2. Recall the theoretical concepts and apply during the field experience.
3. Develop IT skills by working alongside experienced professional in business environment.
4. Analyze the effectiveness of learned knowledge while applying it in industry.
5. Demonstrate the skills and excellence gained at campus while working in technical domain.
6. Present the aspects of practical work to an audience of peers and staff in the form of final report.

Grading:	☐ Mid-Term Exams		☒ Coursework	100	☐ Final Exam	
Text Book:	Interactive text book will be provided					
Reference Book (s):						

3 - Specialization requirements

College	College of Computing and Informatics		**Department**	IT
Course Name	System Analysis and Design	**Course Code:**	**IT243**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**5**	**Prerequisite**	**CS141**	

Course Description:
This course introduces the fundamental principles of problem analysis and software design to the students of college. In this regard the focus is on object-oriented approaches for modelling software requirements and leading to software design. The course is designed to integrate theoretical concepts of system analysis and design with practical examples and case studies so as to teach both the theory and the practice of this subject. In this course students will understand about practical techniques of software requirements, analysis, design, architecture and associate concepts. The object-oriented software industry over the last few years has gone through the process of standardizing visual modeling notations. The students will get familiarity with UML, Unified Modeling language, a modeling language for specifying, visualizing, constructing, and documenting, is the product of this effort. UML unifies the notations that currently exist in the industry.

course learning outcomes: Upon completion of this course, student should be able to:

1. Describe the role of analysis and design in software development.
2. Recognize software requirements and analysis to properly assess the problem faced by the client and suggest an appropriate solution.
3. Design a system by applying principles and methodology of object oriented design (i.e. UML).
4. Use most common analysis and design techniques with comfort.
5. Demonstrate the role of software quality assurance and software testing for successful software development.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Systems Analysis and Design with UML Version 2.0: An Object-Oriented Approach, 5th edition, 2015 - Alan Dennis, Barbara Haley Wixom and David Tegarden, John Wiley & Sons, Inc.					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	Introduction to Database	**Course Code:**	**IT244**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**5**	**Prerequisite**	**CS141**	

Course Description:
The course familiarises students with significance of maintaining a computer based database using DBMS and its potential advantages to the organization. The students at the completion of this course will be able to understand the principal database concepts and develop a simple database for a small organization using standard DBMS. In this course, students should study the following topics: Basic concepts in database systems and architectures; Entity-Relationship model, Data models (including basics of Relational model & SQL), Database Design (Database dependencies and Normalization), Database implementation.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain database concepts, systems, and architectures.
2. Create entity-relationship model, relational model, and write SQL queries.
3. Design a database starting from the conceptual design to the implementation of database schemas.
4. Apply principles and concepts of information integrity, security and confidentiality.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Silberschatz, A., Korth, H. F., & Sudarshan, S. (2013). Database system concepts (7th ed.). New York, NY: McGraw-Hill. ISBN-10: 9332901384					
Reference Book (s):						

College	College of Computing and Informatics	**Department**	

				IT
Course Name	**Human Computer Interaction**	**Course Code:**	**IT201**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**5**	**Prerequisite**	**IT101,IT242**	

Course Description:
This course provides an introduction to the field of Human computer Interaction (HCI). Therefore, the course provides an overview about the fundamental components of an interactive system which include the human, the computer system itself and the nature of the interaction. It presents also different interaction models, frameworks and styles. Moreover, it includes the interaction design process and highlights the range of design rules that can help to increase the usability of software products. In addition, it includes the evaluation techniques under two broad headings: expert analysis and user participation. Furthermore, it discusses how to design a system to be universally accessible, regardless of age, gender cultural background or ability.

course learning outcomes: Upon completion of this course, student should be able to:

1- Define the interaction design process, and describe different types of design rules that support the usability. (1.1)
2- Apply content management and representation needs on various computer, and handheld platforms. (1.4)
3- Demonstrate theoretical concepts for analyzing observed problems in interfaces, models and frameworks from the field of HCI. (2.2)
4- Explain and apply important concepts related to various interface artefacts and their appropriate application. (2.3)
5- Use appropriate evaluation techniques in HCI (3.3).
6- Interpret universal design in accordance with international standards. (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6/E (2016). By Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs. Publisher: Pearson/Prentice Hall. ISBN: 978-0134380384					
Reference Book (s):	**Interaction Design: Beyond Human Computer Interaction,** by Y. Rogers, H. Sharp, & J. Preece, Fifth Edition, Wiley (2019). ISBN: 978-1119547259					

College	College of Computing and Informatics	**Department**	IT

Course Name	**Computer Networks**	**Course Code:**	**IT210**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**(3-0-1)**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**5**	**Prerequisite**	**IT241**	

Course Description:
Fundamental concepts in the design and implementation of computer communication networks and their protocols. This course provides students with hands on experience in most state of the art networking tools, technologies, standards and protocols. This includes layered network architectures, applications, transport, congestion, routing, data link protocols, local area networks. An emphasis will be placed on the protocols used in the Internet.

course learning outcomes: Upon completion of this course, student should be able to:

1- Explain networking principles, models and technologies. (1.1)
2- Outline the physical layer & associated hardware and software integration. (1.1)
3- Recognize the layered approach for networking. (1.3)
4- Analyze & design Local and Wide Area Networks. (2.3)
5- Demonstrate protocol configuration, network-addressing schemes and analyze packet transmission. (3.2)
6- Illustrate network protocols including Transport Control Protocol / Internet Protocol. (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	**Data Communications and Networking, 5/e by Behrouz A. Forouzan, ISBN: 0073376221** **Copyright year: 2013 (**McGraw-Hill)					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Database Management Systems**	**Course Code:**	**IT344**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**6**	**Prerequisite**	**IT244**	

Course Description:
After the course of database, this course is intended to make the students practically proficient with using standard state of the art database management systems for development of organizational databases. In this course, students would study the following topics: DBMS architecture and administration; centralized and client-server approaches, system catalogue and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques, DB security, object-oriented databases.

course learning outcomes: Upon completion of this course, student should be able to:

1- Recognize database file organization and indexing (1.1)
2- Apply the concepts of transaction management, concurrency and recovery of a database. (2.3)
3- Develop a standard database using DBMS. (3.2)
4- Analyze and optimize algorithms for query processing (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	RamezElmasri, ShamkantNavathe "Fundamentals of Database Systems", 7th Edition ISBN: 978-0133970777, ©2015 Pearson					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Web Technologies**	**Course Code:**	**IT230**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**(3-0-1)**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**6**	**Prerequisite**	**IT201,IT244**	

Course Description:
In this course students will be familiarized with web application development including both client side as well as server side development and database connectivity. Topics such as Introduction to the Internet, World Wide Web, World Wide Web Consortium (W3C), standard mark-up language and services of the Internet. Topics include creating web pages, search engines, FTP, and other related topics. Students will get descriptions of client side and servicer side programming. Upon completion, students should be able to deploy a hand-coded web site created with mark-up language, and effectively use and understand the function of search engines.

course learning outcomes: Upon completion of this course, student should be able to:

1- Identify the elements and attributes of web pages. (1.1)
2- Design and manipulate web databases. (1.4)
3- Create web pages using XHTML and Cascading Styles sheets. (2.2)
4- Develop dynamic web pages using JavaScript (2.3)
5- Build web applications using PHP or similar languages. (3.2)
6- Write XML documents & XML Schema. (4.2)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Web Technologies: A Computer Science Perspective by Jeffrey Jackson, ISBN-10:0131856030 ©2007 Prentice Hall (PEARSON)					
Reference Book (s):	Web Programming and Internet Technologies: An E-Commerce Approach 2/E (2016) by Porter Scobey Pawan Lingras Publisher: Jones & Bartlett Learning ISBN-13: 9781284070682 Object-Oriented Design with Applications 3/E(2007) by Grady Booch, Robert A. Maksimchuk, Michael W. Engle, Bobbi J. Young, Jim Conallen, Kelli A. Houston Publisher: Addison-Wesley Professional ISBN-13: 978-0201895513 ISBN-10: 020189551X Internet and World Wide Web: How to Program 5/E(2011) by (Harvey & Paul) Deitel & Associates; Harvey Deitel; Abbey Deitel Publisher: Pearson ISBN-13: 978-0132151009 ISBN-10: 0132151006					

College	College of Computing and Informatics		**Department**	IT
Course Name	**IT Project Management**	**Course Code:**	**IT270**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**6**	**Prerequisite**	**IT243**	

Course Description:
This course is mainly designed to prepare students with the knowledge to be IT project managers with project management skills needed to better manage IT projects. Built along the IT project management lifecycle, this course covers detailed topics of the basic concepts of IT project management, including initiating, planning, controlling, executing, and closing projects. The course also shows how IT projects should be managed, from inception to post implementation review. This course will help improve management skills and abilities to define the project scope, create a workable project plan, and manage within the budget and schedule.

course learning outcomes: Upon completion of this course, student should be able to:
1. Explain the job roles of an IT project manager. (1.1)
2. Demonstrate the project management lifecycle.(1.2)
3. Evaluate project team management and analyze project performance. (1.4)
4. Recognize the key issues during the IT project management procedures and describe the best practices in IT project management processes (2.1)
5. Assess the tasks in the project initiation phase including identifying business requirements, stakeholders, and project team responsibilities.
6. Apply the strategies for managing change and for assuring quality.(3.3)
7. Develop a comprehensive project plans for estimation, scheduling, communication, resource management, procurement, risk and quality. (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒**Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	**Information Technology Project Management,** Sixth Edition. By: Kathy Schwalbe. Publisher: Course Technology. Print Release: July 2010, Pages: 672. Print ISBN: 978-1111221751					
Reference Book (s):	1. **"Project Management, Achieving Competitive Advantage Global Edition",** 3rd Edition. By: Jeffery Pinto. Publisher: Pearson. Print Release: Sep 2012. Pages: 528 pages. ISBN13: 9780273767428, ISBN10: 0273767429 2. The electronic textbook for reading is an online eBook: http://www.epmbook.com/					

College	College of Computing and Informatics	**Department**	IT

Course Name	**Network Management**	**Course Code:**	**IT340**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**(3-0-1)**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**6**	**Prerequisite**	**IT210**	

Course Description:
This course addresses how to manage complex high speed computer networks running a high-volume mix of data, voice, and video protocols. This course prepares the graduating students to assume positions of network administrators in medium to large organizations. We study performance-tuning options and monitoring techniques. The course covers both large local-area networks and Internet service-provider networks. Special focus will be on network management applications with focus on performance optimization, fault management, and security management. Also, hardware-oriented management protocols such as SNMP, tools for managing software applications, and policy-based routing protocols such as BGP will be covered. Will also cover Advanced IP configuration using iproute2 package, how to tune networks for real-time traffic such as RTP and VOIP, and network-management tools such as OpenNMS and GroundWork. There will be a programming project involving development of a network-monitoring tool, preferably using Java.

course learning outcomes: Upon completion of this course, student should be able to:

1. Describe network management issues, standards and architecture. (1.1)
2. Recognize conceptual and practical knowledge of different versions of Simple Network Management Protocol (SNMP). (1.4)
3. Evaluate different SNMP tools, network statistics tools, and protocol analyzer for network management. (2.3)
4. Demonstrate broadband networking services and technologies. (3.3)
5. Differentiate between various wired and wireless broadband network access techniques. (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒**Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Network Management: Principles and Practice, 2ed Edition, by Mani Subramanian, **ISBN-13: 978-8131734049, ISBN-10: 8131734048 ©2012 • Prentice Hall (PEARSON)**					
Reference Book (s):	**Network Management Systems Essentials (Mcgraw-Hill) by** Divakara K. Udupa					

College	College of Computing and Informatics		**Department**	IT
Course Name	**Enterprise Systems**	**Course Code:**	**IT342**	

Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT201**	

Course Description: Enterprise systems are a category of information systems which have been heavily adopted in practice since the 1990s. Enterprise systems are usually based on packaged software products, they drive for cross-functional integration and require organization-wide resources for their implementation. This course is designed to provide a comprehensive insight into theoretical foundations, concepts, tools and current practice of enterprise systems. The course will familiarize students with basic concepts of Enterprise systems. The students will gain good experience and knowledge of working with major types of enterprise systems such as ERP systems, CRM systems, Enterprise portals etc. They will learn about major modules, integration issues, data communication and other related topics.

course learning outcomes: Upon completion of this course, student should be able to:

1. Analyze and redesign business processes within small, medium and large corporate enterprise. (1.4)
2. Design secure and flexible information and communication architectures that support the changing needs of the business. (2.2)
3. Develop IT systems within small, medium and large corporate enterprises. (2.3)
4. Develop robust business IS solutions that integrate new and existing business processes, structures, applications, within a global context. (3.1)
5. Manage resources and finance of corporate enterprise IT systems. (4.2)

Grading:	☒ **Mid-Term Exams**	**25**	☒**Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Enterprise Information Systems: A Pattern-Based Approach, 3rd Edition, Cheryl L. Dunn, Cherrington and Hollander, McGraw-Hill Higher Education, 2005, ISBN-13: 9780072404296, ISBN-10: 0072404299					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**System Integration**	**Course Code:**	**IT440**	
Credit Hours	**3credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	

Track	☐ **College Req.**	☒ **Dep. Req.**	☐ **Dep. Spec**	☐ **Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT340,IT243**	

Course Description:
In information technology, systems integration is the process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole. Variety of techniques related to integration will be covered such as computer networking, enterprise application integration, business process management and manual programming. Various methods of integration including Vertical Integration, Horizontal Integration, Star Integration and Common Data Format Integration (using Enterprise application integration, EAI) will be covered.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain the system requirements and architecture. (1.1)
2. Apply a systems perspective when making integration and test decisions. (2.3)
3. Illustrate the hard and soft constraints within the organization when transitioning from one model to another. (3.3)
4. Demonstrate various procedures and guidelines implemented in the organizations to ensure successful integration and transition. (4.1)
5. Define documentation and manage interfaces during system development. (4.2)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Effective Methods for Software and Systems Integration, Published: June 1, 2012 by Auerbach Publications - 183 Pages, Author(s): Boyd L. Summers, The Boeing Company, Seattle, Washington, USA. ISBN-10: 1439876622 ISBN-13: 978-1439876626 The Software Audit Guide, 1st Edition 2009, by John W. Helgeson, ASQ Quality Press Milwaukee, ISBN: 978-0-87389-773-0					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Senior Project I**	**Course Code:**	**IT490**	
Credit Hours	**2 credit Hours**	**Contact Hours**	**2**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐ **College Req.**	☒ **Dep. Req.**	☐ **Dep. Spec**	☐ **Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT230, IT344**	

Course Description:
This course will equip undergraduate Information Technologies students with the basic skills to conduct researches in the field of Information Technologies. The course aims to introduce the required techniques for conducting a research, implementing systems, writing technical reports and the skills for presenting the work for audiences. This course will particularly focus on topics which are related to the field of information technologies. The course will also provide guidance to the students in selecting their projects, understanding the research process as well as the tools needed to support implementing the system and writing its documentation. The course discusses other issues including research methods that are normally used in researches such as experiments, survey, interview and simulations, understanding the importance of literature review, preparing visual presentations and other ethical issues such as plagiarism.

course learning outcomes: Upon completion of this course, student should be able to:

1. Suggest and evaluate proposed solutions to find the optimal one. (1.3)
2. Identify the problem and resulting requirements for the proposed system (2.1)
3. Demonstrate requirements using UML and other associate tools (2.2)
4. Carry out systematic research and prepare comprehensive literature survey. (3.1)
5. Develop accurate bibliographies and tables of references (4.1)

Grading:	☐ **Mid-Term Exams**		☒ **Coursework**	**100**	☐ **Final Exam**
Text Book:					
Reference Book (s):					

College	College of Computing and Informatics		**Department**	IT
Course Name	**Elective Course in IT**	**Course Code:**	**IT4XX**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**See Note1**	

Course Description: All Elective Courses descriptions are given in separate section after these descriptions.						
course learning outcomes: Upon completion of this course, student should be able to:						
Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:						
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Elective Course in IT**	**Course Code:**	**IT4XX**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**See Note1**	

Course Description: All Elective Courses descriptions are given in separate section after these descriptions.

course learning outcomes: Upon completion of this course, student should be able to:

Grading:	☒ **Mid-Term Exams**	**25**	☐ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:						
Reference Book (s):						

College	College of Computing and Informatics		Department	IT
Course Name	Senior Project II	Course Code:	IT491	
Credit Hours	4 credit Hours	Contact Hours	4	
Teaching Language	☐ Arabic		☒ English	
Track	☐ College Req.	☒ Dep. Req.	☐ Dep. Spec	☐ Dep. Elective
Course Level	8	Prerequisite	IT490	

Course Description:
This a continuation of the graduation project started in IS 490. The focus will be in this part on low-level design, implementation, testing and quality assurance as well as management of the project. The outcome of this project must be a significant information system, employing knowledge gained from courses through the curriculum. Students must deliver the code, a final report and must do a presentation of their work as well as a demo.

course learning outcomes: Upon completion of this course, student should be able to:

1. Evaluate the developed solution (1.3)
2. Identify and design an appropriate project methodology (2.2)
3. Manage the project using appropriate tools and techniques (3.1)
4. Develop a solution using cutting edge technologies (3.2)
5. Appraise the project experience (3.3)
6. Write a report presenting the problem and its solution (4.1)
7. Present the aspects of the project to an audience of peers and staff. (4.2)

Grading:	☐ Mid-Term Exams		☒ Coursework	100	☐ Final Exam	
Text Book:						
Reference Book (s):						

College	College of Computing and Informatics		Department	IT
Course Name	Elective Course in IT	Course Code:	IT4XX	
Credit Hours	3 credit Hours	Contact Hours	3	

Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**See Note1**	
Course Description: All Elective Courses descriptions are given in separate section after these descriptions.				
course learning outcomes: Upon completion of this course, student should be able to:				

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:						
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Elective Course in IT**	**Course Code:**	**IT4XX**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**See Note1**	

Course Description: All Elective Courses descriptions are given in separate section after these descriptions.
course learning outcomes: Upon completion of this course, student should be able to:

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:						
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Professional Issues in IT**	**Course Code:**	**IT407**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT270**	

Course Description:
This course provides an introduction to the field of professional issues which relates to social and ethical issues in computing. This course will cover the major social and ethical issues in computing, including the history of computing, impact of computers on society, and the computer professional codes of ethics.

course learning outcomes: Upon completion of this course, student should be able to:

1. Recognize the responsibilities and duties of a computer professional.
2. Recognize the importance of Intellectual Property, Patents and Referencing Systems.
3. Use the code of ethics in computing within the process of decision making.
4. Manipulate resource constraints without compromising on quality.
5. Apply international labor standards for effective human resource management.
6. Illustrate social and ethical issues in computing as a computer professional.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	**Ethics for the Information Age**, Sixth Edition By: Mike Quinn. Publisher: Pearson. Print Release: March 2014, Pages: 552. Print ISBN: 978-0133741629.					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**IT Security and Policies**	**Course Code:**	**IT409**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**(3-0-1)**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☒**Dep. Req.**	☐**Dep. Spec**	☐**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT340**	

Course Description:

This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.

course learning outcomes: Upon completion of this course, student should be able to:

1. Use effective, proper, and state-of-the-art security tools and technologies.
2. Develop security policies and put in place an effective security architecture that comprises modern hardware and software technologies and protocols.
3. Recognize networking and security, security issues, trends, and security resources.
4. Analyze problems related to the field of Security and Information Assurance.
5. Analyze and apply the most appropriate solutions to problems related to the field of Security and Information Assurance.
6. Recognize processes to implement and enforce policy.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	**Security Policies and Procedures: Principles and Practices**, 2nd Edition by Sari Greene. Publisher: Prentice Hall/Pearson, 2014, ISBN-10: 0789751674, ISBN-13: 9780789751676.					
Reference Book (s):						

4 – ELECTIVE COURSES DESCRIPTION

College	College of Computing and Informatics		**Department**	IT
Course Name	**Data Mining and Data Warehousing**	**Course Code:**	**IT446**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT344**	

Course Description: Data Mining and data warehousing are two of the most valuable knowledge areas emerging in recent times. This course will familiarize the students with the techniques most commonly employed in the analysis of large volumes of data, in the extraction of knowledge from this data, and in making decisions based on the knowledge acquired. Students will also gain knowledge about the problems related to data mining that are not yet resolved satisfactorily at present and, therefore, are open research areas so that students can potentially work on those and find niche in this area of expertise. Major areas of data mining covered in this course include Data mining architectures, Data Integration, Data Warehousing, Data classification, Regression, Clustering, Correlation and several others. Students will learn how to manage heterogeneous data in a data warehouse, OLAP techniques etc.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain different data mining tasks, problems and the algorithms most appropriate for addressing them. (1.1)
2. Apply and evaluate data mining algorithms with respect to problems they are specifically designed for. (2.3)
3. Carry out recent data mining techniques and applications. (3.2)
4. Apply a wide range of clustering, estimation, prediction, and classification algorithms. (4.1)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Introduction to Data Mining, Pang Ning Tan, Micheal Sreiback and Vipin Kumar, 1st Edition, 2006, ISBN: 0321321367, Pearson					
Reference Book (s):	Data Mining: Concepts and Techniques, 3rd Edition, Jiawei Han, Micheline Kamber and Jian Pei, 2011, ISBN: 978-0-12-381479-1					

College	College of Computing and Informatics		Department	IT
Course Name	Decision Support Systems	Course Code:	IT445	
Credit Hours	3 credit Hours	Contact Hours	3	
Teaching Language	☐ Arabic		☒ English	
Track	☐College Req.	☐Dep. Req.	☐Dep. Spec	☒Dep. Elective
Course Level	8	Prerequisite	IT344	

Course Description: Decision support systems are playing key role in today's organizations in taking effective and useful decisions while insulating organizations from effects of wrong decisions. The course is devoted to introduce decision support systems; show their relationship to other computer-based information systems, demonstrate DSS development approaches, and show students how to utilize DSS capacities to support different types of decisions. The topics covered in the course include but not limited to Introduction to decision support systems; DSS components; Decision making and DSS; DSS software and hardware; developing DSS; DSS models

course learning outcomes: Upon completion of this course, student should be able to:

1. Describe the structure of Decision Support Systems (DSS) and their services.
2. Analyze various industrial applications of DSS and their limitations.
3. Use some DSS and demonstrate the database working with DSS and statistical models.
4. Resolve the issues involved in the management and development of DSS.

Grading:	☒ Mid-Term Exams	25	☐ Coursework	25	☒ Final Exam	50
Text Book:	Business Intelligence and Analytics: Systems for Decision Support, 10th Edition, 2014, Ramesh Sharda, Dursun Delen and Efraim Turban, ISBN: 0133050904, Pearson/Prentice Hall					
Reference Book (s):						

College	College of Computing and Informatics		Department	IT
Course Name	Distributed Database System	Course Code:	IT443	
Credit Hours	3 credit Hours	Contact Hours	3	

Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT344**	

Course Description: With increase in volume, complexity and heterogeneity in the data of real time systems and large organizations, it is becoming difficult and unviable for organization to maintain a centralized database. The need of distributed database with efficient data storage and retrieval mechanisms coupled with data security is most obvious in today's IT based economy. This course covers not only the basic technology required for distributed databases, but also some of the emerging technology of database integration, data cleaning, schema matching/mapping and peer-to-peer technology for highly distributed databases. The students will be able to understand the architecture of distributed databases with complete schemas, fragmentation policies and query optimization. Other topics include serializability, transaction processing, concurrency control and data security.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain and apply techniques used for data fragmentation, replication, and allocation during the distributed database design process
2. Apply simple strategies for executing a distributed query to select the strategy that minimizes the amount of data transfer.
3. Learn how to use two-phase commit procedure for distributed transactions involving multiple nodes.
4. Describe and apply various distributed concurrency control techniques based on the copy and voting methods

Grading:	☒ **Mid-Term Exams**	**25**	☐ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Distributed Database Management Systems: A Practical Approach, Saeed K. Rahimi, Frank S. Haug, 2010, ISBN: 978-0-470-60236-2, Wiley Press					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Database Administration**	**Course Code:**	**IT444**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	

Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT344**	

Course Description: The fundamental responsibility to store, organize and retrieve data from database in an efficient and accurate manner for the smooth operations of any organization rests mainly with its database administrator. The database administrator implements the architecture and embeds data with that schema for the organizational needs. This course familiarizes the students with tasks and responsibilities associated with database administration alongside tools and technologies available to execute these tasks. The Database Administrator course will develop the student's knowledge of relational database design system performance, backup & recovery, and database security.

course learning outcomes: Upon completion of this course, student should be able to:

1. Analyse and model requirements and constraints for the purposes of installing, configuring, and tuning a DBMS
2. Design and implement plans for installing, configuring, and tuning a DBMS, and security, back-up and recovery measures
3. Describe and analyse performance requirements and define appropriate database structures for a given database system
4. Document salient database structures and rules as well as Perform basic administrative functions

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Database Administration: The Complete Guide to DBA Practices and Procedures, Craig S Mullins, 2nd Edition, 2012, ISBN: 0321822943, Pearson					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Introduction to Cyber Security and Digital Crime**	**Course Code:**	**IT412**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	

Track	☐ **College Req.**	☐ **Dep. Req.**	☐ **Dep. Spec**	☒ **Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT340**	

Course Description: With computers, smartphone and hand held devices now almost everywhere, the computing and online presence has become extremely pervasive. Whereas, this ahs empowered the mankind in processing their needs and actions with unimaginable speed, this has also opened doors to continuous threat on online breaches of data and loss of confidential information. This increase the sense of insecurity amongst the users of online applications. The course informs the students about various kind of digital crimes that can be purported against people and methods of cyber security to protect against those. The topics covered include (but not limited to) topics covered in this course include: basic security terminology and professional terms, network basics, tracert, nslookup, ipconfig, ping, DNS, DoS attacks, overview of malware, rules for avoiding viruses and vulnerabilities.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain important principles, and theories used throughout the field of Cybersecurity.
2. Apply knowledge in the field of Cybersecurity to analyse real world problems.
3. Learn and understand national and international policy and legal considerations related to cybersecurity and cyberspace such as privacy, intellectual property, cybercrime etc.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Cybersecurity: Managing Systems, Conducting Testing, and Investigating Intrusions, Thomas J. Mowbray, 2013, ISBN: 978-1-118-69711-5, Wiley					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Network Security**	**Course Code:**	**IT413**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐ **College Req.**	☐ **Dep. Req.**	☐ **Dep. Spec**	☒ **Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT340**	

Course Description: Every aspect of our society, from business and financial transactions, education and research, medicine, to power grid and other societal infrastructures, is tightly coupled with the functioning of the Internet and its constituent networks. This coupling where has provided immense benefits to mankind with enhanced efficiency, productivity and reliability, it has also empowered a single malicious mind with a tool to cause enormous harms to operations of a networked organization. This class will teach advanced underlying principles of building secure and trustworthy computer networks. This course will provide a deep understanding of how modern networks are designed, their weak points, and both traditional and future approaches to make them resilient. The topics include amongst others physical network security, router mechanisms for security, enterprise network security, IP security, data center operations protection and relevant protocols etc.
course learning outcomes: Upon completion of this course, student should be able to: 1. Undertake routine tasks to secure a network (ACLs, VLANs, router authentication). 2. Understand the factors that place an internet based information system at risk. 3. Evaluate and critically analyse the procedures to secure a system against failure, theft, invasion and sabotage 4. Understand authentication protocols and processes as well as learn how to implement them.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Cryptography & Network Security, 1st Edition, Behrouz Forouzan, 2007, ISBN: 0073327530, McGraw Hill					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Computer Forensics**	**Course Code:**	**IT411**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT340**	

Course Description: Computer forensics are a very critical area of 21st century IT organizations because this knowledge provides tool to contain and combat various kinds of cybercrime. In today's business world, where data is the ultimate wealth of the organizations, its protection and security becomes very important. Computer forensics as a knowledge equips the graduating students with tools and techniques to protect the security of their organization's IT assets. This course focuses on the fundamental principles of computer forensics methodology and emerging investigation techniques related to the identification, collection and preservation of digital crime scene evidence. This course emphasizes student awareness in handling suspected digital evidence. Major topics include definition of computer forensics, privileged communication, computer forensics tools, file system management etc.

course learning outcomes: Upon completion of this course, student should be able to:

1. Understands the common processes and procedures used to conduct criminal and noncriminal investigations of activities involving evidence with digital media, including the laws that apply to these processes.
2. Understand and learn about how to maintain the chain of evidence in criminal investigations
3. Discuss the principles that underlie the forensic investigation process.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Computer Forensics and Cyber Crime: An Introduction, Marjie T. Britz, 3rd Edition, 2013, ISBN: 0132677717. Pearson					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Wireless Sensor Networks**	**Course Code:**	**IT415**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT340**	

Course Description: A wireless sensor network (WSN) generally consists of compact low power sensors, which collect information and pass the information via wireless networks to achieve a high level of desired monitoring and control in coordinated manners. With increased mobility comes greater danger of system malfunctions which can expose several vulnerabilities and dangers to our safety and wellbeing. This course exposes the students with fundamental concepts of wireless sensor networks

and their applications. This course covers fundamentals of wireless network technology and distributed sensor networks. After completing this course, the students should be able to understand the principles of WSN and be able to design and maintain WSNs.

course learning outcomes: Upon completion of this course, student should be able to:

1. Learn modelling radio signal propagation issues and analyse their impact on communication system performance
2. Understand how the various signal processing and coding techniques combat channel uncertainties
3. Apply knowledge of wireless sensor networks to various application areas.
4. Design, implement and maintain wireless sensor networks.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Wireless Sensor Networks, Ian F. Akyildiz, Mehmet Can Vuran, John Wiley & Sons, July 2010, ISBN: 978-0-470-03601-3					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Multimedia System Development**	**Course Code:**	**IT441**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT230**	

Course Description: The nature of data being employed by organizations for executing their business operations has become very heterogeneous. Today data is multi-dimensional including text, audio, visual and other types. The systems working with traditional database concepts are quickly becoming obsolete being replaces by multimedia systems capable of handling various kind of media. Multimedia data has become an indispensable part of our daily life and modern research projects. It's also one of the critical links in the ongoing unification of computing and communications. In this course, students will be introduced to principles and current technologies of multimedia systems, multimedia standards, and gain hands-on experience in this area. Issues in effectively representing, processing, and retrieving

multimedia data such as sound and music, graphics, image and video, will be addressed. Major topics include multimedia application design, data processing and presentation, compression and decompression standards and content based multimedia retrieval, multimedia Development, Scanning process and Professional issues related to multimedia systems.

course learning outcomes: Upon completion of this course, student should be able to:

1. Explain the origin and evolution of modern multimedia.
2. Analyze the key components of multimedia technologies.
3. Develop multimedia related activities that incorporate a variety of digital media.
4. Use existing protocols, standards, and representation techniques in storage and transmission of multimedia information.

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	**An Introduction to Digital Multimedia**, T. M. Savage and K. G. Vogel, Second Edition, Jones and Barlett Learning, 2014, ISBN: 9781449688394					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Mobile Application Development**	**Course Code:**	**IT448**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**7**	**Prerequisite**	**IT230**	

Course Description: The evolution of computing and IT technologies in the domain of wireless computing has spawned a new horizon of opportunities in the form of mobile smartphone applications. These application provide users with flexibility, mobility and enhanced usability features. The future of IT applications can only be secured by developing their mobile and smartphone versions. This course is aimed at providing students with basic and fundamental knowledge concept of mobile computing. This includes the major techniques involved, and networks & systems issues for the design and implementation of mobile computing systems and applications. This course also provides an

opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications. Students will gain knowledge about mobile IP, mobility management, location estimation, location-aware computing, user experience and other topics.
course learning outcomes: Upon completion of this course, student should be able to: 1. Explain mobile computing and classify types of mobile devices (1.1) 2. Identify and compare technologies that enable the development of applications for mobile devices. (2.1) 3. Design application interfaces for mobile devices using appropriate software. (4.1) 4. Develop mobile applications for multiple platforms. (3.2)

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	• Learning Mobile App Development: A Hands-on Guide to Building Apps with iOS and Android, Jackob Iverson, Michael Eierman, 2014, ISBN: 032194786X, Pearson • Learning Android Application Development, Raimon Rafols Montane, Laurence Dawson, Packt Publishing 2016, ISBN-10: 1785286110, ISBN-13: 978-1785286117 • Learning React Native, Bonnie Eisenman, O'Reilly Media, 2017, ISBN: 9781491989135 • Learning Swift 3: Building apps for macOS, iOS, and beyond, Jon Manning, Paris Buttfield-Addison and Tim Nugent, O'Reilly Media, 2018, ISBN-10: 149198757X, ISBN-13: 978-1491987575					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Artificial Intelligence**	**Course Code:**	**IT447**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT230**	

Course Description: This course is designed to provide an overview of artificial intelligence. The topics covered include: agents, search, planning, uncertainty, and learning. The goals of this course are to provide a fundamental knowledge of the field. The successful student will finish the course with specific modelling and analytical skills (e.g., search, logic, and probability), knowledge of many of the most important knowledge representation, reasoning, and machine learning schemes, and a general understanding of AI principles and practice.

course learning outcomes: Upon completion of this course, student should be able to:
1. Understand the modern view of AI as the study of agents that receive precepts from the environment and perform actions.
2. Exhibit strong familiarity with a number of important AI techniques, including in particular search, knowledge representation, planning and constraint management.
3. To equip students with the knowledge and skills in logic programming using Prolog
4. Analyse and solve problems involving various forms of search algorithms, including the design of heuristic functions to improve the efficiency of such solutions

Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Artificial Intelligence, A Modern Approach, Stuart Russell, 3rd Edition, 2010, ISBN: 0136042597, Prentice Hall					
Reference Book (s):						

College	College of Computing and Informatics		**Department**	IT
Course Name	**Advanced Web Development**	**Course Code:**	**IT442**	
Credit Hours	**3 credit Hours**	**Contact Hours**	**3**	
Teaching Language	☐ **Arabic**		☒ **English**	
Track	☐**College Req.**	☐**Dep. Req.**	☐**Dep. Spec**	☒**Dep. Elective**
Course Level	**8**	**Prerequisite**	**IT230**	

Course Description: This course builds on the existing knowledge of students in the domain of web development and gives them further insight into web-related concepts and techniques. The students on completion of this course will be able to not only develop web pages but able to develop complete web applications as per the latest technologies. The students will be able to learn how to design complex web applications using cascading style sheets. The will also learn how to incorporate java scripts as

well as to embed multimedia content such as audio and video. Students will learn how to operate and manage their web applications “live” and manage issues such as domain hosting and FTP etc.						
course learning outcomes: Upon completion of this course, student should be able to: 1. Understand and be able to implement advanced Web coding concepts. 2. Implement an extra layer of usability to a Web page using a current scripting language or tool. 3. Have the ability to create an accessible, modern HTML page that integrates current Web standards.						
Grading:	☒ **Mid-Term Exams**	**25**	☒ **Coursework**	**25**	☒ **Final Exam**	**50**
Text Book:	Dynamic Web Programming: A Beginner's Guide, Marty Mathews, John Cronan, 2009, 1st Edition, ISBN: 0071633448, Mcgraw Hill					
Reference Book (s):						