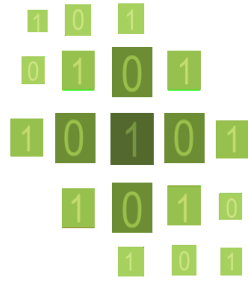




جامعة المجمعة
Majmaah University



College of Computer
and Information Sciences
كلية علوم الحاسب والمعلومات

Information Technology Program Study Plan V 1.1

Academic Advising Unit
1440-1441

Overview

The overarching goal of the Bachelor of Science in Information Technology degree program in the college of computer and information sciences in Majmaah University is to prepare students as information technologists and professionals who can assist general users, including individuals and organizations, in evaluating needs and solving problems related to information technology, as well as in applying IT effectively in a global work environment driven by rapidly changing technology. The program provides students with broad, integrated knowledge in selected areas of information technology, including database management, visual programming, multimedia and web design, system integration, intelligent systems, data transmission and computer networks, system administration and maintenance, cloud computing, information and administration and storage technology, enterprise architecture and system design, infrastructure environment and network servers, global information management, mobile and wireless networks, web development and content management systems, and mobile applications. Students learn how to evaluate current and emerging technologies; identify user needs; design user-friendly interfaces; apply, configure and manage these technologies; and assess their impacts on individuals, organizations and the society. The program is offered through Information Technology Department in the college of computer and information sciences. The program includes four specialized tracks:

1. **Network and Systems Administration**
2. **Web and Multimedia Applications**
3. **Digital Forensics**
4. **Cybersecurity**

Vision

The vision of the information Technology Department is to provide recognized education and creative research to be pioneer in the field of information technology.

Mission

Prepare qualified national graduates with high skills and enough experience to join and engage into labor market of the different fields of Information Technology by providing the graduates with the modern knowledge, advanced skills, and strong moral values to serve the kingdom of Saudi Arabia.

Program Educational Objectives

The program will produce graduates who-

- Practice as computing professionals in areas of IT with an appropriate combination of theoretical knowledge and hands-on skills.
- Enhance their skills and master new computing technologies through self-directed professional development or post-graduate education.
- Follow a career path toward leading positions in the IT field

Program Study Plan

1. Compulsory and Elective Requirements

Requirement	Type	Credit Hours	Percentage out of study plan hours	Committee Observations
Preparatory Year	Compulsory	29	18.95	
	Elective	0	0	
University	Compulsory	0	0	
	Elective	12	7.84	
College	Compulsory	42	27.45	
	Elective	0	0	
Department	Compulsory	57	37.25	
	Elective	12	7.84	
Free Elective		1	0.65	
Total Credits and Percentiles		153	100	

2. Preparatory Year Requirements

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
113	PCOM	Computer Skills (مهارات الحاسب)	2 (1,1,0)		
111	PENG	Preparatory English 1 (لغة إنجليزية تحضيرية 1)	8 (2,6,0)		
121	PENG	Preparatory English 2 (لغة إنجليزية تحضيرية 2)	6 (2,4,0)	PENG 111	
123	PENG	English for science and Engineering (الإنجليزية للعلوم والهندسة)	2 (1,1,0)		
112	PMTH	Introduction to Mathematics 1 (مقدمة في الرياضيات 1)	2 (2,0,0)		
127	PMTH	Introduction to Mathematics 2 (مقدمة في الرياضيات 2)	4 (4,0,0)	PMTH 112	
128	PPHS	General Physics (فيزياء عامة)	3 (2,1,0)		
114	PSSC	Learning & Communication Skills (مهارات التعلم والتواصل)	2 (1,1,0)		
Total			29 Credits		

3. University Requirements

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
101	SALM	Introduction to Islamic Culture (مقدمة للحضارة الإسلامية)	2 (2,0,0)		Students choose 3 courses
102	SALM	Islam and Society Building (الإسلام وبناء المجتمع)	2 (2,0,0)		
103	SALM	Economic System in Islam	2 (2,0,0)		

		(النظام الاقتصادي في الإسلام)			
104	SALM	Fundamental of Political System in Islam (أساسيات النظام السياسي في الإسلام)	2 (2,0,0)		
101	ARAB	Arabic Language Skills (مهارات اللغة العربية)	2 (2,0,0)		Students choose 1 course
103	ARAB	Arabic Writing (الكتابة باللغة العربية)	2 (2,0,0)		
101	ENG	General English (لغة إنجليزية عامة)	2 (2,0,0)		Students choose 2 courses
101	ENT	Business Entrepreneurship (ريادة الأعمال)	2 (2,0,0)		
101	FCH	Family and Childhood (الأسرة والطفولة)	2 (2,0,0)		
101	HAF	Principles of Health and Fitness (مبادئ الصحة واللياقة البدنية)	2 (2,0,0)		
101	LHR	Human Rights Systems (أنظمة حقوق الإنسان)	2 (2,0,0)		
101	SOCI	Societal Issues (قضايا مجتمعية)	2 (2,0,0)		
101	VOW	Volunteering Systems (أنظمة العمل التطوعي)	2 (2,0,0)		
Total Required			12 Credits		

4. College Compulsory Requirements

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
110	CS	Programming 1 (برمجة الحاسب 1)	4 (3,2,0)	PCOM 113	
120	CS	Programming 2 (برمجة الحاسب 2)	4 (3,2,0)	CS 110	
210	CS	Data Structures (هياكل البيانات)	<u>3 (3,1,1)</u>	CS 120	
240	CS	Operating Systems (أنظمة التشغيل)	3 (3,0,1)	CS 210	
399	<u>CS</u>	Seminar (ندوة)	1 (1,0,0)	100 Credits	
114	ENG	Technical English 1 (لغة إنجليزية تقنية 1)	2 (2,0,0)	PENG 121	
127	ENG	Technical English 2 (لغة إنجليزية تقنية 2)	2 (2,0,0)	ENG 114	
231	IS	Fundamental of Database (أساسيات قواعد البيانات)	3 (3,0,1)	CS 110	
334	IS	<u>Software Project Management</u> (إدارة مشاريع البرمجيات)	3 (3,0,1)	100 Credits	
481	IT	Ethics & Professional Practice (الأخلاقيات والممارسات المهنية)	2 (2,0,0)	<u>90 Credits</u>	
111	MATH	Discrete Mathematics (الرياضيات المتقطعة)	3 (3,0,1)		
112	MATH	Calculus 1 (حساب التفاضل والتكامل 1)	3 (3,0,1)	PMTH 127	
126	MATH	Calculus 2	3 (3,0,1)	MATH 112	

		(حساب التفاضل والتكامل 2)			
104	PHY	Physics 1 (فيزياء 1)	3 (2,2,1)	PPHS 128	
102	STAT	Probability and Statistics (الإحتمالات والإحصاء)	3 (3,0,1)	MATH 112	
Total			42 Credits		

5. College Elective Courses

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
250	IT	Information Technology & Fundamental of Networking (تقنية المعلومات وأساسيات الشبكات)	2 (0,4,0)	<u>CS110</u>	Cisco
470	IT	CCNA Routing and Switching (التوجيه والتحويل في CCNA)	2 (0,4,0)	<u>IT 250</u>	
471	IT	CCNA Security (أمن الشبكات في CCNA)	2 (0,4,0)	<u>IT 470</u>	
472	IT	Network Programming & Administration (برمجة وإدارة الشبكات)	2 (0,4,0)	<u>CS110</u>	
473	IT	Storage Networks (شبكات التخزين)	2 (0,4,0)	<u>CS110</u>	
251	IT	Java Fundamentals (أساسيات لغة الجافا)	2 (0,4,0)	<u>CS110</u>	
474	IT	Database Design and Programming with SQL (تصميم وبرمجة قواعد البيانات باستخدام SQL)	2 (0,4,0)	<u>CS110</u>	
475	IT	Programming with PL/SQL (البرمجة باستخدام PL/SQL)	2 (0,4,0)	<u>CS110</u>	
476	IT	Database Administration (إدارة قواعد البيانات)	2 (0,4,0)	<u>CS110</u>	
252	IT	Configuring & Administering Windows Server 2012 (إعداد وإدارة نظام ويندوز الخادم 2012)	2 (0,4,0)	<u>CS110</u>	Microsoft
477	IT	Web Development (تطوير الويب)	2 (0,4,0)	<u>CS110</u>	
478	IT	Mobile Development (تطوير الهواتف المتنقلة)	2 (0,4,0)	<u>CS110</u>	
479	IT	Gaming Development (تطوير الألعاب)	2 (0,4,0)	<u>CS110</u>	

480	IT	.NET Technologies & Visual Programming (تقنية .NET والبرمجة المرئية)	2 (0,4,0)	<u>CS110</u>	IBM
482	IT	IT Service Management (إدارة خدمات تقنية المعلومات)	2 (0,4,0)	<u>CS110</u>	
483	IT	Cloud Computing (الحوسبة السحابية)	2 (0,4,0)	<u>CS110</u>	
484	IT	Business Intelligence (ذكاء الأعمال)	2 (0,4,0)	<u>CS110</u>	
485	IT	Security and Information Assurance (أمن وضمان المعلومات)	2 (0,4,0)	<u>CS110</u>	
Total Required			6 Credits		

6. Program Compulsory Requirements

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
312	CS	Computer Organization (تنظيم الحاسب)	3 (3,0,1)	MATH 111, CS 210	
360	CS	Software Engineering (هندسة البرمجيات)	3 (3,0,1)	CS 120	
232	IS	Database Management Systems (نظم إدارة قواعد البيانات)	3 (3,0,1)	IS 231	
241	IS	System Analysis & Design (تحليل وتصميم النظم)	3 (3,0,1)	CS 210	
250	IT	Elective Professional Course 1 (مقرر إختياري مهني 1)	2 (0,4,0)	<u>CS 110</u>	
470	IT	Elective Professional Course 2 (مقرر إختياري مهني 2)	2 (0,4,0)	IT 250	
471	IT	Elective Professional Course 3 (مقرر إختياري مهني 3)	2 (0,4,0)	IT 470	
200	IT	IT Fundamentals (أساسيات تقنية المعلومات)	3 (3,0,1)	NA	
210	IT	Visual Programming (البرمجة المرئية)	3 (3,0,1)	CS 120	
311	IT	Database Lab (معمل قواعد البيانات +G25)	2(0,4,0)	IS 231	
321	IT	Multimedia & Web Design (الوسائط المتعددة وتصميم الويب)	3 (2,2,0)	IS 231	
331	IT	Human Computer Interactions (التفاعلية بين الإنسان والحاسب)	3 (3,0,1)	IT 210, CS 210	
332	IT	System Integration (تكامل الأنظمة)	3 (3,0,1)	CS 360	
341	IT	Data Transmission & Computer Networks (تراسل البيانات وشبكات الحاسب)	3 (3,0,1)	CS 240	

342	IT	Computer Networks Lab (معمل شبكات الحاسب)	2(0,4,0)	IT 341	
343	IT	Information Security (أمن المعلومات)	3 (3,0,1)	IT 341	
411	IT	<u>Cloud Computing</u> <u>Fundamentals</u> (أساسيات الحوسبة السحابية)	3 (3,0,1)	IT 341	
432	IT	Systems Administration and Maintenance (ادارة وصيانة النظم)	3 (3,0,1)	<u>IT 332</u>	
498	IT	Graduation Project 1 (مشروع التخرج 1)	2 (2,0,0)	120 Credits	
499	IT	Graduation Project 2 (مشروع التخرج 2)	3 (3 0,0)	IT 498	
107	MATH	Linear Algebra (الجبر الخطي)	3 (3,0,1)	MATH 112	
Total			57 Credits		

7. Program Electives

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
421	IT	Information Administration and Storage Technology تقنية ادارة وتخزين المعلومات	3 (3,0,1)	120 Credits + Advisor Approval	TRACK COURSES FOR " NETWORKS AND SYSTEMS ADMINISTRATION" [Choose 12 credits]
422	IT	Infrastructure Environment and Network Servers بيئة البنية التحتية ومخدمات الشبكات	3 (3,0,1)		
423	IT	Database Management Systems نظم ادراة قواعد البيانات	3 (3,0,1)		
424	IT	Global Information Management ادارة المعلومات الشاملة	3 (3,0,1)		
425	IT	Enterprise Architecture and Systems Design بنيان الشركات وتصميم النظم	3 (3,0,1)		
426	IT	Mobile & Wireless Networks الشبكات اللاسلكية والمحمول	3 (3,0,1)		
427	IT	Concepts of Multimedia Processing & Transmission مبادئ معالجة ونقل الوسائط المتعددة	3 (3,0,1)		
428	IT	Selected Topics in Networks مواضيع مختارة في الشبكات	3 (3,0,1)		
429	IT	Selected Topics in System Administration مواضيع مختارة في ادارة النظم	3 (3,0,1)		
423	IT	Database Management Systems نظم ادراة قواعد البيانات	3 (3,0,1)	120 Credits + Advisor Approval	TRACK COURSES FOR "WEB AND MULTIMEDIA APPLICATIONS" [Choose 12 credits]
451	IT	Web Site Management إدارة مواقع الويب	3 (3,0,1)		
452	IT	Web Development Using Content Management Systems تطوير الويب باستخدام نظم ادارة المحتوى	3 (3,0,1)		

453	IT	Digital Technology Applications تطبيقات التقنية الرقمية	3 (3,0,1)		
454	IT	Information Visualization رؤية المعلومات	3 (3,0,1)		
455	IT	Advanced Web Applications Development تطوير تطبيقات الويب متقدم	3 (3,0,1)		
456	IT	Mobile Applications تطبيقات الموبايل	3 (3,0,1)		
457	IT	Selected Topics in Web Technologies مواضيع مختارة في تقنية الويب	3 (3,0,1)		
458	IT	Selected Topics in Multimedia مواضيع مختارة في الوسائط المتعددة	3 (3,0,1)		
459	IT	Intelligent Systems الأنظمة الذكية	3 (3,0,1)		
491	IT	Digital Forensics Foundations أساسيات التحقيق الرقمي (Level 9)	3 (2,2,0)	120 Credits	TRACK COURSES FOR "DIGITAL FORENSICS" [All Courses are Required]
492	IT	Operating Systems Forensics التحقيق الرقمي لأنظمة التشغيل (Level 9)	3 (2,2,0)	IT 432	
493	IT	Mobile and Network Forensics التحقيق الرقمي للأجهزة المحمولة والشبكات (Level 10)	3 (2,2,0)	IT 491	
494	IT	Malware and Software Vulnerability Analysis تحليل الثغرات الأمنية البرمجية (Level 10)	3 (2,2,0)	IT 343	
460	IT	Applied Cryptography (Level 9)	3 (3,0,1)	IT 343	
461	IT	Network Security (Level 9)	3 (3,1,0)	IT 343	"Cybersecurity Track" Choose 12 Credit
462	IT	Enterprise Cybersecurity (Level 10)	3 (3,0,1)	IT 343	
463	IT	Software Security Design (Level 10)	3 (3,0,1)	120 credits	
464	IT	Security Governance (Level 10)	3 (3,0,1)	IT 343	
465	IT	Penetration Testing and Vulnerability Analysis (Level 10)	3 (2,2,0)	IT 343	
Total Required			12 Credits		
8. Training Requirements					
Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
400	IT	Summer Training (تدريب صيفي)	1 (1,0,0)	120 Credits	
Total			1 Credits		
9. Courses According to Levels					

First Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
113	PCOM	Computer Skills (مهارات الحاسب)	2 (1,1,0)		
111	PENG	Preparatory English 1 (لغة إنجليزية تحضيرية 1)	8 (2,6,0)		
112	PMTH	Introduction to Mathematics 1 (مقدمة في الرياضيات 1)	2 (2,0,0)		
114	PSSC	Learning & Communication Skills (مهارات التعلم والتواصل)	2 (1,1,0)		
Total			14 Credits		

Second Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
121	PENG	Preparatory English 2 (لغة إنجليزية تحضيرية 2)	6 (2,4,0)	PENG 111	
123	PENG	English for science and Engineering (الإنجليزية للعلوم والهندسة)	2 (1,1,0)		
127	PMTH	Introduction to Mathematics 2 (مقدمة في الرياضيات 2)	4 (4,0,0)	PMTH 112	
128	PPHS	General Physics (فيزياء عامة)	3 (2,1,0)		
Total			15 Credits		

Third Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
110	CS	Programming 1 (برمجة الحاسب 1)	4 (3,2,0)	PCOM 113	
114	ENG	Technical English 1 (لغة إنجليزية تقنية 1)	2 (2,0,0)	PENG 121	
111	MATH	Discrete Mathematics (الرياضيات المتقطعة)	3 (3,0,1)		
112	MATH	Calculus I (حساب التفاضل والتكامل 1)	3 (3,0,1)	PMTH 127	
104	PHY	Physics 1 (فيزياء 1)	3 (2,2,1)	PPHS 128	
----	SALM	Elective Islamic Culture (1) (مقرر إختياري حضارة إسلامية 1)	2 (2,0,0)		
Total			17 Credits		

Fourth Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
----	ARAB	Elective Arab Culture	2 (2,0,0)		

		(مقرر إختياري ثقافة عربية)			
120	CS	Programming 2 (برمجة الحاسب 2)	4 (3,2,0)	CS 110	
127	ENG	Technical English 2 (لغة إنجليزية تقنية 2)	2 (2,0,0)	ENG 114	
200	IT	IT Fundamentals (أساسيات تقنية المعلومات)	3 (3,0,1)	NA	
126	MATH	Calculus 2 (حساب التفاضل والتكامل 2)	3 (3,0,1)	MATH 112	
102	STAT	Probability and Statistics (الإحتمالات والإحصاء)	3 (3,0,1)	MATH 112	
Total			17 Credits		

Fifth Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
210	CS	Data Structures (هياكل البيانات)	3 (3,1,1)	CS 120	
231	IS	Fundamental of Database (أساسيات قواعد البيانات)	3 (3,0,1)	CS 110	
210	IT	Visual Programming (البرمجة المرئية)	3 (3,0,1)	CS 120	
250	IT	Elective Professional Course 1 (مقرر إختياري مهني 1)	2 (0,4,0)	CS 110	
107	MATH	Linear Algebra (الجبر الخطي)	3 (3,0,1)	MATH 112	
----	SALM	Elective Islamic Culture (2) (مقرر إختياري ثقافة إسلامية 2)	2 (2,0,0)		
Total			16 Credits		

Sixth Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
----	----	Elective General Course (1) (مقرر إختياري عام 1)	2 (2,0,0)		
240	CS	Operating Systems (أنظمة التشغيل)	3 (3,0,1)	CS 210	
312	CS	Computer Organization (تنظيم الحاسب)	3 (3,0,1)	MATH 111, CS 210	
360	CS	Software Engineering (هندسة البرمجيات)	3 (3,0,1)	CS 120	
232	IS	Database Management Systems (نظم إدارة قواعد البيانات)	3 (3,0,1)	IS 231	
311	IT	Database Lab (معمل قواعد البيانات)	2(0,4,0)	IS 231	
Total			16 Credits		

Seventh Level

Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
---	---	Elective General Course (2) (مقرر إختياري عام 2)	2 (2,0,0)		
321	IT	Multimedia & Web Design (الوسائط المتعددة وتصميم الويب)	3 (2,2,0)	IS 231	
331	IT	Human Computer Interactions (التفاعلية بين الانسان والحاسب)	3 (3,0,1)	IT 210, CS 210	
332	IT	System Integration (تكامل الأنظمة)	3 (3,0,1)	CS 360	
341	IT	Data Transmission & Computer Networks (تراسل البيانات وشبكات الحاسب)	3 (3,0,1)	CS 240	
481	IT	Ethics & Professional Practice (الأخلاقيات والممارسات المهنية)	2 (2,0,0)	90 Credits	
Total			16 Credits		
Eighth Level					
Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
399	IT	Seminar (ندوة)	1 (1,0,0)	100 Credits	
241	IS	System Analysis & Design (تحليل وتصميم النظم)	3 (3,0,1)	CS 210	
334	IS	Software Project Management (إدارة مشاريع البرمجيات)	3 (3,0,1)	100 Credits	
342	IT	Computer Networks Lab (معمل شبكات الحاسب)	2(0,4,0)	IT 341	
343	IT	Information Security (أمن المعلومات)	3 (3,0,1)	IT 341	
432	IT	Systems Administration and Maintenance (ادارة وصيانة النظم)	3 (3,0,1)	IT 332	
Total			15 Credits		
Ninth Level					
Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
470	IT	Elective Professional Course 2 (مقرر إختياري مهني 2)	2 (0,4,0)	IT 250	
	IT	Track Course (مادة اختصاص اختيارية 1)	3 (3,0,1)	120 Credits	Digital Forensics track course have special requirements. Check Track Information
	IT	Track Course (مادة اختصاص اختيارية 2)	3 (3,0,1)	120 Credits	
400	IT	Summer Training (تدريب صيفي)	1 (1,0,0)	120 Credits	
411	IT	Cloud Computing Fundamentals (أساسيات الحوسبة السحابية)	3 (3,0,1)	IT 341	
498	IT	Graduation Project 1	2 (2,0,0)	120 Credits	

		(مشروع التخرج 1)			
Total			14 Credits		
Tenth Level					
Course No.	Course Code	Course Title	Credit Hours	Prerequisite	Comments
471	IT	Elective Professional Course 3 (مقرر إختياري مهني 3)	2 (0,4,0)	IT 470	
	IT	Track Course (مادة اختصاص إختيارية 3)	3 (3,0,1)	120 Credits	Digital Forensics track courses have special requirements. Check Track Information
	IT	Track Course (مادة اختصاص إختيارية 4)	3 (3,0,1)	120 Credits	
499	IT	Graduation Project 2 (مشروع التخرج 2)	3 (3 0,0)	IT 498	
	SALM	Elective Islamic Culture (3) (ثقافة إسلامية إختيارية 3)	2 (2,0,0)		
Total			13 Credits		

Information Technology Program: Course Catalog

A-Core Courses

CS 110 Programming 1

Pre-requisite: PCOM 113

This course introduces the students to the fundamentals of logic formulation together with their implementation in the C++ programming language. It introduces students to structured, top-down programming design and implementation. This course should serve as a foundation for students in the Computer Science and information technology program.

CS120 Programming 2

Pre-requisite: CS 110

This course introduces the fundamental concepts of object oriented programming including classes, polymorphism, encapsulation and information hiding, and inheritance will be studied using the C++ programming language.

IT 200 Information Technology Fundamentals

Pre-requisite: None

This course offers a broad coverage of technology concepts and trends underlying current and future developments in information technology, and fundamental principles for the effective use of computer-based information systems. There will be a special emphasis on networks and distributed computing, including the World Wide Web.

CS 210 Data Structures

Pre-requisite: CS 120

The purpose of this course is to provide the students with solid foundations in the basic concepts of programming: data structures and algorithms. The main objective of the course is to teach the students how to select and design data structures and algorithms that are appropriate for problems that they might

encounter. This course is also about comparing algorithms and studying their correctness and computational complexity. This course offers the students a mixture of theoretical knowledge and practical experience using C++

CS 240 Operating Systems

Pre-requisite: CS 210

The purpose of this course is to provide an overview of operating systems and presents theory, design, implementation, and analysis of operating systems. Emphasis will be given on process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), file systems and storage management.

CS 312 Computer Organization

Pre-requisites: MATH 111 & CS 210

This course introduces the students to the basics of computer organization: the internal structure and operation of a digital computer at the level of memory, registers, flow of control, and assembly language. This course has a theoretical and a practical component: computer organization will be studied at a theoretical level, and students will have the opportunity to practice their skills by studying the assembly language for a particular Reduced Instruction Set Computer.

CS360 Software Engineering

Pre-requisite: CS 120

This course introduces concepts and techniques relevant to the production of large software systems. Students are taught a programming method based on the recognition and description of useful abstractions. Topics include modularity, specification, data abstraction, object modeling, design patterns, and testing. Students complete several programming projects of varying size, working individually and in groups.

IT 210 Visual Programming

Pre-requisite: CS 120

This course gives students the basis for developing visual applications. Using a selected visual programming language, introduces computer programming using the Visual BASIC programming language with object-oriented programming principles, Emphasis is on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger, OO design and programming techniques, exception handling, modular programming.

IT 311 Database Lab

Pre-requisite: IS 231

This course covers the following topics: Selection of DBMS, Architecture of the chosen DBMS, DB creation, Indexing, Integrity Constraints triggers and assertions, Security management, Installation issues, Performance Management, Tuning, DB Backups, and Recovery issues. Other features of the DBMS: Integration with web technologies, DB connectivity tools, Data distribution, fragmentation, and replication issues, Management issues of the DBA activity.

IT 321 Multimedia & Web Design

Pre-requisite: IS 231

This course explores advanced and modern concepts and technologies used in the development of electronic business applications. It introduces multimedia and web computer graphics. Focuses on development of web-enabled multimedia applications from practical business perspective. Introduces and discusses technological, aesthetic, and human factors.

IT 341 Data Transmission & Computer Networks

Prerequisite: CS 240

This course introduces students to evolution trend of computer networks. This course provides with practical knowledge and hands-on experience in transmitting data over the network. Topics include network architecture, transmission media, data encoding, error detection, MAC protocol, LAN standards, Internet Protocol (IP), Routing Algorithms, TCP and UDP and Application layer protocols.

IT 331 Human Computer Interaction

Pre-requisite: CS 210 + IT 210

The course will provide a balance of practical and theoretical knowledge of Human-computer interaction (HCI). HCI is concerned with designing interactions between human activities and the computational systems that support them, and with constructing interfaces to afford those interactions. Interaction between users and computational artefacts occurs at an interface that includes both software and hardware. Thus interface design impacts the software life-cycle in that it should occur early; the design and implementation of core functionality can influence the user interface for better or worse.

IT 332 Systems Integration

Pre-requisite: CS 360

This course focuses on the integration of information systems in organizations, the process by which different computing systems and software applications are linked together functionally or physically. It examines the methods and strategies for combining a set of interdependent systems into a unified and functioning integrated system, where two or more applications are seamlessly interacting and exchanging data. The course will demonstrate the use of tools and techniques in systems integration as well as prove practices for integration projects.

IT342 Computer Networks Lab

Pre-requisite: IT 341

This course provides students with hands on training regarding the design, configuration, troubleshooting, modelling and evaluation of computer networks. This course covers: Peer-to-Peer and Server-based networks, Transmission media, MAC & IP addressing, Address Resolution Protocol (ARP), basic troubleshooting tools, IP routing Protocols such as RIP, IGRP, and OSPF, Transport protocols: TCP and UDP, Virtual LANs, Wireless networks, and Network security. Students will also be introduced to the network modelling and they will have the opportunity to build some simple networking models and evaluate their design approaches and expected network performance.

IT 343 Information Security

Pre-requisite: IT 341

This course covers the following topics: Security models, mechanisms and policies for usage, availability, integrity and secrecy. Operating system mechanisms and models for mandatory controls, data models, concepts and mechanisms for database and software security, basic cryptography (private and public) and its applications, security in computer distributed systems, networks, control and prevention of viruses, and other malicious programs. In addition to that, incidence response, disaster recovery, physical security, and forensics are discussed.

IT 411 Cloud Computing Fundamentals

Pre-requisite: IT 341

This course offers students a collaborative and hands-on study on basics of cloud computing, various services offered by cloud providers such as Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), Software-as-a-Service (SaaS) explain in details, Different types of cloud models such as Private, Public, hybrid clouds, virtualization, security and privacy issues, performance and systems issues, capacity planning, disaster recovery, challenges in implementing clouds, data centers, hypervisor CPU and memory management Students will be exposed to current practices in cloud computing.

IT 432 Systems Administration and Maintenance

Pre-requisite: IT332

This course aims to give students the fundamentals of operating Systems administration and maintenance. Focus will be on installation, maintenance and managing of several systems for multi-user environments. It also considers the need for IT system documentation, policies and procedures and the education and support of the users of these systems.

IS 231 Fundamentals of Database

Prerequisite: CS 110

Effective use of Database software tools is one of the fundamental goals of this course. Training on different Database tools leads to provide students with solid knowledge and required practice on well-known tools. This course includes Database concepts and architecture; data models, database schemes and instances, structured query language (SQL); data definition, queries, update, statements, and views in SQL, database design; functional dependencies, normal forms.

IS 232 Management Systems

Pre-requisite: IS 231

This course covers the following topics: DBMS architecture and administration; centralized and client-server approaches, system catalog, and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques: serializability, deadlock, locking schemes, time-stamp ordering, multi-version, and optimistic techniques, DB security, distributed databases, distributed DBMS, data fragmentation and replication, and distributed transactions management.

IS 241 Systems Analysis & Design

Pre-requisite: CS 210

This course is concerned with the fundamental knowledge, methods and skills needed to analyse, design and implement computer-based systems. It addresses the role of the systems analyst, and the techniques and technologies used. The structured software development life cycle approach, modeling techniques (e.g., Entity-Relationship Models) and development phases are comprehensively discussed and reviewed. In modelling techniques, process models (e.g., Data Flow Diagrams), information models, system architecture models, and object oriented models are thoroughly described.

IS 334 Software Project Management

Pre-requisite: 100 Credits

This course addresses the main issues related to software project management such as project definition, scope management, planning, organization, resources, scheduling, control, quality, cost estimation, time estimation, and, risk management. Topics include project management ethics, and effective project manager skills such as people and leadership skills. Students should get exposed to a software package used for this purpose.

IT 481 Ethics and Professional Practice

Pre-requisite: 90 Credits

This course will develop the ethical foundations of good professional practice in information technology. It will provide the necessary background of ethical theories and practices, and discuss the role of professional organizations in maintaining such practice, specifically in the information technology industry.

General English Courses

ENG 114 Technical English (1)

Pre-requisite: PENG 121

This course provides students with a solid foundation of basic sentence form and function. It concentrates on grammatical structures, vocabulary expressions often used in technical and professional contexts.

This course includes the following topics:

Basics: meeting people, using forms, following instructions, exchanging information, using checklists, using voicemail, ordering by phone, introducing yourself and others, describing components, using a product review, describing a product, talking about people's jobs, describing direction of movement, giving and following instructions, explaining fluid movement around a system, using a flow chart, explaining how cooling system work, material testing, properties of materials, buying using a customer call form, specifying dimensions, using a specification chart, future projects, taking an emergency call, reporting damage, dealing with a customer.

ENG 127 Technical English (2)

Pre-requisite: ENG 114

Building on the content of Technical English, this course is intended to provide students of Computer Sciences and IT with more advanced and specialized technical English needed for studying their major and functioning in their future careers. This course contains the following topics: Computer users, computer Architecture, computer Applications, Operating systems, describe main operating system, users Interfaces, discuss diagrams related to computer interfaces, computer support, Networks, data security, People in computing, discuss professional life of people working in IT, practice note-taking write a detailed description of a technical problem and its solution

B.Maths and Science Courses

MATH 107 Linear Algebra

Prerequisite: MATH 112

Linear Algebra is highly recommended for all majors of engineering. The course includes the topics: the system of linear equations and their solutions, determinate, vector space, linear transformation; eigen values and vectors.

MATH 111 Discrete Mathematics

Pre-requisite: None

The purpose of this course is to understand and use (abstract) discrete structures that are backbones of computer science. In particular, this class is meant to introduce logic, proofs, sets, relations, functions, counting, and probability, with an emphasis on applications in computer science.

MATH 112 Calculus (1)

Prerequisite: PMATH 127

This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives, applications of derivatives, and integrals of algebraic and transcendental functions of one variable.

MATH 126: Calculus 2

Prerequisite: MATH 112

This course introduces the students with integral and derivatives of functions of several variables. Emphasis is placed on integration techniques, series and sequence, polar and parametric coordinates, multiple integration and partial differentiation and applications of integration.

STAT 102: Probability and Statistics

Prerequisite: MATH 112

Probability and Statistics introduces the fundamental ideas and techniques of probability theory and statistical inference. The course includes the following topics: Sample Space, Probability, Random variable, discrete and continuous distributions, Sampling distribution, estimation and correlation and regression.

PHY 104 Physics (1)

Pre-requisite: PPHS 128

This course is designed to equip the skills and knowledge of fundamental principles of Physics to apply in computer science. This course covers the laws governing motion in one and two dimensions, static equilibrium, elasticity, vibration and waves and simple harmonic motion (SHM)

PROFESSIONAL ELECTIVE COURSES

PROFESSIONAL ELECTIVE I

Prerequisite: CS 110

IT 250 Information technology and fundamental of networking

This course introduces the architecture, structure, functions, components, and models of the computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for Network. Routing and Switching.

IT 251 Java Fundamental

This course is an introduction to object-oriented programming using the Java language. This course focuses on Java programming language constructs to create several Java technology applications.

IT 252 Configuring and administrating Window Server

This course focuses on real skills for real jobs and prepares students to prove mastery of core services such as Active Directory and networking services.

IT 482 IT Service Management

This course focuses on Foundations in IT services, governance, and ITIL Availability management, Smart Cloud Application Performance Management, Software Quality Management and Automated Testing using IBM Rational tools.

PROFESSIONAL ELECTIVE II**IT 470 CCNA Routing and Switching**

Prerequisite: IT 250

This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Also discusses the WAN technologies and network services required by converged applications in a complex network and enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements.

IT 474 Database Design & Programming with SQL

Prerequisite: CS 110

This course focus to analyze complex business scenarios and create a data model—a conceptual representation of an organization’s information. Students implement their database design by creating a physical database using SQL. Basic SQL syntax and the rules for constructing valid SQL statements are reviewed.

IT 477 Web Development

Prerequisite: CS 110

This course focuses on basic skills of creating basic and interactive web pages. It also covers the fundamentals of Client-Side Scripting and Ajax Concepts as well as handling debugging and errors. Skills such as configuring and deploying web applications are also covered.

PROFESSIONAL ELECTIVE III

IT 471 CCNA Security

Prerequisite: IT 470

This Course covers the core security concepts and validates the knowledge needed to install, troubleshoot, and monitor Cisco network security devices; develop a security infrastructure; recognize network vulnerabilities; and mitigate security threats, and troubleshoot converged local and wide area networks, and manage routers, switches and edge applications that integrate voice, wireless, and security into the network.

IT 475 Programming with PL/SQL

Prerequisite: CS 110

This course focuses on Program with PL/SQL write PL/SQL code, Oracle's procedural extension language for SQL and the Oracle relational database. Automate SQL to administer the Oracle database. This course culminates with a project that challenges students to program, implement, and demonstrate a database solution for a business or organization.

IT 478 Mobile Development

Prerequisite: CS 110

This Course validate fundamental technology concepts with a foundation for students' careers as well as the confidence they need to succeed in advanced studies. It also covers such valuable skills such Mobile App Development Environment.

IT 483 Business Intelligence

Prerequisite: CS 110

This course focuses on Business Intelligence (BI) and Financial Performance Management (FPM), topics includes Business intelligence, constraint programming, Predictive and advanced analytics. Turning Data into Insights and Big Data and Analytics.

C-Advanced Courses

Track Courses

TRACK 1-NETWORKS AND SYSTEMS ADMINISTRATION

IT 421 Information Administration and Storage Technology

Pre-requisite: 120 Cr.

This course is concerned with the understanding of information storage technologies that prepares students to learn the concepts and technologies of information architectures, benefits and features of Intelligent Storage Systems, such as, long-term archiving solutions, storage networking technologies, business continuity solutions; replication and backup, information security, storage virtualization, and storage resource management.

IT 422 Infrastructure Environment and Network Servers

Pre-requisite: 120 Cr.

This course provides students with the knowledge and skills to manage and maintain network infrastructure servers. The course is concerned with the creation of plans for managing the server lifecycle, evaluating and developing baselines for managing and monitoring server roles, and analyzing the configuration and implementation of different server roles. The course will also focus on maintaining and analyzing network server security.

IT 424 Global Information Management

Pre-requisite: 120 Cr.

This course covers Bbusiness /IT alignment, strategic planning, demand management, IT governance frameworks, IT service management (ITSM), ITIL, COBIT, the Balanced Scorecard, and other metrics and controls to enable technologies. Using case examples from global companies

IT 425 Enterprise Architecture and Systems Design

Pre-requisite: 120 Cr.

This course provides students with a concise and fundamental overview and critical enterprise architecture concepts. This is done by means of case studies, focusing on core concepts and ideas behind architecture, using enterprise architecture frameworks and linking this knowledge back to notational styles and finally the application of these styles. This is a fundamental course that equips participants with general understanding of enterprise architecture and how it may be applied.

IT 426 Mobile & Wireless Networks

Pre-requisite: 120 Cr.

This course covers the basic concepts of wireless communications and wireless network architectures. The following topics are included: standards of wireless communications, band-pass transmission for mobile radio, characterization of Wireless Channels, fading dispersive channels receiver techniques, cellular communications fundamentals, mobility management in wireless networks and multiple access techniques.

IT 427 Concepts of Multimedia Processing & Transmission

Pre-requisite: 120 Cr.

This course is concerned with the fundamentals of signal and image processing. It includes topics such as algorithms for signal processing, multimedia applications, voice recognition and coding, CD, DVD and streaming video technology.

IT 428 Selected Topics in Networks

Pre-requisite: 120 Cr.

This course intends to introduce special topics of current trends in Networks. The course is designed to enable students to study a variety of topics that are new and emerging in the discipline and are not covered in any core or elective courses of the department. Each semester, the contents of the course could cover a new topic or a mix of many topics and could be taught by one or more faculty members.

IT 429 Selected Topics in Systems Administration

Pre-requisite: 120 Cr.

This course intends to introduce special topics of current trends in Systems Management. The course is designed to enable students to study a variety of topics that are new and emerging in the discipline and are not covered in any core or elective courses of the department.

TRACK 2- WEB AND MULTIMEDIA APPLICATIONS TRACK

IT 423 Database Management Systems

Pre-requisite: 120 Cr.

This course covers DBMS architecture and administration; centralized and client-server approaches, transaction management; concepts, characteristics, and processing, recovery techniques and concurrency control techniques/.

IT 451 Website Management

Pre-requisite: 120 Cr.

This course covers Webpage optimization, webserver, Networks and connection consideration, Webserver Programming, Database and web servers, Website design and redesign, Website maintenance, Web marketing, E-Commerce and other web-based applications, Accessibility and Usability etc.

IT 452 Web Development Using Content Management Systems

Pre-requisite: 120 Cr.

This course provides both a survey of the current content management systems and in-depth hands-on experience with one of the most used environments (e.g. Joomla). The course includes the basics related to content management on the web, and the guidelines of creating a personal web development project in an area of interest that mostly covers the design and content authoring, installation and maintenance aspects. This course will include hands on experience with existing technologies, e.g., Joomla! (<http://www.joomla.org/>) .

IT 453 Digital Technology Applications

Pre-requisite: 120 Cr.

In this course, digitizing video and audio for use in multimedia and web applications are studied, with a special emphasis on advanced skills and knowledge in digital audio and video digitizing, compression, and production from traditional media.

IT 454 Information Visualization

Pre-requisite: 120 Cr.

This course is about the organization and visualization of digital information. Data organization and representation are studied to enhance the technical aspects of information. Graphics principles, visualization principles, and statistical analysis of data are considered for information presentation. Several software tools are used for presenting information. Students will be able to design a website or a presentation to visualize a data for information retrieval

IT 455 Advanced Web Applications Development

Pre-requisite: 120 Cr.

This course is about web applications development. Technical foundations are combined with the Project-centered approach to implement real-world E-Commerce Web applications. Also, development life cycle for Web applications and secure Web transactions software is discussed.

IT 456 Mobile Applications

Pre-requisite: Advisor Approval

This course introduces students the current trends in the mobile industry. This course analyses why it is very hard to make mobile applications and introduces the students' easy ways of making and testing mobile applications. In addition to these students will study various mobile business plans and Mobile applications marketing strategies.

IT 457 Selected Topics in Web Technologies

Pre-requisite: 120 Cr.

This course intends to introduce special topics of current trends in Web Applications. The course is designed to enable students to study a variety of topics that are new and emerging in the discipline and are not covered in any core or elective courses of the department. Each semester, the contents of the course could cover a new topic or a mix of many topics and could be taught by one or more faculty members.

IT 458 Selected Topics in Multimedia

Pre-requisite: 120 Cr.

This course intends to introduce special topics of current trends in Multimedia. The course is designed to enable students to study a variety of topics that are new and emerging in the discipline and are not covered in any core or elective courses of the department. Each semester, the contents of the course could cover a new topic or a mix of many topics and could be taught by one or more faculty members

TRACK 3- Digital Forensics Track

IT 491 Digital Forensics Foundations

Pre-requisite: 120 Credits

This course introduces basics of digital forensic, and the fundamental process of analyzing data collected from electronic devices, with proper techniques and

tools utilized for securing, handling and preserving digital and multimedia evidence and the knowledge necessary to uncover and use digital evidence effectively in any kind of investigation.

IT 492 Operating Systems Forensics

Pre-requisite: IT 432

This course covers advanced topics to make the learner knowledgeable in the various functions of OS, basic administration of OS and methods to secure operating systems

IT 493 Mobile and Network Forensics

Pre-requisite: 120 Credits

This Course provides the knowledge necessary to expand the forensic mindset from residual data on the storage media from a system or device to the transient communications that occurred in the past or continue to occur. This course will provide a better understanding of different forms of evidences in many mobile devices, collection and interpretation of the same and covers the tools, technology, and processes required to integrate network evidence sources into your investigations, with a focus on efficiency and effectiveness.

IT 494 Malware and Software Vulnerability Analysis

Pre-requisite: 120 Credits

This Course cover important aspects of malicious codes and the technical skills required to identify, analyze, and exploit software vulnerabilities, focusing on application-level issues which includes Code auditing, reversing, memory corruption, fuzzing, Post-Exploitation, WebappHacking, Reversing, Reverse Engineering, Client-side attacks and Web Hacking.

Graduation Project (IT 498 & IT 499)

The Graduation Project (GP) provides the opportunity to the students to showcase the talents through their learned skills and practices. The project is mandatory for all the students enrolled in the programmes. As such, students should regard their graduate projects as an ideal opportunity to implement the concept learned in most of the courses and gain hand on experience. The GP is carried over in the last two semesters (9th and 10th semesters), called Semester 1 and Semester 2

(Graduation Project 1 (IT 498) and Graduation Project 2(IT 499). Both semesters will be graded independently according to the work carried out in each semester. Work assessed will include deliverables submitted and final presentation. The general purpose of Graduation Project 1 is for the students to give a presentation showing their project proposal including management plan, feasibility study, requirement document. At the end of their Graduation Project 2, the students are evaluated on their presentation of the final project deliverables and a project report.

Facilities

Laboratories

Five laboratories equipped with dual operating systems (Windows and Mac) are being used to conduct tutorials, experiments and/or lectures. Some of these labs are for special courses only while the others are for general programming courses. In addition to five labs available in the female side for certain courses that require lab work.

Currently, the IT program has full access to Digital Forensics, Network, Computer Engineering, Database, and Operating Systems Labs totaling a capacity of (108) seats in addition to instructors' seats and a total of (121) seats in the female side in addition to instructors' seats. In addition, the innovation center is accessible to students for discussions and for using e-library from iPADS.

Selective Photos



Digital Forensics Lab



Digital Forensics Lab



Operating Systems Lab



Operating Systems Lab



Operating Systems Lab



Networking Lab



Computer Engineering Lab



Computer Engineering Lab



Database Lab



Networking Lab