

وصف مقررات برنامج علوم الحاسب

وصف مقررات السنة التحضيرية (29 ساعة معتمدة)
(لمسارات الكليات العلمية)

المستوى الأول :

Course Name	General English Language		لغة انجليزية عامة					
Course Information	Course Code ENGL-101	Credit Units	Lec. 5	Lab. 0	Tot. 5	Contact Hours	Lec. 20	Lab. 0
Track	<input checked="" type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	1 st Semester	Prerequisite						
Course Description: The featuring aspect of the PY academic year English language program is fittingly designed to answer the academic needs of students of the two main tracks; the Health Track and Science and Engineering Track. This course (General English) is an integrated English course intended to increase academic and general competence in listening, speaking, reading and writing. During this semester and with 20 contact hours a week, students will have attained to a position where they can understandingly communicate with native speakers and express themselves without hesitation.								



Course Name	Mathematics 1			رياضيات (1)					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH-111			3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester		Prerequisite						
Course Description: Have the basic mathematics skills which are used in calculus and their relevance to everyday applications. Have the ability to formulate problems. Have problem solving capabilities. develop the comprehension of the course material in English. Have formal way of thinking. Analyze and solve some mathematical problems using computer software. Have learning propositional calculus that can help him to formulate problems in a logical manner. This logical way of thinking can be also applied to his real life.									

Course Name	Computer skills			مهارات الحاسب الآلي					
Course Information	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.	
	Comp - 131		0	2	2		0	4	
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester		Prerequisite						
Course Description: This course aims to provide the students with basics and advanced skills to operate and make use of a personal computer in different environments such as in an academy, or at home. The course gains the students in the practical skills to utilize an office productivity package for different purposes such as Word-processing, Data Sheets, and Presentation. The students to pattern of modern education and the course aims to prepare the delivery of the course contents will be based on a hands-on approach.									



Course Name	Learning and Searching Skills		مهارات التعلم والبحث					
Course Information	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	LRSK-141		1	1	2		1	1
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	1 st Semester	Prerequisite	توصيف المقرر:					
<p>يهدف مقرر مهارات التعلم والبحث إلى مساعدة الطلاب على التعرف على المفاهيم والنظريات والمهارات التطبيقية من خلال دراسة مهارات التعلم وذلك باستخدام طرق التدريس الفعالة التي تعتمد على نشاط الطالب ودافعيته للتعلم من خلال التدريب والتعلم الذاتي وتعلم المهارات بواسطة العمل الجماعي والطرق التفاعلية ويشجع الطالب على استخدام مصادر التعلم المتنوعة ومهارات القراءة الجيدة واستخدام المكتبة كوسيلة في الحصول على مصادر المعلومات والمعرفة وتقييمها وتدريب الطالب على اتباع خطوات البحث العلمي في إعداد مشروع بحثي ويساعد الطالب على تعلم مهارات التعامل مع المحاضرات داخل الجامعة والاستعداد لها ويوجه الطالب إلى استخدام مهارات الاستذكار الفعال ومهارات التفكير.</p>								

Course Name	Health & Physical Education		التربية البدنية والصحية					
Course Information	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	PHEDU-162		-	1	1		-	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	1 st Semester	Prerequisite						



توصيف المقرر:

يهتم بتزويد الطالب بالمبادئ العامة و الأساليب الفنية المتقدمة للقياس والتقويم للجهد البدني للألعاب الرياضية المختلفة (الجماعية – الفردية) وتعميق فهم الطلاب للأبعاد المختلفة لمناهج التربية البدنية وإكسابهم القدرة على تطويرها في ضوء المستجدات والمتغيرات في التربية البدنية ويتكون المقرر من قسمين:
أولاً التربية البدنية : تطوير القدرات الجسمية والعقلية للطلاب بواسطة التمرينات الرياضية ومعرفة تأثير التمرينات المختلفة على الأجهزة الداخلية للجسم وبناء عضلات بواسطة التمرينات و الأنشطة الرياضية المختلفة (الجماعية – الفردية) والسباحة.
ثانياً التربية الصحية (الجانب النظري): اعطاء المعلومة الصحية وتحسين السلوك وفق المحتويات الصحية و الأنشطة الجامعية المختلفة والتغذية الصحية السليمة ومراعاة الصحة النفسية وكيفية مواجهة الحوادث و الإصابات والإسعافات الأولية.

المستوى الثاني:

Course Name	General English Language		لغة انجليزية عامة					
	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	ENGL-101		2	0	2		8	-
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	2 nd Semester	Prerequisite						

Course Description:

The featuring aspect of the PY academic year English language program is fittingly designed to answer the academic needs of students of the two main tracks; the Health Track and Science and Engineering Track. This course (General English) is an integrated English course intended to increase academic and general competence in listening, speaking, reading and writing. During this semester and with 20 contact hours a week, students will have attained to a position where they can understandingly communicate with native speakers and express themselves without hesitation.



Course Name	English for Academic and Specific Purpose			لغة إنجليزية أكاديمية متخصصة					
Course Information	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.	
	ENGL-102		3	0	3		12	-	
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester		Prerequisite	-					
Course Description: The ENGL-102 course introduces the students to the form, style, content, and nature of scientific English and establishes a connection with their respective field of specialty. With these aspects fully introduced, students are gradually orientated with their prospective fields of specialty and placed in a position where they can proceed confidently toward their undergraduate and later on postgraduate studies.									

Course Name	Mathematics (2)			رياضيات (2)					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH-112			3	0	3		3	3
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester		Prerequisite	MATH-111					
Course Description: Summary of the main learning outcomes for students enrolled in the course. The student will define trigonometric functions: A unit circle approach, Properties of									

trigonometric functions including (basic identities, Sign properties, and Periodic functions), Inverse trigonometric functions.

The student will define conic sections; parabola, ellipse and hyperbola. The student will define and solve systems of linear equations: Graphing, Substitutions, Eliminations, and Matrices: Basic operations, System of linear equations. The student will define and apply the properties of limits of functions. The student will state the definition of continuity and determine where a function is continuous or discontinuous. The student will find the integration of an algebraic function by using the definition of an integration.

Course Name	Computer Applications		الألي تطبيقات الحاسب					
Course Information	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	COMP-132		1	2	3		1	4
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	2 nd Semester	Prerequisite	-					

Course Description:

The course aims to develop vocational and theoretical skills of students about the information technology, internet and databases. The students will be able to recognize the fundamentals concepts of IT, using search engines and create databases. The students will understand how to search for information using the internet, how to use the standard mail and outlook Program to send and receive mails and how to create free web site. The students will be able to develop his/her web site using different tools; in addition, the students will learn how to create a database from scratch. They will learn how to analyze, design, produce database and test it. They will learn how to create tables, forms, queries and reports of the database. The student will be able to do a lot of practice on how to enhance the design of the database and test the capabilities of database management systems to search for information, the relationships between the data tables and the good design of forms and reports in the database.



Course Name	Statistics			إحصاء					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	STAT-132			3	0	3		3	3
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester		Prerequisite	-					
Course Description:									
Summary of the main learning outcomes for students enrolled in the course.									
<ol style="list-style-type: none">1) Identify the concept of statistics2) Create, read, and interpret graphs, charts, histograms, and diagrams3) learn how to configure the frequency distributions4) Be able to understand and use the basic measure of central tendency: Median, Mode, Mean5) Get dispersion deviation dimensions: long, Contrast6) Be able to understand and use the language of probability7) Be able to compute the probabilities of composite events using the basic rules of probability8) Be able to understand the significance of statistics and probability in the real world9) Find the relationship between two variables: Draw a scatter plot, Compute the correlation, Compute the equation of the regression line.10) Apply statistical techniques to model relationships between variables and make predictions.									



Course Name	Communication Skills		اتصال مهارات					
	Course Code	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	LRSK-142		2	0	2		2	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems							
Level	2 nd Semester	Prerequisite	-					
توصيف المقرر: يهدف مقرر المهارات الاتصال إلى مساعدة الطالب على اكتساب المفاهيم الحديثة في مجال الاتصال , والتعرف على المهارات الأساسية في مجال التواصل مع الذات ومع الآخرين وذلك باستخدام طرق التدريس الفعالة التي تعتمد على نشاط الطالب ودافعيته للتعلم من خلال التدريب والتعلم الذاتي , وتعلم المهارات بواسطة العمل الجماعي والطرق التفاعلية , ويعمل على مساعدة الطالب في تطوير مهاراته في الاتصال اللفظي من خلال تعلم مهارات التحدث والأسس التي تقوم عليها , كما يساعد الطالب في التعرف على مهارات الاستماع الفعال , والتعرف على مهارات الاتصال غير اللفظي , كما يسهم في مساعدة الطالب على تطوير مهارة الاتصال مع الآخرين من خلال التركيز على مهارات " الحوار , الإقناع, التفاوض , المقابلة الشخصية , العرض و الإلقاء وكتابة السيرة الذاتية".								

* عند حصول الطالبة على معد (3 من 5) في السنة التحضيرية تستطيع التسجيل في قسم الحاسب الآلي للتخصص علوم الحاسب .



وصف مقررات قسم الحاسب الآلي
(تخصص علوم الحاسب = (121 ساعة معتمدة))

المستوى الاول :

Course Name	Introduction to Computing			مقدمة علم الحاسب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 211	670237		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester		Prerequisite						
Course Description: This course introduces the main concepts of computer science. It includes the basics of computing: hardware, Software, Connectivity, and users, the different types and features of computers. It presents also the data types and data Representation. A Simple Computer System architecture is presented so to emphasize on main components, secondary storage devices, types of memory, Hardware, software and people. The principal Peripheral Devices are also presented: Input, Output and storage, Data preparation, Factors affecting input, Input Devices, Output Devices, Secondary Storage devices, Communication between CPU and input/output devices. Software aspects are introduced like Problems-Solving and programming: Algorithm development, Flowcharts, Looping, Some programming Features, Pseudo code, Some structured programming concepts, Documentation, as well as Programming Languages: Machine language and assembly language, High-Level and Low-Level languages, assemblers, compilers and Interpreters. Finally, the course presents the computer and communication aspects, as well as different features of operating Systems.									



Course Name	Fundamentals of Information Systems			مبادئ نظم المعلومات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 211	670238		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester			Prerequisite					
Course Description: This course aims to introduce students to the basic concepts and topics related to Information Systems (IS). It covers topics such as: systems concepts; system components and relationships; cost/value and quality of information; competitive advantages of information; specification, design, and re-engineering of IS; application versus system software; package software solutions; procedural versus non-procedural programming languages; object oriented design; database features, functions, and architecture; networks and telecommunication systems and applications; characteristics of IS professionals and IS career path; information security, crime, and ethics. Practical exercises may include developing macros, designing and implementing user interface and reports; developing a solution using database software.									

Course Name	Calculus			التفاضل والتكامل					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH 211	667459		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester			Prerequisite					



Course Description:

The limit. Continuity, the intermediate value theorem. Definition of derivatives. Rules for differentiation. Applications of the derivative. The mean value theorem. L'hospital rule. The definition of the integral. The indefinite integral and the of calculus. Applications of the integral. Sequences. Convergence and limits of sequences. Series. Convergence of series. Power series. The formal power series of rational functions

Course Name	Physics			الفيزياء					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	PHYS 212	667501		4	0	4		4	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester			Prerequisite					

Course Description:

Charges and electrical forces. Charge quantization and conservation. Insulators, conductors and semiconductors. Electric field and principle of superposition for electric field. Electric dipoles and the effect of electric field on it. Electric potential due to charges and potential difference. Equipotential surfaces. Magnetic field and magnetic force. Introductory to modern physics and semiconductors. N-type and P-type crystals. Semiconductor carrier properties and action. Depletion layer and electric potential through it. Diode and types of diodes.



Course Name	Faith Morals			العقيدة و الأخلاق					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	ISLM 271	926067		2	-	2		2	-
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	1 st Semester		Prerequisite						
توصيف المقرر:									
العقيدة : تعريفها , أهمية دراستها , مصادرها , خصائصها , منهج الاستدلال عليها عند السلف , أركان الإيمان في ضوء حديث جبريل المشهور , أثرها في حياة الفرد والمجتمع , نواقض الإيمان, ضوابط التفكير .									

Course Name	Fundamentals of Programming			مبادئ البرمجة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 221	670241		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester		Prerequisite	670237 – CS 211					



Course Description

This knowledge area consists of those skills and concepts that are essential to programming practice independent of the underlying paradigm and programming language. Specific topics covered include: an overview of algorithms and problem-solving (problem solving strategies, role of algorithms in the problem-solving process, etc), fundamental programming constructs (variables, types, expressions, simple I/O, conditional and iterative control structures, functions, recursion, pointers, etc.).

The study of programming language features and programming paradigms. Control, run-time environments, and semantics are examples of procedural, functional, logical, and object oriented programming.

In practice the programming language used is ANSI-C, the syntax aspect of language and some pragmatic aspects such as comparison of interpreters and compilers and language translation phases must be studied in laboratory.

المستوى الثاني :

Course Name	Electronics			الإلكترونيات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 222	670242		3	1	4		3	3
Track	<input type="checkbox"/> University Requirement			<input checked="" type="checkbox"/> College Requirement			<input type="checkbox"/> Core		
	<input type="checkbox"/> Elective								
	<input checked="" type="checkbox"/> Computer Science			<input checked="" type="checkbox"/> Computer Information Systems					
Level	2 nd Semester			Prerequisite		667501 – PHYS 212			



Course Description:

DC Circuits : Circuit Variables (Voltage, Current, Power, and Energy), DC Circuit Elements (Resistors, DC Voltage Sources), Simple Resistive Circuits(Resistors in Series, Resistors in Parallel, Voltage and Current Dividers) , Circuit Analysis (Ohm's Law, Kirchhoff Laws , Node-Voltage Method, Mesh Current Method, Source Transformation, Thevinin and Norton Equivalent), Maximum Power Transfer and Superposition. AC Circuits: AC Circuit Components and Simple AC Circuit Analysis . Diodes: Diode Structures, Diode Circuits, Diode Types (Zener Diode, Varactor Diode, Schottky Diodes), Diode Clippers, Diode Limiters, Diode Clampers, and Diode Rectifications. Transistors: Bipolar Junction Transistors, N-P-N Structures, P-N-P Structures, Modes Of Operations (Active Mode, Reverse Mode and Saturation Mode), CB, CE, CC Connections, Field Effect Transistors (FET), (JFET, MESFET, MISFET, and MOSFET) , Transistor Circuits And Applications, Transistor Switching. Opto Electronics Devices: Photodiodes, LED, Lasers, Semiconductor Lasers. Integrated Circuits: Background, Advantages of Integration, Types of Integration, Monolithic And Hybrid Circuits, Evolution of Integrated Circuits, CMOS ICs, TTL ICs. Operational Amplifiers and applications. Student will be trained on the available software such as: Circuit maker 2000, EWB50a, MultiSim 6.01, CirCAD, DCCAD, and DCCHALING in addition with the products and components of Heathkit educational systems (EWS-3600 analog modules)

Course Name	Biology			الأحياء					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	BIOL 222	667409		3	1	4		3	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester			Prerequisite	-				

Course Description:

Introduction to biology, structure, function and division of plant and animal cell. Classification of living beings into kingdoms. Study of biological activities (nutrition, digestion, respiration, reproduction and secretion).



Course Name	Introduction to Statistics & Probability Theory			مقدمة في الإحصاء ونظرية الاحتمالات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	STAT 207	670244		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester			Prerequisite		667459 – MATH 211			
Course Description: Counting. Introduction to probability. Conditional probability and statistical independence. Bayes theorem. Random variables. Mathematical expectation. Variance. Covariance and the correlation coefficient for two random variables. Some important discrete distributions									

Course Name	Social System In Islam			النظام الاجتماعي في الإسلام					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	ISLAM 272	926068		2	-	2		2	-
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester			Prerequisite		ISLAM 271 - 926067			
توصيف المقرر: 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 والأولاد والأقارب , مكانة المرأة وحقوقها في الإسلام , الشبهات حول النظام الأسري في الإسلام والرد عليها : (تعدد الزوجات , ميراث المرأة , دية المرأة , الحجاب , الطلاق , تحديد النسل) , المشكلات الأسرية وعلاجها (عمل المرأة , القوامة , النفقة , النشوز) . مع تكليف الطلاب بحفظ سورة الأحزاب .									



المستوى الثالث :

Course Name	Object Oriented Programming (1)			البرمجة كائنة التوجه (1)					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 311	670245		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	3 rd Semester			Prerequisite		670241 - CS 221			
Course Description: The purpose of this course is to provide students with fundamental knowledge of object oriented programming (OOP). It emphasizes good software engineering principles and developing programming skills. Specific topics covered include: fundamental concepts of object oriented (classes, methods, instantiation, communication by message, encapsulation, inheritance, overriding, dynamic dispatch, polymorphism, etc.), advanced techniques of OOP (exceptions, multithreaded programming, etc.) and some interesting packages (I/O, strings, etc.). As an OOP programmer, student will be able to translate solution problem into object oriented form, he should acquire some understanding of object oriented concepts and tools such as the Unified Modeling Language (UML), this will give student a firm foundation on which to build high-quality software systems. In practice the programming language used is JAVA, as an introduction to JAVA language; students should acquire some understanding of abstraction mechanisms, JAVA Virtual Machines (JVM) and the byte code notion.									

Course Name	Technical Reports			كتابة التقارير التقنية					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 313	670247		2	0	2		2	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								

Level	3 rd Semester	Prerequisite	670238 - CIS 211
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Course Description:

This course is designed to help students develop an effective method of planning and completing writing tasks so that student can meet professional writing demands. Since succeeding in the professional world requires not only technical knowledge but also effective writing skills. This course focuses on the writing skills necessary for advanced academic and professional writing, tailored specifically to student academic career work as professional in a technical field. Successful technical communicators know how to organize and present complex information so that the ideas are understandable to many readers, viewers, and listeners. In this course, students will complete several small technical and recommendation reports on a topics related to IT related majors. Indeed, this course requires intensive writing, reading, and peer commentary.

Course Name	Digital Hardware			الأجهزة الرقمية					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 314	670249		2	1	3		2	3
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	3 rd Semester			Prerequisite	670242 - CS 222				

Course Description:

Digital Systems: digital computer and digital systems, binary, decimal, octal and hexadecimal number systems, number base conversion, complements, signed and unsigned numbers, binary codes, binary storages and registers, and binary logic. Boolean algebra and logic gates: basic definitions, axioms definitions of Boolean algebra, basic theorem and properties of Boolean algebra, Boolean functions, canonical and standard forms, logic operations, and digital logic gates. Simplification of Boolean functions: the map methods, product of sum simplification, NAND and NOR implementation, and the tabulation method. Combinational logic circuits: adders, subtractors, decoders, encoders, multiplexers, de-multiplexers, look-up table, function implementation using multiplexers/ decoders and memories. Sequential logic circuits: flip-flops, synchronous and asynchronous circuits, counters (types of counters), registers, memories, design of counters, design of sequential circuits, analysis of counters, and analysis of sequential circuits. Analog-to-digital converters and digital-to-



analog converters. Programmable logic devices (PLD): PLA, PAL and FPGA. Student will be trained on the available software such as: Circuit maker 2000, EWB50a, and MultiSim 6.01 in addition with the products and components of Heathkit educational systems (EWS-3700 analog modules)

Course Name	Communications & Network Fundamentals			أساسيات الاتصالات والشبكات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 315	670278		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	3 th Semester			Prerequisite		670237 – CS 211			
Course Description: Fundamentals of data communications: Essential Elements Of Data Communications: Simplex, Half-Duplex and Full Duplex Transmission, Analogue And Digital Signals, Periodic and Non Periodic Signals, Signal Parameters, Time and Frequency Domains Concepts, Types of Channels, Transmission Impairment). Transmission Media: Guided Media, Unguided Media, and Types of Propagation. Basic concepts of networking: network concepts, network criteria, and network applications and benefits. Configurations, topologies and categories of networks: line configuration, network topologies (mesh, star, tree, bus, ring, hybrid), scopes of networks (LAN, WAN, MAN), internetwork or internet, types of network connection (peer-to-peer network, server based network, combined network), intranet and extranet. Introduction to OSI and TCP/IP models: The OSI Model The OSI layers, TCP/IP Protocol Suite. Error detection and correction techniques: VRC, LRC, CRC, Checksum, and Hamming code techniques. Circuit and packet switching. Data link layer control: framing, error control, and flow control. Networking and internetworking devices. Student will be trained on the existing components and product related to Cisco such as wireless networking, Switches, routers, etc. in addition with the products, components and software of Heathkit educational systems for wireless networking.									



Course Name	Discrete Mathematics			رياضيات متقطعة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH 301	670250		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	3 rd Semester			Prerequisite		670244 – STAT 207			
Course Description: Integer functions. Equivalence modulo n, and its uses. The binomial theorem. Permutations and combinations. Counting methods: generating functions and recurrence relations. Computing generating functions. Using generating functions in counting. Graph theory. Paths and circuits. Shortest paths. Trees, binary trees, search trees, matrices and matrix operations concepts.									

Course Name	Economic System In Islam			النظام الاقتصادي في الإسلام					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	ISLAM 273	926069		2	-	2		2	-
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester			Prerequisite		ISLAM 272 - 926068			
توصيف المقرر: الاقتصاد الإسلامي: (ماهيته ونشأته وتطوره، أهميته، مبادئه، خصائصه) - المشكلة الاقتصادية وسبل مواجهتها، النظم الاقتصادية المعاصرة (الرأسمالية والاشتراكية) - العولمة الاقتصادية أهدافها وموقف الإسلام منها - البنك الدولي وأهدافه - منظمة التجارة العالمية وأهدافها. الملكية في الإسلام: تعريفها - أنواعها - مجالاتها - طرقها المشروعة - قيودها - الإسلام والحرية الاقتصادية وتطبيقاتها الاقتصادية - الإنتاج - التوزيع - الاستهلاك - الإنفاق - السياسة الاقتصادية في العقود والمعاملات - مع تكليف الطالبات بحفظ الآيات الكريمة من أول الجزء الثالث (تلك الرسل) إلى آخر سورة البقرة.									



المستوى الرابع :

Course Name	Data Structure			هيكلية البيانات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 310	670246		2	0	2		2	1
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	3 rd Semester			Prerequisite		670241 - CS 221			
Course Description: This course is complementary to the course “Fundamentals of Programming”. The aim of this course is to provide the fundamentals of data structures and algorithm design needed in the remainder of the curriculum, to introduce algorithm analysis tools, and to develop students’ problem solving and computer programming skills. Topics covered include: basic elements, data types, internal representation (Arrays, records, strings, stacks, queues, trees, lists and linked lists, records and files, pointers) and data structure manipulation such as array manipulations, sorting, searching, trees and files manipulations, string processing, stacks ,queues, and list manipulations, pointer operations... The data structures representation and manipulations are exercised using ANSI-C language.									

Course Name	Object Oriented Programming (2)			البرمجة كائنة التوجه (2)					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 321	670251		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	4 th Semester			Prerequisite		670245 – CS 311			



Course Description:

Students should be able to move on to more advanced programming techniques after taking the first object oriented programming course. The main purpose of course consists of the advanced object-oriented programming techniques such as: applets, event-driven programming, application programming interfaces (APIs) and the object oriented graphical user interfaces using SWING. Students should acquire some understanding to create a simple application that supports a graphical user interface and implement simple procedures that perform simple graphical transformations (graphics API, color models, affine transformation), design and implement event-driven programs that respond to user events (event-handling methods, event propagation, exception handling). Finally, the software validation and the testing techniques is studied (test plan creation, test case generation, black-box and white-box testing techniques, object-oriented testing), emphasis will be placed on how create, evaluate, and implement a test plan for a medium-size object oriented code.

Course Name	Database Concepts and Design			مفاهيم وتصميم قواعد البيانات					
	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	CIS 321	670253		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	4 th Semester			Prerequisite		670238 - CIS 211			

Course Description:

This course aims to discuss the basic concepts and design of database. It covers topics such as: data model, levels of abstraction, data independence, and concurrency control. Focuses on how to design databases for given problems, and how to use database effectively, these including ER model, key and participation constraints, weak entities, class hierarchies, aggregation and conceptual DB design using the ER model. Relational model: creating and modifying relation using query language, enforcing integrity constrains, ER to relational and view. Schema refinement and normal forms: Functional dependencies, reasoning about functional dependencies, normal forms, decompositions and normalization. Relational Queries: Relation algebra and calculus and commercial query languages. Object database systems: User defined abstract data type, structured types, objects; object identity; and reference type, inheritance, and database design for an ORDBMS. Students will be trained on some software tools such as: Oracle, Sybase, DB2, and Informix.



Course Name	Network Protocols & E-Commerce			بروتوكولات الشبكات والتجارة الإلكترونية					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 325	670254		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	4 th Semester			Prerequisite		670278 – CS 315			
Course Description: This course covers two parts. The first part of the course covers the principles underlying the interconnection of large numbers of computers and includes transmission technologies: Ethernet, optical fiber, gigabit networks, cellular transmission and infrared. This course covers also the network technologies: servers' clients, access control, intranets, reliable message passing, and interoperability. The second part of the course covers the electronic commerce technology. Topics include: communication and networking, mobile E-Commerce, and architecture of Web systems, data interchange, electronic payments, and all relevant application tied to EC (virtual stores, electronic government, etc...) with appropriate EC suites relying on appropriate tools like php, asp, asp-net, etc. Student will be trained on the existing components and product related to Cisco such as wireless networking, Switches, routers, etc. in addition with the products, components and software of Heathkit educational systems for wireless networking									



Course Name	Business (1)			إدارة أعمال (1)					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MGMT 290	670255		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	4th Semester			Prerequisite		670238 – CIS 211			
Course Description: This course introduces the essentials of management as they apply within the contemporary work environment. It combines a focused overview of recent scholarship with a practical approach to key functional areas (planning, organizing, leading, and controlling). Topics include the dynamic new workplace, management- past to present, ethical behavior and social responsibility, environment, global dimension of management, entrepreneurship and small business, foundation of planning, mission, goal setting, strategy formulation and implementation, planning tools and techniques, managerial decision making, organizational design and processes, managing change and innovation, individual and group behavior, communication and information technology, interpersonal skills, managing personal stress, time management, and creativity, corporate culture, work teams, motivation and leadership, empowering and delegation, managing conflict, foundation of control and value chain management.									

Course Name	Professional Responsibility			المسؤولية المهنية					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 413	670258		2	0	2		2	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	4 th Semester			Prerequisite		670247 – CIS 313			



Course Description:

This course introduces the students to the legal, social, and ethical issues of information technology and use; information rights, property rights, liability, accountability, privacy, security, crime, ethical principles, codes of ethics, "the digital divide", role of PTTs, role of government, role of law enforcement, role of business and industry; professional conduct, social responsibility, and rigorous standards for software testing and reliability, students read, write, discuss, and present reports on these topics, fraud and abuse, electronic communication privacy, mail fraud, credit card abuse, privacy protection, copyright and patent statute, communication decency, law and computer, software engineering code of ethic, name dispute resolution policy.

المستوى الخامس :

Course Name	Operating Systems			نظم التشغيل					
	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	CS 322	670252		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	5 th Semester			Prerequisite		670249 - CS 314			

Course Description:

In this course the student will study the basic concepts of operating systems (OS), the following concepts will be studied in this course: OS Overview (objectives, functions, evolution of OS, characteristics of modern OS), process description and control (process definition, process states, process description and process control), threads (definition, why use thread, relationship between processes and threads), microkernel (benefits of microkernel organization, microkernel design), uni-processor scheduling (types of scheduling, short term scheduling criteria, scheduling algorithms), memory management (memory management requirements, loading programs into main memory -fixed partitioning, dynamic partitioning, simple paging, simple segmentation-), virtual memory (paging, segmentation, combined paging and segmentation),



operating system software (fetch policy, placement policy, replacement policy, resident set management, cleaning policy, load control), I/O management and disk scheduling (I/O devices, organization of I/O function, I/O buffering, disk I/O), and file management (file management system, file organization and access, file directories, secondary storage management).

Course Name	Software Engineering			هندسة البرمجيات					
	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	CS 411	800039		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	5 th Semester			Prerequisite	670251 - CS 321 & 670253 - CIS 321				

Course Description:

This course present both technical and managerial software engineering problems, before studying in depth some life cycle phases, student should understand fundamentals aspects such as : the software life cycle and its phases, the software development models and different specialized systems. In this course, emphasis will be placed on the latest software engineering life cycle phases: the software validation (testing, testing levels, test case generation, black-box and white-box testing techniques) and the software evolution (maintenance, reuse, reengineering, legacy systems). The main topics covered in software validation include formal methods (formal specification languages, formal verification). The construction process considered as one of the inputs to testing process is not studied here; students acquire understanding of coding at programming courses. Students should acquire some fundamentals of software project management: team management; project scheduling; risk analysis; software configuration management; project management tools. Students will be trained on some software tools such as: Rational Unified Process, and Z Language.



Course Name	Algorithm Analysis & Design			تحليل وتصميم الخوارزميات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 412	802219		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	5 th Semester			Prerequisite		670250 - MATH 301			
Course Description: This course includes both algorithms and complexity, the purpose of the first part is to provide students with techniques for designing and analyzing algorithms. The algorithm design paradigms, such as Brute-force; greedy; divide-and-conquer; backtracking; branch-and-bound; heuristics; pattern matching and string/text algorithms; numerical approximation. Students should acquire some understanding on design techniques and algorithms that address an important set of well-defined problems: Depth- and breadth-first traversals; shortest-path algorithms (Dijkstra's and Floyd's algorithms); transitive closure (Floyd's algorithm); minimum spanning tree (Prim's and Kruskal's algorithms); topological sort. In addition, the course will provide different complexity characteristics (P and NP classes, NP-completeness, reduction techniques). Finally, advanced algorithm analysis is studied (randomized algorithm, dynamic programming and combinatorial optimization).									

Course Name	Computer Organization			معمارية الحاسب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 414	802220		2	1	3		2	3
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								

Level	5 th Semester	Prerequisite	670249 – CS 314
Course Description:			
<p>Register transfer and microoperations: register transfer language, bus and memory transfer, arithmetic, logic and shift microoperations. Basic computer organization and design: instruction codes, computer registers and common bus systems, computer instruction set, timing and control, instruction cycle, memory reference instructions, input-output and interrupt instructions, complete computer description, and design of basic computer. Hardwired and microprogrammed control: hardwired control methods, hardwired control examples, control memory, address sequencing, microprogram example, and design of control unit. Central processing unit: general register organization, stack organization, single-accumulator organization, instruction formats, addressing modes, data transfer and manipulation, program control, CISC and RISC computers, and examples of CISC and RISC processor. Computer arithmetic: addition , subtraction, multiplication and division algorithms, and floating point arithmetic operations. Input-output organization: input-output interface, asynchronous data transfer, priority interrupt, DMA, IOP, and serial communication. Memory organization: memory hierarchy, main memory, auxiliary memory, associative memory, cache memory, virtual memory. Student will be trained on the available software such as: MultiSim 6.01, Mentor graphics and Xilinx software product in addition with the products and components of Heathkit educational systems such as Microprocessor modules (EWS 3800 microprocessor modules) beside to the Xilinx product and components for FPGA technology.</p>			

Course Name	Logic & Proof Techniques			المنطق وطرق الإثبات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH 401	670281		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	5 th Semester			Prerequisite	670250 - MATH 301				



Course Description:

The course includes two formal systems: The proposition logic (statements, connective, conditional, negation) and predicate logic (quantifier, occurrence, and free variables). The course starts by presenting a review of the basic concepts of the set theory, functions, and relations. The emphasizes will be placed on types of the proof (direct, contra-positive, contradiction, counterexample, and existence). In addition the course covers other proof techniques useful in computer sciences such as mathematical induction.

المستوى السادس :

Course Name	Computer Data Security & Privacy			سرية وحماية بيانات الحاسب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 425	670261		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	6 th Semester			Prerequisite		670252 - CS 322 & 670254 - CIS 325			

Course Description:

This course presents relevant aspects of computer security and privacy. It includes the following topics: Security fundamentals: concepts and principles, vulnerability, threat models, attacks to computer systems. Data base and networks, cryptography: notion of public key, private key. Cryptology, authentication, digital signatures, key management and cryptography protocols, building secure systems, security in operating systems: protection mechanisms, OS services, access control, UNIX and windows NT security, network security: architecture and standards, authentication, access control, confidentiality, integrity, network management, internet security, firewalls , DNS and routers, computer security policy and procedures, and ISO security standards. Students will also be trained to use some specific security software like: PGP software.



Course Name	Language Theory & Finite Automata			نظرية اللغات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 422	670282		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	6 th Semester			Prerequisite		670281 - MATH 401			

Course Description:

The purpose of this course is to provide students with a theoretical base in formal language theory for understanding concepts related to programming, automata theory and compilation techniques. The explicit purpose of the course is to illustrate the correspondence between the generation system (grammar) and recognition system (automata). Recognition systems include deterministic and non-deterministic acceptors, process with finite state machines to recognize regular grammar and process with push-down stores, to recognize context-free grammars. Finite automata and regular language present aspects of automata theory (alphabets, languages, transition diagram, deterministic finite automata). Pushdown automata and context-free grammars employs formal language theory as the vehicle for presenting concepts related to the theory of programming languages (syntax analysis LL(k), syntax analysis LR(k)). Finally, one give an introduction to Turing's machine (recognition languages, decidable language, Church-Turing thesis), student should understand limits and capacities of Turing's machine (therefore a computer) to recognize (or not) a language.



Course Name	Human Computer Interaction			اتصال الإنسان بالحاسب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 422	670263		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	6 th Semester			Prerequisite		670251 - CS 321			
Course Description: This course provides an overview and introduction to the field of HCI. It introduces students to tools, techniques, and sources of information about HCI and provides systematic approach to design. The course increases awareness of good and bad design through observation of existing technologies, and teaches the basic skills of task analysis, and analytic and empirical evaluation methods. The student will be acquainted with the whole design process: HCI in the design process, design rules, implementation support, evaluation techniques, universal support, etc...He also studies some relevant models and theories: cognitive models, communication models, task analysis, dialog notations and design, modeling rich interaction, etc. Final chapters will cover some alternative realities, multimedia, global information systems, and the Web. Students will also participate in a laboratory where they will practice HCI techniques in an independent, self defined project. Students will be trained on some HCI software like: AlphaUIMS, SuperCard, ISA dialog Manager, InterMaphics.									

Course Name	Practical (Co-op) Training			التدريب (التعاوني) العملي					
Course Information	Course Code	Course No	Credit Units	3	Contact Hours	Training	Tot.		
	CS 444	822654				12	12 weeks		
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	Between 3 rd and 4 th year			Prerequisite		90 Credit Units			



Course Description:

This course should be taken by those students completed 90 Credit Units. The course period is 12 weeks long and must be during summer of the third academic year in. Students must be oriented in one of the companies, and well supervised so to accomplish correctly this training. The course must constitute a link between the theoretical and scientific academic background and the work environment. It provides a better understanding and a clear view of the real-world work environment. It provides also students complementary knowledge and training such as facing and dealing with real-world problems, being trained to work in team-works. After completing the summer training, students must submit a report. An oral exam is held by a committee consisting of both faculty members and outsider supervisors.

المستوى السابع :

Course Name	Project Proposal			مقترح مشروع					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 511	802221		2	0	2		2	0
Track	<input type="checkbox"/> University Requirement			<input type="checkbox"/> College Requirement			<input checked="" type="checkbox"/> Core		
	<input type="checkbox"/> Elective								
	<input checked="" type="checkbox"/> Computer Science			<input type="checkbox"/> Computer Information Systems					
Level	7 th Semester			Prerequisite		Department Approval			

Course Description:

In this course, students choose a project subject and define the objectives of the project under the supervision of a faculty member, and prepare the project proposal including: defining the statement of the problem, defining system requirements, defining different candidate solutions for the problem of study, making feasibility study for different candidate solutions, defining the best candidate solution, defining time table schedule. Students should present the project interim report at the end of the semester, grading will be obtained by oral examination to be held by a committee from faculty members. Students will be allowed to work individually or in groups.



Course Name	Numerical Analysis			التحليل العددي					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	MATH 411	670283		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	6 th Semester			Prerequisite	670250 - MATH 301				
Course Description: Numerical analysis is concerned with finding numerical solutions to problems that analytical solutions do not exist or are not readily obtainable. This course provides an introduction to the subject and treats the topics of solving nonlinear equations in one variable, interpolation and approximation of functions by simpler computational building blocks, numerical differentiation and divided differences, numerical integration, numerical solutions of ordinary differential equations and boundary value problems, and direct methods for solving linear systems. These topics are of great practical importance in science, engineering, and also have intrinsic mathematical interest.									



Course Name	Web-Based Systems			النظم المبنية على الويب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 423	670264		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	6 th Semester			Prerequisite		670253 - CS 321 & 670254 - CIS 325			
Course Description: Overview of web based application, setup and configuration of web server, setup and configuration of eclipse and MySQL, Introduction to HTML: Basic Tags, Tables, Lists, Form, Frames, Images, Hyper links, Introduction to JDBC: Drivers, Types of Drivers, Connection pooling, Java Server; Pages: Scriptlet, Expression, Declaration, JDBC & JSP, Implicit JSP Objects, Introduction to XML; Introduction to JavaScript: JavaScript Popup Boxes, Functions, Events, Objects, Web Security and credit card Transactions; Web Performance: Packaging and Deployment, Internationalization and localization. Java Servlet, Parameter externalization.									

Course Name	Artificial Intelligence			الذكاء الاصطناعي					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 512	802222		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th Semester			Prerequisite		670281 - MATH 401			

Course Description:

This course is an introduction to AI topics, its main purpose is to provide students with techniques for representing knowledge and their treatments in a software (knowledge base, meta-knowledge, rule, frame, script, Bayesian nets, fuzzy sets and possibility theory). Student should know advantages and difficulties to make explicit intelligence, it means he should know how to represent knowledge and reasoning. The purpose is to produce students capable of representing knowledge and solving problem using classic and heuristic search (Problem spaces, brute-force search, best-first search, Hill-Climbing, A*, minimax search, alpha-beta pruning), reasoning and inference techniques (forward and backward chaining, inference in propositional logic and first order logic, no monotonic inference, probabilistic reasoning, default reasoning, temporal and spatial reasoning, fuzzy logic). The course provides a set of tools for solving problems that are difficult or impractical to solve with other methods, such as: speech and language understanding, computer vision, multi-agents systems, speech recognition, natural language understanding and robotics. These tools capabilities are covered by a broad set of general and specialized knowledge representations and reasoning mechanisms. The student has to know when an AI approach is appropriate for a given problem, and to be able to select and implement a suitable AI method. The main topics covered include an overview of knowledge based systems and an practical view of expert systems, their use as an organizational decision making tool and method for representing knowledge and fundamental techniques for developing knowledge-based systems. Students must be introduced to Prolog, Lisp, and moreover some popular knowledge-based systems software like: CLIPS, Protest, and some expert system shells like Corvid, Visirule, Babylon, mike, experts.

Course Name	Mobile Computing			الحوسبة المتنقلة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 513	670292		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th Semester			Prerequisite		670254 - CIS 325			



Course Description:

This course presents aspects of mobile computing. It shows how mobile devices like PDA's, notebooks, and mobile phones can work with fixed network computers in building files, database and web client-server systems for achieving the goal of computing in wireless mobile environment anytime and anywhere. The technologies involved to realize such a system are covered as well as the fundamental concepts of mobile computing. This course focuses on data management in mobile computing environment, and in particular in distributed mobile file, database, web client-server, and object systems. Students in this course are assigned a project to demonstrate their ability to handle mobile computing operations. The student will use some systems like Aglete and Concord systems.

المستوى الثامن :

Course Name	Project Implementation			تنفيذ مشروع					
	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	CS 521	670293		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement			<input type="checkbox"/> College Requirement			<input checked="" type="checkbox"/> Core		
	<input type="checkbox"/> Elective								
	<input checked="" type="checkbox"/> Computer Science			<input type="checkbox"/> Computer Information Systems					
Level	8 th Semester			Prerequisite		802221 - CS 511			

Course Description:

Project implementation course offers students an opportunity to assemble their knowledge acquired throughout their BS curriculum to realize a final project. This would require them to gather information about the proposed subject and realize a final report as well as to develop a system practically. At this stage, students must carry on all phases system development of the subject already defined in the precedent course (Project proposal), and under the supervision of the same supervisor (as possible). At the end of the semester, students are asked to make an oral presentation with the presence of faculty members as referees.



Course Name	Selected Topics in Computer Sciences			موضوعات مختارة في علوم الحاسب					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 522	670294		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input checked="" type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	8 th Semester			Prerequisite		802221 - CS 511			
Course Description: Topics are selected from different areas in Computer Science that are not covered in the description of the courses listed in the curriculum. This course will cover subjects of recent issues and trends in computer science and may be let to the willing of the instructor, and must cover but not limited to the following advanced subjects: new trends in the Web technology, new trends in distributed and mobile computing, new trends in Artificial intelligence, new trends in software engineering, etc. Students are assigned individual projects in these specific fields: Project Reports and seminars, so to demonstrate their ability in research and oral presentations. Projects are discussed in workgroups so to involve the whole class in these subjects.									

Course Name	Political System In Islam			النظام السياسي في الإسلام					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	ISLAM 252	926070		2	-	2		2	-
Track	<input type="checkbox"/> University Requirement <input checked="" type="checkbox"/> College Requirement <input type="checkbox"/> Core <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	2 nd Semester			Prerequisite		ISLAM 273 - 926069			



توصيف المقرر:

النظام السياسي : تعريفه ، وخصائصه، أركان الدولة، الوطن، المجتمع، السلطة، أهداف الدولة أسس الدولة ، مبادئ الحكم في الإسلام ، اختيار الحكام ، البيعة ، واجبات الحكام ، سلطات الدولة ، حقوق المسلم ، غير المسلم في الدولة الإسلامية، مظاهر النظام السياسي في المملكة العربية السعودية، النظام الأساسي للحكم، الشورى، القضاء، الأمن، الحسبة، والدعوة .
حقوق الإنسان في الإسلام : تعريفها أهميتها ، مصادرها ، ضوابطها ، الحقوق الأساسية ، المساواة ، الحرية ، الحياة ، العمل ، العدل ، السلامة .
الإعلان العالمي لحقوق الإنسان في الوثائق الدولية وموقف المملكة منه ، مع تكليف الطالبات بحفظ سورة الكهف .

مقررات مختارة:

Course Name	Basic Language Translator-Compiler			مترجمات لغات البرمجة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 514	670284		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite		670282 – CS 422			
Course Description: Fundamental concepts in the design and implementation of compilers: lexical analysis, syntax analysis, intermediate code generation, code generation and optimization.									



Course Name	Modeling & Simulation			النمذجة والمحاكاة بالحاسب الآلي					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 515	670285		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input checked="" type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite	670250 - MATH 301				
Course Description: There are four classifications of models: discrete or continuous, probabilistic or deterministic, static or dynamic, and open loop or closed loop. The course objective is to produce students who are capable of modeling and simulating discrete, probabilistic, dynamic, and open loop system as well analyzing, verifying and validating the simulations results. The purpose of this course is to provide students with a theoretical base in discrete-event modeling and simulation for applying concepts related to computer networks and information system modeling (random numbers, Monte Carlo methods, Probabilistic modeling, Queuing theory models, Markov models and chains, arrival laws, service laws, birth-dead process, stochastic process, stationary process, stochastic analysis, networks analysis and routing algorithms, verification and validation of simulation models). Discrete production systems are studied (time flow mechanism, Petri nets). Students should complete a major project using simulation models and a standard simulation language. Students will be trained on some software tools such as: ARENA, QNAP, and PETRI NETS									



Course Name	Advance Programming Language			لغة برمجة متطورة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 516	670286		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement			<input type="checkbox"/> College Requirement			<input type="checkbox"/> Core		
	<input checked="" type="checkbox"/> Elective								
	<input checked="" type="checkbox"/> Computer Science			<input type="checkbox"/> Computer Information Systems					
Level	7 th -8 th Semester			Prerequisite		670252 - CS 322 & 670282 – CS 282			
Course Description:									
<p>Work with the .NET Frame work, with Common Type System and class libraries, Decompose applications into libraries and namespaces, Recognize and use common .NET and C# idioms like IDisposable and using Write code that works well with the garbage collector, Handle and throw exceptions properly, Write Windows Forms and WPF applications, Design and develop network services using WCF, Develop web applications using ASP.NET , You will learn how to develop both rich client, Windows Forms applications as well as effective and efficient Web applications. In addition, many of the supporting technologies and classes, such as ADO.NET and Web Services, will be covered. Connected data access, Connecting to a database, Data Readers, Stored Procedures, Introduction to Web Services, Introduction to UDDI, Introduction to WSDL, Consuming a Web Service , Creating a Web Service , Serializing .NET types via Web Services</p>									

Course Name	Data Mining and Warehousing			التنقيب عن وتخزين البيانات					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CIS 517	670287		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement			<input type="checkbox"/> College Requirement			<input type="checkbox"/> Core		
	<input checked="" type="checkbox"/> Elective								
	<input checked="" type="checkbox"/> Computer Science			<input checked="" type="checkbox"/> Computer Information Systems					
Level	7 th -8 th Semester			Prerequisite		670241 – CS 221 & 670253 – CIS 321			



Course Description:

Data mining concepts: why data mining?, cycles of data mining, the various cycles in practice, data mining methodology, measurement of the effectiveness of data mining. It will introduce various data mining techniques: the market based analysis, clustering, link analysis, decision trees, artificial neural networks, genetic algorithms,; data mining and the corporate data warehouses, OLAPs, and choosing the right tool for the job, putting data mining to work. The course introduces also data warehouse concepts: Gradual changes in computing, dynamic reports, data Marts, operational Data stores, and data warehouse cost-benefit analysis. Some other concepts are described such as: Warehousing strategy, warehouse management and support processes, data warehouse planning, data warehouse implementation, data warehouse maintenance and evolution, warehouse applications and warehouse software, and recent warehouse trends. Student will be trained on some well-known data mining software like: Matryx98, Cart, Megaputer PolyAnalyst, KnowledgeAccess, Cognos Power Play.

Course Name	Multi Agents			تعدد الوكيل					
	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
Course Information	CS 523	670288		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite		670252 – CS 322			



Course Description:

Multi-agent system is a subfield of artificial intelligence. It studies the interactions of computational agents. These agents can represent real world parties, and they can have different preference structures. A key research goal is to design open distributed systems in a principled way that leads to globally desirable outcomes even though every participating agent only considers its own good and may act insincerely. The course covers relevant results in AI, game theory, market mechanisms, voting, auctions, coalition formation, and contracting. Effects of different computational limitations of the agents are discussed. Software tools for multi-agent systems are also presented. This course is elective and targeted to senior-level undergraduates. Application examples are presented in networks, operating systems, and manufacturing. Students will be trained on a multi-agent system software like: IDEAL: That is a Web-based, distributed, multi-agent learning system.

Course Name	Computer Vision & Computer Graphics			الرؤية والرسومات بالحاسب الآلي					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 524	670289		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite		670251 – CS 321			

Course Description:

Computer graphics is extremely exciting to students and can serve as an excellent motivator for students, particularly to the extent that the course structure offers students the opportunity to create graphical systems as complementary skills to the basic curriculum courses. Although implementation must be a central component of this course, it is equally important to emphasize the mathematical underpinnings of the area, thereby reinforcing the relationship between theory and practice. The main topics of the course include: Computer vision concepts, graphic systems, fundamental techniques in graphics, graphical algorithms, graphical user-interface design, graphical user-interface programming, and computer animation. Students will also be trained on some well-known graphics software like: Lxb (GUI builder), AlphaUIMS, and many other User Interface Software tools.



Course Name	Advanced Operating Systems			نظم تشغيل متقدمة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 525	670290		3	0	3		3	0
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite		802219 – CS 412 & 670254 – CIS 325			
Course Description: This course presents a review of the basic concepts of the operating systems (processes and threads, process states, process scheduling), an introduction to distributed systems (what is a distributed system? What is a real-time system? What is a parallel system?) And some sample distributed application. This course includes both concurrency and distributed systems; the purpose of the first part is to provide students with some understanding on mutual exclusion and synchronization (principles of concurrency, mutual exclusion -software and hardware approaches-, semaphores, monitors, message passing, readers/writers problems) and on deadlock and starvation (principles of deadlock, deadlock prevention, deadlock detection, deadlock avoidance, dining philosophers problem). The distribution concerns: memory management (review of centralized memory management, simple and shared memory model, distributed shared memory and memory migration), distributed process management (distributed scheduling algorithm choices, scheduling algorithm approaches, coordinator elections and orphan processes) and distributed file systems (distributed name service, distributed file service, distributed directory service and NFS. X.500). Students will be trained on some software tools such as: Unix, WINDOWS.NT, and CORBA.									



Course Name	Mobile Application Programming			برمجة تطبيقات الأجهزة المتنقلة					
Course Information	Course Code	Course No	Credit Units	Lec.	Lab.	Tot.	Contact Hours	Lec.	Lab.
	CS 526	670291		2	1	3		2	2
Track	<input type="checkbox"/> University Requirement <input type="checkbox"/> College Requirement <input type="checkbox"/> Core <input checked="" type="checkbox"/> Elective <input checked="" type="checkbox"/> Computer Science <input type="checkbox"/> Computer Information Systems								
Level	7 th -8 th Semester			Prerequisite		670254 – CIS 325			

Course Description:

This course gives an introduction into the programming of applications for smart mobile phones. The intention of this course is to provide students with information to make their own applications for mobile phones. Main focus is on applications with network support such as client-server applications. So far Symbian OS, Windows Mobile and Maemo are taken under consideration as development platforms. Python for S60, Java 2 Micro Edition (J2ME) and Symbian C++ are the programming languages chosen for applications' development during the course. The course can be held at different levels offering basic and enhanced knowledge, thus students will gain technical issues that improve their programming skills and opens mass of jobs opportunities.

The course will give a detailed introduction to the different platforms and programming languages for mobile phones. It will also provide students with the skills to program in Python for S60. After this course the students will be able to program their own applications.