

الخطة الدراسية لقسم الحاسب الالى

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Computer Skills

130 تقن – مهارات الحاسب (3 ساعات)

Overview of computer systems—hardware, operating systems, and microcomputer application software, including the Internet, word processing, spreadsheets, presentation graphics. Current issues such as the effect of computers on society, and the history and use of computers in business, educational, and other modern settings are also studied, Keyboarding proficiency.

139 نجم – مصطلحات الحاسب باللغة الانجليزية (ساعتين) Computer Terminology

A collection of electronic parts that allow software programs to run that perform certain tasks. A computer can accept input, change data, store data and display data.

The main purposes for this course are: provide students with a solid basis of specialist language for their careers and study, explain and discuss the main concepts of the concerned field specialist language, enhance students' abilities to use specialist language in practical situations, inculcate and develop the skills to use Computing Terminology in English.

Fundamental of Physic

100 فيز – اساسيات الفيزياء (3 ساعات)

General Physics I is the first of a two semester sequence in General Physics designed to present concepts and applications of the following topics: kinematics, dynamics, gravitation, energy, momentum and heat. There are three hours of lecture and two hours of laboratory each week.

Mathematics 2

121 رياضيات (2) (3 ساعات)

This course is designed to develop the topics of linear algebra, systems of linear equations, matrices, determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors, and linear transformations.

English 2

126 نجم – اللغة الانجليزية (2) (6 ساعات)

General description in the form to be used for the Bulletin or handbook should be attached)

Note that:

- R: stands for Reading
- W: stands for Writing
- V: stands for Vocabulary
- R: stands for Review

What is the main purpose for this course?

- Preparing students for what to expect from higher education (university or college)
- Encouraging students to think about the skills they already have acquired, and which they will need now as students and later in their professional life
- Providing resources to help university students evaluate, reflect upon, and manage their own learning
- Helping students to understand more about how learning, intelligence, and memory work, and how to develop critical and analytical thinking

202 عال – مبادئ البرمجة والخوارزميات (3 ساعات)

Basic of Programming and Algorithms

This course gives an introduction about algorithms and programming. The course gives an overview about what an Algorithm is, how it can be designed, approaches for solving computational problem and finally a first interaction of student with computer programming to solve the problems using JAVA.

Internet Technology

304 تقن – تقنيات الإنترنت (3 ساعات)

Presents the Internet from a dynamic workplace perspective. Reflects on how emerging technologies will empower society to do more with the Internet. Covers core Internet technologies, Web page design and authoring, computational thinking, networking fundamentals, and technology planning. Provides a rich array of labs and optional assignments.

Introduction to Database

201 تقن – مقدمة في قواعد البيانات (3 ساعات)

This course covers a wide array of topics such as characteristics and advantages of the database management systems (DBMS), concepts of database and its architecture, data models, database schemes and instances, database models, relational data model (ER-diagram) and SQL (Structured Query Language); including data definition, queries, update, statements, and views in SQL, database design; functional dependencies, normal forms, and relational algebra, relational model constraints; domains, keys, and integrity constraints..

Networks 1

202 تقن – شبكات 1 (3 ساعات)

This course presents an overview of the technology, architecture and software used by systems of network connected computers. The course will cover data transmission, local area network architecture, network protocols, inter-networking and distributed system.

210 رياض – مبادئ الإحصاء والاحتمالات (3 ساعات)

Principles of Probabilities & Statistics

This course introduces fundamental concepts of probability and statistics. This course presents basic statistical principles and methods. It focuses on descriptive statistics, probability theory, Binomial, Poisson, z, t, and Chi-square distributions, central limit theorem, confidence intervals and hypothesis testing. One hr/wk is spent in the microcomputer laboratory exploring software applications of statistical concepts presented in the lecture. No previous computer experience is assumed.

Digital Logic Design

211 عال – تصميم المنطق الرقمي (3 ساعات)

This course introduces the basic principles and concepts of modern digital systems. This includes the study of combinational and sequential systems using standard modules such as shifters, adders, registers, and counters etc. The advanced techniques for designing, analyzing and implementing the digital circuits are introduced with an emphasis on practical design techniques and circuit implementation. In which, design by using a hardware description language (HDL), such as VHDL to write a behavioral model of the circuit's functionality, will be introduced as well.

Major topics include number systems, Boolean algebra, logic components, combinational and sequential logic analysis and design, and digital subsystems. The laboratory provides more insight into the design and implementation of digital systems using the hardware components as well as programmable implementation technologies.

Programming Language 2

212 عال – لغة برمجة 1 (3 ساعات)

This course is an introductory course of JAVA programming and is one of the core courses for computer programming. Topics focus on the programming essentials using java. The basic requirement for learning programming is logic and algorithm, but this course focus on learning details of JAVA programming and problem solving by programming.

203 تقن – تنظيم وعمارة الحاسب (3 ساعات)

Computer Architecture and Organization

This course provides students with basic knowledge in: Fundamentals of computer design, Performance evaluation, Instruction set principles, Processor organization and design, Pipelining, Instruction and arithmetic pipelines, Dynamic and speculative execution, Precise exception, CISC, RISC, and VLIW processors, Memory Hierarchy, Virtual memory, Multilevel caches, Storage and I/O, Introduction to Multicore, multiprocessors, and clusters, New trends in computer architecture.

Discrete Mathematics

207 رياض – الرياضيات المتقطعة (3 ساعات)

Introduction to Computer Applications is designed to familiarize students with computers and their applications. It will also emphasize the use of computers and technology throughout their high school, college, and future careers. Students will learn fundamental concepts of computer hardware.

Programming Language 11

213 عال – لغة برمجة 11 (3 ساعات)

This course is an introductory course of JAVA programming and is one of the core courses for computer programming. Topics focus on the programming essentials using java, object-oriented concepts of java, inheritance, polymorphism, encapsulation and abstraction etc.

215 عال – نظم إدارة قواعد البيانات (3 ساعات)

Database Management Systems

This course include a wide array of topics, the main objective of this course is to expose the student to the various ideas of database design concept, storage and file structure, indexing and hashing techniques, query processing and optimization, transaction processing, concurrency control, and recovery system

System Analysis and Design

221 نما – تحليل وتصميم النظم (3 ساعات)

System analysis and design deal with planning the development of information systems through understanding and specifying in detail what a system should do and how the components of the system should be implemented and work together. System analysts solve business problems

through analyzing the requirements of information systems and designing such systems by applying analysis and design techniques. This course deals with the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts. The practical component of this course is object oriented and use-case driven, requiring students to go through the steps of system analysis and design to solve a real-life business problem

Web Programming

204تقن – برمجة الويب (3 ساعات)

This course provides an introduction of web-development techniques that use HTML, CSS and JavaScript as a web development essential including database connectivity (JDBC), Basics of PHP, Basics of Java for Web Development and Basics of Asp.Net as an advanced technique of web programming.

Operating Systems

205 عال – نظم التشغيل (3 ساعات)

This course presents the basic concepts, modules & algorithms that work as intermediary programs between the user and the hardware, known as operating systems. It covers the basic concepts of recent operating systems how they are designed and the way they work in terms of their efficiency & reliability. Also, it compares the techniques used inside the Operating systems in terms of their speed and use of space.

Artificial Intelligence 208 عال – مقدمة في الذكاء الاصطناعي (3 ساعات)

This course is an introductory course to artificial intelligence. The purpose of this course is to provide an overview of this field. We will focus on problems in the field of AI and techniques and algorithms for solving those problems, therefore we will cover topics including: agents, search, planning, Uncertainty and learning. Students will not be expected to have any prior knowledge of AI, but they will be expected to have good programming skills and a grasp of basic techniques for analyzing computer algorithms.

Data Structure 219 عال – تراكييب البيانات (3 ساعات)

this course is to provide an introduction to basic data structures, and algorithms for manipulating them, by using java programming language (Data types, arrays, stacks, queues and lists . Searching and sorting; a mixture of review and new algorithms . Priority queues . Trees: threaded, balanced (AVL-, 2-3-, and/or B-trees), tries . Graphs: representations; transitive closure; graph traversals; spanning trees; minimum path; flow problems

This course specifically has the following objectives: The fundamental design, analysis, and implementation of basic data structures and algorithms; The analysis and evaluation of the data structure needs of particular problems; The design, analysis, and implementation of java programs by using basic data structures and algorithms

220 عال – مقدمة في هندسة البرمجيات (3 ساعات)

Introduction of Software Engineering

This course covers the fundamentals of software engineering, including understanding system requirements, finding appropriate engineering compromises, effective methods of design, coding, and testing, team software development, and the application of engineering tools. The course will combine a strong technical focus with a capstone project providing the opportunity to practice engineering knowledge, skills, and practices in a realistic development setting with a real client.

301 عال – المعالجات الدقيقة ولغة التجميع (3 ساعات)

Microprocessor and Assembly Language

This course includes an introduction to the 32-bit Intel architecture with programming techniques utilizing the Intel microprocessor and coprocessor family. Concepts include: programming modes, branching, flags, stacks, procedures, macros, interrupts, arithmetic and logic operations, multiple precision arithmetic and string operations. Extensive laboratory work is done on small systems.

Networks 11

305 تقن – شبكات 11 (3 ساعات)

This course assumes familiarity with the basics of network architecture including the physical layer, the link layer, the network layer, and the transport layer. The course's topics include: an introduction the internet, the World Wide Web (WWW), and the Hypertext Transfer Protocol (HTTP), internet servers, high speed networks, optical networks, cellular networks, fixed infrastructure networks, multicast, intranet and internet routing protocols, comparison between distance vector and link state routing mechanisms, encryption, and resource reservation.

Information Security

322نما – امن المعلومات (3 ساعات)

. This course consists of Introduction to Information Security, Need for Security, Application Security, operating System Security, Web Security, Planning for Security, Security Technology: Firewalls, Intrusion Detection and Prevention Systems, Cryptography, Implementing Information Security, Student study the optimum protection strategies from harmful software from the internet and the protection techniques. Finally, complete Computer security for optimum security levels

Computer Graphics

353عال – الرسم بالحاسب (3 ساعات)

This course is an amalgamation of the various basic concepts of Computer Graphics involving algorithms and practical sessions with Java (2D and 3D API's). A strong part for this course is the use of Blender (Open Source) to teach the concepts of graphics in details and making the students work on

the system. Project design and conceptual ideas will be used in the system to enhance the capability of the course taker in graphical designing and animation effects. All programs depending on the topics can be created in C/Java and some additional Blender project must be taken in practical sessions.

410 تقن – الوسائط المتعددة وتقنيات الويب المتقدمة (3 ساعات)

Multimedia and web technology

This course is to get students acquainted with the latest Multimedia and web application development Tools. The students will acquire advanced skills in web development along with the real hands-on experience to build complex web applications. After having completed this course, students will have:

1. A thorough knowledge of all advanced web technologies.
2. Topics include the Multimedia technologies.
3. Web development process.
4. Advanced layout and design features.
5. Advanced study of scripting languages.
6. Adobe flash action scripting web application designing patterns.
7. Web services.
8. Database concepts for web and the latest web development technologies introduced by Microsoft and Oracle.

Compilers

410 عال – المترجمات (3 ساعات)

This course is a module introduces topics include compiler design, lexical analysis, parsing, symbol tables, declaration and storage management, code generation, and optimization techniques. The aim of this module is to show how to apply the theory of language translation introduced in the prerequisite courses to build compilers and interpreters. It covers the building of translators both from scratch and using compiler generators. In the process, the module also identifies and explores the main issues of the design of translators. The construction of a compiler/interpreter for a small language is a necessary component of this module, so students can obtain the necessary skills.

411 عال – تحليل وتصميم الخوارزميات (3 ساعات)

Design and Analysis of Algorithms

This course is designed keeping in mind that the students must develop a sense of logic design and capability building for the problem solving. In the field of computation the major part is the logic which solves a problem keeping in mind the various complexities of time and memory. Various tools are available to solve these problems. This course aims to develop problem solving abilities using mathematical theories in the students. To apply algorithmic strategies while solving problems that are practical and logical in nature which can be useful to solve various computation issues. It also aims to develop time and space efficient algorithms thereby increasing the productivity and decreasing the memory capacity to save

space and other overloads. Finally the course targets the use to study algorithmic examples in distributed, concurrent and parallel environments.

412 عال – التفاعل بين الانسان والحاسب (3 ساعات)

Human Computer Interaction

General description the design and use of computer technology, with a focus on the interfaces between people (users) and computers.

432 عال – مواضيع مختارة في علوم الحاسب 1 (3 ساعات)

Selected Studies in Computer Sciences 1

Mobile Application Development is a project-oriented course which strongly emphasis on application development for the mobile operating systems. The theoretical part of the course covers all fundamental concepts of mobile development and the practical part teaches students how to build mobile's apps, for Android using Eclipse, Android Studio and for iPhones using X-code & iOS SDK. At the end of the course students are expected to complete a major project with the goal of releasing an app on mobile apps Market place

Training Field

477 عال – التدريب الميداني (3 ساعات)

يعرف التدريب الميداني بأنه مجموعة الخبرات التي تقدم في اطار إحدى المؤسسات او واحد من مجالات الممارسة بشكل واع ومقصود والتي تهدف الي نقل الطلاب من المستوي الذي هم عليه من حيث الفهم والمهارة والاتجاهات الي مستويات تمكنهم في المستقبل من ممارسة الخدمة الاجتماعية بشكل مستقل و إعداد الطالب وتزويده بالمهارات اللازمة للعمل في المؤسسات والجهات ذات العلاقة بالتخصص ، وذلك من خلال التدريب العملي لها وفق برنامج تدريبي مشترك بين القسم وجهة التدريب.

Graduation Project 1

488 عال – مشروع التخرج 1 (3 ساعات)

The Graduation Project (GP) represents the highest achievement of Computer Science student's undergraduate experience, enabling him or her to apply fundamental computer science principles to the solving technical and business related problems. It provides a systematic process where students can select an area of interest and focus on solving the problem of a specific topic. The GP is known as a compulsory project for the students to complete at the end of their program.

Student should have a case study in his specialized topic and at the end he will write an essay in an English language. There are no specific guidelines concerning the length of an essay but not to exceed 60 pages, but students are reminded that an accurate and concise essay usually indicates a better understanding of the topic. The organization of the essay should follow that of a typical research paper, as outlined (Title page , Abstract , Introduction Materials & Methods , Results , Discussion , Conclusions , Acknowledgements , References)

Modelling and Simulation

420 عال – النمذجة والمحاكاة (3 ساعات)

The course description is the fundamentals and techniques for designing and using simulation, modeling, and optimization algorithms with applications in system performance modeling, business infrastructure modeling, and distributed and parallel computing. An introduction to advanced complex systems models

Cryptography

421 عال – التشفير (3 ساعات)

This course is an introduction to the basic theory and practice of cryptographic techniques used in computer security. We will cover topics such as encryption (secret-key and public-key), message integrity, digital signatures, user authentication, key management, cryptographic hashing, Network security protocols (SSL, IPsec), public-key infrastructure, digital rights management, and a bit of zero-knowledge protocols.

Computer Ethic

423 عال – اخلاقيات الحاسب (3 ساعات)

The course introduces students to the topics of computer ethics including: definitions, rules & policies of computer ethics, hacking, viruses, Internet ethics, freedom of expression on the Internet, computer professionals and social responsibilities, software copyright, intellectual property, software piracy, cyber law and privacy & security of computerized information.

Selected Studies in Computer Sciences 11

Introduction to Cisco Network Devices (ICND1)

This course focuses on providing the skills and knowledge required to install, operate, configure, and verify a basic IPv4 and IPv6 network, including configuring a LAN switch, configuring an IP router, connecting to a WAN, and identifying basic security threats.

At the end of this course students should be able to complete the configuration, implementation and troubleshooting of a small branch network under supervision.

499 عال – مشروع التخرج 11 (3 ساعات)

Graduation Project 11

The student should submit the essay and give at least couple of seminars on his work then he has to set a viva-voice.

Oral presentations are a very good measure of student understands of a subject and their ability to verbally explain the subject to someone else. Finally student should sit for oral examination. Oral examinations may be conducted preferable by one external or one internal examiner. Oral examinations typically have two main purposes. Firstly, the oral exam allows an examiner to ascertain the comparability of a degree grade amongst different educational institutions. Secondly, it allows the examiner to confirm or improve the appropriate degree grade classification for a student that may be just under the borderline for a higher degree grade. Oral examinations are not just an assessment of the student's performance-oral exams are usually an opportunity for the examiner to get feedback from the students on the performance of the department and university.