The List of Computer Department Course Descriptions

Introduction to Computer Science (103)

Credits: 3

Course Description:

Provide students with an overview of the many disciplines within computer science. Introduce students to different aspects of the discipline without overwhelming them with technical detail. These topics include computer and data, computer hardware, computer software, data organization, and advanced topics. Students are able to have a broad perspective of the field, which makes them better prepared for future courses.

Programming Language 1 (153)

Credits: 3

Course Description:

This course introduces the student to basic programming through a study of the concepts of program specification and design, algorithm development, and coding and testing using a modern software development environment. Students learn how to write programs in a high- level programming language. Topics covered include fundamentals of algorithms, problem solving, programming concepts, control structures, and functions. Throughout the semester, problem solving skills will be stressed and applied to solving computing problems. Weekly laboratory experiments will provide hands-on experience in topics covered in this course.

Computer Applications (158)

Credits: 3

Course Description:

This course for learning a group of Microsoft Office programs, that is used for editing text(Microsoft Word), presentation program (Microsoft Power Point), building data base structure (Microsoft Access), formatting and editing tables(Excel), work with Internet Explorer and Microsoft Outlook.

Information skills (201)

Credits: 3

Course Description:

This course focuses on the fundamentals of information security that are used in protecting both the information presenting in computer storage as well as information traveling over computer networks. In this course, students will look into such topics as fundamentals of information security and history, computer security technology and principles, security management and access control, classical and modern cryptography algorithms. By the end of this course, students will be able to describe major information security and cryptography issues and trends, and can be in the position to advise an individual seeking to protect his/her data.

Programming Language 2 (206)

Credits: 3

Course Description:

A java programming course, Topics include: formal languages; data types and variables; control structures; primitive and reference data types; methods and modular programming; introduction to abstract data types and classes; simple algorithms; and programming conventions and style. Satisfies the Mathematics requirement for General Education. Lecture and lab.

Operating Systems (253)

Credits: 3

Course Description:

- Introduce the students to the essential part of any computer system that is Operating system.
- To demonstrate Process Management and Process Scheduling.
- To use CPU Scheduling to solve the different situations.
- To define Deadlocks and Methods for Handling Deadlocks.
- To introduce the critical section problem and its hardware and software solutions.
- To introduce the concept of atomic transaction.
- To provide a detailed description pf various ways of organizing memory hardware.

To discuss various memory – management techniques, including paining and segmentation

Database Management Systems (258)

Credits: 3

Course Description:

This course introduces the fundamentals concepts necessary for designing, using, and implementing database systems and database applications. Relational Database systems concepts and Architecture ,Entity-Relationship Model, relation model and Algebra , and SQL as Relation Database language.

Internet Programming (301)

Credits: 3

Course Description:

In this class, students will understand the concept of web design and programing. HTML and CSS Scripting languages will be used to build a website from scratch.

Data Structures and Algorithms (302)

Credits: 3

Course Description:

The purpose of this course is to introduce the student to several basic and advanced data structures and their use in modeling and solving practical problems. Searching, sorting, tree algorithms and the main concepts of complexity theory are presented.

System Analysis (304)

Credits: 3

Course Description:

Information systems are crucial to the success of modern business organizations, and new systems are constantly being analysed and designed to make businesses more productive, efficient, and competitive. Information systems analysis and design are a set of processes in which technical, organizational, and human aspects of a system are analysed and changed with the intent of creating a better system. Although advances in technology continually provide us with new capabilities, the processes of systems analysis and design are still highly dependent on the skills of individuals and the quality of their collective teamwork. Thus, the purpose of this course is to provide students with an opportunity to develop the skills required for effectively analysing and designing information systems. Students will be exposed to various techniques and tools that are available for systems analysis and design as well as to the fundamental concepts underlying the analysis and design processes involved.

Computer Maintenance (351)

Credits: 3

Course Description:

In this class, students will be able to assemble pc from scratch. Install operating system and programs on the assembled pc. Know in detail all the components in the pc and how they communicate with each other.

Programming Language 3 (352)

Credits: 3

Course Description:

Advanced course using the Java programming language which concentrate on the object-oriented concept, and graphical user interface.

Artificial Intelligence (401)

Credits: 3

Course Description:

Students taking this course should come away with a broad understanding of the methods employed in current artificial intelligence systems. Introduce the students to the set of theoretical and computational search techniques that serve as a foundation for the study of Artificial Intelligence. To know what is AI, and its brief history. To define Solving problems by searching. To demonstrate informed search algorithms. Also use Backtracking search for Constraint Satisfaction Problems. To define Knowledge-Based Agents and Propositional Logic, it's Very Simple Logic. FOL will be discussed and its Syntax and semantics. In addition, students will have the background needed for advanced courses in the area

Computer and Society (403)

Credits: 3

Course Description:

You are expected to conduct yourself in a businesslike and professional manner during the selection, proposal and project stages. The guidelines provided below are intended to help make you aware of the expectations for the various phases of the project.

1. Selecting a Project
2. Regular Meetings

3. Project Proposal
4. Progress Report
5. Oral Presentation
6. Poster Fair
7. Final Report
8. Grades
9. Nature of The Project
10. Responsibilities
11. Report Requirements

Computer Networking and Management (451)

Credits: 3

Course Description:

In this class, students will understand the network concept from different aspects. How to connect networks, troubleshoot networks and also designing networks. Students will work with some Cisco simulations so they can understand more about network devices.

Advanced Data Structures (402)

Credits: 3

Course Description:

This course covers data structures implementations in C++ programming language. It also covers the fundamental computing algorithms such as sorting and searching algorithms, hash tables and hashing, heaps, multiway trees, representations of graphs and graph traversals.

Digital Fundamentals (320)

Credits: 3

Course Description:

This is the fundamental course in computer engineering. Digital electronics and computers surround us. This course will provide the fundamental background needed to understand how these systems work and how to design digital circuits. We begin by covering the mathematical concepts necessary in the study of digital systems. We will then move onto electronic gates and how digital logic works. We will design and analyze combinatorial circuits, and show how to construct the minimal (least number of gates) circuit necessary to implement a specific function. We will then move on to sequential circuits which add a concept of memory or feedback to the combinatorial design. We will analyze and design these circuits. Finally, we will look at common electronic components (such as counters and shift registers) and then look into programmable logic devices.

This course will stress fundamentals. It is imperative that the concepts covering in this class are well understood if any further study in computer engineering is to be undertaken. We will pay particular attention to design principles and techniques, timing analysis, and finite state machines.

The material covered in this course is not hard, but it does require significant amounts of effort, especially if it is your first exposure to these topics and to design in general (and it will be for most students!). Be prepared to work hard...and come out of this course with a good knowledge of the fundamentals of computer engineering and digital systems.

Computer Graphics (353)

Credits: 3

Course Description:

Digital image processing is an important area, the techniques developed in this area so far require to be summarized in an appropriate way.
In this course the fundamental theories of these techniques will be introduced, after the student passes this course he will know:

1- The basic concepts in digital image processing
2- The main image transform and spatial filtering schemes
3- Introduction of filtering strategies
4- The concept of color image processing
5- Morphological image processing
6- The basics of image segmentation

Prepared in 24/Aug/2020

Dr. Ahmad Alonaizi

Computer Department - College for Basic Education

Public Authority for Applied Education and Training

Email: aa.alonaizi@Paaet.edu.kw