AlFarabi University College

كـلية الفـارابي الجـامعـة

First Cycle – Bachelor's degree (B.Sc.) – Computer Engineering

بكالوريوس - هندسة الحاسوب

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1. Overview

This catalogue is about the courses (modules) given by the program of Computer Engineering to gain the Bachelor of Science degree. The program delivers (42) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظرة عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج هندسة الحاسبات للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (٤٢) مادة دراسية، على سبيل المثال، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2023-2024

Module 1

Code	Course/Module Title	ECTS	Semester
COE101	Mathematics and Matlab	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
4	2	93	57
Description			
This course introduces the basic mathematics that is fundamental and essential component in all streams of undergraduate studies in engineering. The course consists of topics in differential calculus, integral calculus, linear algebra and differential equations with applications to various engineering problems. In additional, students will learn to use the computer language MATLAB, which is a useful tool in engineering and sciences. The course will cover the basics of programming in MATLAB, and will also cover mathematical ideas and recipes, and will teach you how to implement them in MATLAB.			

Module 2

Code	Course/Module Title	ECTS	Semester
COE102	Computer Structure and Organization	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	62
Description			
This course introduces the concepts of computer architecture and organization and presents basic computer system features. The course will enable students to design and implement software that more efficiently utilizes a computer system and that accommodates its limitations. Students will also be able to read and understand literature on the topic, enabling them to further their knowledge and keep abreast of current technology.			

Module 3

Code	Course/Module Title	ECTS	Semester
COE103	Computer Programming	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	78	47
Description			
In this course the students will gain the foundational skillset required to write computer programs. The students will learn how to write interactive, graphical computer programs from an introductory level in a real programming language.			

Module 4

Code	Course/Module Title	ECTS	Semester
COE104	Mathematical Modeling and Electrical Circuits	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
4	2	93	32
Description			

This course is an introductory course that explores the fundamentals of electric circuits. Students will learn about the basic principles and laws governing electrical circuits, including Ohm's Law, Kirchhoff's Laws, and circuit analysis techniques. The course covers topics such as resistive circuits, voltage and current dividers, series and parallel circuits, network theorems (such as Thevenin's and Norton's theorems), and power calculations. Students will gain hands-on experience in building and analyzing circuits using basic components such as resistors, capacitors, and inductors. They will also learn how to use circuit simulation software to verify their circuit designs. Electrical Circuits 1 provides a solid foundation for understanding and analyzing more complex electrical and electronic systems. The student will also gain a solid foundation in mathematical modeling techniques and their applications in electrical systems.

Module 5

Code	Course/Module Title	ECTS	Semester
COE105	Boolean Algebra	5	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	78	47
Description			
This course explores the fundamental principles and operations of Boolean Algebra, including logic gates, truth tables, and Boolean functions. Students will learn how to simplify and analyze digital circuits using Boolean algebraic techniques. Topics covered may include logic gate implementation, Boolean expressions, Karnaugh maps, and Boolean algebra theorems. This course provides a strong theoretical and practical understanding of digital logic design, essential for various fields such as computer science, electrical engineering, and computer architecture.			

Module 6

Code	Course/Module Title	ECTS	Semester
FU010	Democracy Human Rights	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2		32	18
Description			

تقد م مادة علمية توضح للطالب أهم الحقوق الإنسانية التي نصت عليها الشريعة الإسلامية والتي أكدت عليها الاتفاقيات الدولية والقانون الدولي الإنساني واهم النصوص الدستورية التي تضمنت حقوق الإنسان والتي يجب ان تتلائم مع ماجاء في الاتفاقيات الدولية واهم الشواهد التاريخية التي تبين اهتمام الحضارات القديمة بحقوق الإنسان ومنها القوانين العراقية القديمة وتوضيح أهم الضمانات اللازمة لحماية الحقو ق والحريات كالضمانات الدستورية والقضائية والسياسية .. أما مايخص الديمقراطية توضيح مفهوم الديمقراطية كمصطلح وأهمية الديمقراطية كنظام سياسي بمكن ان تعيش في ظله الحقوق والحريات الأساسية مستعرضين أهم التجارب الديمقراطية على مر التاريخ مرورا بالتجارب الحديثة وتوضيح مميزات وخصائص الديمقراطية كنظام سياسي وأ الديمقراطية ومحاسنها ومساوئها.

Module 7

Code	Course/Module Title	ECTS	Semester
GE07	English Language I	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	32	18

Description

The course covers grammar, vocabulary, writing, and speaking activities. The topics throughout the book deal with things like food, likes/dislikes, asking questions, life at home, travel, and several other basic level subjects; the layout of each unit is simple and easy to follow, but the book is heavy on text and it may pour the students with valuable information. In each lesson, the students will work on a variety of activities that will help them put all of their language skills to use. In every lesson, students will go over filling – in - the - blank grammar exercises, reading comprehension sections and partner activities or writing exercise to wrap up each lesson. 'Everyday English' and 'Spoken grammar' sections practice real-world speaking skills. The students will take some time to express themselves by writing essays about their specialization in simple language after being acquainted with different scientific terms.

The New Headway pre-intermediate is still one of the most preferred course books by many language learning academies all around the world. Part of the reason is that it is regarded as one of the easiest adaptable course books to diverse socio-cultural contexts. Effective speaking means bringing together a range of different skills to communicate and make an impact. At the very least, the speaker need to find the right words, put them in the proper order, and pronounce them correctly so that the speakers can be understood. When the students simply memorizing the words and repeating them is not enough to give a compelling performance and connect with an audience. They should use them in context orally. The students will take some time to express themselves by writing essays about their specialization in simple language after being acquainted with different scientific terms.

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