

Al-Farahidi University جامعة الفراهيدي



*First Cycle – Bachelor’s Degree (B.Sc.) –
Communication Technical Engineering*
بكالوريوس - هندسة تقنيات الاتصالات



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1. Overview

This catalogue is about the courses (modules) given by the program of communication technical engineering to gain the Bachelor of technical Science degree. The program delivers (47) 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 تقنيات الاتصالات للحصول على درجة بكالوريوس هندسة تقنيات الاتصالات. يقدم البرنامج (47) مادة دراسية، على سبيل المثال، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2023-2024

First year

Module 1

Code	Course/Module Title	ECTS	Semester
AFU11101	English	٢	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
٢	.	١٨	٣٢
Description			
This module provides the fundamental and basics English academic skills for the refresh students, learn the rules and grammar of the English language and main communication field terms.			

Module 2

Code	Course/Module Title	ECTS	Semester
AFU11102	IT Essentials	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	37
Description			
Basic information technology with main and fundamentals computer information			

Module 3

Code	Course/Module Title	ECTS	Semester
AFU11103	Calculus 1	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Introduction of function, plot the function, limited, introduction to vector field complex number.			

Module 4

Code	Course/Module Title	ECTS	Semester
AFU11104	DC Electrical Circuits	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Introduction to the DC signal , mesh theory, superposition theory, Norton theory , voltage and current source dependents.			

Module 5

Code	Course/Module Title	ECTS	Semester
AFU11105	physics and semi-conductor	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Introduction to the atom theory, region, electronics movements, current and diode circuit implantation. N_P construction N_P_N implementation.			

Module 6

Code	Course/Module Title	ECTS	Semester
AFU11106	Engineering Drawing	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	3	62	63
Description			
Fundamentals on the engineering drawing.			

Module 7

Code	Course/Module Title	ECTS	Semester
AFU11207	Human Rights and Democracy	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	0	18	32
Description			
Basics right and human being life with democracy rules.			

Module 8

Code	Course/Module Title	ECTS	Semester
AFU11208	Calculus 2	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Fundamental of matrix, triangular functions.			

Module 9

Code	Course/Module Title	ECTS	Semester
AFU11209	AC Electrical Circuits	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
Introduction to the AC signal , mesh theory, superposition theory, Norton theory , voltage and current source dependents.			

Module 10

Code	Course/Module Title	ECTS	Semester
AFU11210	Digital Logic	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Introduction to binary number, hex number, converting from binary to another number system, K map.			

Module 11

Code	Course/Module Title	ECTS	Semester
AFU11211	Electronic Circuits	8	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	3	108	92
Description			
Introduction to the transistor FET and bipolar			

Module 12

Code	Course/Module Title	ECTS	Semester
AFU11212	Engineering Workshops	3	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	3	48	27
Description			
Fundamentals of equipment's and tools.			

Second year

Module 13

Code	Course/Module Title	ECTS	Semester
AFU11301	Electronic Circuits Design	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	72	78
Description			
This module provides the fundamental and basics of electronic circuit diode, transistor, Zennor diode.			

Module 14

Code	Course/Module Title	ECTS	Semester
AFU11302	Signal and systems	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	72	78
Description			
Basic analog communication systems, FM, AM , Phase and frequency modulation.			

Module 15

Code	Course/Module Title	ECTS	Semester
AFU11303	Electromagnetics field	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			
Introduction of electromagnetic fields, Faraday law, columns law, Maxwell first equations, cylindrical and spherical coordinates.			

Module 16

Code	Course/Module Title	ECTS	Semester
AFU11304	Calculus	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Differential equation analysis and double integral			

Module 17

Code	Course/Module Title	ECTS	Semester
AFU11305	Digital circuit design	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	78	72
Description			
Introduction to the counter design, multiplexer and DE multiplexer.			

Module 18

Code	Course/Module Title	ECTS	Semester
AFU11306	Visual Basic	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	2	48	27
Description			
Fundamentals computer language visual basics.			

Module 19

Code	Course/Module Title	ECTS	Semester
AFU11407	C++	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
Basics of computer languages C++			

Module 20

Code	Course/Module Title	ECTS	Semester
AFU11408	Calculus 4	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Fundamental of vectors field and advance double and triple integrals.			

Module 21

Code	Course/Module Title	ECTS	Semester
AFU11209	English 2	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	0	18	32
Description			
Intermediate English language rules and grammars.			

Module 22

Code	Course/Module Title	ECTS	Semester
AFU11410	Analog communication	8	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	3	108	92
Description			
Introduction to modulation and types of analog communications: PSK, FSK.			

Module 23

Code	Course/Module Title	ECTS	Semester
AFU11411	Probability and statistics	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	78	47
Description			
Introduction to the transistor FET and bipolar			

Module 24

Code	Course/Module Title	ECTS	Semester
AFU11412	Electromagnetic fields 2	5	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Design and calculation of line charge, surface charge, volume charges.			

**Third year
Module 25**

Code	Course/Module Title	ECTS	Semester
AFU11501	Engineering Analysis	5	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
S Transform, beta and gamma function, Z transofrm.			

Module 26

Code	Course/Module Title	ECTS	Semester
AFU11502	Microprocessor	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	57
Description			
Basic of 8085 and 8088 microprocessor programing in low level languages.			

Module 27

Code	Course/Module Title	ECTS	Semester
AFU11503	Antenna	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Introduction of antenna types, linear, array.			

Module 28

Code	Course/Module Title	ECTS	Semester
AFU11504	Digital communication	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	87
Description			
Digital communication systems.			

Module 29

Code	Course/Module Title	ECTS	Semester
AFU11505	Engineering Eithics	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	42
Description			
Introduction to ethics of engineering			

Module 30

Code	Course/Module Title	ECTS	Semester
AFU11506	Matlab	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	37
Description			
Fundamentals computer language Matlab.			

Module 31

Code	Course/Module Title	ECTS	Semester
AFU11607	Numerical analysis	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	62
Description			
Basics of newton Raphson method, Gauss sidle methods			

Module 32

Code	Course/Module Title	ECTS	Semester
AFU11608	Information Theory	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	48	52
Description			
Fundamental of Channel coding, information theory and desgin.			

Module 33

Code	Course/Module Title	ECTS	Semester
AFU11609	Digital signal processing	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Analog signals and digital signal, digital filter decomposition , energy and power in digital signals, fast Fourier transform.			

Module 34

Code	Course/Module Title	ECTS	Semester
AFU11610	Fundamental of fiber optics	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
Introduction to fiber optics modulation and communication.			

Module 35

Code	Course/Module Title	ECTS	Semester
AFU11611	Python programing	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	62
Description			
Introduction to the internet language programming.			

Module 36

Code	Course/Module Title	ECTS	Semester
AFU11612	Electronic communication	5	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	47
Description			
Design and implementation of electronics circuit in communication systems, RC filter, RLC.			

**Fourth year
Module 37**

Code	Course/Module Title	ECTS	Semester
AFU11701	Computer networks	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Type of computer networks, layers, topology.			

Module 38

Code	Course/Module Title	ECTS	Semester
AFU11702	Programmable logic controller	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	72	78
Description			
Basic analog controller design using PLC.			

Module 39

Code	Course/Module Title	ECTS	Semester
AFU11703	Optical communication	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Introduction of optical communication			

Module 40

Code	Course/Module Title	ECTS	Semester
AFU11704	Research methodology	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	27
Description			
Introduction to research searching method			

Module 41

Code	Course/Module Title	ECTS	Semester
AFU11705	control	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Introduction to control system ,transfer function, bode diagram.			

Module 42

Code	Course/Module Title	ECTS	Semester
AFU11706	Engineering management	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	0	33	42
Description			
Fundamentals of calculate the cost of projects..			

Module 43

Code	Course/Module Title	ECTS	Semester
AFU11807	Microwave engineering	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Introduction to microwave, lead diode, impedance circuit.			

Module 44

Code	Course/Module Title	ECTS	Semester
AFU11808	Satellite communication	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			
Fundamental of satellite communication types and modelling.			

Module 45

Code	Course/Module Title	ECTS	Semester
AFU11809	Communication security	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			
Caesar cipher, Play fair, data encryption, RSA.			

Module 46

Code	Course/Module Title	ECTS	Semester
AFU11810	Wireless communication	3	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	42
Description			
Introduction to wireless, types, topology, wireless sensors category.			

Module 47

Code	Course/Module Title	ECTS	Semester
AFU11811	Final projects	13	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	12	180	145
Description			
Projects in especial topics			

Contact

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