

الكلية التقنية الهندسية

College of Engineering Technology



***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 اتقنيات هندسة الاتصالات . يقدم البرنامج (47) 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 2024-2025

First year

Module 1

Code	Course/Module Title	ECTS	Semester
ijsu1002	English	٢	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	.	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
ljsu1004	computer	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	27
Description			
Basic information technology with main and fundamentals computer information			

Module 3

Code	Course/Module Title	ECTS	Semester
ATU11103	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
ATU11104	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
ATU11105	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
ATU11107	Engineering Drawing	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	4	63	37
Description			
Fundamentals on the engineering drawing.			

Module 7

Code	Course/Module Title	ECTS	Semester
ijsu1006	Human Rights and Democracy	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17
Description			
Basics right and human being life with democracy rules.			

Module 8

Code	Course/Module Title	ECTS	Semester
ATU11208	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
ATU11209	AC Electrical Circuits	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	73	72
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
ATU11210	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
ATU11211	Electronic Circuits	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Introduction to the transistor FET and bipolar			

Module 12

Code	Course/Module Title	ECTS	Semester
ijsu 2001	Arabic language	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1		18	32
Description			

Module 13

Code	Course/Module Title	ECTS	Semester
ATU11212	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 14**

Code	Course/Module Title	ECTS	Semester
ATU11301	Electronic Circuits Design	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
This module provides the fundamental and basics of electronic circuit diode, transistor, Zennor diode.			

Module 15

Code	Course/Module Title	ECTS	Semester
ATU11302	Signal and systems	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	78	72
Description			
Basic analog communication systems, FM, AM , Phase and frequency modulation.			

Module 16

Code	Course/Module Title	ECTS	Semester
ATU11303	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 17

Code	Course/Module Title	ECTS	Semester
ATU11304	Mathematical Modeling System	5	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 18

Code	Course/Module Title	ECTS	Semester
ATU11305	Digital circuit design	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
Introduction to the counter design, multiplexer and DE multiplexer.			

Module 19

Code	Course/Module Title	ECTS	Semester
ATU11306	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 20

Code	Course/Module Title	ECTS	Semester
ATU11408	Differential Equations	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4		63	112
Description			
Fundamental of vectors field and advance double and triple integrals.			

Module 21

Code	Course/Module Title	ECTS	Semester
IJSU2002	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
ATU11410	Analog communication	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	78	97
Description			
Introduction to modulation and types of analog communications: PSK, FSK.			

Module 23

Code	Course/Module Title	ECTS	Semester
ATU11411	Integrated electronic circuits	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	2	78	97
Description			

Module 24

Code	Course/Module Title	ECTS	Semester
ijsu 2004	computer2	3	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	2	48	27
Description			

Module 25

Code	Course/Module Title	ECTS	Semester
IJSU1007	Baath Party crimes	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1		18	32
Description			

Module 26

Code	Course/Module Title	ECTS	Semester
ijsu 2001	Arabic language	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1		18	32
Description			

**Third year
Module 27**

Code	Course/Module Title	ECTS	Semester
ATU11501	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 28

Code	Course/Module Title	ECTS	Semester
ATU11502	Probability and Statistics	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			

Module 29

Code	Course/Module Title	ECTS	Semester
ATU11503	Antenna and Wave Propagation	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 30

Code	Course/Module Title	ECTS	Semester
ATU11504	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 31

Code	Course/Module Title	ECTS	Semester
ATU11505	Microprocessor	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	4	93	57
Description			

Module 32

Code	Course/Module Title	ECTS	Semester
ATU11506	Matlab Programming	3	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	3	63	12
Description			
Fundamentals computer language Matlab.			

Module 33

Code	Course/Module Title	ECTS	Semester
ATU11607	Numerical analysis	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			
Basics of newton Raphson method, Gauss side methods			

Module 34

Code	Course/Module Title	ECTS	Semester
ATU11608	Information Theory	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3		48	77
Description			

Fundamental of Channel coding, information theory and desgin.

Module 35

Code	Course/Module Title	ECTS	Semester
ATU11609	Digital signal processing	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3		48	102
Description			
Analog signals and digital signal, digital filter decomposition , energy and power in digital signals, fast Fourier transform.			

Module 36

Code	Course/Module Title	ECTS	Semester
ATU11610	Fundamental of fiber optics	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	87
Description			
Introduction to fiber optics modulation and communication.			

Module 37

Code	Course/Module Title	ECTS	Semester
ATU11612	Python programing	3	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	3	63	12
Description			
Introduction to the internet language programming.			

Module 38

Code	Course/Module Title	ECTS	Semester
ATU11611	Microcontroller	6	3
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			

**Fourth year
Module 39**

Code	Course/Module Title	ECTS	Semester
ATU11701	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 40

Code	Course/Module Title	ECTS	Semester
ATU11702	Wireless Communications	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			
Basic analog controller design using PLC.			

Module 41

Code	Course/Module Title	ECTS	Semester
ATU11703	Optical communication	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	87
Description			
Introduction of optical communication			

Module 42

Code	Course/Module Title	ECTS	Semester
ATU11706	Professional Ethics	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17
Description			
Introduction to engineering ethics			

Module 43

Code	Course/Module Title	ECTS	Semester
ATU11704	control	7	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	3	93	82
Description			
Introduction to control system ,transfer function, bode diagram.			

Module 44

Code	Course/Module Title	ECTS	Semester
ATU11705	Projects Management	4	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	37

Description
Fundamentals of calculate the cost of projects..

Module 45

Code	Course/Module Title	ECTS	Semester
ATU11807	Artificial Intelligence	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	87
Description			
Introduction to artificial intelligence circuits.			

Module 46

Code	Course/Module Title	ECTS	Semester
ATU11808	Satellite communication	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2		33	67
Description			
Fundamental of satellite communication types and modelling.			

Module 47

Module 11			
Code	Course/Module Title	ECTS	Semester
ATU11809	Cyber Security	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	1	48	52
Description			

Module 48

Code	Course/Module Title	ECTS	Semester
ATU11810	Mobile Communications	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	87
Description			
Introduction to wireless, types, topology, wireless sensors category.			

Module 49

Code	Course/Module Title	ECTS	Semester
ATU11811	Communication Devices Maintenance	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
	6	93	57
Description			

Module 50

Code	Course/Module Title	ECTS	Semester
ATU11812	Final projects	4	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
0	4	63	37
Description			
Projects in especial topics			