Curriculum for Associate Degree Program in Communications Technology Specialization

The curriculum of associate degree in "Communications Technology" specialization consists of (72 credit hours) as follows:

Serial No.	Requirements	Credit Hours
First	University Requirements	12
Second	Engineering Program Requirements	17
Third	Specialization Requirements	43
Total		**72**

❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

The curriculum of associate degree
in
"Communications Technology" Specialization

First: University requirements (12 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
22001101	Arabic Language	3	3	-	
22002101	English Language	3	3	-	
21901100	Islamic Culture	3	3	-	
21702101	Computer Skills	3	1	4	
Total		**12**	**10**	**4**	

Second: Engineering Program requirements (17 credit hours) as follow:

Course No	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
20201111	Engineering Workshops	1	–	3	-
20204111	AutoCAD	2	–	6	-
20506111	Occupational Safety	2	2	-	-
21301111	General Mathematics	3	2	2	-
21302111	General Physics	3	2	2	-
21302112	General Physics Laboratory	1	-	3	-
21702111	Communication Skills and Technical Writing	3	2	2	22002101
20201121	Engineering Materials	2	2	-	-
Total		**17**	**10**	**18**	

Third: Specialization Requirements (43 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
20301113	Electrical Circuits	3	3	-	21302111*
20301114	Electrical Circuits Lab	1	-	3	20301113*
20304161	Electrical Measurements	2	2	-	
20304162	Electrical Measurements Lab.	1	-	3	
20403111	Electronics	3	3	-	20301113*
20403112	Electronics Lab	1	-	3	20403111*
20404121	Digital Fundamentals	2	2	-	20403111
20404122	Digital Fundamentals Lab	1	0	3	20404121*
20405111	Principles of Telecommunications	3	3	-	20301113
20405112	Principles of Telecommunications Lab	1	-	3	20405111*
20405241	Digital Communications	3	3	-	20405111
20405242	Digital Communications Lab	1	-	3	20405241*
20410211	Antennas, wave Propagation and Transmission Lines	2	2	-	
20410212	Antennas, wave Propagation and Transmission Lines Lab.	1	-	3	
20410221	Computer Networks Technology	3	2	3	
20410231	Mobile Communications	2	2	-	
20410232	Mobile Communications Lab.	1	-	3	
20410251	Special Communications Systems	2	2	-	
20409221	Microprocessor Practice	2	1	3	20404121
20409111	Industrial Supervision	2	2	-	20506111
20410291	Training**	3	-	-	-
20410292	Project	3	-	-	-
Total		**43**	**27**	**30**	

* Co-requisite

** Equivalent to 280 training hours

Study Plan for Associate Degree in Communications Technology

First Year					
First Semester			Second Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
20301113	Electrical Circuits	3	22002101	English Language	3
20301114	Electrical Circuits Lab.	1	20403111	Electronics	3
21702101	Computer Skills	3	20403112	Electronics Lab.	1
21301111	General Mathematics	3	20405111	Principles of Telecommunications	3
21302111	General Physics	3	20405112	Principles of Telecommunications Lab.	1
21302112	General Physics Lab.	1	20506111	Occupational Safety	2
20201121	Engineering Materials	2	20404121	Digital Fundamentals	2
20204111	AutoCAD	2	22001101	Arabic Language	3
Total		18	Total		18

Second Year					
Third Semester			Fourth Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
20404122	Digital Fundamentals Lab.	1	21702111	Communication Skills and Technical writing	3
20409221	Microprocessors Practice	2	20410251	Special Communications Systems	3
20410221	Computer Networks Technology	3	20410231	Mobile Communications	2
20304161	Electrical Measurements	2	20410232	Mobile Communications Lab.	1
20304162	Electrical Measurements Lab.	1	21901100	Islamic Culture	3
20405241	Digital Communications	2	20410291	Training	3
20405242	Digital Communications Lab.	1	20410292	Project	3
202021111	Engineering Workshops	1			
20410211	Antennas, Wave Propagation and Transmission Lines	2			
20410212	Antennas, Wave Propagation and Transmission Lines Lab.	1			
20409111	Industrial Supervision	2			
Total		18	Total		18

❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

Brief Course Description

University Requirements

Course Title	Course No	Credit Hours (Theoretical /Practical)
Arabic Language	**22001101**	**3 (3-0)**

تتضمن هذه المادة مجموعة من المهارات اللغوية بمستوياتها وأنظمتها المختلفة: الصوتية، والصرفية، والنحوية، والبلاغية، والمعجمية، والتعبيرية، وتشتمل نماذج من النصوص المشرقة: قرآنية ، وشعرية، وقصصية ، من بينها نماذج من الأدب الأردني؛ يتوخى من قراءتها وتذوقها وتحليلها تحليلا أدبيا؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.

English Language	**22002101**	**3 (3-0)**

English is a general course. It covers the syllabuses of listening, speaking, reading, writing, pronunciation and grammar, which are provided in a communicative context. The course is designed for foreign learners of the English language, who have had more than one year of English language study. The extension part would be dealt with in the class situation following the individual differences.

Islamic Culture	**21901100**	**3 (3-0)**

1. تعريف الثقافة الإسلامية وبيان معانيها وموضوعاتها والنظم المتعلقة بها – وظائفها وأهدافها.
2. مصادر ومقومات الثقافة الإسلامية والأركان والأسس التي تقوم عليها.
3. خصائص الثقافة الإسلامية.
4. الإسلام والعلم، والعلاقة بين العلم والإيمان
5. التحديات التي تواجه الثقافة الإسلامية.
6. رد الشبهات التي تثار حول الإسلام.
7. الأخلاق الإسلامية والآداب الشرعية في إطار الثقافة الإسلامية.
8. النظم الإسلامية.

Computer Skills	**21702101**	**3 (1-4)**

An introduction to computing and the broad field of information technology is given. Topics covered include the basic structure of digital computer system, microcomputer, operating systems, application software, data communication and networks, and the internet. Hands-on learning emphasizes Windows xp, MS-office2000, and the internet.

Engineering Program requirements

Engineering Workshops	**20201111**	**1 (0-3)**

Development of basic manual skills in Mechanical and Electrical works. Use of manual tools and measuring devices. Hand filing, welding, metal cutting and forming. Electrical wiring.

AutoCAD	**20204111**	**2 (0-6)**

Introduction to AutoCAD, application of AutoCAD, commands, geometric entities. Geometric construction. Dimensioning, free –hand sketching, object representation, orthographic drawing and projections.

Occupational safety	**20506111**	**2 (2-0)**

Role of technicians in economic development First aid accident prevention. Protective devices and equipment. Industrial safety standards. Nature of fire hazards. Sand fire regulations. Physiological effects of electrical shock on human body. First aid and treatment for the effects of electric shock. Rules of spare and chemicals storage and handing.

Communication Skills and Technical Writing	**21702111**	**3 (2-2)**

The main goal of this course is to equip the students with the necessary communication skills in everyday life & work situations and improve their abilities in technical writing to meet market needs. For this course, the English language is the language of teaching & the means of communication for all classroom situations.

Engineering Materials	**20201121**	**2 (2-0)**

Definition of engineering materials. Classification of materials and their properties. Metallic and non-metallic materials. Metals, alloys and composite materials. Conductors, insulators and semiconductors. Mechanical, Magnetic, Thermal and electrical characteristics of materials. Industrial applications of different types of materials.

General Mathematics	**21301111**	**3 (2-2)**

Real numbers coordinate planes, lines, distance and circles. Functions: (operations and graphs on functions), limits, continuity, limits and continuity of trigonometric functions. Exponential and logarithmic functions. Differentiation (techniques of differentiation, chain rule, implicit differentiation). Application of differentiation (increase, decrease, concavity). Graphs of polynomials. Applications: Rolls Theorem and Mean-Value Theorem, Integration (by substitution, definite integral, fundamental theorem of Calculus). Application of definite integral (area between two curves, volumes)

General Physics	**21302111**	**3 (2-2)**

Physics and measurement, motion in one dimension, vectors, laws of motion, circular motion, energy and energy transfer, potential energy, linear momentum and collisions, electric fields, Gauss's law, electric potential, capacitance and dielectrics, current and resistance, direct current circuits, magnetic fields, sources of the magnetic field, and Faraday's law of electromagnetic induction.

General Physics lab	21302112	1 (0-3)

In this course, the student performs thirteen experiments in mechanics and in electricity.

Specialization Requirements

Electrical Circuits	20301113	3 (3-0)

Voltage, Current, and Resistance, Ohm's Law, Energy and Power, Series-Parallel Circuits, Introduction to Alternating Current and Voltage, Capacitors, Inductors, RLC Circuits and Resonance. Electrical Measurements.

Electrical Circuits Lab.	20301114	1 (1-3)

DC and AC circuits. Resonance. Measuring devices.

Electronics	20403111	3 (3-0)

Semiconductor devices. Diodes: classification, characteristics and applications. Transistors: classification, characteristics and applications. Amplifiers. Oscillators. Logic gates and Integrated circuits: Basic functions, symbols and applications. Introduction to electronic measurements: Oscilloscope applications.

Electronics Lab.	20403112	3 (0-3)

Use of oscilloscope in measurements. Investigation of characteristics of semiconductor devices. Construction and study of electronic circuits. Experiments in electronics have to cover the main electronic devices (diode, zener diode, diode applications, BJT, FET, op – amp, oscillator, SCR).

Digital Fundamentals	20404121	2 (2-0)

Numerical systems, operations, and codes, logic gates, Boolean algebra and logic simplification, combinational logic and function of combinational logic, flip – flops, counters, shift registers. Fixed – function Integrated Circuits, and Programmable Logic Devices (PLDs).

Digital Fundamentals Lab.	20404122	1 (0-3)

Experiments in digital fundamentals have to cover logic gates, combinational logic, flip – flops, counters, shift registers.

Principles of Telecommunications	20405111	3 (3-0)

Telecommunications link configuration, Frequency spectrum, measuring units and signal parameters, Modulation principles and types (AM, FM, PCM, Delta Modulation), and digital modulation, Transmitters and receivers.

Principles of Telecommunications Lab.	20405112	1 (0-3)

Amplifiers and Attenuators, Tuned circuits, filters, AM and FM modulation demodulation, demodulation, sampling, PCM, delta modulation.

Telecommunications Systems	**20405261**	**3 (3-0)**
Wireless Communication systems (HF,VHF and UHF) ,Satellite Communication systems , Fiber Optical Communication system ,Public Line Mobile Network (PLMN) ,Cellular Systems (GSM AMPS ,UMTS ,IMT2000).		
Digital Communications	**20405241**	**3 (3-0)**
Sampling Theorem, Analog to Digital conversion, Time Division Multiplexing (TDM), Pulse Code Modulation, Delta Modulation, Coding and Transmitting Codes, Digital Multiplexing, based on TDM, Digital Transmission, Digital Modulators and Modulators.		
Electrical Measurements	**20304161**	**2 (2-0)**
This course provides an introduction to Measurements science; and you will study: Electrical quantities, classifications of electrical and electronic instruments, DC & AC measuring instruments, bridges, electronic and digital measuring instruments, oscilloscope, recording instruments, power energy		
Electrical Measurements Lab.	**20304162**	**1 (0-3)**
Experiments have to cover: measurements errors, measurements in DC & AC circuits, load effects, using electronic and digital instruments, calibration and power measurements.		
Antennas, Wave Propagation and Transmission Lines	**20410211**	**2 (2-0)**
Electromagnetic waves characteristics, ground sky waves propagation, the effect of the Ionosphere layers, space and microwaves propagation, antennas fundamentals, polar diagram of antennas, types of antennas, Transmission Line		
Antennas, Wave Propagation and Transmission Lines Lab.	**20410212**	**1 (0-3)**
Electromagnetic waves characteristics, ground sky waves Propagation, the effect of the Ionosphere layers, space and microwaves propagation, Antennas fundamentals, polar diagram of antennas, types of antennas.		
Computer Networks Technology	**20410221**	**3 (2-3)**
Basics of data communication, analog and digital signals and its conversion computer network and it importance LAN and WAN networks, LAN topologies, and their features network devices, network protocols ,network software , internet basics, OSI and TCP/IP models, routing fundamentals and subnets, windows server 2000, DNS server, DHCP server, WEB server		

Mobile Communications	**20410231**	**2 (2-0)**

Introduction to wireless Communication Systems, Modern wireless Communication Systems, the cellular concept systems design fundamentals, mobile radio propagation large- scale path loss, Mobile Radio propagation small –scale fading and multi-path, Modulation techniques for mobile radio ,Multiple Access Techniques for wireless communications.

Mobile Communications Lab.	**20410232**	**1 (0-3)**

Lab in support of the Mobile communication course, GSM, mobile networks , mobile phone assembly, mobile phone electronic circuit, hardware maintenance, mobile diagram & software maintenance(general boxes)..

Special Communications Systems	**20410251**	**2 (2-0)**

Telephone systems, Digital subscriber lines, Satellite communication systems, Link budget analysis, Television, noise sources, Fiber Optical Communication system, Microwave communication development and links. Frequency modulation microwave technique, parameters affect to microwaves systems. System protection and equipment.
Digital microwave systems techniques, wave guide components, Microwave Diodes, introduction to radar.

Microprocessor Practice	**20409221**	**2 (1-3)**

Microprocessor architecture, memories ,basic registers, introduction to assembly language & C language, interrupters, seven segment, liquid crystal display, dot matrix, applications and simulation.

Industrial Supervision	**20409111**	**2 (2-0)**

Supervision duties training knowledge job, introduction job standards, job analysis, training needs study, training programs and curriculum, training evaluation, subordinates appraisal, job organization, production order form filling.

Training	**20403291**	**3 (280 training hours)**

Equivalent to (280 hours) of field training targeted to emphasize the ability of students to apply the theories in the real world of the profession.

Project	**20403292**	**3**

An integrated assembly/design practical work related to the major fields of study.