

Curriculum for Associate Degree Program in Computer Technology Specialization

The curriculum of associate degree in “Computer Technology” specialization consists of (72 credit hours) as follows:

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



The curriculum of associate degree in Computer 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	



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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	0	21302111*
20301114	Electrical Circuits Lab	1	0	3	20301113*
20403111	Electronics	3	3	0	20301113*
20403112	Electronics Lab	1	0	3	20403111*
20404121	Digital Fundamentals	2	2	0	20403111
20404122	Digital Fundamentals Laboratory	1	0	3	20404121*
20404211	Microprocessors	3	3	0	20404121
20404212	Microprocessors Laboratory	1	0	3	20404211*
20404213	Microprocessor Applications	3	3	0	20404211
20404214	Microprocessor Applications Laboratory	1	0	3	20404213*
20404231	Introduction to C++ Programming Language	2	2	0	-
20404232	Introduction to C++ Programming Language Laboratory	1	0	3	20404231*
20404233	Assembly Language	3	3	0	20404211*
20404234	Assembly Language Laboratory	1	0	3	20404233*
20404241	Computer Networks	3	3	0	
20404242	Computer Networks Laboratory	2	0	6	20404241*
20404251	Digital Systems Maintenance Laboratory	2	0	6	20404211
20404243	Web Design and Implementation	3	3	-	20404241*
20404244	Web Design and Implementation Laboratory	1	-	3	20404243*
20404291	Training**	3	0	-	-
20404292	Project	3	0	-	-
Total		43	25	36	

* Co-requisite

** Equivalent to 280 training hours

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Guiding Plan

First Year					
First Semester			Second Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
22001101	Arabic Language	3	21901100	Islamic Culture	3
20301113	Electrical Circuits	3	20201121	Engineering Materials	2
20301114	Electrical Circuits Lab	1	22002101	English Language	3
21702101	Computer Skills	3	21302111	General Physics	3
21301111	General Mathematics	3	21302112	General Physics Lab	1
20201111	Engineering Workshops	1	20204111	AutoCAD	2
20403111	Electronics	3	20506111	Occupational Safety	2
20403112	Electronics Lab	1	20404121	Digital Fundamentals	2
Total		18	Total		18

Second Year					
Third Semester			Fourth Semester		
Course ID	Course Name	Credit Hours	Course ID	Course Name	Credit Hours
20404211	Microprocessors	3	20404213	Microprocessor Applications	3
20404212	Microprocessors Lab	1	20404214	Microprocessor Applications Lab	1
20404231	Introduction to C++ Programming Language	2	20404251	Digital Systems Maintenance Lab	2
20404232	Introduction to C++ Programming Language Lab	1	20404233	Assembly Language	3
20404241	Computer Networks	3	20404234	Assembly Language Lab	1
20404122	Digital Electronics Lab	1	20404291	Training	3
20404243	Web Design and Implementation	3	20404292	Project	3
20404244	Web design and Implementation Lab	1	20404242	Computer Networks Lab	2
21702111	Communication Skills and Technical Writing	3			
Total		18	Total		18

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Brief Course Description

University Requirements

Course Title	Course No	Credit Hours (Theoretical /Practical)
Arabic Language	22001101	3 (3-0)
<p>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 وتدوقها وتحليلها تحليلاً أدبياً؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.</p>		
English Language	22002101	3 (3-0)
<p>English 1 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.</p>		
Islamic Culture	21901100	3 (3-0)
<ol style="list-style-type: none"> 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)
<p>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.</p>		

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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: Rolle's 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.		

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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.		
Introduction to C++ Programming Language	20404231	2 (2-0)
The goal of this course is to introduce students to the skills of reading, understanding and development C++ code. It focuses on the introduction to primitive data types and variables. Then, its proceeds to the introduction of main C++ language constructions such as condition and looping statements. After this, it migrates to explaining the concepts of functions, arrays and matrices.		
Introduction to C++ Programming Language Lab.	20404232	1 (0-3)
Laboratory works must concentrate on writing and executing programs using C++ language. This must cover writing Simple and structured control and conditional statements, simple and nested loop statements, single and multi-dimensional arrays, standard functions and recursive functions.		

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Assembly Language	20404233	3 (3-0)
Introduction to assembly language and microprocessor, data addressing, assembly language fundamentals, directives, data transfer instructions, arithmetic instructions, control transfer instructions, bit manipulation instructions, string instructions, procedures and macros, microprocessor control instructions, I/O programming and interrupts.		
Assembly Language Lab.	20404234	1 (0-3)
Lab in support of the assembly language course. Each student must complete the assigned work in the lab time, and this includes: 8086 Addressing modes. Data transfer instructions, arithmetic instructions, logic instructions, program control instructions, string Instructions, procedures and macros, interrupts.		
Computer Networks	20404241	3 (3-0)
Basics of data communications, analog and digital signals and its conversion, computer network , and its importance LAN and WAN networks. LAN topologies and their features network devices, network protocols, network software, and internet basic.		
Computer Networks Lab.	20404242	2 (0-6)
Laboratory works should cover all aspects of the course such as : Windows 2000 installation ,maintain server resources, managing groups , implementing group policy , managing disaster recovery, monitor server performance and safeguard data on a computer running Microsoft Windows Server 2000.		
Digital Systems Maintenance Lab.	20404251	2 (0-6)
Lab activities must cover all topics of servicing, troubleshooting and repairing PCs, hardware problems and software problems and common used peripheral devices.		
Web design and Implementation	20404243	3 (3-0)
This course is designed to acquaint the student with Internet and Web design fundamentals. Study encompasses the development and structure of the Internet, Web page design and layout skills using HTML (the hypertext markup language), CSSs (Cascading Style Sheets) and JavaScript.		
Web design and Implementation Lab.	20404244	1 (0-3)
Practical work and activities related to the theoretical course.		
Microprocessors	2040421	3 (3-0)
Introduction to microprocessors architecture, instruction set, assemblers and assembly language programming, software development, microprocessors applications.		

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Microprocessors Lab.	20404212	1 (0-3)
Data transfer, Arithmetic Operations, Looping, Subroutines, General programs, Applications.		
Microprocessors Applications	20404213	3 (3-0)
Interfacing basics, interfacing to RAM, Programmable I/O devices, serial data communications, programmable timers, A/D and D/A converters, sensors, position, proximity and force sensing, electronic control devices and circuits, microprocessor application.		
Microprocessors Applications Lab.	20404214	1 (0-3)
Lab in support of the Microprocessor applications course conducted in small groups. Each student must complete the assigned work in the lab time. In addition to Data sheets, microprocessor demonstration, programming and application in control circuits.		
Training	20404291	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	20404292	3
An integrated assembly/design practical work related to the major fields of study.		

