

Curriculum for Associate Degree in Aerospace Ground Equipment Specialization

The curriculum of associate degree in “Aerospace Ground Equipment” 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



The study plan of associate degree
in
Aerospace Ground Equipment

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 follows:

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	



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

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

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Pre-req.
			Theoretical	Practical	
20302111	Electricity and Electronics	2	2	0	21302111
20302112	Electricity and Electronics Lab.	1	0	3	21302112*
20207121	Mechanics	3	3	0	21302111
20209111	Thermal Engineering	3	3	0	21302111
20209112	Thermal Engineering Lab.	1	0	3	20209111*
20205131	Automotive Mechanical Systems	3	3	0	
20205132	Automotive Mechanical Systems Workshops	1	0	3	20205131*
20205241	Hydraulic Systems	2	2	0	
20205242	Hydraulic Systems Workshops	1	0	3	20205241*
20205111	Gasoline Engines	2	2	0	
20205112	Gasoline Engines Workshops	1	0	3	
20205221	Diesel Engines	2	2	0	
20302251	Diesel Engines Workshops	1	0	3	
20205171	Instrumentation and Control	2	2	0	
20205172	Instrumentation and Control Lab.	1	0	3	
20210221	Automotive Electricity and Electronics	3	3	0	
20210224	Automotive Electricity and Electronics Lab.	1	0	3	20403111 or 20301111
20205251	Aircraft Power Units Workshops	1	0	3	
20205252	Aircraft Bomb Lift Truck Workshops	1	0	3	20205111
20205261	Aircraft Ground Equipment	2	2	0	20205241*
20205262	Aircraft Special Vehicles	2	2	0	20205241*
20205253	Aircraft Refueler Workshops	1	0	3	
20205291	Training**	3	0	-	-
20205292	Project	3	0	-	-
Total		43	26	33	

*- Co-requisite

** Equivalent to 280 training hours



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

First Year					
First Semester			Second Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
22001101	Arabic Language	3	20302111	Electricity and Electronics	2
22002101	English Language	3	20302112	Electricity and Electronics Lab.	1
21702101	Computer Skills	3	20204111	AutoCAD	2
21302111	General Physics	3	21901100	Islamic Culture	3
21302112	General Physics Lab.	1	21702111	Communication Skills and Technical Writing	3
21301111	General Mathematics	3	20205111	Gasoline Engines	2
		1	20205112	Gasoline Engines Workshops	1
20506111	Occupational Safety	2	20205131	Automotive Mechanical Systems	3
			20205132	Automotive Mechanical Systems Workshops	1
Total		18	Total		18

Second Year					
Third Semester			Fourth Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
20207121	Mechanics	3	20205253	Aircraft Refueler Workshops	1
20201111	Engineering Workshops	1	20205251	Aircraft Power Units Workshops	1
20205171	Instrumentation and Control	2	20205252	Aircraft Bomb Lift Truck Workshops	1
20205241	Hydraulic Systems	2	20205221	Diesel Engines	2
20205242	Hydraulic Systems Workshops	1	20205291	Training	3
20205261	Aircraft Ground Equipment	2	20205292	Project	3
20201121	Engineering Materials	2	20205262	Aircraft Special Vehicles	2
20209111	Thermal Engineering	3	20210221	Automotive Electricity and Electronics	3
20209112	Thermal Engineering Lab.	1	20302251	Diesel Engines Workshops	1
20205172	Instrumentation and Control Lab.	1	20210224	Automotive Electricity and Electronics Lab.	1
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)
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Arabic Language	22001101	3 (3,0)
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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 وتدقيقها وتحليلها تحليلاً أدبياً؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.

English Language	22002101	3 (3,0)
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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.

Islamic Culture	21901100	3 (3,0)
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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)
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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: 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.		

Specialization Requirements

Electricity And Electronics	20302111	2 (2,0)
<p>Concepts and definitions. circuit elements. Circuit analysis. Electronic device. Diodes. Transistors. Amplifiers. Rectifiers. logic gates and IC . electrical machines. Electrical machines protection and control device .</p>		
Electricity And Electronics Lab.	20302112	1(0,3)
<p>Measuring current and voltage in electrical DC and AC circuits . applying Ohms and kerchiefs laws. Wiring and operating of electrical machines . use of control and protection devices , applications in power electronics and logic circuits.</p>		
Mechanics	20207121	3(3,0)
<p>Force vectors. Equilibrium of rigid body , internal forces (two dimension),center of gravity and centroid , stress and strain , torsion and bending movement ,buckling.</p>		
Thermal Engineering	20209111	3(3,0)
<p>Concepts and definitions of thermodynamic systems. properties of a pure substance . first law of thermodynamics. Second Law of Thermodynamics. Principle of heat transfer (conduction heat transfer, convection, radiation, combined heat transfer mechanisms). Steady state conduction. radiation. Heat exchanger.</p>		
Thermal Engineering Lab.	20209112	1(0,3)
<p>Pressure – Temperature relation in the saturation region; Compressor cycles and analyses; Heat pump performance; Conduction heat transfer; Radiation heat transfer; and Heat exchanger performance.</p>		
Automotive Mechanical System	20205131	3(3,0)
<p>Clutch fundamentals, manual transmission fundamentals, automotive transmission fundamentals, differential, rear drive axle fundamentals, transaxle, front drive axle fundamentals, tire, wheel hub and wheel bearing fundamentals, suspension system fundamentals, steering system fundamentals, brake system fundamentals, wheel alignments fundamentals.</p>		
Automotive Mechanical System Workshops	20205132	1(0,3)
<p>Clutch diagnosis and repair, manual transmission diagnosis and repair, automotive transmission service, driveshaft, transfer case diagnosis, differential, rear drive axle diagnosis and repair, tire, wheel hub, and wheel bearing service, suspension system diagnosis and repair, steering system diagnosis and repair, brake system diagnosis and repair.</p>		
Hydraulic Systems	20205241	2(2,0)
<p>Basic information, Hydraulic terms, Symbols and Circuits, pumps and motors, Valves. Cylinders, Hoses and Tubing, Seals, Oils, Reservoir's, Filters, Accumulator's. Hydraulic systems testing.</p>		

Hydraulic System Workshops	20205242	1 (0,3)
Precaution in handling pumps and motors , installing hoses, Grumped fitting ,Installing tubing ,Making flared ,Joint ,Seals maintenance procedures ,Fluid charging ,Draining and cleaning reservoir, Accumulator charging.		
Gasoline Engines	20205111	2(2,0)
Engine fundamentals and classification, engine top end construction, engine bottom end construction, engine front end construction, engine size and performance, automotive fuels, fuel tanks, pumps, lines and filters, carburetors fundamentals, gasoline injection fundamentals, engine exhaust, cooling and lubricating systems fundamentals.		
Gasoline Engine Workshops	20205112	1(0,3)
Engine performance problems, engine testing instruments, engine tune-up, engine mechanical problems, engine removal and disassembly, parts cleaning, engine top end service , engine bottom end service , engine front end service , engine installation .		
Diesel Engines	20205221	2(2,0)
Basic diesel engine designs, diesel engine operation fundamentals, combustion systems. diesel and alternate fuel , fuel filters , water separator and fuel heater fundamentals , types of fuel system , basic operation of mechanical and electronic governors , exhaust system and turbocharger.		
Diesel Engine Workshops	20302251	1(0,3)
Trouble shooting chart , tune up sequence , fuel system repair , exhaust smoke color.		
Instrument And Control	20205171	2(2,0)
Units of measurements care, use and maintenance of measuring tools limits, fits and gaging, measuring temperature.		
Instrument And Control Lab.	20205172	1(0,3)
Utilization of steel scale and rules , combination set , dividers caliber's , scribes , micrometers , dial indicators height gage, gage blokes , compactors , thickness gage , protractors.		
Automotive Electricity and Electronics	20210221	2(2,0)
Introduction, battery, starting system, charging system, ignition system, electronic fuel injection system, lights, safety and signaling, driver information and control devices, wiring harnesses, instrument panel.		
Automotive Electricity and Electronics Lab.	20210224	1(0,3)
Battery testing, starting system: diagnostics and maintenance, charging system diagnostics and maintenance, ignition system: diagnostics and maintenance, lights, safety and signaling, automotive generators, Electronic fuel injection service.		

Aircraft Power Units Workshops	20205251	1(0,3)
Safety practices, operation and utilization routine maintenance and inspection.		
Aircraft Bomb Lift Truck Workshops	20205252	1(0,3)
Introduction, inspection, maintenance and lubrication, repair instruction. Safety instructions.		
Aircraft Ground Equipment	20205261	2(2,0)
Aircraft Hydraulic test stand , Aircraft Bak-12 Arresting Barrier System.		
Aircraft Special Vehicles	20205262	2(2,0)
Aircraft Fire Fighting Trucks, Aircraft Towing Tractors.		
Aircraft Refueler Workshops	20205253	1(0,3)
Hazard and Safety, Electrical system (winterization system), Refueler pumps and PTO's, Bottom loading system, Pressure control systems.		
Training	20205291	3 (280 training hours)
Equivalent to 8 week of field training targeted to emphasize the ability of students to apply the theories in the world of the profession.		
Project	20205292	3
An integrated design project to practice the principles of analysis and design acquired throughout the course of the student's study.		

