

# Curriculum for Associate Degree in Aircraft Aiframes Specialization

The curriculum of associate degree in “Aircraft Aiframe” 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
<b>Total</b>		<b>72</b>



The study plan of associate degree  
in  
Aircraft Airframes

**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	
<b>Total</b>		<b>12</b>	<b>10</b>	<b>4</b>	

**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	-	-
<b>Total</b>		<b>17</b>	<b>10</b>	<b>18</b>	

❖ 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	
20605111	Maintenance Regulations and Airfield Safety	2	2	0	
20605231	Airframe Mechanics	3	3	0	21302111
20605141	Aerodynamics	3	3	0	
20605142	Aerodynamics Workshops	1	0	3	20605141*
20605251	Airframe Electrical Systems	2	2	0	20302111
20605252	Airframe Electrical Systems Lab.	1	0	3	20605251*
20302111	Fundamentals of Electricity	3	3	0	21302111*
20302112	Fundamentals of Electricity Lab.	1	0	3	
20604141	Aircraft Servicing Tools and Refurbishment	2	2	0	
20604142	Aircraft Servicing Tools and Refurbishment Workshops	1	0	3	20604141*
20605211	Aircraft Structure Repair	3	3	0	
20605212	Aircraft Structure Repair Workshops	1	0	3	20605211*
20605171	Aircraft Fuel Systems and Servicing	3	3	0	
20605172	Aircraft Fuel Systems and Servicing Workshops	1	0	3	20605171*
20605253	Aircraft Hydraulic Systems	3	3	0	
20605254	Aircraft Hydraulic Systems Workshops	1	0	3	20605253*
20605261	Aircraft A/C and Pressurization Systems	3	3	0	
20605262	Aircraft A/C and Pressurization Systems Workshops	1	0	3	20605261*
20604221	Aircraft Engines	2	2	0	
20605291	Training**	3	0	-	-
20605292	Project	3	0	-	-
<b>Total</b>		<b>43</b>	<b>29</b>	<b>24</b>	

\*-Co-requisite

\*\* Equivalent to 280 training hours



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### Guiding Plan

First Year					
First Semester			Second Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
21702101	Computer Skills	3	21702111	Communication Skills and Technical Writing	3
20201111	Engineering Workshops	1	20605111	Maintenance Regulations and Aircraft Safety	2
22002101	English Language	3	20302111	Fundamentals of Electricity	3
22001101	Arabic Language	3	20302112	Fundamentals of Electricity Lab.	1
21301111	General Mathematics	3	20604141	Aircraft Servicing Tools and Refurbishment	2
21302111	General Physics	3	20604142	Aircraft Servicing Tools and Refurbishment	1
21302112	General Physics Lab.	1	20204111	AutoCAD	2
			20605141	Aerodynamics	3
			20605142	Aerodynamics Workshops	1
<b>Total</b>		<b>17</b>	<b>Total</b>		<b>18</b>

First Year		
Summer Semester		
Course No.	Course Title	Credit Hours
21901100	Islamic Culture	3
20506111	Occupational Safety	2
20605171	Aircraft Fuel Systems and Servicing	3
20605172	Aircraft Fuel Systems and Servicing Workshops	1
<b>Total</b>		<b>9</b>

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Second Year					
Third Semester			Fourth Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
20605211	Aircraft Structure Repair	3	20201121	Engineering Matreials	2
20605212	Aircraft Structure Repair Workshops	1	20604221	Aircraft Engines	2
20605253	Aircraft Hydraulic Systems	3	20605231	Airframe Mechanics	3
20605254	Aircraft Hydraulic Systems Workshops	1	20605291	Training	3
20605261	Aircraft A/C and Pressurization Systems	3	20605292	Project	3
20605262	Aircraft A/C and Pressurization Systems Workshops	1			
20605251	Airframe Electrical Systems	2			
20605252	Airframe Electrical Systems Lab.	1			
<b>Total</b>		<b>15</b>	<b>Total</b>		<b>13</b>



## Brief Course Description

## University Requirements

Course Title	Course No	Credit Hours ( Theoretical /Practical)
<b>Arabic Language</b>	<b>22001101</b>	<b>3 (3,0)</b>
<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>		
<b>English Language</b>	<b>22002101</b>	<b>3 (3,0)</b>
<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>		
<b>Islamic Culture</b>	<b>21901100</b>	<b>3 (3,0)</b>
<ol style="list-style-type: none"> <li>1. تعريف الثقافة الإسلامية وبيان معانيها وموضوعاتها والنظم المتعلقة بها – وظائفها وأهدافها.</li> <li>2. مصادر ومقومات الثقافة الإسلامية والأركان والأسس التي تقوم عليها.</li> <li>3. خصائص الثقافة الإسلامية.</li> <li>4. الإسلام والعلم، والعلاقة بين العلم والإيمان</li> <li>5. التحديات التي تواجه الثقافة الإسلامية.</li> <li>6. رد الشبهات التي تثار حول الإسلام.</li> <li>7. الأخلاق الإسلامية والآداب الشرعية في إطار الثقافة الإسلامية.</li> <li>8. النظم الإسلامية.</li> </ol>		
<b>Computer Skills</b>	<b>21702101</b>	<b>3 (1-4)</b>
<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>		

**Engineering Program requirements**

<b>Engineering Workshops</b>	<b>20201111</b>	<b>1 (0,3)</b>
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.		
<b>AutoCAD</b>	<b>20204111</b>	<b>2 (0,6)</b>
Introduction to AutoCAD, application of AutoCAD, commands, geometric entities. Geometric construction. Dimensioning, free –hand sketching, object representation, orthographic drawing and projections.		
<b>Occupational safety</b>	<b>20506111</b>	<b>2 (2,0)</b>
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.		
<b>Communication Skills and Technical Writing</b>	<b>21702111</b>	<b>3 (2,2)</b>
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.		
<b>Engineering Materials</b>	<b>20201121</b>	<b>2 (2,0)</b>
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.		
<b>General Mathematics</b>	<b>21301111</b>	<b>3 (2,2)</b>
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)		
<b>General Physics</b>	<b>21302111</b>	<b>3 (2,2)</b>
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.		
<b>General Physics lab</b>	<b>21302112</b>	<b>1 (0,3)</b>
In this course, the student performs thirteen experiments in mechanics and in electricity.		

**Specialization Requirements**

<b>Maintenance Regulations and Airfield Safety</b>	<b>20605111</b>	<b>2(2.0)</b>
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The first part handles those areas related to aircraft maintenance concept, the second part deals with the safety requirements associated with safe operation of the aircraft.

<b>Aircraft Servicing Tools and Refurbishment</b>	<b>20604141</b>	<b>2(2.0)</b>
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Material deals with hand tools and measuring devices, aircraft hardware, aircraft painting and finishing and welding

<b>Aircraft Servicing Tools and Refurbishment Workshop</b>	<b>20604142</b>	<b>1(0,3)</b>
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Hand tools, remove and install bolts and nuts, thread cutting, measurements, drawing, painting, and welding.

<b>Aerodynamics</b>	<b>20605141</b>	<b>3(3,0)</b>
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Material deals with the principles of flight, realms, shock waves, aircraft stability, and aerodynamics for both Fixed and Rotary-wing aircraft.

<b>Aerodynamics Workshop</b>	<b>20605142</b>	<b>1(0.3)</b>
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Aircraft parts, controls, adjustment, measurements, troubleshooting.

<b>Airframe Electrical Systems</b>	<b>20605251</b>	<b>2(2,0)</b>
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Studies about the types of the power supply, controlling, protection and the power utilization components and systems in the aircraft.

<b>Airframe Electrical Systems Lab.</b>	<b>20605252</b>	<b>1(0.3)</b>
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Assembly, disassembly and simulation of aircraft instruments; flight instruments, engine instruments removal & installation. Performing mechanical check for flight instruments, engine instruments and auxiliary instruments. Maintenance & troubleshooting.



<b>Aircraft Engines</b>	<b>20604221</b>	<b>2(2,0)</b>
Generic studies about Reciprocating engines, Turbine engines, and Aircraft Propellers.		
<b>Aircraft Structure Repair</b>	<b>20605211</b>	<b>3(3,0)</b>
Information required for aircraft structural repair such as aircraft structural material, corrosion, and its control, non-destructive inspection and metallic and non metallic repair.		
<b>Aircraft Structure Repair Workshop</b>	<b>20605212</b>	<b>1(0,3)</b>
Corrosion Removal, Cracks identification, Riveting, Bending, Cutting, Sinking and Drilling.		
<b>Aircraft Fuel Systems and Servicing</b>	<b>20605171</b>	<b>3(2,0)</b>
Fuel system components, fire protection system, troubleshooting and repair and full information about aircraft weight and balance and ground handling and servicing an aircraft.		
<b>Aircraft Fuel Systems and Servicing Workshop</b>	<b>20605172</b>	<b>1(0,3)</b>
Fuel systems components, fire protection systems, troubleshooting and repair, weighing an aircraft, tie-down procedure, jacking, lowering, oxygen servicing, fuel servicing, signals, ground servicing equipment, tire inflation, fire protection.		
<b>Aircraft Hydraulic Systems</b>	<b>20605253</b>	<b>3(3,0)</b>
Studies in laws of physics related to hydraulic system, Full system and components for both hydraulic and pneumatic system and types, construction, inspection and servicing for landing gear system, Aircraft wheel and brakes.		
<b>Aircraft Hydraulic System Workshop</b>	<b>20605254</b>	<b>1(0,3)</b>
Hydraulic system components. Operational check. Troubleshooting and repair .Removal and installation of brake system. Wheels, Filters, Steering system.		

<b>Aircraft A/C and Pressurization Systems</b>	<b>20605261</b>	<b>3(3,0)</b>
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Environmental system inside the aircraft cabin, ice and rain control system.

<b>Aircraft A/C and Pressurization Systems Workshop</b>	<b>20605262</b>	<b>1(0,3)</b>
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Components of A/C systems and pressurization system, practical application and troubleshooting, instrumentation, repair.

<b>Airframe Mechanics</b>	<b>20605231</b>	<b>3(3,0)</b>
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Generic studies about the construction of the aircraft, stresses, aircraft design and structures.

<b>Fundamentals of Electricity</b>	<b>20302111</b>	<b>3(3,0)</b>
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The Nature of Electricity ,Current And Voltage And Its Measurements, Ohm's Law In Series Parallel And Network Resistance, Electric Power, Magnetism and electromagnetism ,AC Voltage And Current, RLC series and parallel in AC Circuits, Transformers, Ammeter Voltmeter And Ohmmeter ,Test Instrument , DC And AC Generators And Motors, Relays.

<b>Fundamentals of Electricity Lab</b>	<b>20302112</b>	<b>1(0,3)</b>
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Batteries, DC circuits, DC measurement, AC circuits, AC measurement, magnetism applications, motors and generators.

<b>Training</b>	<b>20605291</b>	<b>3 (280 training hours)</b>
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Equivalent to 8 weeks of field training targeted to emphasize the ability of students to apply the theories in the real world of the profession.

<b>Project</b>	<b>20605292</b>	<b>3</b>
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An integrated design project to practice the principles of analysis and design acquired throughout the course of the student's study.