

## Curriculum for Associated Degree Program in Airframe and Powerplant Engineering Specialization

The curriculum of associate degree program in "Airframe and Powerplant Engineering" specialization consists of 72 credit hours as follows:

Serial No.	Requirements	Credit Hours
First	University Requirements	12
Second	Program Requirements	17
Third	Specialization Requirements	43
<b>Total</b>		<b>72</b>



## The Curriculum of Associated degree in Airframe & Powerplant Engineering 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	
<b>Total</b>		<b>12</b>	<b>10</b>	<b>4</b>	

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

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Pre-req.
			Theoretical	Practical	
20201111	Engineering Workshops	1	-	3	
20204111	Auto Cad	2	-	6	21702101
20506111	Occupational Safety	2	2	-	
21301111	General Mathematics	3	2	2	
21302111	General Physics	3	2	2	
21302112	General Physics Lab	1	-	3	21302111*
21702111	Communication Skills & Technical Writing	3	2	2	22002101
20201121	Engineering Materials	2	2	-	
<b>Total</b>		<b>17</b>	<b>10</b>	<b>18</b>	

\* Co-requisite



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

**Third: Specialization Requirement (43credit hours) as follows:**

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Pre-req.
			Theoretical	Practical	
20607115	General Aviation Science	2	2	0	
20607113	Fundamentals of Aviation Electricity.	2	2	0	
20607114	Fundamentals of Aviation Electricity Lab.	1	0	3	20607113*
20607121	Aircraft Construction	2	2	0	
20607223	Aircraft Ground Handling & Servicing	2	2	0	20607233*
20607224	Aircraft Ground Handling & Servicing workshop	1	0	3	20607223*
20607225	Aircraft Inspections & Maintenance Regulations.	2	2	0	
20607127	Aircraft Structure & Repair.	3	3	0	20607121*
20607128	Aircraft Structure Repair workshop	1	0	3	
20607231	Airframe Electrical, Avionics, Instrument & Fire Protection Systems.	2	2	0	20607113
20607133	Aircraft Hydraulic & Fuel Systems.	2	2	0	
20607234	Aircraft Hydraulic and Fuel Systems workshop	1	0	3	20607233*
20607235	Cabin Control Systems.	2	2	0	
20607237	Aircraft Flight Control Systems& Airworthiness Inspection.	2	2	0	20607115
20607141	Aircraft Engines	2	2	0	
20607142	Reciprocating & Gas Turbine Engines Maintenance workshop	1	0	3	20607141*
20607241	Aircraft Propellers & Repair.	2	2	0	
20607243	Engine Fuel Metering , Induction & Exhaust Systems.	2	2	0	
20607245	Engine Electrical Starting and Ignition System.	2	2	0	20607113
20607239	Engine Lubrication, Cooling and Fire Protection Systems.	2	2	0	
20607246	Powerplant Trouble shooting workshop	1	0	3	20607245*
20607291	Training **	3	0	0	
20607292	Project	3	0	0	
<b>Total</b>		<b>43</b>	<b>31</b>		

\* Co-requisite

\*\* Equivalent to 280 training hours

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

Guiding Plan					
First Year					
First Semester			Second Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
22002101	English Language	3	20204111	Auto Cad	2
21301111	General Mathematics	3	21302111	General Physics	3
21702101	Computer Skills	3	21302112	General Physics (Lab)	1
20506111	Occupational Safety	2	20607115	General Aviation Science	2
20607141	Aircraft Engines	2	20607121	Aircraft Construction	2
20607113	Fundamentals of Aviation Electricity	2	20607127	Aircraft Structure Repair	3
20607114	Fundamentals of Aviation Electricity (Lab)	1	20607128	Aircraft Structure Repair (Workshop)	1
20201121	Engineering Materials	2	20201111	Engineering Workshop	1
			21702111	Communication Skill & Technical Writing	3
<b>Total</b>		<b>18</b>	<b>Total</b>		<b>18</b>

Second Year					
Course No.	Course Title	Credit No.	Course No.	Course Title	Credit No.
20607223	Aircraft Ground Handling & Servicing	2	20607243	Engine Fuel Metering , Induction & Exhaust Systems	2
206207224	Aircraft Ground handling & Servicing (Workshop)	1	20607245	Engine Electrical & Starting & Ignition Systems	2
20607233	Aircraft Hydraulic & Fuel Systems	2	20607225	Aircraft Inspections & Maintenance Regulations	2
20607234	Aircraft Hydraulic & Fuel Systems(Workshop)	1	20607246	Powerplant Trouble Shooting	1
20607237	Aircraft Flight Controls Systems & Airworthiness Inspection	2	20607291	Training	3
22001101	Arabic Language	3	20607292	Project	3
20607241	Aircraft Propellers & Repair	2	20607239	Engine Lubrication , Cooling and Fire Protection Systems	2
20607231	Aircraft Electrical ,Avionics, Instrument & Fire Protection systems	2	21901100	Islamic Culture	3
20607142	Reciprocating & Gas Turbine Engines Maintenance (Workshop)	1			
20607235	Cabin Control Systems	2			
<b>Total</b>		<b>18</b>	<b>Total</b>		<b>18</b>

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

### Brief Course Description

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 ، وقصصية ، من بينها نماذج من الأدب الأردني ؛ يتوخى من قراءتها وتدوقها وتحليلها تحليلاً أدبياً ؛ تنمية الذوق الجمالي لدى الطلاب الدراسين.

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

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 Deal With in the Class Situation Following the Individual Differences.

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

- 1- تعريف الثقافة الاسلامية وبيان معانيها وموضوعاتها والنظم المتعلقة بها- وظائفها وأهدافها.
- 2- مصادر ومقومات الثقافة الاسلامية والاركان والاسس التي تقوم عليها.
- 3- خصائص الثقافة الاسلامية.
- 4- الاسلام والعلم ، والعلاقة بين العلم والايمان.
- 5- التحديات التي تواجه الثقافة الاسلامية.
- 6- رد الشبهات التي تثار حول الاسلام.
- 7- الاخلاق الاسلامية والآداب الشرعية في إطار الثقافة الاسلامية.
- 8- النظم الاسلامية.

Computer Skills	21702101	3(0,6)
-----------------	----------	--------

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-Office 2000, and the Internet.

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

### Program Requirements

<b>Engineering Workshop</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>Auto Cad</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 Handling.		
<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 and Electrical Characteristics of Materials . Industrial 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 ) .Applications of Differentiation ( Increase , Decrease , Concavity ).Graphs of Polynomials: Rols Theorem and Mean-Value Theorem, Integration ( By Substitution , Define Infinite Integral , Fundamentals 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>General Aviation Science</b>	<b>20607115</b>	<b>2(2,0)</b>
---------------------------------	-----------------	---------------

This Subject Deals With Aviation Mathematics, Physics and Aerodynamics Which Cover The Following **Items**:

Arithmetic's, Algebra, Geometry and Trigonometry, Matter and Energy, Work, Power, Force and Motion , Gas and Fluid Mechanics High Speed Aerodynamics and Helicopter Aerodynamics.

<b>Fundamentals of Aviation Electricity</b>	<b>20607113</b>	<b>2(2,0)</b>
---	-----------------	---------------

Study The Nature of Electricity, Theory and Principle, Units of Electrical Measurement, Sources of Electricity , Chemical Action And Magnetism , Current Electricity and OHM'S Law, Circuit Elements , Electric Power , DC and AC Current In Series and Parallel Circuits , Primary & Secondary Cells Batteries , Lead Acid and Nickel Cadmium Batteries , AC Voltage and Current , Resistance , Inductance and Capacitor in AC Circuits , Electron Control Devices and the Use of Electrical Measuring Instruments.

<b>Fundamentals of Aviation Electricity (Lab)</b>	<b>20607114</b>	<b>1(0,3)</b>
---	-----------------	---------------

Airborne Sources of Electrical Power AC & DC, Servicing and Maintenance of Power Source, Voltage Regulation, Power Rectification & Transformation . A/C Batteries Servicing & Maintenance, A/C Electrical Circuits, Wiring Installation, A/C Electrical Components Controlling & Protection Devices. A/C Lighting Systems, A/C Motors and Generator Servicing & Maintenance.

<b>Aircraft Construction</b>	<b>20607121</b>	<b>2(2,0)</b>
------------------------------	-----------------	---------------

Gives Generic Study about Aircraft Structural Materials and Covers the Properties of Metals and Non Metallic Structural Materials. Also Deals with Aircraft Hardware. Used in A/C Structure and Describes the Various Types of Fasteners, Bolts, Nuts, Rivets and miscellaneous small items used in the manufacture and Repair of Aircraft. As Well As Describes and Practice All Types of Drawings.

<b>Aircraft Ground Handling and Servicing</b>	<b>20607223</b>	<b>2(2,0)</b>
---	-----------------	---------------

Ground Handling and Servicing Aircraft Systems and Components Jacking, Tie –Down Procedures, Oxygen, Fuel Servicing, Engine Run-up, Corrosion Identification and Treatment, Fluid Lines and Hoses Identification and Fabrication, Use of Hand Tools and Measuring Devices.

<b>Aircraft Ground Handling and Servicing (Workshop)</b>	<b>20607224</b>	<b>1(0,3)</b>
--	-----------------	---------------

Practical Application In A/C System and Component Servicing, A/C Jacking, Towing, Tie-Down Procedures, Fuel & Oxygen Servicing Corrosion Removal & Treatment, Fluid Lines Fabrication, Mechanical Measuring Devices in Measurement Practices Use of Hand Tools to Remove & Install Components

<b>Aircraft Inspection &amp; Maintenance Regulations</b>	<b>20607225</b>	<b>2(2,0)</b>
--	-----------------	---------------

Describes the Maintenance Instructions, Publication, Records, Required for Maintenance Staff And Focus on the Mechanic Privileges & Limitations, As Well As The Correct Procedures and Methods for Nondestructive Testing and Weight & Balance Instructions and Procedures.

<b>Aircraft Structure Repair</b>	<b>20607127</b>	<b>3(3,0)</b>
----------------------------------	-----------------	---------------

This Subject Describes the Metallic and Non Metallic Construction of Aircraft Structure, the Types of Structural Loads and Stresses Acting on Structural Members, Types of Sheet Metals , Tools , Rivets and Fasteners Used in Repairing structural Parts , Methods and Procedures of Repairing Metallic and Non Metallic Structure ,Welding and Painting Aircraft Structural Parts.

<b>Aircraft Structure Repair (Workshop)</b>	<b>20607128</b>	<b>1(0,3)</b>
---	-----------------	---------------

Recognize Structural Parts , Performing Aircraft Skin and Structural Repair Using Various Types of Rivets and Fastener Use Repair Tool's and Machines for Drilling , Cutting Riveting Bending and Fabricating Structural Parts , As Well As Welding and Painting Metal Parts.

<b>Aircraft Electrical, Avionics, Instrument &amp; Fire Protection Systems</b>	<b>20607231</b>	<b>2(2,0)</b>
--	-----------------	---------------

Studies about The Types of Power Supply, Controlling, Protection and Functional Operation of Electrical Systems Components Methods and Functional Operation of Fir Protection System. Studies in Avionics Fundamentals, Basic Radio Components, Communication , Navigation Systems and Related Components, Auto Pilot & Flight Directors, Installation and Maintenance of Avionics Types and Principle of Operation of Aircraft Instruments, Operation and Function of Position and Warning Systems Components.

<b>Aircraft Hydraulics &amp; Fuel Systems</b>	<b>20607233</b>	<b>2(2,0)</b>
---	-----------------	---------------

Describes the Law of Physics Related to Hydraulic System , Hydraulic Power System Functional Operation , Components Principles of Operation and Construction , Controlling Valves and Pumps Functions , Inspection and Servicing Wheel Brakes and Landing Gear System .As Well As The Study of A/C Fuel System and Related Components.

<b>Aircraft Hydraulic &amp; Fuel Systems Workshop</b>	<b>20607234</b>	<b>1(0,3)</b>
---	-----------------	---------------

To Perform Hydraulic System Functional Operation, Components Inspection Maintenance, Removal & Installation, Wheels and Brake System Inspection, Removal & Installation of Components, Landing Gear System and Shock Strut Operational Check, Servicing and Inspection, Fuel System Servicing, Component Replacement and System Troubleshooting.

<b>Cabin Control Systems</b>	<b>20607235</b>	<b>2(2,0)</b>
------------------------------	-----------------	---------------

This Subject Discuss the Physiology of The Human Body That Determines the Atmospheric Conditions Required for Life , How Oxygen and Cabin Altitude are Controlled to Provide a Livable Atmosphere for the Aircraft Occupants , and How the Comfort Needs of the Passengers and Crew are Met , Also it Deals With Operating and Maintenance Aircraft Ice Prevention and Removal Systems , As Well As Procedures and Equipment for Ground Ice and Snow Removal , Rain Control Systems and Methods of Protecting Windscreens from the Effects of Rain.

<b>Aircraft Flight Controls Systems and Airworthiness Inspection</b>	<b>20607237</b>	<b>2(2,0)</b>
--	-----------------	---------------

Deals With Aircraft Structure Design and Construction, Fuselage And Wings Structures, Powerplant Support Structures , Stability And Control , Primary and Auxiliary Flight Control Systems , Rigging and Alignment of Aircraft Major Structure and Control Surfaces , Forces Acting on Fixed and Rotary Wings Aircraft , Types of Rotor Systems , As Well As The Methods and Procedures of Aircraft Inspection.

<b>Aircraft Engines</b>	<b>20607141</b>	<b>2(2,0)</b>
-------------------------	-----------------	---------------

Discusses the Design and Construction of Reciprocating and Gas Turbine, Engine Components, Engine Instrument, Operating Principles, and Maintenance, Inspection Methods, Trouble Shooting, Parts Replacement and Engine Run-Up.

<b>Reciprocating &amp; Gas Turbine Engines Maintenance (Workshop)</b>	<b>20607142</b>	<b>1(0,3)</b>
---	-----------------	---------------

To Perform Engines, Inspections, Maintenance and Overhaul, Engine Removal and Installation Procedures, Function of Engine Components and Engine Run-Up.

<b>Aircraft Propellers &amp; Repair</b>	<b>20607241</b>	<b>2(2,0)</b>
---	-----------------	---------------

Studies in Propeller Theories, Forces Acting on Propellers, Types of Propellers, Auxiliary Systems, Functions, Maintenance, Removal & Installation

<b>Engine Fuel Metering , Induction &amp; Exhaust Systems</b>	<b>20607243</b>	<b>2(2,0)</b>
---	-----------------	---------------

Complete Studies For Both Fuel Systems Of Reciprocating And Turbine Engines, And Focus On Systems Functional Operation , Component ,Types, Maintenance , Trouble shooting And General System Discrepancies , Also Deals With Induction And Exhaust Systems On Reciprocating And Gas Turbine Engines.

<b>Engine Electrical Starting and ignition System</b>	<b>20607245</b>	<b>2(2,0)</b>
---	-----------------	---------------

Complete Studies in Ignition Circuits for Reciprocating and Gas Turbine Engines, Also it Deals With Generators, Alternators, Electrical System Components, and Magneto Ignition Systems, Magneto Operating Principles, Turbine Engine Ignition Systems Igniters and Ignition System Inspection & Maintenance.

<b>Engine Lubrication Cooling and Fire Protection Systems</b>	<b>20607239</b>	<b>2(2,0)</b>
---	-----------------	---------------

Deals With Functions and Types of Lubrication Oil, System Classification, Engine Lubrication System Components, Functional Operations , System Maintenance and Servicing for Both Reciprocating and Turbine Engine, Also Describe the Cooling Systems Function in Reciprocating and Turbine Engines.

<b>Powerplant Trouble- Shooting (Workshop)</b>	<b>206070246</b>	<b>1(0,3)</b>
--	------------------	---------------

Provides Basic Trouble Shooting Principles and Techniques for Diagnosing and Isolating Common Discrepancies, Or Faults, in Reciprocating and Turbine Engines.

<b>Training</b>	<b>20607291</b>	<b>3 (280 training hours)</b>
-----------------	-----------------	-------------------------------

Equivalent to 280 Hrs of Field Training to Enhance Student Practical Skills and Ability in Airframe & Powerplant Maintenance

<b>Project</b>	<b>20607292</b>	<b>3</b>
----------------	-----------------	----------

An Integrated Project to Practice the Principles of Analysis and Design Acquired Throughout the Course of Student's Study.

