جامعة عمان العربية
AMMAN ARAB UNIVERSITY

College of Aviation Sciences.

Department of Aircraft Maintenance.

B.Sc. Study Plan

Major: Aircraft Maintenance

Academic Year 2024 -2025

Study Plan Credit hour (137) Type of Program: **Blended/ Online/ F2F**

Major Type: ☐ Humanities ■ Scientific/Technical Science Medical

Teaching Type	Percentage of study plan hours/number	Actual Ratio
Complete Online E-Learning	20% - 10% Maximum	19.7 %
Blended learning (for scientific majors)	50% - 30% Maximum	40.2%
Face-to-face learning (for scientific majors)	30% Minimum	40.1 %

Note: The learning types of the courses are disseminated at all academic levels in the program

Department Vision

Excellence in the areas of teaching and learning in aircraft maintenance sciences and scientific research locally and regionally.

Department Mission

Preparing distinguished staff in the field of aircraft maintenance sciences equipped with the knowledge, skills and ethics of the profession, to meet the needs of the local and regional community, in accordance with local and international quality criteria.

Program Mission

Providing a distinguished academic program in the field of aircraft maintenance that is supported by knowledge, skills and professional ethics through specific cadres capable of keeping pace with local and regional organizations in accordance with the standards and enjoyment of e-learning.

Educational Program Objectives

1. Recognizing different aircraft systems and understanding the fundamental principles of flight.
2. Understanding the principles of aircraft engine maintenance and its various systems.
3. Analyzing aircraft malfunctions and performing maintenance which requires a thorough understanding of relevant regulations and procedures.
4. Applying maintenance skills for aircraft systems and engines in accordance with regulations and instructions, while fostering teamwork.
5. Evaluating malfunctions in aircraft systems and engines.
6. Writing special technical reports for regulatory bodies related to the maintenance of aviation electronics.

Educational Program Outcomes

Students who graduate from the aircraft maintenance will demonstrate:

1. Provide students with a comprehensive understanding of both fundamental and modern sciences in the field of aircraft maintenance.
2. Students should understand the operation of all aircraft systems and engines.
3. Students should apply their skills in maintaining aircraft systems and engines while fostering teamwork.
4. Students should analyze technical issues related to aircraft mechanical, hydraulic, and electrical systems.

5. Students should evaluate technical issues related to aircraft maintenance and design.
6. Students should write appropriate technical reports required by regulatory bodies for aircraft maintenance and manufacturers.

Plan Contents

The study plan for a bachelor's degree consists of a major **in Aircraft Maintenance** Of (137) credit hours disseminated as follows:

Sequence	Classification	Credit Hours	Percent %
1st	University Requirements	27	19.71 %
2nd	College Requirements	18	13.13 %
3rd	Program Requirements	83	60.59 %
4th	Free subject	9	6.57 %
Total		137	137

Coding System Approved by the University

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College Code	**Major Code**	**Knowledge domain**	**Course Level**	**Sequence**
Aviation Sciences	Aircraft Maintenance			

Knowledge Domain

Domain Code	Knowledge Domain	Credited Hours of Study Plan
1	General	24
2	Aviation Science	18
3	Electrical and Electronics Fundamentals	13
4	Aircraft Systems	20
5	Aircraft Engines	16
6	Aircraft Maintenance	19

First: University Requirements: (27) Credit Hours

A. **Compulsory Requirements:** (18)Credit Hours

Teaching type			Course Number	Course Title	Credited Hours	Pre-Requisite
Online E-Learning	Blended	Face-to-Face				
X			50511104	Communication Skills -Arabic Language (I)	3	50511111
X			50511105	Communication Skills -English Language (I)	3	50511112
X			50511205	Life skills and social responsibility	3	
X			50511206	National Education	3	
x			50511305	Leadership and Creativity	3	
X			50511308	Military Sciences	3	
		√	50541209	Volunteering and Community Development	0	-
			Total		18	

B. **University Elective Requirements: (9 Credit Hours): Students must select 9 credit hours from the following courses:**

Teaching type			Course Number	Course Title	Credited Hours	Pre-Requisite
Online E-Learning	Blended	Face-to-Face				
X			50521106	Communication Skills -Arabic Language (2)	3	50511104
X			50521107	Communication Skills -English Language (2)	3	50511105
X			50521203	Principles of Psychology	3	-
X			50521204	Human Rights	3	-
X			50531101	Islamic Culture	3	-
X			50531205	Quds and Hashemite Custodianship	3	-
X			50541103	Computer Skills	3	50511113
X			50541204	Environment and Community	3	-
X			50541206	Health and Community	3	-
X			50541208	Introduction to Sustainable Development	3	-
X			50541211	Introduction to Artificial Intelligence	3	-
X			50541308	Foreign Language	3	-
X			50541309	Digital Culture	3	50511113
			Total		9	

c. Compulsory Requirements : (9 Credit Hours)

Learning style			Course No.	Course Title	Cr. Hr.	Prerequisite
Online E-Learning	Blended	Face-to-Face				
√			**50511111**	**Remedial Course in Arabic**	**3**	-
√			**50511112**	**Remedial Course in English**	**3**	-
√			**50511113**	**Remedial Course in Computer Science**	**3**	-

Second: College Requirements: (18) Credit Hours

A. **Compulsory Requirements:** (18) Credit Hours

Teaching type			Course Number	Course Title	Credited Hours	Pre-Requisite
Online E-Learning	Blended	Face-to-Face				
	x		80102203	Aviation Maintenance Management	3	-
	X		80111207	Aviation Law and Air Safety	3	802111202
	X		80201206	Advanced English Language	3	50511105
	X		80112109	Specialized English Language	3	80102106(Blended)
	X		80202109	Computer for Aviation Students	3	
	x		80211102	Introduction to theory flight	3	-
			Total		18	

Third: Program Requirements (92) Credit Hours Compulsory Requirements and Ancillary Courses)

A. **Compulsory Requirements:** (83) Credit Hours

Teaching type			Course Number	Course Title	Credited Hours*	Theoretical	Practical	Pre-Requisite
Online E-Learning	Blended	Face-to-Face						
	x		80101112	Aircrafts Types and Performance	2	2	-	-
	x		80111203	Human Factors	3	3	-	-
	X		80111219	Aviation Legislation and Cyber security	2	2	-	-

	X		80112201	Materials and Hardware (1)	2	2	-	80121208
		X	80112212	Materials and Hardware (1) workshop	2		6	80112201 (B)
	X		80112203	Materials and Hardware (2)	2	2	-	80112201 (B)
		X	80112214	Materials and Hardware (2) workshop	2		6	80112203 (B)
	X		80122104	Electrical Fundamentals (1)	2	2	-	80121208
	X		80122203	Electrical Fundamentals (2)	2	2	-	80122104
		X	80122212	Electrical Fundamentals Lab	2	-	6	80122202 (B)
	X		80122202	Electronic Fundamentals	2	2	-	80122104
		X	80122213	Electronic Fundamentals Lab	2	-	6	80122102 (B)
	x		80122211	Digital Techniques & Electronic Instrument Systems	3	3	-	80122104
	X		80132108	Turbine Aeroplane Aerodynamic Structures & Systems (1) (Theory of Flight and Airframe Structure)	2	2	-	80102104
		x	80132109	Turbine Aeroplane Aerodynamic Structures & Systems (1) (Theory of Flight and Airframe Structure) (Workshop)	2	-	6	80132108 (B)
		X	80133105	Turbine Aeroplane Aerodynamic Structures & Systems (2) Instruments & Avionics	2	-	2	80132109 (B)
		X	80133106	Turbine Aeroplane Aerodynamic Structures & Systems (2) Instruments & Avionics (Workshop)	2	-	6	80133105 (B)

		X	80133207	Turbine Aeroplane Aerodynamic Structures & Systems (3) Electric Power	2	2		80133105 (B)
		X	80133208	Turbine Aeroplane Aerodynamic Structures & Systems (3) Electric Power (Workshop)	2	-	6	80133207 (B)
		X	80134109	Turbine Aeroplane Aerodynamic Structures & Systems (4) (Air Conditioning, Fuel and Flight Control)	2	2	-	80133207 (B)
		X	80134110	Turbine Aeroplane Aerodynamic Structures & Systems (4) (Air Conditioning, Fuel and Flight Control) (Workshop)	2	-	6	80134109 (B)
		x	80134207	Turbine Aeroplane Aerodynamic Structures & Systems (5) (Hydraulic and Oxygen)	2	2	-	80134109 (B)
		X	80134208	Turbine Aeroplane Aerodynamic Structures & Systems (5) (Hydraulic and Oxygen) (Workshop)	2	-	6	80134207 (B)
	X		80143103	Gas Turbine Engine (1)	2	2	-	80102104
		X	80143104	Gas Turbine Engine (1) (Workshop)	2	-	6	80143103 (B)
		X	80143207	Gas Turbine Engine (2)	2	2	-	80143103 (B)
		X	80143208	Gas Turbine Engine (2) (Workshop)	2	-	6	80143207 (B)
	X		80143209	Piston Engines	2	2	-	80121208

		X	80143210	Piston Engines (Workshop)	2	-	6	80143209 (B)
	X		80144111	Propeller	2	2	-	80143103
		X	80144112	Propeller (workshop)	2	-	6	80144111 (B)
		X	80153103	Maintenance Practices (1) (Workshop)	2	-	6	80112214 (B)
		X	80153205	Maintenance Practices (2) (Workshop)	3	-	9	80153103 (B)
		X	80153206	Maintenance Practices (3) (Workshop)	3	-	9	80153205 (B)
	x		80154108	Graduation Project 1	2	-	6	80153206 (B)
	X		80154209	Graduation Project 2	2	-	6	80153108 (B)
		x	80154207	On Job Training	7	-	-	112 Hours on Job Training
			Total		83			

*** Credit Hours**

C. **Ancillary Courses** (9) Credit Hours:

Teaching type			Course Number	Course Title	Credited Hours*	Theoretical	Practical	Pre-Requisite
Online E-Learning	Blended	Face-to-Face						
		X	80102104	Basic Aerodynamics	3	3	-	80121208
		X	80102205	Basic Aerodynamics work shop	1	-	3	80102104
	X		80121107	Mathematics for Aviation Students	2	2	-	-
	X		80121208	Physics for Aviation Students	3	3	-	-
			Total		9			

*** Credit Hours**

Guidance plan

First Year

First Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80211102	Introduction to theory flight	B	3	-	-
80101112	Aircrafts Types and Performance	B	2	-	-
80121107	Mathematics for Aviation Students	B	2	-	-
-	University requirement	U	3	-	-
-	University requirement	U	3	-	-
-	University requirement	U	3	-	-
Total			(16)		

Second Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80201206	Advanced English Language	B	3	50511105	-
80111207	Aviation Law and Air Safety	B	3	80211102	-
80111203	Human Factors	B	3	-	-
80121208	Physics for Aviation Students	B	3	-	-
80111219	Aviation Legislation and Cybersecurity	B	2	-	-
	University Requirement	U	3	-	-
Total			(17)		

*** Credit Hours**

Second Year

First Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
	University Requirement	U	3	-	-
80202109	Computer for Aviation Students	B	3		-
80102104	Basic Aerodynamics	F	3	80121208	-
80122104	Electrical Fundamentals (1)	B	2	80121208	-
80112109	Specialized English Language	B	3	80201206	-
Total			17		

Second Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80102203	Aviation Maintenance Management	B	3	-	-
80122203	Electrical Fundamentals (2)	B	2	80122103	-
80122212	Electrical Fundamentals workshop.	F	2	-	80122203
80122202	Electronic Fundamentals	B	2	80122104	-
80122213	Electronic Fundamentals workshop	F	2	-	80122104
	University Requirement	U	3	-	-
80112203	Materials and Hardware (1)	B	2	80121208	-
80112212	Materials and Hardware (1) workshop	F	2	-	80112201
Total			(18)		

*** Credit Hours**

Third Year

First Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80122211	Digital Techniques & Electronic Instrument Systems	B	3	80122104	-
80132108	Turbine Aeroplane Aerodynamic Structures & Systems (1)	B	2	80102104	-
80132109	Turbine Aeroplane Aerodynamic Structures & Systems (1) (Workshop)	F	2	-	80132108
80133105	Turbine Aeroplane Aerodynamic Structures & Systems (2)	F	2		80132109
80133106	Turbine Aeroplane Aerodynamic Structures & Systems (2) (Workshop)	F	2	-	80133105
80133207	Turbine Aeroplane Aerodynamic Structures & Systems (3)	F	2	-	80133105
80133208	Turbine Aeroplane Aerodynamic Structures & Systems (3)(Workshop)	F	2	-	80133207
80112203	Materials and Hardware (2)	B	2		80112201
80112214	Materials and Hardware (2) workshop	F	2	-	80112203
Total			(19)		

*** Credit Hour**

Second Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80102205	Basic Aerodynamics workshop	F	1	80102104	-
80134109	Turbine Aeroplane Aerodynamic Structures & Systems (4)	F	2	-	80133207
80134110	Turbine Aeroplane Aerodynamic Structures & Systems (4) (Workshop)	F	2	-	80134109
80134207	Turbine Aeroplane Aerodynamic Structures & Systems (5)	F	2	-	80134109
80134208	Turbine Aeroplane Aerodynamic Structures & Systems (5) (Workshop)	F	2	-	80134207
80153103	Maintenance Practices (1) (Workshop)	F	2	-	80112214
80153205	Maintenance Practices (2) (Workshop)	F	3	-	80153103
80153206	Maintenance Practices (2) (Workshop)	F	3	-	80153205
Total			17		

*** Credit Hours**

Fourth Year

First Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80154108	Graduation Project 1	B	2	-	80153206
80143103	Gas Turbine Engine (1)	B	2	-	80102104
80143104	Gas Turbine Engine (1) (Workshop)	F	2	-	80143103
80143207	Gas Turbine Engine (2)	F	2	-	80143103
80143208	Gas Turbine Engine (2) (Workshop)	F	2	-	80143207
80144111	Propeller	B	2	-	80143103
80144112	Propeller (workshop)	F	2	-	80144111
Total			14		

*** Credit Hours**

Second Semester					
Course No.	Course Title	Type of Learning	Credited Hours*	Prerequisite	Co-requisite
80143209	Piston Engines	B	2	80121208	-
80143210	Piston Engines (Workshop)	F	2	-	80143209
80154209	Graduation Project (2)	F	2	80154108	
80154207	On Job Training	F	7	-	
	University requirement	O	3	-	-
Total			16		

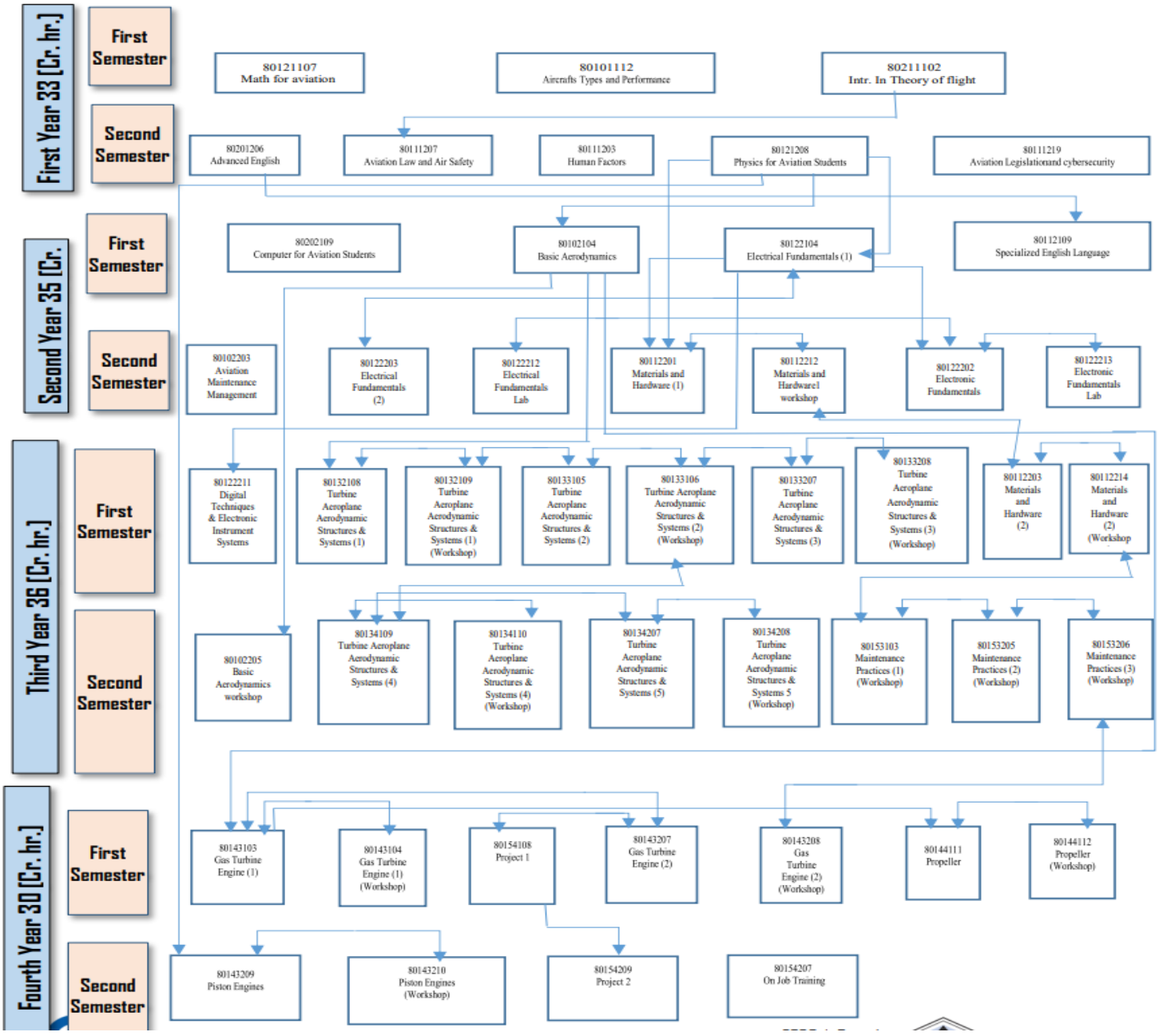
*** Credit Hours**

Courses Tree

Courses Tree

Faculty: Aviation Sciences **Department: Aircraft Maintenance**

Major: Aircraft maintenance **Program:** **Issue Date:2024/2025**



Course Description

80102203 Aircraft Maintenance Management (3 Credit Hrs, Th (3), P (0), Prerequisite: Non, Type of Learning: Blended).

Topics related to aviation maintenance management include the development of aircraft maintenance programs, certification requirements, maintenance documentation, technical publications, and technical services.

80111207 Aviation Law and Air Safety (3 Credit Hrs. Th (3), P (0) , Prerequisite: 80211102, Type of Learning: Blended).

International organizations and agreements, aircraft airworthiness, aircraft registration markings, crew licenses, aviation regulations, air accident investigations, and search and rescue operations.

80201206 Advanced English Language (3 Credit Hrs., Th(3), P(0), Prerequisite:50511105, Type of Learning: Blended).

This Course is designed to enhance students' English language skills in listening, speaking, reading, and writing, in addition to vocabulary and pronunciation and Communication skills

. The Teacher's resource book provides teachers with classroom activates that supplement the material in the student's book.

The workbook contains activities for extra practice in listening, grammar, writing, and vocabulary, an audio CD is included for use in the listening section.

80112109 Specialized English Language (3 Credit Hrs., Th(3), P(0), Prerequisite:: 80202106, Type of Learning: Blended).

This subject includes various topics related to aviation aimed at improving the student's technical language, such as manufacturing techniques, control systems, safety, and electrical systems. Preparing students for technical writing and preparing reports for regulatory bodies related to aircraft.

80202109 Computer for Aviation Students (3 Credit Hrs., Th(3), P(0), Prerequisite: Non, Type of Learning: Blended).

This course covers fundamental concepts of programming in a selected language, including programming basics such as variables, data types, control statements, arrays, functions, and pointers. It also includes an introduction to MATLAB.

80211102 Introduction to theory flight (3 Credit Hrs., Th(3), P(0), Prerequisite: Non, Type of Learning: Blended).

The four forces acting on an airplane, Bernoulli's principle, lift and Newton's third law, the axes of the airplane, and the aircraft control surfaces.

80101112 Aircraft Types and Performance (2 Credit Hrs., Th(2), P(0), Prerequisite: Non, Type of Learning: Blended).

Topics related to types of aircraft and their performance, such as single-engine and twin-engine aircraft, and evaluating their performance throughout all phases of flight.

80111203 Human Factors (3 Credit Hrs., Th(3), P(0) , Prerequisite: Non, Type of Learning: Blended).

What are human factors? The SHEL model, accidents attributed to human factors, human errors, Murphy's Law, human performance and limitations, vision, hearing, information processing, fear of confined spaces and physical entry, fear of heights, social psychology, motivation and demotivation, peer pressure, cultural topics, personality types, teamwork, management, supervision and leadership, maintenance resource management, physical environment, stress, time pressure and deadlines, workload and overload, sleep, fatigue and shift work, alcohol, drug misuse and treatment, diet and nutrition, noise and fumes, lighting, climate and temperature, movement and vibration, work environment, tasks, physical work, repetitive tasks, visual inspection, integrated systems, communication within and between teams, work recording, continuity, currency, information dissemination, human error, theories and models of error, types of errors in maintenance tasks, consequences of errors, error avoidance and management, workplace hazards, risk identification and avoidance, emergency response, risk assessment.

80111219 Aviation Legislation and Cybersecurity (2 Credit Hrs., Th(2), P(0), Prerequisite: Non, Type of Learning: Blended).

Duties and responsibilities of the Civil Aviation Authority, aircraft covered by the Civil Aviation Authority system, the International Civil Aviation Organization (ICAO), the European Union Aviation Safety Agency (EASA), the roles of EASA members, licensing of maintenance personnel, license categories, privileges of the license, basic knowledge requirements for licensing, specialized courses, examination standards and requirements, application for licensing approved maintenance organizations, employee licensing – technical staff and support personnel, equipment, tools and materials, acceptance of components, maintenance data, productivity planning, maintenance practice authorization, maintenance records, maintenance procedures and quality systems, management of Part-145 (maintenance organization), non-commercial air transport maintenance organizations, aviation operating licenses, operator responsibilities, aircraft maintenance logs and manuals, transportation of hazardous materials by air, certified organization structure, supplementary competency certificate, registration certificate, aircraft airworthiness certificate, licensing and approval for aircraft communication stations, components, non-commercial air transport maintenance organizations, aircraft maintenance and continuing airworthiness, re-licensing an aircraft for service, airworthiness of aircraft, maintenance of light aircraft, hazardous maintenance tasks, inspection and examination operations, aircraft airworthiness directives, maintenance publications, maintenance information from manufacturers, upgrades and repairs, cybersecurity in aviation, methods for preventing cyber attacks, backup operations and information security, and uses of artificial intelligence in combating cyber-attacks.

80112201 Materials and Hardware (1) (2 Credit Hrs., Th(2), P(0), Prerequisite: 80121208, Type of Learning: Blended).

Materials and tools used in aircraft construction, including: inspection materials, aircraft materials primarily containing iron, aircraft materials primarily not containing iron, plastic and flexible materials, composite materials, wood and wooden structures, fabric coverings, rust, fasteners, threaded bolts, screws, nuts and bolts, coupling tools, and gaskets used in aircraft.

80112212 Materials and Hardware (1) (workshop) (2 Credit Hrs., Th(0), P(6) Prerequisite: 80112201, Type of Learning: Face to face).

Implement the following practical applications: assembling metal sheets using a type of gasket, distinguishing between different types of rust, manually removing rust, and using various types of precise measuring tools such as callipers

80112203 Materials and Hardware (2) (2 Credit Hrs., Th(2), P(0) ,Co- requisite: 80112201, Type of Learning: Blended).

Solid materials (hard), semi-solid materials, flexible units and tubes, springs, types of bearings, power transmission components including belts, pulleys, gears, and chains, control cables, and types of electrical wires and connectors.

80112214 Materials and Hardware (2) (Workshop) (2 Credit Hrs. Th(0), P(6), Prerequisite: 80112203, Type of Learning: Face to face).

Implement the following practical applications: cutting lines using pipe cutting tools, expanding the ends of solid pipes, distinguishing between different types of bearings, inspecting control cables, and disassembling and assembling pipe lines.

80121107 Mathematics for Aviation Students (2 Credit Hrs. ,Th(2), P(0), Prerequisite : Non, Type of Learning: Blended).

Arithmetic, types of fractions, decimal fractions, percentages, arithmetic mean, median, mode, and range. Angles, including definitions of angles and transformations, types of angles, triangles, area and volume of common shapes, surface area and volume of common solid objects, common conversions, algebra, substitution, linear equations, exponents and powers, standard form, number systems including binary, decimal, octal, and hexadecimal systems, simultaneous equations, quadratic equations, types of logarithms, geometry, trigonometry, coordinates and graphs, Cartesian and polar coordinates.

80121208 Physics for Aviation Students (3 Credit Hrs., Th(3), P(0), Prerequisite: Non, Type of Learning: Blended).

Matter, the nature of matter, components of the atom, states of matter, static bodies containing mass, force and

weight. Stress and Hooke's Law, the nature and properties of solids, liquids, and gases, pressure, forces, and equilibrium. Variable linear motion, types of motion, moving bodies and Newton's laws, rotational motion, friction, work, power, and torque. Fluid dynamics in the atmosphere, density, specific gravity (relative density), compressibility, viscosity, and Bernoulli's principle, thermodynamics, optics, wave motion, and sound.

80102104 Basic Aerodynamics (3 Credit Hrs., Th(3), P(0), Prerequisite: 80121208, Type of Learning: Face to Face).

Aerodynamics and geometric definitions, aircraft resistance to air, altitude increase, wing shapes, flight control, forces acting on the aircraft during flight, flight in rotational attitudes, and states of equilibrium of the aircraft.

80102205 Basic Aerodynamics (workshop) (1 Credit Hrs., Th(0), P(3), Prerequisite: 80102104, Type of Learning: Face to Face).

Using a wind tunnel to conduct the following experiments: the effect of air resistance on aerodynamic shapes, practical application of Bernoulli's principle on the aerodynamic shape, hands-on use of a fluid pressure gauge, observing the adhesion of a thin layer of air to the wing surface, identifying the locations of primary control surfaces on the aircraft and their operation from the cockpit, airflow trajectory over the wing surface, and describing and operating the three main control surfaces along with the auxiliary surfaces for landing and turning.

80122104 Electrical Fundamentals (1) (2 Credit Hrs, Th(2), P(0) , Prerequisite: 80121208, Type of Learning: Blended).

Testing and assembling basic electronic components and understanding their operation, building fundamental electronic circuits using components such as diodes and transistors, and exploring their applications in various electrical systems.

80122212 Electrical Fundamentals Lab. (2 Credit Hrs, Th(0), P(6), Co-Requisite: 80122202, Type of Learning: Face to Face).

Implement the following practical applications: measuring direct and alternating current voltage, measuring direct and alternating current, measuring resistance, connecting loads in parallel, connecting loads in series, assembling and disassembling direct current generators, testing capacitors and coils. Additionally, study electrical transformers and their types.

80122203 Electrical Fundamentals (2) (2 Credit Hrs, Th(2), P(0) ,Co-requisite: 80122104, Type of Learning: Blended).

Magnetism, inductance/inductor, direct current motors and generators, including the principle of operation, construction, reactive force of the produced member, types of direct current motors, reverse rotation, motor speed, alternating current theory, transformers, including the principle of operation, transformer construction,

properties of the core material, transformer windings, types of transformers, filters, types of alternating current generators, and types of alternating current motors.

80122202 Electronic Fundamentals (3 Credit Hrs., Th(3), (P0), Prerequisite: 80122104, Type of Learning: Blended).

Semiconductors, solid-state devices, diodes, transistors, integrated circuits, and printed circuit boards.

80122213 Electronic Fundamentals Lab (2 Credit Hrs., Th(0), P(6) , Co-Requisite: 80122202, Type of Learning: Face to Face).

"Inspection and installation of basic electronic components and understanding their operation, building basic electronic circuits using components such as diodes and transistors, and their applications in various electrical systems."

80122211 Digital technologies, devices, and electronic systems (3 Credit Hrs., Th(3), P(0) , Prerequisite: 80122104, Type of Learning: Blended).

Electronic measuring systems, numbering systems, information conversion, data buses, logic circuits, basic computer architecture, description of optical fibers, optical fibers and cables, optical sources and optical transmission devices, electronic display screens, electrostatic-sensitive devices, management of regulatory software, and the electromagnetic environment.

80132108 Turbine Aeroplane Aerodynamic Structures & Systems (1) (Theory of Flight and Airframe Structure) (2 Credit Hrs., Th (2) , P(0) , Prerequisite: 80102104, Type of Learning: Blended).

The effect of the weight factor on deficiency and construction constraints, factors influencing increased altitude and active and automatic dynamic stability of the aircraft, wing shapes, flight control, forces acting on the aircraft during flight, flying in rotational modes, and conditions of aircraft stability.

80132109 Turbine Aeroplane Aerodynamic Structures & Systems (1) (Theory of Flight and Airframe Structure) (Workshop) (2 Credit Hrs., Th(0), P(6) ,Co-Requisite: 80132108, Type of Learning: Face to Face).

Implementation of the following practical applications: airflow patterns around the streamlined shape, description and operation of the tail cone and auxiliary rudder, control system for the main and auxiliary rudders, aircraft doors, operational inspection of the speed brake system (spoiler), painting an aluminium sheet according to the aircraft manual instructions, balancing the wing surface, external inspection of the wing, inspection of the wing-tip, leading edge support, leading edge skin, the rib, and the stabilizers.

80133105 Turbine Aeroplane Aerodynamic Structures & Systems (2) (Instruments & Avionics) (2 Credit Hrs., Th (2) , P(0) , Prerequisite: 80132109, Type of Learning: Face to Face).

Instrument Systems, Aircraft Indicating Systems – General, Pressure Measuring Instruments, Temperature Measurement, Quantity Indication System, Stall Warning and Angle of Attack Systems, Pitot-Static Systems,

Altimeters, Vertical Speed Indicator (VSI), Airspeed Indicator (ASI), Temperatures, Mach Speed, Air Data Computer, Gyroscopic Instruments, Magnetic Compasses, Autoflight, Communications, On Board Maintenance Systems, Central Maintenance System (CMS), Built In Test Equipment (BITE) Philosophy, Aircraft Condition Monitoring System (ACMS), Ground Support Equipment (GSE), Data Loading Systems, Electronic Library System (ELS), Airborne Printer, Structure Monitoring.

80133106 Turbine Aeroplane Aerodynamic Structures & Systems (2) Instruments & Avionics (Workshop) (2 Credit Hrs., Th(0) , P(6), Co-Requisite: 81033105), Type of Learning: Face to Face).

The students can be able to carry out the following practical applications: Pitot static system leakage test, purging pitot and static lines, Removal and installation of pitot and static head, Testing of Mach and airspeed warning system, Instrument panel removal and installation, Stall warning transducer vane heaters operational check, and Removal and installation of flap travel monitor switch. Implementation of the following practical applications: Pitot static system leakage test, purging pitot and static lines, Removal and installation of pitot and static, disassembling and assembling the speed and altitude measurement system head, testing the Mach and flight speed warning system, disassembling and assembling the instrument panel, operational testing of the fan heater in the stall warning system, and disassembling and assembling the flip monitoring switch.

80133207 Aeroplane Aerodynamic Structures & Systems (3) (Electric Power), (2 Credit Hrs.,Th (2) , P(0), Co-requisite : 80133105, Type of Learning: Face to Face).

Types of electrical power, batteries, generation of direct current, generation of alternating current, voltage regulator, constant speed drive unit, integrated generator and motor, brushless generator, generator with fixed frequency and variable speed, emergency power generator, transformer regulators, inverters, power sources, external ground power, electrical power distributor, connecting and disconnecting the electrical generator, electrical circuit protection, electrical distribution systems, distribution of real and reactive load, removal of AC loads, fault protection, self-testing, control devices and cockpit indicators, and lighting.

80133208 Turbine Aeroplane Aerodynamic Structures & Systems (3) (Electric Power) (Workshop) (2 Credit Hrs, Th (0) , P(6) , Prerequisite: 80133207, Type of Learning: Face to Face).

Implementation of the following practical applications: disassembling and assembling the battery, disassembling and assembling the electrical coil protection feeder, disassembling and assembling the battery temperature sensor, disassembling and assembling inverters No. 1 and 2, discharging and removing the battery, testing the resistance of the battery temperature sensor, maintaining the battery after overheating, operational testing of the AC power generator system and the AC generator system, charging the battery, inspecting the battery system, flood lighting system, thunderstorm lights, warning and signaling lights, landing and runway lights, ice test lights, collision avoidance lights, position and tilt lights, cockpit dome lights, cabin service lights, indirect lighting, emergency lighting, disassembling and assembling the warning and alert panel, installing tilt lights and lower collision avoidance

lights, and calibrating the landing and runway lights.

80134109 Turbine Aeroplane Aerodynamic Structures & Systems (4) (Air Conditioning, Fuel and Flight Control) (2 Credit Hrs., Th(2) , P(0) , Co-requisite: 80133207, Type of Learning: Face to Face).

Air supply, air conditioning and cooling, pressure control inside the cockpit, safety and alarm systems, interior equipment and furnishings, emergency equipment, emergency evacuation, cockpit, seat belts and shoulder harnesses, cabin, galley, cargo compartments, passenger service units, peace, in-cabin entertainment systems, maintenance applications, fire detection and extinguishing systems, flight control surfaces, and fuel systems.

80134110 Turbine Aeroplane Aerodynamic Structures & Systems (4) Air Conditioning, Fuel and Flight Control) (Workshop) , (2 Credit Hrs., Th(0), P(6) , Co-Requisite: 80134109, Type of Learning: Face to Face).

Implementation of the following practical applications: disassembling and assembling components of the air conditioning and cooling systems, fuel systems, and aircraft control systems; inspecting fire extinguisher valves; checking interior equipment; examining the seat belt retractor; performing an actual operation of the fire detection system; and inspecting the fin stabilization system.

80134207 Turbine Aeroplane Aerodynamic Structures & Systems (5) HYD, LDG., Oxygen and De-Icing (2 Credit Hrs., Th(2) , P(0), Co-requisite: 80134109, Type of Learning: Face to Face).

Fluid pressure theory, design of the aircraft fluid pressure system, hydraulic oil, hydraulic pump, pressure generation in emergencies, components of the fluid pressure system, warning and alert systems, ice prevention and rain removal, systems for using potable and non-potable water, landing gear system, wheels, brakes, anti-skid system, oxygen system and its uses for crew and passengers, safety and maintenance standards, air suction system, and high and low gas pressure systems.

80134208 Turbine Aeroplane Aerodynamic Structures & Systems (5) HYD, LDG., Oxygen and De-Icing (Workshop) (2 Credit Hrs., Th(0) , P(6) , Co-Requisite: 80134207, Type of Learning: Face to Face).

Implementation of the following practical applications: disassembling and assembling control switches for fluid pressure systems, hydraulic pump, pressure sensors, windshield wipers, wheels and brakes, oxygen cylinders, oxygen flow regulator valve, refilling the hydraulic reservoir, performing an actual operation of the fluid pressure system on the aircraft, landing system operation, inspecting the anti-skid system, checking the aircraft's ground steering system, pressure storage system inspection, and testing the aircraft speed measurement system.

80143103 Gas Turbine Engine (I) (2 Credit Hrs., Th(2) , P(0) , Prerequisite: 80102104, Type of Learning: Blended).

Gas turbine engines, including: types of jet propulsion, measuring power in turboprop aircraft engines and engine evaluations, air intake design and its types and influencing factors, types of axial air compressors, combustion

section: types and cooling methods for the combustion chamber, turbine section: construction and types of turbines, cooling and securing turbine blades, exhaust functions and construction, sound suppressors, thrust reverser, bearings, and housings, lubricating oils, supply sources, lubrication, oil properties, oil additives, types of oil, international fuel specifications, types of aircraft fuel, fuelling/draining fuel and fuel tanks, fuel contamination. Lubrication systems, basic requirements, types of bearing lubrication, anti-leak valves, subsystem venting, metal chip detection, hydro-mechanical control units, relative flow control, acceleration control units, engine protection devices, systems, and full electronic engine control.

80143102 Gas Turbine Engine (1) (Workshop), (2 Credit Hrs., Th(0), P(6) , prerequisite: 80143103, Type of Learning: Face to Face).

Implementation of the following practical applications: inspecting and installing the anti-ice system, inspecting the combustion chamber and turbine cover, inspecting and cleaning the exhaust and bearings, removing and installing the filtration filters, and removing and installing the fuel pump and its associated pipes

80143207 Gas Turbine Engine (2) (2 Credit Hrs.,Th(2), P(0) , Co-Requisite: 80143103, Type of Learning: Face to Face).

Gas turbine engine, which includes: air cooling and internal casings, control of axial load bearings, hot air systems and anti-ice systems, ignition systems and ignition units, engine indication systems in the cockpit, measuring exhaust temperature and gas temperature, pressure measurement, fuel flow indicator, engine speed, free turbine systems and turbine gears, hydraulic mechanical fuel control system, safety devices, turbo engine configurations, engine control systems, auxiliary power unit monitoring, engine controls, engine construction unit, fire protection, engine installation and removal, fire detection and extinguishing systems, engine monitoring and ground operation.

80143208 Gas Turbine Engine (2) (Workshop), (2 Credit Hrs., Th(0), P(6), Co-Requisite: 80143207, Type of Learning: Face to Face).

Implementation of the following practical applications: removing, installing, testing, and inspecting the ignition units in the engine; checking engine speed indicators; explaining the post-combustion system in the engine; removing and installing the air pressure control units; removing, inspecting, and reinstalling the oil chip detector; removing and inspecting fuel filters; operating the auxiliary power units and checking the fire detection and extinguishing systems.

80143209 Piston Engines (2 Credit Hrs., Th(2) , P(0), Prerequisite: 80121208, Type of Learning: Blended). Self-cycle engine, diesel engines, and two-stroke engines, compression ratio and efficiency, measurement of energy, and factors affecting energy; structural arrangements, connecting links, cylinders, pistons, and valve control mechanisms; energy supply, air-fuel mixing, fuel system and fuel float chamber, fuel injection systems, principles of construction and typical operation of pressure fuel injectors, high-pressure ignition systems, magnetic generators, ignition wires and spark plugs, ignition systems, air intake system, exhaust and cooling systems, cylinder cooling, air intake system, air charger/jet air charger, air-dependent engines, oil viscosity, oil selection and characteristics, fuel grades, octane and lead ratios, aviation gasoline and diesel, lubrication systems, other functions of oil, oil distribution system, engine system indicators, pressure and temperature measurement, and engine removal and replacement.

80143210 Piston Engines (Workshop) (2 Credit Hr., Th (0) , P(6), Co-Requisite: 80143209, Type of Learning: Face to Face).

Implementation of the following practical applications: making adjustments to the valve clearance, inspecting and verifying the engine cylinder, installing the engine cylinder, inspecting the cylinder block, inspecting and maintaining the reciprocating engine mixer, removing, inspecting, and installing the air intake system for the reciprocating engine, disassembling and reassembling turbocharger components, inspecting cylinder cooling fins, removing, inspecting, and reinstalling spark plugs, removing magnetic generators, disconnecting ignition wires, removing and installing the oil pipe, removing and maintaining the oil filter, inspecting and maintaining the exhaust system of the reciprocating engine, and removing and reinstalling the fan.

80144111 Propellers (2 Credit Hrs., Th (3) , P(0) , prerequisite: 80143103, Type of Learning: Blended). Structure and modern developments in propeller design, effective propeller angle, geometric angle and slip, angle of airflow impact on the propeller, forces acting on blade components, variation in fixed propeller angle and its effect on propeller efficiency with speed, reverse thrust, forces acting on the propeller, single-engine aircraft, configuration of the turboprop engine, types of propellers, fixed-pitch propeller, ground-adjustable propeller, dual-pitch propeller, single-acting propeller, double-acting propellers, and constant-speed propeller control systems, dual-acting propeller, standard Hamilton propeller, principles of angle adjustment, beta control for electrically operated propellers, propeller connected to the electronic fade system, antifreeze fluids, electrical de-icing and anti-icing systems, engine control, and operational procedures.

80144112 Propellers (Workshop) (2 Credit Hrs., Th (0) , P(6) , Co-Requisite: 80144111, Type of Learning: Face to Face).

Implementation of the following practical applications: understanding the process of angle distribution and twisting of the propeller and the forces acting on the propeller, multiple propeller angles, and tracking propeller

performance.

80153103 Maintenance Practices (1), Workshop (2 Credit Hrs, Th(0) , P(6), Co-Requisite: 80112214, Type of Learning: Face to Face).

Implementation of the following practical applications: inspecting control wires, removing terminals using electrical and hand tools, using testing tools to measure voltage, current, and electrical resistance, measuring external dimensions using precision measuring instruments, and inspecting braking systems for wear limits.

80153205 Maintenance Practices (2) (Workshop) (3 Credit Hrs., Th(0), P(9) , Co-Requisite: 80153103, Type of Learning: Face to Face).

Implementation of the following practical applications: disassembling, repairing, installing, and inspecting various types of fasteners, pipes, pulleys, control wires, and different control system

80153206 Maintenance Practices (3) (Workshop) (3 Credit Hrs., Th(0), P(9) , Co-Requisite: 80153205, Type of Learning: Face to Face).

Welding, Brazing, Soldering And Bonding, Aircraft Weight And Balance, Aircraft Handling And Storage, Disassembly Inspection, Repair And Assembly Techniques, Abnormal Events, Includes: (High Intensity Radiated Fields (Hirf) Penetration, Hard Landing , Overweight Landing, Severe Or Unusual Turbulence Inspections, Landing Gear Down And Flap/Slat Overspeed , Brake Overheat/High Energy Stop, Bird/Hail Strike, Battery Electrolyte Contamination Condition, Mercury Spillage Condition, Flight Through Volcanic Ash, And Airframe Vibration Condition) And Maintenance Procedures

80154108 Graduation Project (1) (2 Credit Hrs., Th(2) , P(0) , Co-Requisite: 80153206, Type of Learning: Blended).

Directed readings in the speciality of aircraft maintenance. Introduction to research methods. Panel discussions on specialized topics of current interest. The first phase of the project

80154209 Graduation Project (2) (2 Credit Hrs., Th(0) , P(2) , Co-Requisite: 80154108, Type of Learning: Blended).

The student or a group of students chooses a theoretical or practical project related to specialized areas of aircraft maintenance. At the end of the project, the student presents an exam, a technical report, and a presentation to discuss the project.

80154207 On Job Training (7 credit Hrs., Th(0), P(112 Hrs.), Type of Learning: Face to Face). It includes all practical activities carried out in the aircraft maintenance hangar and workshops, such as raising aircraft, ground handling, and inspecting aircraft systems, functional operations, maintenance and repairs, troubleshooting and fixing issues, replacing and testing parts using all required special tools, ground equipment,

and training manuals, in addition to adhering to all safety requirements while working on all aircraft components and the following systems:

- Electrical and electronic systems.
- Digital instrument systems.
- Engine systems.
- Pneumatic and hydraulic systems.
- Aircraft fuel systems.
- Flight control systems.
- Environmental systems.
- Airframe repair and aircraft design