College: Aviation Sciences

Avionics Science

Study Plan -Bachelor's Degree

Major: Avionics

Academic Year: 2022-2023

Program Mission

Preparing academically and professionally qualified specialists in the field of avionic sciences through practical application in specialized laboratories and workshops to meet the needs of the local and regional labor market in accordance with the standards for integrating e-learning.

Educational Program Objectives

1. Providing students with applied and cognitive skills qualifying them in the field of avionics.
2. Preparing specialists capable of working in the field of avionic technologies and sciences locally and regionally.
3. Providing students with the concepts of electrical and electronic systems and control systems related to aviation.
4. Enabling students to detect errors in electrical and electronic systems, control systems, and various maintenance methods

Educational Program Outcomes

The expected outcomes of this program are preparing graduates competent in:

1. Understand theories of operation and control of aircraft engines and various navigation devices, as well as written maintenance information.
2. Carry out maintenance for all electronic systems, according to the relevant technical bulletins.
3. Analyze aviation systems in various practical fields.
4. Acquire effective work skills working in team works.
5. Design simulations to solve problems in avionics.

Study Plan Components

The study plan for the bachelor's degree in aircraft electronics sciences consists of 137 credit hours distributed as follows:

Sequence	Type of Requirement	Credit Hours	Percentage
Firstly	University Requirements	27	19.70 %
Secondly	College Requirements	18	13.15 %
Thirdly	Major Requirements	92	67.15 %
Total		137	100 %

The coding system approved by the university:

8	0 2	0	1 1	0 1
College Code Aviation Sciences	**Major Code** Aircrafts Sciences 1 Avionics Sciences 2	**Knowledge Domain**	**Course Level**	**Sequence**

Knowledge Domains

Domain Code	Knowledge Domain	Number of credit hours in the study plan
0	General Aviation, Advanced English 1, Advanced English 2, Aviation Maintenance Management.	9
1	Airframes, aircraft types and performance, Materials and hardware, basics of aerodynamics, flight theory, Human Factors, Aviation Legislation, Ref: JCARC&EASA Part -66 by TTS Integrated Training System, Total Training Support.	28
2	Electric circuits Fundamentals, electromagnet, electric forces, automatic control, basics of electronics, digital techniques, electronic devices and systems, systems and signals, digital signal processing, physics, Mathematics, Avionics, Ref: JCARC&EASA Part -66 by TTS Integrated Training System, Total Training Support, Heathkit Educational System, Experiment Manual.	24
3	Airframe Aerodynamics structures and Systems, automated flight systems, Communications and Navigation systems, Propulsion and Indications, Hydraulic and oxygen systems, Ref: Basic Practical Log Book, Aircraft ATA Chapters, JCARC&EASA Part -66 by TTS Integrated Training System, Total Training Support.	18
4	Instrumentation and metering systems, HVAC, fuel and steering systems, information and data systems and cockpit maintenance, maintenance work practices and field training, Ref: A/C AMM Aircraft Maintenance Manuals, Structural repair and Trouble Shooting Manuals.	31

1. University Requirements: (27 Credit Hours)

A. Compulsory Requirements: (18 Credit Hours)

Course No.	Course Title	Credit Hr.	Pre- requisite
50511108	Arabic Language (1)	3	50511108
50511109	English Language (1)	3	50511109
50511206	National Education	3	
50511308	Military Sciences	3	
55011110	Computer Skills basics	0	-
50511108	Arabic Language Basics	0	-
50511109	English Language Basics	0	-
50511305	Leadership and innovation	3	
50511205	Life skills and social responsibility	3	

B. Elective University Requirements: (9 Credit Hours) from the following list:

Course No.	Course Title	Credit Hr.	Pre-requisite
55021101	Arabic Language (2)	3	55011101
55021102	English Language (2)	3	55011102
55021203	Principles of Psychology	3	-
55021204	Human Rights	3	-
55041203	Environment and Community	3	-
55011306	Entrepreneurship and Creativity	3	
55011204	Life Skills	3	-
55031101	Islamic Culture	3	-
55031205	Quds and Hashemite Custodianship	3	-
55041206	Health and Community	3	-
55041307	Communication and Internet	3	-

2. College Compulsory Requirements (18) credit hours

Course No.	Course Title	Credit Hours	Theoretical	Practical	Pre-requisite
80111207	Aviation Law and Air Safety	3	3	-	-
80101206	Advanced English(1)	3	3	-	80101206
80102107	Advanced English(2)	3	3	-	-
80112108	Communication Skills and Technical writing	3	3	-	80101206
80112109	Specialized English language	3	3	-	-
80102203	Aviation Maintenance Management	3	3	-	-

3. Major Compulsory Requirements (92) Credit Hours

Course No.	Course Title	Credit Hrs.	Theoretical	Practical	Pre-requisite	Con-current requirement
80211101	Aircraft Types	3	3	-	-	-
80211102	Introduction to theory flight	3	3	-	-	-
80221107	Mathematic and Algebra	2	2	-	-	-
80221208	Physics of aviation	3	3	-	-	-
80212201	Materials and hardware	2	3	-	80221208	-
80212202	Materials and hardware Practical	1	-	3	-	80211101
80212104	Basic Aerodynamics and its applications	3	3	-	80221208	-
80212205	Fundamentals of Aerodynamics and its Practical Applications	1	-	3	-	80212104
80211205	Human factors	3	3	-	-	-
80211206	Aviation Legislation	3	3	-	-	-
80222101	Electrical Fundamentals and its applications (1)	2	2	-	80221208	-
80222202	Electrical Fundamentals and its applications (2)	2	2	-	-	80222101

Course No.	Course Title	Credit Hrs.	Theoretical	Practical	Pre-requisite	Con-current requirement
80222203	Basics of Electricity and its Practical Applications	1	-	3	-	80222202
80222204	Avionics(1)	2	2	-	80221208	-
80223104	Avionics (2)	2	2	-	80222204	-
80223105	Avionics Practical	1		3	-	80222204
80222206	Digital Techniques & Electronic Instrument Systems	2	2	-	80221208	-
80223108	Digital Techniques & Electronic Instrument Systems (2)	2	2	-	80222206	-
80223109	Digital technologies Electronic, Devices and Systems - Practical	1	-	-	-	80222206
80232101	Airframe Dynamics	3	3	-	80212104	-
80232102	Airframe Dynamics -Practical	1	-	-	-	80232101
80233107	Autopilot Systems	2	3	-	-	80232101
80233108	Autopilot Systems - Practical	1	-	-	-	80233107
80233109	Communication and Navigation Systems	2	3	-	-	80233107
80233110	Communication and Navigation Systems- practical	1	-	-	-	80233109
80243111	Measuring and gaging systems	3	3	-	80222206	-
80243112	Measuring and gaging systems- Practical	1	-	3	-	80243111
80223205	Electrical Power Systems	3	3	-	80222206	-
80223206	Electrical Power Systems- Practical	1	-	3	-	80223205
80243207	HVAC, fuel and steering systems	3	3	-	-	80223205

Course No.	Course Title	Credit Hrs.	Theoretical	Practical	Pre-requisite	Con-current requirement
80243208	HVAC, fuel and steering systems - practical	1	-	3	-	80243207
80233209	Hydraulic and oxygen systems	3	3	-	80243207	-
80233210	Hydraulic and oxygen systems- practical	1	-	3	-	80233209
80244111	Information and data systems and maintenance in the cockpit	3	3	-	80243111	-
80244112	Information and data systems and maintenance in the cockpit- practical	1	-	3	-	80244111
80234113	Engines	3	3	-	80211101	-
80234114	Engines -Practical	1	-	3	-	80234113
80244101	Maintenance Practices (1)	3	3	-	-	80222203
80244102	Maintenance Practices (1)- Practical	1	-	3	-	80244101
80244103	Maintenance Practices (2)	3	3	-	-	80244101
80244104	Maintenance Practices (2)- Practical	1	-	3	-	80244103
80244205	Maintenance Practices (3)	3	3	-	-	80244103
80244206	Maintenance Practices (3)- Practical	1	-	3	-	80244205
80244207	Field Practical Training	7	-	-	After 120 hours	-

Guiding Plan

First year				
Semester One				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80221107	Mathematic and Algebra	2	-	-
80211101	Aircraft Types	3	-	-
80211102	Introduction to theory flight	3	-	-
50511102	Arabic Language(1)	3	-	-
50511103	English language (1)	3	-	-
Total			**14**	

First Year				
Semester Two				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80101206	(1) Advanced English language	3	-	-
80111207	Aviation Law and Air Safety	3	-	-
80211205	Human factors	3	-	-
80221208	Physics of aviation	3	-	-
80211206	Aviation Legislation	3	-	-
50511308	Military Science	3	-	-
Total			**18**	

Second Year				
Semester One				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80102107	(2) Advanced English language	3	80101206	-
80112108	communication Skills and Technical writing	3	80101206	-
80212104	Basic Aerodynamics and its applications	3	80121208	-
80222101	Electrical Fundamentals and its (1) applications	2	80221208	-
80112109	Specialized English language	3	-	-
80232101	Airframe Dynamics	3	80212104	-
80232102	Airframe Dynamics -Practical	1	-	80232101
Total			**17**	

Second Year				
Semester Two				
Course No.	Course Title	Credit Hrs.	Pre-requisite	Concurrent Requirement
80102203	Aviation Maintenance Management	3	-	-
80212201	Materials and hardware	2	80221208	-
80212202	Materials and hardware lab	1	-	80211101
80222202	Electrical Fundamentals and its (2) applications	2	-	80222101
80222203	Electrical Fundamentals	1	-	80122202
80222204	Avionics	2	80221208	-
80222206	Digital Techniques & Electronic Instrument Systems	2	80221208	-
80102205	Basic Aerodynamics workshop	1	80212104	-
	Elective University Requirement	3	-	-
Total			**17**	

Third Year				
Semester One				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80223104	Avionics (2)	2	80222204	-
80223105	Avionics lab	1	-	80222204
80223108	Digital Techniques & Electronic Instrument Systems (2)	2	8022206	-
80223109	Digital Techniques & Electronic Instrument Systems lab	1	-	80223108
80233107	Autopilot Systems	2	-	80232101
80233108	Autopilot systems - Practical	1	-	80233107
80233109	Communication and Navigation Systems	2	-	80233107
80233110	Communication and Navigation Systems- practical	1	-	80233109
80243111	Measuring and gaging systems	3	80223108	-
80243112	Measuring and gaging systems- Practical	1	-	80243111
Total			**16**	

Third Year				
Semester Two				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80223205	Electrical Power Systems	3	80222206	-
80223206	Measuring and gaging systems lab	1	80233205	-
80243207	HVAC, fuel and steering systems	3	-	80223205
80243208	HVAC, fuel and steering systems lab	1	-	80243207
80233209	hydraulic and oxygen systems	3	80233207	-
80233210	hydraulic systems and oxygen lab	1	-	80233209
Total			**12**	

Fourth Year				
Semester One				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80244111	Information and data systems and maintenance in the cockpit	3	80243111	-
80244112	Information and data systems and maintenance in the cockpit lab	1	-	80244111
80234113	Engines	3	80211101	-
80234114	Engines lab	1	-	80234113
80244101	Maintenance Practices (1)	3	-	80222203
80244102	Maintenance Practices (1) -lab	1	-	80244101
80244103	Maintenance Practices (2)	3	-	80244101
80244104	Maintenance Practices (2) -lab	1	-	80244103
Total			**16**	

Fourth Year				
Semester Two				
Course No.	Course Title	Credit Hours	Pre-requisite	Concurrent Requirement
80244205	Maintenance Practices (3)	3	-	80244103
80244206	Maintenance Practices (3)- lab	1	-	80244205
80244207	On Job Training (OJT)	7	-	330 Field Work Hours
Total			**11**	

Courses' Description

80111207 Aviation Law and Air Safety (3, n: 3, p: 0, prerequisite :)

Studying international organizations and conventions, aircraft validity, aircraft registration marks, cabin crew licenses, air laws, air accident investigations, search and rescue operations.

80101206 Advanced English Language (1) (3, N: 3, P: 0, Prerequisite :)

Improving students' English language skills in listening, speaking, reading and writing, as well as vocabulary and pronunciation. The teacher's book contains activities that support the material. The exercise book contains additional exercises, and the syllabus contains CDs to improve listening.

80102107 Advanced English Language (2) (3, N: 3, P: 0, Prerequisite: 80101206)

Intensive English language skills in listening, speaking, reading and writing in addition to vocabulary and pronunciation. The course uses traditional methods of English language teaching and effective multimedia training. The syllabus also contains CDs to improve listening.

80112108 Communication Skills and Technical writing (3, N: 3, P: 0, Prerequisite: 80101206)

Recognizing and applying the elements of technical writing, report components, design and images, correspondence, research and documentation, writing and revision.

80112109 Specialized English Language (3, n: 3, p: 0, concurrent: 50512112)

This course includes many topics related to aviation aimed at improving the technical language of the student, such as manufacturing techniques, control systems, safety, and electrical systems.

80102203 Aviation Maintenance Management (3, n: 3, p: 0, prerequisite)

Recognizing topics related to aviation maintenance management such as the development of aircraft maintenance programs, aviation certification requirements, maintenance documentation, technical bulletins, and technical services.

80201102 Aircraft Types (3, n: 3, p: 0, prerequisite :)

Recognizing topics related to the types of aircraft and their performance, such as single-engine and twin-engine, and determine their performance during all phases of the flight.

80211102 Introduction to Flight Theory (3, n: 3, p: 0, prerequisite :)

Identifying and studying the four forces affecting the aircraft, Bernoulli's principle, lift and Newton's third law, the axes of the aircraft, in addition to identifying and working principle of control surfaces in the aircraft and its impact on the performance of the aircraft.

80221107 Mathematic and Algebra (2, n: 2, p: 0, prerequisite: -)

The student is introduced to the basic principles of solving mathematical problems and arithmetic algebra in addition to solving linear equations and graphing, as well as trigonometric relationships, the use of tables, and rectangular and polar coordinates.

80221208 Physics of aviation (3, n: 2, p: 0, prerequisite :)

The student is introduced to the basic units of matter and mechanics, both static and kinetic, dynamic, fluid dynamics, and thermodynamics, in addition to optics, sound and wave motion, and physical phenomena related to aviation sciences.

80212104 Aerodynamics Fundamentals and Applications (3, N: 3, N: 0, Prerequisite: 80221208)

The student recognizes the different layers of the atmosphere and related variables, as well as aerodynamics and engineering definitions, the aircraft's resistance to the air, the increase in altitude, the forms of the flight control wing, the forces affecting the aircraft during flight, the flight in rotational modes, the aircraft's equilibrium conditions.

80212205 Fundamentals of aerodynamics and its Applications-practical (1, n: 0, p: 3, prerequisite: 80212104)

The student uses the air flow device and applies experiments related to the effect of air resistance on the aerodynamic shape, applies Bernoulli's rule to the aerodynamic shape, uses a fluid pressure gauge, recognizes the locations of the main control surfaces on the aircraft, and operates them from the cockpit, and operates the three main rudders in addition to the landing auxiliary rudders and rotation.

80212201 Materials and hardware (2, N: 2, N: 0, Prerequisite: 80221208)

Recognizing aircraft metal materials, which include: materials that contain mainly iron, that do not contain iron mainly in addition to plastic and flexible materials, composite materials, wood and wooden structures, fabric sheaths as well as fastening tools, used in aircraft.

80212202 Materials and hardware -Practical (1, n: 0, p: 3, prerequisite: concurrent with 80211101)

It implements the following practical applications: assembling metal sheets using different rivets, distinguishing between different types of rust, removing rust manually, and using many different types of accurate measuring tools such as Vernier.

80211205 Human factors (3, n: 3, p: 0, prerequisite :)

Understanding human activity and the interaction of individuals with the workplace to explore the implications of the human factor and the error of work, consider the role of work implementation methods and procedures and consider safety policy and communication methods

80211206 Aviation Legislation (3, n: 3, p: 0, prerequisite :)

Recognizing all the elements or EASA aviation legislation applicable to Part 66 Awareness Needs including the structure of rules and the role of the International Civil Aviation Organization (ICAO) and national authorities. Providing a detailed understanding of the aviation legislation applicable to Part 66 requirements for technical certificates and licenses.

80222101 Electricity Basics and Applications (1) (1) (2), N: 2, N: 0, Prerequisite: 80221208)

Recognizing the static electricity, electrostatic charge distribution and conduction, Coulomb's theory and electrical conductivity in liquids and solids, electrical terms and contain electrical energy, electric charges, electric current, electrical resistance, electrical laws, electricity generation, direct current sources, direct current circuits resistance / resistor, power, capacitance / capacitor.

80222203 Basics of Electricity and its Applications-Practical (1, n: 0, p: 3, the requirement is concurrent with 80222202)

Implementation of practical applications such as direct and alternating current voltage measurement, direct and alternating current measurement, resistance measurement, connecting loads in parallel, connecting loads in series, assembling and disassembling direct current generators, checking capacitors and coils, electrical transformers and their types in practice and using appropriate software.

80222202 Electrical Fundamentals and its applications (2) (2, N: 2, N: 0, Co-requisite: 80222101)

Recognizing magnetism, inductance / inductor, DC motors and generators, including working principle, installation, types of DC motors in reverse, rotating speed of the motor, AC theory, transformers, including working principle, transformer installation, properties of the metal core, transformer coils, types of transformers, filters, types of alternating current generators, types of alternating current motors and related electrical circuits.

80222204 Avionics (1) (2, n: 2, p: 0, prerequisite: 80221208)

Recognizing semiconductors, solid state devices, diodes, transistors of all kinds and their different applications, integrated circuits, printed circuit boards, Dyson and Magnussen systems, Magnesian board system, torque synchronization and includes synchronization classification.

80223104 Avionics (2) (2, n: 2, p: 0, prerequisite: 80222204)

Recognizing integrated circuits, PCBs, operational amplifiers, and design of various electronic circuits.

80223105 Avionics -Practical (1, n: 0, p: 3, concurrent requirement: 80222204)

Examining and installing basic electronic components and recognizes the nature of their work, building basic electronic circuits using electronic components such as diode and transistor and their applications in various electrical systems. In addition to integrated electronic circuits ICs.

80222206 Digital Techniques & Electronic Instrument Systems, n: 2, p: 0, prerequisite: 80221208)

Identifying electronic indicator systems, digitization systems, information conversion, logical circuits and their components, basic computer structure, optical fiber description, optical fiber concepts, optical fibers and cables, optical connectors, connectors and couplers, optical fiber measurement techniques, optical sources and optical transmitters, devices Optical detectors and receivers, electronic displays, electrostatic sensitive devices, control software management, electromagnetic medium, electronic / digital model aircraft systems.

80223108 Digital Techniques & Electronic Instrument Systems (2) (2), n: 2, p: 0, prerequisite 80222206

Recognizing electronic displays, static sensitive devices, management software control, and electromagnetic medium, and electronic/digital aircraft systems.

80223109 Digital Techniques & Electronic Instrument Systems Practical (1, N: 0, N: 1, Concurrent requirement with 80223108)

Examining and installing basic electronic components and learning their nature, and builds basic digital electronic circuits using electronic components such as meters, seven-segment displays and integrated circuits.

80232101 Airframe Dynamics (3, n: 3, p: 0, prerequisite: 80212104)

Learning about aerodynamic systems and engineering definitions, aircraft resistance to air, increase in altitude, wing shapes, flight control, forces affecting the aircraft during flight, flight with rotational conditions, aircraft equilibrium states. Also learning about the control systems on the different plane surfaces.

80232102 Airframe Dynamics- Practical (1, n: 0, p: 3, concurrent requirement for 80232101)

The course implements the following practical applications: airflow patterns around the aerodynamic shape, description and operation of the tail and auxiliary rudder, control system for the main and auxiliary rudders, aircraft doors, operational examination of the retarder surface system and its effect on air flow, identifies the balance of the wing surface, examines the wing of the aircraft and its components.

80233107 Autopilot Systems (3, N:3, N:0, Co-requisite 80232101)
The course learns the basics of automated flight control; command signal processing; its working methods; yaw dampers; stability-increasing systems in addition to automatic cut-off control and autopilot navigation assistance interface; Automatic throttle control and automatic landing systems.

80233108 Autopilot Systems-Practical (1,N:0,N:1,Concurrent Requirement 80233107)
The following practical applications implement automated flight controls; command signal processing; its working methods; yaw dampers systems increase stability automatic trim control interface navigation assistance autopilot; Automatic throttle control Automatic landing systems.

80233109 Communication and Navigational Systems (3: N,3,N:0, concurrent requirement 80233107)
Recognizing the working principles of VHF and HF communication systems, audio systems, emergency locator transmitters, cockpit voice recorder, Very High Frequency VHF Omnidirectional Range (VOR), Automatic Direction Finding (ADF), Instrument Landing Systems (ILS), Microwave Landing System (MLS), Flight Management Systems (FMS), Distance Measurement Equipment (DME) and Global Positioning System (GPS).

80233110 Communication and Navigational Systems -Practical (1: N,0, N:1, Co-requisite 80233109)
The student is trained in all navigation systems (HF, VHF, VOR ADF, ILS, MLS, DME and GPS) in terms of components, working methods and maintenance.

80243111 Measuring and gaging systems (3 credit hours, 3 theoretical, 0 practical, prerequisite 80222206)
Recognizes pneumatic systems, direct reading pressure and temperature gauges, fuel quantity indication systems, gyroscopic system indications, synthetic horizontal slip indicators, directional gyroscopes, flight data recording systems, electronic flight instrument warnings, and central warning panels.

80243112 Measuring and gaging systems- Practical (1 credit hour, 0 theoretical, 1 practical, concurrent requirement 80243111)
Practically performs and recognizes the object components of all relevant systems with respect to fuel, gyroscope, temperature and other measurement systems.

80223205 Electrical Power Systems (3 credit hours, 3 theoretical, 0 practical, prerequisite 80222206)
Recognizing the types of electrical energy, batteries, DC and AC generating devices, various voltage regulators, constant speed drive unit, generator and integrated motor, brushless generator, fixed frequency and variable speed generator, emergency power generator, transformer regulators, inverters, as well as generators external ground energy and its distribution, real load distribution mechanism, reaction and fault protection, in addition to control devices and cockpit indicator.

80223206 Electrical Power Systems -Practical (1 credit, 0 theoretical, 1 practical, concurrent requirement 80223205)

It performs practical applications such as disassembling and installing the battery, dismantling and installing the electric coil protection feeder, dismantling and installing the battery temperature sensor, charging and discharging the battery, checking the battery and its components, recognizing the warning and signal system, runway and landing lights, ice test lighting, anti-collision, position and tilt lighting. Cockpit dome lighting, cockpit service lighting, and indirect lighting.

80243207 HVAC, fuel and steering systems (3 Cr. H., 3 Theoretical, 0 Practical, Concurrent Requirement 80223205)

Learning about air supply systems, air conditioning and refrigeration, cabin pressure control, safety and alarms, interior equipment and supplies, emergency equipment, emergency evacuation, cockpit, seat belts and shoulder anchors, cabin, in-cab entertainment systems, maintenance applications, detection systems Fire and suppression, flight control fins, fuel systems.

80243208 HVAC, fuel and steering systems -Practical (1 credit, 0 theoretical, 1 practical, concurrent requirement 80243207)

Performing practical applications from dismantling and assembling parts for air conditioning and refrigeration systems, aircraft fuel and control systems, checking fire extinguisher valves, checking internal equipment, seat belt pulleys, actual operation of the fire sensor system, and checking valves.

80233209 Hydraulics and Oxygen Systems (3 Cr. Hrs., 3 Theoretical, 0 Practical, Prerequisite 80243207, Synchronization)

To Learn about fluid pressure theory, design of on-board fluid pressure system, hydraulic oil, hydraulic pump, emergency pressure generation, fluid pressure system disconnection, alarm and warning systems, snow prevention and rain removal, safe and non-potable water use systems, aircraft landing wheel system , brakes, anti-skid system, oxygen system and its uses for crew and passengers, safety and maintenance standards, air intake system, high and low gas pressure system with emphasis on related electrical and electronic circuits.

80233210 Hydraulics and Oxygen Systems -Practical (1 credit, 0 theory, 1 practical, concurrent requirement 80233209)

It performs the following practical applications: dismantling and installing fluid pressure control switches, hydraulic pump, pressure sensors, rain wipers, wheels and brakes, oxygen cylinders, oxygen flow regulator valve, filling hydraulic tanks, operating the fluid pressure system virtually on the plane, aircraft landing system, Work, anti-skid system check, ground flight guidance system check, pressure storage system, aircraft acceleration system check and electrical and electronic circuits.

80244111 Information and data systems and maintenance in the cockpit (3 credit hours, 3 theoretical, 0 practical, prerequisite 80243111)

Recognizing the communication data system, the cab network system, and the basic cab systems; on a leisure trip; External connections Comprehensive memory system for cabin; Cabin Monitoring Systems Various Cab Systems.

80234112 Information and data systems and maintenance in the cockpit -Practical (1 credit, 0 theoretical, 1 practical, concurrent requirement 80234111)

Familiarize yourself with the aircraft general information system; flight deck information system; Maintenance information system Cabin information system various information systems.

80234113 Engines (3 Cr. H., 3 Theoretical, 0 Practical, Prerequisite: 80211101)

Understanding the contents of the principle of jet propulsion and the four main types of turbine engines. The principles and operation of engine identification systems for engine monitoring are presented in detail. , design of air intake, types and factors affecting them, types of axial air compressors, combustion section: types and methods of cooling the combustion chamber, turbine section: construction and types of turbines, methods of cooling and installation of turbine blades, functions and construction of exhaust, sound dampers, thrust reflectors, bearings and agencies, Lubricants, sources of supply, lubrication, properties of oils, oil additives, types of oils, international fuel specifications, aviation fuel, refueling / unloading of fuel and fuel tank, basic requirements for contaminated fuel lubrication systems and electrical and electronic circuits for turbochargers.

80234114 Engines -Practical (1 credit, 0 theory, 1 practical, concurrent requirement with 80234113)

Executing the following practical applications: checking and installing the anti-freeze system, checking the combustion chamber, engine cover and turbines, checking and cleaning the exhaust and bearings, removing and installing filters, dismantling and installing the fuel pump and its associated pipes, as well as various engine control circuits.

80244101 Maintenance Practices (1) (3 credit hours, n: 3, p: 0, concurrent: 80222203)

Recognizing the safety procedures on the aircraft and the operator, as well as practical exercises in the workshops, equipment, hand tools, electrical devices, precise measuring tools, tools and methods of lubrication and lubrication, electrical examination equipment, electronic examination equipment, engineering drawings, diagrams and standards, display tools used for computer and tools. The different widths, Air Transport Association specifications, common standards in the field of aviation, permitting and conformity, measurements for making holes, rows and standards for compliance with regulations, arcing and torsion, electrical connection system, continuity and insulation tests, use of pressing tools, examination of fixed parts using the pressing method, installation and removal of the connecting pin, Filament wires, types of wires and identification methods, methods of wire protection, permittivity in standards for testing wires and faults, systems for testing electrical wires and connections. In addition to all control systems associated with these systems.

80244102 Maintenance Practices (1)-Practical (1) Practical (1, N: 0, N: 3, Prerequisite: Simultaneous to 80244101)

It performs the following practical applications: Examining the rudder wires, removing the buckles using electrical and manual tools, using the tools for checking the amount of voltage, current and electrical resistance, measuring the external dimensions using precise measuring tools, examining the braking systems for the limits of wear, in addition to the related electrical and electronic control systems.

80244103 Maintenance Practices (2) (3, n: 3, p: 0, prerequisite: concurrent with 80244101)
Recognizing the different types of rivets and their uses in addition to special fasteners, tubes and hoses, bending and expanding the ends of aircraft tubes, theoretical and practical examination of tubes and hoses, pipe installation and fixation, springs treatment, cleaning and testing of bearings, storage, principles of transmissions, control cables, the mechanism of clamping the ends of connections, Processing, theoretical and practical examination of approved control cables and devices (scrap), various wiring systems, material handling, sheet metal, composite materials.

80244104 Maintenance Practices (2) - Practical (1, N: 0, N: 3, Prerequisite: Simultaneous to 80244103)
Executing the following practical applications: dismantling, repairing, installing and checking different types of fasteners, tubes, pulleys, control wires and various control systems.

80244205 Maintenance Practices (3), N: 3, N: 0, Prerequisite: Simultaneous to 80244103)
The different types of welding, weighing and balancing systems, materials handling and storage, dismantling and installation methods, identifying some emergency conditions that the aircraft may pass through, maintenance methods, planning and licensing procedures.

80244206 Maintenance Practices (3) -Practical (1, N: 0, N: 3, Prerequisite: Simultaneous to 80244205)
Implementation of the following practical applications: Examination and application of a number of practical exercises such as welding the corner of the plane for a long time, checking the fluid pressure system, connecting external sources of electricity, solving problems through a system of possible causes with the rudder control system, dismantling and installing different types of lighting devices and some parts of the external plane. And control devices associated with these systems.

80244207 Field Practical Training (7, n: 0, p: 330 working hours in the field, prerequisite: -)
It includes all the practical activities that take place in the aircraft maintenance hangar related to the aircraft's electrical and electronic systems, navigation and communication. As well as devices and workshops, such as aircraft lifting, ground handling, aircraft systems inspection, functional operations, maintenance and repair, troubleshooting, parts replacement and testing using all required special tools and equipment, ground floor and training manuals, in addition to complying with all safety requirements while working on all aircraft components and each of the following systems:

- Electrical and electronic systems.
- Digital tools systems.
- Engine systems.
- Pneumatic and hydraulic systems.
- Fuel systems in the aircraft.
- Flight control systems.
- Autopilot systems
- Air Navigation Systems
- Environmental systems.
- Repair of the structure and design of the aircraft.