Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2026

Introduction:

Aviation technologies are considered one of the leading engineering sciences, which are still in continuous development associated with the latest scientific research in the field of aviation, so there are many fields of this science into multiple sections and branches, some of which are interested in the development of engines, some of which are interested in structures and how to develop them, including those interested in jet fuel ... etc. All these sciences are in one field, which is aviation technologies.

In view of the development of the country and openness to the world and the establishment of many airports in the country and to provide the labor market with technical cadres specialized in this rare field, the Department of Aviation Technologies was established at the Technical Institute / Najaf according to the book of the Euphrates Technical University No. 7/27/952 On 27 / 10/2014.

Concepts and terminology:

Academic Program Description:

This academic program description provides a summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, proving whether he has made the most of the available opportunities. It is accompanied by a description of each course within the program

Course Description:

This course description summarizes the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.

Program Vision:

seek to be a distinguished department committed to quality standards to provide the best education, contribute studies and research that contribute to the development of the local and regional community, and provide technical graduates to cover the needs of the country.

Program Mission:

Provide a high-quality aviation technology technology program to provide highly qualified graduates to support the aviation sector and serve the community.

Program Objectives:

• Preparing qualified graduates with the technical and professional capabilities necessary to work in a comprehensive competitive environment in the field of aviation technologies.

• Providing the aviation and airports sector with technicians with theoretical and practical skills familiar with knowledge of the parts of the aircraft, the principle of

its operation, maintenance, knowledge of the malfunctions it is exposed to and periodic maintenance of the aircraft.

• Work on the application of the quality system for laboratories and the application of occupational safety.

• Work on the development of technical education through the development of curricula and modernization of laboratories following the standards of the good laboratory (GLP) adopted globally and the involvement of associates in the department in specialized courses.

• Contribute to community service by holding courses and workshops in various aviation techniques and pushing the movement of construction and ages at a high level of quality.

Curriculum Structure:

First Stage

Observations	Material Type	number Units	Number of Hours			Material	t
			M	on	nun		
	Specialized	8	4	2	2	Principles of Electrical Engineering	1
	Specialized	8	4	2	2	Aviation theory	2
	Specialized	8	4	2	2	Aircraft installation	3
	Assante	8	4	2	2	Engineering Mechanics	4
	Assistant	2	1	1	-	Calculator Applications	5
	Assistant	6	3	-	3	mathematics	6
	Assistant	6	3	3	-	Engineering drawing	7
	General	10	5	5	-	Workshop Laboratories	8
	General	2	1	-	1	Human Rights and Democracy	9
	General	2	1	-	1	English	10
	General	2	1	-	1	Arabic	
		62	31	17	14	Total	

Second Stage

Comments	Material Type	number Units	Number of Hours			Material	t
			M	on	nun		
	Specialized	8	4	2	2	Aircraft engines	1
	Specialized	8	4	2	2	Aircraft Devices & Systems	2
	Specialized	8	4	2	2	Aircraft Maintenance	3
	Assistant	8	4	2	2	Material resistance	4
	Specialized	8	4	2	2	Aircraft Design	5
	Assistant	8	4	2	2	Thermodynamics	6
	Assistant	2	1	1	-	Computer Software (2)	7
	Assistant	6	3	3	-	Mechanical drawing	8
	General	2	1	-	1	English	9
	General	4	2	2	-	Project	10
	General	2	1	-	1	Arabic	11
	General	2	1	-	1	Baath Party crimes	12
		66	33	18	15	Total	

64	Total academic hours for the two years	1
128	Total units	2
%45.3125	Percentage of theoretical hours for the two years	3
%54.6875	Percentage of practical hours for the two years	4
%43.75	Percentage of specialized hours for the two years	5
%35.9375	Percentage of assistant hours for the two years	6
%20.3125	Percentage of general hours for the two years	7

Learning Outcomes:

First Stage

No.	Course Name	The knowledge, skills and values acquired by the student after the end of the program
1	Basic Aircraft Construction	To teach the student how to build an airplane and the materials used in building structures for airplanes.
2	Aviation theory	The student learns how the plane flies and the forces affecting flight.
3	Engineering Mechanics	study the effects of the forces on bodies as static and dynamics stats, and also study the stresses and strain occurs due to the loads.
4	Engineering Drawing (Auto CAD)	The student is able to deal with the language of engineering drawing from the laws and basics and the use of engineering programs such as AutoCAD program. Be able to understand and implement engineering drawings and drawings.
5	Basic of Electrical and Electronic Engineering	• Student learn the general basics of the electrical circuits and theories of electrical network analysis. (DC and AC) • Student learn the general basics of the electronic circuits for the for semiconductors (diodes and transistors)
6	Human Rights & Democracy	• Educating the student on human rights in ancient civilizations and his rights in the heavenly laws • The student's knowledge of his rights in modern contemporary history

		• The student's knowledge of human rights in the Iraqi constitution and its relationship to freedoms
7	Mathematics 1	Helping the student to know the laws and mathematical problems needed to solve simple and complex functions
8	Computer Applications	• Introducing the student to the computer with an idea of its prospects and uses in various fields and the principles of programming, and providing him the skill in using the computer to implement already prepared programs for application in his field of specialization. • Introducing the student to the use of Auto CAD system, Windows with applications in his field of specialization.

Second Stage

No.	Course Name	The knowledge, skills and values acquired by the student after the end of the program
1	Aircraft Maintenance	Introduce the student to the work, maintenance and repair of aircraft equipment malfunctions.
2	Mechanical Drawing	Gain the necessary skill to read technical drawings, know engineering symbols, terminology, and standard specifications, and draw simple, complex, and most usual mechanical parts in the student's work life.
3	Strength of Materials	To provide the student with the theoretical and applied knowledge necessary to deal with various issues related to the calculations of forces, moments, stresses and strains resulting from

		applying different loads on engineering bodies in his field of specialization, preparing tables and special studies, as well as conducting scientific calculations, theoretically and practically, and drawing maps and curves for various loading schemes.
4	Aircraft Maintenance	Introduce the student to the work, maintenance and repair of aircraft equipment malfunctions.
5	Aircraft Equipment and Systems	Introduce the student to the work of electrical and electronic systems in airports and airplanes and how they work.

Academic Program Description Form

University Name: AL-Furat AL-Awsat Technical University
Faculty/Institute: Technical Institute – NajafA
Scientific Department: Aeronautical Technologies
Academic or Professional Program Name: Technical Diploma
Final Certificate Name: Diploma in Aeronautical Technology
Academic System: Annual
Description Preparation Date: 2026/02/15
File Completion Date:2026/02/18

Signature:
Head of Department
Lec. Hazim Ali Sahib
Date: 19/2/2026

Signature:
Scientific Associate Name:
Ass. Prof. Dr. Salah Mahdi El-Adly
Date:

أ.د.صلاح مهدي صالح العادلي
معاون العميد للشؤون العلمية

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Dr. Zaid Abdulkareem ALhamidawi
Date: 19/02/2026
Signature:

Approval of the Dean

1. Program Vision

We seek to be a distinguished department committed to quality standards to provide the best education, contribute studies and research that contribute to the development of the local and regional community, and provide technical graduates to cover the needs of the country.

2. Program Mission

Provide a high-quality aviation technology technology program to provide highly qualified graduates to support the aviation sector and serve the community.

3. Program Objectives

- Preparing qualified graduates with the technical and professional capabilities necessary to work in a comprehensive competitive environment in the field of aviation technologies.
- Providing the aviation and airports sector with technicians with theoretical and practical skills familiar with knowledge of the parts of the aircraft, the principle of its operation, maintenance, knowledge of the malfunctions it is exposed to and periodic maintenance of the aircraft.
- Work on the application of the quality system for laboratories and the application of occupational safety.
- Work on the development of technical education through the development of curricula and modernization of laboratories following the standards of the good

laboratory (GLP) adopted globally and the involvement of associates in the department in specialized courses.

• Contribute to community service by holding courses and workshops in various aviation techniques and pushing the movement of construction and ages at a high level of quality.

4. Program Accreditation

ABET Accredited Accreditation Program

5. Other external influences

Airlines for the private and government sectors

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	5	10	9.8%	
institute Requirements	8	36	35%	
Department Requirements	7	56	55%	
Summer Training				
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
First Stage	–	Aircraft installation	2	2
Second Stage	–	Aircraft Maintenance	2	2

8. Expected learning outcomes of the program	
Knowledge	
1- Acquire theoretical knowledge in various scientific curricula of the specialization. 2 -Identify the components and engineering parts of the aircraft engine 3- Verify and discuss the results 4- Participation in aerodynamic designs for the fuselage.	1- Design and simulation of aircraft parts 2- The mechanism of work of combustion systems 3- Control drone movements using programs
Skills	
1 – Maintenance of aircraft engines and combustion system. 2 – Improve the mixing ratio of fuel inside the engine	1- Connecting electrical circuits close to the jurisdiction. 2- Application of Thermodynamics law and ideal gas for combustion products
Ethics	
1. Learn the methods of operating jet engines for aircraft 2- Learn about the maintenance of devices related to jet engines. 3- Detection and identification of malfunctions.	Maintenance and maintenance of jet engines and their accessories

9. Teaching and Learning Strategies

Lectures – workshops – laboratories – scientific trips – methodological training – student projects

10. Evaluation methods

Oral exams – theoretical tests – semester exams – final exams – daily assessment

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Mechanical Engineering	Refractories			√	
أ Assistant Professor	Mechanical Engineering	Thermal			√	
Assistant Professor	Mechanical Engineering	Thermal			√	
Assistant Professor	Engineering Mechanics	Thermal			√	
Assistant Lecturer	Engineering Mechanics	Applied			√	

Assistant Lecturer	Engineering Mechanics	Thermal			√	√
Assistant Lecturer	Engineering Mechanics	Teaching English			√	

Professional Development
Mentoring new faculty members
Periodic meetings to refine academic and administrative skills and involve them in the basic committees, courses and workshops related to the program and the institution in general.
Professional development of faculty members
Participation in academic courses and workshops, urging scientific research, local and international scientific participations, and community service.

12. Acceptance Criterion

The admission system is centralized by the ministry and is subject to differentiation by the institution according to the rates of vocational and preparatory secondary school.

13. The most important sources of information about the program

The website of AL-Furat AL-Awsat Technical University and the website of the Technical Institute / Najaf

14. Program Development Plan

Work to increase the absorptive capacity of the department and develop laboratories and equip them with modern equipment to keep pace with the development in aviation technologies.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First Stage		Principles of Electrical Engineering	Specialized	√	√		√	√		√	√		√	√	√
		Aviation theory	Specialized	√	√	√	√		√	√	√	√	√		√
		Aircraft installation	Specialized	√		√	√	√	√	√	√		√	√	√
		Engineering Mechanics	Assantant		√	√		√		√	√	√	√	√	
		Calculator Applications	Assistant	√		√	√		√		√	√	√		√
		mathematics	Assistant	√	√	√		√	√	√		√	√		√
		Engineering drawing	Assistant	√		√	√	√	√		√	√		√	√
		coefficient	General	√	√	√	√	√	√	√	√	√	√	√	√
		Human Rights and Democracy	General		√	√	√		√	√	√		√	√	√
		English	General		√	√	√		√	√	√		√	√	√
		Arabic	General		√	√	√		√	√	√		√	√	√

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second Stage		Aircraft engines	Specialized	√	√		√	√		√	√		√	√	√
		Aircraft Devices & Systems	Specialized	√	√		√	√	√		√	√	√		√
		Aircraft Maintenance	Specialized		√	√	√	√	√	√		√	√	√	
		Material resistance	Assistant		√	√		√		√	√	√	√	√	
		Aircraft Design	Specialized	√		√	√		√		√	√	√		√
		Thermodynamics	Assistant	√	√	√	√	√	√	√	√	√	√	√	√
		Computer Software (2)	Assistant	√	√	√	√	√	√	√	√	√	√	√	√
		Mechanical drawing	Assistant	√	√	√	√	√	√	√	√	√	√	√	√
		English	General	√	√	√	√	√	√	√	√	√	√	√	√
		Arabic	General	√	√	√	√	√	√	√	√	√	√	√	√
		Baath Party crimes	General	√	√		√		√	√	√	√		√	√
		Project	General	√	√	√	√	√	√	√	√	√	√	√	√

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

1. Course Name:
Aircraft Maintenance
2. Course Code:
3. Semester / Year:
second stage
4. Description Preparation Date:
2026/02/15
5. Available Attendance Forms:
Present lecture
6. Number of Credit Hours (Total) / Number of Units (Total)
4 (H.) 8(U.)
7. Course administrator's name (mention all, if more than one name)
Name: Assist. L. Hazim Ali Sahab Al-Zurfi Email: hazim_alzurfi@atu.edu.iq
8. Course Objectives

Introduce the student to the work, maintenance a repair of aircraft equipment malfunctions.	• ..... • ..... • .....

9. Teaching and Learning Strategies	
Strategy	Aircraft maintenance is highly significant in the job market, as it aims to qualify technicians and engineers to ensure the safety and efficiency of aircraft. Some of the key objectives of this field include: • **Ensuring aviation safety**: Aircraft maintenance technicians are responsible for inspecting and repairing various systems to ensure safe aircraft operation. • **Improving performance and efficiency**: Maintenance includes preventive measures and technical upgrades to ensure optimal aircraft operation. • **Compliance with international standards**: Technicians must adhere to global regulations and standards to guarantee high-quality maintenance and passenger safety. • **Wide job opportunities**: These skills provide employment opportunities in airlines, airports, and specialized maintenance centers. ?

1. Course Name:

Aircraft Structure

2. Course Code:

3. Semester / Year:

first stage

4. Description Preparation Date:

2026/02/15

5. Available Attendance Forms:

Present lecture

6. Number of Credit Hours (Total) / Number of Units (Total)

4 (H.) 8(U.)

7. Course administrator's name (mention all, if more than one name)

Name: Assist. Prof. Mohammed Kareem Khshan
Email: mailto:dr.khshan@atu.edu.iq

8. Course Objectives

Introducing the student to the aircraft components a familiarizing them with the materials used manufacturing these parts, as well as studying stresses that the aircraft is subjected to.	• ….. • ….. • …..

9. Teaching and Learning Strategies

Strategy	

10. Course Structure:

Aircraft assembly plays a fundamental role in the aviation industry, aiming to train technicians and engineers in assembling and integrating aircraft according to international standards. In the job market, this field contributes to:

• **Ensuring manufacturing quality**: Aircraft assembly requires high precision to guarantee structural integrity and optimal performance.

• **Achieving operational efficiency**: The assembly process integrates various systems such as engines and electronics to ensure smooth aircraft operation.

• **Compliance with global standards**: Technicians must adhere to international regulations to ensure aircraft safety and effectiveness.

• **Diverse job opportunities**: These skills open career paths in aircraft manufacturing companies, maintenance centers, and airports.

اسم المادة: صيانة طائرات	السنة الدراسية: الثانية	الساعات الأسبوعية			
Name of subject: Aircraft Maintenance	Second Stage	Houre per Week			
لغة التدريس: اللغة الإنكليزية	نظام سنوي ٣٠ أسبوع	نظري	مناقشة	عملي	المجموع
Language of instruction: English	Annual system ٣٠ weeks	Theoretical	Discussion	Practice	Total
		٢	١	١	٤

المقررات

Syllabus

Week No.	Subject
١	Aircraft maintenance tools
٢	Aircraft inspection
٣-٤	Oxygen system
٥-٦	Airconditioning system
٧-٩	Aircraft anti-icing and de-icing
١٠-١١	Fuel system
١٢-١٤	Hydraulic system
١٥-١٧	Landing gear
١٨-٢١	Engine maintenance
٢٢-٢٤	Aircraft equipment and electrical system
٢٥-٢٦	Cockpit maintenance
٢٧-٢٨	Small repair
٢٩-٣٠	Medium repair

11. Course Evaluation

First Semester (10 Theoretical + 10 Practical) 20%, Second Semester (10 Theoretical +10 Practical) 20%, Year Deeds 10% << Annual Endeavor 50% Final Theoretical 40% Final Practical 10% Total 100 %

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

13.

14.

15. Course Structure:

اسم المادة: صيانة طائرات	السنة الدراسية: الثانية	الساعات الأسبوعية			
Name of subject: Aircraft Maintenance	Second Stage	Houre per Week			
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Language of instruction: English	Annual system ٣٠ weeks	Theoretical	Discussion	Practice	Total
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المفردات

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١٠-١١	Fuel system
١٢-١٤	Hydraulic system
١٥-١٧	Landing gear
١٨-٢١	Engine maintenance
٢٢-٢٤	Aircraft equipment and electrical system
٢٥-٢٦	Cockpit maintenance
٢٧-٢٨	Small repair
٢٩-٣٠	Medium repair

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