



# College of Engineering

Biomedical - Civil - Air Conditioning and Refrigeration - Oil and Gas - Aircraft

## College of Engineering Academic Guide For the academic year 2024/2025

**Supporting Your  
Present And Future**



[UOWA.EDU.IQ/ENG](http://UOWA.EDU.IQ/ENG)

**AL-ESMA Building**



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## 1.1 Overview



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**Prof. Dr. Hussein Hadi Alawadi**  
**Dean of the College of**  
**Engineering**

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### About the College:

The College of Engineering at our university is a vital centre for learning and research in multiple fields of engineering, where an advanced learning environment is provided that combines theory and application, and with the introduction of new departments, the college provides wider opportunities for students to gain knowledge and skills in advanced fields. The college is characterized by a commitment to provide outstanding education that meets the challenges of the future in light of the development in all engineering fields. The new departments aim to expand the horizon of students and enable them to gain deep experience in vital engineering fields and also encourage students to research and innovation to achieve sustainability and progress in engineering science.

Civil Engineering Department

Department of Biomedical Engineering

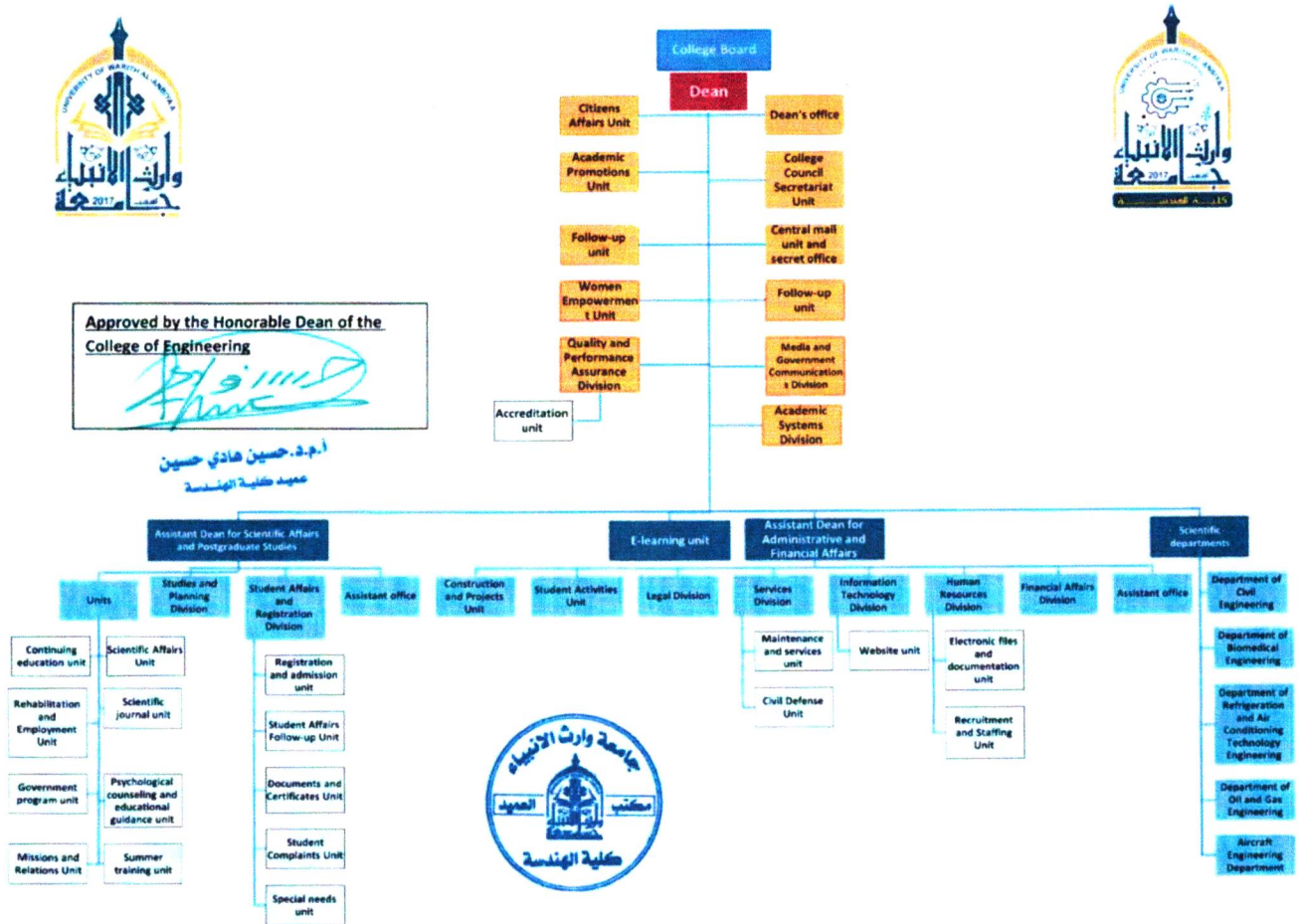
Department of Refrigeration and Air Conditioning Engineering

New departments for the current academic year 2023-2024

Aircraft Engineering Department

Oil and Gas Engineering Department

1.2 Structure of the College



### 1.3 College Vision

The college's vision is to educate and prepare specialized engineers who can fill various positions in the government (public sector) and the private sector. At the same time, it prepares them as good citizens who believe in human and ethical values and realize their responsibility towards their religion, nation and society.

The university has worked to prepare competitive graduates by providing education in line with international standards, in an academic and research environment with outstanding human resources, effective community partnerships, and a supportive administrative system.

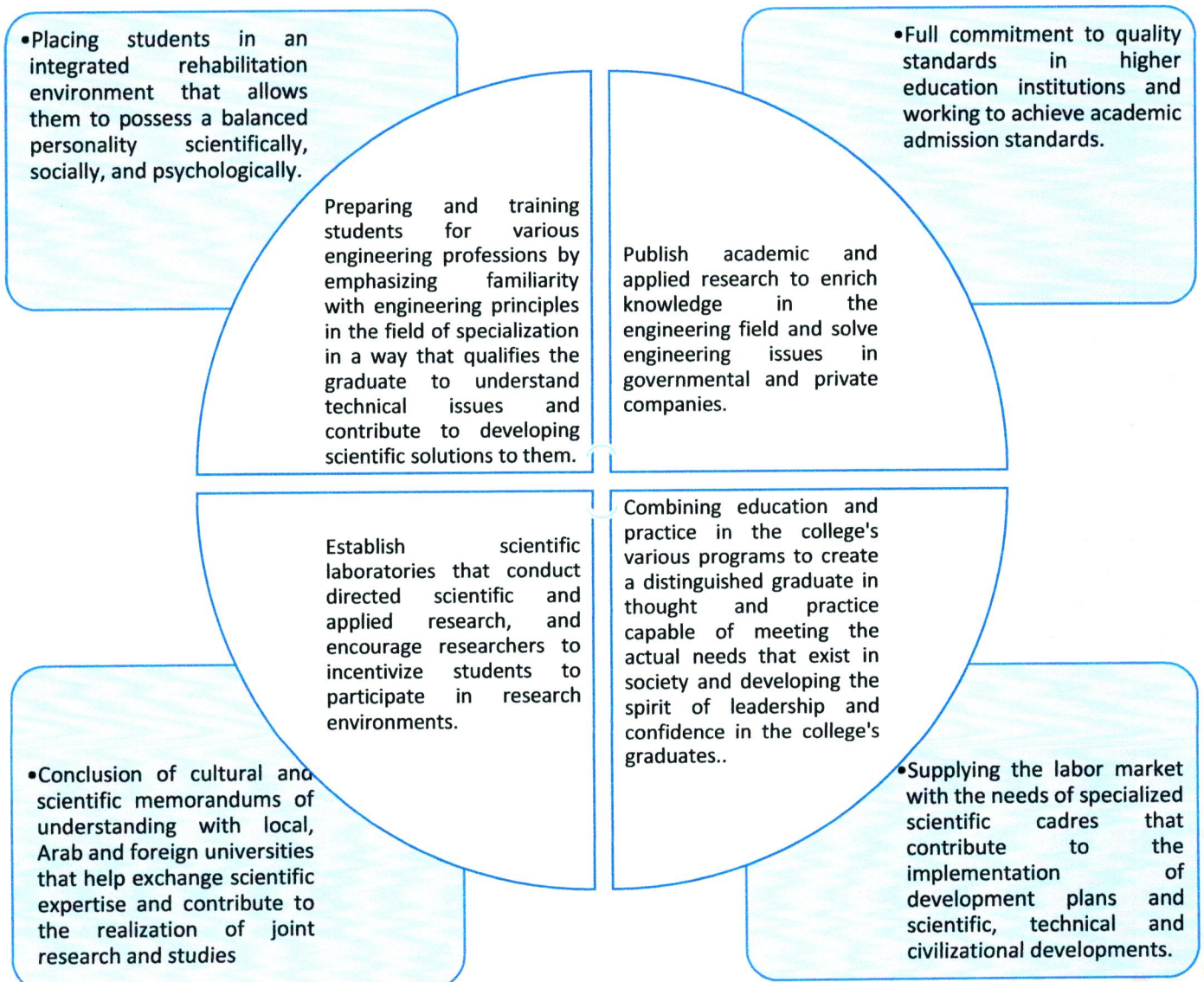
Excellence in teaching, learning, scientific research, innovation and community service, by promoting the principles of scientific analysis and creative thinking in a stimulating academic environment, participating in the production, development and distribution of knowledge, and interacting with the local and global community.

## 1.4 College Mission

The College of Engineering aspires to be distinguished and pioneering in the field of teaching, scientific research, development and community service by graduating engineers working to serve the nation, as well as upgrading the level of performance and quality to raise the levels of existing activities and services to enhance the scientific reality of the country. It also aspires to be globally distinguished by the quality of its innovative scientific research, graduates, and strategic partnerships to be a distinguished college in education and community partnership.







The College of Engineering at Warith Al-Anbiya University (WAU) is committed to producing generations of applied engineers and scientific researchers with an exceptional level of competence and technological innovation. This promotes quality assurance and academic accreditation in line with globally recognized standards in engineering and scientific curricula and is committed to all of this along with dedication to ethical practices within the fields of engineering and science.

## 1.5 College Objectives



1.6 Education Outcomes

**The graduate possesses a bachelor's degree in engineering disciplines for scientific departments in addition to these skills :**

<p><b>Technical knowledge</b></p> 	<p>Graduates must demonstrate a thorough understanding of basic engineering principles and concepts according to the engineering department they graduated from including civil engineering, refrigeration and air conditioning engineering, biomedical engineering, oil and gas engineering, and aerospace engineering.</p>
<p><b>Problem solving skills</b></p> 	<p>Graduates must be able to apply logical and intellectual thinking and problem-solving skills to analyze complex engineering issues in various engineering fields, including the ability to design, implement and supervise all engineering projects and sites and make appropriate decisions according to the economic feasibility of each project.</p>
<p><b>Teamwork and Communication</b></p> 	<p>Graduates must be able to collaborate effectively with multidisciplinary teams and channel technical information, including linguistic and written communication skills, as well as the ability to work in multicultural and global environments.</p>
<p><b>Professional ethics</b></p> 	<p>Graduates should have an understanding of ethical responsibilities and environmental considerations in the practice of engineering disciplines.</p>
<p><b>Professional development</b></p> 	<p>Graduates must have the necessary skills to adapt to advanced technology that deals with all engineering designs in all fields.</p>
<p><b>Practical skills</b></p> 	<p>Graduates must be skilled in the practical side as it is the essential part of working in an engineering environment.</p>



**1.7 Scientific Departments**

**Civil Engineering Department**

**Refrigeration and Air Conditioning  
Techniques Engineering Department**

**Department of Biomedical Engineering**

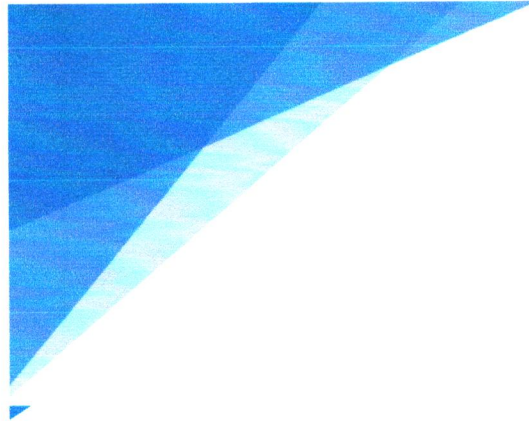
**Oil and Gas Engineering Department**

**Aircraft Engineering Department**



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**Assist. Prof. Dr. Qasim Ali  
Hussain  
Head of Civil Engineering  
Department**



## **CIVIL ENGINEERING DEPARTMENT**

The Department of Civil Engineering is one of the basic and important departments in all engineering colleges in the world, as this department is considered an important factor in the development and change of civilization, social, cultural and scientific change of any society .

In the Department of Civil Engineering, we strive to provide an outstanding education that enables our students to acquire the skills and knowledge needed to meet the challenges of contemporary engineering. The graduates of the Department of Civil Engineering are our pride and hope for the future, and we are committed to providing them with everything we have to be ready to meet the challenges of an effective market locally and anywhere in the world.

The Department of Civil Engineering offers a distinctive program in civil engineering that includes its various disciplines in construction and materials engineering, water and hydraulic engineering, environmental engineering, soil engineering, transportation and road engineering, construction management engineering, and surveying engineering.

## Civil Engineering Department Courses

First stage	Second stage	Third stage	Fourth stage
<ul style="list-style-type: none"> <li>• English Language</li> <li>• Human Rights and Democracy</li> <li>• Math (1,2)</li> <li>• Engineering Drawing</li> <li>• Physics and workshops</li> <li>• Building Materials</li> <li>• Arabic Language</li> <li>• Computer Science</li> <li>• Engineering Mechanics</li> <li>• Statistical Applications</li> <li>• Engineering Geology</li> </ul>	<ul style="list-style-type: none"> <li>• English 3</li> <li>• Math 3</li> <li>• Materials Resistance</li> <li>• Concrete Technology (1,2)</li> <li>• Geometric Space (1,2)</li> <li>• Fluid Mechanics (1,2)</li> <li>• Programming</li> <li>• Building Construction</li> <li>• Structural Drawing (AutoCAD)</li> <li>• Baath Party Crimes</li> </ul>	<ul style="list-style-type: none"> <li>• Irrigation and Drainage Engineering (1,2)</li> <li>• Numerical Analysis (1,2) Reinforced Concrete (1,2)</li> <li>• Traffic Engineering (1,2)</li> <li>• Engineering Management (1,2)</li> <li>• Construction Theory (1,2)</li> <li>• Soil Mechanics (1,2)</li> </ul>	<ul style="list-style-type: none"> <li>• Reinforced concrete (3,4)</li> <li>• Steel Structures Design (1,2)</li> <li>• Health and Environmental Engineering (1,2)</li> <li>• Road Engineering (1,2)</li> <li>• Hydrology (1,2)</li> <li>• Hydraulic installations (1,2)</li> <li>• Speculative Methods (1,2)</li> <li>• Engineering Foundations (1,2)</li> <li>• Engineering Project (1,2)</li> </ul>



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**Prof. Assistant Dr. Osama  
Abdelbari**  
**Head of the Department of  
Medical Engineering**

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- **Department of Biomedical Engineering**

The Department of Biomedical Engineering was established at Warith Al-Anbiya University / College of Engineering in 2017 and attracted an elite group of male and female students with an elite group of faculty with relevant scientific specialties, the specialty of biomedical engineering represents the link between engineering and medical sciences by applying engineering principles and techniques in the medical field. Where the need for engineering intervention appeared in many medical decisions, either by designing appropriate medical devices for specific disease and health requirements or by clinical participation of the medical team in specific decisions and procedures. Hence the need to find a medical engineer who possesses basic medical skills, but from an engineering perspective, so that he can build an engineering conceptualization of medical issues. The Department of Biomedical Engineering at Warith Al-Anbiya University seeks to become a global leader in this field, keeping pace with the renewed requirements of society and rapid technological developments. Faculty, staff, and students are an integral part of developing innovative and diverse projects and research to solve issues in biomedical engineering. The department aims to achieve excellence in undergraduate education, promote meaningful and innovative research, and provide outstanding services that support the advancement of the field of biomedical engineering.

## Courses of study for the Department of bioMedical Engineering

First stage	Second stage	Third stage	Fourth stage	Fifth stage
<ul style="list-style-type: none"> <li>• Mathematics 1,2</li> <li>• Engineering Drawing 1,2</li> <li>• Engineering workshops</li> <li>• Chemistry</li> <li>• Electrical Circuits 1,2</li> <li>• Computer Programming 1,2</li> <li>• English Language 1,2</li> <li>• Human Rights</li> <li>• Physics</li> <li>• Biochemistry</li> <li>• Arabic Language</li> </ul>	<ul style="list-style-type: none"> <li>• Mathematics 3,4</li> <li>• Engineering Mechanics 1,2</li> <li>• Electronics 1,2</li> <li>• Cell Biology</li> <li>• Information Technology</li> <li>• Materials Science</li> <li>• Arabic 2</li> <li>• Freedom and Democracy 1,2</li> <li>• Electromagnetic Fields                             <ul style="list-style-type: none"> <li>• Limb Anatomy</li> </ul> </li> <li>• Networks</li> </ul>	<ul style="list-style-type: none"> <li>• Engineering Analysis</li> <li>• Strength of the material 1,2</li> <li>• Torso Anatomy</li> <li>• Tissue 1,2</li> <li>• General Tissue</li> <li>• Medical Equipment</li> <li>• Optical Instruments</li> <li>• Engineering Statistics</li> <li>• Numerical Analysis</li> <li>• Neck and nerve anatomy</li> <li>• Electronics 3</li> <li>• Orthopedic injuries and fractures</li> </ul>	<ul style="list-style-type: none"> <li>• Biomechanics 1,2</li> <li>• Biomaterials 1,2</li> <li>• Communication 1,2</li> <li>• Pathology</li> <li>• Medical Devices</li> <li>• Digital Electronics 1,2</li> <li>• Thermal Fluid Mechanics 1,2</li> <li>• Analytical Mechanics</li> <li>• Therapeutic Devices</li> </ul>	<ul style="list-style-type: none"> <li>• Infrared and thermal imaging</li> <li>• Diagnostic devices</li> <li>• Control 1,2                             <ul style="list-style-type: none"> <li>• Image processing</li> </ul> </li> <li>• Microprocessors                             <ul style="list-style-type: none"> <li>• Hospital systems and design</li> </ul> </li> <li>• Signals and Systems</li> <li>• Electromechanical Design                             <ul style="list-style-type: none"> <li>• Computer Networks</li> </ul> </li> <li>• Joint Friction Science                             <ul style="list-style-type: none"> <li>• Neural networks</li> </ul> </li> <li>• Biosensors                             <ul style="list-style-type: none"> <li>• Project</li> </ul> </li> </ul>



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**Prof. Assistant Dr. Mohammed  
Hassan Abboud  
Head of the Department of  
Refrigeration and Air Conditioning  
Engineering**

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## **Air Conditioning and Refrigeration Engineering Department**

The Department of Biomedical Engineering at Warith Al-Anbiya University / College of Engineering was established in 2018. The Department of Air Conditioning and Refrigeration Technologies Engineering is characterized by an academic and technical nature, the department accepts graduates of the preparatory school with its scientific branch and for morning and evening studies and graduates of institutes with specializations (machinery and equipment, mechanical techniques, production, operation and maintenance, pumps and agricultural machinery). As well as graduates of industrial preparatories and for the same specializations. The duration of study in the department lasts (4 years), after which the graduate is awarded a bachelor's degree in air-conditioning and refrigeration technologies (technical engineer). The department seeks to provide its educational services using scientific methods and modern technology, and its curricula are in line with the latest international developments and their applications. The department specializes in preparing specialized cadres in the fields of heating and cooling, as well as in renewable energy and power plants.

**Refrigeration and Air Conditioning Technology Department Courses**

First stage	Second stage	Third stage	Fourth stage
<ul style="list-style-type: none"> <li>• Math</li> <li>• ENG. Drawing</li> <li>• Laboratories</li> <li>• Transportation Engineering</li> <li>• English 1</li> <li>• Electrical Engineering</li> <li>• Engineering Mechanics</li> <li>• Thermodynamics 1</li> <li>• Human Rights and Democracy</li> <li>• Arabic</li> <li>• Computer Principles</li> </ul>	<ul style="list-style-type: none"> <li>• Advanced Math</li> <li>• Mechanical Drawing</li> <li>• Fluid Mechanics</li> <li>• Thermodynamics 2</li> <li>• Baath Party Crimes</li> <li>• Fundamentals of Air Conditioning and Refrigeration</li> <li>• Resistance of materials</li> <li>• Computer Applications</li> <li>• English Language 2</li> <li>• Summer Internship 1</li> </ul>	<ul style="list-style-type: none"> <li>• Numerical and Eng analysis</li> <li>• Computer Applications 2</li> <li>• Machine and Vibration Theory</li> <li>• Heat transfer</li> <li>• Applied refrigeration and air conditioning</li> <li>• Mechanical Design</li> <li>• Refrigeration and air conditioning maintenance</li> <li>• English 3</li> <li>• Drawing of refrigeration and air conditioning systems</li> <li>• Electrical and Electronics Engineering</li> <li>• Summer Internship 2</li> </ul>	<ul style="list-style-type: none"> <li>• Graduation Project</li> <li>• Air Conditioning System Design</li> <li>• Power Generation Plants</li> <li>• Computer Applications 3</li> <li>• Engineering Project Management</li> <li>• Freezing systems</li> <li>• Renewable Energy</li> <li>• Professional Ethics</li> <li>• English Language 4</li> <li>• Controls and Measurements</li> </ul>



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**Lec. Dr. Daa Khafif Khashan**  
**Head of Oil and Gas**  
**Engineering Department**



- **Oil and Gas Engineering Department**

The Department of Oil and Gas Engineering at Warith Al-Anbiya University's College of Engineering was established in 2023 to coincide with the booming oil and gas industry in Iraq. This industry, which relies on oil and petroleum engineers, provides the oil and gas necessary for the products of daily life. The complexities of conventional and unconventional well exploration are creating a growing demand for engineers skilled in advanced technology. The Department of Oil and Gas Engineering is a four-year integrated engineering program that prepares engineers capable of working in local and international petroleum industry companies. The Department of Oil and Gas Engineering is one of the departments that rely on practical training and visualization, and thus Warth Al-Anbiya University (AS) provides scientific agreements with local and international universities and oil centers that provide all the requirements for the development of the oil industry.



**Oil and Gas Engineering Department Courses**

First stage	Second stage	Third stage	Fourth stage
<ul style="list-style-type: none"> <li>• English Language</li> <li>• Principles of Oil and Gas Engineering</li> <li>• Mathematics (,2</li> <li>• Materials Strength and Engineering Mechanics</li> <li>• Computer Programming</li> <li>• Engineering Workshops 1,2</li> <li>• General Geology 1,2</li> <li>• Chemistry</li> <li>• Professional Ethics</li> <li>• Human Rights and Democracy</li> <li>• Engineering Applications (AutoCAD)</li> </ul>	<ul style="list-style-type: none"> <li>• English language</li> <li>• Ordinary Differential Equations</li> <li>• Fluid Mechanics 1,2</li> <li>• -Computer Programming 2</li> <li>• Structural Geology</li> <li>• Statistics and Optimization</li> <li>• Baath Party Crimes</li> <li>• Petroleum Geology</li> <li>• Crude oil properties and transportation</li> <li>• Petrophysics Reservoir Engineering</li> <li>• Physics and Thermodynamics</li> <li>• Partial Differential Equations</li> </ul>	<ul style="list-style-type: none"> <li>• Drilling Engineering 1,2</li> <li>• Wellbore and Formation Evaluation 1,2</li> <li>• - Production Engineering 1,2</li> <li>• - Reservoir Engineering 1,2</li> <li>• Geophysics and Rock Mechanics</li> <li>• Numerical Analytics</li> <li>• Health, Safety and Environment</li> <li>• Risk Analysis and Petroleum Economics</li> </ul>	<ul style="list-style-type: none"> <li>• Reservoir Engineering</li> <li>• Well Control</li> <li>• Well Inspection</li> <li>• Natural Gas Engineering</li> <li>• Reservoir Management</li> <li>• Engineering Project 1,2</li> <li>• Directional drilling and well design</li> <li>• Well maintenance and revitalization</li> <li>• Enhanced Oil Production Optimization</li> <li>• Reservoir Simulation</li> <li>• Reservoir Management</li> </ul>



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**Assist. Prof. Dr. Ahmed Saadi  
Mohamed  
Head of Aircraft Engineering  
Department**

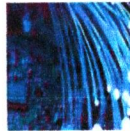
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The Department of Aircraft Engineering is one of the scientific departments in the Faculty of Engineering - Warith Al-Anbiya University, established in 2023, and students were received in the first phase of this department in the academic year 2023-2024. The location of the department was chosen within the Faculty of Engineering - Warith Al-Anbiya University in the holy province of Karbala due to the strategic importance of this location and the fact that it is located near many institutions such as (Karbala International Airport), which contributes to providing competent technical cadres in the field of maintenance, design and manufacture of aircraft, in addition to its contribution to the movement of the economy in the province and neighbouring cities and suburbs by providing job opportunities in the department and its laboratories for teaching staff, engineers, administrators and professionals. The department aspires to promote the aircraft industry in the country by utilizing the teaching staff and expertise available in the department and in coordination with other ministries.

## 1.8 Laboratories of College

Fiber optic laboratory



Electrical Circuits Lab



Strength of Materials Lab



Biomechanics Laboratory



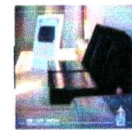
Communication Lab



Histology Laboratory



Digital Electronics Lab



Medical Devices Laboratory



Programming Lab



Chemistry and Biochemistry Laboratory



Physiology Laboratory



Anatomy Laboratory



Electrical Laboratory



Engineering Drawing Lab



Strength of Materials Laboratory



Heat Transfer Laboratory



Fluid Mechanics Lab



Dynamic Thermal Laboratory



concrete lab

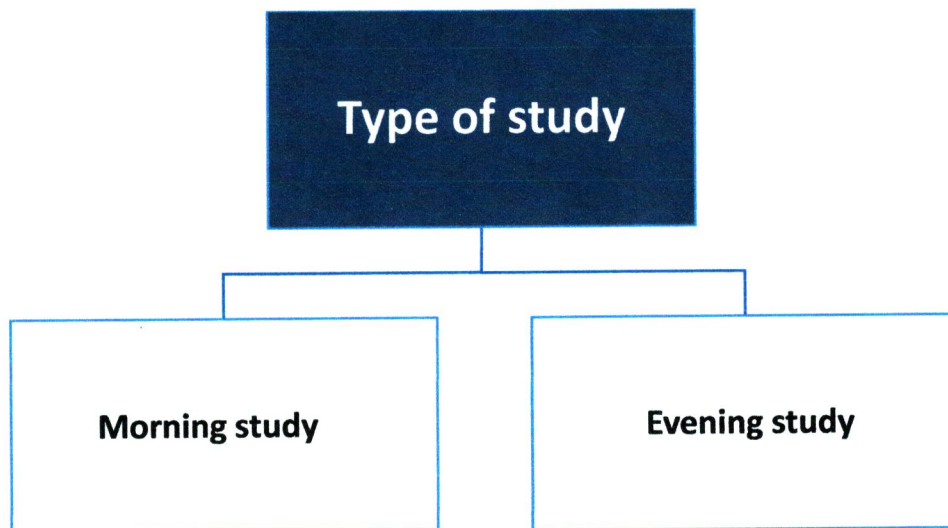
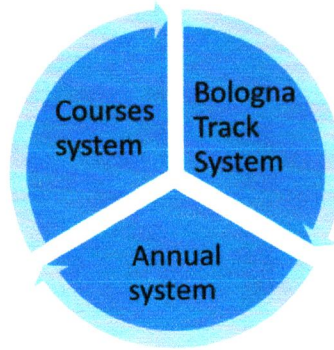


Electrical Lab



## 1.9 Education System

The education system follows a quarterly structure in line with the strategy prescribed by the Iraqi Ministry of Education and Scientific Research with a focus on comprehensive and flexible curricula, reflecting the commitment to comprehensive academic instruction in line with international standards:



## 1.10 How to Apply

- 1.The student creates his/her own account within the system using his/her active mobile number and selects a password to be able to access the centralised admission system for private education.
- 2.The student activates the notification, e-booking and SMS communication services to enable the student to use these services during the application, data matching and registration phase.
- 3.The student fills in his/her data by starting by selecting the graduation destination and then following the system instructions during the process of filling in the data according to the requirements of each category of students.
- 4.The system provides an electronic booking interface to manage bookings to review the Department of Private University Education or audit centres in private universities and colleges according to the requirements of each category of students.
- 5.The data matching process is electronic for students who are graduates of the Ministry of Education and who have the exam number and password, so the student does not need to review the audit centres in universities and private colleges.
6. For all other categories of students who do not have exam numbers and secret numbers or who do not have secret numbers only, the data reconciliation process is done by booking an electronic appointment to review the audit centres in universities and private colleges.
- 7.If there is an error in the student's data, the student must book an electronic appointment with the Department of Private University Education to re-audit.
- 8.If the student needs to review the Department of Private University Education, he/she can do so by booking an online appointment and selecting the reason for the review.
- 9.After matching the data, the student can start the application process by filling out the electronic forms with 4) options within the general application channel, in addition to two forms for those who wish to apply within the special channels.) special channels.
- 10.Students who are included in the special channels must activate the channels through the special channels window in the system to allow them to start the application process within these channels.
- 11.For students who are included in the martyrs' channel, the application form for this channel must be filled out on the student's control panel in the private channels

section, after which the institution will be reviewed to validate the form and activate the channel electronically.

12. For students covered by other private channels, the student must select the appropriate channels and book an electronic appointment with the audit centres in universities and private colleges, bringing with him the documents related to the channel to activate it.

13. Students can cancel their forms during the application phase (withdrawal during application) through the application window within the system with a maximum of (4) attempts.

14. The system performs the differentiation process dynamically and simultaneously, where students' acceptances appear according to their choices in the application forms, and the results are continuously updated throughout the application process.

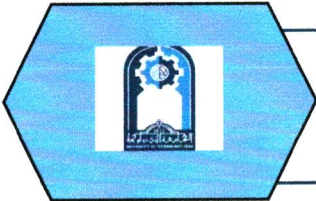
15. The registration phase begins after the end of the application phase, where the student takes the (registration code) and goes to one of the departments to which he has been accepted to complete the registration process.

16. After the student completes the registration process in one of the departments to which he/she has been accepted, his/her admission options will be cancelled to give the opportunity to the rest of the students according to the results of the differentiation process.

## 1.11 Agreements with public universities and colleges



**Karbala University, College of Engineering**



**Technological University, College of Engineering**



**Central Technical University, College of Engineering**

**Preparation Committee of the  
Academic Guide for the  
College of Engineering**

- **Assist.Prof Dr Hussein Hadi Al-Awadi / Dean of the Faculty of Engineering / Chairman of the Committee**
- **Assist. Prof Dr Hassan Taleb / Assistant Dean for Scientific Affairs / Member of the Committee**
- **Eng. Zahraa Radi Odeh / Faculty of Engineering / Member of the Committee**



**Approval of the Honourable Dean of the College of Engineering**

أ.م.د. حسين هادي حسين  
عميد كلية الهندسة

