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

2024−2025

Introduction:

build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Technical Engineering College / Najaf

Scientific Department: Mechanical Engineering Techniques of Power

Academic or Professional Program Name: Bachelor of Mechanical Engineering Techniques of Power

Final Certificate Name: Bachelor of Mechanical Engineering Techniques of Power

Academic System: Annual - for the academic year 2024-2025

Description Preparation Date: 8/06/2025

File Completion Date: 8/06/2025

Signature:
Head of Department Name:
Date: Prf. Dr. Adel A. Eidan
Date: 2025/6/15

Signature:
Scientific Associate Name:
Date: Prof. Dr. Assad A. Abass
Date: 2025/6/15

The file is checked by:
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date: 2025/6/15
Signature:

Approval of the Dean

Program Vision

The department's vision is to create an educational system based on the requirements and needs of the community and other technical engineering specialty service facilities to serve the required civil development in the country.

Program Mission

The mission of the department since its establishment is to prepare a technical engineer capable of facilitating the depths of the field of specialization, armed with knowledge, skill, and ability to keep up with development, keen on professional ethics, and characterized by leadership qualities to be able to face challenges and fill the demand in the labor market and not contribute positively to community service, and be an important element in the process of building a better Iraq.

Program Objectives

The main objectives of the department fall within the following axes:

❖ **Knowledge:** providing basic knowledge in the principles of mechanical engineering in general and automotive engineering in particular, along with the knowledge needed to support mathematics, computers, and the basics of mechanical engineering, to prepare and qualify specialized engineers to meet the requirements of the labor market in the private and public sectors in mechanical engineering, through diversification in learning and education methods and training students to apply the acquired knowledge and skills to solve real problems.

❖ **Technical skills:** developing the basic skills necessary for the implementation and design of laboratory and field projects by providing distinguished academic programs in the field of mechanical engineering in both theoretical and practical terms so that they comply with international standards of academic quality and meet the needs of the labor market.

❖Communication skills: develop the ability to organize and present information effectively, whether oral, written, or graphical, and encourage and develop scientific research in the fields of mechanical engineering in general.

❖Preparation for postgraduate studies: is to provide sufficient breadth and depth for the success of subsequent graduate studies, postgraduate studies, and continuing education programs.

❖Preparing for the profession: is to build and develop partnerships with the government, private sector, and society in all its various institutions, providing a detailed report on the problems that arise in professional practices, including teamwork and leadership, occupational safety, ethics, and economics.

❖Prepare a stimulating environment for faculty members to develop their educational and research knowledge and skills.

Program Accreditation

Apply for programmatic accreditation of the self-assessment report of the Department of Mechanical Engineering Techniques of Power for the academic year 2023-2024 to the presidency of the Al-Furat Al-Awsat Technical University.

Other external influences

Conducting field and scientific visits to factories and laboratories located in Iraq.

1) Program Structure

Program Structure	Number of Courses (38)	Credit hours (187)	Percentage	Reviews*
Institution Requirements	5	12	6.2 %	
College Requirements	11	47	25.2%	
Department Requirements	22	128	68.4%	
Summer Training	-	-	-	-
Other	-	-	-	-

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

1) Program description

Academic Rank	Course Number	Course Name	Course code	(SSWL) hr/ Sem.	(USSWL) hr/ Sem.	(SWL) hr/ Sem.	Number of units
First Stage	The first course	English for Academic U.		18	32	50	2.00
		Computer Principals		48	27	75	3.00
		Single Variables Calculus		63	62	125	5.00
		Workshop		63	37	100	4.00
		Engineering physics		78	47	125	5.00
		CAD Drawing		115	60	175	7.00
		Human Right and Democracy		18	32	50	2.00
		Arabic language		18	32	50	2.00
	The second course	Baath party crimes		18	32	50	2.00
		Multi-Variables Calculus		63	62	125	5.00
		Engineering Materials		33	42	75	3.00
		Fundamentals of Thermodynamics		78	72	150	6.00
		Engineering Mechanics-Static		123	77	200	8.00
		Fundamentals of Electricity		78	72	150	6.00

1) Program description

Academic Rank	Course Number	Course Name	Course code	(SSWL) hr/ Sem.	(USSWL) hr/ Sem.	(SWL) hr/ Sem.	Number of units
Second Stage	The first course	Fluid Mechanics -Static		63	62	125	5.00
		Advanced automotive technology		63	62	125	5.00
		CAE Principals		78	72	150	6.00
		Thermodynamic - Ideal Gas		78	72	150	6.00
		Manufacturing Processes		48	52	100	4.00
		Fundamentals of Engineering Mechanics-Dynamics		48	52	100	4.00
		Fluid Mechanics -Static		63	62	125	5.00
		Advanced automotive technology		63	62	125	5.00
	The second course	Fluid Mechanics-Dynamics		48	27	75	3.00
		Internal Combustion Engine		63	62	125	5.00
		Engineering Mechanics-Applied of Dynamics		48	52	100	4.00
		Strength of Materials		108	92	200	8.00
		Linear algebra		78	72	150	6.00
		Thermodynamic - Gas cycle		63	37	100	4.00

Output learning, learning and evaluation outputs of the program

A) Cognitive output

1) The ability to apply knowledge in mathematics, science and engineering.

2) Ability to identify, formulate and solve engineering problems.

3) The ability to use modern engineering techniques, skills and tools necessary to practice engineering and teach leadership skills and the qualitative value of commitment, ethical behavior and respect for others.

4) The ability to understand the applied codes of the profession, professional specifications and understand the professional and ethical responsibilities of the specialty field.

5) The ability to evaluate the outputs of the course material with the study body , industrial and professional practitioners, as well as employers and graduate students to improve them.

B) Program-specific skill outputs.

1) The ability to supervise or carry out mechanical engineering work and integrate into multidisciplinary teams.

The ability to identify engineering problems in the field of work and think about addressing them, which arise during the execution of works.

The ability to design, conduct experiments, analyze and interpret the results, write scientific reports and read engineering schemes.

The ability to keep up with the development in engineering materials and methods of implementation and the ability to use modern technologies, engineering skills and tools to practice engineering

C) Emotional and value outcomes and goals:

1) Responsiveness: follow-up on how well the student interacts with the material displayed on the screen.

2) Pay attention: to arouse the attention of students through questions during the lecture.

3) Attention: follow up the interest of the student who interacted more with the presented material.

4) Direction formation: in the sense that the student is sympathetic to the presentation and may have an opinion on the direction of the presented topic and defend it.

5) Formation of value behavior: meaning that the student reaches the top of the emotional ladder so that he has a stable level in the lesson and does not get lazy and restless

D) Transferred general and qualifying skills (other skills related to employability and personal development.

1) developing the student's ability to deal with technical means.

2) developing the student's ability to deal with the internet.

3) developing the student's ability to deal with multiple means.

4) develop the student's ability to dialogue and discussion.

5) the ability to mechanical design using the latest three-dimensional design and simulation programs, which is a process to meet the required needs within the field of specialization in a realistic framework in which environmental, economic, social, political and health restrictions are imposed.

6) the ability to work with the latest mechanical, electrical and electronic fault diagnosis devices for mechanical systems and cars in particular.

7) The ability to adapt to all branches of Mechanical Engineering and adapt to telecommunications engineering and renewable energies.

Teaching and learning strategies

1) explanation and clarification by means of lectures.

2) e-learning on campus.

3) the way of displaying scientific materials with projectors: data show, smart boards, plasma screens.

4) self-learning through homework assignments and mini-projects within lectures.

5) applied education and Experimental Education (laboratories) and work within multiple groups in workshops.

6) graduation projects and case studies (graduation projects) in providing a description that includes scientific facts about an engineering problem and students are asked to analyze some information, diagnose the problem and describe the mathematical solution.

7) scientific visits to follow up the projects designed in Mechanical Engineering and organize field visits to the field of work.

8) seminars held in the Department.

9) Summer Internship and work with other state institutions within the summer internship program.

10) engineering workshops and work within multiple aggregates in workshops.

11) raising the student's incentives towards answering and studying more.

Evaluation methods

1) short exams (Quis).

2) homework assignments and adherence to the specified deadline in the submission of assignments and research required by the student to submit.

3) quarterly and final exams for Theoretical and practical subjects quarterly and final tests are considered for commitment, knowledge and skill achievement.

4) small projects within the lesson.

5) interaction within the lecture and active participation in the classroom demonstrate the student's commitment and responsibility.

6) Reports.

Faculty (Faculty Members)

Academic Rank	Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Mechanics	Thermo mechanics			3	
Professor	Material mechanics	Material mechanics			1	
Assistant professor	Mechanics	Thermo mechanics			4	
Assistant professor	Mechanics	Applied mechanics			1	
Assistant professor	Modern and contemporary history	Modern and political history			1	
Lecturer	Mechanics	Applied mechanics			4	
Lecturer	Mechanics	Thermo mechanics			3	
Lecturer	Mathematics	Nodal analysis			1	
Assistant Lecturer	Material	General materials			3	
Assistant Lecturer	Mechanics	Thermo mechanics			6	

Assistant Lecturer	English	English literature			1	
Assistant Lecturer	Electricity Engineering	Electric Power			1	

Professional development

❖ The professional development of the student

❖ Students acquire self-learning skills through the nature of vocabulary, curricula and teaching methods and encourage students to work as teams within practical projects that reflect the reality of society and its problems. Encouraging students to enter and participate in competitions, seminars and conferences, which develop and develop their research ability and self-confidence in self-learning.

❖ The professional development of new faculty members

❖ One of the tasks of the Department of power mechanics engineering techniques is to establish training programs for new recruits periodically and for appropriate periods commensurate with the teaching strategies in the Department of power mechanics engineering techniques with various types of learning outcomes aimed at developing the educational program. The teaching staff in the department is bound by the teaching and evaluation strategies explicitly stated in the descriptions of courses and programs with sufficient flexibility to meet the needs of different groups and according to individual differences between them.

❖ Professional development of the teaching staff.

❖ One of the things that is taken into account when classifying an effective education system is to put the quality of teaching in an important position while providing students with the knowledge, values and skills that they need during their various learning stages throughout their lives. These goals may relate to improving the quality of teaching, developing mechanisms for managing teaching Affairs, fully supporting it, developing its performance and maintaining this level throughout its professional life. Most education plans include

strategies that actually promote both quality and education, for example, curriculum development, teacher development and education, increasing the percentage of teachers to match the increase in student numbers, improving classroom conditions and increasing financial allocations for this.

Acceptance criterion

The Department of Mechanical Engineering is subject to the mechanism of work of the Ministry of Higher Education and Scientific Research – the central admission department, where graduates of the preparatory study (scientific branch) are nominated for admission to the department based on graduation rates, in addition, students are admitted to parallel morning study as well as evening study. Also, some of the top ten students are accepted from graduates of technical institutes, others from the top five percent of Professional Studies, and some distinguished employees from state ministries.

The most important sources of information about the program

1) websites of Iraqi and foreign universities.

2) scientific libraries.

3) workshops held by the Ministry of higher education in addition to the ministry's standards.

4) American Academic Accreditation Program. ABET

Program development plan

1) Institutional commitment to continuous improvement of output quality:

The Department of Mechanical Engineering Techniques of Power is constantly committed to the strong participation of the educational organization's employees in quality assurance processes. The Quality Assurance Division of the educational organization provides the necessary resources and provides assistance to it where necessary. Also, all faculty and staff participate in continuous improvement processes and prepare reports on them - all in the field of currency - to reach the goal of continuous improvement of outputs.

2) Use of indicators and reference comparison points:

The Department Mechanical Engineering Techniques of Power always compares its achievements with the previous year of the plans that were developed during the academic year, where it works to add courses, workshops, seminars, research and student projects to its scientific plan so that it keeps pace with the labor market and technical development.

3) The mechanism of the course system was introduced for the first stage only (the annual system was changed to a new system (courses), which was confirmed by the Ministry of higher education and scientific research) during the next academic year 2022-2023.

4) Independent verification of standards:

The Department of Mechanical Engineering Techniques of Power works to verify the results of self-evaluation processes for the quality of performance, by examining the evidence and proofs, including feedback through questionnaires and opinions of stakeholders and beneficiaries such as students , teachers, graduates, and employers (labor market) within continuous improvement processes**.**

5) Scope of continuous improvement processes:

The scope of continuous improvement of the quality of performance is unified through the participation of the dean and the head of the Department of the educational process within the organization. Operations to improve the performance of the educational organization are carried out annually and regularly, and special reports are prepared (evaluation of teaching and Technical Associates) evaluation processes provide a comprehensive picture of the performance of the educational organization in general, as the department is responsible for giving a view in the evaluation of its associates, where it deals with part of the inputs, processes and outputs (outputs). Focusing on the quality of the outputs, and then the opinion and approval of the direct administrator and then the approval of the higher (dean of the college) are obtained

Program skills chart

السنة المستوى		رمز المقرر	Course name	اساسي أم اختياري	Learning outcomes required from the program																					
					Knowledge outlet					Skills output					Output of conscience and values					General and transferable skills					
					أ1	أ2	أ3	أ4	أ5	ب1	ب2	ب3	ب4	ج1	ج2	ج3	ج4	ج5	د1	د2	د3	د4	د5	د6	د7
المرحلة الاولى	الفصل الاول		English for Academic U.	ثانوي	✓					✓					✓			✓		✓		✓			
			Computer Principals	ثانوي		✓				✓				✓					✓		✓	✓			
			Single Variables Calculus	أساسي	✓					✓							✓	✓		✓	✓	✓			
			Workshop	أساسي		✓				✓					✓					✓					
			Engineering physics	أساسي	✓					✓					✓					✓			✓	✓	✓
			CAD Drawing	ثانوي	✓								✓	✓					✓			✓	✓		
			Human Right and Democracy	أساسي						✓							✓	✓			✓	✓			
			Arabic language	أساسي	✓					✓					✓			✓		✓		✓			
	الفصل الثاني		Baath party crimes	أساسي													✓	✓			✓	✓			
			Multi-Variables Calculus	أساسي	✓					✓							✓	✓		✓	✓	✓			
			Engineering Materials	ثانوي	✓					✓						✓			✓						
			Fundamentals of Thermodynamics	أساسي	✓					✓		✓		✓				✓		✓					
			Engineering Mechanics-Static	أساسي	✓					✓					✓					✓			✓	✓	✓
			Fundamentals of Electricity	أساسي	✓					✓				✓	✓						✓	✓	✓		✓

Program skills chart

السنة المستوى		رمز المقرر	Course name	اساسي أم اختياري	Learning outcomes required from the program																		
					Knowledge outlet					Skills output				Output of conscience and values					General and transferable skills				
					أ1	أ2	أ3	أ4	أ5	ب1	ب2	ب3	ب4	ج1	ج2	ج3	ج4	ج5	د1	د2	د3	د4	د5	د6	د7
المرحلة الثانية	الفصل الاول		Fluid Mechanics - Static	أساسي	✓					✓					✓			✓		✓		✓			
			Advanced automotive technology	أساسي		✓				✓				✓					✓		✓	✓			
			CAE Principals	ثانوي	✓					✓								✓		✓	✓	✓			
			Thermodynamic - Ideal Gas	أساسي		✓				✓					✓					✓					
			Manufacturing Processes	أساسي	✓					✓					✓					✓			✓	✓	✓
			Fundamentals of Engineering Mechanics- Dynamics	ثانوي	✓								✓	✓					✓			✓	✓		
	الفصل الثاني		Fluid Mechanics- Dynamics	أساسي													✓	✓			✓				
			Internal Combustion Engine	أساسي	✓					✓							✓	✓			✓	✓			
			Engineering Mechanics- Applied of Dynamics	ثانوي	✓					✓						✓		✓	✓						
			Strength of Materials	أساسي	✓					✓		✓		✓				✓		✓					
			Linear algebra	أساسي	✓					✓					✓					✓				✓	✓

✓		✓	✓	✓						✓	✓				✓					✓	أساسي	**Thermodynamic - Gas cycle**			