

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



**Academic Programm and
Course Description Guide
Department of
Mechanical Engineering**

2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and 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: Diyala

Faculty/Institute: College of Engineering

Scientific Department: Mechanical Engineering Department

Academic or Professional Program Name: Bachelor

Final Certificate Name: Bachelor of Science in Mechanical Engineering

Academic System: Course

Description Preparation Date: 2024

Completion Date: 8-8-2024

Signature:

Head of Department Name:

Asst. prof. Dr. Samir V. Gh. Yahya

Date:

8/8/2024

Signature:

Scientific Associate Name:

Date: 11/8/2024

Abidaoun H. Shallal

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

Prof. Dr. Anees A. Khadom

1. Program Vision

The department aspires to open postgraduate studies to grant a master's degree in mechanical engineering in the coming years. The department aspires to establish research laboratories to complete the research of researchers from the department's professors or researchers from outside the university. The department aspires to raise the scientific level by using the latest scientific teaching methods such as laboratories and modern teaching methods such as exploiting computers and modern advanced information technology.

2. Program Mission

development of a country. The industrial progress of any country depends on several factors, the most important of which is the efficiency of the engineering staff capable of designing, implementing and managing advanced industrial projects. On this basis, the Department of Mechanical Engineering at the University of Diyala was established to provide the country with an engineering staff capable of advancing the country's industrial capabilities now and in the future. The Department of Mechanical Engineering at the University of Diyala was established in the academic year 2009-2010. The department currently receives about (25-30) students annually. It is hoped that the department's capacity will increase to 40 students, with a specialized teaching staff since its opening. A number of postgraduate students have been sent outside Iraq to obtain a doctorate degree

3. Program Objectives

Objectives: The department aims to teach a standard curriculum of mechanical engineering, and to qualify competent mechanical engineers to fill positions required by the need in Iraqi government departments or in the local or global labor market. We aspire for our graduates to obtain the best possible ideal curriculum for a mechanical engineer, so the department is keen to keep pace with updating its educational curriculum with global technological development on an ongoing basis

4. Program Accreditation

The department submitted an application to obtain program accreditation from the Iraqi Council for Engineering Accreditation

5. Other external influences

All relevant ministries in dealing with this program, such as the Ministry of Oil, Industry, Environment, and others

6. Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	0	0	0	0
College Requirements	4	10	9	
Department Requirements	38	99	90	
Summer Training	1 month	Without credit		Compulsory 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	E 101	Mathematics I	theoretical	practical
first	ME 101	Physics	3	1
first	ME 102	Static mechanic I	3	2
first	ME 103	Electrical engineering	4	1
first	UD 04	Human Rights and Democracy	4	2
first	ME 104	Engineering Workshops	2	0
first	UD 02	Arabic Language	0	3
first	E 102	Mathematics II	2	0
first	UD 03	Computer Skills	3	1
first	ME 105	Static mechanic II	1	2
first	ME 106	Engineering Drawing	4	1
first	UD 01	English Language	1	5
First	ME 107	Manufacturing process	4	0
First	ME108	Chemistry	4	0
Second	ME 201	Strength of Materials	4	1
Second	ME 211	Applied Mathematics I	3	1
Second	ME 210	Thermodynamics	4	1
Second	ME 204	Engineering of Metallurgy	4	1
Second	ME 206	Applied Computer Programming	1	2
Second	UD 04	English Language	2	0
Second	UD 05	Extinct Ba'ath Party Crimes	2	0
Second	ME 207	Dynamics	4	1
Second	ME 212	Electrical Machines	3	1
Second	ME 214	Applied Mathematics II	3	1
Second	ME 208	Mechanical Drawing by CAD	5	1
Second	ME 202	Fluid Mechanics I	4	1
Second	UD 06	Arabic Language	2	0
Third	ME 301	Mechanics of Machines	4	1
Third	ME 306	Internal Combustion Engines	4	1
Third	ME 303	Engineering Analysis	4	0

Third	ME 302	Engineering Statistics	3	0
Third	ME 304	Fluid Mechanics II	4	1
Third	ME 307	Engineering Numerical Methods	3	1
Third	ME 308	Production Engineering	3	0
Third	ME 313	Operations Research	3	0
Third	ME 311	Heat Transfer	4	1
Third	ME 310	Engineering Materials	4	0
Fourth	ME 401	Design of Machine Elements I	4	1
Fourth	E 404	Engineering Economy	3	0
Fourth	ME 403	Industrial Engineering	4	0
Fourth	ME 404	Mechanical Vibrations	4	1
Fourth	ME 405	Air Conditioning	4	2
Fourth	E 402	Eng. Graduation Project I	2	0
Fourth	ME 421	ME Elective Class	3	0
Fourth	ME 409	Design of Machine Elements II	4	1
Fourth	ME 402	Control Engineering	4	2
Fourth	ME 411	CAE	1	2
Fourth	ME 407	Power Plants	3	0
Fourth	ME 422	aerodynamics	3	0
Fourth	E 403	Eng. Graduation Project II	2	0

8. Expected learning outcomes of the program

Knowledge	
1- Knowledge and understanding 2- Awareness and understanding 3- Ability to apply	➤ Knowing the facts, concepts, principles and theories of chemical engineering, and understanding the determinants and constraints facing the engineer's work for the purpose of making the right decision. ➤ Understanding basic mathematical derivations and linking various phenomena with equations and laws to determine the variables that govern the industrial unit. ➤ The ability to know the optimal conditions for industrial work and manage it correctly. Awareness of industrial problems that may be specific to known or unknown circumstances. ➤ Analyze and discuss available data or conduct specific experiments to obtain more data. Design units and processes and make the necessary improvements. ➤ The ability to apply new technologies within the general jurisdiction. ➤ Having a comprehensive view of industrial engineering problems, taking into account cost, safety and quality
Skills	
1- The ability to use a variety of sources of understanding 2- Conduct successful laboratory experiments or design a safe experiment and extract important data 3- Work ethically and have the ability to identify and identify risks	Using multiple techniques and devices related to the specialty. ➤ Using laboratory equipment to find data. ➤ Develop and provide a safe work environment by selecting the most appropriate devices and equipment.
Ethics	
1- Professional work, taking into account costs and occupational safety 2- Working in the spirit of one team and ensuring human victory 3- Anticipating problems and finding appropriate solutions to them	➤ Using multiple techniques and devices related to the specialty. ➤ Using laboratory equipment to find data. ➤ Develop and provide a safe work environment by selecting the most appropriate devices and equipment.

9. Teaching and Learning Strategies

1. Theoretical lectures with the use of illustrations.
2. Practical laboratory application of concepts taught theoretically
3. Assigning students to perform seminars by assigning them a topic to be discussed with their colleagues
4. Solve problems, discuss them, and assign students some homework and reports through the e-learning platform

10. Evaluation methods

Sudden exams (5) marks

- Monthly exams (25) marks
- Reports assigned to them (5) degrees
- Homework assignments (5) marks
- A final examination of the curriculum (60 marks).

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements (if applicable)		Number of the tea	
					Staff	Lecturer
Prof. Dr. Samir Gh. YAHYA	Mechanical Engineering	Thermo-fluids			Staff	
Prof. Dr. Arshad Abdul Hamid Mohammed Abdul	Mechanical Engineering	Applied			Staff	
Prof. Dr. Jassim Abdul Latif Mohammed	Mechanical Engineering	Thermo-fluids			Staff	
Asst. Prof. Dr. Mazen Mahmoud Yahya Ahmed	Mechanical Engineering	Applied			Staff	
Prof. Dr. Ahmed Shehab Ahmed	Mechanical Engineering	Power			Staff	
Prof. Dr. Itimad Dawood Juma	Mechanical Engineering	Power			Staff	
Asst. Prof. Dr. Qusay Tawfiq Hassan Kaitan	Mechanical Engineering	Thermal power			Staff	
Asst. Prof. Dr. Nizar Munim Mahmoud Salman	Mechanical Engineering	Aerodynamic			Staff	
Asst. Prof. Dr. Mohammed Ismail Hamid Mohammed	Mechanical Engineering	Applied			Staff	
Asst. Prof. Dr. Mohammed Khader Abbas Jassim	Mechanical Engineering	Fluids			Staff	
Asst. Prof. Dr. Mohammad Reza Jawad Kazim	Mechanical Engineering	Heat transfer			Staff	
Asst. Prof. Dr. Wameedh Turki Mohammad Al-Tameemi	Mechanical Engineering	Thermo-fluids			Staff	
Asst. Prof. Dr. Zaid Salem Hamoudi	Mechanical Engineering	General Design			Staff	
Asst. Prof. Dr. Diaa Ahmed Salal	Mechanical Engineering	Applied			Staff	
Asst. Prof. Dr. Salwa Abbas Abdel-Sabaa	Mechanical Engineering	Applied			Staff	
Ms. Iman Mohammed Ne'ma	Mechanical Engineering	Applied			Staff	
Saadoun Abdul Hafeez Jawad Kazim	Mechanical Engineering	power			Staff	
Khader Najm Abdul Nasser	Mechanical Engineering	power			Staff	
Asst. Prof. Dr. Laith Abdul Hasnawi Hassan	Mechanical Engineering	Thermal power			Staff	

Yassin Alwan, Khader	Mechanical Engineering	Thermal power			Staff	
----------------------	------------------------	---------------	--	--	-------	--

Professional Development

Mentoring new faculty members

New teaching staff are developed by putting them in central development courses organized by the university, as well as by interacting with senior staff during periodic meetings in the department for the purpose of introducing them to the work contexts and informing them of directives and instructions, along with giving advice, daily guidance and continuous follow-up.

Professional development of faculty members

Professional development for faculty members takes place through the Divisions of Continuing Education and Academic Affairs in the Deanship of the College and its corresponding departments in the University, which constantly work to hold discussion circles and specialized scientific seminars, while reviewing what is published on the Internet sites of books and periodicals in various scientific specializations

12. Acceptance Criterion

Admission is centralized by the Ministry of Higher Education and Scientific Research according to the grade point average of the students obtained in the sixth scientific stage

13. The most important sources of information about the program

Diyala University website / College of Engineering / Department of Chemical Engineering
Website of the Ministry of Higher Education and Scientific Research

14. Program Development Plan

- Development is carried out by focusing on the advanced scientific staff in the department and through the committees formed annually, especially the Scientific Committee and the Quality Assurance and Academic Accreditation Committee.
- By preparing evaluation studies to prepare and develop senior leadership cadres in all aspects of the educational institution.
- Equipping scientific laboratories with modern equipment and qualifying their cadres in order to improve the most efficient performance.
- Develop future plans and work to implement them
- Creating a kind of competition among researchers, honoring the distinguished ones and motivating them to give more.
- Working to create a kind of financial income for the department to sustain and develop the work
- Supporting the department's first-in-class admission program annually and enrolling them in postgraduate studies.
- Conducting a twinning process with advanced universities and providing training opportunities for teaching staff in those universities

Program Skills Outline																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				Required program Learning outcomes																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Year/ Level	Course Code	CourseName	Basic or optional	Knowledge				Skills				Ethics																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
First Year	E 101	Mathematics I	Basic	*				*						*				*																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

