

Ministry of Higher Education and Scientific Research
Academic Supervision and Evaluation Authority Quality Assurance and Academic



Accreditation Department Accreditation Department

Academic program description

2026-2025

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized into curricular modules. The primary purpose is to build and refine graduates' skills, making them qualified to meet the demands of the labor market. The program is reviewed and evaluated annually through internal or external audit procedures and programs, such as the External Examiner Program. The academic program description provides a concise overview of the program's key features and courses, outlining the skills students are expected to develop in alignment with the program's objectives. The program description is crucial because it serves as the cornerstone of program accreditation. It is co-written by faculty members under the supervision of academic committees in the academic departments.

This second edition of the guide includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the latest developments in the Iraqi educational system. This includes a description of the academic program in its traditional form (annual, semester), as well as adopting the academic program description circulated pursuant to the Department of Studies Circular No. 3/2906 dated May 3, 2023, regarding programs that adopt the Bologna Process as the basis for their work. In this regard, we cannot but emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth running of the educational process.

Concepts and terms:

Academic Program Description:

The academic program description provides a concise summary of the program's vision, mission, and objectives, including a detailed description of the targeted learning outcomes based on specific learning strategies.

Course Description: Provides a concise summary of the course's key features and the learning outcomes expected of the student, demonstrating whether the student has made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious vision for the future of the academic program to be an advanced, inspiring, motivating, realistic, and applicable program.

Program mission: It briefly explains the objectives and activities required to achieve them, and also identifies the program's development paths and directions.

Program objectives: These are statements that describe what the academic program intends to achieve within a specific time and are measurable and observable.

Curriculum structure: All courses/subjects included in the academic program according to the approved learning system (semester, annual, Bologna track), whether required by (ministry, university, college, or scientific department), along with the number of academic units.

Learning outcomes: A consistent set of knowledge, skills, and values acquired by a student after successfully completing the academic program. Learning outcomes for each course must be defined in a manner that achieves the program's objectives.

Teaching and learning strategies: These are the strategies used by faculty members to develop student teaching and learning. They are plans followed to achieve learning objectives, describing all classroom and extracurricular activities to achieve the program's learning outcomes.

Academic Program Description Form

University Name: Al-Turath University

College/Institute: College of Engineering

Department: Department of Oil and Gas Refining Engineering

Academic or Professional Program Title: Bachelor's Final Degree

Title: Bachelor's in Oil and Gas Refining Engineering

Academic System: Semester Description

Preparation Date: October 2025

File Completion Date: October 2025



Signature:

Name of Academic Assistant: Prof. Dr.

Jamal Mani Ali

Date: October 2025

Signature:

Name of Department Head: Prof. Dr. M.F. Abid

Date: October 2025

Name of the Director of the Quality Assurance and College Performance Division:
Assist. Lecturer Farah Ghazi Fahad

Date: 10/4/2026

Signature

Dean's approval
Prof. Dr. Mohammad Fadhil Abid



Program Vision: .1

The department strives to achieve academic excellence by enriching its students with scientific and applied capabilities and expertise, drawing on the unique nature of Al-Turath University. The department's vision is evident through its scientific specialization, which aims to adopt the principles of high performance and quality in this field to achieve innovation and development in oil and gas refining engineering sciences.

Program mission .2

Preparing engineering cadres in the field of oil and gas refining engineering to serve the country's oil industry, conducting applied research and studies in the fields of oil and gas refining engineering, and solving industrial problems that arise in oil refineries and gas processing plants.

Program objectives: .3

- 1- Preparing engineers with the basic scientific and engineering expertise and knowledge in the field of oil and gas refining engineering and its technological developments.
- 2- Preparing graduates capable of operating and managing laboratories and factories related to oil and gas refining engineering by focusing on the practical and applied aspects of their studies.
- 3- Providing graduates with the ability to design laboratories and factories related to the petroleum and petrochemical industries.
- 4- Enriching the educational process with sound applied scientific research, emphasizing its role in serving society and solving operational problems in the field.

Program accreditation .4

Is the program accredited? By which authority? We do not currently have an accredited accreditation program.

Other external influences .5

Is there a sponsor for the program? Yes. The University of Technology/Chemical Engineering College

Curriculum structure .6				
*Notes	percentage	Credit hours	Number of courses	Curriculum structure
	4.6%	6	3	Institutional requirements
	23%	30	13	College requirements
	72.3%	94	40	Department requirements
	N.A.	N.A.	2 months	Summer training
				Others

Notes may include whether the course is core or optional. *

Academic Program Description .4				.3		.2	.1
Credit hours			Course name	Course code			Year\ Level
Credits	Lab	Course lecture					
2	0	2	Technical English I	CES.R.111	CES.R	111	First Year\ 2025
2	0	3	Mathematics I	CES.R.121	CES.R	121	
3	2	2	Chemistry	CES.R.123	CES.R	123	
2		3	Physics	CES.R.125	CES.R	125	
2	2	1	Engineering Drawing	CES.R.126	CES.R	126	
2	2	1	Computer Science	CES.R.113	CES.R	113	
----	6	----	Workshop I	CES.R.114	CES.R	114	
2	0	2	Technical English II	CES.R.121	CES.R	112	
2	0	3	Mathematics II	CES.R.122	CES.R	122	
3	0	4	Chemical Engineering Principles I	CES.R.131	CES.R	131	
3	2	2	Chemistry of Petroleum	CES.R.124	CES.R	124	
2	2	1	AutoCAD	CES.R.127	CES.R	127	

2	0	3	Engineering Mechanics & Strength of Materials	CES.R.128	CES.R	128	
-----	6	-----	Workshop II	CES.R.115	CES.R	115	
2	0	2	Human Rights & Democracy	CES.R.116	CES.R	116	

Academic Program Description .4				.3	.2	.1	
Credit hours			Course name	Course code			Year\ Level
Credits	Lab	Course lecture					
2	0	3	Mathematics III	CES.R.221	CES.R	221	2nd / 2025 Year
2	0	3	Chemical Eng. Principles II	CES.R.231	CES.R	231	
3	2	3	Fluid Flow I	CES.R.233	CES.R	233	
3	2	2	Physical Chemistry I	CES.R.235	CES.R	235	
2	2	2	Computer Programming I	CES.R.223	CES.R	223	
3	2	2	Fuel Technology	CES.R.237	CES.R	237	
2	0	3	Materials Engineering I	CES.R.225	CES.R	225	
2	0	3	Mathematics IV	CES.R.222	CES.R	222	
2	0	3	Chemical Eng. Principles III	CES.R.232	CES.R	232	
3	2	3	Fluid Flow II	CES.R.234	CES.R	234	
2	0	2	Physical Chemistry II	CES.R.236	CES.R	236	
2	2	2	Computer Programming II	CES.R.224	CES.R	224	
3	2	3	Materials Engineering II	CES.R.226	CES.R	226	
2	0	3	Statistics	CES.R.227	CES.R	227	

Academic Program Description .4				.3		.2	.1
Credit hours			Course name	Course code			Year\ Level
Credits	Lab	Course lecture					
2	0	3	Thermodynamics I	CES.R.331	CES.R	331	3rd / 2025 Year
3	2	3	Numerical Analysis	CES.R.321	CES.R	321	
3	2	3	Mass Transfer	CES.R.333	CES.R	333	
2	0	3	Chemical Reaction Kinetics	CES.R.335	CES.R	335	
2	0	3	Heat Transfer I	CES.R.337	CES.R	337	
2	0	2	Combustion	CES.R.339	CES.R	339	
2	0	3	Equipment Design	CES.R.3311	CES.R	3311	
2	0	3	Chemicals from Petroleum	CES.R.3310	CES.R	3310	
2	0	3	Reactor Design	CES.R.336	CES.R	336	
3	2	3	Heat Transfer II	CES.R.338	CES.R	338	
2	0	3	Applied Mathematics in Chemical Engineering	CES.R.322	CES.R	322	
3	2	3	Thermodynamics II	CES.R.332	CES.R	332	
3	0	4	Unit Operation I	CES.R.334	CES.R	334	
3	2	3	Equipment Design Using CAD	CES.R.3312	CES.R	3312	

2	0	2	Petroleum and Gas Field Processing	CES.R.3313	CES.R	3313	
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Academic Program Description			.4	.3	.2		
Credit hours			Course name	Course code			Year\ Level
Credits	Lab	Course lecture					4 th / 2025 Year
3	2	3	Unit Operations II	CES.R. 431	CES.R.	431	
2	2	1	Project I	CES.R. 421	CES.R.	421	
2	0	3	Process Dynamics	CES.R. 433	CES.R.	433	
3	2	3	Petroleum Refinery Eng. I	CES.R.435	CES.R.	435	
2	0	3	Refinery Management & Ethics	CES.R.423	CES.R.	423	
2	0	3	Heterogeneous Reactor &Catalyst	CES.R. 437	CES.R.	437	
2	0	3	Environment Pollution & Safety in Petroleum Refineries	CES.R. 438	CES.R.	438	
2	2	1	Project II	CES.R.422	CES.R.	422	
3	0	4	Unit Operations III	CES.R.432	CES.R.	432	
3	2	3	Process Control	CES.R.434	CES.R.	434	
2	0	3	Petroleum Refinery Eng. II	CES.R.436	CES.R.	436	
2	0	2	Optimization	CES.R.424	CES.R.	424	
2	0	2	Corrosion Eng. In Petroleum Refinery	CES.R.439	CES.R.	439	

2	0	2	Petroleum Refinery Economics	CES.R.4310	CES.R.	4310	
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7. Expected learning outcomes of the program	
knowledge	
<p>1. Preparing academically qualified graduates in oil and gas refining</p> <p>2. Preparing academically engineering. qualified personnel for admission to postgraduate studies. 3. Keeping pace with scientific developments in the</p> <p>4. Scientific educational process. cooperation with government ministries</p> <p>5. and the private sector. Contributing to scientific research, organizing seminars and conferences,</p> <p>6. and participating in conferences. Contributing to solving institutional problems using scientific methods.</p>	Cognitive objectives
Skills	
	Skill objectives
<p>1- Professional skills in aspects of</p> <p>2- oil and gas refining engineering. Data analysis skills in oil and gas</p> <p>3- Acquire the refining engineering. necessary skills in the field of specialization.</p>	
Evaluation	
<p>1. Using smart tools such as smart boards and display screens.</p> <p>2- Student participation in the lecture.</p> <p>3- Preparing the material in advance and using exercises as homework.</p> <p>4- Expanding students' knowledge by asking questions about their previous studies.</p> <p>5- Researching solutions to the</p>	Evaluation methods

problem using academic sources and the internet.	
1- The student understands the teaching methods. 2-Direct observation	Emotional and value goals

8- Teaching and learning strategies
Teaching and learning strategies and methods adopted in implementing the program 1. Delivering lectures that promote moral values. 2. Holding seminars and workshops for students throughout the academic year. 3. Field visits to relevant ministries and health institutions.

9. Faculty						
Faculty members						
Number of faculty members		Special requirements/skills (if any)		Specialization		Academic rank
Outside lecturer	cadre			specific	general	
1	2					Professor
1	0					Assistant Professor
3	3					Lecturer

humanities.

11. Acceptance Criteria

Central admission and interview

12. Program Development Plan

Teamwork: Working effectively and energetically within a group.

- Time

Management: Managing time effectively and setting priorities, with the ability to work in an organized and timely manner.

- Leadership: The ability to direct and motivate others.
- Work independently.
- Preparing research and reports.

1. Expected learning outcomes of the program

Knowledge

A1	Mathematics, science and engineering underlying the practice of chemical engineering.
A2	The interactions involved in chemical engineering systems and analytical and computational tools to deal with these.
A3	The scope of chemical engineering from the molecular to the large scale.
A4	The economic, management and statutory requirements involved in the practice of chemical engineering.

Skills

B1	Communicate clearly the findings of experiments, projects and other assignments using written reports, oral and visual presentations as well work effectively in a team, recognizing the roles played by different team members.
B2	Creatively employ applied science and engineering concepts in the design of industrial processes and equipment. Which in turn will demonstrate awareness of the importance of scaling techniques in design work.
B3	Perform complete mass and energy balances for chemical engineering plants. apply the principles of chemical equilibrium process thermodynamics to systems with chemical reactions.
B4	Chemical engineering graduates will be able to write coherent, concise, accurate technical reports ,use computers effectively for solving chemical engineering problems.

Ethics

C1.	An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations
C2	Apply the principles of the law as well as understanding of responsible research and innovation, data protection, ethics and bias relevant to AI research and innovation
C3	know how to support the development of 'sustainability thinking
C4	have developed an awareness of a chemical engineer's issues, obligations, and responsibilities with regard to ethics

13. Program Skills Map

Required learning outcomes of the program												Essential or elective?	Course name	Course code	Year/Level
ethics				skills				knowledge							
4C	3C	2C	1C	4B	3B	2B	1B	4A	3A	2A	1A				
											✓	Essential	Technical English I	CES.R.111	1st / 2025 Year
						✓					✓	Essential	Mathematics I	CES.R.121	
											✓	Essential	Chemistry	CES.R.123	
											✓	Essential	Physics	CES.R.125	
					✓						✓	Essential	Engineering Drawing	CES.R.126	
											✓	Essential	Computer Science	CES.R.113	
✓					✓						✓	Essential	Workshop I	CES.R.114	

												Essenti al	Technical English II	CES.R.121	
												Essenti al	Mathematics II	CES.R.121	
✓	✓			✓								Essenti al	Chemical Engineering Principles I	CES.R.131	
✓	✓			✓								Essenti al	Chemistry of Petroleum	CES.R.121	
✓	✓			✓								Essenti al	AutoCAD	CES.R.127	
✓	✓			✓								Essenti al	Engineering Mechanics &Strength of Materials	CES.R.128	
✓				✓								Essenti al	Workshop II	CES.R.115	
												Essenti al	Human Rights & Democracy	CES.R.116	
✓	✓									✓		Essenti al	Mathematics III	CES.R.221	/ 2025
✓	✓			✓								Essenti al	Chemical Eng. Principles II	CES.R.231	

✓	✓										Essential	Fluid Flow I	CES.R.233	2 nd Year
✓	✓								✓		Essential	Physical Chemistry I	CES.R.235	
✓	✓										Essential	Fuel Technology	CES.R.237	
✓	✓										Essential	Computer Programming I	CES.R.223	
✓	✓										Essential	Materials Engineering I	CES.R.225	
✓	✓			✓					✓		Essential	Mathematics IV	CES.R.222	
✓			✓								Essential	Chemical Eng. Principles III	CES.R.232	
✓			✓	✓							Essential	Fluid Flow II	CES.R.234	
✓			✓	✓							Essential	Physical Chemistry II	CES.R.236	
✓			✓	✓							Essential	Computer Programming II	CES.R.224	

✓	✓	✓	✓							Essential	Materials Engineering II	CES.R.226		
✓		✓	✓							Essential	Statistics	CES.R.227		
✓	✓	✓	✓							Essential	Thermodynamics I	CES.R.331		2025/3 rd Year
			✓					✓		Essential	Numerical Analysis	CES.R.321		
✓		✓	✓							Essential	Mass Transfer	CES.R.333		
✓		✓	✓							Essential	Chemical Reaction Kinetics	CES.R.335		
✓		✓	✓							Essential	Heat Transfer I	CES.R.337		
✓		✓	✓							Essential	Combustion	CES.R.339		
✓	✓	✓	✓							Essential	Equipment Design	CES.R.3311		

✓	✓	✓	✓							Essential	Chemicals from Petroleum	CES.R.3310
✓		✓	✓							Essential	Reactor Design	CES.R.336
✓		✓	✓							Essential	Heat Transfer II	CES.R.338
✓		✓	✓					✓		Essential	Applied Mathematics in Chemical Engineering	CES.R.322
✓	✓	✓	✓							Essential	Thermodynamics II	CES.R.332
✓		✓	✓							Essential	Unit Operation I	CES.R.334
✓		✓	✓							Essential	Equipment Design Using CAD	CES.R.3312
✓	✓		✓							Essential	Petroleum and Gas Field	CES.R.3313

✓	✓	✓	✓								Essential	Petroleum Refinery Economics	CES.R.4310	

Please mark in the boxes corresponding to the individual learning outcomes of the program being assessed. ✓

نموذج وصف المقرر

اسم المقرر					
رمز المقرر					
الفصل / السنة					
تاريخ إعداد هذا الوصف					
5. أشكال الحضور المتاحة					
6. عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي)					
7. اسم مسؤول المقرر الدراسي (إذا اكثر من اسم يذكر)					
الاسم: الأيميل :					
8. اهداف المقرر					
ب المادة الدراسية					
9. استراتيجيات التعلم والتعليم					
ناتجية					
10. بنية المقرر					
طريقة التقييم	طريقة التعلم	اسم الوحدة او الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع

11. تقييم المقرر

توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير الخ

12. مصادر التعلم والتدريس

ب المقررة المطلوبة (المنهجية أن وجدت)

جع الرئيسة (المصادر)

الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية،
التقارير)

جع الإلكترونية ، مواقع الانترنت