

Academic Program Description (English Version)

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

Academic Program Description Form for Colleges and Institutes – Academic Year 2025-2026

Item	Details
University	Shatt Al-Arab Private University
College	Engineering Technical College
Scientific Department	Fuel and Energy Techniques Engineering
Date of filling the file	1/9/2025
Head of Department	Dr.
Scientific Assistant Dean	Lect. Essam Khalil Ibrahim
File checked by	Quality Assurance and University Performance Unit
Approved by the Dean	Asst. Prof. Dr. Mazin Abdul-Ilah Alwan

Academic Program Description

This academic program description provides a concise summary of the main features of the program and the learning outcomes that students are expected to achieve, demonstrating whether the program has made the best use of the available opportunities. It is accompanied by a description of each course within the program.

No.	Item	Details
1	Educational institution	Shatt Al-Arab University
2	Scientific department	Department of Fuel and Energy Techniques Engineering
3	Academic program name	Bachelor of Fuel and Energy Techniques Engineering
4	Final degree awarded	Bachelor of Fuel and Energy Techniques Engineering
5	Study system (annual / courses / other)	Semester
6	Accreditation program	Work is under way to meet accreditation requirements in accordance with institutional accreditation standards
7	Other external influences	Practical training in power plants; field visits to renewable energy projects
8	Date of preparing the description	1/9/2025

9. Academic Program Objectives

1. Preparing engineers specialized in fuel and energy techniques who are able to develop sustainable engineering solutions.
2. Strengthening theoretical and practical knowledge of conventional and renewable energy technologies.

3. Qualifying students to use modern systems to improve energy efficiency and reduce emissions.
4. Developing research and development skills in energy fields.
5. Preparing graduates able to face the challenges of the energy sector.

10. Required Program Outcomes and Teaching, Learning and Assessment Methods

A. Knowledge objectives

- Understanding the engineering principles related to energy production and transmission.
- The ability to analyze and design fuel and energy systems.
- Familiarity with modern renewable energy technologies.

B. Program-specific skill objectives

- Applying practical skills in field work.
- Conducting studies to improve the efficiency of energy systems.
- Preparing and analyzing accurate technical reports.
- Supporting innovation in energy technologies.

Teaching and learning methods

1. Theoretical lectures.
2. Assigning homework to students.
3. Field visits to power plants.
4. Discussions and group work.
5. Using modern technological tools.
6. Assigning students to prepare scientific research.

Assessment methods

1. Written examinations (midterm and final).
2. The student's effectiveness and participation in the classroom.
3. The student's contribution to preparing working papers and presenting them using PowerPoint.

C. Affective and value objectives

- Commitment to sustainable engineering practices.
- Promoting ethical and professional values.
- Supporting innovation in energy technologies.

D. General and transferable skills (other skills related to employability and personal development)

- Building a leadership personality able to work in teams.
- Acquiring the ability to manage engineering projects.
- Continuous learning and keeping up with technological developments.

11. Program Structure

Stage	Course	Credit units / hours
First	Analytical Chemistry	7 units per week
First	Mathematics 1	7 units per week

Stage	Course	Credit units / hours
First	Engineering Drawing	5 units per week
First	Computer Fundamentals	3 units per week
First	English Language 1	2 units per week
First	Laboratories	6 units per week
First	Principles of Chemical Engineering	7 units per week
First	Engineering Mechanics	6 units per week
First	Mathematics 2	6 units per week
First	Organic Chemistry	7 units per week
First	Arabic Language 1	2 units per week
First	Human Rights	2 units per week
Second	Material and Energy Balance	6 units per week
Second	Thermodynamics 1	6 units per week
Second	Physical Chemistry	6 units per week
Second	Mathematics 3	5 units per week
Second	Computer Applications	3 units per week
Second	English Language	2 units per week
Second	Crimes of the Ba'ath Regime in Iraq	2 units per week
Second	Thermodynamics 2	6 units per week
Second	Petroleum Refining	6 units per week
Second	Properties of Engineering Materials	4 units per week
Second	Engineering Statistics	3 units per week
Second	Environmental Pollution and Occupational Safety	4 units per week
Second	Fluid Mechanics	5 units per week
Second	Arabic Language 2	2 units per week
Third	Heat Transfer 1	6 units per week
Third	Energy Sources	5 units per week
Third	Internal Combustion Engines	6 units per week
Third	Engineering Analysis	5 units per week
Third	Mass Transfer 1	6 units per week
Third	English Language 3	2 units per week
Third	Mass Transfer 2	6 units per week
Third	Reactor Design 1	5 units per week
Third	Power Plant Engineering	5 units per week
Third	Gas Technology	5 units per week
Third	Numerical Methods	3 units per week
Third	Heat Transfer 2	6 units per week
Fourth	Industrial Unit Operations	7 units per week
Fourth	Industrial Equipment Design 1	6 units per week
Fourth	Reactor Design 2	5 units per week

Stage	Course	Credit units / hours
Fourth	Sustainable Energy	5 units per week
Fourth	English Language 4	2 units per week
Fourth	Project	5 units per week
Fourth	Industrial Equipment Design 2	6 units per week
Fourth	Professional Ethics	3 units per week
Fourth	Measurement and Control Engineering	6 units per week
Fourth	Corrosion	5 units per week
Fourth	Modelling and Simulation	5 units per week
Fourth	Project	5 units per week

12. Personal Development Planning

- Participation in workshops and training courses.
- Encouraging scientific research and academic publishing.
- Acquiring advanced programming and technical skills.

13. Admission Criteria (regulations for enrolment in the college – department)

Admission of preparatory school graduates from the scientific branches (vocational and applied) and the literary branch, according to the averages and regulations set by the Ministry of Higher Education and Scientific Research.

14. Main Sources of Information about the Program

- The official website of the college: <http://sa-uc.edu.iq/>

Curriculum Skills Map

Please tick the boxes corresponding to the individual program learning outcomes subject to assessment

Stage	Course	Knowledge objectives						Program-specific skill objectives			Affective and value objectives			General and transferable skills				
		A1	A2	A3	A4	A5	A6	B1	B2	B3	C1	C2	C3	D1	D2	D3	D4	D5
First	Analytical Chemistry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Mathematics 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Engineering Drawing	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Computer Fundamentals	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	English Language 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Laboratories	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Principles of Chemical Engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
	Engineering Mechanics	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Mathematics 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Organic Chemistry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Arabic Language 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Human Rights	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second	Material and Energy Balance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Thermodynamics 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Physical Chemistry	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Mathematics 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Computer Applications				✓	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
	English Language	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Crimes of the Ba'ath Regime in Iraq	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Thermodynamics 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Petroleum Refining	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Properties of Engineering Materials	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Engineering Statistics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Environmental Pollution and Occupational Safety	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Fluid Mechanics	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Arabic Language 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Third	Heat Transfer 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Energy Sources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Internal Combustion Engines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Engineering Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Mass Transfer 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	English Language 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Mass Transfer 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Reactor Design 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Power Plant Engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Gas Technology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Numerical Methods	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[illegible]