Alayen Iraqi University
جامعة العين العراقية

First Cycle – Bachelor's Degree (B.Sc.) – Petroleum Engineering

بكالوريوس - هندسة نفط

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1. Mission & Vision Statement

Vision Statement

Leadership in engineering education, scientific research, and community partnership to achieve sustainable development within an ethical framework.

Mission Statement

The college is dedicated to preparing outstanding graduates capable of competing, innovating, and serving society in the field of engineering at the regional and global levels, while also upholding ethical values to achieve sustainable development.

2. Program Specification

Programme code:	BSc- PE	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

Petroleum Engineering is a diverse and dynamic field, well-equipped to provide students with the knowledge and skills required for the energy sector. The emphasis of the program is on the entire hydrocarbon extraction process, integrating fundamental sciences, engineering principles, and practical applications. The degree is highly regarded—some students are drawn to its broad scope, while others see it as a pathway to specialization in areas such as reservoir engineering, drilling, and

production technology. Students also have the opportunity to transfer onto specialist degrees in Reservoir Engineering, Drilling Engineering, or Energy Transition Engineering at the end of the first year.

Level 1 introduces students to the fundamentals of Petroleum Engineering, ensuring a solid foundation for progression into specialized topics. A key component of the first year is the study of geology and rock properties, essential for understanding reservoir formations, hydrocarbon traps, and drilling challenges. Students gain hands-on experience with rock classification, sedimentology, and structural geology, along with an introduction to petrophysical analysis. These topics provide the basis for more advanced coursework in later years. Core subjects are covered at Level 2 to prepare students for advanced, research-led modules at Levels 3 and 4. Graduates of the program are trained to understand how industry-relevant research informs teaching, in line with the University and School Mission statements.

At Levels 2, 3, and 4, students have the flexibility to choose over half of their module credits, ensuring exposure to key areas such as fluid mechanics, rock properties, well logging, production optimization, and enhanced oil recovery. This approach allows students to tailor their education to their interests while maintaining the breadth of knowledge expected from a Petroleum Engineering graduate. Course selection is guided by personal tutors to help students align their choices with career aspirations.

The research ethos is cultivated from the beginning through practical coursework, which is integrated into lecture modules, laboratory sessions, industry case studies, and research seminars. A compulsory field course in Level 1 introduces students to real-world petroleum operations and must be passed to progress to Level 2. Optional field courses at Levels 2, 3, and 4 provide additional hands-on experience. At Level 4, all students undertake an independent research project, which may be a xx-credit computational or data analysis project, or a xx-credit field or laboratory-based study.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who also serves as the personal tutor, ensuring continuity and structured guidance. Tutorials include workshops on industry-relevant skills such as technical report writing, software applications (e.g., reservoir simulation tools), and professional presentations, followed by assessed exercises to practice these skills in a subject-specific context.

International study opportunities and industrial placements are also available, with personalized guidance provided by faculty advisors to accommodate individual student needs wherever possible.

3. Program Objectives

Objective 1: Supporting Institutional Capacity

− Enhance the efficiency of institutional performance to strengthen the college's competitive position.

− Regularly improve and upgrade the college's infrastructure and laboratories.

− Strengthen partnerships with the community and support sustainable development projects.

− Develop the capabilities of staff members.

− Enhance administrative authority.

− Continuously improve data and information technologies and systems to meet the demands of digital transformation and cybersecurity.

Objective Two: Enhancing Teaching and Learning

− The Academy has secured recognition from the Iraqi Accreditation Council.

− Providing standardized academic programs across various specializations that meet labor market demands.

− Supporting the development of strategies for teaching, learning, and evaluation.

− Increase the competitiveness of college students.

Objective Three: Excellence in Scientific Research and Creativity

− Increase research output and capacity.

− Focused on developing capabilities in scientific research.

− Promote scientific research as a means to achieve social development within the community.

Objective Four: Implementation of Quality Standards and Accreditation

− Adhering to local quality standards on a regular basis.

− Ensure compliance with educational effectiveness standards periodically.

− Continuously update our internal systems to align with quality standards and technological advancements, while also linking them to labor market needs.

4. Student Learning Outcomes

Petroleum Engineering is the study of the exploration, extraction, production, and management of hydrocarbon resources. Graduates gain knowledge of the historical, technical, and economic aspects of the petroleum industry while developing a strong foundation in engineering principles. The program emphasizes the integration of geology, fluid mechanics, reservoir engineering, and drilling technologies to optimize oil and gas recovery.

The Department offers a Bachelor of Science in Petroleum Engineering with concentrations in Reservoir Engineering, Drilling Engineering, and Production Engineering, as well as a minor in Energy Management and Sustainability. Additionally, the Department provides courses for students from other engineering disciplines and supports pre-professional energy programs.

The petroleum engineering curriculum is designed to prepare students for careers in oil and gas exploration, drilling operations, reservoir evaluation, energy transition technologies, and environmental management. Graduates are well-equipped for employment in major energy companies, consulting firms, government agencies, and research institutions or for pursuing graduate studies in petroleum and energy-related fields

Outcome 1

Possess the skill of applying appropriate engineering methods and ethical professionalism in petroleum engineering

Outcome 2

Participate in professional development initiatives to learn new skills and explore adaptable career options in petroleum engineering.

Outcome 3

Participate in volunteer work within the community to enhance leadership skills

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Alayen Iraqi University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PENG116	General Geology I	79	96	7.00	C	
PENG115	Engineering Mechanics	63	112	7.00	C	
CENG114	Mathematics I	63	87	6.00	B	
CENG113	Workshop Technology	33	42	3.00	S	
CENG112	Computer Science I	48	27	3.00	B	
GE111	English Language I	33	17	2.00	B	
GE110	Democracy and Human Rights	33	17	2.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PENG126	General Geology II	79	96	7.00	C	PENG116
CENG125	Physics	63	37	4.00	C	
PENG124	Chemistry	63	37	4.00	C	
CENG123	Mathematics II	63	87	6.00	B	CENG114
CENG122	Engineering Drawing and Descrptive Geometry	63	37	4.00	B	
GE121	Engineering Practices	48	52	3.00	B	
GE120	Arabic Language	33	17	2.00	B	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PENG216	Structural Geology	78	72	6.00	C	
PENG215	Fundamentals of Petroleum Engineering	63	87	6.00	C	
PENG214	Petroleum Properties	63	37	4.00	C	
CENG213	Mathematics III	48	77	5.00	B	
CENG212	Computer Science ll	48	27	3.00	B	
GE211	Arabic LanguageII	33	17	2.00	B	GE120
PE210	Thermodynamics	63	37	4.00	C	CENG125

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PENG226	Petroleum Geology	78	72	6.00	C	PENG216
PENG225	Fluid Mechanics	63	37	4.00	C	
PENG224	Strength of Materials	63	37	4.00	C	
CENG223	Mathematics IV	48	77	5.00	B	CENG213
PENG222	Petrophysical Rock Properties	78	97	7.00	C	PENG215
GE221	English Language ll	33	17	2.00	B	GE 111
GE220	Baath Regime Crimes in Iraq	33	17	2.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

8. Contact

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