University of Mosul

College of Petroleum and Mining Engineering

Bachelor's degree (B.Sc.) in Petroleum and Refining Engineering

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1. Mission & Vision Statement

Vision Statement

The vision of petroleum engineering is to be at the forefront of technological advancements and innovation in the oil and gas industry. Petroleum engineers envision a future where the exploration and production of hydrocarbons are carried out with the utmost regard for environmental stewardship, ensuring minimal impact on ecosystems and promoting sustainable development. They aspire to develop cutting-edge technologies, techniques, and practices that enhance the efficiency, safety, and profitability of the petroleum industry while addressing the global energy needs of society. Ultimately, petroleum engineering aims to be a driving force in shaping a balanced and diverse energy mix for a sustainable future.

Mission Statement

The mission of petroleum engineering is to efficiently and responsibly explore, develop, and manage the world's hydrocarbon resources in a safe, environmentally sustainable, and economically viable manner. Petroleum engineers strive to optimize the extraction and production processes, ensuring the efficient utilization of energy resources and contributing to the overall energy security of nations.

2. Program Specification

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

Program Overview : The Petroleum and Refining Engineering program focuses on providing students with a comprehensive understanding of petroleum exploration, production, refining, and processing. It equips students with the knowledge and skills necessary for a career in the oil and gas industry.

Duration: The program typically spans four years, divided into eight semesters

3. Program Objectives

1. Graduating engineering cadres with high professional skills and ethics in the field Oil Engineering.

2. Improving the educational and administrative process in line with international accreditation standards to achieve the vision and mission of the department.

3. Improving the capabilities of the teaching staff and attracting good talent to the college.

4. Enhancing the confidence of society and external institutions in its outputs.

5. Scientific and training cooperation for our students with governmental and foreign operating companies in the oil fields in Nineveh

4. Student Learning Outcomes

A graduate of a bachelor's degree in petroleum engineering can be a drilling and oil exploration engineer, and work with...geologists and contractors in the design and supervision of drilling operations, working as a production engineer, and developing processes and equipment to improve oil and gas production. He can also become a reservoir engineer It helps determine ideal recovery operations, and estimates the number of wells that can be drilled economically, and simulate future performance using advanced computer models. As a petroleum engineer you may have to live in many different countries where the travel can be An important part of your career. You can develop your skills in a multinational company or company Small, or become a future worker and president of your own company. Your future can be whatever you want it to be

1- Knowledge of Petroleum Engineering: Graduates will demonstrate a comprehensive understanding of fundamental principles and theories related to petroleum engineering, including reservoir characterization, drilling and completion techniques, production optimization, and reservoir management.

2- Proficiency in Refining Processes: Students will acquire a solid understanding of refining operations, including crude oil processing, distillation, catalytic cracking, hydro treating, and other essential refining processes.

3- Technical Skills: Graduates will possess the technical skills necessary to design, analyze, and optimize petroleum and refining engineering systems and processes. They will be able to apply engineering principles and utilize industry-standard software to solve practical problems in the field.

4- Safety and Environmental Awareness: Students will develop an understanding of safety practices and regulations specific to petroleum and refining operations. They will be able to identify and assess potential hazards, implement safety measures, and demonstrate a commitment to environmental stewardship in the industry.

5- Ethical and Professional Conduct: Students will demonstrate an understanding of professional and ethical responsibilities in the petroleum and refining engineering field. They will be aware of the societal impacts of their work and adhere to industry standards and codes of conduct.

6- Problem-solving and Critical Thinking: Graduates will develop strong problem-solving and critical thinking skills, enabling them to identify and analyze complex engineering challenges in petroleum and refining processes. They will be able to evaluate alternative solutions, make informed decisions, and apply innovative approaches to problem-solving.

7- Lifelong Learning: Students will recognize the importance of continuous learning and professional development in the rapidly evolving field of petroleum and refining engineering. They will be prepared to adapt to new technologies, techniques, and industry trends throughout their careers.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Mosul 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	A - Excellent	امتياز	90 - 100	Outstanding Performance

Group (50 - 100)	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 module score x ECTS) + (2nd module score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE101	Mathematics I	63	87	6	B	
PRE102	Engineering Mechanics I	63	37	4	B	
PRE103	Computer Programming I	63	37	4	B	
PRE104	English Language	33	67	4	S	
PRE105	Engineering Drawing I	63	87	6	B	
PRE106	General Geology I	78	72	6	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE107	Mathematics II	63	87	6	B	
PRE108	Engineering Mechanics II	63	37	4	B	PE102
PRE109	Analytical Chemistry	63	87	6	B	
PRE110	Rights and Freedoms	33	17	2	S	
PRE111	Engineering Drawing II	63	87	6	B	
PRE112	General Geology II	78	72	6	B	PE106

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE201	Mathematics III	63	87	6.00	B	
PRE202	Petroleum Properties	78	22	4.00	B	
PRE203	Strength of Materials	63	37	4.00	B	PE102,PE108
PRE204	Fluid Mechanics I	63	87	6.00	B	
PRE205	Petroleum Geology	78	72	6.00	B	PE106,PE112
PRE206	Engineering Statistics	63	37	4.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE207	Mathematics IIII	63	87	6.00	B	
PRE208	Computer Programming II	63	37	4.00	B	
PRE209	Thermodynamics	63	37	4.00	B	
PRE210	Fluid Mechanics II	63	87	6.00	B	
PRE211	Fundamentals of Petroleum Engineering	63	87	6.00	B	
PRE212	Engineering Geometry	63	37	4.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE301	Petroleum Reservoir Engineering I	78	72	6.00	C	
PRE302	Drilling Engineering I	78	72	6.00	C	
PRE303	Petroleum Production Engineering I	48	52	4.00	C	
PRE304	Well Logging I	63	87	6.00	C	
PRE305	Geophysics	48	52	4.00	B	
PRE306	Petroleum Pollution and Occupational Safety	48	52	4.00	S	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE307	Petroleum Reservoir Engineering II	78	72	6.00	C	
PRE308	Drilling Engineering II	78	72	6.00	C	
PRE309	Petroleum Production Engineering II	48	52	4.00	C	
PRE310	Well Logging II	63	87	6.00	C	
PRE311	Rock Mechanics	78	22	4.00	C	
PRE312	Petroleum Economics	48	52	4.00	S	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE401	Petroleum Reservoir Engineering III	63	87	6.00	C	
PRE402	Drilling Engineering III	63	87	6.00	C	
PRE403	Petroleum Production Engineering III	63	87	6.00	C	
PRE404	Numerical Analysis	63	87	6.00	B	
PRE405	Secondary Oil Recovery	48	52	4.00	C	
PRE406	Engineering Project	32	18	2.00	C	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRE407	Engineering Design	48	102	6.00	C	
PRE408	Natural Gas Technology	48	102	6.00	C	
PRE409	Petroleum Production Engineering IV	63	87	6.00	C	
PRE410	Reservoir Simulation	63	87	6.00	C	PE404
PRE411	Enhanced Oil Recovery	48	52	4.00	C	
PRE412	Engineering Project	32	18	2.00	C	

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