

University of Technology

الجامعة التكنولوجية



Bachelor of Science degree (B.Sc.) in Petroleum Engineering

بكالوريوس علوم في هندسة النفط والغاز



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1. **Mission & Vision Statement**

Vision Statement

The gas and petroleum engineering department is the main source for preparing qualified graduates to develop the oil and gas industries in Iraq. The Gas and petroleum engineering department seeks to achieve leadership and excellence in its field of specialization locally and regionally.

Mission Statement

The university of technology is committed to:

Graduate numbers of applied engineers and scientific research cadre efficient and unique level of knowledge and technological innovation to achieve quality assurance and academic accreditation in accordance with the discreet standards universally adopted in engineering and scientific curriculum with a commitment to ethics engineering and scientific.

The department of Oil and Gas Engineering is committed to:

Upgrading the theoretical and applied educational concepts for gas and petroleum graduates to keep pace with the global petroleum revolution through the development of scientific research fields and educational means to develop the capabilities of graduates and their active participation in building the gas and petroleum sector in Iraq.

2. Program Specification

Program code:	BSc-OGE	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

The Department of Oil and Gas Engineering was established in 2010 to cover Iraq's growing need for petroleum engineers on the basis of petroleum industrial development and coverage plans. Since 2010, the Oil and Gas Engineering Department at the University of Technology has expanded. This expansion included the development of the curriculum and the establishment of specialized programs of undergraduate studies, as well as increasing the number of students in these programs. The study of the graduate in this department is mainly centered on a scientific study to provide the student with the required information in the extractive and production processes of gas and petrol, in addition to surface operations. Accordingly, the graduate's gas and petroleum engineering branch can be employed in exploration, extraction, and production companies, in addition to operational companies, service companies, and national and international gas and petroleum companies. The first batch of students in specialty petroleum engineering graduated in 2014.

3. Program Goals

1. To provide a comprehensive education in biology that stresses scientific reasoning and problem solving across the spectrum of disciplines within biology
2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of biology
3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques
4. To provide thorough training in written and oral communication of scientific information
5. To enrich students with opportunities for alternative education in the area of biology through undergraduate research, internships, and study-abroad

4. Student Learning Outcomes

Biology is the study of the organization and operation of life at the molecular, cellular, organism, and population levels. Graduates obtain information on the historical, technical and social aspects of biology and utilize basic knowledge toward realizing broader concepts. The Department offers a Bachelor of Science in Biology with a concentration in General Biology; Pre-medicine / Pre-dentistry; Biotechnology / Molecular Biology and a minor in Secondary Education that leads to a Public Instruction License. Additionally, the Department offers courses to a large number of students from

other departments and supports pre-professional programs. The biology curriculum and experiences are designed to prepare students, in part, for entry into professional health programs, graduate studies, technical careers and education

Outcome 1

Identification of Complex Relationships

Graduates will be able to illustrate the structure and function of cellular components and explain how they interact in a living cell.

Outcome 2

Oral and Written Communication

Graduates will be able to formally communicate the results of biological investigations using both oral and written communication skills.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

The University of Technology 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:

$$\text{CGPA} = [(1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ENLA111	English Language I	63	37	4.00	S	
PRPE112	Principle to Petroleum Engineering	63	62	5.00	C	
CALC113	Calculus I	78	72	6.00	B	
EMSM114	Engineering Mechanics and Strength of Material	93	57	6.00	B	
COPR115	Computer Programming I	78	47	5.00	S	
WORK116	Workshop I	90	10	4.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM121	Chemistry	93	57	6.00	B	
GEGE122	General Geology	93	57	6.00	B	
CALC123	Calculus II	78	72	6.00	B	CALC113
ENPR124	Engineering Practices	63	37	4.00	B	
ENET125	Engineering Ethics	48	52	4.00	S	
WORK126	Workshop	90	10	4.00	B	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ENLA211	English Language II	63	37	4.00	S	ENLA111
OPDE212	Ordinary and Partial differential equations	78	72	6.00	B	CALC123
FLME213	Fluid Mechanic I	63	62	5.00	B	CALC123
COPR214	Computer Programming II	78	47	5.00	S	COPR115
STGE215	Structural geology	78	47	5.00	B	GEGE122
STOP216	Statistical and Optimization	78	47	5.00	B	CALC123

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PEGE221	Petroleum Geology	63	37	4.00	C	STGE215
PTCO222	Properties and transportation of crude oil and gas	78	47	5.00	C	FLME213, CHEM121
FLME223	Fluid Mechanics II	93	57	6.00	B	FLME213
REPE224	Reservoir Petrophysics	78	72	6.00	C	PRPE112, STGE215
PHTH225	Physics and Thermodynamic	93	57	6.00	B	OPDE212
HURD226	Human Rights and Democracy	48	27	3.00	S	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
DREN311	Drilling Engineering I	93	57	6.00	C	FLME223, REPE224
WLFE312	Well Logging and Formation Evaluation I	78	47	5.00	C	REPE224
PREN313	Production Engineering I	63	37	4.00	C	FLME223, REPE224
REEN314	Reservoir Engineering I (Reservoir Fluids)	78	47	5.00	C	FLME223, REPE224
GERM315	Geophysics and Rock Mechanics	63	37	4.00	B	PEGE221
NUAN316	Numerical analysis	93	57	6.00	B	OPDE212

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
DREN321	Drilling Engineering II	93	57	6.00	C	DREN311
WLFE322	Well Logging and Formation Evaluation II	93	57	6.00	C	WLFE312
PREN323	Production Engineering II	63	37	4.00	C	PREN313
REEN324	Reservoir Engineering II (Gas Reservoir)	63	37	4.00	C	REEN314
HASE325	Hazard, Safety, and Environmental	78	47	5.00	B	
RAPE326	Risk analysis and Petroleum Economics	78	47	5.00	C	STOP216

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PERE411	Petroleum reservoirs engineering	78	47	5.00	C	REEN324
WECO412	Well Control	93	57	6.00	C	DREN321
WETE413	Well Testing	63	62	5.00	C	PREN323
NAGE414	Natural Gas Engineering	48	52	4.00	B	NUAN316
INRM415	Integrated Reservoir Management I	93	57	6.00	C	WLFE322, REEN324
ENPR416	Engineering project	63	37	4.00	C	DREN321, WLFE322, PREN323, REEN324

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
DDWD421	Directional drilling and Well Design	78	47	5.00	C	DREN321
WOWS422	Workover and Well Stimulation	63	62	5.00	C	WETE413
IMOR423	Improved Oil Recovery	63	62	5.00	C	PERE411
RESI424	Reservoir Simulation	78	47	5.00	C	PERE411, NUAN316
INRM425	Integrated Reservoir Management II	93	57	6.00	C	INRM415
ENPR426	Engineering project	63	37	4.00	C	DREN321, WLFE322, PREN323, REEN324

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