University Name: **University of Mosul**

Faculty/Institute: **College of Petroleum and Mining Engineering**

Scientific Department: **Department of Petroleum and Refining Engineering**

Academic or Professional Program Name: **Bachelor of Accreditation of the Iraqi Council for Engineering Education**

Final Certificate Name: **Bachelor of Petroleum and Refining Engineering**

Academic System: **Yearly system and Bologna system**

Date of preparation of the description: **2-5-2024**

File filling date: **16-5-2024**

جامعة الموصل
كلية هندسة النفط والتعدين

Signature:

Head of Department Name:

Assist. Prof. Dr. M. M. Mohammed

Date: 30/5/2024

Signature:

Scientific Associate Name:

Dr. M. A. Alrashedi

Date: 30/5/2024

Checked the file by:

Department of Quality Assurance and University Performance

Name of the Director of the Department of Quality Assurance and University Performance:

Dr. A. M. H. Alhasany

Date: 30/5/2024

Signature:

Approval of the Dean

Assist. Prof. Dr. M. H. AL-Majid

30/5/2024

1. Program Vision

The Department of Petroleum and Refining Engineering aspires to be one of the leading departments at the local and international levels in graduating qualified engineers in the field of petroleum and refining engineering and according to the latest approved international curricula, with the aim of implementing the various engineering projects that the country currently needs in the field of oil production and industry, and this is by providing a high engineering, educational and research environment in the field of petroleum engineering and serving their country, and also contributing to the development of scientific research to contribute to development and technical progress and have a positive impact on the local community of Nineveh Governorate. Private and pan-country.

2. Program Mission

Work to provide the oil sector in Iraq with oil engineering cadres and specialized in the field of oil exploration and production, oil industry technology and investment, as well as providing scientific advice to state institutions operating in the oil sector. The department seeks to provide students with a contemporary scientific experience that develops their skills by providing the appropriate environment for learning and intellectual creativity in order to reach excellence in their practical lives. Also, the department seeks to graduate a specialized engineering staff with comprehensive knowledge in the basics of petroleum and refining engineering and a distinguished level of knowledge and technological creativity so that they can innovate in their important profession in practical and scientific life.

3. Program Targets

1- Education, training and preparation of specialized engineering cadres and qualifying them to work in the field of oil exploration technology and industry and everything related to it through the adoption of the latest theoretical and applied scientific curricula and courses approved in many reputable universities.
2- Enabling the graduates of the department to have advanced qualification backgrounds in the field of oil industry and production technology in Iraq and providing them with the skills of using modern technologies and employing them in the field of accurate scientific specialization.
3- Providing scientific and technical aid and consultations to all departments, institutions and bodies working in the oil field, contributing to solving various scientific problems and issues related, and working to develop performance and educational achievement in a way that achieves the benefit and benefit of society.
4- Work on preparing creative specialized cadres for the post-bachelor's degree who have the ability to prepare and develop scientific frameworks in the field of oil production and exploration and oil industry and mining techniques to meet the direct needs of society and provide solutions to related problems.
5- Work to establish effective partnerships locally and globally with universities and relevant state departments.
6- Focusing on scientific research and its basic role in serving the community and solving its problems by conducting applied research and scientific and engineering consultations for the relevant authorities.

4. Program Accreditation

The program is in the process of being reviewed by the National Board for Accreditation of Engineering Education (ICAEE).

5. Other External Influences

The sponsor is the Deanship of the College of Petroleum and Mining Engineering.

6. Program Structure

Program Structure	Number of Courses	Unit of study	Percentage	Notes
Requirements of the institution	5	14	%14	Basic
College Requirements	12	60	%34	Basic
Department Requirements	17	87	%48	Basic
Summer Training	1			Basic
Other				

* Notes can include whether the course is basic or elective.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
First / First	PRE101	Mathematics (1)	4	-
First / First	PRE102	Engineering Mechanics (1)	4	-
First / First	UOM103	Computer Programming (1)	2	2
First / First	UOM102	English	2	-
First / First	PRE105	Engineering Drawing (1)	1	3
First / First	PRE106	General Geology (1)	3	2
First/Second	PRE107	Mathematics (2)	4	-
First/Second	PRE108	Engineering Mechanics (2)	4	-
First/Second	PRE109	Analytical Chemistry	2	2

First/Second	UOM104	Democracy and Human Rights	2	-
First/Second	PRE111	Engineering Drawing (2)	1	3
First/Second	PRE112	General Geology (2)	3	2
First/Second	UOM101	Arabic Language	2	-
Second/Yearly	PRE201	Mathematics (2)	4	-
Second/Yearly	PRE202	Properties of oil and natural gas	2	2
Second/Yearly	PRE203	Engineering Surveying	2	2
Second/Yearly	PRE204	Thermodynamics	2	1
Second/Yearly	PRE205	Fluid Mechanics	3	2
Second/Yearly	PRE206	Strength of Materials	4	-
Second/Yearly	PRE207	Engineering Statistics	3	-
Second/Yearly	PRE208	Baath Party Crimes	2	-
Third / Yearly	PRE301	Petroleum Production Engineering (1)	4	-
Third / Yearly	PRE302	Reservoir Engineering	3	2
Third / Yearly	PRE303	Industrial Chemistry	3	-
Third / Yearly	PRE304	Rock Mechanics	2	2
Third / Yearly	PRE305	Well palpation engineering	2	2
Third / Yearly	PRE306	Well Drilling Engineering	3	-
Third / Yearly	PRE307	Natural Gas Technology	3	-
Third / Yearly	PRE308	Numerical analyses	2	-
Fourth / Yearly	PRE401	Oil pollution	2	-
Fourth / Yearly	PRE402	Petroleum Production Engineering (2)	4	-
Fourth / Yearly	PRE403	Simulation and reservoir modeling	2	2
Fourth / Yearly	PRE404	Oil Refining Technology	2	2

Fourth / Yearly	PRE405	Reservoir Management and Oil Economics	3	-
Fourth / Yearly	PRE406	Engineering Design	3	-
Fourth / Yearly	PRE407	Methods for improving oil recovery	3	-
Fourth / Yearly	PRE408	Engineering Graduation Project	1	3

8. Expected learning outcomes of the program

Knowledge

1. Ability to recognize, identify, define, formulate and solve engineering problems by applying the principles of engineering, science and mathematics.

2. The ability to produce engineering designs that meet the required needs within certain constraints by applying both analysis and synthesis in the design process.

3. Ability to recognize the constant necessity for the growth of professional knowledge and how to find, evaluate, assemble and apply it correctly.

Skills

An ability to properly perform and test measurements with quality assurance, analyze and interpret results, and use judgmental engineering conclusions.
Ability to communicate skillfully verbally with a group of people and in writing with different administrative levels.
Ability to work adequately in teams, set goals, plan activities, meet deadlines, and manage risk and uncertainty.

Values

1. Ability to recognize ethical and professional responsibilities in engineering issues and make ingenious decisions while considering consequences in financial, environmental, and social considerations.
2. Ability to work adequately in teams, set goals, plan activities, meet deadlines, manage risk and uncertainty.

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in the implementation of the program in general.

- Theoretical lectures using power point
- Discussion Sessions
- Laboratory experiments
- Computer Labs
- Video Lectures
- Group duties
- Case study
- Distance education

10. Evaluation methods

- Semester and final exams.
- Short exams
- Reports
- Practical exams
- Projects & Research

11. Faculty Staff

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
professor	Earth Sciences	Stratified and fossilized			1	
Assistant Professor	Physics	Plasma Physics			1	
Assistant Professor	Mechanical Engineering	Thermal forces			1	
Assistant Professor	Earth Sciences	Petroleum Geology			1	
Lecture	Earth Sciences	Geochemistry			1	
Lecture	Earth Sciences	Sediment			2	
Lecture	Chemical Sciences	Physical chemistry			1	
Lecture	Chemical Sciences	Industrial Chemistry			1	
Assistant Lecturer	Civil Engineering	soil			2	
Assistant Lecturer	Civil Engineering	Structure			2	
Assistant Lecturer	Dams and Water Resources Engineering	Hydraulic			1	
Assistant Lecturer	Dams and Water Resources Engineering	irrigation			1	
Assistant Lecturer	Chemical Engineering	Control of oil operations			1	

Professional Development

Mentoring new faculty members

The academic program of the Department of Petroleum and Refining Engineering is designed to enhance the comprehensive knowledge and skills of new faculty members in diverse educational fields. The program begins with a focus on providing faculty members with the basic ability to effectively manage their tasks. It then progresses to include the processes and procedures necessary to ensure that targeted learning outcomes are successfully achieved in various programs. To achieve these goals, the program includes the following key components:

* Educational courses: New faculty members participate in educational courses aimed at improving the quality of the education process. These courses cover a range of topics, including: Teaching Methods Training: Teaching effective strategies to grab student attention and deliver course content.
* Recent Trends in University Teaching: Exploring Innovative Approaches to Teaching and Learning in Higher Education.
* Student Assessment: Scientific courses and workshops for new members on the process of evaluating student performance and understanding.
* Test Preparation: Strategies for Preparing Fair Tests
* University Policies: Learn about relevant laws, regulations, instructions and e-learning platforms.
* Ongoing Assessment: Faculty, whether full-time or part-time, undergo ongoing evaluation to determine the areas they need to develop throughout their educational careers. This process helps ensure that faculty are continuously improving and adapting to meet the evolving needs of the student and the university.
* Professional Development Opportunities: Faculty members are encouraged to participate in faculty development courses offered by.
* Faculty members to improve their artem and stay the department or continuing education unit at the university. These courses provide opportunities to keep abreast of trends in teaching and learning, and to collaborate with colleagues.

Professional development of faculty members

Faculty in the Department of Petroleum Engineering and Refining have links with Iraq's two main ministries: the Ministry of Higher Education and Scientific Research and the Ministry of Oil. Many seminars have been organized in the department during the past years under the supervision of the Ministry of Higher Education and Scientific Research. The topics of the seminars were challenges in modern techniques and methods in oil extraction, refining and export operations. These connections provide faculty members with hands-on experience. In this context, the Continuing Education Committee in the Department of Petroleum and Refining Engineering has organized lectures and workshops for faculty members in various fields during the past third academic years, as follows:

. Developing teaching and e-learning methods
. Scientific Publications
. Accreditation
. Various seminars in the field of petroleum and refining engineering
. Participation in conferences, seminars, workshops and training courses outside Iraq
. Participation in conferences, seminars, workshops and training courses inside Iraq

12. Acceptance Criterion

The absorptive capacity of the Department of Petroleum Engineering and Refining is determined within the admission plan and according to the capacity of the department in admission, where the Scientific Committee determines the number required to accommodate new students and then sends it to the Deanship, then the university and then the Ministry to obtain official approvals. To be eligible for admission to the Department of Petroleum and Refining Engineering at the undergraduate level, applicants must meet certain conditions. The admission process is overseen by the Ministry of Higher Education and Scientific Research, which manages and allocates their high school grades. Here are some of the main conditions for student admission to government institutions and colleges

a- Iraqi nationality and year of birth: Applicants must be of nationality
b- Iraqi Secondary School Certificate: Applicants need to possess a certificate issued by an Iraqi high school accredited by the Ministry of Education.
c- Medical certificate: Applicants must submit a medical certificate to ensure that they meet the necessary health conditions
d- Full-time enrollment: Applicants must commit to be full-time students, dedicating their time to their studies in the department
e- Refusal to continue studying at another college
f- non-Iraqi students (arrivals) who have obtained a certificate from an Iraqi high school are admitted according to the central admission.
g- Accepting 10% of the best graduates of technical institutes.
h- Gifted Student Admission

13. The most important sources of information about the program

- University Directory
- College Website:
  https://uomosul.edu.iq/petroleumengineering /

14. Program Development Plan

To enhance the quality of education, raise graduate outcomes, and meet the required competencies, the Department Council decided to adopt the "Bologna System of Education". This system includes the European Transfer and Accumulation System of Units of Study (ECTS) instead of the approved system, in line with the department's commitment to continuous improvement. The new system will be implemented as of 2024-2023.The adoption of the Bologna Process is expected to bring several benefits:

. Student-oriented learning: The system places the student at the heart of the learning process, strengthening the overall educational system
. Increased classroom interaction: Continuous interaction between teachers and students fosters a more dynamic learning environment
. Emphasis on professional and practical skills: emphasis is placed on acquiring practical skills relevant to professional development
. Opportunity for continuous learning: The student will have the opportunity to learn, evaluate and keep feedback
. Bi-annual performance evaluation: The system allows the student's performance to be evaluated twice a year, providing more comprehensive feedback
. Deepening understanding of topics: The system is expected to contribute to deepening the student's understanding of the topics

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First / First	PRE101	Mathematics (1)	Basic	*											
	PRE102	Engineering Mechanics (1)	Basic	*				*							
First / First	UOM103	Computer Programming (1)	Basic	*				*							
	UOM102	English	Basic	*								*			
First / First	PRE105	Engineering Drawing (1)	Basic	*				*							
	PRE106	General Geology (1)	Basic	*											
First/Second	PRE107	Mathematics (2)	Basic	*											
	PRE108	Engineering Mechanics (2)	Basic	*				*							

First/Second	PRE109	Analytical Chemistry	Basic	*				*							
	UOM104	Democracy and Human Rights	Basic	*								*			
First/Second	PRE111	Engineering Drawing (2)	Basic	*				*							
	PRE112	General Geology (2)	Basic	*											
	UOM101	Arabic Language	Basic	*								*			
Second/Yearly	PRE201	Mathematics (2)	Basic	*											
	PRE202	Properties of oil and natural gas	Basic	*											
Second/Yearly	PRE203	Engineering Surveying	Basic	*				*							
	PRE204	Thermodynamics	Basic	*				*							
Second/Yearly	PRE205	Fluid Mechanics	Basic	*				*							
	PRE206	Strength of Material	Basic	*				*							
Second/Yearly	PRE207	Engineering Statistics	Basic	*				*							
	PRE208	Baath Party Crimes	Basic	*											

Third / Yearly	PRE301	Petroleum Production Engineering (1)	Basic	*											
	PRE302	Reservoir Engineering	Basic	*											
Third / Yearly	PRE303	Industrial Chemistry	Basic	*											
	PRE304	Rock Mechanics	Basic	*											
Third / Yearly	PRE305	Well palpation engineering	Basic	*				*							
	PRE306	Well Drilling Engineering	Basic	*				*							
Third / Yearly	PRE307	Natural Gas Technology	Basic	*											
	PRE308	Numerical analyses	Basic	*				*							
Fourth / Yearly	PRE401	Oil pollution	Basic	*											
	PRE402	Petroleum Production Engineering (2)	Basic	*											

Fourth / Yearly	PRE403	Simulation and reservoir modeling	Basic	*				*							
	PRE404	Oil Refining Technology	Basic	*											
Fourth / Yearly	PRE405	Reservoir Management and Oil Economics	Basic	*				*							
	PRE406	Engineering Design	Basic	*											
Fourth / Yearly	PRE407	Methods for improving oil recovery	Basic	*											
	PRE408	Engineering Graduation Project	Basic	*											

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**