*Ministry of Higher Education and Scientific Research*

*Scientific Supervision and Evaluation Authority*

*Quality Assurance and Academic Accreditation Department*

# Academic program Description form for the Department of Mining Engineering 2022-2023

**University: University of Mosul**
**College: Petroleum and Mining Engineering College**
**Department: Mining Engineering Department**
**Date: 1/Aug/2022**

**Signature**
**Head of Department:**
**Azealdeen Salih Hassan Al-Jawadi**
**Date: 1/8/2022**

**Signature**
**Assist. Dean for Scientific Affairs:**
**Mohammad Ali Al-Rashidi**
**Date: 1/8/2022**

**The file was checked by** the **Division of Quality Assurance and University Performance**

**The Director of the Division of Quality Assurance and University Performance: Dr. Asmaa Muaffaq Al Hasani**
**Date: 15/8/2022**
**Signature:**

**The Dean Ratification**

# Description of the academic program

This academic program description provides a concise summary of the program's key features and the learning outcomes expected of the student, demonstrating whether the student has made the most of the opportunities available. It is accompanied by a description of each course within the program.

## Academic Program Objectives:

1. Prepare and qualify specialized engineers to meet the requirements of the private and public labor market in mining engineering by diversifying learning and teaching methods and training students to apply acquired knowledge and skills to solve real-life problems.

2. Provide distinguished academic programs in the field of petroleum engineering, both theoretical and practical, that align with international standards for academic quality and meet the needs of the labor market.

3. Encourage and develop scientific research in petroleum engineering in general.

4. Create a stimulating environment for faculty members to develop their educational and research knowledge and skills.

5. Build and develop partnerships with government and private sectors and the community with all its various institutions.

## Desired Program Outcomes, Teaching, Learning, and Assessment Methods

### A- Cognitive Objectives:

A1. The ability to apply knowledge in mathematics, science, and engineering.

A2. The ability to identify, formulate, and solve engineering problems.

A3. The ability to use modern engineering techniques, skills, and tools necessary for engineering practice.

A4. The ability to understand the applied codes of practice of the profession and professional specifications.

**B - Program Skill Objectives.**

B1 - The ability to supervise or implement various petroleum and mining engineering projects.

B2 - The ability to think critically about problems that arise during project implementation.

B3 - The ability to write scientific reports and read engineering drawings.

B4 - The ability to keep pace with developments in engineering materials and implementation methods.

**Teaching and Learning Methods**

1. Explanation and clarification through lectures.

2. Methods for presenting scientific materials using projectors: data shows, smart boards, plasma screens.

3. Self-learning through homework and mini-projects within lectures.

4. Laboratories.

5. Graduation projects.

6. Scientific visits.

7. Seminars held in the department.

8. Summer training.

**Evaluation Methods**

1. Short examinations (QUES).

2. Homework.

3. Midterm and final examinations for theoretical and practical subjects.

4. Mini-projects within the lesson.

5. Interaction within the lecture.

6. Reports.

**C- Affective and Value-Based Objectives.**

C1- Attention: Capturing students' attention through questions during the lecture.

C2- Responsiveness: Monitoring the student's level of engagement with the material presented on the screen.

C3- Interest: Monitoring the interest of the student who interacted most with the material presented.

C4- Attitude Formation: This means that the student is sympathetic to the presentation and may have an opinion on the topic presented and defend it.

C5- Value-Based Behavior Formation: This means that the student reaches the top of the emotional ladder, maintaining a stable level in the lesson and not becoming lazy or restless.

**Teaching and Learning Methods**

• Lecture Method

• On-campus e-learning

• Field trips to follow up on designed projects and scientific areas

• Engineering workshops

• Experiential learning

• Applied learning (laboratories)

**Assessment Methods**

• Adherence to the deadline for submitting assignments and required research.

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Midterm and final exams reflect commitment and achievement of knowledge and skills.

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

D1- Developing the student's ability to use technology.

D2- Developing the student's ability to use the internet.

D3- Developing the student's ability to use various media.

D4- Developing the student's ability to engage in dialogue and discussion.

**Teaching and Learning Methods**

• A case study (graduation project) presents a description that includes scientific facts about an engineering problem. Students are asked to analyze some of the information, diagnose the problem, and describe a mathematical solution.

• Motivating students to answer and study further.

• Working within multiple groups in workshops.

• Working with other government institutions within the summer training program.

• Organizing field visits to the field of work.

Evaluation Methods

• Monitoring and discussing graduation projects.

• Monitoring student performance in engineering workshops.

• Summer training program completion reports.

• Planning for Personal Development

• Providing students with self-learning skills through the nature of the vocabulary, curricula, and teaching methods adopted.

• Encouraging students to work as teams on practical projects that reflect the realities of society and its problems.

• Encouraging students to enter and participate in competitions, seminars, and conferences, which develop and enhance their research capabilities and self-confidence.

## Details of the academic program (curriculum):

| First Year (1st Class) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2nd Semester | | | 1st Semester | | | Units | Subject | Symbol | No. |
| D | P | T | D | P | T | | | | |
| 1 | --- | 3 | 1 | --- | 3 | 6 | Mathematics | ME 111 | 1 |
| --- | 3 | 2 | --- | 3 | 2 | 7 | Physics | ME 112 | 2 |
| --- | 3 | 2 | --- | 3 | 2 | 7 | Chemistry | ME 113 | 3 |
| --- | 3 | --- | --- | 3 | --- | 3 | Engineering Drawing | ME 114 | 4 |
| --- | 3 | 1 | --- | 3 | 1 | 5 | Programming (1) | ME 115 | 5 |
| --- | 3 | 2 | --- | 3 | 2 | 7 | Geology | ME 116 | 6 |
| --- | -- | 1 | --- | -- | 1 | 2 | English | ME 117 | 7 |
| --- | -- | 2 | --- | -- | 2 | 4 | Engineering mechanics | ME 118 | 8 |
| --- | --- | 1 | --- | --- | 1 | 2 | Democracy and human rights | ME 119 | 9 |
| --- | --- | 1 | --- | --- | 1 | 2 | Chemical Safety and Security | ME 120 | 10 |
| 1 | 15 | 15 | 1 | 15 | 15 | 45 | Sum | | |
| 31 | | | 31 | | | | | | |

| Second Year (2nd Class) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2nd Semester | | | 1st Semester | | | Units | Subject | Symbol | No. |
| D | P | T | D | P | T | | | | |
| 1 | -- | 3 | 1 | --- | 3 | 6 | Numerical and Engineering Analytics | ME 211 | 1 |
| 1 | 2 | 2 | 1 | 2 | 2 | 6 | Thermodynamics | ME 212 | 2 |
| - | -- | 2 | --- | --- | 2 | 4 | Engineering and mine management | ME 213 | 3 |
| 1 | -- | 2 | 1 | --- | 2 | 4 | Mechanics of Materials | ME 214 | 4 |
| -- | 3 | 1 | --- | 3 | 1 | 5 | Programming (2) | ME 215 | 5 |
| 1 | 1 | 2 | 1 | 1 | 2 | 5 | Fluid mechanics | ME 216 | 6 |
| -- | 2 | 2 | --- | 2 | 2 | 6 | Surveying Engineering | ME 217 | 7 |
| 4 | 8 | 14 | 4 | 8 | 14 | 36 | Sum | | |
| 26 | | | 26 | | | | | | |

| Third Year (3rd Class) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2nd Semester | | | 1st Semester | | | Units | Subject | Symbol | No. |
| D | P | T | D | P | T | | | | |
| 1 | --- | 1 | 1 | --- | 1 | 2 | Transportation and trading of ore | ME 311 | 1 |
| 1 | 2 | 1 | 1 | 2 | 1 | 4 | Industrial chemistry | ME 312 | 2 |
| --- | 2 | 1 | --- | 2 | 3 | 8 | Ore processing | ME 313 | 3 |
| --- | 2 | 1 | --- | 2 | 1 | 4 | Well logging | ME 314 | 4 |
| 1 | --- | 1 | 1 | --- | 3 | 6 | Mining engineering | ME 315 | 5 |
| - | 2 | 2 | - | 2 | 2 | 6 | Applied rock mechanics | ME 316 | 6 |
| 1 | 2 | 1 | 1 | 2 | 1 | 4 | Petroleum product engineering | ME 317 | 7 |
| 1 | 2 | 2 | 1 | 2 | 2 | 6 | ** Sulphur production processes engineering | ME 318 | 8 |
| 5 | 12 | 14 | 5 | 12 | 14 | 40 | Sum | | |
| 31 | | | 31 | | | | | | |

| Forth Year (4th Class) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2nd Semester | | | 1st Semester | | | Units | Subject | Symbol | No. |
| D | P | T | D | P | T | | | | |
| --- | 3 | 2 | -- | 3 | 2 | 7 | Computer Application in Mining Engineering | ME 411 | 1 |
| --- | -- | 3 | -- | --- | 3 | 6 | Environmental and safety of mines | ME 412 | 2 |
| 1 | -- | 2 | 1 | --- | 2 | 4 | Economics and analysis of mining data | ME 413 | 3 |
| 1 | 2 | 2 | 1 | 2 | 2 | 6 | Fundamentals of mining engineering and technology | ME 514 | 4 |
| | | | 1 | --- | 3 | 3 | Design of mine machinery | ME 415 | 5 |
| 1 | -- | 2 | | | | 2 | Rock blasting | ME 416 | 6 |
| - | 2 | 1 | - | 2 | 1 | 4 | Tunnel engineering | ME 417 | 7 |
| 3 | 7 | 13 | 3 | 7 | 13 | 32 | Sum | | |
| 23 | | | 23 | | | | | | |
| 1 | 3 | 1 | 1 | 3 | 1 | 5 | Final Year Projects (annual) | ME 4112 | |
| 37 | | | | | | | Total sum | | |