



Department of Earth Sciences and Petroleum

College of Science

University of Salahaddin-Erbil

Subject: Mining Geology

Course Book – (Year 4)

Lecturer's name: Avin Hameed Abdullah

Academic Year: 2023/2022

Course Book

1. Course name	Genetics
2. Lecturer in charge	Avin Hameed Abdullah
3. Department/College	Earth Sciences and Petroleum / Science
4. Contact	e-mail: avin.abdullah@su.edu.krd
5. Time (in hours) per week	Practical: 2
6. Office hours	To be Return to the schedule on the office door
7. Course code	
8. Teacher's academic profile	<p>Graduated at the Department of Geology, Salahaddin University/ College of Science (2004-2005).</p> <p>* M.Sc. in Stratigraphy and sedimentary, Geology Department, College of Science, Salahaddin University-Erbil, Iraq.</p> <p>*Assistant lecturer in Geology Department, Salahaddin University-Erbil, teaching practical to undergraduate students in the laboratory of subjects Stratigraphy and sedimentary</p>
9. Keywords	Geology, Minerals and Rocks, Ore deposits, Principles of Mining, Type of Mining, Environmental impacts related to mining.
10. Course overview:	<p>Course description, objectives, and format</p> <p>Mining geology is an applied science which combines the principles of economic geology and mining engineering to the development of a defined mineral resource. Mining geologists work with engineers to develop an identified ore deposit to economically extract the ore. The process of mining from discovery of an ore body through extraction of minerals and finally to returning the land to its natural state consists of several distinct steps. The first is discovery of the ore body, which is carried out through prospecting or exploration to find and then define the extent, location and value of the ore body. This leads to a mathematical resource estimation to estimate the size and grade of the deposit.</p> <p>The mining course consists of 12 Lab and covers topics are integrated with the mineralogy, petrology, ore deposits, geochemistry, economic and industry.</p> <p>Course learning objectives</p>

By the end of this course, students will be able to apply their basis background in mining to the practice of metal industry, building materials, and in scientific research about type of metal and minerals in our country. Detailed learning objectives are provided for each lecture.

11. Course objective:

Identify and describe the geological and geochemical characteristics of different types of mining rocks.

*** Explain the principles and methods of mining rock extraction, including drilling, blasting, and crushing.**

*** Apply theoretical knowledge to real-world scenarios, such as evaluating the feasibility of a mining project.**

*** Analyze and interpret geological data to make informed decisions about mining operations.**

*** Communicate effectively with colleagues and stakeholders about mining-related issues.**

12. Student's obligation

***Exam policy:** in addition to present a good report about metals in Kurdistan the student Should take 2 examinations during the course.

***Classroom polices:**

1- Attendance: You are strongly encouraged to attend class on a regular basis, as participation is important to your understanding of the material. This is your opportunity to ask questions. **You are responsible for obtaining any information you miss due to absence.**

2- Lateness: Lateness to class is disruptive.

3- Electronic devices: All cell phones are to be turned off at the beginning of class and put away during the entire class.

4- Talking: During class please refrain from side conversations. These can be disruptive to your fellow students and your professor.

5- No Disrespectful to both the professor and to your fellow students.

13. Forms of teaching

Course book, Power point, Soft and hard copy lectures, white board and black board.

14. Assessment scheme Examinations Daily activities and Seminar 6 mark, Quiz 6 mark , reports 8mark

Exam 15 marks

Total 35 Marks

For Students

After each exam (especially the 1st one), evaluate your performance and earning/study strategies. Did your performance reflect the effort you made and your confidence in knowing the material before the exam? Analyse the questions you missed, along with the challenges and responses, and try to figure out why you missed each one, e.g. couldn't remember the information, misunderstood the information, couldn't apply your knowledge to a problem solving question. Once you identify specific problems, you can implement specific solutions. If you want help with this type of evaluation, contact your lecturer.

15. Student learning outcome:

At the end of your undergraduate teaching you will be expected to be able to:

- Recognize the rocks and sedimentary strata.
- Recognize pattern of distribution minerals within the rocks.
- Have a good knowledge about economic minerals and non-economic.
- To know the different types of mining.
- Learned approaches which can be used for the developed mines

16. Course Reading List and References:

- Exploration and mining geology, 2nd edn., Peters W. C., 1987, Wiley, New York, 706p.
- Surface and underground excavations: methods, techniques & equipment, byTatiya, R.R., 2005. A.A. Bakema, 579p.
- Mine Wastes: Characterization, Treatment and Environmental Impacts, 2nd Edition, by Bernd Lottermoser, 2007. Springer, Berlin Heidelberg.
- Mining and the Environment: From Ore to Metal, by KarlheinzSpitz and John Trudinger, 2009. CRC Press, Leiden.
- An Introduction to Geology and Hard Rock Mining, ROCKY MOUNTAIN MINERAL LAW FOUNDATION, by Willard Lacy, 2015, Science and Technology Series, 147p.
- Applied Mining Geology, Modern Approaches in Solid Earth Sciences, v. 12, Abzalov, M., 2016, Springer, 443p.

17. The Topics:

Weeks	Topics	Lectures
Week1	Course outline	
Week 2	Field identification Minerals	
Week3	Rock identification	
Week4	Mining Sampling	
Week5	Ore body	
Week 6	First Examination	
Week7	Deep Ore Body	
Week8	Ore Tonnage	

Week8,9,	Calculate ore grade and Production	
Week10.11	Seminar	
Week 12	First Examination	

19. Examinations:

1. Compositional: *In this type of exam the questions usually starts with Explain how, What are the reasons for...?, Why...?, How....?*

2. True or false type of exams:

In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence.

3. Multiple choices:

In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase.

20. Extra notes:

In end of this course every student need to prepare a short report about one of the economic metal.

21. Peer review

This course about Mining geology is perfect for BSc student. It will make them familiar with mining and economic metals and all the process related to them

Professor **Dr. Waleed**

