Department of Geology

College of Science

University of Salahaddin

Subject: ore minerals

Course Book (4nd class)

Lecturer's name Sawsan Nihad Abdulrhman Academic

Year: 2022/2023

Course Book

1. Course name	**Ore minerals**
2. Lecturer in charge	**Sawsan nihad abdulrahman**
3. Department/ College	**Geology/College of Science**
4. Contact	**e-mail: sawsan.abdulrahman1@su.edu.krd** **Tel: (optional): 07504730908**
5. Time (in hours) per week	**Theory: 0** **Practical: 12**
6. Office hours	**10 hours per week**
7. Course code	
8. Teacher's academic Profile	My name is Sawsan Nehad Abdulrhman; I worked in University of Salahaddin since 2000 as researcher assistance in Department of Geology. I got M.Sc. Degree in ore mierals and geochemistry from Salahaddin University/Department of geology in 2004. I participated in studying many subjects such as; practical rock forming mierals, practical ore minerals, practical mineralogy.
9. Keywords	**Minerals, ore minerals, reflected light microscope**

I0. COURSE overview

Since minerals are the basic building blocks of earth materials, this course is designed to give the student a fundamental background in ore minerals, necessary to understand earths metalic materials. The student will learn the basic principles optical properties that's help to identify the metallic minerals and their texture under reflected light microscope and how to prepare polished section

polished sections provides valuable information on the mineralogy and microstructures of rocks and ores. .

Ore microscopy is the study of polished surfaces of ores or of ore minerals by means of a polarizing, reflected-light microscope and the interpretation of the mineral associations and microtextures so observed.

11-course objective

Some ores are valued for their mineral properties, some for the elements they contain, and others because they contain valuable gems.

Most metallic ore minerals are native elements, sulfides, sulfosalts, oxides, or hydroxides f or this we study optical properties of ore minerals and their texture under reflected light microscope like optical properties under polarizer (1- color of reflection; 2- reflectivity; 3- shape of grains; 4- cleavage; 5-hardness) and optical properties crossed polars (1-anisotroy; 2- polarization color ; 3- internal reflection) .

12-Forms of teaching

Different forms of teaching are used during the course, like:
White board and power point presentation for the titles, sub-titles and conclusions, in addition to figures and plates.

13-Assessment scheme

The course grade will be determined on the basis of the number of points scored out of a possible 100 points. These points will be apportioned as follows:

Theory.	15	Practical	35	50%
Final Theory.	50	Practical	00	50%

35 marks of practical is divide to monthly exam and quizzes

14-Learning Outcomes for this Course

1. The student will gain an understanding of how reflected light microscope work.
2. The student will learn how identify properties of metal minerals under reflected light microscope.
3. The student will acquaintance with common ore minerals.
4. The students will learn how identify properties of common metal minerals.

15-Courser reading list reference

1- Ore deposits 1975 Charls F. PARK, Jr and Roy A. MACDIARMId

2- Tables for Identification of ore minerals 1971 byUYTENBGAARDT

16- **Practical topics** (laboratory 2 hours/ week):

- Week 1: Explanation of Ore Microscope; Preparation of Polished Thick Sections and Polished Sections (Moulds)
- Week 2: Ore Mineral Properties Under Polarized Light
- Week 3: Ore Mineral Properties Under Crossed Polarized Light
- Week 4: Identification of Ore minerals in Hand Specimen
- Week 5: Microscopic Study of Selected Native Metals and Oxides
- Week 6: Microscopic Study of Selected Native Metals and Oxides
- Week 7: Microscopic Study of Selected Sulfides and Sulfosalts
- Week 8: Microscopic Study of Selected Sulfides and Sulfosalts
- Week9: Microscopic Study of Selected Sulfides and Sulfosalts
- Week 10: Microscopic Study of Selected Sulfides and Sulfosalts
- Week 11: Exam
- Week 12: Ore textures and structures
- Week 13: Ore textures and structures
- Week 14: Ore Reserve Estimation

Examination

The examination is compositional like:

why most of gangue minerals show internal reflection

what are the factors that effect reflectivity of ore minerals under microscope? Count them.

- define

1-Color of reflection 2-polarization color 3-birelectance 4- reflectivity

Write the mineral name (under microscope)

Write reflectivity and color of reflection of the mineral (under microscope)