

**CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF GEOLOGY
M.Sc. GEOLOGY**

Course Code	EGE 5391	Semester	III
Course Title	Lab: Ore Geology		
Credits	3	Type	Core

This is a participatory, experimental and employability based skill development course for mineral exploration.

Course Description

The Ore Geology lab is a professional skill development course that deals with various analytical techniques to investigate the physical and optical properties of ore minerals, ore dressing techniques and preparation of polished sections. The course also deals with the numerical problems related to exploration geology.

Course Outcome

By the end of the course, students are expected to be able to:

- Perform quantitative and qualitative hand-specimen and microscopic investigations of ore minerals.
- Develop a skill towards solving mineral exploration problems.
- Perform logging of geophysical and geological datasets.
- Design on their own the ore dressing sequences in order to extract ore minerals from the run-of-mines (RoMs).

Course Structure

Module - 1

Megascopic and microscopic study and identification of ore minerals. Preparation and study of ore polished sections.
Gravity, magnetic, seismic and electrical resistivity exploration problems.

Module – 2

Preparation of litho logs using exploration data. Calculation of grade, tonnage and cut-off grade. Ore reserve estimation.

Module – 3

Fundamentals of ore dressing: Crushing, grinding, sizing, concentration by washing, scrubbing, jigging, tabling, floatation. Magnetic and Electrostatic separation. Flow-charts of mineral separation.

Evaluation & Grading

Lab assessment – 10 %

Skill development (Analytical and lab skills) – 10%

Practical Test – 20%

End Semester Assessment – 60%

References

- Arogyaswamy, R.N.P. (1980) Courses in Mining Geology, 2nd Ed., Oxford & IBH Pub. Co., New Delhi
- Banerjee (2001) Mineral Resources of India.

- Banerjee, P.K and Ghosh, S. (1997) Elements of Prospecting for Non-fuel Mineral Deposits, Allied Publishers Pvt Ltd, 320p.
- Kearey, P. and Brooks,M. (1991) An Introduction to geophysical Exploration, Blackwell scientific Publications, Musset, 272p.
- Mckinstry, H.E. (1947) Mining Geology, 1st Indian Ed., Asia Publishing House, New Delhi.
- Prasad, U (2002) Economic Mineral Deposits, CBS Publishers, New Delhi.
- Sinha, R.K and Sharma, N.L. (1970), Mineral Economics, New Delhi Oxford and IBH Pub.co., 317p.