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

Course Code	EGE 5301	Semester	III
Course Title	Economic Geology		
Credits	3	Type	Core

This is an experimental and employability based skill development course for mineral exploration.

Course Description

Economic geology is a professional skill development course that deals with the discovery of economic mineral deposits. The economic mineral deposits are the backbone of any nation's economy. A country with significant economic mineral deposits can be a wealthy nation if it has proper technology, manpower and application strategies. The course in economic geology aims to train the students in the professional and academic skills of an economic geologist.This course deals with the economic mineral genesis, global mineral laws and the mineral laws of India, mineral economics and mineral resource exploration techniques.

Course Outcome

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

- Demonstrate mastery of the terminology of economic geology
- Demonstrate confidence and accuracy in identifying important ore minerals in hand specimens, in outcrop, and under the microscope, and apply the theories to the solution of problems in the field.
- Synthesis observations, evidence and theory to recognise and explain similarities and differences between different ore mineral groups.
- Discuss with confidence the theories, principles and outstanding controversies related to commercial mineral deposits.
- Conceive, design, execute, critique, revise, document and present an original research project and an independent program related to economic geology

Course Structure

Module - 1

Mineral resource crisis, factors controlling mineral availability, minerals and global economic patterns, future of ore deposit geology; Geology of ore deposits – classification and deposit models. Textures of ore and gangue minerals; Paragenesis, zoning; Magmatic ore deposits; Hydrothermal ore deposits – magmatic and orogenic environments, sedimentary environments; Ore deposits formed in sedimentary environments; Supergene ores and supergene overprinting of ores.

Module - 2

Mineral law and land access: National Mineral Policy – MM (R & D) Act, 1957 – procedures for grant of mineral concessions in India; Types of land and mineral ownership in different countries; Exploration versus exploitation concessions. Mineral Economics: History and structure of the mineral industry; Profits in the mineral industry; Mineral taxation and mineral profits; Mineral commodity prices; Distribution of profits. Law of the Sea Treaty – marine mineral resources.

Module - 3

Mineral resources and exploration; search for ore deposits and chances of success – geological, geochemical, geophysical, drilling, sampling and other field techniques; Remote sensing applications in mineral exploration; Surveying and exploration; statistical treatment of exploration data and computer applications.

Evaluation &Grading

- Lab Assessment – 10%
- Skill development (Analytical, Writing and Presentation) – 10%
- Class Test – 20%

- ***End Semester Assessment* – 60%**

References

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