



MANGALORE UNIVERSITY
DEPARTMENT OF MARINE GEOLOGY

MGS 504: ECONOMIC GEOLOGY AND MINING GEOLOGY

Course Outcome:

CO1: Understand the origin of various ore deposits and their importance.

CO2: Various exploration and mining techniques are learnt.

CO3: Explore the earth in search of minerals and fossil fuels, and develop technologies for exploitation

Economic Geology

Unit 1	Ore genesis. Classification of ore deposits – renewable and non-renewable, metallogenic provinces and epochs.	4 hrs
Unit 2	Metallic deposits: origin, occurrence, and geology of iron, manganese, copper, gold, aluminium and chromite deposits in India with particular reference to Karnataka.	6 hrs
Unit 3	Non-metallic deposits: origin, occurrence, of minerals used in refractory, abrasives, chemicals, fertilizer, cement and electrical industries, building materials. National mineral policy.	6 hrs
Unit 4	Precious stones: diamonds including gem and industrial varieties. Semiprecious stones: garnet, corundum, beryl etc.	4 hrs
Unit 5	Hydrocarbons: Classification, origin, migration and accumulation of petroleum and natural gas; properties of source and reservoir rocks; structural, stratigraphic and combination traps. Methods of petroleum exploration. Petroliferous basins with special reference to India. Gas hydrates.	6 hrs
Unit 6	Coal: Definition, origin, rank and grading. Peat, lignite, bituminous coal and anthracite. Coal petrology. Gondwana and Tertiary coal resources of India. Coal bed methane.	4 hrs

Mining Geology

Unit 7	Introduction, definition, aim, and scope of mining of natural resources. Methods of mining / quarrying: alluvial mining, open cast mining, loading, glory hole, kaoline mining, quarrying.	6 hrs
Unit 8	Underground mining methods - stopping and caving, coal and metallic mineral mining. Ventilation and mine supports.	4 hrs

List of References:

1. D.S. Cronan: Underwater minerals (1980).
2. Bateman, Economic Mineral Deposits (1979).
3. Brown and Dey, India's Mineral Wealth - Oxford University Press (1975).
4. Kirshnaswamy, Indian Mineral Resources
5. Skinner, Earth Resources (1995).
6. Deb, S., Industrial Minerals & Rocks of India (1987) - Allied Publishers.
7. W.H. Freeman and Park C.F. Ore Deposits (1975).
8. Sinha and Sharma. Mineral Economics (1980).
9. An Open University Course Team (1989): Seawater: Its composition, properties and behaviour (p. 33)
10. Bhandari, L. L. and Venkatachala, B.S. (Ed.): Petroliferous basins of India.
11. Bjorlykke K. (1984): Sedimentology and Petroleum Geology.
12. Abdulin, F.: Petroleum of Oil and Gas (1985).
13. Sidorov, N. A.: Drilling Oil and Gas wells (1985).
14. G.S. Roonwal: The Indian Ocean: Exploitable Mineral and Petroleum Resources (1986).
15. G.S. Roonwal (1989): Marine minerals in the Ocean. JGSI, 34:182-192.
16. Dictionary of Oil & Gas Production: Clifford Jones.
17. The Myth of the Oil Crisis: Robin M. Mills.
18. Petroleum Geochemistry: Satyanarayana- Daya Publishers.
19. A hand book of minerals, rocks and ores: Alexander. P.O (2009) - New India Publishing Agency.