



# MANGALORE UNIVERSITY

## DEPARTMENT OF MARINE GEOLOGY

### MGE 457: GEOSCIENCES (Open Elective Paper)

**Course outcome:**

CO1: Able to understand and learn the basics of Geology, Earth and its environment - lithosphere, hydrosphere, atmosphere, internal structure and various geological processes.

CO2: Attain knowledge of geological time scale, origin and evolution of life, fossils, fossilization and their applications.

CO3: Able to describe Earth's surface features, landforms, physical divisions of India.

CO4: Able to understand various natural resources.

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| <b>Unit 1</b> | Introduction to Geology, Earth and its environment - lithosphere, hydrosphere and atmosphere.                                                                                                                                                           | 6 hrs |
| <b>Unit 2</b> | Geological time scale. Origin and evolution of life, fossils, fossilization and their applications.                                                                                                                                                     | 6 hrs |
| <b>Unit 3</b> | Geological Agents and hazards: Weathering, Erosion, Transportation and Deposition. Volcanoes, Earthquake, Landslide, Salt water intrusion, Floods and droughts.                                                                                         | 6 hrs |
| <b>Unit 4</b> | Geomorphology: Description of Earth surface features. Landforms, Physical divisions of India. Structure and composition of the Earth's interior: Crust, Mantle and Core.                                                                                | 6 hrs |
| <b>Unit 5</b> | Structural Geology: Primary structures, secondary structures - folds, faults, joints and unconformities.                                                                                                                                                | 8 hrs |
| <b>Unit 6</b> | Natural Resources: Renewable and non-renewable resources. Water as a resource. Origin, occurrence and distribution of oil and gas. Minerals, rocks. Soil. Economically and strategically important metallic and non-metallic mineral deposits of India. | 8 hrs |

## List of References:

1. Fundamentals of Historical Geology and Stratigraphy of India, Ravindrakumar New Age International Pub.
  2. Principles of Paleontology – Raup and Stanley – CBS Publications
  3. Principles of Invertebrate Paleontology – Shrock and Twenhofel – CBS
  4. Fossil Invertebrates, Cambridge Univ.- Lehmann, U and Hilmer, G. (1983)
  5. Micropalaeontology, George Allen and Unwin -Brasier M.D. (1980)
  6. Micropalaeontology, Graham & Trotman - Bignot, G. (1985)
  7. An introduction to Paleobotany - Arnold, Chester R
  8. Field Geology – McGraw Hill Book Co. - Lahee, F.H. (1961)
  9. Field Geology – Crompton.
  10. Structural Geology – 3<sup>rd</sup> edition, Prentice Hall - Billings M.P. (1977)
  11. Principles of Engineering Geology - McGraw Hill – Krynine, D.P. Judd, W.P. (1957)
  12. Principles of Petrology – G. W. Tyrell, Asia Pub. House, New Delhi
  13. Igneous and Metamorphic Petrology – Turner and Verhoogen, CBS Publications
  14. Sedimentary Rocks, CBS Pub. – F. J. Pettijohn (1984)
  15. Stratigraphy and Sedimentation, W.H. Freeman – Krumbein and Sloss (1963)
  16. Economic Mineral Deposits – Bateman
  17. India's Mineral Wealth - Oxford Univ. Press - Brown and Dey (1975)
  18. Indian Mineral Resources – Kirshnaswamy
  19. Industrial Minerals & Rocks of India - Allied Publishers - Deb, S. (1987)
  20. Hydrogeology – K. R. Karanth – Tata McGraw Hill Publishing Co. Ltd.
  21. Groundwater – H. M. Raghunath – Wiley Eastern Limited
  22. Elements of Hydrology – V. P. Singh
- Courses in Mining Geology – R.N.P. Arogyaswamy, Oxford & IBH Publishing Co.

