MANGALORE UNIVERSITY

Department of Marine Geology

MSc MARINE GEOLOGY

MGS 453: ENVIRONMENTAL GEOLOGY

Course Outcome:

CO1: Explain how earth processes create hazards to life and property.
CO2: Describe the major sources of water, soil, and sediment pollution and methods for their management.
CO3: Explain the causes and effects of geological hazards: Earthquake, volcanic eruption, landslide, droughts, floods
CO4: Describe and identifying the human induced problem of the environment.

Unit 1	Earth and its Environment: Introduction; Lithosphere, Hydrosphere and Atmosphere. Lithosphere; Earth's interior, structure and composition of Earth's crust, constituents of Earth's material. Soil profile, Soil Erosion - causes and effects, silting of estuaries and reservoirs, soil conservation measures.	8 hrs
Unit 2	Hydrosphere: Global water distribution, Surface water bodies, glaciers, Water pollution – surface water, groundwater, marine water and their impacts. Hydrographs.	8 hrs
Unit 3	Atmosphere: Earth's atmosphere - evolution, structure and composition. Layer-wise characteristics, causes and effects of atmospheric pollution – acid rain, global warming, greenhouse effect, urban heat islands and heat wave.	8 hrs
Unit 4	Geological hazards: Earthquake, volcanic eruption, landslide, droughts, floods - their significance, causes, preparedness and mitigation. Seismic zones of India. CRZ Act and Coastal zone management.	8 hrs
Unit 5	Environmental considerations related to civil engineering and mining projects. A few case studies.	8 hrs

List of References:

1. Physical Geology – Foster Robert, J. (1975).
2. Ecology, Environment & Pollution - A. Balasubramaian (1995) M/s Indira Publishers, Mysore.
3. Atmosphere, Weather and Climate: An introduction to Meteorology – Narora, S. B. Saunders Co., Philadelphia.
4. Physical Geology - A. N. Strahler
5. R.W. Tank: Focus on Environmental Geology (p.256)

6. Disaster Management: Dr. Ranita Nagar - APH publishers.
7. Disaster Management: 3 Volumes set - APH publishers.
8. Management of Natural and Man-made Disasters: Aradhana Salpekar - JnanadhaPrakashana.
9. Future Disasters: Dr. Priya Ranjan Trivedi - The Global Open University.
10. Management of Flood, Tropical Cyclones, Storms: Kadambari Sharma - JnanadhaPrakashana.
11. Landslides types Mechanism and Modelling: J. Clague and Douglas Stead.
12. Fundamentals of Weather and Climate. 2nd ed.: Mcilveen and Robin - OUP
13. Marine Pollution Control and Management: Dr. Tanmoy - JnanadhaPrakashana.
14. Water Pollution: Tripathi- Ashish Publishers.
15. Water: Characteristics and Properties: NeelimaRajavaidya - APH Publishers.