

MANGALORE UNIVERSITY
DEPARTMENT OF BIOSCIENCES

M.Sc. ENVIRONMENTAL SCIENCE

ESE 511 NATURAL RESOURCES

39 hrs.

Course Outcomes:

CO1 Discuss about natural resources and their management.

CO2 Describe energy crisis and conservation of energy resources.

CO3 Get a detailed knowledge of various renewable and non-renewable energy sources.

UNIT I (13 hours)

Natural Resources: Classification, uses, distribution; Threats to natural resources; Protection and conservation of natural resources – air, water, soil, forest resource, wildlife resource, fossil fuel, mineral resource. Management of natural resources.

UNIT II (13 hours)

Renewable energy sources: Definition, classification, solar energy - solar cells and solar photovoltaic technology, solar thermal technology, solar energy programmes; wind energy, wind energy programmes; hydropower - hydel projects in India; Geothermal energy, Geothermal energy programmes; Ocean energy – Tidal power, thermal energy, wave energy, salinity energy; biogas, biogas programmes.

UNIT III (13 hours)

Non-renewable energy sources: Definition, classification. Coal-composition, petroleum-components and refinery process, natural gas-reserves, fuel wood. Nuclear Power – Nuclear reactors – types. Energy crisis and conservation of energy resources. Management of biotic and abiotic energy sources.

References:

1. Rajendra Maneria, Environment Conservation and Planning.
2. Khenshoo, T.N., Environment Concerns and Strategies.
3. Tiwari, S.K., 1997. Wildlife Sanctuaries of Madhya Pradesh.
4. Khan, T.I., 2000. Global Biodiversity and Environment Conservations. Pointer Publishers, Jaipur.
5. Bennett, H.H., 2002. Soil Conservation.
6. Deka, M.M., 2002. Joint Forest Management of Water Projects.
7. Gangstad, E.O., 2002. Environment Managements of Water Projects.
8. Maitra, M.K., 2002. Watershed Management; Project, Planning, Development and Implementation.
9. Ural, O., 1980. Soil and Water Conservation