

on environmental management.

1. Characterization of solid waste from different sources.
2. Designing of secured/sanitary landfills.
3. Study of methods of management of biomedical waste.
4. Characterization of toxicity of hazardous waste from different sources by leaching test procedure.
5. Determination of organic carbon in compost.
6. Field trip to municipal solid waste/zero waste management sites/ Biomedical waste plant.
7. Determination of inorganic phosphate in leachate samples.
8. Determination of total nitrogen in leachate.
9. Determination of TSS/TDS in leachate samples.

ESP520 AIR, NOISE AND RADIATION POLLUTION LAB.

Course Outcomes:

CO1 Assess air pollutants, noise pollution and radiation in different areas.

CO2 Learn air pollution indicators.

CO3 Assess particulate matters in different areas.

CO4 Learn SO₂, NO_x analysis.

1. Determination of SO₂ in different areas.
2. Determination NO_x by spectrophotometric method.
3. Basic radioactive measurement procedures using GM counter.
4. Studies on indicators of air pollution.
5. Measurement of noise level in different environments by sound level meter (SLM).
6. Determination of particulate matters PM₁₀ and PM_{2.5}.
7. Field visit to assess air and noise pollution.
8. Determination of radiation in a given area using dosimeter.

ESP521 ENVIRONMENTAL IMPACT ASSESSMENT LAB.

Course Outcomes:

CO1 Assess and predict the impact on environmental components.

CO2 Prepare model environmental audit report for any industry/process/ operation.

CO3 Learn the methodologies of environmental impact assessment and environmental audit which help in employment opportunities in environmental organizations.

CO4 Understand the impact of urbanization on environment.

1. Assessment and prediction of impact on air and water.
2. Assessment and prediction of impact on flora and fauna.
3. Criteria for EIA of water related projects.

4. Criteria for transport related EIA.
5. Environmental guidelines for EIA of industrial establishments.
6. Measurement of suspended particulate matter in air.
7. Study on agricultural activities and their impact on environment.
8. Impact on environment due to urbanization.
9. Preparation of model environmental audit report for the financial year ending 31st March for any industry/process/operation.

ESP522 HUMAN POPULATION AND ENVIRONMENT LAB.

Course Outcomes:

CO1 Measure population growth.

CO2 Collect and identify medicinal plants.

CO3 Learning different methods of representation of population growth rates.

CO4 Know to identify common medicinal plants and learn their medicinal properties.

1. Study on population growth.
2. Graphical representation of Indian and world population.
3. Diagrammatic representation of population growth rates.
4. Regional population growth.
5. Study of medicinal properties by collecting and identifying some common medicinal plants.
6. Measurement of population.
7. Study of population density in India and world.

OPEN ELECTIVE COURSES

ESE523 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.

CO4 Understand energy crisis, conservation and management.

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.