ESP408 ENVIRONMENTAL MICROBIOLOGYLAB.

Course Outcomes:
CO1 Isolate and identify microorganisms in air/soil/water samples.
CO2 Learn staining procedures for microorganisms.
CO3 Understand the techniques and instrumentations in environmental microbiology.
CO4 Learn the techniques for coliform analysis.

1. Methods of collectionand preservationof microorganisms.
2. Serial dilution of soil and water.
3. Preparation of different types of microbial culture media.
4. Gram staining techniques.
5. Study of microorganisms in air.
6. Isolation, enumeration and identification of microorganisms in soil samples.
7. MPN techniques for coliform analysis.
8. Effect of heavy metals on microbial growth.
9. Effect of pesticide on soil microorganisms.
10. Microbiological assays.

ESP409 ENVIRONMENTAL STATISTICS LAB.

Course Outcomes:
CO1 Learn the use of statistics in the interpretation of environmental data.
CO2 Gain the knowledge of application of statistics in environmental science.
CO3 Understand statistical hypothesis testing for environmental data.
CO4 Learn the applications of matrices in Environmental Impact assessment.

Practicals based on the theory units.

ESP410 ENVIRONMENTAL BIOTECHNOLOGY LAB.

Course Outcomes:
CO1 Get the practical knowledge of biotechnology in environmental science.
CO2 Exposed to biotechnology experiments which are used for environmental management.
CO3 Learn extraction methods of DNA and RNA from different sources.
CO4 Understand vermicompost preparation and analysis.

1. Study of biomass in polluted soil and water.
2. Determination of catalase activity in a water sample.
3. Study of cellulolytic degradation of organic waste.
4. Determination of sulphates in a given sample.
5. Determination of phosphates in a given sample.
6. Extraction of DNA from a tissue (mammalian liver/fish liver).
7. Extraction of RNA from plant/animal sources.
8. Production of compost.
9. Vermicompost and its analysis.