Code	Subject Title	Cr. Hrs	Semester
BOT-308	Environmental Biology Lab	1	V

Year	Discipline
3	Botany

Syllabus Outline: The course include different laboratory techniques used for soil and water analysis from industrial waste and visit to different industries.

Course Outline:

1. Examination of Industrial Waste Water and Municipal Sewage for
   i) Total Dissolved Solids (TDS)
   ii) pH and EC
   iii) BOD and COD
   iv) Chlorides, Carbonates, Bicarbonates and Nitrates.
2. Examination of Water Samples from different sites for the Presence and Diversity of Organisms.
3. Examination of the Effects of Automobile Exhaust on the Adjacent Vegetation.
   i) Lead Count
   ii) Chlorophyll Content
   iii) Symptoms
   iv) Soot and Particulate Matter.
4. A visit to EPA to study the Instruments used for Monitoring Pollution.
5. A visit to the Industrial Organizations to examine their Effluent Treatment System.
6. A visit to the municipal Organization to study their Sewage Treatment System.
7. A Study Tour to a National Park and a wetland site to evaluate attributes criteria and values of the area concerned.
8. Irradiation of Seeds and study of the Effects of Seed Irradiation on Seed Germination, Growth and Yield of plants.
9. Field observation on the Sources and Impacts of various Air Pollutants.

Module Aims: Completion of this program will produce a working knowledge of Ecological Sampling, Analysis and Interpretation of Biological Data and prepare graduates to study and resolve the Ecological Consequences of Environmental Problems.

Learning Strategies:

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome: The students will acquire knowledge about the Hazardous Effects of different Environmental Pollutants and the Measures for their Control/Prevention by using different Laboratory Techniques.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments

3. Class discussion
4. Quiz
5. Tests

Books Recommended:

1. **Koziol, M.J. and Whatley, F.R. (2009).** *Gaseous Air Pollution and Plant Metabolism*. Butterworths. Londan.

2. **Goodstein, E.S. (2008).** *Economics and the Environment.* Prentice Hall Publishers, New Jersey.

3. **Varshney, C.K. (2005).** *Water Pollution and Management*, Wiley Eastern Limited.

4. **Chhatwal, D.R., Mehra, M.C., Satake, M., Katyal, T., Katyal, M. and Nagahiro. T. (2001).** *Encyclopedia of Environmental Pollution and its control.* (6 vols.), Anmol Publication, New Delhi, India.

5. **Mansfield, T.A. (1990).** *Effects of Air Pollutants on Plants.* Cambridge University Press, London, New York, Melbourne.

6. **Odum, E.P. (1971)** *Fundamentals of Ecology*. W.B. Saunders Company, Philadelphia.