Value Added Course: Waste management & Valorization (02 Credit)

Course Objectives:

- To shed light on the most pressing environmental challenges brought on by the generation of waste
- To educate pupil on the notion of waste management and effective waste reduction techniques.
- To emphasize the virtues of waste disposal and treatment through the 3 R approach

Course Outcome:

On completion of this course, students will be able to:

- Evaluate technical material critically for scientific value and apply acquired environmental knowledge.
- Define a system, component, or process to suit desired needs within practical limits.
- Understand the importance of environmental preservation and sensible use of natural resources.

UNIT I

Sources of environmental wastes; Environmental issues; Introduction to waste management; State of municipal waste generation in India; Solid and liquid waste management; Hazardous and toxic waste; Biomedical and chemical waste; Nuclear and e-waste; Environmental consequences of ship wreck; Polluting industries of India; Hazardous waste from other countries to India; International treaties in the movement of waste; Approaches for dealing municipal waste; Urban and rural –risk factors, and challenges in the district, city and State in India; Environmental hygiene and safety

UNIT II

Collection, segregation and disposal of municipal waste; 3R system; New technologies in 3R; 3R in home and country; Ways of minimizing wastages; Home-city-country-organic waste management; Waste and wastewater audit; Recycling and waste processing techniques; Wealth in waste; Waste prevention; Zero waste institution; Climate change and adaptation; Governance aspect of solid waste management; Concept of circular bioeconomy; Business value in circular bioeconomy; Government agencies and policies: NCEPC, MoEFCC, CPCB, and SPCB's; Swachh Bharat Abhiyan- initiatives, responsibilities and future aspects; Role of institutions, NGOs and public

Suggested Readings:

1. Basu, M. and Xavier, S. 2018. Fundamental of Environmental Studies. Cambridge University Press, Kolkata.
2. Sharma, P.D. 2017. Ecology and Environment. (10thRevised Edition). Rastogi Publication, Meerut
3. Kogent Learning Solutions Inc., Energy, Environment, Ecology and Society, Dreamtech, 2012.