Cluster University of Srinagar

Syllabus (FYUP UNDER NEP 2020)

Offered By Department of Industrial Chemistry

Title: Solid Waste Management

Course Code: UGICH22D101 **Max. Marks: 75**
Credits: 3 (Theory:03) **Theory External:50; Min Marks: 20**
Contact Hrs: 75 (Theory 75) **Theory Internal (Continuous Assessment):25 Marks, Min Marks: 10**

Course Objectives: To understand management of solid waste effectively and to maintain the hygienic conditions through waste to energy recovery methods.

Course Outcomes: After the completion of the course the students will be able to:

- Understand different types of wastes, their sources, characteristics, and prevention/reduction techniques.
- Understand solid waste disposal techniques and conversion of waste into useful products.
- Understand methods/techniques of energy recovery during solid waste disposal.

Unit I: Introduction to Solid Waste

- Definition of Solid waste, Types of solid wastes: Domestic, Commercial, Industrial, agricultural and Biomedical waste.
- Sources and Classification of Solid wastes: Hazardous and Non-hazardous waste. Physical and Chemical characteristics of Municipal solid waste.
- Impact of Solid waste on environment, Solid waste management techniques: Waste prevention and waste reduction techniques.

Unit II: Disposal of Solid Waste-I

- Segregation of waste, Composting: Principle, Factors affecting the composting of solid waste.
- Methods of composting: Manual composting, Vermi-composting.
- Land filling techniques, Factors to be considered for site selection. Land filling methods: Area method, trench method, Ramp method.

Unit III: Disposal of Solid Waste-II

- Recycling of Plastic, Biogas recovery from land-fill.
- Waste to Energy processes: Anaerobic digestion. Electricity from Municipal solid waste.
- Thermal treatment of solid waste: Pyrolysis and Incineration, Products of incineration.

References

1. Solid Waste Management; Bhide A.D.; Indian National Scientific Documentation Centre, New Delhi
2. Solid Waste: George, Kreith, frank; Mc Graw Hill Publication, New Delhi,2002
3. Environmental Studies: Manjunath D.L.; Pearson Education Publication, New Delhi
4. Solid Waste Management: Sashikumar K.; PHI Learning , New Delhi 2009.
5. Prospect and Perspectives of Solid Waste Management: Hosetti B.B.; New age International Publisher, 2006, New Del