

# EN3001 Solid & Hazardous Waste Management

[Lecture: 26 hrs; Tutorial: 13 hrs; Lab: 0 hr; Pre-requisite: Year 3 standing; Academic Unit: 3]

## **Learning Objective :**

To provide an understanding of solid and hazardous waste engineering principles and management issues.

## **Course Content :**

Integrated solid and hazardous waste management. Waste sources, characteristics, generation, collection, transfer and transport. Waste recycling, reuse, recovery, treatment and disposal. Industrial waste management issues and productivity. Hazardous treatment and disposal.

## **Course Outline :**

S/N Topic

1. Integrated solid waste management
2. Waste characteristics, generation, handling, collection, and transfer
3. Waste minimization and processing
4. Biochemical waste conversion
5. Thermal waste transformation
6. Waste disposal
7. Hazardous waste management
8. Hazardous waste treatment
9. Hazardous waste reutilization

## **Learning Outcome :**

Students should be familiar with the characterization of different kinds of solid and hazardous wastes and their treatment.

## **Textbooks :**

1. Vesilind, P.A., Worrell, W., and Reinhart, D., "Solid Waste Engineering", Brooks/Cole, 2002.
2. LaGrega, M, Buckingham, P. and Evants, J.C., "Hazardous Waste Management". McGraw-Hill, New York, 2001.

## **References :**

1. Tchobanoglous, G., Theisen, H and Vigil, S., "Integrated Solid Waste Management", McGraw-Hill, New York, 1993.
2. Pfeffer, J.T., "Solid Waste Management Engineering", Prentice Hall, 1992.
3. Wentz, C., "Hazardous Waste Management". McGraw-Hill, New York, 1995.