

Course Code : ENCM 22572
Title : Waste Water Management
Pre-requisite : ENCM 11522
Co-requisite : None
Status : Compulsory, Theory cum Practical

Learning outcomes:

After completion of the course unit, the student will be able to;

- explain different options for wastewater treatment,
- design basic wastewater treatment units,
- propose methods suitable to treat wastewater, and
- explain the possibilities of reuse of wastewater.

Course content:

Types of wastewater and constituents in wastewater, Problems of wastewater, Design of basic wastewater treatment units; Wastewater flow rates and loading, Physical unit operations, Chemical unit operations, Biological Treatment of Wastewater: Aerobic Processes, Suspended Growth Processes, Attached Growth Processes, Anaerobic Biological Wastewater Treatment Processes, Other wastewater treatment options including reverse osmosis, Sludge Treatment, Sewage treatment, Wastewater reuse, Effluent tolerance limits and discharge Standards, Field studies on wastewater treatment plants.

Method of teaching and learning:

A combination of lectures, computer assisted learning, assignments, and small group discussions.

Assessment:

In-course assessment and end of semester examination.

Recommended reading:

1. Davis, M. (2013). Water and Wastewater Engineering, McGraw-Hill Science, India.
2. Karia, G. L. & R. A. Christian (2013). Waste Water Treatment: Concepts & Design Approaches, 2nd edition, PHI Learning Pvt. Ltd, New Delhi.
3. Mackenzie, D. & S. Masten (2013). Principles of Environmental Engineering & Science, McGraw-Hill Science.
4. Tchobanoglous, G., F. Burton & H. D. Stensel (2012). Wastewater Engineering: Treatment and Reuse, McGraw-Hill Science, India.