

## **CE 207: ENVIRONMENTAL ENGINEERING - II (3- 0- 0:3)**

### **Sanitary Engineering**

Important terms, sewage treatment system and waste water management.

### **Collection and Conveyance of Sewage**

Conservancy and sewage carriage system, comparison, Design of Sewer.

### **Waste Water Flow**

Estimation of Dry Weather Flow and Storm Water, Variation of flow, Estimation of design discharge.

### **Waste Water Characteristics**

Physical, chemical, and Biological characteristics of sewage and wastewater, effluent standards.

### **Waste Water Disposal**

Dilution, self-purification, land disposal.

### **Waste Water Treatment**

Flow diagram of conventional sewage treatment plant, Primary treatment – screens, Grit Chambers, detritus tank, skimming tank, Type – III and Type – IV settling, Design of secondary sedimentation tank. Secondary treatment – Trickling fitters, Biological contractor, Activated sludge process, oxidation pond and ditches, aerated lagoon.

### **Treatment and Disposal of Sludge**

Sludge characteristics, Aerobic and anaerobic digestion, sludge thickening, disposal of sludge, Introduction to Solid waste, Air pollution and Noise pollution.

### **Text Books:**

1. *Environmental Engineering*, Peavy H. S., Rowe D. R. and George Tchobanoglous, McGraw-Hill International.
2. *Water Supply and Sewerage*, McGhee T. J. , McGraw-Hill Inc.,

### **References:**

1. *Introduction to Environmental Engineering*, Davis M. L and Cornwell D. A McGraw-Hill, Inc.
  2. *Wastewater Engineering- Treatment and Reuse*, Metcalf & Eddy (Revised by G. Tchobanoglous, F. L. Burton and H. D. Stensel), Tata McGraw Hill.
  3. *Chemistry for Environmental Engineers*, Sawyer C. N., McCarty P. L and Parkin G. F., McGraw- Hill.
  4. *APHA, Standard Methods Examination of Water and Wastewater*, American Public Health Association, Washington DC, 1995.
  5. *Manual for Sewer and Sewerage*, Central Public Health & Environmental Engineering Organization, Ministry of Housing and Urban Development, Govt. of India, 1993.
- Manual for water supply and treatment*, Central Public Health & Environmental Engineering Organization, Ministry of Housing and Urban Development, Govt. of India, 1999.