

AMEV25 DESIGN OF ENVIRONMENTAL ENGINEERING STRUCTURES

UNIT-1 INTRODUCTION AND DESIGN OF PIPES

- 1.1 Environmental Engineering structures- Introduction
- 1.2 Concept of elastic method, ultimate load method and limit state method-
- 1.3 Advantages of Limit State method over other methods
- 1.4 Limit State philosophy as detailed in current IS Code.
- 1.5 Structural design of- Concrete, Prestressed Concrete, Steel and Cast-iron piping mains, - anchorage for pipes - massive outfalls

UNIT-2 DESIGN OF WATER RETAINING STRUCTURES

- 2.1 IS Codes for the design of water retaining structures
- 2.2 Design of concrete roofing systems
- 2.3 Design of circular, rectangular tanks and Spherical tanks
- 2.4 Design of prestressed concrete cylindrical tank, Clariflocculators, Filters

UNIT-3 DESIGN OF WASTEWATER RETAINING STRUCTURES

- 3.1 Structural design of wastewater treatment units
- 3.2 Grit chamber, Parshall flume, Aeration tank, Anaerobic baffle reactor, Sludge digester, UASBR, Sludge thickener, Sludge drying beds.

UNIT-4 STORAGE STRUCTURES

- 4.1 Design of Square bunker and Storage structures
- 4.2 IS codal provisions- Design of cylindrical silo?
- 4.3 Design of various types of foundation like isolated, combined and raft foundation for a Water tanks, Bunkers and Silo's.

UNIT-5 SPECIAL STRUCTURES

- 5.1 Design of masonry walls, pillars and footings as per NBC and IS Codes
- 5.2 Structural design of underground reservoirs and swimming pools, Intake towers
- 5.3 Effect of earth pressure and uplift considerations
- 5.4 Design of - Cyclone separator – Scrubber

Reference Books:

1. Green, J.K. and Perkins, P.H., "Concrete liquid retaining structures", Applied Science Publishers, 1-81.
2. Rajagopalan K., "Storage structures", Tata McGraw Hill, New Delhi, 1-8-