

## **PCI5I103 WATER SUPPLY AND SANITARY ENGINEERING (3-0-1)**

### **Module – I**

General requirement for water supply, sources, quality of water, intake, pumping and transportation of water. Physical, chemical and biological characteristics of water and their significance, water quality criteria, water borne diseases, natural purification of water sources.

### **Module – II**

Engineered systems for water treatment : aeration, sedimentation, softening coagulation, filtration, adsorption, ion exchange, and disinfection. Design of water distribution system.

### **Module – III**

Generation and collection of waste water, sanitary, storm and combined sewerage systems, quantities of sanitary waste and storm water, design of sewerage system

Primary, secondary and tertiary treatment of wastewater. Waste water disposal standards,

### **Module – IV**

Basic of microbiology. Biological wastewater treatment system : Aerobic processes activated sludge process and its modifications, trickling filter, RBC, Anaerobic Processes conventional anaerobic digester, High rate and hybrid anaerobic reactors, Sludge digestion and handling, Disposal of effluent and sludge, Design problems on water distribution, sewerage, water treatment units, wastewater treatment units and sludge digestion.

### **Text Books:**

1. Water Supply Engineering-Environmental Engineering v.1 by S.K.Garg, Khanna Publishers
2. Sewage Disposal and Air Pollution Engineering - Environmental Engineering v.2 by S.K.Garg, Khanna Publishers
3. Water Supply and Sanitary Engineering by B.S.Birdi Dhanpat Rai Publishing Company

### **Reference Books:**

1. Water Supply Engineering by B. C. Punmia and A.K.Jain, Laxmi Publications
2. Water and Wastewater Technology by M.J.Hammer, PHI