Water Supply & Waste Water Engineering-I

Estimation of ground and surface water resources. quality of water from different sources, demand & quantity of water, fire demand, water requirement for various uses, fluctuations in demand, forecast of population.

Impurities of water and their significance, water-borne diseases, physical, chemical and bacteriological analysis of water, water standards for different uses. Intake structure, conveyance of water, pipe materials, pumps - operation & pumping stations.

Layout and hydraulics of different distribution systems, pipe fittings, valves and appurtenances, analysis of distribution system. Hardy cross method, leak detection, maintenance of distribution systems, service reservoir capacity and height of reservoir.

Sewerage schemes and their importance, collection & conveyance of sewage, storm water quantity, fluctuation in sewage flow, flow through sewer, design of sewer, construction & maintenance of sewer, sewer appurtenances, pumps & pumping stations.

Characteristics and analysis of waste water, recycles of decomposition, physical, chemical & biological parameters. Oxygen demand i.e. BOD & COD, TOC, TOD, Relative Stability, population equivalent, instrumentation involved in analysis, natural methods of waste water disposal i.e. by land treatment & by dilution, self-purification capacity of stream, Oxygen sag analysis.

RECOMMENDED BOOKS & REFERENCES:

1. Water Supply Engineering- B. C. Punmia - Laxmi Publications (P) Ltd. New Delhi
2. Water Supply & Sanitary Engineering- G.S. Birdi - Dhanpat Rai Publications (P) Ltd. N.Delhi
3. Water & Waste Water Technology - Mark J.Hammer-Prentice-Hall of India, New Delhi.
4. Environmental Engineering-H. S. Peavy & D. R. Rowe- Mc-Graw Hill Book Company,N.Delhi.
5. Water Supply & Sanitary Engineering - S. K. Husain
6. Water & Waste Water Technology - G.M. Fair & J.C. Geyer
7. Environmental Engg. - M.L. Davis & D.A. Cornwell - Mc Graw Hill Company
8. Chemistry for Environmental Engg.-Sawyer & Mc Carty Mc Graw Hill Book Company N Delhi
9. Waste Water Engineering - Metcalf & Eddy -McGraw Hill Book Company New Delhi.
10. Relevant IS Codes on Water Supply and Waste Water Engineering

LIST OF EXPERIMENTS:

1. To study the various standards for water and waste water.
2. To study of sampling techniques for water and waste water.
3. Measurement of turbidity of water and waste water.
4. To deter mine the coagulant dose required to treat the given turbid water sample
5. To deter mine the concentration of chlorides in a given water samples
6. Determination of hardness of the given sample
7. Determination of residual chlorine
8. Determination of Alkalinity in a water samples
9. Determination of Acidity in a water samples
10. Determination of Dissolved Oxygen (DO) in the water sample.