

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

Semester: 1st

LESSON PLAN

Subject: Water Treatment Technology

Session:

Theory/Sessional

Branch/ Course: Environmental Sc. & Engg. (Civil)/ M.Tech. Name of the Faculty Member: Rakesh R. Dash

Period	Module/ Number	Topic to be covered	Remarks/ Sign. of Faculty Member
1	Module - I / 1	Introduction: Sources of water	
2	Module - I / 2	Necessity of treatment	
3	Module - I / 3	Water quality guidelines and standards for various water uses	
4	Module - I / 4	Unit operations: Principles and design of aeration systems	
5	Module - I / 5	Two film theory, water in air system, air in water system	
6	Module - I / 6	Intake structures: Different types	
7	Module - I / 7	Design criteria	
8	Module - II / 1	Principles of sedimentation: Types of settling	
9	Module - II / 2	Settling equations	
10	Module - II / 3	Design criteria	
11	Module - II / 4	Design of settling tanks	
12	Module - II / 5	Design of settling tanks	
13	Module - II / 6	Design of settling tanks	
14	Module - II / 7	Principle of Coagulation and Flocculation: Types of coagulants	
15	Module - II / 8	Coagulant aids	
16	Module - II / 9	Coagulation theory	
17	Module - II / 10	Coagulation theory	
18	Module - II / 11	Optimum dose of coagulant	
19	Module - II / 12	Design criteria and numerical examples	
20	Module - II / 13	Design criteria and numerical examples	
21	Module - II / 14	Filtration: Theory, types	
22	Module - II / 15	Hydraulics of filter bed	
23	Module - II / 16	Design criteria	
24	Module - II / 17	Design of filters	
25	Module - II / 18	Filter backwash	
26	Module - II / 19	Operational problems and trouble shooting	
27	Module - III / 1	Adsorption Process: Types, factors affecting adsorption	
28	Module - III / 2	Kinetics and equilibrium	
29	Module - III / 3	Different isotherm equations and their applications	
30	Module - III / 4	Unit processes: Disinfection, different types	
31	Module - III / 5	Disinfectants, factors affecting disinfection	
32	Module - III / 6	Methods of disinfection	
33	Module - III / 7	Chemistry of chlorination	
34	Module - IV / 1	Water Softening: Ions causing hardness	
35	Module - IV / 2	Langelier index	
36	Module - IV / 3	Various methods	
37	Module - IV / 4	Fluoridation and de-fluoridation: Principles and design	
38	Module - IV / 5	Advanced water treatment: Ion exchange	
39	Module - IV / 6	electro-dialysis	
40	Module - IV / 7	RO	
41	Module - IV / 8	Distribution system: Design and analysis	
42	Module - IV / 9	Design and analysis	
43	Module - IV / 10	Design and analysis	
44	Module - IV / 11	distribution reservoirs	
45	Module - IV / 12	service reservoirs	

Signature of Faculty Member:

Date:

Counter Signature of H.O.D.