Lesson Plan

Subject :- WS & WWE (Code)-TH-4 Name of faculty:- Er. Rajashree Sahoo

Semester :-5th Class allotted -5p/w Branch :- Civil engg.

Discipline	Semester:-5th	From date:-01/07/24 To date:26/10/24	Teaching Aid
Subject:	No. of days/ per week 5p/w :	Theory/ Practical –Topics/Lesson	
Week	Date/Period		

1	01/07/24 to 06/07/24	**SECTION A: WATER SUPPLY** **1 Introduction to Water Supply, Quantity and Quality of water** 1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand	White board & marker
2	08/07/24 to 13/07/24	1.3 Methods of forecasting population, Numerical problems using different methods 1.4 Impurities in water – organic and inorganic, Harmful effects of impurities 1.5 Analysis of water –physical, chemical and bacteriological 1.6 Water quality standards for different uses	White board & marker
3	15/07/24 to 20/07/24	**2 Sources and Conveyance of water** 2.1 Surface sources – Lake, stream, river and impounded reservoir 2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well 2.3 Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded) 2.4 Intakes – types, description of river intake, reservoir intake, canal intake	White board & marker
4	22/07/24 to 27/07/24	2.5 Pumps for conveyance & distribution – types, selection, installation. 2.6 Pipe materials – necessity, suitability, merits & demerits of each type 2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method	White board & marker
5	29/07/24 to 3/08/24	**3 Treatment of water** *Note:* *1. Design of treatment units excluded.* *2. Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment* *3. Field visit to treatment plant, under practical should be arranged after covering this unit.* 3.1 Flow diagram of conventional water treatment system 3.2 Treatment process / units	White board & marker

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6	05/08/24 to 10/08/24	3.2.1 Aeration ; Necessity 3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance 3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only) 3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features 3.2.5 Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination 3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)	White board & marker
7	12/08/24 to 17/08/24	**4 Distribution system And Appurtenance in distribution system:** 4.1 General requirements, types of distribution system-gravity, direct and combined 4.2 Methods of supply – intermittent and continuous 4.3 Distribution system layout – types, comparison, suitability 4.4 Valves-types, features, uses, purpose-sluice valves, check valves, air valves, scour valves, Fire hydrants, Water meters	White board & marker
8	20/08/24 to 24/08/24	**5 W/s plumbing in building :** 5.1 Method of connection from water mains to building supply 5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.	White board & marker
9	27/08/24 to 31/08/24	**SECTION B: WASTE WATER ENGINEERING** **6 Introduction** 6.1 Aims and objectives of sanitary engineering 6.2 Definition of terms related to sanitary engineering	White board & marker
10	02/09/24 to 06/09/24	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability **7 Quantity and Quality of sewage** 7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	White board & marker
11	09/09/24 to		White board &

	14/09/24	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring 7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological 7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	marker
12	17/09/24 to 21/09/24	**8 Sewerage system** 8.1 Types of system-separate, combined, partially separate , features, comparison between the types, suitability 8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability 8.3 Laying of sewer-setting out sewer alignment	White board & marker & smart board
13	23/09/24 to 28/09/24	**9 Sewer appurtenances and Sewage Disposal:** 9.1 Manholes and Lamp holes – types, features, location, function 9.2 Inlets, Grease & oil trap – features, location, function 9.3 Storm regulator, inverted siphon – features, location, functio	White board & marker
14	30/09/24 to 05/10/24	9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies 9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream	White board & marker
15	07/10/24 to 09/10/24	**10 Sewage treatment** 10.1 Principles of treatment, flow diagram of conventional treatment 10.2 Primary treatment – necessity, principles, essential features, functions 10.3 Secondary treatment – necessity, principles, essential features, functions	White board & marker & smart board
16	17/10/24 to 19/10/24	**11 Sanitary plumbing for building :** 11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage	White board & marker
17	21/10/24 to 26/10/24	11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice 11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-syphonage pipe	White board & marker

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