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Discipline Civil Engg	Semester 5th	Name of the teaching faculty Ms CJ Rosy Tirkey.
Subject Water Supply & Waste water Engineering	No of day / per week class alloted : 05	Semester from date to 15.09.2022 date: 21.01.2023 Name No of week 17
Week	Class	Theory :
1st week 15.09.2022 to 17.09.2022	1st →	1 INTORDUCTION TO WATER SUPPLY, QUANTITY AND QUANTITY OF WATER 1.1 Necessity of treated water supply
		1.2 per capita demand, variation in demand and factors affecting demand
	2nd →	1.3 Methods of forecasting population, Numerical problems
	3rd →	using different methods
	1st 3rd →	1.4 Impurities in water - organic and inorganic, Harmful effects of impurities
2nd week 19.09.2022 to 24.09.2022	2nd →	1.5 Analysis of water - physical, chemical and bacteriological

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	2nd →	1.6 water quality standards for different uses
		SOURCES AND CONVEYANCE OF WATER
	3rd →	2.1 surface sources- Lake, stream, rivers and impounded reservoir.
	4th →	2.2 underground sources- aquifer type & occurrence- infiltration gallery. infiltration well, springs, well.
3rd week 26.09.2022 to 30.09.2022	1st →	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)
	2nd →	
	3rd →	2.4 Intakes - types, description of river intake, reservoir intake, canal intake
	4th →	2.5 pumps for conveyance &
	5th →	distribution - types, selection, installation.
4th week 10.10.2022 to 15.10.2022		2.6 pipe materials - necessity,
	1st →	types of joints, suitability, methods of jointing Laying of pipes - method

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2nd → 2.7 Pipe joints - necessity, types of joints, suitability, methods of jointing laying of pipes - method

3rd → SOURCES AND CONVEYANCE 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

4th → 3.1 Flow diagram of the conventional water the treatment system

5th → 3.2 Treatment process / units:

3.2.1 Aeration; Necessity

3.2.2 Plain sedimentation:

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5th week 17.10.2022 to 22.10.2022	1st →	Necessity, working principles, sedimentation tanks - types,
	2nd →	essential features, operation & maintenance
	3rd →	3.2.3 sedimentation with coagulation : Necessity. principles of coagulation types of coagulants, flash Mixer. flocculator, Clarifier (Definition and concept only)
	4th →	3.2.4 filtration: Necessity,
	5th →	principles, types of filters slow sand filter, Rapid sand filter and pressure filter - essential features
6th week 24.10.2022 to 29.10.2022.		3.2.5 Disinfection : Necessity
	1st →	methods of disinfection Chlorination - free and combin chlorine demand. available chlori
	2nd →	residual chlorine - Pre-chlorination break point chlorination. super-chlorination
	3rd →	3.2.6 Softening of water - Necessity Methods of softening- Lime soda process and Ion exchange method (concept only)

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Distribution system And Appurtenance in distribution system:

4th → 4.1 General requirements - Types of distribution system - gravity direct and combined

5th → 4.2 Methods of supply - Intermittent and Continuous

7th week
31.10.2022 to 5.11.2022

1st → 4.3 Distribution system layout -
2nd → Types, Comparison, Suitability

8th week
07.11.2022 to 12.11.2022

4.4 valves - Types, features. uses purpose - Sluice valves, check valves, air valves scour valves. Fire hydrants, water meters.

W/S plumbing in building:

3rd → 5.1 Method of connection from water mains to building supply

4th → 5.2 General layout of plumbing
5th → arrangement for water supply in single storied and multi-storied building as per I.S. Code.

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9th week 14.11.2023 to 19.11.2023	**Introduction** 1st → 6.1 Aims and objectives of sanitary engineering 2nd → 6.2 Definition of terms related to sanitary engineering 3rd → 6.3 systems of collection of wastes - conservancy and water 4th → carriage system - features. comparison suitability. **Quantity and Quality of sewage.** 5th → 7.1 Quantity of sanitary
10th week 21-11-2022 to 26-11-2022	1st → sewage - domestic & industrial 2nd → sewage. variation in sewage flow. numerical problem on 3rd → computation quantity of 4th → sanitary sewage. 5th → 7.2 computation of size of sewer application of chazy's formula limiting velocities of flow: self - cleaning and scouring
11th week 28.11.2022 to 3.12.2022	1st → 7.4 Concept of sewage - sampling tests for - solids pH, dissolved oxygen, BOD, COD

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	2nd →	7.3 General importance Strength of sewage, characteristics of sewage - physical chemical & biological
	3rd →	
12th week 5.12.2022 to 10.12.2022		**Sewerage system**
	1st →	8.1 Types of system - separate. combined, partially separate, features, comparison between the types, suitability
	2nd →	8.2 shapes of sewer - rectangular circular, ovoid - features, suitability
	3rd →	8.3 Laying of sewer - setting out sewer alignment
		Sewer appurtenances and sewage Disposal:
	4th, 5th →	9.1 Manholes and Lamp holes - types features, location, function
13th week 12.12.2022 to 17.12.2022	1st →	9.2 Inlets, Grease & oil trap - features, location, function
	2nd →	9.3 Storm regulator, inverted siphon - features. location function

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	3rd →	9.4 Disposal on land - Sewage farming, sewage application and dosing Sewage sickness - causes and remedies
	4th →	9.5 Disposal by dilution - Standard for disposal in different types of water bodies, self purification of stream
14th week 19.12.2022 to 22.12.2022		**Sewage Treatment:**
	1st →	10.1 Principles of treatment flow diagram of conventional treatment
	2nd →	10.2 Primary treatment - necessity, principles essential features, function
	3rd →	10.3 Secondary treatment - necessity, principles essential features functions
		Sanitary plumbing for building
	4th	11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage.

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15th week: 03.01.23 to 07.01.23	1st	11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	2nd →	11.3 Sanitary fixtures - features.
	3rd →	function, and maintenance and fixing of the fixtures - water closets, flushing cisterns, urinals - inspection chambers, traps, anti syphonage pipe
	4th →	Revision
	5th →	Revision.
16th week: 9.01.23 to 14.01.23	1st → 2nd → 3rd → 4th → 5th →	Revision
17th week 16.01.23 to 21.01.23	1st 2nd 3rd 4th 5th	Revision.

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