

Discipline: Civil	Semester:5th	Semesterfrom:01/08/2023- 23/11/2023 No.ofweeks:15
Subject:Water Supply and Waste Water Engineering Th-4	No.ofdays/per week Class Allotted: 5	Nameoftheteachingfaculty: D.DEVIBALA
Week	Class/Day	TheoryTopics
1 st	1 st	SECTIONA:WATERSUPPLY IntroductiontoWaterSupply,QuantityandQualityofwater :Necessityoftreatedwatersupply
	2 nd	Percapitademand
	3 rd	variationindemandandfactorsaffectingdemand
	4 th	Methods of forecasting population, Numerical problems using different methods
	5 th	Methods of forecastingpopulation, Numerical problems using different methods
2 nd	1 st	Methods of forecastingpopulation, Numerical problems using different methods
	2 nd	Methodsofforecastingpopulation,Numericalproblems using differentmethods
	3 rd	Impurities in water – organic and inorganic, Harmful effects of impurities
	4 th	Analysisofwater–physical,chemicalandbacteriological
	5 th	Waterqualitystandardsfordifferentuses
3 rd	1 st	Sources and Conveyance of water : Surface sources – Lake, stream, river and impounded reservoir
	2 nd	Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well
	3 rd	Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)
	4 th	Intakes–types,description ofriverintake
	5 th	ReservoirIntake,CanalIntake
4 th	1 st	Pumps for conveyance & distribution – types, selection, installation.
	2 nd	Pipe materials – necessity, suitability, merits & demerits of each type
	3 rd	Pipejoints – necessity, types of joints, suitability, methods of jointing, Laying of pipes – method
	4 th	Treatment of water : Flow diagramof conventional water treatment system
	5 th	Treatmentprocess /units:Aeration ;Necessity
5 th	1 st	PlainSedimentation:Necessity,workingprinciples
	2 nd	Sedimentation tanks – types, essential features, operation & maintenance
	3 rd	Sedimentationwithcoagulation:Necessity,principlesof coagulation

	4 th	Types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	5 th	Filtration: Necessity, principles, types of filters
6 th	1 st	Slow Sand Filter-essential features
	2 nd	Rapid Sand Filter-essential features
	3 rd	Pressure Filter-essential features
	4 th	Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
	5 th	Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
7 th	1 st	Distribution system And Appurtenance in distribution system: General requirements, types of distribution system-gravity, direct and combined
	2 nd	Methods of supply – intermittent and continuous
	3 rd	Distribution system layout – types, comparison, suitability
	4 th	Distribution system layout – types, comparison, suitability
	5 th	Valves- types, features, uses
8 th	1 st	Purpose- Sluice Valves, Check Valves
	2 nd	Air Valves, Scour Valves
	3 rd	Fire hydrants, Water meters
	4 th	W/s plumbing in building: Method of connection from water mains to building supply
	5 th	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
9 th	1 st	SECTION B: WASTEWATER ENGINEERING Introduction: Aims and objectives of sanitary engineering
	2 nd	Definition of terms related to sanitary engineering
	3 rd	Definition of terms related to sanitary engineering
	4 th	Systems of collection of wastes – Conservancy and Water Carriage System – features, comparison, suitability
	5 th	Systems of collection of wastes – Conservancy and Water Carriage System – features, comparison, suitability
10 th	1 st	Quantity and Quality of sewage : Quantity of sanitary sewage – domestic & industrial sewage
	2 nd	Variation in sewage flow, numerical problem on computation quantity of sanitary sewage.
	3 rd	Computation of size of sewer, application of Chazy's formula
	4 th	Solving Problem related to Chazy's formula
	5 th	Limiting velocities of flow: self-cleaning and scouring
11 th	1 st	General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
	2 nd	Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD
	3 rd	Sewerage system: Types of system-separate, combined, partially separate, features, comparison between the types, suitability
	4 th	Types of system-separate, combined, partially separate, features, comparison between the types, suitability

	5 th	Shapes of sewer – rectangular, circular, avoid – features, suitability
12 th	1 st	Laying of sewer – setting out sewer alignment
	2 nd	Laying of sewer – setting out sewer alignment
	3 rd	Sewer appurtenances and Sewage Disposal: Manholes and Lampholes – types, features, location, function
	4 th	Manholes and Lampholes – types, features, location, function
	5 th	Inlets, Grease & oil trap – features, location, function
13 th	1 st	Storm regulator, inverted siphon – features, location, function
	2 nd	Disposal on land – sewage farming, sewage application and dosing
	3 rd	Sewage sickness – causes and remedies
	4 th	Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
	5 th	Sewage treatment: Principles of treatment
14 th	1 st	Flow diagram of conventional treatment, Explaining function of each unit
	2 nd	Primary treatment – necessity, principles, essential features, functions
	3 rd	Primary treatment – necessity, principles, essential features, functions
	4 th	Primary treatment – necessity, principles, essential features, functions
	5 th	Secondary treatment – necessity, principles, essential features, functions
15 th	1 st	Secondary treatment – necessity, principles, essential features, functions
	2 nd	Secondary treatment – necessity, principles, essential features, functions
	3 rd	Sanitary plumbing for building : Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage
	4 th	Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	5 th	Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-siphonage pipe