

LESSON PLAN

Discipline: Civil Engineering	Name of The Teaching Faculty: Jyotirmayee Samal	
Subject: WATER SUPPLY & WASTE WATER ENGINEERING (TH.4)	Semester From Date: 1-07-2024 To Date 08-11-2024	
SEMESTER-5th (WINTER 2024)	No. Of Weeks:	5P/WEEK
No. of Days/week class allotted: 05 period per week (Mon, Wed(2P), Thu & Sat 1 Period each)		TOTAL PERIOD-75

MONTH	WEEK	DATE	DAYS/P ERIOD	SYLLABUS TO BE COVERED	NOS. OF PERIODS AVAILABLE
SECTION A: WATER SUPPLY					
				1. Introduction to Water Supply, Quantity and Quality of water(10P)	10
	1st	01.7.2024	Mon	1.1 Necessity of treated water supply	1
		03.7.2024	Wed	1.2 Per capita demand, variation in demand and factors affecting demand	1
		03.7.2024	Wed	1.2 Per capita demand, variation in demand and factors affecting demand	1
		04.7.2023	Thurs	1.3 Methods of forecasting population, Numerical problems using different methods	1
		6.7.2023	Sat	1.3 Methods of forecasting population, Numerical problems using different methods	1
	2nd	08.7.2024	Tues	1.3 Methods of forecasting population, Numerical problems using different methods	1
		10.7.2024	Wed	1.4 Impurities in water – organic and inorganic, Harmful effects of impurities	1
		10.7.2024	Wed	1.5 Analysis of water –physical, chemical and bacteriological	1
		11.7.2024	Thurs	1.5 Analysis of water –physical, chemical and bacteriological	1
		13.7.2024	Sat	1.6 Water quality standards for different uses	1
				2. Sources and Conveyance of water(8P)	8
July	3rd	15.7.2024	Mon	2.1 Surface sources – Lake, stream, river and impounded reservoir	1
		18.7.2024	Thurs	2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well	1
		20.7.2024	Sat	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)	1
			22.7.2024	Mon	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)

4th	24.7.2024	Wed	2.4 Intakes – types, description of river intake, reservoir intake, canal intake	
	24.7.2024	Wed	2.5 Pumps for conveyance & distribution – types, selection, installation.	1
	25.7.2024	Thurs	2.6 Pipe materials – necessity, suitability, merits & demerits of each type	1
	27.07.2024	Sat	2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method Laying of pipes – method	12
5th	3. Treatment of water (12P)			
	29.07.2024	Mon	3.1 Flow diagram of conventional water treatment system	1
	31.07.2024	Wed	3.2 Treatment process / units :	
1st	31.07.2024	Wed	3.2.1 Aeration : Necessity	1
	01.8.2024	Thurs	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance	1
	03.8.2024	Sat	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)	1
	5.8.2024	Mon	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)	1
	7.8.2024	Wed	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features.	1
	7.8.2024	Wed	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features.	1
	8.8.2024	Thurs	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	1
	10.8.2024	Sat	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	1
Aug	12.8.2024	Mon	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)	1
	14.8.2024	Wed	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)	1
	14.8.2024	Wed	4. Distribution system And Appurtenance in distribution system: (8P)	8
	17.8.2024	Sat	4.1 General requirements, types of distribution system-gravity, direct and combined	1

4th	21.8.2024	Wed	4.1 General requirements, types of distribution system-gravity, direct and combined	1
	21.8.2024	Wed	4.2 Methods of supply – intermittent and continuous	1
	22.8.2024	Thurs	4.2 Methods of supply – intermittent and continuous	1
	24.8.2024	Sat	4.3 Distribution system layout – types, comparison, suitability	1
5th	28.8.2024	Wed	4.3 Distribution system layout – types, comparison, suitability	1
	28.8.2024	Wed	4.4 Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves, Fire hydrants, Water meters	1
	29.8.2024	Thurs	4.4 Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves, Fire hydrants, Water meters	1
			5.W/s plumbing in building : (2P)	2
	31.8.2024	Sat	5.1 Method of connection from water mains to building supply	1
1st	2.9.2024	Tues	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.	1
	SECTION B: WASTE WATER ENGINEERING			
			6.Introduction(5P)	5
	4.9.2024	Wed	6.1 Aims and objectives of sanitary engineering	1
	4.9.2024	Wed	6.2 Definition of terms related to sanitary engineering	1
	5.9.2024	Thurs	6.2 Definition of terms related to sanitary engineering	1
	2nd	9.9.2024	Mon	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
11.9.2024		Wed	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability	1
			7. Quantity and Quality of sewage (7P)	7
11.9.2024		Wed	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	1
12.9.2024		Thurs	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	1
14.9.2024		Sat	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring	1

Sep	3rd	18.9.2024	Wed	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring		
		18.9.2024	Wed	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological	1	
		19.9.2024	Thurs	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	1	
		21.9.2024	Sat	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	1	
				8. Sewerage system (5P)	5	
4th	4th	23.9.2024	Mon	8.1 Types of system-separate, combined, partially separate , features, comparison between the types, suitability	1	
		25.9.2024	Wed	8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability	1	
		25.9.2024	Wed	8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability	1	
		26.9.2024	Thurs	8.3 Laying of sewer-setting out sewer alignment	1	
		28.9.2024	Sat	8.3 Laying of sewer-setting out sewer alignment	1	
				9. Sewer appurtenances and Sewage Disposal: (7P)	7	
5th		30.9.2024	Mon	9.1 Manholes and Lamp holes – types, features, location, function	1	
1st	1st	3.10.2024	Thurs	9.2 Inlets, Grease & oil trap – features, location, function	1	
		5.10.2024	Sat	9.3 Storm regulator, inverted siphon – features, location, function	1	
	3rd	14.10.2024	Mon	9.4 Disposal on land – sewage farming, sewage application and dosing,sewage sickness-causes and remedies	1	
		17.10.2024	Thurs	9.4 Disposal on land – sewage farming, sewage application and dosing,sewage sickness-causes and remedies	1	
		19.10.2024	Sat	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream	1	
	4th	4th	21.10.2024	Mon	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream	1
					10. Safety Management In Construction (8P)	8
23.10.2024		Wed	10.1 Principles of treatment, flow diagram of conventional treatment	1		
23.10.2024		Wed	10.1 Principles of treatment, flow diagram of conventional treatment	1		
24.10.2024		Thurs	10.2 Primary treatment – necessity, principles, essential features, functions	1		

5th	26.10.2024	Sat	10.2 Primary treatment – necessity, principles, essential features, functions	1	
	28.10.2024	Mon	10.2 Primary treatment – necessity, principles, essential features, functions	1	
	30.10.2024	Wed	10.3 Secondary treatment – necessity, principles, essential features, functions	1	
	30.10.2024	Wed	10.3 Secondary treatment – necessity, principles, essential features, functions	1	
Nov	1st	2.11.2024	Sat	10.3 Secondary treatment – necessity, principles, essential features, functions	1
				11. Sanitary plumbing for building :(3P)	3
	2nd	4.11.2024	Mon	11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage	1
		6.11.2024	Wed	11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice	1
		6.11.2024	Wed	11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-syphonage pipe	1