

LESSON PLAN						
Discipline: Civil Engineering			Name of The Teaching Faculty: Bhagabata Jena			
Subject: WATER SUPPLY& WASTE WATER ENGINEERING(TH.4)			Semester From Date:15-09-2022 To Date 22-12-2022			
SEMESTER-5th (WINTER 2022)			No. Of Weeks:15		5P/WEEK	
No. of Days/week class allotted: 05 period per week (Mon,Tues,Wed,Thu & Sat 1 Period each)					TOTAL PERIOD-75	
MONTH	WEEK	DATE	DAYS/PERIOD	SYLLABUS TO BE COVERED	NOS. OF PERIODS AVAILABLE	
SECTION A: WATER SUPPLY						
SEP	3ND			1. Introduction to Water Supply, Quantity and Quality of water(10P)	10	
		15.09.2022	THU	1.1 Necessity of treated water supply	1	
		17.09.2022	SAT	1.2 Per capita demand, variation in demand and factors affecting demand	1	
	4RD	19.09.2022	MON	1.2 Per capita demand, variation in demand and factors affecting demand	1	
		20.09.2022	TUE	1.3 Methods of forecasting population, Numerical problems using different methods	1	
		21.09.2022	WED	1.3 Methods of forecasting population, Numerical problems using different methods	1	
		22.09.2022	THU	1.3 Methods of forecasting population, Numerical problems using different methods	1	
		24.09.2022	SAT	1.4 Impurities in water – organic and inorganic, Harmful effects of impurities	1	
		5TH	26.09.2022	MON	1.5 Analysis of water –physical, chemical and bacteriological	1
			27.09.2022	TUE	1.5 Analysis of water –physical, chemical and bacteriological	1
	28.09.2022		WED	1.6 Water quality standards for different uses	1	
				2. Sources and Conveyance of water(8P)	8	
	29.09.2022	THU	2.1 Surface sources – Lake, stream, river and impounded reservoir	1		
	OCT	1ST	1.10..2022	SAT	2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well	1
		3RD	11.10.2022	TUE	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)	1
			12.10.2022	WED	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)	1
13.10.2022			THU	2.4 Intakes – types, description of river intake, reservoir intake, canal intake	1	
15.10.2022			SAT	2.5 Pumps for conveyance & distribution – types, selection, installation.	1	
4TH		17.10.2022	MON	2.6 Pipe materials – necessity, suitability, merits & demerits of each type	1	
		18.10.2022	TUE	2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method Laying of pipes – method	1	
				3. Treatment of water (12P)	12	
		19.10.2022	WED	3.1 Flow diagram of conventional water treatment system	1	

OCT		20.10.2022	THU	3.1 Flow diagram of conventional water treatment system	1		
				3.2 Treatment process / units :			
		22.10.2022	SAT	3.2.1 Aeration ; Necessity	1		
	5TH		25.10.2022	TUE	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance	1	
			26.10.2022	WED	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)	1	
			27.10.2022	THU	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)	1	
			29.10.2022	SAT	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features.	1	
6TH		31.10.2022	MON	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features.	1		
NOV	1ST		01.11.2022	TUE	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	
			02.11.2022	WED	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	
			03.11.2022	THU	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)	1	
			05.11.2022	SAT	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)	1	
	2ND					4. Distribution system And Appurtenance in distribution system: (8P)	8
			07.11.2022	MON	4.1 General requirements, types of distribution system-gravity, direct and combined	1	
			09.11.2022	WED	4.1 General requirements, types of distribution system-gravity, direct and combined	1	
			10.11.2022	THU	4.2 Methods of supply – intermittent and continuous	1	
			12.11.2022	SAT	4.2 Methods of supply – intermittent and continuous	1	
	3RD		14.11.2022	MON	4.3 Distribution system layout – types, comparison, suitability	1	
			15.11.2022	TUE	4.3 Distribution system layout – types, comparison, suitability	1	
			16.11.2022	WED	4.4 Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves, Fire hydrants, Water meters	1	

NOV		17.11.2022	THU	4.4 Valves-types, features, uses, purpose-sluice valves, check valves, air valves, scour valves, Fire hydrants, Water meters	1	
				5.W/s plumbing in building : (2P)	2	
		19.11.2022	SAT	5.1 Method of connection from water mains to building supply	1	
	4TH		21.11.2022	MON	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
			22.11.2022	TUE	6.1 Aims and objectives of sanitary engineering	1
			23.11.2022	WED	6.2 Definition of terms related to sanitary engineering	1
			24.11.2022	THU	6.2 Definition of terms related to sanitary engineering	1
			26.11.2022	SAT	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability	1
	5TH		28.11.2022	MON	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability	1
					7. Quantity and Quality of sewage (7P)	7
			29.11.2022	TUE	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	1
			30.11.2022	WED	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	1
DEC	1ST	01.12.2022	THU	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring	1	
		03.12.2022	SAT	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring	1	
	2ND		05.12.2022	MON	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological	1
			06.12.2022	TUE	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	1
			07.12.2022	WED	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	1
					8. Sewerage system (5P)	5
			08.12.2022	THU	8.1 Types of system-separate, combined, partially separate , features, comparison between the types, suitability	1
	3RD		10.12.2022	SAT	8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability	1
			12.12.2022	MON	8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability	1
			13.12.2022	TUE	8.3 Laying of sewer-setting out sewer alignment	1
			14.12.2022	WED	8.3 Laying of sewer-setting out sewer alignment	1
				9. Sewer appurtenances and Sewage Disposal: (7P)	7	

	15.12.2022	THU	9.1 Manholes and Lamp holes – types, features, location, function	1	
	17.12.2022	SAT	9.2 Inlets, Grease & oil trap – features, location, function	1	
4TH	19.12.2022	MON	9.3 Storm regulator, inverted siphon – features, location, function	1	
	20.12.2022	TUE	9.4 Disposal on land – sewage farming, sewage application and dosing,sewage sickness-causes and remedies	1	
	21.12.2022	WED	9.4 Disposal on land – sewage farming, sewage application and dosing,sewage sickness-causes and remedies	1	
	22.12.2022	THU	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream	1	
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			10. Safety Management In Construction (8P)	8	
			10.1 Principles of treatment, flow diagram of conventional treatment	1	
			10.1 Principles of treatment, flow diagram of conventional treatment	1	
			10.2 Primary treatment – necessity, principles, essential features, functions	1	
			10.2 Primary treatment – necessity, principles, essential features, functions	1	
			10.2 Primary treatment – necessity, principles, essential features, functions	1	
EXTRA CLASS			10.3 Secondary treatment – necessity, principles, essential features, functions	1	
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			11. Sanitary plumbing for building :(3P)	3	
			11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage	1	
			11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice	1	
			11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-siphonage pipe	1	