

Decipline: Civil Engineering		Semester: 5th No of days/ per week class allotted: 5	Name of the Teaching Faculty: SUBRAT KUMAR PANIGRAHI
Subject: Water Supply & Waste water Engineeri		Semester From date :01.08.2023 To Date : 30.11.2023	
No. of Periods: 75		No. of Weeks: 16	
Week	Class Day	Theory/ Practical Topics	
Aug-1st	1st	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	
	3rd	Numerical problems using different methods	
	4th	1.4 Impurities in water – organic and inorganic,	
	5th	Harmful effects of impurities	
Aug-2nd	6th	1.5 Analysis of water –physical, chemical and bacteriological	
	7th	1.5 Analysis of water –physical, chemical and bacteriological	
	8th	1.6 Water quality standards for different uses	
	9th	2.1 Surface sources – Lake, stream, river and impounded reservoir	
Aug-3rd	10th	2.2 Underground sources – aquifer type	
	11th	Infiltration gallery, infiltration well, springs, well	
	12th	Yield from well- method s of determination,	
	13th	Numerical problems using yield formulae	
	14th	Intakes – types, description of river intake, reservoir intake, canal intake	
Aug-4th	15th	Pumps for conveyance & distribution – types, selection, installation.	
	16th	2.6 Pipe materials – necessity, suitability, merits & demerits of each type	
	17th	2.6 Pipe materials – necessity, suitability, merits & demerits of each type	
	18th	Pipe joints – necessity, types of joints, suitability, methods of jointing	
	19th	Laying of pipes – method	
Sep-1st	20th	Flow diagram of conventional water treatment system	
	21st	Aeration ; Necessity	
	22nd	Plain Sedimentation : Necessity, working principles	
	23rd	Sedimentation tanks – types, essential features, operation & maintenance	
	24th	Sedimentation with coagulation: Necessity, principles of coagulation,	
sep-2nd	25th	types of coagulants; Flash Mixer, Flocculator, Clarifier (Definition and concept only)	
	26th	Filtration : Necessity, principles, types of filters	
	27th	Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features	
	28th	Disinfection : Necessity, methods of disinfection	
	29th	Chlorination – free and combined chlorine demand, available chlorine,	
sep-3rd	30th	residual chlorine, pre-chlorination, break point chlorination, super- chlorination	
	31st	Softening of water – Necessity Methods of softening – Lime soda process and Ion exchange method (Concept Only)	
	32nd	6.1 Aims and objectives of sanitary engineering	
	33rd	6.2 Definition of terms related to sanitary engineering	
	34th	6.3 Systems of collection of wastes– Conservancy and Water Carriage System	
Sep-4th	35th	7.1 Quantity of sanitary sewage – domestic & industrial sewage	
	36th	variation in sewage flow, numerical problem on computation quantity of sanitary sewage.	
	37th	Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring	
	38th	Problem Solving	
	39th	General importance, strength of sewage, Characteristics of sewage- physical, chemical & biological	
Oct-1st	40th	Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD	
	41st	Types of system-separate, combined, partially separate , features, comparison between the types, suitability	
	42nd	Shapes of sewer – rectangular, circular, avoid-features, suitability	
	43rd	Laying of sewer-setting out sewer alignment	
	44th	General requirements, types of distribution system-gravity, direct and combined	

	45th	Methods of supply – intermittent and continuous
Oct-3rd	46th	Distribution system layout – types, comparison, suitability
	47th	Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves
	48th	Fire hydrants, Water meters
	49th	Doubt clearing Classes
	50th	Internal Assessment Test
Oct-4th		<b>Puja Holidays</b>
Nov-1st	51st	Method of connection from water mains to building supply
	52nd	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
	53rd	Manholes and Lamp holes – types, features, location, function
	54th	Inlets, Grease & oil trap – features, location, function
	55th	Storm regulator, inverted siphon – features, location, function
Nov-1st	56th	Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies
	57th	Disposal by dilution – standards for disposal in different types of water bodies , self purification of stream
	58th	Principles of treatment, flow diagram of conventional treatment
	59th	Primary treatment – necessity, principles, essential features, functions
Nov-2nd	60th	Secondary treatment – necessity, principles, essential features, functions
	61th	Secondary treatment – necessity, principles, essential features, functions
	62nd	Secondary treatment – necessity, principles, essential features, functions
	63rd	Secondary treatment – necessity, principles, essential features, functions
	64th	Secondary treatment – necessity, principles, essential features, functions
Nov-3rd	65th	Secondary treatment – necessity, principles, essential features, functions
	66th	Requirements of building drainage, layout of lavatory blocks in residential buildings
	67th	layout of building drainage
	68th	Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	69th	Sanitary fixtures – features, function, and maintenance and fixing of the fixtures
Nov-4th	70th	water closets, flushing cisterns, urinals, inspection chambers, traps, anti-syphonage pipe
	71st	Doubt clearing Classes
	72nd	Doubt clearing Classes
	73rd	Doubt clearing Classes
	74th	Doubt clearing Classes
	75th	Doubt clearing Classes

*Srinivas*  
31.7.23  
Lecturer

*Srinivas*  
31.7.23  
HOD  
Civil Engg.

*R. J. R.*  
31/7/23  
Academic  
Co-ordinator

*U. J. R.*  
31/7/23  
Principal  
GP Nabarangpur