

GOVT. POLYTECHNIC MAYURBHANJ

LESSON PLAN- 2021/22 (WINTER)

Discipline : CIVIL ENGG.		Semester: 5th		Name of the Teaching Faculty :SUBHASHMITA NAIK	
Subject : WATER SUPPLY & WASTE WATER ENGG. (TH.4)		No. of Days / per week class allotted : 05		Semester From date : 01.10.2021 To Date : 08.01.2022	
MONTH	Week	Day	Unit	Topics	
OCTOBER	1ST	5TH	UNIT-I	Introduction to Water Supply, Quantity and Quality of water	
		1ST		Necessity of treated water supply, Per capita demand, variation in demand and factors affecting demand	
		2ND		Methods of forecasting population, Numerical problems using different methods	
	2ND	2ND	UNIT-I	Methods of forecasting population, Numerical problems using different methods	
		4TH		Impurities in water – organic and inorganic, Harmful effects of impurities	
		4TH		Analysis of water –physical, chemical and bacteriological, Water quality standards for different uses	
	4TH	5TH	UNIT-II	Sources and Conveyance of water	
		4TH		Surface sources – Lake, stream, river and impounded reservoir	
		5TH		Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well	
	5TH	5TH	UNIT-II	Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)	
		1ST		Intakes – types, description of river intake, reservoir intake, canal intake	
		2ND		Pumps for conveyance & distribution – types, selection, installation.	
	1ST	3RD	UNIT-III	Treatment of water	
		4TH		Flow diagram of conventional water treatment system	
5TH		Treatment process / units :			
1ST	1ST	UNIT-III	Aeration ; Necessity		
	2ND		Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance		
	3RD		Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)		
2ND	5TH	UNIT-III	Filtration : Necessity, principles, types of filters		
	1ST		Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features		
	2ND		Disinfection : Necessity, methods of disinfection		

NOVEMBER

2ND	3RD		Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
	4TH		Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
	5TH		Distribution system And Appurtenance in distribution system:
	1ST		General requirements, types of distribution system-gravity, direct and combined
	2nd		Methods of supply – intermittent and continuous
3RD	3RD	UNIT-IV	Distribution system layout – types, comparison, suitability
	4TH		Valves- types, features, uses, purpose-sluice valves, check valves, air valves, scour valves, Fire hydrants, Water meters
	1ST		W/s plumbing in building :
	2ND		Method of connection from water mains to building supply
4TH	3RD	UNIT-V	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
	4TH		Introduction: Waste water Engineering
	5TH		Aims and objectives of sanitary engineering, Definition of terms related to sanitary engineering
	1ST	UNIT-VI	Systems of collection of wastes- Conservancy and Water Carriage System – features, comparison, suitability
5TH	2ND		Quantity and Quality of sewage
	3RD		Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on
	4TH		Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and
	5TH	UNIT-VII	General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
	1ST		Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD
2ND	2ND		Sewerage system
	3RD	UNIT-VIII	Types of system- separate, combined, partially separate, , features, comparison between the types, suitability
	4TH		Shapes of sewer – rectangular, circular, avoid-features, suitability
	5TH		Laying of sewer-setting out sewer alignment
	1ST		Sewer appurtenances and Sewage Disposal:
3RD	2ND		Manholes and Lamp holes – types, features, location, function
	3RD	UNIT-IX	Inlets, Grease & oil trap – features, location, function, Storm regulator, Inverted siphon – features, location, function
	3RD		Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies

DECE

JANUARY

4TH	4TH	UNIT-X	Sewage treatment : Principles of treatment, flow diagram of conventional treatment Primary treatment – necessity, principles, essential features, functions Primary treatment – necessity, principles, essential features, functions Secondary treatment – necessity, principles, essential features, functions Secondary treatment – necessity, principles, essential features, functions
	5TH		
	1ST		
	2ND		
	3RD		
5TH	4TH	UNIT-XI	Sanitary plumbing for building : Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage Plumbing arrangement of single storied & multi storied building as per I.S. code practice Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-siphonage pipe
	5TH		
	2ND		
	3RD		
	4TH		
2ND	5TH	PREVIOUS YEAR QUESTION DISCUSSION	REVISION
	1ST		
	2ND		
	3RD		
	4TH		
3RD	5TH	PREVIOUS YEAR QUESTION DISCUSSION	REVISION
	1ST		
	2ND		
	3RD		
	4TH		

Subject Expert

Civil Department

Academic Co-ordinator

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01/11/21

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01/11/21