LESSON PLAN OF 5TH WINTER(2024-25) CIVIL ENGINEERING

Discipline:- CIVIL ENGG.	Semester:-5TH	Name of the Teaching Faculty JAYALAXMI BEHERA
Subject:- WS&WWE (Th.4)	No of Days/per Week Class Allotted :-03	Semester From:- 01/07/2024 To:- 08/11/2024 No of Weeks:- 15
Week	**Class Day**	**Theory/ Practical Topics**
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, Numerical problems using different methods 1.4 Impurities in water – organic and inorganic, Harmful effects of impurities 1.5 Analysis of water –physical, chemical and bacteriological 1.6 Water quality standards for different uses
	3rd	2.1 Surface sources – Lake, stream, river and impounded reservoir 2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well 2.3 Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)
2nd	1st	2.4 Intakes – types, description of river intake, reservoir intake, canal intake 2.5 Pumps for conveyance & distribution – types, selection, installation. 2.6 Pipe materials – necessity, suitability, merits & demerits of each type 2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes –method.
	2nd	*1. Design of treatment units excluded.* *2. Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment*
	3rd	*3. Field visit to treatment plant, under practical should be arranged after covering this unit.* 3.1 Flow diagram of conventional water treatment system 3.2 Treatment process / units : 3.2.1 Aeration ; Necessity
3rd	1st	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance 3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only) 3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	2nd	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
	3rd	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only) 4.1 General requirements, types of distribution system-gravity, direct and combined

4th	1st	4.2 Methods of supply – Intermittent and continuous
	2nd	Discussion
	3rd	4.3 Distribution system layout – types, comparison, suitability 4.4 Valves-types, features, uses, purpose-sluice valves, check valves
5th	1st	Air valves, scour valves, Fire hydrants, Water meters
	2nd	5.1 Method of connection from water mains to building supply
	3rd	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code. 6.1 Aims and objectives of sanitary engineering
6th	1st	6.2Definition of terms related to sanitary engineering
	2nd	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
	3rd	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage. Numerical problem on computation quantity of sanitary sewage.
7th	1st	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring
	2nd	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
	3rd	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen BOD, COD
8th	1st	8.1 Types of system-separate, combined, partially separate , features, comparison between the types, suitability
	2nd	Discussion
	3rd	8.2 Shapes of sewer – rectangular, avoid-features, suitability circular, avoid-features, suitability
9th	1st	8.3 Laying of sewer-setting out sewer alignment
	2nd	9.1 Manholes and Lamp holes – types,
	3rd	features, location, function
10th	1st	9.2 Inlets, Grease & oil trap – features, location, function
	2nd	9.3 Storm regulator, inverted siphon – features, location, function
	3rd	Discussion 9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies
11th	1st	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream 10.1 Principles of treatment, flow diagram of conventional treatment
	2nd	Discussion
	3rd	10.2 Primary treatment – necessity principles, essential features, functions
12th	1st	10.3 Secondary treatment – necessity
	2nd	principles, essential features, functions
	3rd	11.1 Requirements of building drainage. layout of lavatory blocks in residential buildings.
13th	1st	layout of building drainage
	2nd	Discussion

	3rd	11.2 Plumbing arrangement of single storied as per I.S. code practice
		11.2 Plumbing arrangement of multi storied as per I.S. code practice
14th	1st	Discussion
	2nd	Discussion
	3rd	11.3 Sanitary fixtures – features, function maintenance and fixing of the fixtures – water closets, flushing cisterns
15th	1st	urinals chambers, traps, anti-syphonage pipe, inspection
	2nd	Discussion
	3rd	PROBLEM PRACTICE PREVIOUS YEAR QUESTION DISCUSSION

Lecturer

verified.

Principal 29/6/24
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29.06.24
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