

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

SUBJECT: WATER SUPPLY AND WASTE WATER ENGG. (TH 4)

FACULTY: SONALIRANI PADHIARI

ACCADEMIC SESSION: 2023-24

SEMESTER: 5TH

SEC: A

Sd/-

H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester : 5th (A)		Name Of Teaching Faculty:- SONALIRANI PADHIARI
Subject: Water Supply & Waste Water Engineering(TH-4)	No. of Days/week class allotted : 05 period per week (Mon-2 period & Wed,Fri,Sat-1 Period Each)		Semester From Date: 01-08-2023 to Date: 30-11-2023 No of Weeks: 17 weeks
Week	Date	No of period available	Topics to be covered
1ST	02/08/2023	1	1 Introduction to Water Supply, Quantity and Quality of water 1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand
	04/08/2023	1	1.3 Methods of forecasting population
	05/08/2023	1	Numerical problems using different methods
2ND	07/08/2023	2	1.4 Impurities in water – organic and inorganic, Harmful effects of impurities
	09/08/2023	1	1.5 Analysis of water –physical, chemical
	11/08/2023	1	Bacteriological analysis of water
	12/08/2023	1	1.6 Water quality standards for different use

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3RD	14/08/2023	2	2 Sources and Conveyance of water 2.1 Surface sources – Lake, stream, river and impounded reservoir 2.2 Underground sources – aquifer type occurrence – Infiltration gallery, infiltration well, springs, well
	16/08/2023	1	2.3 Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)
	18/08/2022	1	2.4 Intakes – types, description of river intake, reservoir intake, canal intake
	19/08/2023	1	2.5 Pumps for conveyance & distribution – types, selection, installation
4TH	21/08/2023	2	2.6 Pipe materials – necessity, suitability, merits& demerits of each type
	23/08/2023	1	2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing, Laying of pipes – method
	25/08/2023	1	3 Treatment of water 3.1 Flow diagram of conventional water treatment system 3.2 Treatment process / units : 3.2.1 Aeration ; Necessity
	26/08/2023	1	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance

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5TH	28/08/2023	2	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	01/09/2023	1	3.2.4 Filtration : Necessity, principles, Types of filters, Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	02/09/2023	1	3.2.5 Disinfection : Necessity, methods of disinfection
6TH	04/09/2023	2	Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
	08/09/2023	1	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method
	09/09/2023	1	MONTHLY CLASS TEST-I
7TH	11/09/2023	2	4 Distribution system And Appurtenance in distribution system: 4.1 General requirements, types of distribution system-gravity, direct and combined
	13/09/2023	1	4.2 Methods of supply – intermittent and continuous
	15/09/2023	1	4.3 Distribution system layout – types, comparison, suitability.
	16/09/2023	1	4.4 Valves-types, features, uses, purpose-slucie valves, check valves, air valves, scour valves, Fire hydrants, Water meter

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8TH	18/09/2023	2	5 Water supply Plumbing in building : 5.1 Method of connection from water mains to building supply
	22/09/2023	1	5.2 General layout of plumbing arrangement for water supply in single storied, Plumbing arrangement for water supply in multi-storied building as per I.S code.
	23/09/2023	1	SECTION B: WASTE WATER ENGINEERING 6 Introduction 6.1 Aims and objectives of sanitary engineering
9TH	25/09/2023	2	6.2 Definition of terms related to sanitary engineering 6.3 Systems of collection of wastes– Conservancy and Water Carriage System –features, comparison, suitability
	27/09/2023	1	7 Quantity and Quality of sewage 7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow
	30/09/2023	1	Numerical problem on computation quantity of sanitary sewage
10TH	04/10/2023	1	7.2 Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring
	06/10/2023	1	Numerical on Computation of size of Sewer
	07/10/2023	1	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological

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11TH	09/10/2023	2	7.4 Concept of sewage sampling, tests for – Total solids, pH, dissolved oxygen, BOD,COD
	11/10/2023	1	INTERNAL ASSESSMENT
	13/10/2023	1	8 Sewerage system 8.1 Types of system-separate, combined, partially separate features, comparison between the types, suitability
	14/10/2023	1	8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability
12TH	16/10/2023	2	8.3 Laying of sewer-setting out sewer alignment
	18/10/2023	1	9 Sewer appurtenances and Sewage Disposal: 9.1 Manholes and Lamp holes – types, features, location, function
	20/10/2023	1	9.2 Inlets, Grease & oil trap features, location, function
13TH	30/10/2023	2	9.3 Storm regulator, inverted siphon – features, location, function
	01/11/2023	1	MONTHLY CLASS TEST-II

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	03/11/2023	1	9.4 Disposal on land – sewage farming, Sewage application and dosing, Sewage sickness-causes and remedies
	04/11/2023	1	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
14TH	06/11/2023	2	10 Sewage treatment : 10.1 Principles of treatment, flow diagram of conventional treatment
	08/11/2023	1	10.2 Primary treatment – necessity, principles
	10/11/2023	1	Essential feature, function of Primary Treatment of waste water.
	11/11/2023	1	10.3 Secondary treatment-necessity, principles

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15TH	13/11/2023	2	Essential feature, function of Secondary Treatment of waste water
	15/11/2023	1	11 Sanitary plumbing for building : 11.1 Requirements of building drainage.
	17/11/2023	1	Layout of lavatory blocks in residential buildings, layout of building drainage
	18/11/2023	1	11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice.
16TH	20/11/2023	2	11.3 Sanitary fixtures – features, function, and maintenance.
	22/11/2023	1	11.3 Fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, anti-syphonage pipe.
	24/11/2023	1	Revisions
	25/11/2023	1	Revisions

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17TH	29/11/2023	1	Previous Year Questions & Answers Discussion
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