

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

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

FACULTY: MISS SONALISA SAHOO

ACCADEMIC SESSION: 2023-24

SEMESTER: 5TH

SEC: B

Sd/-

H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 5TH (B)		Name of teaching faculty: SONALISA SAHOO
Subject: WATER SUPPLY AND WASTE WATER ENGG.	No. of days/ per week class allotted : 05 period per week (Mon-01;Tue-01;Wed-01;Thu-01;Fri- 01)		Semester from date : 01/08/2023 To date : 30/11/2023 No of week : 18
Week	Class day	No of period available	Theory topics
1ST	01/08/2023	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
	02/08/2023	1	Factors affecting demand
	03/08/2023	1	1.3 Methods of forecasting population, Numerical problems using different methods
	04/08/2023	1	Numerical problems using different method
2ND	07/08/2023	1	1.4 Impurities in water–organic and inorganic, Harmful effects of impurities
	08/08/2023	1	1.5 Analysis of water–physical, chemical and bacteriological
	09/08/2023	1	1.5 Analysis of water–physical, chemical and bacteriological
	10/08/2023	1	1.6 Water quality standards for different uses
	11/08/2023	1	Sources and Conveyance of water

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			2.1 Surface sources–Lake, stream, river and impounded reservoir
3RD	14/08/2023	1	2.2 Underground sources–aquifer type & occurrence–Infiltration gallery, infiltration well, springs
	16/08/2023	1	2.3 Yield from well-methods of determination, Numerical problems using yield formulae
	17/08/2023	1	2.4 Intakes–types, description of river intake, reservoir intake, canal intake
	18/08/2023	1	2.5 Pumps for conveyance & distribution–types, selection, installation
4TH	21/08/2023	1	2.6 Pipe materials–necessity, suitability, merits & demerits of each type
	22/08/2023	1	2.7 Pipe joints–necessity, types of joints, suitability, methods of jointing, Laying of pipes–method
	23/08/2023	1	3. Treatment of water 3.1 Flow diagram of conventional water treatment system
	24/08/2023	1	3.2 Treatment process/units 3.2.1 Aeration; Necessity
	25/08/2023	1	3.2.2 Plain Sedimentation : Necessity working principles, Sedimentation tanks–types, essential features, operation & maintenance
5TH	28/08/2023	1	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation
	29/08/2023	1	Types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition)

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			and concept only) 3.2.4 Filtration : Necessity, principles
	31/08/2023	1	Types of filter, Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	01/09/2023	1	3.2.5 Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand
6TH	04/09/2023	1	Available chlorine, residual chlorine, pre-chlorination, breakpoint chlorination, super-chlorination
	05/09/2023	1	3.2.6 Softening of water–Necessity, Methods of softening
	07/09/2023	1	Lime soda process and Ion exchange method
	08/09/2023	1	4.Distribution system And Appurtenance in distribution system: 4.1 General requirements, types of distribution system-gravity, direct and combined
7TH	11/09/2023	1	Types of distribution system-gravity, direct and combined
	12/09/2023	1	CLASS TEST-I
	13/09/2023	1	4.2 Methods of supply – intermittent and continuous
	14/09/2023	1	4.3 Distribution system layout – types, comparison, suitability
	15/09/2023	1	4.4 Valves-types, features, uses, purpose-sluc valves, check valves, air valves, scour valves, Fire hydrants, Water meters
8TH	18/09/2023	1	W/s Plumbing in Building 5.1 Method of connection from water mains to building supply

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	21/09/2023	1	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S.code
	22/09/2023	1	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S.code
9TH	25/09/2023	1	SECTION B: WASTE WATER ENGINEERING 6 Introduction 6.1 Aims and objectives of sanitary engineering
	26/09/2023	1	6.2 Definition of terms related to sanitary engineering
	27/09/2023	1	6.3 Systems of collection of wastes– Conservancy and Water Carriage System –features, comparison, suitability
	28/09/2023	1	7.Quantity and Quality of sewage 7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow
10TH	03/10/2023	1	Numerical problem on computation quantity of sanitary sewage
	04/10/2023	2	7.2 Computation of size of sewer, application of Chazy's formula
	05/10/2023	1	Limiting velocities of flow : self-cleaning and scouring
	06/10/2023	1	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
11TH	09/10/2023	1	7.4 Concept of sewage – sampling, tests for–solids, pH
	10/10/2023	1	INTERNAL ASSESSMENT EXAM
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	12/10/2023	1	Dissolved oxygen, BOD, COD

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	13/10/2023	1	Question discussion
12TH	16/10/2023	1	8.Sewerage system 8.1 Types of system-separate, combined, partially separate, features
	17/10/2023	1	Comparison between the types, suitability
	18/10/2023	1	8.2 Shapes of sewer—rectangular circular, avoid-features, suitability
	19/10/2023	1	8.3 Laying of sewer-setting out sewer alignment
	20/10/2023	1	9.Sewer appurtenances and Sewage Disposal: 9.1 Manholes and Lamp holes-types, features, location, functions 9.2 Inlets, Grease & oil trap – features, location, function
13TH	30/10/2023	1	9.3 Storm regulator, inverted siphon – features, location, function
	31/10/2023	1	9.4 Disposal on land—sewage farming, sewage application and dosing Sewage sickness-causes and remedies
	01/11/2023	1	9.5 Disposal by dilution—standards for disposal in different types of water bodies Self-purification of stream
	02/11/2023	1	10.Sewage treatment: 10.1 Principles of treatment, flow diagram of conventional treatment
	03/11/2023	1	10.2 Primary treatment—necessity, principles, essential features, functions
14TH	06/11/2023	1	10.2 Primary treatment—necessity, principles, essential features, functions
	07/11/2023	1	CLASS TEST-II

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	08/11/2023	1	10.3Secondarytreatment–necessity,principles
	09/11/2023	1	10.3Secondarytreatment–necessity,principles
	10/11/2023	1	essentialfeatures,functionsofsecondarytreatmentunit
15TH	13/11/2023	1	Sanitaryplumbingforbuilding: 11.1Requirementsofbuildingdrainage,layoutoflavatoryblocksinresidential,buildings,
	14/11/2023	1	11.1layoutofbuildingdrainage
	15/11/2023	1	11.2Plumbing arrangement of single storied & multistoried building as per I.S .code practice
	16/11/2023	1	11.3Sanitaryfixtures–features, function, and maintenance and fixing of the fixtures–waterclosets, flushing cisterns, urinals
	17/11/2023	1	11.3Sanitaryfixtures–inspection chambers, traps, anti-syphonage pipe
16TH	20/11/2023	1	REVISION
	21/11/2023	1	REVISION
	22/11/2023	1	REVISION
	23/11/2023	1	REVISION
	24/11/2023	1	PREVIOUS YEAR QUESTION AND DISCUSSION
17TH	28/11/2023	1	PREVIOUS YEAR QUESTION AND DISCUSSION
	29/11/2023	1	PREVIOUS YEAR QUESTION AND DISCUSSION
	30/11/2023	1	PREVIOUSYEARQUESTIONANDDISCUSSION