

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

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

FACULTY: ER. ASHA MISHRA (SR. LECTURER)

ACCADEMIC SESSION: 2022-23

SEMESTER: 5TH

SEC: A

Sd/-

H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 5TH(A)		Name of teaching faculty: Er. ASHA MISHRA
Subject: WATER SUPPLY AND WASTE WATER ENGG.	No.of days/ per week class allotted : 05 period per week (Mon-01;Tue-01;Thu-01;Fri- 01;Sat-01)		Semester from date : 15/09/2022 To date : 22/12/2022 No of week : 14
Week	Class day	No of period available	Theory topics
1ST	15/09/2022	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
	16/09/2022	1	factors affecting demand
	17/09/2022	1	1.3 Methods of forecasting population, Numerical problems using different methods
2ND	19/09/2022	1	Numerical problems using different method
	20/09/2022	1	1.4 Impurities in water – organic and inorganic, Harmful effects of impurities
	22/09/2022	1	1.5 Analysis of water – physical, chemical and bacteriological
	23/09/2022	1	1.5 Analysis of water – physical, chemical and bacteriological
	24/09/2022	1	1.6 Water quality standards for different uses
3RD	26/09/2022	1	Sources and Conveyance of water 2.1 Surface sources – Lake, stream, river and impounded reservoir
	27/09/2022	1	2.2 Under ground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs,

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	29/09/2022	1	2.3 Yield from well- methods of determination, Numerical problems using yield formulae
	30/09/2022	1	2.4 Intakes – types, description of river intake, reservoir intake, canal intake
	01/10/2022	1	2.5 Pumps for conveyance & distribution – types, selection, installation
4TH	10/10/2022	1	2.6 Pipe materials – necessity, suitability, merits & demerits of each type
	11/10/2022	1	2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing, Laying of pipes – method
	13/10/2022	1	3. Treatment of water 3.1 Flow diagram of conventional water treatment system 3.2 Treatment process/units: 3.2.1 Aeration; Necessity
	14/10/2022	1	3.2.2 Plain Sedimentation: Necessity working principles, Sedimentation tanks – types, essential features, operation & maintenance
	15/10/2022	1	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation,
5TH	17/10/2022	1	types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only) 3.2.4 Filtration: Necessity, principles
	18/10/2022	1	types of filter, Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	20/10/2022	1	3.2.5 Disinfection: Necessity, methods of disinfection Chlorination – free and combined chlorine demand

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	21/10/2022	1	available chlorine, residual chlorine, pre-chlorination, breakpoint chlorination, super-chlorination
	22/10/2022	1	3.2.6 Softening of water – Necessity, Methods of softening
6TH	25/10/2022	1	Lime soda process and Ion exchange method
	27/10/2022	1	4. Distributions system And Appurtenance in distribution system: 4.1 General requirements, types of distribution system – gravity, direct and combined
	28/10/2022	1	CLASSTEST-I
	29/10/2022	1	4.2 Methods of supply – intermittent and continuous
7TH	31/10/2022	1	4.3 Distribution system layout – types, comparison, suitability
	01/11/2022	1	4.4 Valves – types, features, uses, purpose – sluice valves, check valves, air valves
	03/11/2022	1	, scour valves, Fire hydrants, Water meters
	04/11/2022	1	SECTION B: WASTE WATER ENGINEERING 6 Introduction 6.1 Aims and objectives of sanitary engineering
	05/11/2022	1	6.2 Definition of terms related to sanitary engineering
8TH	07/11/2022	1	6.3 Systems of collection of wastes – Conservancy and Water Carriage System – features, comparison, suitability
	10/11/2022	1	7. Quantity and Quality of sewage 7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow
	11/11/2022	1	numerical problem on computation quantity of sanitary sewage
	12/11/2022	1	7.2 Computation of size of sewer, application of Chazy's formula,
9TH	14/11/2022	1	Limiting velocities of flow : self-cleaning and scouring
	15/11/2022	1	INTERNAL ASSESSMENT EXAM

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	17/11/2022	1	7.3 General importance, strength of sewage, Characteristics of sewage- physical, chemical & biological
	18/11/2022	1	7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD Question discussion
	19/11/2022	1	8. Sewerage system 8.1 Types of system- separate, combined, partially separate, features, comparison between the types, suitability
10TH	21/11/2022	1	8.2 Shapes of sewer – rectangular circular, avoid-features, suitability 8.3 Laying of sewer-setting out sewer alignment
	22/11/2022	2	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
	24/11/2022	1	9.3 Storm regulator, inverted siphon – features, location, function
	25/11/2022	1	9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies
	26/11/2022	1	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
11TH	28/11/2022	1	10. Sewage treatment: 10.1 Principles of treatment, flow diagram of conventional treatment
	29/11/2022	1	CLASSTEST-II
	01/12/2022	1	10.2 Primary treatment – necessity, principles, essential features, functions
	02/12/2022	1	10.2 Primary treatment – necessity, principles, essential features, functions 10.3 Secondary treatment – necessity, principles
	03/12/2022	1	10.3 Secondary treatment – necessity, principles essential features, functions of secondary treatment unit
12TH	05/12/2022	1	essential features, functions of secondary treatment unit

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	06/12/2022	1	Sanitary plumbing for building: 11.1 Requirements of building drainage, layout of lavatory blocks in residential, buildings,
	08/12/2022	1	11.1 layout of building drainage
	09/12/2022	1	11.2 Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	10/12/2022	1	11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals,
	12/12/2022	1	11.3 Sanitary fixtures – inspection chambers, traps, anti-syphonage pipe
13TH	13/12/2022	1	SECTION A: WATER SUPPLY ENGG W/s plumbing in building 5.1 Method of connection from water main to building supply
	15/12/2022	1	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code
	16/12/2022	1	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code
	17/12/2022	1	CLASS TEST-III
	19/12/2022	1	REVISION
14TH	20/12/2022	1	REVISION
	22/12/2022	1	PREVIOUS YEAR QUESTION AND DISCUSSION