

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

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

FACULTY: SRI GIRIJA PRASAD DAS

ACCADEMIC SESSION: 2022-23

SEMESTER: 5TH

SEC: B

Sd/-

H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 5TH		Name of teaching faculty: SRI GIRIJA PRASAD DAS
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 : 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
2ND	19/09/2022	1	1.3Methods of forecasting population, Numerical problems using different methods
	20/09/2022	1	Numerical problems using different method
	21/09/2022	1	1.4Impuritiesinwater– organicandinorganic,Harmfuleffectsofimpurities
	22/09/2022	1	1.5Analysisofwater–physical,chemicalandbacteriological
	23/09/2022	1	1.5Analysisofwater–physical,chemicalandbacteriological

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3RD	26/09/2022	1	1.6 Water quality standards for different uses
	27/09/2022	1	Sources and Conveyance of water 2.1 Surface sources – Lake, stream, river and impounded reservoir
	28/09/2022	1	2.2 Under ground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs,
	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
4TH	10/10/2022	1	2.5 Pumps for conveyance & distribution – types, selection, installation
	11/10/2022	1	2.6 Pipe materials – necessity, suitability, merits & demerits of each type
	12/10/2022	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

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5TH	17/10/2022	1	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation,
	18/10/2022	1	types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only) 3.2.4 Filtration : Necessity, principles
	19/10/2022	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
	21/10/2022	1	available chlorine, residual chlorine, pre-chlorination, breakpoint chlorination, super-chlorination
6TH	25/10/2022	1	3.2.6 Softening of water – Necessity, Methods of softening
	26/10/2022	1	Lime soda process and Ion exchange method
	27/10/2022	1	4. Distribution system And Appurtenance in distribution system: 4.1 General requirements, types of distribution system-gravity, direct and combined
	28/10/2022	1	CLASS TEST-I
7TH	01/11/2022	1	4.2 Methods of supply – intermittent and continuous
	02/11/2022	1	4.3 Distribution system layout – types, comparison, suitability
	03/11/2022	1	4.4 Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves, Fire hydrants, Waterm

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	04/11/2022	1	SECTION B: WASTE WATER ENGINEERING 6 Introduction 6.1 Aims and objectives of sanitary engineering
8TH	07/11/2022	1	6.2 Definition of terms related to sanitary engineering
	09/11/2022	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 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 7.3 General importance, strength of sewage, Characteristics of sewage-physical,chemical & biological
	15/11/2022	1	INTERNAL ASSESSMENT EXAM
	16/11/2022	1	INTERNAL ASSESSMENT EXAM
	17/11/2022	1	7.4Conceptofsewage-sampling,testsfor– solids,pH,dissolvedoxygen,BOD,COD Questiondiscussion
	18/11/2022	1	8.Sewerage system

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			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
	23/11/2022	1	9.3 Storm regulator, inverted siphon – features, location, function
	24/11/2022	1	9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness- causes and remedies
	25/11/2022	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	10.2 Primary treatment – necessity, principles, essential features, functions
	30/11/2022	1	CLASS TEST-II
	01/12/2022	1	10.2 Primary treatment – necessity, principles, essential features, functions

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			10.3Secondarytreatment–necessity,principles
	02/12/2022	1	10.3Secondarytreatment–necessity,principles essentialfeatures,functionsofsecondarytreatmentunit
12TH	05/12/2022	1	essentialfeatures,functionsofsecondarytreatmentunit
	06/12/2022	1	Sanitaryplumbingforbuilding: 11.1Requirementsofbuildingdrainage,layoutoflavatoryblocksinresidential,buildings,
	07/12/2022	1	11.1layoutofbuildingdrainage
	08/12/2022	1	11.2Plumbingarrangementofsinglestoried&multistoriedbuildingasperI.S.codepractice
	09/12/2022	1	11.3Sanitaryfixtures– features,function,andmaintenanceandfixingofthefixtures– waterclosets,flushingcisterns,urinals,
13TH	12/12/2022	1	11.3Sanitaryfixtures–inspectionchambers,traps,anti-syphonagepipe
	13/12/2022	1	SECTIONA:WATERSUPPLYENGG W/splumbinginbuilding 5.1Methodofconnectionfromwatermainstobuilding supply
	14/12/2022	1	5.2Generallayoutofplumbingarrangementforwatersupplyinsinglestoriedand multi-storiedbuildingasperI.S.code
	15/12/2022	1	5.2Generallayoutofplumbingarrangementforwatersupplyinsinglestoriedand multi-storiedbuildingasperI.S.code
	16/12/2022	1	CLASS TEST-III

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14TH	19/12/2022	1	REVISION
	20/12/2022	1	REVISION
	21/12/2022	1	PREVIOUS YEAR QUESTION AND DISCUSSION
	22/12/2022	1	PREVIOUSYEARQUESTIONANDDISCUSSION