

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING ,CUTTACK
DEPARTMENT OF CIVIL ENGINEERIN
LESSON PLAN

SUBJECT : WATER SUPPLY AND WASTE WATER ENGG.

TOTAL NO OF WEEK:

SEMESTER: 5TH

CLASS ALLOTTED PER WEEK :05

TOTAL PERIOD: 75

NAME OF TEACHING FACULTY :GIRIJA PRASAD DAS

SESSION- 2020-21(WINTER)

	Dates	No.of periods available	Topics to be covered	Topics covered	Shortfall if any	Reasons	Date of makeup of shortfalls	Initials of faculty
2 nd week of september	7/9/2020 to 11/9/2020	5	1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand 1.3 Methods of forecasting population, Numerical problems using different methods	All topics are covered as per lesson plan				
3 rd week of september	14/9/2020 to 18/9/2020	4	1.4 Impurities in water – organic and inorganic, Harmful effects of impurities 1.5 Analysis of water –physical, chemical and bacteriological	All topics are covered as per lesson plan				
4 th week of September	21/9/2020 to 25/9/2020	5	B Water quality standards for different uses 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 2.3 Yield from well-methods of determination, Numerical problems using yield formulae (deduction excluded)	All topics are covered as per lesson plan				
			2.4 Intakes – types, description of river intake, reservoir intake, canal intake					

5 th week of September	28/9/2020 to 01/10/2020	4	<p>2.5 Pumps for conveyance & distribution – types, selection, installation.</p> <p>2.6 Pipe materials – necessity, suitability, merits & demerits of each type</p> <p>2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing</p> <p>Laying of pipes – method</p>	All topics are covered as per lesson plan				
2 nd week of October	05/10/2020 to 09/10/2020	5	<p>3. Treatment of water</p> <p>3.1 Flow diagram of conventional water treatment system</p> <p>3.2 Treatment process / units:</p> <p>3.2.1 Aeration ; Necessity</p> <p>3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance</p> <p>3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)</p> <p>Class test of above topics</p>	All topics are covered as per lesson plan				
3 rd week of October	12/10/2020 to 16/10/2020	5	<p>3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features</p> <p>3.2.5 Disinfection : Necessity, methods of disinfection</p> <p>Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination</p>	All topics are covered as per lesson plan				
4 th week of October	19/10/2020 to 21/10/2020	3	<p>superchlorination</p> <p>3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)</p>	All topics are covered as per lesson plan				

5 th week of October	26/10/2020 to 30/10/2020	4	<p>4. Distribution system And Appurtenance in distribution system</p> <p>4.1 General requirements, types of distribution system-gravity, direct and combined</p> <p>4.2 Methods of supply – intermittent and continuous</p>	All topics are covered as per lesson plan				
1st week of November	02/11/2020 to 06/11/2020	5	<p>4.3 Distribution system layout – types, comparison, suitability</p> <p>4.4 Valves-types, features, uses, purpose-slucice valves, check valves, air valves, scour valves, Fire hydrants, Water meters</p>	All topics are covered as per lesson plan				
2nd week of November	09/11/2020 to 13/11/2020	5	<p>5 W/s plumbing in building</p> <p>5.1 Method of connection from water mains to building supply</p> <p>5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.</p> <p>SECTION B: WASTE WATER ENGINEERING</p> <p>6. Introduction</p> <p>6.1 Aims and objectives of sanitary engineering</p> <p>6.2 Definition of terms related to sanitary engineering</p>	All topics are covered as per lesson plan				
3rd week of November	16/11/2020 to 20/11/2020	5	<p>6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability</p> <p>7. Quantity and Quality of sewage</p> <p>7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage.</p> <p>7.2 Computation of size of sewer,</p>	All topics are covered as per lesson plan				
			<p>application of Chezy's formula, Limiting velocities of flow: self-cleaning and scouring</p> <p>7.3 General importance,</p>	All topics are covered as per lesson plan				

4th week of November	23/11/2020 to 27/11/2020	5	strength of sewage, Characteristics of sewage-physical, chemical & biological 7.4 Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD 8. Sewerage system separate, combined, partially separate , 8.1 Types of system-separate, combined,					
1st week of December	01/12/2020 to 5/12/2020	4	partially separate , features, comparison between the types, suitability8.2 Shapes of sewer – rectangular, circular, avoid-features, suitability8.3 Laying of sewer-setting out sewer alignment	All topics are covered as per lesson plan				
2nd week of December	7/12/2020 to 12/12/2020	5	Sewer appurtenances and Sewage Disposal: 9.1 Manholes and Lamp holes – types, features, location, function 9.2 Inlets, Grease & oil trap – features, location, function 9.3 Storm regulator, inverted siphon – features, location, function 9.4 Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies	All topics are covered as per lesson plan				
3rd week of December	14/12/2020 to 19/12/2020	5	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream Sewage treatment : 10.1 Principles of treatment, flow diagram of conventional treatment 10.2 Primary treatment – necessity, principles, essential features, functions 10.3 Secondary treatment – necessity, principles	All topics are covered as per lesson plan				
4th week of December	21/12/2020 to 26/12/2020	4	, essential features, functions 11 Sanitary plumbing for building :	All topics are covered as per lesson plan				

			<p>11.1 Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage</p> <p>11.2 Plumbing arrangement of single storied & multi storied building as per I.S.</p> <p>code practice11.3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chamber</p>					
5th week of December	27/12/2020 to 31/12/2020	4	<p>Revision of syllabus and discussion with mcq test</p> <p>Previous year questions discussion</p>					