

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN
Session-2023-2024

Discipline: CIVIL ENGINEERING Engg. Semester: 5th.

Subject: Water Supply & Waste water Engg.

Name of the Teaching Faculty: SASWAT SUMAN SHARMA

Subject: Water Supply & waste water Engg. No. of Days/per week class allotted 5

Semester From Date : 1.08.2023 To Date : 30.11.2023 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
1 st	1	Necessity of treatment of water supply.
	2	Per capita demand, variation in demand, factors affecting demand.
	3	Methods of population forecasting, Numericals.
	4	Impurities in water, harmful effect of impurities.
	5	Analysis of water (Physical, chemical & Biological)
2 nd	1	Water quality standards for different uses.
	2	Surface Sources - Aquifers, Infill galleries, well, springs.
	3	Underground sources - Aquifers type, Occurrence
	4	Infiltration galleries, well, springs and their occurrence.
	5	Yield from well - method of determination, Numericals.
3 rd	1	Numerical related to yield of well, methods.
	2	Intake types, description, reservoir intakes.

Saswat Kumar Sharma
Signature of the Faculty

Subject: Water Supply & Waste Water Engg No. of Days/per week class allotted 05

Semester From Date : 1.08.2023 To Date : 30.11.2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
	3	Pumps for conveyance & distribution - types, selection.
	4	Pipe, materials, necessity of network, merits & demerits.
	5	Pipe joints - Necessity, types of joints, suitability, methods.
4 th	1	Flow diagram of water treatment plant.
	2	Treatment units, Aeration, Sedimentation, necessity, types, features, maintenance.
	3	Operation of Sedimentation tanks.
	4	Essential features of various types of sedimentation tanks.
	5	Sedimentation with Coagulation, Necessity, types of Coagulation.
5 th	1	Classifloculators, Flash Mixer, clarifier
	2	Filtration: Necessity, principle, types of filters, Slow sand filter, Rapid Sand filter
	3	Features and process of Rapid & Slow sand filters, maintenance
	4	Disinfection: Necessity, methods, chlorination, chlorine demand, break point, Super chlorination.

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Week	Class Day	Theory / Practical Topics
	5	Combined chlorine demand, residual chlorine, available chlorine concepts.
6 th	1	Softening of water - Necessity, methods, lime-soda process, ion exchange method.
	2	General Requirements, types of distribution systems, Gravity, direct & combined
	3	Method of supply - Intermittent & Continuous.
	4	Distribution system layout - types & comparisons.
	5	Valves, types, features, uses, purpose valve, check valves, air valves, scum valves.
7 th	1	check valve, fire hydrants and water meter
	2	Methods of connection from water mains to building supply
	3	General layout of plumbing arrangement for water supply as per IS code standards.
	4	General layout of plumbing arrangement for water supply to multi-storied building as per IS code.
	5	Aims & Objectives of Sanitary Engg.
8 th	1	Definitions & terms on sanitation

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Week	Class Day	Theory / Practical Topics
	2	System of collection of waste, Conservancy, water carriage system, comparison,
	3	Quantity of sewage - domestic and industrial, variation of sewage flow, Numericals.
	4	Numericals of quantity of sewage estimation
	5 th	Numericals on methods of estimation.
9 th	1	Numericals on computation of sewage quantity by statistical method.
	2	Computation of sewer size, Chezy's formula, limiting velocities of flow
	3	Concept of Self cleaning velocities, and scouring.
	4	General importance, strength of sewage, characteristics of sewage
	5	Physical, chemical and biological character of sewage
10 th	1	Concept of water sampling.
	2	Concept of test for pH, solids of sewage.
	3	BOD & COD.

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Week	Class Day	Theory /Practical Topics
	4	Types of sewage systems.
	5 th	Concept of separate, combined & partially separate.
11 th	1	Comparison of types and suitability.
	2	Shapes of sewers - rectangular, circular.
	3	Sewer layout.
	4	Man holes and lamp holes, types, features, location, functions.
	5	Inlet, Grease & oil trap.
12 th	1	Storm regulator, inverted siphon, features, location and functions.
	2	Disposal on land- Sewage farming, sewage applications.
	3	Sewage sickness - Causes and Remedies.
	4	Disposal by dilution - standards for disposal.
	5	Self purification of stream (Concept).

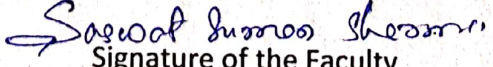
Sneha Shome
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Subject: Water Supply & Waste Water Engg. No. of Days/per week class allotted 05

Semester From Date: 1-8-2023 To Date: 30-11-2023 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
13	1	Principle of treatment, flow diagram.
	2	Conventional treatment method.
	3	Primary treatment process.
	4	Secondary treatment process.
	5	Requirement of building drainage, layout of drainage.
14	1	Layout of lavatory in buildings.
	2	Layout for residential & public buildings.
	3	Plumbing arrangement for single storied & multistoried building.
	4	D.S code provisions for layout
	5	I.S. code provisions for layout.
15	1	Sanitary fixtures - features, functions & maintenance.
	2	Water closets, cisterns, traps.


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