

Discipline	Semester	Name of the Teaching faculty
CIVIL ENGG.	5th.	Bikas Das
Subject	No of classes per week attended	Semester from date - 1.10.2021 To date - 8.01.2022
WATER SUPPLY & WASTE WATER ENGINEERING.	5 P/WEEK	No. of weeks 15

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
OCTOBER	1st	1st	→ Necessity of treated water supply.
	2nd	1st	→ Per Capita demand, variation in demand & factors affecting demand.
		2nd	→ Methods of forecasting Population, Numerical Problems using different Methods.
		3rd	→ Impurities in water organic & inorganic, Harmful effects of impurities.
		4th	→ Analysis of water - Physical Chemical & bacteriological.
	4th 5th	1st	→ Problems of Population forecasting.
		2nd	→ Water quality standards for different uses.
		3rd	→ <u>Chapter-2</u> Surface sources - lake, stream, river & impounded reservoir
	5th	4th 1st	→ Underground sources - aquifer type & occurrence Infiltration gallery, Infiltration well, Springs well.
		2nd	→ Yield from well methods of determination, Numerical Problems

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			using yield formula.
		3rd	→ Intake - types, description of river intake, reservoir intake canal intake.
		4th	→ Pump for conveyance & distribution types, selection installation.
		5th	→ Pipe materials - necessity, suitability, joints & elements of each types.
NOVEMBER	1st	1st	→ Pipe joints - necessity, types & joints, suitability methods of jointing, laying of pipes method.
		2nd	→ class test chapter - 1, 2
		3rd	→ Flow diagram of conventional water treatment system.
		4th	→ Treatment process - units, aeration, necessity.
	2nd	1st	→ Plain sedimentation: Necessity, working principle, sedimentation tanks, types, essential features, operation & maintenance.
		2nd	→ Sedimentation with coagulation - Necessity, principle of coagulation.

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
		3rd	→ types of coagulation, flash mixer, flocculation, clarification.
		4th	→ Filtration - Necessity, principles, types of filters, slow sand filter, rapid sand filter & pressure filter - essential features.
		5th	→ Disinfection - Necessity, Methods of disinfection.
	3rd	1st	→ Chlorination - free & combined chlorine demand, available chlorine, residual chlorine.
		2nd	→ Pre-chlorination, Break Point chlorination, Super chlorination.
		3rd	→ Softening of water - Necessity - methods of softening - lime soda process & Ion exchange methods.
		4th	→ Doubt clearing class
			→ Chapter 4
	4th	1st	→ General requirements, types of distribution system - gravity, direct & combined.
		2nd	→ Methods of supply - Intermittent & continuous.

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
		3rd	- Distribution system layout types, Comparison, suitability
		4th	→ Valves - types, features, uses purpose, Sluice valves, Check valves, air valves, Scum valves, fire hydrate water meters.
		5th	→ Revision Class
	5th	1st	<u>Chapter - 5</u> → Method of connection from water mains to building supply.
December	1st	1st	→ General layout of plumbing arrangement for water supply in single storied & multi-storied building as per I.S code
		2nd	- <u>Chapter - 6</u> → Aims & objectives of Sanitary engineering.
		3rd	→ Definition of terms related to sanitary engg.
		4th	→ Systems of collection of waste conservation & water carrying system - features - Comparison, suitability.
			→ Doubt clearing class

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
	2nd	1st	<u>Chapter 7</u> → Quality of sanitary sewage - domestic & industrial sewage rotation in sewage flow. numerical problem on computation quantity of Sanitary sewage.
		2nd	→ Computation of size of sewer application of Chezy's formula, limiting.
		3rd	→ General importance, strength of sewage.
		4th	→ Characteristic of sewage Physical, chemical & biological.
		5th	→ concept of sewage sampling test for solid, PH, dissolved oxygen, BOD, COD
	3rd	1st	→ <u>Chapter - 8</u> → Types of system - separate combined, partially separate features.
		2nd	→ Comparison between the types, suitability
		3rd	→ Laying of sewer - setting out sewer alignment.

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
		4th	→ shapes of sewer rectangular, circular, oval - features, suitability
		5th	→ Class Test
	4th	1st	Chapter 9 → Manholes & Lamp holes types, features, location function.
		2nd	→ Gullies, Grease & Oil trap. Features, location, function.
		3rd	→ Storm regulator, inverted
		4th	→ Siphon features, location function.
	5th	1st	Disposal & load sewage farming, sewage application & dosing, Sewage sickness
		2nd	→ Causes & Remedies.
		3rd	→ Disposal by dilution Standards for disposal in different types of water
		4th	→ water bodies, self purification of stream.
JANUARY	2nd	1st	Chapter-10 → Principles of treatment, flow diagram of conventional treatment

MONTHS	WEEKS	CLASS DAY	THEORY TOPICS
			Primary treatment - necessity Principles, essential features functions.
		2nd	→ Secondary treatment - necessity Principles, essential features function. Class Test.
			<u>Chapter-11</u>
		3rd	→ Requirement & building drainage, layout of bathroom blocks in residential building layout of building drainage.
		4th	→ Plumbing arrangement of single storied & multi-storied building as per IS code practice.
		5th	→ Sanitary features: Features function & maintenance & fixing of the features, water closets, flushing cisterns, urinals, inspection chamber traps, anti-siphonage Pipe. Doubt clearing class.