

PNS SCHOOL OF ENGINEERING & TECHNOLOGY

LESSION PLAN

BRANCH-CIVIL	SEMESTER-5th	NAME OF THE FACULTY-SUDEEPTA MISHRA
SUBJECT- WATER SUPPLY AND WASTE WATER ENGINEERING	NO OF DAYS PER WEEK -6 CLASS ALLOTTED- 60	SEMESTER FROM-01/08/2023 TO 30/11/2023
WEEK	CLASS DAY	THEORY TOPIC
AUGUST-1ST	2ND	Introduction to Water Supply, Quantity and Quality of water- Necessity of treated water supply
	3RD	Per capita demand, variation in demand and factors affecting demand
	4TH	Methods of forecasting population, Numerical problems using different methods
	5TH	CONTINUING AND END
2ND	1ST	Impurities in water – organic and inorganic, Harmful effects of impurities
	2ND	Analysis of water –physical, chemical and bacteriological
	3RD	Water quality standards for different uses
	4TH	Sources and Conveyance of water- Surface sources – Lake, stream, river and impounded reservoir
	5TH	Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well
3RD	1ST	Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)
	3RD	Intakes – types, description of river intake, reservoir intake, canal intake
	4TH	Pumps for conveyance & distribution – types, selection, installation
	5TH	Pipe materials – necessity, suitability, merits & demerits of each type
4TH	1ST	Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method
	2ND	Treatment of water - Treatment process / units : 3.2.1 Aeration ; Necessity
	3RD	Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance
	4TH	Sedimentation with coagulation: Necessity, principles of coagulation , types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	5TH	Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features

SEPTEMBER-1ST	5TH	Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine,
2ND	1ST	Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
	4TH	ITS CONITINING
	5TH	ITS CONTINUING AND END
3RD	1ST	Distribution system And Appurtenance in distribution system:- General requirements, types of distribution system-gravity, direct and combined
	2ND	Methods of supply – intermittent and continuous
	3RD	Distribution system layout – types, comparison, suitability
	4TH	Valves-types, features, uses, purpose-slucie valves, check valves, air valves, scour valves, Fire hydrants, Water meters
	5TH	ITS CONTINUING AND END
4TH	1ST	W/s plumbing in building : Method of connection from water mains to building supply
5TH	1ST	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
	2ND	WASTE WATER ENGINEERING- Introduction Aims and objectives of sanitary engineering
	3RD	Definition of terms related to sanitary engineering
	4TH	Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
OCTOBER-1ST	3RD	Quantity and Quality of sewage- Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow, numerical problem on computation quantity of sanitary sewage
	4TH	Computation of size of sewer, application of Chazy's formula, Limiting velocities of flow : self-cleaning and scouring
	1ST	General importance, strength of sewage, Characteristics of sewage-physical, chemical & biologicala
2ND	2ND	Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD
	3RD	Sewerage system - Types of system-separate, combined, partially separate , features, comparison between the types, suitability
	4TH	Shapes of sewer – rectangular, circular, avoid-features, suitability
	5TH	Laying of sewer-setting out sewer alignment
	1ST	Sewer appurtenances and Sewage Disposal: Manholes and Lamp holes – types, features, location, function
3RD	2ND	Inlets, Grease & oil trap – features, location, function
	3RD	Storm regulator, inverted siphon – features, location, function
	1ST	Disposal on land – sewage farming, sewage application and dosing, sewage sickness-causes and remedies
5TH	2ND	Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
	3RD	Sewage treatment :- Principles of treatment, flow diagram of conventional treatment
NOVEMBER-1ST	4TH	Primary treatment – necessity, principles, essential features, functions

	5TH	Secondary treatment – necessity, principles, essential features, functions
2ND	1ST	Sanitary plumbing for building :- Requirements of building drainage, layout of lavatory blocks in residential buildings, layout of building drainage
	2ND	Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	3RD	3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, antisiphonage pipe
	4TH	ITS CONTINUING AND END
	5TH	IMPORTANT QUESTIONS AND ANSWER DISCUSSION
	2ND	IMPORTANT QUESTIONS AND ANSWER DISCUSSION
3RD	3RD	IMPORTANT QUESTIONS AND ANSWER DISCUSSION
	4TH	IMPORTANT QUESTIONS AND ANSWER DISCUSSION
	5TH	IMPORTANT QUESTIONS AND ANSWER DISCUSSION
	1ST	REVISION
4TH	2ND	REVISION
	3RD	REVISION
	4TH	REVISION
	5TH	REVISION
	2ND	REVISION
5TH	3RD	REVISION
	4TH	REVISION

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