

PNS SCHOOL OF ENGINEERING & TECHNOLOGY

LESSON PLAN

BRANCH-CIVIL	SEMESTER-5th	NAME OF THE FACULTY-SWATI SURAVITA JENA
SUBJECT- WATER SUPPLY AND WASTE WATER ENGINEERING	NO OF DAYS PER WEEK -4 CLASS ALLOTTED 75	SEMESTER FROM-14/07/2025 TO 15/11/2025
WEEK	CLASS DAY	THEORY TOPIC
JULY-3RD	1ST	Introduction to Water Supply, Quantity and Quality of water- Necessity of treated water supply
	2ND	Per capita demand, variation in demand and factors affecting demand
	3RD	Methods of forecasting population, Numerical problems using different methods
	4TH	CONTINUING AND END
4TH	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	1ST	Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well
	2ND	Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)
	3RD	Intakes – types, description of river intake, reservoir intake, canal intake
AUG -1ST	1ST	Pumps for conveyance & distribution – types, selection, installation
2ND	1ST	Pipe materials – necessity, suitability, merits & demerits of each type
	2ND	Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method
	3RD	Treatment of water Treatment process / units : 3.2.1 Aeration ; Necessity
3RD	1ST	Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance
	2ND	Sedimentation with coagulation: Necessity, principles of coagulation , types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	3RD	Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
4TH	1ST	Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine,
	2ND	Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
	3RD	ITS CONITINING
	4TH	ITS CONTINUING AND END
5TH	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

SEP - 1ST	1ST	Valves-types, features, uses, purpose-sludge valves, check valves, air valves, scour valves, Fire hydrants, Water meters
	2ND	ITS CONTINUING AND END
	3RD	W/s plumbing in building : Method of connection from water mains to building supply
	4TH	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.
2ND	1ST	WASTE WATER ENGINEERING Introduction Aims and objectives of sanitary engineering
	2ND	Definition of terms related to sanitary engineering
	3RD	Systems of collection of wastes – Conservancy and Water Carriage System – features, comparison, suitability
	4TH	Water Carriage System – features, comparison, suitability
3RD	1ST	Quantity and Quality of sewage - Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow
	2ND	Quantity and Quality of sewage - numerical problem on computation quantity of sanitary sewage
	3RD	Computation of size of sewer, application of Chazy's formula
	4TH	Limiting velocities of flow : self-cleaning and scouring
4TH	1ST	General importance, strength of sewage
	2ND	Characteristics of sewage-physical, chemical & biological
	3RD	Concept of sewage-sampling, tests for – solids, pH, dissolved oxygen, BOD, COD
OCT - 2ND	1ST	Sewerage system - Types of system-separate, combined, partially separate , features, comparison between the types, suitability
	2ND	Shapes of sewer – rectangular, circular, avoid-features, suitability
	3RD	Laying of sewer-setting out sewer alignment
3RD	1ST	Sewer appurtenances and Sewage Disposal: Manholes and Lamp holes – types, features, location, function
	2ND	Inlets, Grease & oil trap – features, location, function
	3RD	Storm regulator, inverted siphon – features, location, function
	4TH	Disposal on land – Sewage farming, sewage application and dosing
4TH	1ST	Disposal on land – Sewage sickness-causes and remedies
	2ND	Disposal by dilution – standards for disposal in different types of water bodies
	3RD	Disposal by dilution – self purification of stream
5TH	1ST	Sewage treatment :- Principles of treatment, flow diagram of conventional treatment
	2ND	Primary treatment – necessity, principles, essential features, functions
	3RD	Secondary treatment – necessity, principles, essential features, functions
NOV - 1ST	1ST	Sanitary plumbing for building :- Requirements of building drainage
2ND	1ST	Sanitary plumbing for building :- layout of lavatory blocks in residential buildings
	2ND	Sanitary plumbing for building :- layout of building drainage
3RD	1ST	Plumbing arrangement of single storied & multi storied building as per I.S. code practice
	2ND	3 Sanitary fixtures – features, function, and maintenance and fixing of the fixtures
	3RD	3 Sanitary fixtures – water closets, flushing cisterns, urinals, inspection chambers, traps, antisiphonage pipe
	4TH	ITS CONTINUING AND END

SIGNATURE OF
LECTURER

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