

GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING, BERHAMPUR				
DEPARTMENT OF CIVIL ENGINEERING				
LESSON PLAN				
DISCIPLINE: CE		ACADEMIC SESSION: 2023-24		
SEMESTER: 5TH		FROM DATE: 01-08-2023	TO DATE: 07-12-2023	
NAME OF THE TEACHING FACULTY: PRABHATI PRADHAN				
SUBJECT CODE: TH-4		SUBJECT: WATER SUPPLY & WASTE WATER ENGINEERING		
NO. OF PERIOD/PER WEEK CLASS ALLOTTED: 5				
TOTAL NO. OF CLASS AVAILABLE IN SEM: 75				
SECTION A: WATER SUPPLY				
SL. NO.	WEEK	CLASS DATE	NO. OF CLASS/ DAY	TOPICS
1	Week-01	01-08-2023	1	Necessity of treated water supply
		02-08-2023	1	Per capita demand, variation in demand and factors affecting demand
		03-08-2023	1	Methods of forecasting population, Numerical problems using different methods
		04-08-2023	1	Solve Numerical on the above topic
		05-08-2023	1	Impurities in water – organic and inorganic, Harmful effect of impurities
2	Week-02	08-08-2023	1	Analysis of water – physical, chemical and bacteriological
		09-08-2023	1	Analysis of water – chemical
		10-08-2023	1	Analysis of water – bacteriological
		11-08-2023	1	Water quality standards for different uses
3	Week-03	16-08-2023	1	Doubt Clearance
		17-08-2023	1	Surface sources – Lake, stream, river and impounded reservoir
		18-08-2023	1	Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well
		19-08-2023	1	Yield from well – methods of determination, Numerical problems using yield formulae (deduction excluded)
4	Week-04	22-08-2023	1	Solve Numerical on the above topic
		23-08-2023	1	Intakes – types, description of river intake, reservoir intake, canal intake
		24-08-2023	1	Pumps for conveyance & distribution – types, selection, installation.
		25-08-2023	1	Pipe materials – necessity, suitability, merits & demerits of each type
5	Week-05	29-08-2023	1	Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes – method
		31-08-2023	1	Treatment of water: Design of treatment.
		01-09-2023	1	How to prepare detailed sketches of units, preferably from working drawing, as home assignment
		02-09-2023	1	Flow diagram of conventional water treatment system
6	Week-06	05-09-2023	1	Treatment process/units: Aeration; Necessity
		07-09-2023	1	Plain Sedimentation: Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance
		08-09-2023	1	Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants,
7	Week-07	12-09-2023	1	Flash Mixer, Flocculator, Clarifier (Definition and concept only)
		13-09-2023	1	Filtration: Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
		14-09-2023	1	Disinfection: Necessity, methods of disinfection
		15-09-2023	1	Chlorination – free and combined chlorine demand, available chlorine,
		16-09-2023	1	residual chlorine, pre-chlorination, breakpoint chlorination, superchlorination
8	Week-08	21-09-2023	1	Softening of water – Necessity, Methods of softening – Limesoda process and Ion exchange method (Concept Only)
		22-09-2023	1	General requirements, types of distribution system – gravity, direct and combined
9	Week-09	26-09-2023	1	General requirements, types of distribution system – gravity, direct and combined
		27-09-2023	1	Methods of supply – intermittent
		28-09-2023	1	Methods of supply – continuous
		30-09-2023	1	Distribution system layout – types, comparison, suitability
10	Week-10	03-10-2023	1	Doubt Clearance, PYQs Discussion
		04-10-2023	1	Valves – types, features, uses, purpose – sluice valves, check valves, air valves, scour valves, Fire hydrants, Water meters
		05-10-2023	1	Doubt Clearance, PYQs Discussion
		06-10-2023	1	Method of connection from water main to buildings supply
		07-10-2023	1	General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code.

SECTIONB: WASTEWATER ENGINEERING				
SL. NO.	WEEK	CLASSDATE	NO.OF CLASS/ DAY	TOPICS
11	Week-11	10-10-2023	1	Aimsandobjectivesofsanitaryengineering
		11-10-2023	1	Definitionoftermsrelatedtosanitaryengineering
		12-10-2023	1	Systemsofcollectionofwastes–Conservancy
		13-10-2023	1	WaterCarriageSystem –features,comparison,suitability
12	Week-12	17-10-2023	1	DoubtClearance,PY QsDiscussion
		18-10-2023	1	Quantityofsanitarysewage–domestic&industrialsewage,variationinsewageflow,numericalproblem on computation quantity of sanitary sewage.
		19-10-2023	1	Numericalproblem on computation quantity of sanitarysewage.
		20-10-2023	1	SolveNumericalsontheabovetopic
13	Week-13	31-10-2023	1	Computationofsizeof sewer,applicationofChazy’sformula,Limitingvelocitiesofflow:self-cleaningand scouring
		01-11-2023	1	Generalimportance,strengthofsewage,Characteristicsofsewage-physical,chemical&biological
		02-11-2023	1	Conceptofsewage-sampling,testsfor–solids,pH,dissolvedoxygen,BOD,COD
		03-11-2023	1	DoubtClearance,PY QsDiscussion
		04-11-2023	1	Seweragesystem:Typesofsystem-separate,combined,partiallyseparate,
14	Week-14	07-11-2023	1	Features,comparisonbetweenthetypes,suitability
		08-11-2023	1	Shapesofsewer–rectangular,circular,avoid-features,suitability
		09-11-2023	1	Layingofsewer-settingoutseweralignment
		10-11-2023	1	DoubtClearance,PY QsDiscussion
15	Week-15	14-11-2023	1	ManholesandLampoles–types,features,location,function
		15-11-2023	1	Inlets,Grease&oiltrap–features,location,function
		16-11-2023	1	Storm regulator,invertedsiphon–features,location,function
		17-11-2023	1	Disposalonland–sewagefarming,sewageapplicationand dosing,sewagesickness-causesandremedies
		18-11-2023	1	Disposalbydilution–standardsfordisposalindifferenttypesofwaterbodies
16	Week-16	21-11-2023	1	Disposalbydilution–selfpurificationofstream
		22-11-2023	1	DoubtClearance,PY QsDiscussion
		23-11-2023	1	Sewagetreatment:IntroductionandObjectives
		24-11-2023	1	Howtopreparedetailedsketchesofunfits,preferablyfromworkingdrawing,
17	Week-17	28-11-2023	1	Principlesoftreatment,flowdiagramofconventionaltreatment
		29-11-2023	1	Flowdiagramofconventionaltreatment
		30-11-2023	1	Primarytreatment–necessity,principles,essentialfeatures,functions
		01-12-2023	1	Essentialfeatures,functionsofPrimarytreatment
		02-12-2023	1	Secondarytreatment–necessity,principles,essentialfeatures,functions
18	Week-18	04-12-2023	1	DoubtClearance,PY QsDiscussion
		05-12-2023	1	Requirementsofbuildingdrainage,layoutoflavatoryblocksinresidentialbuildings,layoutof buildingdrainage
		06-12-2023	1	Plumbingarrangementof singlestoried&multistoriedbuildingasperI.S.codepractice
		07-12-2023	1	chambers,traps,antisiphonagepipe

***Theabovelessonplanpreparedbytheconcernedfaculty.

Er.
LECTURER,
DEPARTMENT OF CIVIL ENGINEERING