

# GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

## LessonPlan

Name of the Program		Diploma in Civil Engineering			
Course Name	WATER SUPPLY AND WASTEWATER ENGINEERING			Course Code	Th.4
Course Year	Third	Semester	5th	Academic Period	2022-2023
No. of Classes allotted per Week		05	Planned Classes Required to Complete the Course		60

Sl. No.	Topic to be covered	Module	No. of hours Required	Mode of Teaching
1	Necessity of treated water supply	I	01	BlackBoard
2	Per capita demand, variation in demand and factors affecting demand, Method of forecasting population, Numerical problems using different methods	I	01	BlackBoard
3	Impurities in water-organic and inorganic, Harmful effects of impurities	I	01	BlackBoard
4	Analysis of water-physical, chemical and bacteriological	I	01	BlackBoard
5	Water quality standards for different uses	I	01	BlackBoard
6	Surface sources-Lake, stream, river and impounded reservoir	II	01	BlackBoard
7	Underground sources- aquifer type & occurrence- Infiltration gallery, infiltration well, springs, well		01	BlackBoard
8	Yield from well- methods of determination, Numerical problems using yield formulae (deduction excluded)	II	01	BlackBoard
9	Intakes- types, description of river intake, reservoir intake, canal intake	II	01	BlackBoard
10	Pumps for conveyance & distribution- types, selection, installation	II	01	BlackBoard
11	Pipe materials- necessity, suitability, merits & demerits of each type	II	01	BlackBoard
12	Pipe joints- necessity, types of joints, suitability, methods of jointing laying of pipes- method	II	01	BlackBoard
13	Flow diagram of conventional water treatment system	III	01	BlackBoard
14	Treatment process/units: Aeration: Necessity	III	01	BlackBoard
15	Treatment process/units: Aeration: Necessity	III	01	BlackBoard
16	Plain sedimentation: Necessity, working principles, sedimentation tanks- types, essential features, operation & maintenance	III	01	BlackBoard
17	Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer,	III	01	BlackBoard

## GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

	Flocculator,clarifier(Definitionandconceptonly)			
18	Filtration:necessity,principles,typesoffiltersSlow sand Filter, Rapid sand filter and pressure filter-essentialfeatures	III	01	BlackBoard
19	Disinfection:Necessity,methodsofdisinfection Chlorination-free and combined chlorine demand, availablechlorine, residual chlorine, pre-chlorination, break point chlorination,super- chlorination	III	01	BlackBoard
20	Softeningof water- Necessity, Methods of softening-limesodaprocessandIonexchangemethod(Concept Only)	III	01	BlackBoard
21	Generalrequirements,typesofdistributionsystem: gravity, direct and combined	IV	01	BlackBoard
22	Methodsofsupply-intermittentand continuous	IV	01	BlackBoard
23	Methodsofsupply-intermittentand continuous	IV	01	BlackBoard
24	Distributionsystemlayout-types,comparison, suitability	IV	01	BlackBoard
25	Valves-types, features, uses, purpose-slucce valves,checkvalves,airvalves,scourvalves,fire hydrants,watermeters	IV	01	BlackBoard
26	Methodofconnectionfromwatermainstobuilding supply	v	01	BlackBoard
27	General layout of plumbing arrangement for water supplyinsinglestoriedandmulti-storiedbuildingas perI.S. code	V	01	BlackBoard
28	Aimsandobjectivesofsanitaryengineering	VI	01	BlackBoard
29	Definitionoftermsrelatedtosanitaryengineering	VI	01	BlackBoard
30	Systemsofcollectionofwastes-Conservancyand water carriage system- features, comparision, suitability	VI	01	BlackBoard
31	Quantityof sanitarysewage-domestic&industrial sewage,variationinsewageflow,numericalproblem oncomputation quantity of sanitary sewage	VII	01	BlackBoard
32	Quantity of sanitary sewage-domestic & industrial sewage,variationinsewageflow,numericalproblem oncomputation quantityofsanitarysewage	VII	01	BlackBoard
33	Computation of size of sewer, application of Chezy's formula,Limitingvelocitiesofflow:self-cleaningand scouring	VII	01	BlackBoard
34	General importance, strength of sewage, Characteristicsofsewage-physical,chemical&biological	VII	01	BlackBoard
35	Conceptofsewage-sampling,testsfor-solids,pH, dissolvedoxygen, BOD,COD	VII	01	BlackBoard
36	Types of system-separate, combined, partially separate,features,comparisionbetweenthe types, suitability	VIII	01	BlackBoard
37	Typesofsystem-separate,combined, partially separate,features,comparisionbetweenthe	VIII	01	BlackBoard

## GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

	types,suitability			
38	Shapes of sewer-rectangular,circular,avoid-features,suitability	VIII	01	BlackBoard
39	Laying of sewer-setting out sewer alignment	VIII	01	BlackBoard
40	Manholes and lamp holes-types, features, location,function	IX	01	BlackBoard
41	Inlets,Grease&oil trap-features,location,function	IX	01	BlackBoard
42	Strom regulator,inverted siphon-features,location,function	IX	01	BlackBoard
43	Disposal on land-sewage farming,sewage application and dosing, sewage sickness- causes and remedies	IX	01	BlackBoard
44	Disposal by dilution- standards for disposal in different types of water bodies,self purification of stream	IX	01	BlackBoard
45	Principles of treatment,flow diagram of conventional treatment	IX	01	BlackBoard
46	Primary treatment-necessity, principles, essential features,functions	IX	01	BlackBoard
47	Secondary treatment-necessity, principles,essential features,functions	IX	01	BlackBoard
48	Requirements of building drainage,layout of lavatory blocks in residential buildings, layout of building drainage	IX	01	BlackBoard
49	Plumbing arrangement of single storied & multi storied building as per I.S. code practice	IX	01	BlackBoard
50	Sanitary fixtures-features,function,and maintenance and fixing of the fixtures- water closets, flushing cisterns,urinals,inspection chambers,traps,anti-syphonage pipe	IX	01	BlackBoard
51	Sanitary fixtures- features, function, and maintenance and fixing of the fixtures-water closets, flushing cisterns, urinals, inspection chambers, traps,anti-syphonage pipe	IX	01	BlackBoard
52	Revision		01	BlackBoard
53	Revision		01	BlackBoard
54	Doubt clearing		01	BlackBoard
55	Question and discussion		01	BlackBoard

Signature of the Faculty

Signature of the HoD