Program : **Diploma in Civil Engineering**	
Course Code : **6019**	Course Title: **Public Health Engineering Lab**
Semester : **6**	Credits: **1.5**
Course Category: **Program Elective**	
Periods per week: **3 (L:0, T:0, P:3)**	Periods per semester:**45**

Course Objectives:

- To develop the knowledge of chemical and physical properties to ascertain the quality of water
- To enable the students to determine the concentration of impurity matter in sewage.
- To familiarize the components of water supply system through sketching of line diagrams.

Course Prerequisites:

Topic	Course code	Course name	Semester
Knowledge of basic chemistry		Engineering Chemistry	1

Course Outcomes:

On completion of the course, the student will be able to,

COn	Description	Duration (Hours)	Cognitive Level
CO1	Determine chemical properties of water and ensure quality by performing tests.	22	Applying
CO2	Determine dissolved solids as per BIS.	3	Applying
CO3	Determine the amount of impurities in sewage by testing for BOD and COD	13	Applying
CO4	Construct the line diagram of water pipeline system for a locality.	3	Applying
	Lab Test	4	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1				3			
CO2				3			
CO3				3			
CO4	3						

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Determine chemical properties of water and ensure quality by performing tests.**		
M1.01	Determine pH value of given sample of water.	3	Applying
M1.02	Determine the turbidity of the given sample of water	3	Applying
M1.03	Determine the chloride content in a given sample of water	3	Applying
M1.04	Determine the alkalinity of a given sample of water	3	Applying
M1.05	Deduce the total hardness of a given sample of water	3	Applying
M1.06	Determine residual chlorine in a given sample of water	3	Applying
M1.07	Determine the dissolved oxygen in a sample of water.	2	Applying
M1.08	Determine the optimum dose of coagulant in a given raw water sample by jar test.	2	Applying
	Lab Test I	2	
CO2	**Determine dissolved solids as per BIS.**		
M2.01	Determine suspended, dissolved solids and total solids of given sample of water	3	Applying

CO3	**Determine the amount of impurities in sewage by testing for BOD and COD**		
M3.01	Determine B.O.D. of given sample of sewage.	3	Applying
M3.02	Determine pH value of given sample of sewage	3	Applying
M3.03	Determine suspended solids dissolved and total solids for sample of sewage	3	Applying
M3.04	Determine the dissolved oxygen in the given sample of sewage	2	Applying
M3.05	Determine C.O.D. of given sample of sewage	2	Applying
CO4	**Sketch the line diagram of water pipeline system for a locality.**		
M4.01	Prepare sketches of various valves used in water supply pipe line	1	Applying
M4.02	Prepare a sketch of one pipe and two pipe system of plumbing.	2	Applying
	Lab Test II	2	

Text / Reference:

T/R	Book Title/Author
T1	Sharma S.C, Environmental Engineering, Khanna Publishing House, New Delhi.
R1	Garg, S.K., Environmental Engineering Vol. I and Vol. II, Khanna Publishers
R2	Birdie, G. S. and Birdie, J. S.Water Supply and Sanitary Engineering, Dhanpat Rai Gruh Prakashan
R3	Gupta, O.P., Elements of Environmental Pollution Control, Khanna Publishing House, Delhi
R4	Rao, C.S., Environmental Pollution Control Engineering, New Age International
R5	Punmia, B C, Environmental Engineering, vol. I and II, Laxmi Publishers
R6	Peavy H S, Rowe D R, and Tchobanoglous G, Environmental Engineering, McGraw
R7	Basak NN, Environmental Engineering, McGraw Hill Publishers,

Online Resources:

Sl.No	Website Link
1	http://www.vlab.co.in/ba-nptel-labs-civil-engineering
2	https://nptel.ac.in/courses