Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NCEC521	Water Resources Engineering Laboratory - I	0	0	3	1.5

Course Objective
To gain an understanding of the fundamental principles of fluids, their behavior, and the applications of fluid mechanics, and open channel flow.
Learning Outcomes
Upon successful completion of this course, students will: • Understand the basic concepts of Fluid mechanics. • Develop practical understanding of the basic theories in Fluid mechanics and Open Channel flow.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Verification of Bernoulli's theorem	3	Understanding the principle of conservation of energy
2	Discharge measurements using area-flow method	3	Knowing how to measure the discharge of open channel flow
3	Determination of Coefficient of discharge of Venturimeter & Orifice meter	6	To know different methods to measure discharge through pipes
4	Determination of losses in pipe flow	3	Understanding the nature of pressure loss occurring through pipes for real fluids.
5	Determination of Coefficient of discharge for notches	6	Knowledge on various methods for flow measurement in open channels
6	Study of hydraulic jump in open channel flow	6	To understand the methods of energy dissipation used in hydraulic structures.
7	Experiments on specific energy of open channel flows	3	To know the total energy and specific energy of open channel flows
	Experiments on specific force in open channel flows	3	To understand the linear momentum equation of open channel flows
7	Study of various bed forms characteristics	3	Knowing the various bed features as a function flow conditions and sediment properties
8	Determine the Reynold's Number and the type of flow	3	Understanding the Reynolds experiment for determination of various regimes of flow.
9	Project	3	
	Total Contact Hours	**42**	

Text Books:

1. Manual for Water Resources Engineering Laboratory

Reference Books:

1. Respective Indian Standard/ International Standard Codes of Practices.