Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NGLC531	Hydrogeology Practical	0	0	2	1

Course Objective
This course is focused on equipping students with the tools and knowledge needed to assess, monitor, and manage groundwater resources effectively.
Learning Outcomes
Upon completion of the course, students will be able to: • Use pump test data for estimating hydraulic properties of aquifers • Know the analytical techniques and assess the water quality • Apply Darcy's law to understand the groundwater flow in the aquifers • Use geophysical methods for identifying water bearing formations in the subsurface

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1.	Preparation of water table and piezometric surface; Maps of water table and piezometric surface fluctuations; Water table contour maps; Hydrographs; Determination of groundwater flow direction; 3-point problems	4	Understand groundwater flow and distribution for identifying echarge and discharge areas
2.	Pumping test data analysis	4	Understand the concepts of hydraulic properties and the behaviour of aquifers to pumping conditions
3.	Water quality testing and data analysis	4	Understand analytical techniques in water quality assessment
4.	Darcy's Law: Laboratory measurements of flow through saturated media; Estimation of hydraulic conductivity	4	Apply Darcy's Law to groundwater flow and geological material interpretation
5.	Permeability Tests: Determination of permeability using falling and constant head permeameters	4	Understand how water interacts with the ground and quantitative assessment of fluid flow in soil
6.	Groundwater exploration by resistivity methods: Schlumberger and Winner methods	8	Know the uses of geophysical methods to understand subsurface conditions and identification of water bearing formations
	Total	**28**	

Text Books:

1. Groundwater Hydrology by D. K. Todd and L. W. Mays, 3rd Edition, 2011, Wiley India
2. Applied Hydrogeology by C. W. Fetter, 4th Edition, 2014, Pearson New International

References Books:

1. Groundwater by H. M. Raghunath, 3rd Edition, 2007, New Age International Publishers
2. Groundwater by R.A. Freeze and J.A. Cherry, 1979, Prentice-Hall
3. Geochemistry, Groundwater and Pollution by C. Anthony J. Appelo and Dieke Postma, 2004, CRC Press