

21GGE504T - HYDROGEOLOGY										
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	-	-	100

Unit I

Hours: 10

Geological structures favouring ground water occurrence. Classification of aquifers and aquifer systems. Bernoulli's equation and its applications. Hydraulic head. Potentiometric surface and potential surface. Darcy's law. Hydraulic conductivity and transmissivity. Specific discharge, specific yield and storage coefficient.

Unit II

Hours: 10

Pump tests and evaluation of hydrologic properties through various methods for steady and unsteady flow. Flow net analysis. Chemical characteristics of ground water in relation to various uses - domestic, industrial and irrigation. Saline water intrusions. Radioisotopes in hydrogeological studies. Ground water contamination.

Unit III

Hours: 10

Ground water basins. Ground water recharge. Infiltration. Data collection for basin investigations. Factors governing safe yield. Ground water exploration. Geological, Meteorological and Geophysical methods. Hydrogeomorphic mapping, Types of wells, Well development and design.

Unit IV

Hours: 10

Ground water problems and management related to mining, foundation work of canals, tunnels. Problems of overexploitation. Ground water development in urban areas and rainwater harvesting. Artificial recharge methods. Ground water problems in arid regions and remediation. Conjunctive use of ground water and surface water.

MAX <40 Hrs>

TEXT / REFERENCE BOOKS

1. Todd, D.K. 1959: Ground water Hydrology. John Wiley & Sons.
2. Davis, S.N. & Dewiest 1966 Hydrogeology, John Wiley & Sons. Wiest R.J.M.
3. Raghunath, H.M. 1983 Ground water, Wiley Eastern.
4. Gautam Mahajan- 1989: Evaluation and Development of Groundwater, Ashish Publishing House.
5. Ramakrishnan. S: 1998 – Ground water –By Author.
6. Tolman., G.F. 1937 Ground water McGraw Hill. New York.
7. Walton, W.C. 1970 ground water Resources evaluation McGraw Hill
8. Karanath, K.R. 1987 ground water Assessment Development & management Tata McGraw Hill