

CE/BOS/ CE 338/0513

**K L UNIVERSITY
GROUND WATER HYDROLOGY (11 – CE 338)**

Pre – requisite: 11 - CE 304

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3	0	0	3

SYLLABUS:

Hydro Geological Cycle, Water Balance Equation, Characteristics of Groundwater, Groundwater Distribution, Groundwater column, Aquifers, Classification of Aquifers, Types of Aquifers, Water level fluctuations. Permeability, Darcy's Law, Laboratory Permeability test, Storage coefficient, Specific Yield, Heterogeneity and Anisotropy, Transmissivity, Governing Equations of Groundwater flow, Steady state flow, Dupuit Forchheimer Assumptions, Velocity Potential, Flow Nets. Well Hydraulics.

Pumping test, Unsteady State Flow, Thiess Method, Jacob Method, Image Well Theory, Effect of Partial Penetrations of Wells, Collectors Well. Stream Aquifer Interactions, Safe Yield, Yield Test - Geophysical Methods, Conjunctive Use, Selection of Pumps, Artificial Recharge, Infiltration Gallery. Water quality standards, Saltwater Intrusion – Environmental Concern.

TEXT BOOKS:

1. Ground water Hydrology by David Keith Todd, 6th ed., John Wiley & Son, New York, 2001.
2. Groundwater by H. M. Raghunath, 5th ed., Wiley Eastern Ltd., 2002.

REFERENCES BOOKS:

1. Groundwater System Planning & Management by R. Willes & W. W. G. Yeh, 4th ed., Printice Hall, 1998.
2. Applied Hydrogeology by C. W. Fetter, 7th ed., CBS Publishers & Distributers, 2002.