



Global Initiative of Academics Networks (GIAN)



176020C01: Advances in Aquifer Characterization and Parameter Estimation

26.03.2018 to 06.04.2018
Anna University, Chennai

Overview

Per-capita availability of water is diminishing due to increasing population, agricultural production, erratic monsoons, anthropogenic and geogenic contamination etc., in many regions of the world. In countries like India, groundwater usage is much high and caters to over 70 % of the rural population. Groundwater overuse is a widespread problem. Proper utilization of groundwater resources requires adequate knowledge on the characteristics of aquifers and their water bearing as well as transmission properties. There are several modern tools to understand the aquifer systems such as 3D resistivity tomography, GPR etc., which are used to determine the aquifer parameters. This will enable to properly plan and utilize only the replenishable quantity of groundwater resources. Though some basic aspects of aquifer characterization and parameter estimation are taught in civil engineering and earth science degree or post graduate degree programs, advanced and modern techniques are not adequately imparted upon in India. Hence, this course has been planned as a part of GIAN program. This course is designed in such a way that the participants will be enlightened from the basic aspects of aquifer characterization and parameter estimation to advanced aspects including resistivity tomogram, ground penetrating radar, heliborne electromagnetic (with the assistance of CGWB), numerical modelling and other recent tools along with the hands on as well as on field investigations.

Course participants will be taught on these advanced aspects of hydrogeology through lectures and hands-on experiments/exercises. Also, case studies and assignments will be shared to stimulate research motivation of participants.

Objectives:

The primary objectives of the course are to

- i.** Expose the participants to the fundamentals of aquifer characterization techniques,
- ii.** Improve the understanding on the need for proper estimation of aquifer parameters and its relevance in groundwater management
- iii.** Make the participants to understand and appreciate the need of modern techniques of hydraulic conductivity and storage coefficient
- iv.** Expose them to the application in sustainable groundwater management
- v.** Make them aware of the capabilities and limitations of field estimation techniques by exposing them on hands-on experiences

<p>Schedule and Venue</p>	<p>26.03.2017 to 06.04.2018 Anna University, Chennai</p>
<p>Modules</p>	<ul style="list-style-type: none"> ▪ Aquifer characterization tools ▪ Electrical resistivity methods, sounding, tomography, 3D sounding ▪ Electromagnetic methods ▪ Ground penetrating radar ▪ Aquifer parameters, S, T ▪ Laboratory methods ▪ Infiltration tests ▪ Pumping tests ▪ Insitu measurement of hydraulic conductivity, thermal response methods ▪ Unsteady flow in unconfined aquifers and leaky aquifers ▪ Image well theory, flow boundaries, rivers, lakes ▪ Well near impermeable boundaries ▪ Pumping of multiple wells, variable discharge methods ▪ Parameter estimation in large diameter wells, Slug tests ▪ Step drawdown tests, well loss and efficiency ▪ Limitations of aquifer parameter estimation methods ▪ Application of numerical modelling in parameter estimation
<p>You Should Attend If...</p>	<p>You are an</p> <ul style="list-style-type: none"> ▪ Executives, engineers and researchers from consulting companies, groundwater departments of the state and central government organizations including R&D laboratories, entrepreneurs ▪ Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions
<p>Fees</p>	<p>The participation fees for attending this course is as follows:</p> <p>Students (UG/PG/Research scholars) : Rs 2000/- Faculty/ Research Organizations : Rs 5000/- Industries/others : Rs 7000/-</p> <p>Participants are requested to bring their laptop for hands on session. The participants have to make their arrangements for travel and accommodation on their own.</p>

Foreign Faculty



Prof. Michael Schneider (MS) is a Professor of Hydrogeology in the Department of Earth Sciences, Institute of Geological Sciences, Freie Universitat Berlin. His research interests include Urban water resources, managed aquifer recharge, Impact of climate change on water resources, Salt water intrusion, Hydrogeology of arid areas, Deep aquifer systems/ geothermal systems and Well management/aging.



Prof. L. Elango, Department of Geology, Anna University, Chennai with an experience of over 35 years in hydrogeology has a Master's Degree in Science, a Master's Degree in Engineering and a Ph.D in Hydrogeology. His research interest includes Hydrogeology, Exploration Geophysics and Groundwater Modeling. He has carried out his postdoctoral work at the University of Birmingham under the INSA fellowship programme. He participated in various professional training programmes at Danish Hydraulic Institute, Swiss Federal Institute of Technology and UNESCO Institute of Water Education, Delft. He is currently a Vice President of the International Association of Hydrological Sciences.



Course Co-Ordinator

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