

**One-Day Short Course on
Application of geophysics for infrastructure
projects**

will be taught by

Dr. Sanjay Rana
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New Delhi, India
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December 3, 2023

The course will be taught in
a hotel in Colombo, Sri Lanka
**Information on the exact venue will be
provided around the end of
October 2023.**

Course fee: US\$ 150

OBJECTIVES

Engineering geophysics is an efficient means of subsurface investigation. The merit of the application of this low-cost aid lies in its ease of deployment and rapidity in providing reliable knowledge of the underground over a large area, substantiating the requisite geotechnical evaluation studies thereby. Technological advancements and the development of portable digital data acquisition instrument systems have increased the versatility of evaluating underground conditions and site characterization. Application of the theory will be illustrated by using case studies from geophysical investigations conducted for a large range of infrastructure projects in various parts of the Indian sub-continent and the Middle East.

COURSE CONTENT

Part 1: Introduction

An introduction to the basic theory of various geophysical techniques commonly used for subsurface investigation for infrastructure projects.

Part 2: Seismic Refraction Tomography

Seismic refraction tomography (SRT) is the most commonly used geophysical technique for the precise determination of soil thickness, seismic velocities, localization, and identification of geological units, etc. Participants will learn about the application, advantages, and limitations through examples from such surveys conducted in diverse geological settings.

Part 3: Electrical Resistivity Imaging (ERI)

ERI is extremely useful for investigations of sites to get information on weak zones or buried channels, rock interfaces, etc. Resistivity imaging can also be used across rivers where conventional geotechnical investigations are expensive and

time-consuming. The session will include case studies from various sites

Part 4: MASW

The multichannel analysis of surface waves (MASW) method is one of the seismic survey methods evaluating the elastic condition (stiffness) of the ground. It is used extensively for seismic site classification. The session will include illustrations of its application for cavity mapping based on work done in the Middle East.

Part 5: Seismic Tomography

Seismic tomography is done between boreholes and provides deep high-resolution subsurface details. The session will explain equipment, site preparation activities, and fieldwork procedures.

Part 6: Open House/ Q&A

This session will have a discussion and obtain feedback from participants

Medium of Instruction:

The medium of instruction will be English.

Who Should Attend:

This short course program will help professionals, engineers, geotechnical engineers, and geoscientists who deal with engineering projects. The program will also help project owners who hire services for geophysical surveys, enabling them to understand the capabilities and limitations of various methods and derive maximum return on their investment in a geophysical survey.

Time Schedule:

8:00—10:00	Lectures
10:00—10:30	Tea/Coffee break
10:30—12:30	Lectures
12:30-- 13:30	Lunch
13:30-- 15:30	Lectures
15:30-- 16:00	Tea/Coffee break
16:00-- 17:30	Lectures

Narrative Biography of D. R. Sanjay Rana:

Dr. Sanjay Rana is a geophysicist by profession. He has been working in the field of engineering geophysics for the last 33 years. Dr. Rana graduated in 1990 from the University of Roorkee, now IIT Roorkee, in M Tech (Applied Geophysics), as a Gold Medalist.

Dr Rana started his career with UP State Government where he was involved in the development and commissioning of geophysical loggers. Later he worked as a scientist with the Department of Atomic Energy where he was involved in the exploration of atomic minerals.

He became an entrepreneur in 1995, starting the first-ever engineering geophysics company in the private sector in India.

Around 1995, awareness of geophysical techniques was very low. He has been instrumental in starting full-fledged operations in the private sector providing services like seismic refraction, ground penetrating radar, electrical tomography, seismic tomography, Microgravity, magnetic, etc. He has carried out geophysical investigations for more than 2000 projects including projects in India, Afghanistan, Bahrain, Singapore, Qatar, Saudi Arabia, Nepal, Bhutan, Kuwait etc.

He has worked extensively carrying out geophysical investigations for tunnels, reducing uncertainties and risk. He is also the principal author of a document titled Geophysical Investigation for Tunnels, Guidelines on Geophysical Investigation of Dams.

He is also part of various professional and standardization bodies like the Bureau of Indian Standards, Indian Road Congress, and Indian Society for Trenchless Technology.

Dr. Rana is invited regularly for training geophysicists on the latest techniques by various departments and organizations. He is also invited as a trainer for geophysics applications by companies located abroad and has conducted training in Singapore, Saudi Arabia, Bahrain, Kuwait, UAE, etc.

In the year 1998, Dr. Rana founded Aqua Foundation, with the primary objective of knowledge creation and information dissemination especially in the field of water. Over the years he has expanded the scope of areas for the foundation. Now Aqua Foundation is also actively working in the areas of environment and various humanitarian issues.

Dr. Rana relentlessly pursues the cause of spreading awareness about the application of geophysical techniques in India with an evangelist spirit. He is a true believer and practitioner of sharing his experience and knowledge in the arena of geophysics with the belief that knowledge shared is knowledge gained. Rather than pursuing greener pastures overseas, he made a conscious decision to serve in India and work towards innovative and out-of-the-box geophysical solutions to the indigenous infrastructure, mining, and civil engineering sector.

Registration Conditions:

The course fee must be paid in full by the registration deadline of October 15, 2023. The course fee includes course notes, lunch, and refreshments for morning and afternoon tea/coffee breaks. The number of applicants for each course is limited and acceptance will be on a first-come, first-served basis. If the course is canceled, then the full short course fee will be refunded. **No refund will be given after October 15, 2023. Non-arrivals at the course will be liable to pay the full course fee and no refund will be given. However, substitutions will be allowed.**





Registration Form
Short Course on Application of Geophysics for
Infrastructure projects, Colombo, Sri Lanka,
December 3, 2023

Name: _____

Title: _____

Organization: _____

Mailing Address: _____

Telephone Number: _____

Fax Number: _____

E-mail address: _____

Registration Fee: **US\$ 150**

I have read and agree to the conditions of entry as stipulated in this brochure.

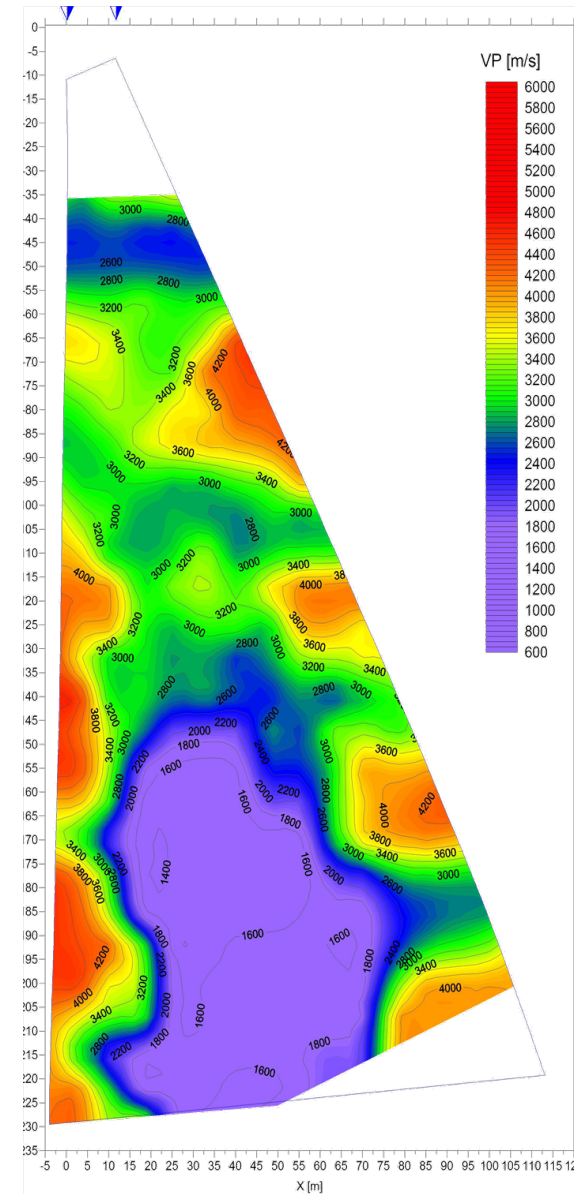
Signature : _____ Date: _____

Methods of Payment:

Option 1: Wire transfer: The name of the bank, swift code, routing number & account number will be provided later upon receiving the completed Registration form.

Option 2: Through Western Union—needed information will be provided later upon receiving the completed Registration form.

Option 3: Through MoneyGram—needed information will be provided later upon receiving the completed Registration form.



Registration for the short course on
Geophysics for Infrastructure projects also
can be done by visiting the website:
www.SLRMES.org

