



جمعية المهندسين البحرينية - مركز التدريب  
Bahrain Society of Engineers - TRAINING CENTRE

28 - 30

JUNE

2026

Bahrain

5 Day Course On

# - GEOTECHNICAL SITE INVESTIGATION FOR CONSTRUCTION PROJECTS

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# Course Overview

Risk associated with ground conditions in construction projects is known to be a major cause of time and cost overruns, foundation failures, and in extreme cases may lead to the abandonment of the project. Hence, having a quality geological investigation of a project's ground conditions is a matter of great importance to mitigate such risks and also identify a cost-efficient foundation design. This requires attention to all aspects of the process of geological investigation.

Accordingly, this course is designed to provide the participants with a comprehensive understanding of the entire process including scoping the geological investigation and identifying the required tests and information, tendering for the works, contract award, supervising the works and analyzing the results and reports obtained.

The participants will be introduced to test methods and equipment used in geological investigation and will be trained on analyzing and critiquing the results and reports produced by the appointed geotechnical contractors and consultants. The course will also address claims that may arise from ground conditions and how some of such claims have been resolved by the courts.

The course shall include site and laboratory sessions to familiarize the participants and enable them to experience the equipment used in the site investigation process and instruments used in the laboratory for testing samples retrieved from the site.

Throughout the course, the participants will be encouraged to engage with each other and the faculty to share experiences, insights and views.

## Outcomes

Upon completion of the course, the participants will:

- Develop an appreciation of the entire geotechnical ground investigation process.
- Be acquainted with regional and international codes of practice and standards related to geotechnical investigation.
- Be familiarized with the equipment and instruments used in ground investigation and soil tests.
- Understand and identify techniques of geotechnical investigation and soil tests.
- Be able to scope the geological investigation and determine relevant tests to be carried out.
- Develop capabilities to compile, interpret and critique material tests and geotechnical reports.
- Appreciate claims that may arise from ground conditions and geotechnical investigation.

## Equipment and Instruments to be Introduced:

- Soil Drilling Rig
- Ground Penetrating Radar
- Menard Pressure Meter
- Direct Shear Box
- Consolidation Apparatus
- Odometer
- CBR
- Atterberg Limits
- Confined Compression Test
- Triaxial Test
- Point Loading
- Plate Loading
- Soil Core Box
- Packer Test
- Dilatometer Test

## Is this course for you?

This course should suit civil engineers, structural engineers, and other construction professionals including geotechnical who wish to enhance their expertise. The course should also be of interest to cost managers, quantity surveyors, project managers, architects, academics and property developers.

## Certificate

A certificate of completion will be awarded to participants who diligently attend all the course sessions.

## Venue

The lecture sessions will be held at the Training Center of the Bahrain Society of Engineers.

## Fees

BD 495.00 (US\$ 1315) inclusive of course material, refreshments and lunch

## Registration

Please register here

[REGISTER](#)

or



Places at the course are limited as the course includes field sessions on the operation of geotechnical site investigation equipment and instruments. Therefore, early application is strongly recommended.

## Further Information

For further information, please contact Dr. Hameed Abdulla, Tel. No. +973 17727100.

# Course Agenda

## DAY ONE

8.30 – 9.00	<b>Brief introduction to the course</b>
9.00 – 9.45	<b>Overview of geotechnical risk and risk management:</b> <ul style="list-style-type: none"><li>• Potential hazards and uncertainties associated with geological features, processes and events.</li><li>• Types of and factors contributing to geological risk</li><li>• Importance of risk management and mitigation</li><li>• Risk assessment and mitigation</li></ul>
9.45 – 10.30	<b>Introduction to ground investigation methods, codes of practice and construction codes:</b> <ul style="list-style-type: none"><li>• Non-Intrusive Methods</li><li>• Intrusive Methods</li><li>• Euro Code 7, BS 5930 Codes of Practice and regional Construction Codes</li></ul>
10.30 – 11.00	<b>Coffee Break</b>
11.00 – 12.00	<b>Desk studies and walk over surveys</b> <ul style="list-style-type: none"><li>• What is desk study and walk over survey</li><li>• Equipment needed for a desk study and walk over survey</li><li>• Objective of desk study and walk over survey</li><li>• Compilation of the desk study</li><li>• Planning the ground investigation using the results of the desk study and walk over survey.</li></ul>
12.00 – 13.00	<b>Reading geological maps:</b> <ul style="list-style-type: none"><li>• Methodology and techniques of map reading</li><li>• Practical geological map reading session</li></ul>
13.00 – 14.00	<b>Intrusive investigation methods</b> <ul style="list-style-type: none"><li>• Methods include: Excavation and Trenching, Shell and Auger, Rotary Drilling, Down the Hole Hammer and Cone Penetration</li><li>• Advantages and disadvantages of the various methods</li><li>• Pitfalls to look out for</li></ul>
14.00 – 14.30	<b>Lunch</b>
14.30 – 16.30	Site session showcasing Intrusive Investigation Methods

# Course Agenda

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## DAY TWO

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8.30 – 9.00	<b>Brief overview on Day 1 topics</b>
9.00 – 11.00	<b>In-situ testing methods (Part 1):</b> <ul style="list-style-type: none"><li>• Methods to be presented include:<ul style="list-style-type: none"><li>■ Pressure Meter Test</li><li>■ Packer Test</li><li>■ Standard Penetration Test (SPT)</li><li>■ Cone Penetration Test (CPT)</li></ul></li><li>• Identifying the suitable method in light of the project location, type and size</li><li>• Advantages and disadvantages of the various methods</li><li>• Test reports: study, analysis and critique</li></ul>
11.00 – 11.30	<b>Coffee Break</b>
11.30 - 13. 00	<b>In-situ Testing Methods (Part 2)</b>
13.00 – 14.00	<b>Lunch</b>
14.00 – 16.30	<b>Site Session: Showcasing In-situ Testing Methods</b>

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## DAY THREE

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08.30 – 09.00	<b>Brief overview of Day 2 topics</b>
09.00 - 10.30	<b>Test Reports of In-Situ Testing Methods – Study and analysis of reports received</b>
10.30 – 11.00	<b>Coffee Break</b>
11.00 – 13.00	<b>Geophysical Methods. (Part 1): Methods, best use practices and results analysis</b> <ul style="list-style-type: none"><li>• Methods to be presented include:<ul style="list-style-type: none"><li>■ Seismic Surveys</li><li>■ Electrical Resistivity Tomography (ERT)</li><li>■ Ground-Penetrating Radar (GPR)</li><li>■ Magnetometry</li><li>■ Gravity Surveys</li><li>■ Magnetic Susceptibility Survey</li><li>■ Borehole Geophysics and Borehole Logging</li></ul></li><li>• Identifying the suitable method in light of the project location, type and size</li><li>• Advantages and disadvantages of the various methods</li><li>• Test reports: study, analysis and critique</li></ul>
13.00 - 14.00	<b>Lunch</b>
14.00 – 16.30	<b>Geophysical Methods. (Part 2): Methods, best use practices and results analysis</b>

# Course Agenda

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## DAY FOUR

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- 8.30 – 9.00**      **Brief overview of Day 3 topics**
- 9.00 - 11.00**      **Geotechnical Laboratory Testing**
- Laboratory tests presented include:
    - Sieve Analysis
    - Shear Box
    - Unconfined Compressive Strength (UCS)
    - California Bearing Ratio (CBR)
    - Proctor Test
    - Atterberg Limits
    - Triaxial Tests
    - Oedometer
  - Identifying the necessary laboratory tests
  - Test reports: study, analysis and critique
- 11.00 - 11.30**      **Coffee Break**
- 11.30 – 13.00**      **Geotechnical Engineering Software**
- How to obtain and input critical values
  - Software introduced include Adonis (a Finite Element Analysis Software) and Hyrcan (is a 2D Limit Equilibrium Software for Slope Stability)
  - Hands- on use of Adonis and Hyrcan
- 13.00 – 14.00**      **Lunch**
- 14.00 – 16.30**      **Laboratory session showcasing geotechnical laboratory tests discussed in the morning session**

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## DAY FIVE

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- 8.30 – 9.00**      **Brief overview of Day 4 topics**
- 9.00 - 10.30**      **Tendering process for geotechnical site investigation contract**
- Drawing up the tendering documents
  - Analyzing bids received
  - Contract award
  - The contract documents
- 10.30 - 11.00**      **Coffee Break**
- 11.00 – 13.00**      **The Geotechnical Site Investigation Report**
- Content of the report
  - Analyzing the report
  - Identifying possible weaknesses and pitfalls in the report
  - Foundation type selection and design
- 13.00 – 14.00**      **Construction contract claims related to geotechnical site investigation**
- 14.00**              **Course End and Lunch**

## Course Faculty

**K.G. Baburajan** is the Managing Director of Qatar Engineering Laboratories operating mostly in Qatar and Bahrain. He has decades of experience in geotechnical engineering, material testing and the investigation of foundation failures and settlements. During his long career, he managed teams responsible for providing geotechnical and material testing services to numerous large-scale construction projects in Bahrain and Qatar. The footprint of his experience extends to Saudi Arabia, UAE, Yemen and Kazakhstan. He is a member of the Technical Evaluation Committee of the International Accreditation Services which is one of the leading accreditation bodies in the United States.

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**Dr. Nuha Al Zayani** is an Assistant Professor at the University of Bahrain. She chairs the Department of Civil Engineering, College of Engineering since 2020. She holds an MSc in Soil Mechanics from Imperial College London and a PhD in Geotechnical Engineering from the University of Birmingham. She teaches Geotechnical Engineering subjects in the Civil Engineering Programs. Prior to joining the University of Bahrain in 2010, Dr. Nuha worked at the Roads Planning and Design Directorate at the Ministry of Works and a major engineering consultancy firm in Bahrain.

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**Rajath Baburaj** is the Operations Manager of Qatar Engineering Laboratories operating mostly in Qatar and Bahrain. In addition to overseeing all the operations of QEL, he directly spearheads QEL's geotechnical engineering team. He holds a Master's degree from the University of Birmingham in Geotechnical Engineering. Over a period spanning almost 20 years, Rajath was involved in providing geotechnical engineering services for a substantial number of large-scale construction projects in Bahrain and Qatar.

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**Hamzah Al Hashemi**, is the Technical Director & Senior Geotechnical Designer at GeoStruXer. He holds an M.Sc. in Geotechnical Engineering from King Fahd University of Petroleum & Minerals (KFUPM). He has led projects across the GCC, MENA, and Europe, including the world's largest Micropiled Post-Tensioned Raft in Bahrain, shoring for the US Navy, and worked on Saudi Aramco's infrastructure, the Riyadh Metro, and the HS2 project in the UK.

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**Dr. R.M. Subramanian** is the Founder & Managing Director of NEXGEN INTEGRATED GEOSOLUTIONS. He has particularly experienced in Integrated Site Characterization in India. He implemented Geophysics Surveys as a critical decision-making tool in many projects of national importance. He has been involved in geo-consulting services for projects in the Middle East and Maldives. He holds PhD from IIT MADRAS for his research on studying the dynamic response of pile foundations.

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**Dr. Jameel Al Alawi** is qualified in civil engineering and law. Since retiring as a Senior Legal Advisor at the Economic Development Board, where he worked for 16 years, he has been engaged in dispute resolution serving as an arbitrator or mediator. Prior to qualifying as a lawyer and entering the legal profession, he had worked in a senior capacity on several substantial building and civil engineering projects. He is a Fellow of the Chartered Institute of Arbitrators. He served for two terms as Board Member of the Council for Regulating the Engineering Profession in Bahrain.

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**Dr. Marwan Al Zaylaie** is a seasoned geotechnical engineer with over 22 years of experience spanning both the industry and academia. He is a Senior Manager-Geotechnical Engineering at Dubai Development Authority. He holds a PhD from TU Darmstadt, Germany. He is an Adjunct Faculty member at Heriot-Watt University Dubai and Abu Dhabi University's College of Engineering. He is a founding member of the Geotechnical & Material Engineering Committee within the Society of Engineers UAE.