



2CPD Points
in
Progress

GEOTECHNICAL ENGINEERING AND STRUCTURAL FOUNDATION DESIGN | 2017 - Master Class

7th - 8th August 2017, Intundla Game
Lodge & Bush Spa, Pretoria

VENUE:
1

21st - 22nd August 2017, Holiday Inn
Express Cape Town City Centre

VENUE:
3

VENUE:
2

14th - 15th August 2017, Windhoek Hotel
and Casino Windhoek, Namibia

VENUE:
4

30th - 31st August 2017, Holiday Inn
Express Durban - Umhlanga

Course Aims:

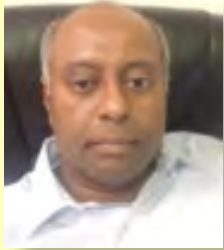
The main aims of this Course is to enable participants to select the best foundation solution for different types of civil engineering problems. After completing the course participants should be able to design shallow and deep foundations and supervise their construction. The course philosophy is to provide the participants with the information they need to design foundations at the state of the art. The information is supplied in a simple and systematic way, discussing topics where current knowledge is lacking and more understanding is needed.

The main objective of this Course is to enable participants to select the best foundation solution for different types of civil engineering problems. After completing the course participants should be able to design shallow and deep foundations and supervise their construction. The course philosophy is to provide the participants with the information they need to design foundations at the state of the art. The information is supplied in a simple and systematic way, discussing topics where current knowledge is lacking and more understanding is needed.

GEOTECHNICAL ENGINEERING AND STRUCTURAL FOUNDATION DESIGN

2017 - Master Class

MEET THE FACILITATOR:



Ruwan Rajapakse, PE, CCM,
CCE, AVS Project Manager, STV
Construction New Jersey, USA.

Education:

- *MS in Geotechnical and Structural subjects*
- *BS in Civil Engineering*

Accreditation:

- *Professional Engineer (PE), NY and NJ*
- *CCM (Certified Construction Manager)*
- *CCE (Certified Cost Engineer)*
- *AVS (Associated Value Specialist)*

Ruwan Rajapakse is a licensed professional engineer and a certified construction manager. He has 26 years of experience in design of piles, retaining walls, shallow foundations, structural elements such as beams, columns, slabs, shear wall, etc. Ruwan has also been in the construction end as well. He has many years of experience as a construction manager overseeing construction of piles, concrete structures and steel structures. Ruwan has a BS in Civil Engineering and MS in Geotechnical and Structural subjects.

Skill and Expertise:

- *Civil Engineering*
- *Construction*
- *Project Planning, Control, Management, Estimation, and Delivery*
- *Contract Management*
- *Program Management*
- *Construction Management*
- *Change Management*
- *Strategic Planning*

Projects / Programmes:

- *Multibillion Dollar Police Academy Project, New York*
- *150 million Dollar Construction Project in NAMM Building, Brooklyn*
- *Amtrak Substations, New York*
- *East Side Access Project, Tunnel Design*
- *Brooklyn Battery Tunnel*
- *School Construction Authority*
- *Lecturer for Professional Engineer Exam*
- *Author for PE Exam Books*

Partial list of clients:

- *Department of Design and Construction, New York*
- *New York City School Construction Authority*
- *Long Island Railroad*
- *Amtrak Substation*

About the Course:

This course deals with all aspects of modern good practice in foundation design. This include: the importance of both the geological and geotechnical aspects of the ground conditions, current limit analysis methods for bearing capacity, and definition of factors of safety.

The various settlement analyses and their underlying assumptions and reliability are discussed, together with a thorough treatment of the design of piled foundations. Engineers responsible for construction work need an understanding of different soils and how they behave. However, to be effective the non-geotechnical engineer does need a working understanding of basic concepts to gain confidence in dealing with a variety subsoil related problems that they may encounter on engineering projects.

The course will be of interest to a wide range of practicing civil engineers at different stages in their careers. Some familiarisation with soil mechanics is desirable but the knowledge is not required at a specialist level.

Upon completion of the course, participants will be able to:

- ★ Understand the definition of capacity of deep foundations
- ★ Understand the Sans 10400: the application of the national building regulations
- ★ Understand the methods of calculating the axial capacity of driven piles
- ★ Understand Pile driving methods and testing
- ★ Understand methods of calculating the axial capacity of drilled shafts
- ★ Understand construction methods for drilled shafts
- ★ Understand pile/shaft response to lateral load
- ★ Understand pile/shaft group behavior
- ★ Design a deep foundation system
- ★ Recognize potential failure modes or deformation types for soil slopes and embankments
- ★ Develop the ability to judge when shallow foundations should be considered
- ★ List the failure modes of shallow foundations
- ★ Determine the bearing capacity of shallow and deep foundations on soils and rocks
- ★ Calculate vertical stress distribution below a shallow foundation
- ★ Determine the primary consolidation settlement of shallow foundations on cohesive soils
- ★ Determine the settlement of shallow foundations on cohesion less soils
- ★ Identify problematic soils that may be encountered
- ★ List the soil improvement techniques that may be used to improve the performance of shallow foundations
- ★ List ground improvement techniques that may be used to improve the performance of shallow foundations
- ★ Describe procedures for construction inspection and performance monitoring of shallow foundations

GEOTECHNICAL ENGINEERING AND STRUCTURAL FOUNDATION DESIGN

2017 - Master Class

Who Should Attend?

- Structural Engineers
- Geotechnical engineers
- Civil engineers
- Construction Project Managers
- Environmental Engineers
- Project Engineers
- Consultant's technical field personnel
- Construction Site Engineers
- Construction Consultant Managers
- Contractors
- Consulting Engineers
- Technical Engineers/Managers
- Construction Inspectors
- University Educators/ Lecturers
- Engineering geologists
- Geohydrologists
- Rock engineers
- Lab Technicians & Technologists

And Public works and construction department employees of government, provincial and municipal departments and engineers responsible for large industrial, commercial or institutional facilities who must deal with different types of foundations.

The course will be of interest to a wide range of practising civil engineers at different stages in their careers. Some familiarisation with soil mechanics is desirable but the knowledge is not required at a specialist level. facilities who must deal with different types of foundations

Course Schedule, Day 1 & 2

All timings are approximate due to the interactive nature of course

08:00 - 08:30 Registration and early morning tea

08:30 - 09:00 Facilitator's opening remarks and morning session

09:00 – 10:00 First Morning Session starts

10:00 – 10:15 Tea Break

10:15 – 13:00 Second Morning Session

13:00 - 14:00 Networking Luncheon

14:00 - 15:00 Afternoon Session

15:00 - 15:15 Mid Afternoon Break

15:15 - 16: 00 Afternoon Session

16:00 - 16:30 Questions and closing remarks

17:00 End of training

COURSE OUTLINE; Day 1:

GEOTECHNICAL PROPERTIES OF SOIL:

- Grain-size distribution
- Size limits for soils
- Weight Volume relationships
- Relative density
- Effective stress concept
- Shear strength of soils

SUBSOIL EXPLORATION:

- Purpose of soil exploration
- Subsurface exploration program
- Exploratory borings in the field
- Procedures for sampling soil
- Observation of water tables
- Vane shear test
- Cone penetration test
- Preparation of boring logs
- Geophysical exploration
- Subsoil exploration report
- Interpretation of soil parameters for foundation design
- Shallow foundation types and foundation level selection

SHALLOW FOUNDATIONS: ULTIMATE BEARING CAPACITY:

- General concept
- General bearing capacity equation
- Shape, depth, and inclination factors
- Effect of soil compressibility
- Eccentrically loaded foundations
- Worked examples

SPECIAL BEARING CAPACITY CASES:

- Bearing capacity of layered soils
- Bearing capacity of foundations on top of a slope

SETTLEMENT ANALYSIS FOR SHALLOW FOUNDATION:

- Stress due to different loaded areas
- Elastic settlement based on the theory of elasticity
- Settlement of sandy soil: use of strain influence factor
- Range of material parameters for computing elastic settlement
- Primary consolidation settlement relationships
- Consolidation settlement - case history

GEOTECHNICAL ENGINEERING AND STRUCTURAL FOUNDATION DESIGN

2017 - Master Class

- Settlement due to secondary consolidation
- Allowable bearing pressure in sand based on settlement consideration
- Presumptive bearing capacity
- Tolerable settlement of buildings
- Worked examples
- Shallow foundation design workshop

RAFT FOUNDATIONS:

- Combined footings
- Common types of raft foundations
- Bearing capacity of raft foundations
- Differential settlement of raft
- Field settlement observations for mat foundations
- Compensated foundation

LATERAL EARTH PRESSURE:

- Lateral earth pressure at rest
- Rankine active earth pressure
- Rankine active earth pressure for inclined backfill
- Coulomb's active earth pressure
- Worked examples
- Types of deep foundations
- Friction pile foundations
- End bearing pile foundations

END OF DAY ONE

COURSE OUTLINE; Day 2:

RETAINING WALLS:

- Stability of retaining walls
- Check for overturning
- Check for sliding along the base
- Check for bearing capacity failure
- Worked examples

FOUNDATIONS ON DIFFICULT SOILS:

- Definition and types of collapsible soil
- Physical parameters for identification
- Procedure for calculation collapse settlement
- Foundation design in soils susceptible to wetting
- Case histories of stabilization of collapsible soil
- Expansive soils
- Laboratory measurement of swell
- Classification of expansive soil based on index tests
- Foundation considerations for expansive soils

SOIL IMPROVEMENT:

- Correction for compaction of soils with oversized particles
- Field compaction
- Compaction control for clay hydraulic barriers
- Vibroflotation
- Precompression
- Sand drains
- An example of a sand drain application
- Prefabricated vertical drains
- Lime stabilization
- Cement stabilization
- Fly ash stabilization
- Stone columns
- Sand compaction piles
- Dynamic compaction
- Shallow foundation bearing capacity improvement using geosynthetics

DEEP FOUNDATION

- Types of deep foundations
- Introduction to pile foundations
- Pile foundation design
- Load on piles
- Bearing Capacity of Single Piles in sand
- Bearing Capacity of Single Piles in clay
- Estimation of pile length
- Stresses on Underlying Strata
- Pile group design
- Installation-test-and factor of safety
- Pile installation methods
- Test piles
- Factors of safety
- Settlements of Pile Groups
- Pile Caps
- Pile Driving Formulas
- Negative Skin Friction
- Pile Tests
- Pile design workshop

STRUCTURAL DESIGN OF SHALLOW FOUNDATIONS:

- Isolated footing
- Combined footings
- Raft foundations

STRUCTURAL DESIGN OF DEEP FOUNDATIONS:

END OF DAY 2

Please indicate your choice by ticking in the box

REGISTRATION FORM

☐ 7th - 8 th August 2017, Intundla Game Lodge & Bush Spa, Pretoria

VENUE:
1

VENUE:
2

14th - 15th August 2017, Windhoek Hotel and Casino Windhoek, Namibia



☐ 21st - 22nd August 2017, Holiday Inn Express Cape Town City Centre

VENUE:
3

VENUE:
4

30th - 31th August 2017, Holiday Inn Express Durban - Umhlanga



COMPANY AND DELEGATE DETAILS

Organization:

VAT Registration Number:

Nature of Business:

Address:

City: Post Code:

Phone: Fax:

Delegate Details:

1. Full Names:

Position:

Email:

2. Full Names:

Position:

Email:

3. Full Names:

Position:

Email:

4. Full Names:

Position:

Email:

5. Full Names:

Position:

Email:

COMPLETE AND SEND BACK TO US SO THAT WE CAN RESERVE YOUR SEAT

3 EASY WAYS TO REGISTER



Phone: +27 11 058 1936

To book for a seat/s complete the **registration form** and return to the email below:



Mail: steven@blue-aa.co.za



Online:
www.blueanchor.co.za/contracts

AUTHORISATION

Signatory must be authorized to sign on behalf of the contracting Organization

Name:

Position:

Email:

Signature:

Date:

THIS BOOKING FORM IS INVALID WITHOUT THE SIGNATURE

TERMS AND CONDITIONS:

Policies and Term & conditions:

Delegate Cancellations: By completing this registration form, the client hereby agrees that **Blue Anchor Academy** will not be able to mitigate its losses for any less than 50% of the total contract value. Cancellations must be received in writing 10 days prior to the event. Only cancellation made in writing and addressed for the attention of the Finance Director will be recognized by **Blue Anchor Academy**. Cash alternatives will not be offered although delegate substitutes are welcome.

Blue Anchor Academy reserves the right to change seminar arrangements without notice. This includes, but is not limited to, change of course content, course instructors, policies, or venue, we are also not responsible for covering airfare, hotel or other costs incurred by Registrants. In the Event that **Blue Anchor Academy** cancel or postpone the event for reasons outside its control, **Blue Anchor Academy** reserves the right to transfer this booking to a replacement workshop to be held in the following six months, otherwise we do not provide funds for cancellations or postponement however you may provide substitute delegate/s at any time.

INDEMNITY: should for any reason outside the control of **Blue Anchor Academy**, the venue or speakers change, or the event be cancelled due to act of any terrorism, extreme weather conditions, industrial action, **Blue Anchor Academy** shall Endeavour to re- schedule but the client hereby indemnifies and holds **Blue Anchor Academy** harmless from any costs, and expenses including attorney fees, which are incurred by the client.

Copyright: All intellectual property rights in the materials distributed by in connection with this event are expressly reserved and any unauthorized duplication, publication or distribution is prohibited.

Blue Anchor Banking Details:

Bank Name: First National Bank

Account Type: Business Cheque Account

Name of Account: Blue Anchor Academy

Account No: 624 726 36 243

Branch Code: 250955

Branch Name: Woodmead, Sandton

Swift Code: FIRNZAJXXX, NBA: 250655

(Please indicate your choice and complete the authorization)
Payment is required within 5 days.

☐ Price per Delegate = R7,999

☐ Cost per delegate outside South Africa = \$ 600

Group Discount (per Delegate)

☐ Book for 4 delegates and the 5th person attends at NO Cost

Fees Include refreshments, luncheons and supplementary Documentation.