



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

Geotechnical Construction Methods And Applications Training

Physical Planning and Construction / Physical Planning, Design and Management

Unit Standard 113977 · NQF Level 5 · 10 Credits · 7 Days

COURSE OVERVIEW

This course equips learners with the practical knowledge and skills required to apply geotechnical construction methods in civil engineering projects. It covers site investigation, soil classification, foundation design, and construction techniques for various ground conditions. The aim is to ensure safe, efficient, and compliant geotechnical practices in the South African construction industry.

Category	Physical Planning and Construction
Subfield	Physical Planning, Design and Management
Unit Standard	113977
Accreditation	SAQA Accredited · NQF Level 5 · 10 Credits
Duration	7 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply appropriate geotechnical investigation methods to determine soil and rock properties for construction projects.
- Analyze soil test results to classify ground conditions and recommend suitable foundation types.
- Design shallow and deep foundation systems based on geotechnical data and load requirements.
- Implement ground improvement techniques such as compaction, grouting, and drainage to enhance soil stability.
- Evaluate construction methods for excavations, retaining walls, and slope stability to ensure safety and compliance.
- Demonstrate knowledge of relevant South African standards and regulations governing geotechnical construction.

WHO SHOULD ATTEND

- This course is designed for civil engineers, construction managers, geotechnical technicians, and site supervisors involved in foundation and earthworks projects.
- It is also suitable for professionals seeking to deepen their understanding of geotechnical construction methods.

COURSE OUTLINE

Day 1: Introduction to Geotechnical Engineering and Site Investigation

- Overview of geotechnical engineering and its applications.
- Types of soil and rock: classification and properties.
- Site investigation techniques: boreholes, trial pits, and geophysical methods.
- Sampling methods and in-situ testing (SPT, CPT).
- Introduction to geotechnical reports and data interpretation.
- Safety considerations during site investigation.

Day 2: Soil Mechanics Fundamentals

- Soil phase relationships and index properties.
- Effective stress principle and pore water pressure.
- Shear strength of soils: drained and undrained conditions.
- Consolidation theory and settlement analysis.
- Permeability and seepage: Darcy's law and flow nets.
- Laboratory tests: triaxial, direct shear, and oedometer.

Day 3: Shallow Foundations and Retaining Structures

- Bearing capacity of soils: Terzaghi's and Meyerhof's methods.
- Settlement analysis for shallow foundations.
- Types of shallow foundations: strip, pad, raft.
- Retaining wall types: gravity, cantilever, anchored.
- Stability analysis: overturning, sliding, and bearing failure.
- Drainage and waterproofing considerations.

Day 4: Deep Foundations and Ground Improvement

- Pile foundations: driven, bored, and screw piles.
- Pile capacity: static analysis and load tests.
- Pile groups and negative skin friction.
- Ground improvement methods: compaction, grouting, and stone columns.
- Preloading and vertical drains.
- Geosynthetics: types and applications (reinforcement, drainage).

Day 5: Slope Stability and Earthworks

- Types of slope failures and causes.
- Slope stability analysis: circular and non-circular slip surfaces.
- Remedial measures: drainage, retaining walls, and soil nailing.
- Earthworks: cut and fill operations, compaction control.
- Compaction equipment and quality control tests (Proctor, field density).
- Erosion control and vegetation.

Day 6: Geotechnical Construction Methods and Equipment

- Excavation equipment: excavators, bulldozers, and graders.
- Trench support systems: shoring, shielding, and sloping.
- Dewatering methods: wellpoints, deep wells, and sump pumping.
- Grouting techniques: permeation, compaction, and jet grouting.
- Anchors and soil nails: installation and testing.

- Safety in geotechnical construction: confined spaces, trenching, and heavy machinery.

Day 7: Application, Case Studies, and Integration

- Case study 1: Foundation failure on soft clay.
- Case study 2: Slope stabilization in highway construction.
- Case study 3: Deep excavation in urban environment.
- Group exercise: Develop a geotechnical construction plan.
- Review of SANS codes and regulations.
- Course summary and assessment.

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **10 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 29,600.00	R 29,600.00
1	In-House	R 38,500.00	R 38,500.00
1	On-Campus (Pretoria)	R 44,400.00	R 44,400.00

UPCOMING SESSIONS

Start	End	Method	Venue
07 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	17 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	18 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	18 Aug 2026	On-Campus	Mauritius
11 Aug 2026	19 Aug 2026	On-Campus	Cape Town, South Africa
12 Aug 2026	20 Aug 2026	On-Campus	Dubai, UAE
13 Aug 2026	21 Aug 2026	On-Campus	Pretoria, South Africa
14 Aug 2026	24 Aug 2026	On-Campus	Abu Dhabi, UAE

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard 113977) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to apply@aaticd.co.za – our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call **+27 12 004 8389** or WhatsApp **+27 65 077 6310** and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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