



Geotechnical Laboratory Testing

Presented by the Department of Civil Engineering, University of Pretoria

15 February 2023

1 ECSA CPD Point

The **Geotechnical Laboratory Testing** short course is aimed at civil engineering and engineering geology practitioners who want to improve their knowledge on the specification of geotechnical soil tests, interpretation of the data and judgement of the quality of laboratory test results. Laboratory tests that will be dealt with during the course include the triaxial test, shearbox test, oedometer test and Rowe cell test. The application of stress paths to describe the behaviour of soil will be discussed and examples of typical stress paths will be presented.

This course comprises part of the taught component of a postgraduate subject, Specialised Geotechnical Testing SGS 789, taught as part of the Honours Degree in Geotechnical Engineering at the University of Pretoria. Postgraduates students registered for the Honours Degree in Geotechnical Engineering are required to attend the course and pass the examination for Specialised Geotechnical Testing SGS 789. There is no formal evaluation of other course attendees.

Course content

- Instrumentation for laboratory testing
- Geotechnical soil tests including the triaxial test, shearbox test, oedometer test and Rowe cell test
- Evaluation of typical stress paths for soil
- Overview of typical strength, stiffness and permeability values of soils and how to recognise poor test result
- Sampling of soils

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Shifting knowledge to insight



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Learning outcomes

After successfully completing this course, you should

- be able to specify the appropriate test and drainage conditions for different geotechnical conditions
- be able to identify typical stress paths for different soil types
- understand the importance of instrumentation in the context of laboratory testing of soils
- recognise poor laboratory test data, and
- understand the advantages and limitations of different soil sampling techniques.

Who should enrol?

This course is ideal for you if you are

- a post graduate students studying towards their Honours Degrees in Geotechnical Engineering at the University of Pretoria, or
- a civil engineering or engineering geology graduate who has completed an undergraduate course in soil mechanics, or
- a senior engineer interested in improving your knowledge of geotechnical laboratory testing.

Course fees

R4500.00 per delegate (VAT incl.) for in-person attendance.

Course fees include all course material, refreshments and meals.

R2250.00 per delegate (VAT incl.) for online attendance.

R1125.00 per delegate for online attendance by attendees from Lower-Middle income and Low-Income economies only.

(<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>)

Course fees must be paid in full 14 days prior to course start dates. Proof of payment can be submitted to enrolments@enterprises.up.ac.za.

Admission requirements

Prospective delegates should ideally hold a degree in civil engineering or engineering geology, with undergraduate knowledge of soil mechanics.

Accreditation and certification

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This course is ECSA and SACNASP accredited.

Course programme

Wednesday 15 February 2023

08:00–10:00	Classification of laboratory tests Stress paths Field vs. laboratory stiffness Triaxial measurement instrumentation
10:00–10:30	Coffee/Tea break
10:30–12:30	Stages of a triaxial test, B-value, rate of shear Triaxial permeability test Shearbox test One dimensional consolidation tests Oedometer test and Rowe cell test Bender element tests
12:30–13:30	Lunch
13:30–15:30	Geotechnical parameters for different tests. Typical soil parameters Identification of poor test results
15:30–16:00	Coffee/Tea break
16:00–17:00	Sampling techniques Specification of geotechnical testing

Registration and enquiries

Client Information Centre

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Course leader

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