



Dept. of Civil Engineering | Masters module | CPD course

Soil Modelling and Numerical Methods

7 - 11 July 2025



Introduction



The Master's Programme

The Master's Programme with a specialisation in Geotechnical Engineering is intended to support high level training and enhance both the technical skills of recent graduates or experienced personnel who work in, or aspire to a career in civil engineering construction, consulting, environmental and related industries. The primary purpose of the programme is to provide advanced conceptual understanding, detailed factual geotechnical knowledge and specialist technical skills appropriate for postgraduates who wish to widen their professional scope and work towards a career in the field of geotechnical engineering. For further information about this master's programme

please visit the website: [Geotechnical Engineering | Civil Engineering](#)

Continuing Professional Development

Modules of this master's programme are offered to Continuing Professional Development delegates. Five individual block release modules are offered in 2025. Continuing Professional Development students may take each module as a separate certificate course. CPD students are required to attend the lectures but are not required to submit assignments or write the exam.

Who Should Attend

The courses are best suited for Civil Engineers, Consultants, Architects, Engineering Geologists, Geotechnical Engineers and Geologists, Bridge Engineers, Landscape Architects, Contractors, Soil Scientists, Project managers, City and Public Works Officials, City Planners, and other design professionals who address construction related issues.

Format

Each module is structured in the following way: a week of intensive contact time at UCT, comprising formal lectures, class assignments and seminars/tutorials.

Please note: these courses are currently planned to be presented face-to-face over 5 days but may be attended online for those who cannot attend in person.

Course Content

Numerical analyses of geotechnical engineering problems are becoming more and more commonplace in industrial practice. Complex problems dealing with elasto-plastic behaviour of soil under drained and undrained conditions require numerical analysis for implementing proper design. It is necessary to identify the appropriate soil constitutive model and the model parameters that should be used for analysis of different field problems. At the same time, it is necessary to understand the fundamentals behind the appropriate use of these soil constitutive models in numerical schemes for solving different field problems. This course introduces the different soil constitutive models and their use in numerical analysis.

Course Convenor



Prof Denis Kalumba is a prominent figure in geotechnical engineering. He currently leads the University of Cape Town's (UCT) Geotechnical Engineering Division within the Civil Engineering department of the Faculty of Engineering & the Built Environment. Professor Kalumba's expertise is grounded in his PhD from the University of Newcastle upon Tyne. His leadership extends beyond UCT, this is evident by his active involvement in prestigious organizations like the International Society for Soil Mechanics and Geotechnical Engineering and the Institution of Civil Engineers (ICE).

Overview

Course Dates	7 – 11 July 2025
Delivery format	PG Seminar Room, NEB, Upper Campus, University of Cape Town or online
CPD	5 CPD points, ECSA registration number: <i>UCTGTESMNM25</i>
Fees	Standard fee: R17 300 UCT student fee: R8 650
Geotechnical engineering CPD courses 2025	Laboratory and Field Techniques CIV5110Z: 24 – 28 Feb Foundation Design CIV5114Z: 5 – 9 May Ground Improvement Techniques CIV5111Z: 4 – 8 Aug Soil Modelling and Numerical Methods CIV5150Z: 7 – 11 Jul Groundwater CIV5153Z: 29 Sep – 3 Oct

Registration

Registration and Cancellation

- [Register for this course](#)
- Registration covers attendance of all sessions of the course and course material.
- Registrations close one week before the start of the course. Confirmation of registration will be sent on receipt of a registration form.
- **Cancellations must be received one week before the start of a course, or the full course fee will be charged.**
- For more information on application and registration procedures, please visit our website: www.cpd.uct.ac.za

Certificates and CPD Points

A digital certificate of attendance will be awarded to CPD participants. Participants need to attend 80% of the lectures to qualify for an attendance certificate. For further information on digital certificates please visit [Digital Certificates at UCT](#)

According to guidelines set out by the Engineering Council of South Africa, attendance of this course will earn participants 5 points towards Category 1 (Developmental Activities). The ECSA validation number for this course is *UCTGTESMNM25*.

Please note: If you are interested in attending this course for credit purposes, you will need to register for the Master's Programme or as an occasional student. If you attend the course as a CPD participant, credit cannot be claimed in retrospect.

Contact details

For more information or details on CPD courses, visit our website or contact us.

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