



UNIVERSITY OF CAPE TOWN  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD  
ENGINEERING & THE BUILT ENVIRONMENT



# Structural Performance Assessment and Monitoring

Cape Town, 8 – 10 July 2025



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# Introduction



This course aims to introduce concepts of structural health monitoring of civil infrastructure. The course covers: philosophy of structural performance assessment, performance indicators, strategies for structural performance assessment, introduction to theoretical modal analysis, experimental modal analysis, instrumentation, data acquisition, data quality assurance, modal parameter estimation and validation, introduction to model updating, model updating methods, structural modifications, correlation between tests and FEM models, structural monitoring, measurement of live load strains/stresses, probabilistic data analysis, material performance assessment, performance assessment, and estimation of remaining life.

## Course Content

### 1. Structural health monitoring

- Modal analysis
- Model updating and correlation
- Data acquisition, instrumentation, sensing technologies, data analysis

### 2. Non destructive testing of concrete structures

- Evaluation of cover depth
- Rebound Hammer
- Ultrasonic methods
- ultrasonic pulse velocity, impact echo, spectral analysis of surface waves
- Ground penetrating radar

## Course Outcomes

At the end of this course participants should be able to:

- Specify field measurement systems for structural assessment
- Select appropriate non-destructive tests for assessment of concrete structures
- Conduct field non-destructive tests

## Course Presenter



**Prof. Pilate Moyo (PrEng)** is Professor of Structural Engineering and Director of the Concrete Materials and Structural Integrity Research Unit (CoMSIRU) in the Department of Civil Engineering at the University of Cape Town. His research and consultancy is on structural health monitoring, condition assessment, structural dynamics, vibration testing, and structural strengthening strategies for civil structures. His research is focused on developing structural assessment technologies integrating finite element modelling, full scale field testing, and advanced data analysis algorithms. He has published widely in these areas. [View profile](#)

## Course Overview

<b>Name</b>	Structural Performance Assessment and Monitoring	
<b>Duration</b>	8 – 10 July 2025	
<b>Venue</b>	Belmont Conference Centre, Belmont Road, Rondebosch, Cape Town	
<b>CPD</b>	3 CPD points, ECSA Validation No: UCTSPAM25	
<b>Participants</b>	Engineers and Technologists, Agency and Public Sector Asset Managers, Asset Maintenance Managers, Bridge and Infrastructure Inspection Consultants.	
<b>Entry requirements</b>	Minimum NQF7 qualification in Engineering, Built environment or relevant sector	
<b>Fees</b>	Standard delegate: R12 800.00	Full-time student: R6 400

# Registration

## Registration and Cancellation

- [Register online](#)
- Registration covers attendance of all sessions of the workshop, teas and lunches, and a set of notes.
- Registrations close one week before the start of the course. Confirmation of acceptance 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](#).

## 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](#)

This course is registered with the Engineering Council of South Africa (ECSA) for the award of 3 CPD points. The ECSA course validation code is: UCTSPAM25

## Contact details

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

**Web:** <http://www.cpd.uct.ac.za>

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