

# SHORT COURSE: ADVANCED GEOTECHNICS

DEPARTMENT OF CIVIL ENGINEERING • 8-12 MAY 2023

## COURSE COORDINATOR

Prof Peter Day

## CO-PRESENTERS

Prof Nico de Koker

Prof Johan Retief

Prof Richard Walls

## FEES

5-day course: R10,000

## ECSA CPD POINTS

5 points

## LANGUAGE

The course will be presented in English.

## CONTACT

Janine Myburgh

021 808 2080

civilcourses@sun.ac.za

## OBJECTIVES

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

- Basic reliability concepts including an introduction to Monte Carlo simulation and First Order Reliability Methods
- Reliability basis of Limit States Design
- Limit State design of geotechnical structures using SANS 10160-5
- Application of STR limit state to design of foundations
- Application of First Order Reliability Methods (FORM) in geotechnical design

## COURSE OUTCOMES

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

- Appreciate the existence of geotechnical uncertainties necessitating the use of semi-probabilistic limit state design or reliability-based design approaches
- Understand the basic reliability concepts
- Understand the general basis of limit state design as per SANS 10160-1
- Understand the basis of geotechnical design as per SANS 10160-5
- Apply the requirements of SANS 10160 to spread footings, piles and retaining structures
- Apply FORM to geotechnical design problems including the use of response surface methods.

## COURSE ARRANGEMENTS

This course will be presented in HYBRID format at Stellenbosch University and via MS Teams - venue details will be forwarded to registered delegates once payment has been received.

[CLICK TO REGISTER](#)

## REGISTRATIONS

Registrations close on:  
28 April 2023

All payments are due by:  
01 May 2023

**Payment confirms registration.**



**ADVANCED GEOTECHNICS 2023 - PROVISIONAL PROGRAMME**

*Please note: schedule may change without prior notice*

**Monday 08 May 2023**

Start	Finish	Duration	Topic	Lecturer
08:00	08:30	00:30	TEAMS SITE OPEN	
08:30	09:00	00:30	0 Introduction	PWD
09:00	10:30	01:30	1 Basic statistics and methods of reliability assessment	NdK
<b>10:30</b>	<b>11:00</b>	<b>00:30</b>	<b>TEA</b>	
11:00	13:00	02:00	1 Basic statistics and methods of reliability assessment	NdK
<b>13:00</b>	<b>14:00</b>	<b>01:00</b>	<b>LUNCH</b>	
14:00	16:00	02:00	1 Basic statistics and methods of reliability assessment & totorials	NdK/PWD

**Tuesday 09 May 2023**

Start	Finish	Duration	Topic	Lecturer
08:30	10:30	02:00	2 Introduction to SANS 10160-5	PWD
			3 Data Collection	PWD
<b>10:30</b>	<b>11:00</b>	<b>00:30</b>	<b>TEA</b>	
11:00	13:00	02:00	JVR Use of reliability methods to meet performance requirements	JVR
<b>13:00</b>	<b>14:00</b>	<b>01:00</b>	<b>LUNCH</b>	
14:00	16:00	02:00	4 Geotechnical Parameters	PWD
			5 Design effect of actions	

**Wednesday 10 May 2023**

Start	Finish	Duration	Topic	Lecturer
08:30	10:30	02:00	6 Shallow footings	PWD
<b>10:30</b>	<b>11:00</b>	<b>00:30</b>	<b>TEA</b>	
11:00	13:00	02:00	Structural design of footings and pile caps	RSW
<b>13:00</b>	<b>14:00</b>	<b>01:00</b>	<b>LUNCH</b>	
14:00	16:00	02:00	Tutorial - Sizing of spread footings	PWD

**Thursday 11 May 2023**

Start	Finish	Duration	Topic	Lecturer
08:30	10:30	02:00	7 Piles	PWD
			8 Retaining structures	PWD
<b>10:30</b>	<b>11:00</b>	<b>00:30</b>	<b>TEA</b>	
11:00	13:00	02:00	Tutorial - Piles & retaining structures	PWD
<b>13:00</b>	<b>14:00</b>	<b>01:00</b>	<b>LUNCH</b>	
14:00	16:00	02:00	9 Reliability analysis	PWD

**Friday 12 May 2023**

Start	Finish	Duration	Topic	Lecturer
08:30	10:30	02:00	9 Reliability analysis	PWD
<b>10:30</b>	<b>11:00</b>	<b>00:30</b>	<b>TEA</b>	
11:00	13:00	02:00	9 Reliability analysis tutorials	PWD/NdK
<b>13:00</b>	<b>14:00</b>	<b>01:00</b>	<b>LUNCH</b>	
14:00	15:00	01:00	9 Reliability analysis claswork	PWD/NdK