

Advanced Geotechnics

Limit States and Reliability-based design



A block release course over 5 days 14 - 18 May 2018



Presented by: Dr Peter Day, Adjunct Professor of Geotechnical Engineering and Consultant at Jones & Wagener

assisted by Prof. Johan Retief, Dr. Nico de Koker and Dr. Richard Walls

Prerequisites

Attendees are expected to have an understanding of bearing capacity and settlement calculations for foundations and piles, and of earth pressures on retaining structures at an undergraduate level.

Course Objectives

The objective of this course is to provide an understanding of:

- ◆ Basic reliability concepts with an introduction to Monte Carlo simulation 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 structural 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 reliability-based or semi-probabilistic limit state 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 with closed form solutions.

Course Fees: R8000.00 CPD: 5

Registered PG students: R 1000.00

Applications close: 7 May 2018

Course Assessment

Participants attending the course for degree purposes will be assessed by means of a design assignment and/or a written open-book examination as follows:

- ◆ Design assignment: 50%
- ◆ Examination: 50%

Course Material

Attendees will be provided with a complete set of all presentations in electronic format only. Supplementary reading and specimen spreadsheets will be provided electronically.

All attendees are expected to have access to a copy of SANS 10160-1 and SANS 10160-5.

Attendees should bring their own laptops for tutorial sessions.

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Advanced Geotechnics Course



REGISTRATION FORM

14—18 May 2018

Please note there is also an online registration process. Link will be sent once this form has been received

Title		Surname		Name	
Student No.	<i>(if applicable)</i>				
Company					
Address					
Tel					
Fax			Cell		
Invoice for attention:			Your E-mail		
Special dietary requirement			Inv E-mail		

Please read and sign below

Cancellations will be accepted in writing and without penalty, up to 5 working days prior to commencement of the course. Participants cancelling in writing less than 5 working days prior to commencement of the course will be liable for a 50% cancellation fee. Following registration without attendance and without written cancellation, delegates will be held responsible for the full course cost.

I HAVE READ AND AGREE TO THE CONDITIONS OF REGISTRATION AS STIPULATED ABOVE

SIGNATURE: _____

DATE: _____