# ADVANCED STRUCTURAL CONCRETE DESIGN

**STELLENBOSCH**
**6 - 10 May 2024**
Stellenbosch University

**5 DAY OPTION | 5 CPD POINTS | R 10 000**
**2 DAY OPTION | 2 CPD POINTS | R 5 000**

Stellenbosch UNIVERSITY
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UNIVERSITEIT

forward together
sonke siya phambili
saam vorentoe

# SEMINAR OBJECTIVE

This course covers theory and application in the design of reinforced concrete structures. Its purpose is to enable postgraduate students and industry participants to gain a deeper understanding of the topics covered.

# SEMINAR OUTLINE

06 May Analysis systems, tools and methodologies
07 May Structural foundation and surface bed design
08 May Slab analysis, punching shear complexities and transfer systems
09 May Retaining structures, liquid retaining structures, earthquake considerations and post-tensioning systems
10 May Risk, reliability, failures and remedial options for concrete

# PRESENTER

## MRS KIM TIMM

Kim is a Professional Engineer and has built up a wealth of experience over almost 20 years as a practicing structural engineer. She was appointed as Technical Director and Practice Area Lead at AECOM SA, serving as Lead Structural Engineer on, amongst others, Medupi and Kusile Boiler Island Civil Works, and the Growthpoint-EXXAro ConeXXion Building, a technically challenging and award-winning project. Kim is currently pursuing a full-time PhD at Stellenbosch University.

# SEMINAR PROGRAMME

## DAY 1: 06 MAY 2024

| TIME | TOPIC |
|---|---|
| 08:30-09:15 | Introduction to design, detailing, construction, etc. |
| 09:15-10:15 | Analysis - Material models |
| 10:15-10:30 | Coffee Break |
| 10:30-11:15 | Analysis - Member stiffness and modelling |
| 11:15-12:00 | Analysis - Subframes and models |
| 12:00-12:45 | Analysis - Class examples and discussions |
| 12:45-13:45 | Lunch Break |
| 13:45-14:30 | Design of deep beams - Strut and tie method - Theory |
| 14:30-15:15 | Strut and tie method - Application |
| 15:15-15:30 | Coffee Break |
| 15:30-16:30 | Strut and tie method - Examples and Pile Caps |
| | Day 1: Online Quiz Completion |

# SEMINAR PROGRAMME

## DAY 2: 07 MAY 2024

| TIME | TOPIC |
|---|---|
| 08:30-09:15 | Foundations - Geotechnical/structural interaction |
| 09:15-10:15 | Foundations - Structural design |
| 10:15-10:30 | Coffee Break |
| 10:30-11:15 | Foundations - Structural design |
| 11:15-12:00 | Foundations - Structural Design |
| 12:00-12:45 | Foundations - Examples |
| 12:45-13:45 | Lunch Break |
| 13:45-14:30 | Surface beds - Theory and design |
| 14:30-15:15 | Surface beds - Theory and design |
| 15:15-15:30 | Coffee Break |
| 15:30-16:30 | Surface beds - Practicalities and considerations |
| | Day 2: Online Quiz Completion |

## DAY 3: 08 MAY 2024

| | |
|---|---|
| 08:30-09:15 | Slabs - Introduction and types |
| 09:15-10:15 | Slabs - Design and theory |
| 10:15-10:30 | Coffee Break |
| 10:30-11:15 | Slabs - Design & theory |
| 11:15-12:00 | Punching shear |
| 12:00-12:45 | Punching shear calculations |
| 12:45-13:45 | Lunch Break |
| 13:45-14:30 | Punching shear examples |
| 14:30-15:15 | Transfer systems - Types and behaviour |
| 15:15-15:30 | Coffee Break |
| 15:30-16:30 | Transfer systems - Analysis |
| | Day 3: Online Quiz Completion |

# SEMINAR PROGRAMME

## DAY 4: 09 MAY 2024

| TIME | TOPIC |
|---|---|
| 08:30-09:15 | Retaining structures - Introduction and requirements |
| 09:15-10:15 | Retaining structures - Design theory and examples |
| 10:15-10:30 | Coffee Break |
| 10:30-11:15 | Liquid retaining structures - Introduction and requirements |
| 11:15-12:00 | Liquid retaining structures - Design theory and examples |
| 12:00-12:45 | Earthquake design - Introduction and requirements |
| 12:45-13:45 | Lunch Break |
| 13:45-14:30 | Earthquake design - General considerations |
| 14:30-15:15 | Post-tensioning - Introduction and theory |
| 15:15-15:30 | Coffee Break |
| 15:30-16:30 | Post-tensioning - Design calculations |
| | Day 4: Online Quiz Completion |

## DAY 5: 10 MAY 2024

| | |
|---|---|
| 08:30-09:15 | Failures - Introduction |
| 09:15-10:15 | Reliability and risk overview |
| 10:15-10:30 | Coffee Break |
| 10:30-11:15 | Disproportionate collapse |
| 11:15-12:00 | Serviceability failures |
| 12:00-12:45 | Ultimate limit states failure types |
| 12:45-13:45 | Lunch Break |
| 13:45-14:30 | Ultimate limit states failure examples |
| 14:30-15:15 | Concrete remedial works |
| 15:15-15:30 | Coffee Break |
| 15:30-16:30 | Concrete remedial works |
| | Day 5: Online Quiz Completion |

# SHORT COURSE:
# ADVANCED STRUCTURAL CONCRETE DESIGN

## DEPARTMENT OF CIVIL ENGINEERING • 6 - 10 May 2024

### COURSE PRESENTER
Mrs Kim Timm

### FEES
5-day course
6 - 10 May 2024
R 10 000

2-day course
7 - 8 or 9 - 10 May 2024
R 5 000

### ECSA CPD POINTS
5 points for 5-day course
2 points for 2-day course

### LANGUAGE
English

### PROGRAMME
Attached

### CONTACT
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021 808 2080
civilcourses@sun.ac.za

### OBJECTIVES
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Its purpose is to enable postgraduate students and industry participants to gain a deeper understanding of the topics covered.

### OUTLINE
**06 May** Analysis systems, tools and methodologies
**07 May** Structural foundation and surface bed design
**08 May** Slab analysis, punching shear complexities, and transfer systems
**09 May** Retaining structures, liquid retaining structures, earthquake considerations and post-tensioning systems
**10 May** Risk, reliability, failures and remedial options for concrete

### COURSE ARRANGEMENTS
This course will be presented in hybrid mode: Face-to-face on the Stellenbosch Campus & Online via MS Teams. Details will be forwarded to registered delegates once payment has been received.

5 DAYS (06 -10 MAY 2024)
CLICK HERE TO REGISTER

2 DAYS (07 - 08 MAY 2024)
CLICK HERE TO REGISTER

2 DAYS (09 - 10 MAY 2024)
CLICK HERE TO REGISTER

### REGISTRATIONS
Registrations close:
24 April 2024.
All payments are due by:
28 April 2024
Payment confirms registration.



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