MASTERING BRIDGE DESIGN

3-Days Hands-on Practical Training Workshop using MIDAS Civil

Presented by:
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Prof Pierre van der Spuy (SU)

STELLENBOSCH UNIVERSITY
17 -19 April 2024

CLICK HERE TO REGISTER

JOHANNESBURG
22 - 24 April 2024
Protea Hotel Marriott: OR Tambo

CLICK HERE TO REGISTER

3 CPD POINTS COURSE FEE:
NORMAL: R8000.00
MIDAS USERS: R6000.00

(If you are a Midas user, please inform civilcourses after you have registered)

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forward together
sonke siya phambili
saam vorentoe

A COLLABORATIVE INITIATIVE

MIDAS

SEMINAR OBJECTIVE

Participants will learn about modelling, analysis & structural design of new bridge structures as well as assessment of existing bridges. This course covers practical examples of Integral Prestressed Precast beam bridge design along with bridge foundation and Box girder segmental bridge design using flagship FEM software midas Civil. This course covers learning as per South African TMH7 and BS 5400 codal guidelines.

SEMINAR OUTCOME

Attendees will be able to upskill their practical knowledge in providing structurally safe design of prestressed bridges.

CLOSING DATE FOR APPLICATIONS: 12 APRIL 2024 **PAYMENTS DUE: 15 APRIL 2024**

PAYMENT DETAILS:

Invoices will be forwarded to successful delegates once application is processed. If personally paying, details will be in automated email.

PLEASE EMAIL YOUR PROOF OF PAYMENT TO:

Janine Myburgh: civilcourses@sun.ac.za **Telephone:** +27 21 8082080

TRAINING SCHEDULE

Mastering Bridge Structural Design

3-Days Hands-on Practical Training Workshop

South Africa

A collaborative initiative of Stellenbosch University IYUNIVESITHI UNIVERSITEIT and MIDAS

Brief Training Schedule

Day	Training Topic	Training Hours
Day 1	Analysis and Design of Prestressed Precast I-Girder bridge with Substructure & Pile Foundation	09:00 AM to 05:00 PM
Day 2		09:00 AM to 05:00 PM
Day 3	Analysis and Design of ILM prestressed box girder segmental bridge	09:00 AM to 05:00 PM

- Things to carry:
  - ✓ Laptop, Laptop charger, Mouse, Notepad, Pen, etc.
  - ✓ 1-month midas Civil training license will be provided to all participants.
  - ✓ Software training material will be made available in electronic format.

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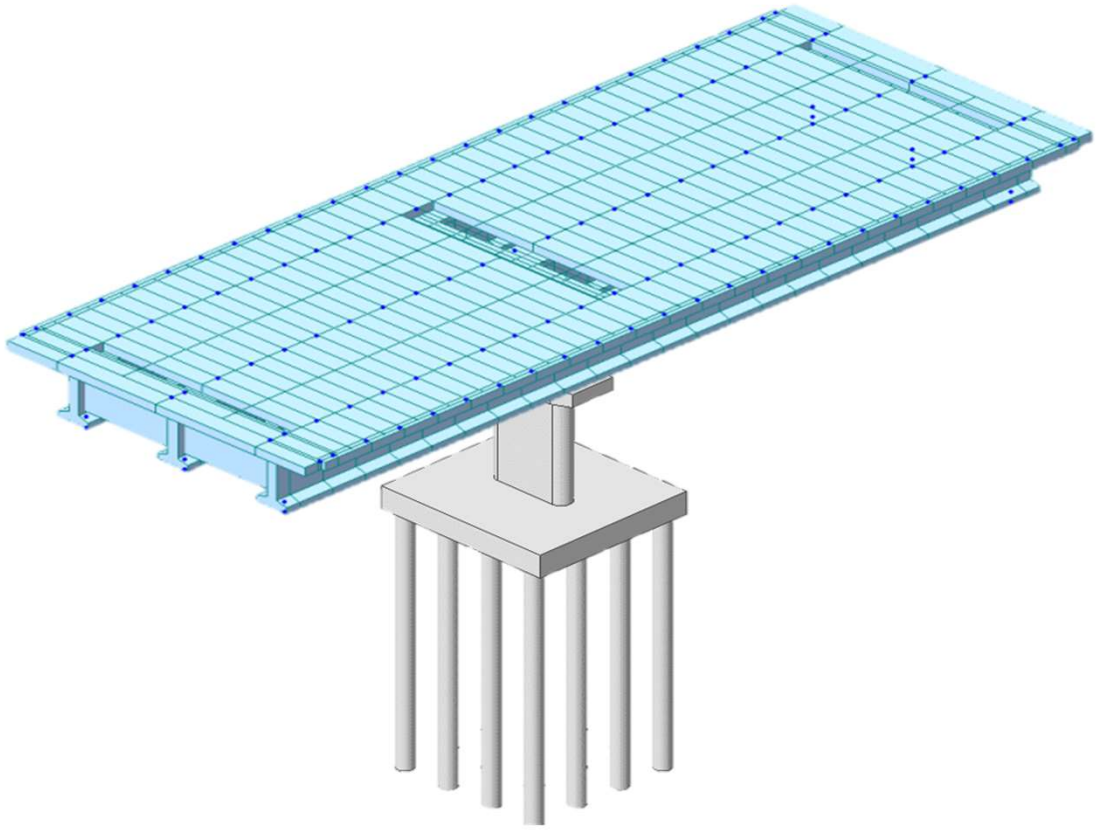
DAY – 1 and DAY – 2

Analysis and Design of Prestressed Precast I-Girder bridge with Substructure & Pile Foundation



DAY 1 - Analysis and Design of Prestressed Precast I-Girder bridge with Substructure & Pile Foundation

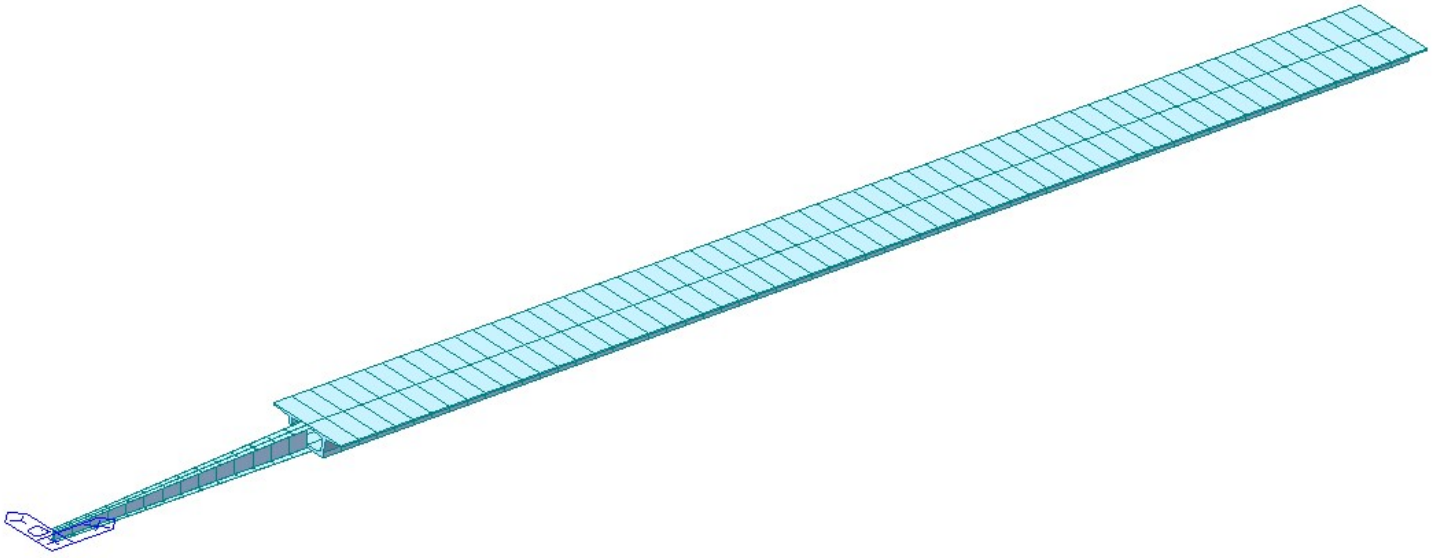
Time	Description
09:00AM to 09:30AM	Registration
09:30AM to 10:00AM	Opening Ceremony, Introduction to course curriculum & trainers
10:00AM to 11:00 AM	Theoretical concepts of Prestressed I-Girder Bridge - Methods of construction of bridges. - Significance of construction stages. - Types of prestressing & prestressing loss calculation using software.
11:00AM to 11:15	***Coffee Break***
11:15 AM to 12:00PM	Introduction to midas Civil software and its capabilities in detail.
12:00PM to 12:30PM	midas Civil license activation & GUI introduction.
12:30PM to 01:00PM	**Modelling of PSC I-Girder bridge** - Modelling methodologies available in midas Civil – manual modelling, modelling using wizards, etc. - Definition of material as per TMH7 & section properties - Definition of time-dependent material properties - Geometry modelling - Define boundary condition - Static loads definition
01:00PM to 02:00PM	***Lunch Break***
02:00PM to 03:00PM	**Construction stage definition for PSC I-Girder bridge** - Importance of construction stages - Define boundary, structure & load groups - Define construction stages **Tendon definition & Assignment** - Ways of tendon profile definition in Midas Civil - Tendon profile generation - Tendon profile definition - Wizard saving option - Generation of the Model
03:00PM to 04:00PM	**Moving Load Definition** - Moving load definition as per TMH7. - Definition of lanes and standard vehicles. - Live load cases definition.
04:00PM to 04:15PM	***Coffee Break***
04:15PM to 04:45PM	**Results interpretation and Post-processing** - Load combinations - Result interpretation and extraction in tabular and graphical representation. - Moving load tracer for determining critical vehicle position. - Tendon Elongation and loss table results.
04:45PM to 05:00PM	Q&A – Winding up the day!

DAY 2 – Analysis and Design of Prestressed Precast I-Girder bridge with Substructure & Pile Foundation

Time	Description
09:00AM to 09:30AM	Setting up for the day
09:30AM to 11:00AM	**Design of Prestressed Composite Girder** - Define design parameters & information as per BS 5400. - Detailed design calculation report generation. - Dynamic report generation for custom analysis & design output from software.
11:00AM to 11:15AM	***Coffee Break***
11:15AM to 01:00PM	**Substructure design** - Design of pier Cap - Design of pier
01:00PM to 02:00PM	***Lunch Break***
02:00PM to 03:45PM	**Pile Foundation Analysis & Design** - Definition of Section Properties - Geometric modelling of Pile Cap and piles using plate elements - Assignment of Soil Springs
03:45PM to 04:00PM	***Coffee Break***
04:00PM to 04:45PM	**Analysis and Design** - Analysis and Results Extraction - Design of Pile Cap and Piles
04:45PM to 05:00PM	Q&A – Winding up the day!

DAY – 3

Analysis and Design of Prestressed ILM Box Girder Segmental Bridge



DAY 3 – Analysis and Design of Prestressed ILM Box Girder Segmental Bridge

Time	Description
09:00AM to 09:30AM	Theoretical aspects of ILM Segmental Box Girder Bridge - Construction methodologies of Segmental box girder bridges.
09:30AM to 10:00AM	**Modelling of PSC Box girder bridge by ILM Wizard** - Material property definition as per TMH7 - Section definition - Generate the model by using ILM Wizard - ILM Model – Bridge information, Boundary Conditions - Input data for Top Bottom Tendons - Input data for Web Tendons
10:00AM to 11:00AM	**Definition of Construction Stages** - ILM Bridge Stage Wizard - Input Diaphragm and Superimposed Dead Loads
11:00AM to 11:15AM	***Coffee Break***
11:15AM to 01:00PM	**Moving Load Definition** - Moving load definition as per TMH7 - Definition of lanes and standard vehicles. - Live load cases definition.
01:00PM to 02:00PM	***Lunch Break***
02:00PM to 03:45PM	**Results interpretation and Post-processing of PSC Box girder bridge** - Moving load analysis control - Construction stage analysis control - Perform Analysis - Load combinations - Result interpretation and extraction in the form of tabular and graphical representation.
03:45PM to 04:00PM	***Coffee Break***
04:00PM to 04:45PM	**Results interpretation and Post-processing of PSC Box girder bridge** - Stress Review - Deflection Graph - Prestress Loss - Tendon Elongation - Construction Stage Results - PSC design excel report generation
04:45PM to 05:00PM	Q&A – Winding up the day!