

S110S: SAP2000 v22 Hands-On Training

COURSE OBJECTIVE

This short course aims to provide engineers with an overview of the fundamentals and capabilities of SAP2000 for Structural Analysis and Design of typical Structures including both Reinforced concrete and Steel. The course will cover primarily linear and static analysis but will cover some aspects of non-linear and dynamic analysis at an introductory level.

COURSE OUTLINE

Introduction to SAP2000 system

- a. Overview of SAP2000 v22 GUI system
- b. Understand SAP2000 analysis and design capability
- c. Workflow in SAP2000

Modelling of frame structures

- a. Overview of 1D FE objects (DOF & Meshing)
- b. Loadings and elements forces on frame elements
- c. Frame insertion points
- d. Joint modelling (rigid zone, end-length offset and deformable panel zone)
- e. Constraints (Rigid Diaphragm, Body, Equal)
- f. Understanding Steel Frame Design with Direct Analysis Method

Modelling of floor/wall systems

- a. Overview of 2D FE objects (Membrane, Plate & Shell)
- b. Elements forces and stresses
- c. Loadings
 - i. Floor (FEM vs. "Yield-line" method)
 - ii. Wall loading through Joint Pattern
- d. Meshing of 2D FE elements
- e. Constraints (Auto-line constraints)
- f. Stiffness modifier
 - i. Cracked section properties
 - ii. 1-way load transfer for slab

Advanced Modelling and Analysis

- a. Beam Slab Interaction
- b. Drawing/Defining Section-Cuts to extract shell forces/stresses
- c. Stage Construction
- d. Buckling Analysis
- e. PT tendons as forces or elements
- f. Cable elements with automatic initial profile

Hands-on Examples

- a. Simple Steel Bridge with RC deck
- b. Mixed RC and Steel Framed Factory Building with Direct Analysis Method (DAM)
- c. Staged Construction for Underground structure
- d. Buckling analysis for a Thin Shell Cylinder structure
- e. Staged Construction for Precast Framing

SPEAKER PROFILE

Er. Choo is a Singapore-Registered Professional Engineer with over 30 years of building design experience, both in Singapore and the USA. He had designed over 200 Light-gage steel frame structures scattered over USA and many RC and Steel buildings in Singapore when he was a consultant in major consulting companies.

Er. Choo has extensive experience in computer-aided analysis and design using advanced engineering software. He is well-versed in advanced numerical analysis including Nonlinear Dynamic Analysis and Performance Based Design.

He is the Technical Director of the Otte group of companies which specializes in advanced and innovative IT solutions for Building, Structural and Geotechnical Engineering professionals. He has conducted numerous training courses and seminars in Singapore, Malaysia and other countries.

Er. Choo graduated with a Master of Public Works and Master of Science in Civil Engineering, with a Full Academic Merit Scholarship from the University of Pittsburgh, Pittsburgh, Pennsylvania, USA. He was also awarded the Chi Epsilon (National Civil Engineering Honor Society, USA) scholarship in the Metropolitan District, the National Dean's List and the Pitt's School of Engineering Dean's List during his undergraduate studies in the same University.

CHOO JUNE SHYAN P.E.
 MSCE, MPW, BSCE
 M.ASCE (USA), M.SEI (USA), MIES, MSSSS





COURSE INFORMATION

S110S: SAP2000 v22 Hands-On Training

Date: 02 - 03 December 2020 (Wed & Thu)

Time: 9:00am - 5:00pm

Venue: Otte Training Room, 1 Pemimpin Drive #10-11, One Pemimpin, Singapore 576151

Fees:	<u>MNT Subscribers</u>	<u>Non MNT Subscribers</u>
Fees per participant	S\$1,000 + GST	S\$1,200 + GST
Early-bird fees	S\$800 + GST	S\$1,000 + GST

Notes:

- i. Early-bird fees only valid for registrations received by 17 November 2020.
- ii. 20% discount for registration of a group of 3 and above. This 20% discount is not applicable to Early-bird registration.
- iii. Participants are required to bring their own laptops with support for WiFi connection.
- iv. Training License will be provided.

Terms and Conditions:

1. Due to limited seats of 12, registration is on a first-come-first-served basis. Training seats will be confirmed upon receipt of payment.
2. Cancellation of registration notice must be made in writing if you are unable to attend. Course fees refund as follows:
 - Notice received 14 days prior to course date - 90% refund.
 - Notice received 7 days prior to course date - 75% refund.
 - Cancellation will not be accepted if notice is received less than 7 days before the event; but a substitute delegate is welcomed at no extra charge.

REGISTRATION FORM

Organization: Department:

Address:

Person in charge (Dr/Mr/Ms): Job Title:

Email: Tel (O): (HP): Fax:

Participants' Names:	PE No.:	Job Title	Email:	Tea breaks (No Pork/No Lard) Vegetarian
<i>Please write clearly as it will be printed on the Certificate of Completion</i>				
(Dr/Mr/Ms).....	<input type="checkbox"/>
(Dr/Mr/Ms).....	<input type="checkbox"/>
(Dr/Mr/Ms).....	<input type="checkbox"/>
(Dr/Mr/Ms).....	<input type="checkbox"/>
(Dr/Mr/Ms).....	<input type="checkbox"/>
(Dr/Mr/Ms).....	<input type="checkbox"/>

I/We hereby agree to abide by the terms and conditions stated above.

Person in charge Signature

Date & Company Stamp

Please submit the completed registration form to the fax or email address below. An invoice & confirmation email will be sent to you upon receipt of your registration.