

## **WSQ Precision Engineering Framework**

<b>WSQ COURSE TITLE</b>	<b>: Perform Structural Simulation for Design Verification</b>
<b>WSQ COURSE CODE</b>	<b>: PE-MP-354E-1</b>
<b>PRODUCT COURSE TITLE</b>	<b>: 1. ANSYS Workbench Mechanical - Introduction</b> <b>: 2. ANSYS Workbench Mechanical - Structural Nonlinearities</b> <b>: 3. ANSYS Workbench - DesignXplorer</b>
<b>DURATION</b>	<b>: 5 x 8hrs sessions</b>

**\* Singaporeans and Permanent Residents may receive up to 90% funding on course fees from the Singapore Workforce Development (WDA). Terms and conditions apply.**

- This training course is creditable for professional development units (PDUs) by the Professional Engineers Board, Singapore (PEB) under their Continuing Professional Development (CPD) program.
- Students will be awarded a Statement of Attainment (SOA) by WDA upon course completion.

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### **OBJECTIVES**

This module stipulates how to perform Finite Element Analysis (FEA) simulations, including:

- linear analyses such as static structural, modal and thermal analyses
- nonlinear analyses such as large deflection, plasticity and contact

It also focuses on how to utilize a design optimization application by studying, quantifying, and graphing various structural, thermal and flow responses on parts and assemblies.

### **WHO SHOULD ATTEND**

This training course is intended for engineers who are required to perform structural analyses.

### **PRE-REQUISITES**

Engineering knowledge is required. Familiarity with computer (PC or workstation) and knowledge of Computer Aided Engineering (CAE) are useful.

Participants must have completed the following courses:

- [Apply Engineering Simulation Fundamentals](#)

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#### **CAD-IT CONSULTANTS (ASIA) PTE LTD**

159 Sin Ming Road, #03-05 Amtech Building, Singapore 575625  
Tel : (65) 6508-7575      Email : [trainingsin@cadit.com.sg](mailto:trainingsin@cadit.com.sg)

## **COURSE SYLLABUS**

- Fundamentals of Mechanical Stress Simulation
- Pre-processing
- Structural Analysis
- Modal Analysis
- Thermal Analysis
- Post-processing
- Fundamentals of Structural Nonlinearities
- Nonlinear Structural Analysis
- Basic Structural Contact
- Advanced Structural Contact
- Plastic Behaviour Analysis of Metals
- Fundamentals of design optimization
- Design Change Response Charts
- Design Parameters
- Design for Six Sigma Analysis in CAE

Each course chapter is followed by "hands-on" workshops and exercises.

## **RECOMMENDED FOLLOW-ON COURSES**

Depending on the student's interests and applications, the student may take one or more of the following industry-specific modules after the completion of this course:

- Perform Engineering Simulation For Built Environment and HVAC Design (Course Code : PE-MP-357E-1)
- Perform Engineering Simulation For The Electronics Industry (Course Code : PE-MP-359E-1)
- Perform Engineering Simulation For The Marine & Offshore Industry (Course Code : PE-MP-360E-1)
- Perform Engineering Simulation For The Industrial Equipment/ Machinery Industry (Course Code : PE-MP-361E-1)
- Perform Engineering Simulation For The Medtech Industry (Course Code : PE-MP-362E-1)
- Perform Engineering Simulation For The Aerospace Industry (Course Code : PE-MP-363E-1)
- Perform Engineering Simulation For Defence & Homeland Security (Course Code : PE-MP-364E-1)

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**About the Singapore Workforce Development Agency (WDA)**

For Singapore's workforce to remain competitive and employable in today's fast changing workplace, they must have knowledge and skills that are relevant, current and sought after by employers to meet the changing needs of Singapore's economy. In response to these needs, WDA was formed to help companies build capabilities and remain competitive so as to contribute to stronger economic growth for Singapore.

For more information, please visit <http://app2.wda.gov.sg/web/Common/homepage.aspx>.

**About the Professional Engineers Board, Singapore (PEB)**

Established in 1971, the Professional Engineers Board, Singapore (PEB) is a statutory board in the Ministry of National Development. PEB aims to set and maintain high standards for registering professional engineers, and to regulate and advance the practice of professional engineering.

For more information, please visit <http://app.peb.gov.sg/>.