

WSQ Precision Engineering Framework

WSQ COURSE TITLE	: Perform Engineering Simulation for Built Environment and HVAC Design
WSQ COURSE CODE	: PE-MP-357E-1
PRODUCT COURSE TITLE	: 1. Introduction to ANSYS Airpak
	: 2. ANSYS CFD Advanced – Heat Transfer
	: 3. ANSYS CFD Advanced – Turbulent Flow
	: 4. ANSYS CFD Advanced – Multiphase Flow
DURATION	: 8 x 8hrs sessions

*** 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.

OBJECTIVES

This module, focusing primarily on applications in the heating, ventilation and air-conditioning (HVAC) industry as well as Build Environment design, is recommended for engineers who wish to perform airflow modelling using Computational Fluid Dynamics (CFD) analysis. The module stipulates how to:

1. Analyze airflow modelling to simulate the airflow problems for any range of applications using CFD method with background, implementation and know-how-to-use of the specialized airflow tools
2. Analyze heat transfer mechanisms such as solar loading and natural convection involved in various airflow simulations to obtain more realistically results using CFD method
3. Analyze turbulence characteristics to carry out HVAC airflow modelling with optimum turbulence simulation strategy
4. Analyze multispecies and multiphase flows to understand the interactions between different various species and phases contained during the analysis such as free surface flows (Volume of Fluid), Eulerian multiphase, mixture multiphase as well as discrete phase models

CAD-IT CONSULTANTS (ASIA) PTE LTD

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WHO SHOULD ATTEND

This training course is intended for engineers in the built environment and HVAC industry who are required to perform airflow modelling using Computational Fluid Dynamics (CFD) analysis.

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](#)
- [Perform CFD Simulation For Design Verification](#)

COURSE SYLLABUS

- Fundamentals of Airflow Modelling
- Geometry Models
- Physical Modelling
- Boundary Conditions
- Meshing
- Solution Solving
- Post-processing of Results
- Fundamentals of Heat Transfer Mechanisms
- Conjugate Heat Transfer Simulation with Conduction
- Solar Loading and Natural Convection
- Heat Exchanger Modelling Approaches
- Heat Transfer Simulation in Porous Media
- Fundamentals of Turbulence Flow Modeling
- Turbulence Simulation Strategy
- Turbulent Flow Simulation
- Fundamentals of Multiphase Models
- Volume of Fluids (VOF) Multiphase Simulation
- Eulerian Multiphase Simulation
- Mixture Multiphase Simulation
- Discrete Phase Models (DPM) Simulation

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

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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/>.