

SOLIDWORKS Flow Simulation Course Outline

 DURATION/TIME 2 Days 9:00 am - 5:00 pm	 METHODOLOGY Practical hands-on with using computers, lecturing, discussions and case studies.
 PREREQUISITES Experience with the Windows™ Operating System. Knowledge of SOLIDWORKS. Basic mechanical engineering concepts.	 TARGET Application Engineer, R&D Engineer, Product Designer or Engineer, and Industrial Engineer

INTRODUCTION

Designed for users who would like to become productive faster, this introductory course offers hands-on training on the use of SOLIDWORKS Flow Simulation.

OBJECTIVE

At the end of this program participants are expected to:

- Learn to create fluid flow study with initial boundary conditions such as type of fluid & flow as well as initial boundary conditions.
- Interpret the different fluid flow results such as flow trajectories, section plots and etc to understand the flow analysis.
- Learn to set up basic thermodynamic equation such as hydraulic loss to evaluate the fluid flow study.

CONTACT

IME CADCAM RESOURCE CENTRE SDN BHD
Certified ISO 9001:2015 QMS

 www.training.cadcam.com.my

 training@cadcam.com.my

 +6019-659 2186



SOLIDWORKS Flow Simulation

DAY 1

Course Outline:

Lesson 1: Creating a SOLIDWORKS Flow Simulation Project

- Objectives
- Case Study: Manifold Assembly
- Problem Description
- Model Preparation
- Post-processing
- Discussion
- Summary

Lesson 2: Meshing

- Objectives
- Case Study: Chemistry Hood
- Project Description
- Computational Mesh
- Basic Mesh
- Initial Mesh
- Geometry Resolution
- Result Resolution/Level of Initial Mesh
- Control Planes
- Summary

Lesson 3: Thermal Analysis

- Objectives
- Case Study: Electronics Enclosure
- Project Description
- Fans
- Perforated Plates
- Discussion
- Summary

Lesson 4: External Transient Analysis

- Objectives
- Case Study: Flow Around a Cylinder
- Problem Description
- Reynolds Number
- External Flow
- Transient Analysis
- Turbulence Intensity
- Solution Adaptive Mesh Refinement
- Two Dimensional Flow
- Computational Domain
- Calculation Control Options
- Time Animation
- Discussion
- Summary

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DAY 1

Course Outline:

Lesson 5: Conjugate Heat Transfer

- Objectives
- Case Study: Heated Cold Plate
- Project Description
- Conjugate Heat Transfer
- Real Gases
- Summary

Lesson 6: EFD Zooming

- Objectives
- Case Study: Electronics Enclosure
- Project Description
- EFD Zooming
- Summary

Lesson 7: Porous Media

- Objectives
- Case Study: Catalytic Converter
- Problem Description
- Porous Media
- Design Modification
- Discussion
- Summary

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DAY 2

Course Outline:

Lesson 8: Rotating Reference Frames

- Objectives
- Rotating Reference Frame
- Part 1: Averaging
- Case Study: Table Fan
- Problem Description
- Noise Prediction
- Part 2: Sliding Mesh
- Case Study: Blower Fan
- Problem Description
- Tangential Faces of Rotors
- Time Step
- Part 3: Axial Periodicity
- Summary

Lesson 9: Parametric Study

- Objectives
- Case Study: Piston Valve
- Problem Description
- Parametric Analysis
- Steady State Analysis
- Part 1: Goal Optimization
- Part 2: Design Scenario
- Part 3: Multi parameter Optimization
- Summary

Lesson 10: Free Surface

- Objectives
- Case Study: Water Tank
- Problem Description
- Free Surface
- Summary
- Theoretical Results
- Experimental Data
- References

Lesson 11: Cavitation

- Objectives
- Case Study: Cone Valve
- Problem Description
- Cavitation
- Discussion
- Summary

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SOLIDWORKS Flow Simulation

DAY 2

Course Outline:

Lesson 12: Relative Humidity

- Objectives
- Relative Humidity
- Case Study: Cook House
- Problem Description
- Summary

Lesson 13: Particle Trajectory

- Objectives
- Case Study: Hurricane Generator
- Problem Description
- Particle Trajectories- Overview
- Summary

Lesson 14: Supersonic Flow

- Objectives
- Supersonic Flow
- Case Study: Conical Body
- Problem Description
- Discussion
- Summary

Lesson 15: FEA Load Transfer

- Objectives
- Case Study: Billboard
- Problem Description
- Summary

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