cadmicro **SOLIDWORKS TRAINING**

SOLIDWORKS FLOW SIMULATION

PREREQUISITES	LENGTH	DESCRIPTION
▪ Some experience using SOLIDWORKS.	2 Days	▪ This course provides an in-depth session on the basics of fluid flow analysis, in addition to covering meshing concerns, modeling concerns, analysis, post-processing, available options and preferences.

▶ CREATING A FLOW SIMULATION PROJECT

- Case Study: Manifold Assembly
- Model Preparation
- Manifold Analysis
- Exclude Cavities Without Flow Conditions
- Computational Domain
- Goal Plot Window
- Post-processing
- Exercise l: Air Conditioning Ducting

▶ MESHING

- Case Study: Chemistry Hood
- Computational Mesh
- Basic Mesh
- Initial Mesh
- Geometry Resolution
- Result Resolution/Level of Initial Mesh
- Exercise 2: Square Ducting
- Exercise 3: Thin Walled Box
- Exercise 4: Heat Sink
- Exercise 5: Meshing Valve Assembly

▶ THERMAL ANALYSIS

- Case Study: Electronics Enclosure
- Fans
- Perforated Plates
- Exercise 6: Materials with Orthotropic Thermal Conductivity
- Exercise 7: Electric Wire

▶ EXTERNAL TRANSIENT ANALYSIS

- Case Study: Flow Around a Cylinder
- Reynolds Number
- External Flow
- Transient Analysis
- Turbulence Intensity
- Solution Adaptive Mesh Refinement
- Two Dimensional Flow
- Computational Domain
- Calculation Control Options
- Drag Equation
- Unsteady Vortex Shedding
- Time Animation
- Exercise 8: Electronics Cooling

▶ CONJUGATE HEAT TRANSFER

- Case Study: Heated Cold Plate
- Conjugate Heat Transfer
- Real Gases
- Goals Plot in the Solver Window
- Exercise 9: Heat Exchanger with Multiple Fluids

▶ EFD ZOOMING

- Case Study: Electronics Enclosure
- EFD Zooming
- EFD Zooming - Computational Domain

SOLIDWORKS FLOW SIMULATION

▶ POROUS MEDIA

- Case Study: Catalytic Converter
- Porous Media
- Design Modification
- Exercise 10: Channel Flow

▶ ROTATING REFERENCE FRAMES

- Rotating Reference Frames
- Part I: Averaging
- Case Study: Table Fan
- Noise Prediction
- Part 2: Sliding Mesh
- Case Study: Blower Fan
- Tangential Faces of Rotors
- Time Step
- Part 3: Axial Periodicity
- Exercise 11: Ceiling Fan

▶ PARAMETRIC STUDY

- Case Study: Piston Valve
- Parametric Analysis
- Steady State Analysis
- Parametric Study
- Part I: Goal Optimization
- Part 2: Design Scenario
- Part 3: Multi parameter Optimization
- Exercise 12: Variable Geometry Dependent Solution

▶ FREE SURFACE

- Case Study: Dam-Break Flow
- Free Surface
- Volume of Fluid (VOF)
- Experimental Data
- Exercise 13: Heat Exchanger with Multiple Fluids

▶ CAVITATION

- Case Study: Cone Valve
- Cavitation
- Discussion
- Summary

▶ RELATIVE HUMIDITY

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

▶ PARTICLE TRAJECTORY

- Case Study: Hurricane Generator
- Particle Trajectories - Overview
- Particle Study - Physical Settings
- Particle Study - Wall Condition
- Exercise 14: Uniform Flow Stream

▶ SUPERSONIC FLOW

- Case Study: Billboard
- Problem Description
- Summary