SOLIDWORKS Flow Simulation

Overview:

This course is designed for users who would like to become productive faster. This introductory course offers hands-on training on the use of SOLIDWORKS Flow Simulation. It provides and in-depth session on the basics of fluid flow analysis, in addition to covering meshing concerns, modelling concerns, analysis, post-processing, available options and preferences.

Duration:

InClass: 2 Days (Full Time) 8:30am- 4:30pm
Distance Learning: 7 Days (Part Time)

Pre-requisites:

- Complete the SOLIDWORKS Essentials
- Computer literacy skills

Creating a SOLIDWORKS Flow Simulation Project

- Model preparation
- Internal flow analysis
- External flow analysis
- Manifold analysis
- Lids
- Lid thickness
- Manual lid creation
- Adding a lid to a part file
- Adding a lid to an assembly file
- Checking the geometry
- Internal fluid volume
- Invalid contacts
- Project wizard
- Dependency
- Exclude cavities without flow conditions
- Adiabatic wall
- Roughness
- Computational domain
- Mesh
- Load results option
- Monitoring the solver
- Goal plot window
- Warning messages
- Post=processing
- Scaling the limits of the legend
- Changing limit settings
- Orientation of the legend, logarithmic scale

Meshing

- Computational mesh
- Basic mesh
- Initial mesh
- Geometry resolution
- Result resolution/level of initial mesh
- Control planes

Thermal Analysis

- Fans
- Fan curves
- Derating
- Perforated plates
- Free area ratio

External Transient Analysis

- Reynolds number
- External flow
- Transient analysis
- Turbulence intensity
- Solution adaptive mesh refinement
- Two-dimensional flow
- Computational domain
- Calculation control option
- Time animation

Conjugate Heat Transfer

- Conjugate heat transfer
- Real gases
- Goals plot in the solver window

EFD Zooming

- EDF zooming
- Computational domain

Porous Media

- Problem Description
- Associated goal
- Porous media
- Porosity
- Permeability type
- Resistance
- Matrix and fluid heat exchange
- Specific area
- Dummy bodies
- Design modification

Rotating Reference Frames

- Rotating reference frames
- Averaging
- Noise Prediction
- Sliding mech
- Problem description
- Tangential faces of rotors
- Time step
- Axial periodicity

Parametric Study

- Parametric analysis
- Steady state analysis
- Parametric study
- Goal optimisation
- Input variable types
- Target value dependence types
- Running optimisation study
- Design scenario
- Multi parameter optimisation

Free Surface

- Free surface
- Volume of fluid
- Theoretical results
- Experimental data

Cavitation

- Cavitation
- Discussion
- Summary

Relative Humidity

- Relative humidity
- Problem description
- Summary

Particle Trajectory

- Particle trajectories
- Physical settings
- Wall condition

Supersonic Flow

- Supersonic flow
- Problem description

- Drag coefficient
- Shock waves
- Summary

FEA Load Transfer

- Problem Description
- Summary