

SOLIDWORKS Simulation Standard

Length: 2 Days

Prerequisite: SOLIDWORKS Simulation Basic

Description: SOLIDWORKS Simulation is designed to make SOLIDWORKS users more productive with the SOLIDWORKS Simulation Bundle. This course provides in-depth coverage on the basics of Finite Element Analysis (FEA), covering the analysis process from meshing, analyzing thin components, beam elements, and thermal stress analysis. This class also discusses linear stress analysis, gap/contact analysis, and best practices.

Course Syllabus

Lesson 6 – Compatible / Incompatible Meshes

- Objectives
- Compatible / Incompatible Meshing
- Case Study: Rotor
- Summary

Lesson 7 - Analysis of Thin Components

- Objectives
- Thin Components
- Case Study: Pulley
- Part 1: Mesh with Solid Elements
- Part 2: Refined Solid Mesh
- Solid vs. Shell
- Creating Shell Elements
- Part 3: Shell Elements – Mid-Plane Surface
- Results Comparison
- Case Study: Joist Hanger
- Summary
- Questions

Lesson 8 - Mixed Meshing Shells & Solids

- Objectives
- Mixed Meshing Solids and Shells
- Case Study: Pressure Vessel
- Summary
- Questions

Lesson 9 - Beam Elements – Analysis of a Conveyor Frame

- Objectives
- Project Description
- Summary

- Questions

Lesson 10 - Mixed Meshing Solids, Beams & Shells

- Objectives
- Mixed Meshing
- Case Study: Particle Separator
- Beam Imprint
- Summary

Lesson 11 - Design Study

- Objectives
- Design Study
- Case Study: Suspension Design
- Part 1: Multiple Load Cases
- Part 2: Geometry Modification
- Summary

Lesson 12 - Thermal Stress Analysis

- Objectives
- Thermal Stress Analysis
- Case Study: Bimetallic Strip
- Examining Results in Local Coordinate Systems
- Saving Model in its Deformed Shape
- Summary

Lesson 13 - Adaptive Meshing

- Objectives
- Adaptive Meshing
- Case Study: Support Bracket
- H-Adaptive Study
- P-Adaptive Study
- H vs. p Elements – Summary





- Summary

Lesson 14 - Large Displacement Analysis

- Objectives
- Small vs. Large Displacement Analysis
- Case Study: Clamp
- Part 1: Small Displacement Linear Analysis
- Part 2: Large Displacement Nonlinear Analysis
- Summary
- Questions

Appendix A - Meshing, Solvers, and Tips & Tricks

- Meshing Strategies
- Geometry Preparation
- Mesh Quality

- Mesh Controls
- Meshing Stages
- Failure Diagnostics
- Tips for Using Shell Elements
- Hardware Consideration in Meshing
- Solvers in SOLIDWORKS Simulation
- Choosing a Solver
- Email Notification Settings

Appendix B - Customer Help and Assistance

- Customer Help and Assistance



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