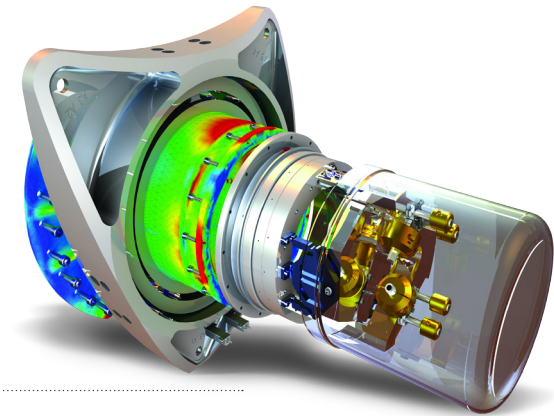


SolidWorks Simulation 2012 Training Course

Course Outline Duration: 3 days • Prerequisites: SolidWorks Essentials

- LESSON 1** The Analysis Process
- LESSON 2** Mesh Controls, Stress Concentrations & Boundary Conditions
- LESSON 3** Assembly Analysis with Contacts
- LESSON 4** Symmetrical and Free Self-Equilibrating Assemblies
- LESSON 5** Assembly Analysis with Connectors
- LESSON 6** Compatible/Incompatible Meshes
- LESSON 7** Assembly Analysis Mesh Refinement
- LESSON 8** Analysis of Thin Components
- LESSON 9** Mixed Meshing Shells & Solids
- LESSON 10** Mixed Meshing Solids, Beams & Shells
- LESSON 11** Design Scenarios
- LESSON 12** Thermal Stress Analysis
- LESSON 13** Adaptive Meshing
- LESSON 14** Large Displacement Analysis



Training Content

Introduction

- About This Course
- What is SolidWorks Simulation?
- What is Finite Element Analysis?
- Build Mathematical Model
- Build Finite Element Model
- Solve Finite Element Model
- Analyze Result
- Errors in FEA
- Finite Elements
- Degrees of Freedom
- Calculations in FEA
- Interpretation of FEA Results
- Units of Measurement
- Limitations of SolidWorks Simulation

LESSON 1

The Analysis Process

- Objectives
- The Analysis Process
- Case Study: Stress in a Plate
- Project Description
- SolidWorks Simulation Options
- Preprocessing
- Meshing
- Postprocessing
- Multiple Studies
- Reports

LESSON 2

Mesh Controls, Stress Concentrations & Boundary Conditions

- Objectives
- Mesh Control
- Case Study: The L Bracket
- Project Description
- Case Study: Analysis of Bracket with a Fillet
- Case Study: Analysis of a Welded Bracket
- Understanding the Effect of Boundary Conditions

LESSON 3

Assembly Analysis with Contacts

- Objectives
- Contact Analysis
- Case Study: Pliers with Global Contact
- Pliers with Local Contact

LESSON 4

Symmetrical and Free Self-Equilibrating Assemblies

- Objectives
- Shrink Fit Parts
- Case Study: Shrink Fit
- Project Description
- Analysis with Soft springs

LESSON 5

Assembly Analysis with Connectors

- Objectives
- Connecting Components
- Connectors
- Case Study: Vise Grip Pliers

LESSON 6

Compatible / Incompatible Meshes

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

LESSON 7

Assembly Analysis Mesh Refinement

- Objectives
- Mesh Control in an Assembly
- Case Study: Cardan Joint
- Problem Statement
- Part 1: Draft Quality Coarse Mesh Analysis
- Part 2: High Quality Mesh Analysis

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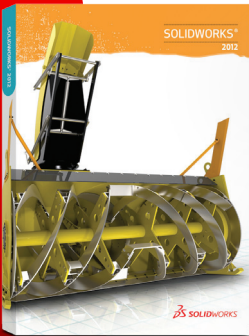
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SolidWorks Simulation 2012 Training Course

Duration: 3 days • Prerequisites: SolidWorks Essentials

Training Content

LESSON 8

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

LESSON 9

Mixed Meshing Shells & Solids

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

LESSON 10

Mixed Meshing Solids, Beams & Shells

- Objectives
- Mixed Meshing
- Case Study: Particle Separator

LESSON 11

Design Scenarios

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

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

LESSON 13

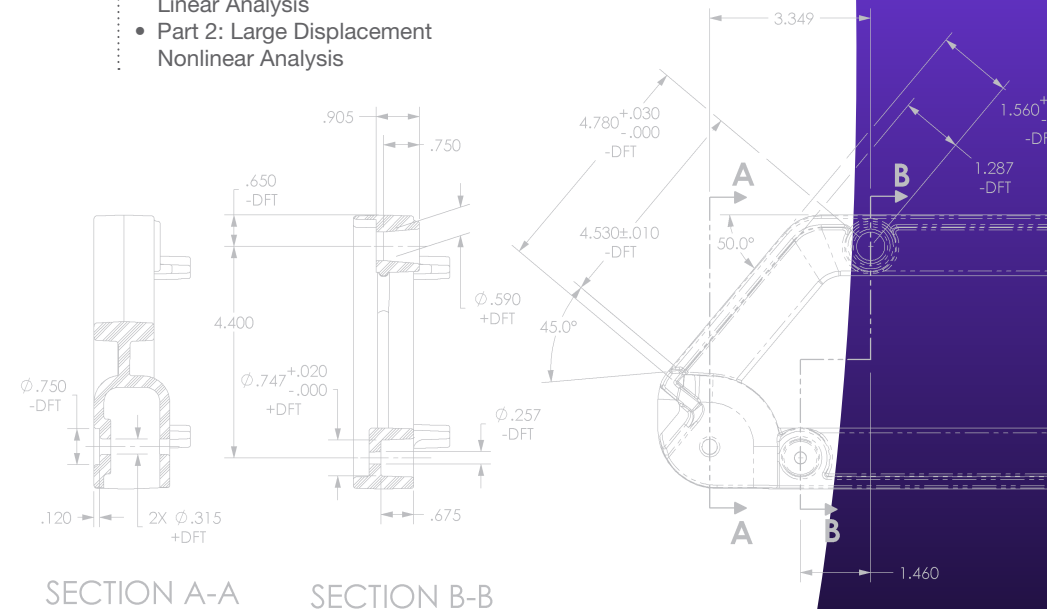
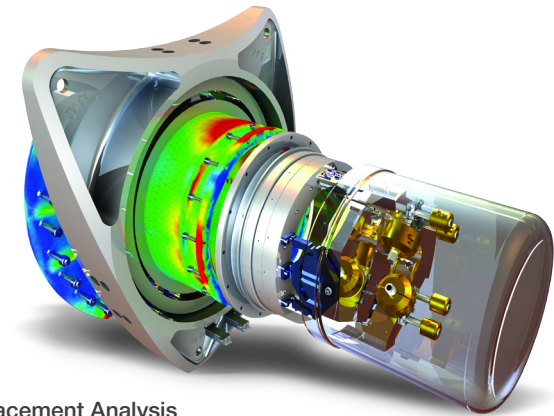
Adaptive Meshing

- Objectives
- Adaptive Meshing
- Case Study: Support Bracket
- h-Adaptivity Study
- p-Adaptivity Study
- h vs. p Elements - 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



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