SOLIDWORKS Simulation Basics

Length: 1 Day

Prerequisite: SOLIDWORKS Essentials

Description: SOLIDWORKS Simulation Basics is designed to make SOLIDWORKS users more productive with the SOLIDWORKS Simulation Bundle. This course provides the basics of Finite Element Analysis (FEA), covering the analysis process from meshing to evaluation of results for parts and assemblies. This class gets you your first look at FEA, the principles and basic theory behind it and provide you the knowledge you need for the next level.

Course Syllabus

Introduction

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

Lesson 1 – The Analysis Process

- Objectives
- The Analysis Process
- Case Study: Stress in a Plate
- Project Description
- SOLIDWROSK Simulation Options
- Preprocessing
- Meshing
- Processing
- Post Processing
- Multiple Studies
- Reports
- Summary
- References

- Questions

Lesson 2 – Mesh Controls, Stress Concentrations and Boundary Conditions

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

Lesson 3 - Assembly Analysis with Contacts

- Objectives
- Contact Analysis
- Case Study: Pliers with Global Contact
- Pliers with Local Contact
- Summary
- Questions
- Project Description

Lesson 4 - Symmetrical and Free Self-Equilibrated Assemblies

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

Lesson 5 - Assembly Analysis with Connectors and Mesh Refinement

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

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