

SOLIDWORKS Simulation Professional Course

LENGTH: 2 DAYS

Prerequisites: Students must have attended the introductory SOLIDWORKS Simulation course (3 days) or must have working knowledge of the SOLIDWORKS Simulation software. Knowledge of SOLIDWORKS and basic mechanical engineering concepts is recommended.

Description: This course is designed to make users productive with the SOLIDWORKS Simulation Professional extension. This 2 day course will provide an in-depth coverage on the advanced topics in Finite Element Analysis (FEA) including heat transfer analysis, frequency analysis, fatigue, stability analysis based on the linear buckling concepts, 2D simulations (plane stress, strain and axisymmetry) and pressure vessel modulus. Example or parts and assemblies including those with various gap/contact conditions are reviewed.

Who Should Attend: All SOLIDWORKS Simulation users wishing to create better designs in SOLIDWORKS by performing analysis and evaluating the behavior of their parts and assemblies under actual service conditions.



Topics covered in this course are:

Introduction

- About This Course
- What is SOLIDWORKS Simulation?
- Limitations of SOLIDWORKS Simulation Professional

Lesson 1: Frequency Analysis of Parts

- Objectives
- Modal Analysis Basics
- Case Study: The Tuning Fork
- Frequency Analysis With Supports
- Frequency Analysis Without Supports
- Frequency Analysis with Load

Lesson 2: Frequency Analysis of Assemblies

- Objectives
- Case Study: The Engine Mount
- Project Description
- All Bonded Contact Conditions
- Bonded and Allow Penetration Contacts

Lesson 3: Buckling Analysis

- Objectives
- Buckling Analysis
- Case Study: Particle Separator
- Project Description

Lesson 4: Thermal Analysis

- Objectives
- Thermal Analysis Basics
- Case Study: Microchip Assembly
- Project Description
- Steady-State Thermal Analysis
- Transient Thermal Analysis
- Transient Analysis with Time Varying Load
- Transient Thermal Analysis using a Thermostat

Lesson 5: Thermal Analysis with Radiation

- Objectives
- Case Study: Spot Light Assembly
- Project Description
- Steady State Analysis
- Summary

Lesson 6: Advanced Thermal Stress2D Simplification

- Objectives
- Thermal Stress Analysis
- Case Study: Metal Expansion Joint
- Project Description
- Thermal Analysis
- Thermal Stress Analysis
- 3D model

Lesson 7: Fatigue Analysis

- Objective
- Fatigue
- Stress-life (S-N) Based Fatigue
- Case Study: Pressure Vessel
- Thermal Study
- Thermal Stress Study
- Fatigue Terminology
- Fatigue Study
- Fatigue study with dead load

Lesson 8: Advanced Fatigue Analysis

- Objectives
- Case Study: Suspension
- Project Description
- Fatigue Study



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Lesson 9: Drop Test Analysis

- Objectives
- Drop Test Analysis
- Case Study: Camera
- Rigid Floor Drop Test
- Elastic Floor Drop Test
- Elasto-Plastic Material Model
- Drop Test with Contact

Lesson 10: Optimization Analysis

- Objectives
- Optimization Analysis
- Case Study: Press Frame
- Static and Frequency Analyses
- Optimization Analysis
- Design Study

Lesson 11: Pressure Vessel Analysis

- Objectives
- Case Study: Pressure Vessel
- Pressure Vessel Analysis
- Manhole Nozzle Flange and Cover



Training Registration

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