SolidWorks 3D Solutions

Simulation Professional Training Course

Course Duration: 1 day

This course is designed to make SolidWorks Simulation users productive with the SolidWorks Simulation Professional extension. This 1 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 analyisis 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.

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.

Who should attend: All SolidWorks Simulation users wishing to create better designs in SolidWorks by performing analysis and evaluating the behaviour of their parts and assemblies under actual service conditions.

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
All Bonded Contact Conditions
Bonded and Free Contact Conditions

Lesson 3: Buckling Analysis
Objectives
Buckling Analysis
Case Study: Particle Separator

Lesson 4: Thermal Analysis
Objectives
Thermal Analysis Basics
Case Study: Microchip Assembly
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
Case Study: Spot Light Assembly
Project Description
Steady State Analysis
Full Radiation Conditions

Lesson 6: Advanced Thermal Stress, 2D Simplification
Objectives
2D Simulations - plane stress, plane strain, axisymmetry
Thermal Stress Analysis
Case Study: Thermal Expansion Joint
Thermal Analysis
Thermal Stress Analysis

Lesson 7: Fatigue Analysis
Fatigue
Stress-life (S-N) Based Fatigue
Case Study: Pressure Vessel
Thermal Stress Study
Fatigue Terminology
Fatigue Study
Fatigue Study with Dead Load

Lesson 8: Advanced Fatigue Analysis
Objectives
Case Study: Suspension
Fatigue Study

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

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