

Training

SolidWorks Simulation Professional

Description

This course is designed to make SOLIDWORKS Simulation users productive with the SOLIDWORKS Simulation Professional extension. This 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 axisymmetric) and pressure vessel analysis. Example or parts and assemblies including those with various gap. Contact conditions are reviewed.

Prerequisites

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.

Duration

1 Day when it is extension of SOLIDWORKS Simulation (3 days) course.
2 Days When the course is conducted separately

Course Outline

Introduction	Introduction to Simulation Professional <ul style="list-style-type: none"> Recap of SOLIDWORKS Simulation Limitation of SOLIDWORKS Simulation Professional
Lesson 1	Frequency Analysis of Parts <ul style="list-style-type: none"> Modal Analysis Basics Project Description Frequencies and Mode Shapes Fundamental Frequency Frequency Analysis with Supports Frequency Analysis Without Supports Frequency Analysis with Load
Lesson 2	Frequency Analysis of Assemblies <ul style="list-style-type: none"> All Bonded Interaction Conditions Bonded and Free Interactions
Lesson 3	Buckling Analysis <ul style="list-style-type: none"> Linear vs. Nonlinear Buckling Analysis Buckling Analysis Considerations Buckling Factor of Safety (BFS) Buckling Analysis Considerations
Lesson 4	Load Cases <ul style="list-style-type: none"> Setting up Load Cases Manager Stages in the Process
Lesson 5	Submodeling <ul style="list-style-type: none"> Submodeling Rules Stages in the Process

Lesson 6	Topology Analysis <ul style="list-style-type: none"> • Basics of Topology Analysis • Goals and Constraints • Best Stiffness to Weight ratio • Manufacturing Controls • Load Cases in Topology Studies
Lesson 7	Thermal Analysis <ul style="list-style-type: none"> • Thermal Analysis Basics • Mechanisms of Heat Transfer. • Steady-State Thermal Analysis • Transient Thermal Analysis • Transient Analysis with Time Varying Load • Transient Thermal Analysis using a Thermostat.
Lesson 8	Thermal Analysis with Radiation <ul style="list-style-type: none"> • Steady State Analysis • Heat Flux Singularities
Lesson 9	Advanced Thermal Stress2D Simplification <ul style="list-style-type: none"> • 2D Simplification • Prescribed Temperature Condition • Meshing Considerations in Thermal Analysis • Importing Temperatures and Pressures from SOLIDWORKS Flow
Lesson 10	Fatigue Analysis <ul style="list-style-type: none"> • Stress-life (S-N) Based Fatigue • Thermal Stress Study • Fatigue Terminology • Fatigue Study with Dead Load
Lesson 11	Variable Amplitude Fatigue <ul style="list-style-type: none"> • Variable Amplitude Fatigue Event • Rainflow Cycle Counting Method • Fatigue Literature
Lesson 12	Drop Test Analysis <ul style="list-style-type: none"> • Rigid Floor Drop Test • Drop Test Parameters • Elastic Floor, Elasto-Plastic Material • Elasto-Plastic Material Mode
Lesson 13	Optimization Analysis <ul style="list-style-type: none"> • Basics of Optimization Analysis • Design Study
Lesson 14	Pressure Vessel Analysis <ul style="list-style-type: none"> • Basics and standards of Pressure Vessel • Pressure Vessel Analysis load combination