



Duration: 1 Days

Prerequisites:

- Must have attended the basic SOLIDWORKS Simulation class, or must have an experience with SOLIDWORKS and working basic knowledge of finite elements and of basic mechanical principles.
- Designed for users who would like to become productive fast, the nonlinear course offers hands-on experience on the use of SOLIDWORKS Simulation nonlinear module. The two-day course provides an overview on a wide range of nonlinear structural/mechanical analysis topics.

Course Outline

This class will raise your SOLIDWORKS Simulation FEA skills to the next level! It offers hands-on experience on the use of SOLIDWORKS Simulation Premium nonlinear module. The 2-day course provides an overview on a wide range of nonlinear structural/mechanical analysis topics. You will learn how to deal with models that exhibit large displacements and/or yielding, discuss and practice the use of many material models available in SOLIDWORKS Simulation and, most importantly, how to drive a non-linear analysis to successful completion. ctual service conditions.

The main topics covered include:

Lesson 1: Geometric Nonlinearities

Large displacements problems
Large strain formulation

Lesson 2: Material Nonlinearities

Nonlinear elasticity
Hyperelasticity (Mooney-Rivlin, Ogden)
Plasticity (von Mises, isotropic/kinematic/mixed hardening rules)
Temperature dependent material properties
Visco-elasticity and creep

Lesson 3: Contact (Boundary) Nonlinearities

3D nonlinear gap/contact analysis (with or without material nonlinearities).

Lesson 4: Numerical Procedures

Solution control techniques (force, displacement, and Arc-Length controls)
Equilibrium Iterations schemes (Newton-Raphson, modified Newton-Raphson)
Termination schemes (convergence and divergence criteria)

Lesson 4: Special Topics

Adaptive automatic stepping algorithm
Prescribed non-zero displacements associated with time curves
Deformation dependent loading
Analysis stabilization techniques

Lesson 5: Viewing the Results

Deflected shape plots
Displacement and stress color filled contour plots
Animation of deflected shape, displacement, and stress contour plots
X-Y plots for response quantities Isoplanes and sectioning

Please do not hesitate to contact us for registration and further information

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