

Course Duration: 2 days

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 non-linear 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.

Prerequisites: Must have attended the basic SolidWorks Simulation class, or must have an experience with SolidWorks + working basic knowledge of finite elements and of basic mechanical principles

Who should attend: 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.

Geometric Nonlinearities

- Large displacements problems
- Large strain formulation

Material Nonlinearities

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

Contact (Boundary) Nonlinearities

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

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)

Special Topics

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

Viewing the Results

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



Contact Details

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