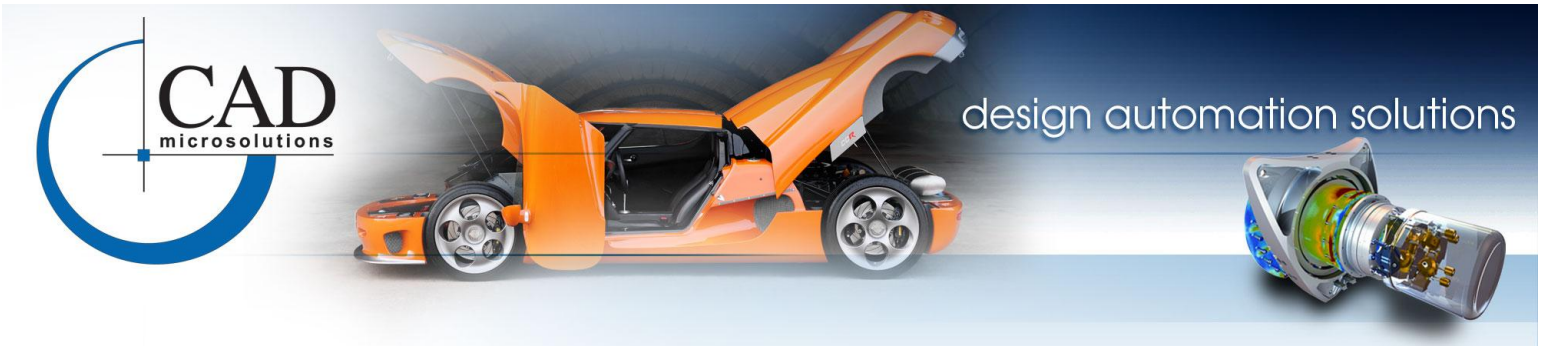

SolidWorks Simulation Non-Linear

Prerequisites	Length	Description
Attended the basic SolidWorks Simulation class, or equivalent. Knowledge of SolidWorks	2 Days	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.

Introduction to Nonlinear Structural Analysis

- Geometric Nonlinearities and Displacement

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 color filled contour plots
- Animation of deflected shape, displacement, and stress contour plots
- X-Y plots for response quantities Iso-planes and sectioning

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