Inventor Nastran Linear & Nonlinear Static Analysis Course

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London (UK)



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Ref: 20220869_2112092020 Location: London (UK) Fees: 6100 GBP

Course Description

This intensive 1-week course provides a comprehensive exploration of Autodesk Inventor Nastran, focusing on linear and nonlinear static analysis techniques. Participants will gain in-depth knowledge of finite element analysis FEA principles, advanced modeling techniques, and result interpretation for product design optimization.

Learning Objectives

- Master the Inventor Nastran interface and workflow for static analysis
- Understand the fundamentals of linear and nonlinear FEA
- Learn advanced meshing techniques and material property assignments
- Develop skills in setting up complex boundary conditions and loads
- Gain proficiency in interpreting and validating analysis results
- Apply best practices for solving real-world engineering problems

Course Modules

Day 1: Introduction to Inventor Nastran and Linear Static Analysis

- Inventor Nastran interface and workflow overview
- Fundamentals of FEA and static analysis
- Linear material models and property assignment
- Basic meshing techniques and quality control
- Simple linear static analysis case studies

Day 2: Advanced Linear Static Analysis Techniques

- Complex geometry preparation and idealization
- Advanced meshing strategies for accuracy and efficiency
- Defining and applying boundary conditions and loads
- Result interpretation and validation methods
- Optimization techniques for linear static problems



Day 3: Introduction to Nonlinear Static Analysis

- Principles of structural nonlinearity
- Material nonlinearity: elastoplastic and hyperelastic models
- Geometric nonlinearity and large displacement analysis
- Contact modeling in nonlinear analysis
- Solution methods for nonlinear problems

Day 4: Advanced Nonlinear Static Analysis

- Complex nonlinear material modeling
- Advanced contact and friction simulation
- Nonlinear buckling analysis
- Solver settings and convergence strategies
- Result interpretation for nonlinear problems

Day 5: Applied Nonlinear Analysis and Best Practices

- Industry-specific nonlinear analysis case studies
- Combining linear and nonlinear approaches
- Performance optimization and troubleshooting
- Best practices for complex nonlinear problems
- Final project: Real-world nonlinear analysis challenge

Practical Wins for Participants

- Ability to confidently set up and solve complex linear and nonlinear static analysis problems in Inventor Nastran
- Skills to optimize product designs using advanced FEA techniques
- Expertise in interpreting and validating FEA results for informed decision-making
- Capability to tackle real-world engineering challenges using Inventor Nastran's powerful analysis tools

