

Dynamic Analysis Using MSC.Patran and MSC.Nastran



Course Description

The course covers a wide range of dynamic analysis topics from basic to advanced using an integrated approach involving the MSC.PATRAN GUI for data set up and post processing and the MSC.NASTRAN solver. Many unique practical hints and tips are given which do not exist in other material. Case studies are used in each topic to help understand the physics and engineering behind the techniques in a practical way. A comprehensive set of over 20 fully detailed student workshops are used in the course to obtain real “hands on” experience. The complexities of MSC.NASTRAN are unveiled by showing the MSC.PATRAN GUI in the context of case studies. A strong emphasis is placed on engineering process so that the student can rapidly relate the course to his or her project needs.

Prerequisites:

- Some familiarity of MSC.Patran and MSC.Nastran
A basic knowledge of Dynamics is recommended

For more information on this course please contact Riekert Leibbrandt 0861237837 or email r.leibbrandt@esteq.com

Topics:

- Review of Fundamentals
- Normal Modes Analysis
- Mass Modeling
- Effective Mass
- Guyan Reduction
- Rigid Body Modes
 - Rigid Body Modes and Rigid Body Vectors
 - Calculation of Rigid Body Modes
 - Selection of “Support” Degrees of Freedom
 - Checking of “Support” Degrees of Freedom
 - Rigid Body Modes
- Pre-Stiffened Normal Modes
- Response Methods
 - Transient Analysis
 - Frequency Response Analysis
 - Response Types
 - Modal and Direct Methods
- Damping Overview
 - Damping in Dynamic Analysis
 - Rayleigh Damping
 - Viscous Damping Input
 - Frequency Dependent Impedance Sample
 - Sample using CBUSH Element
- Transient Response Analysis
- Frequency Response Analysis
- Enforced Motion
- Interactive Frequency Response
- Random Analysis

