



LMS Seminar - How to do Modal Analysis & Test

December 12 – Linnaeus University, Växjö - Sweden

Free of charge

→ [Register here](#) or email andreas.linderholt@lnu.se

Modal Analysis has been a key part of the product development process for the past 30 years. Covering component benchmarking, sub-system analysis and full-system design verification activities, the discipline has evolved with development processes from being a purely test focused activity to more recently supporting simulation based design processes through model validation, correlation and updating.

We kindly invite you a seminar that will introduce modal analysis as a relevant work flow to the modern engineering process and demonstrate, through efficient testing and use of data, the benefits it can bring to your organisation.

This seminar will cover:

- An introduction to modal analysis and its use in the product development cycle
- An overview of the theoretical concepts required for accurate data acquisition and modal model creation
- Practical hands-on demonstrations of a component through pre-test, data acquisition and analysis
- A hybrid test / CAE case study demonstrating the integration of the test data into the CAE analysis environment



Agenda – seminar will start at 09:00 and will finish at 15:30

Morning session

- **Registration and Coffee**
- **Corporate Presentation**
- **Modal Analysis Overview?**
 - What is Modal Analysis
 - What attributes are effected by a systems modal performance
 - When do we use modal analysis in the product development cycle
 - What are the benefits of the correct tool selection for modal testing and analysis
- **Practical Modal Analysis: Pre-Test Basics (with demos)**
 - Digital Signal Processing for modal analysis
 - Excitation options, hammer vs. shaker, SISO, SIMO and MIMO
 - Excitation position
 - Test specimen preparation
 - Pre-test checks
 - Typical test need to knows

Afternoon session

- **Practical Modal Analysis: Basic Data Analysis (with demo's)**
 - The modal model and parameter estimation (theory)
 - Geometry creation
 - Parameter estimation, modal order, the stabilization diagram
 - FRF synthesis, correlation, effect of residual terms
- **Break**
- **Practical Modal Analysis: Advanced Data Analysis (with demo's)**
 - Modal validation tools: modal assurance criterion, mass sensitivity, mode participation, phase scatter
 - Modification prediction
 - Rigid body property estimation
- **Modal Analysis in the Development Cycle**
 - Case study of how modal analysis data is incorporated into the development process. Test / CAE correlation and modal
- **Q&A & Closing**

Venue:

Linnaeus University
Department of Mechanical Engineering
Building M
35195 Växjö

Linnaeus University

www.lmsintl.com