

# VibeSys

## Modal Analysis

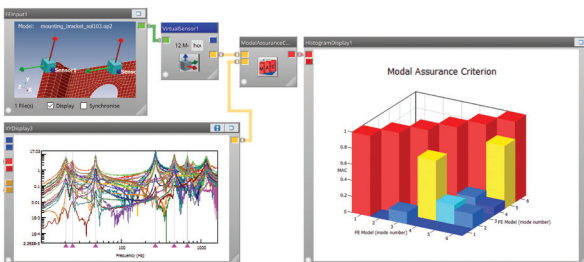
### Product Overview:

Modal Analysis is a specialized product option within nCode VibeSys that provides the ability for engineers to answer questions such as:

- What are the modal frequencies?
- What are the modal damping ratios?
- What is the mode shape at a specific frequency?
- How good is a modal FE simulation compared to a modal test?

The objective of Experimental Modal Analysis is to curve fit a Frequency Response Function using a model which properties are linked with the modal parameters. The objective is to extract resonant frequencies and damping ratios using an algorithm that is robust and insensitive to noise. Operating Deflection Shapes provides the ability to animate a geometry based on measurements or from modal properties. The model can be animated from time series, FRF spectra or a modal table.

### Characterize the dynamics of your components with ease



### Key Benefits:

- Enhance FE modelling by providing more accurate damping ratios
- Validate FE results by comparing modal frequencies and mode shapes with the experimental tests
- Rapidly compare different designs in terms of their dynamic properties
- Troubleshoot Noise and Vibration problems
- Perform Structural Health Monitoring by tracking changes in modal parameters due to damage

### Key Features:

- Experimental Modal Analysis identifies modes of vibration and extract modal parameters
- Operating Deflection Shapes to visualize the vibration patterns of a structure
- Flexible inputs such as FRF to animate mode shapes or time domain signals to display operational displacements
- Validate FE modelling using Modal Assurance Criterion (MAC) analysis
- “AutoMAC” matrix to help position virtual sensors and optimize physical instrumentation to capture the modes of interest

