ARIADNE ENGINEERING AB

AGENDA
VIBRATIONS ANALYSIS with CREO Simulate

All topics will illustrated with hands-on examples

FUNDAMENTALS OF STRUCTURAL FEA
· A brief overview of the Finite Element Method
· FEA in p-version as implemented in Pro/Mechanica
· Discretization error and Convergence process
· Shape functions
· Accuracy of results

STATIC ANALYSIS
· Convergence of static analysis measures
· Quantities calculated in static analysis

MODAL ANALYSIS
· Formulation of eigenvalue problem
· Eigenvalues and eigenvectors
· Resonance
· Structures with symmetries, mode separation
· Local and global modes
· Applications of modal analysis
· Pre-stress modal analysis
· Concept of modal superposition
· Meshing considerations for modal analysis

FORCED VIBRATIONS ANALYSIS
· Dynamic time analysis
· Dynamic frequency analysis
· Primary and secondary components, pilot studies
· Damping in forced vibrations problems
· Modelling supports

RANDOM VIBRATIONS
· Signal processing with Fourierôs transformation
· The concept of Power Spectral Density (PSD)
· PSD units
· White noise, pink noise
· Dynamic Random analysis with Pro/Mechanica

SEISMIC ANALYSIS
· Generating the Response Spectrum curve
· Method of modes combinations
· Example of seismic codes
· Modal analysis requirement for seismic analysis
· Dynamic Shock analysis with Pro/Mechanica