



Course Name : Ansys Workbench
Duration : 80 hrs.

Syllabus

Introduction
Introduction to CAE , General working of FEA , Stiffness matrix , Boundary conditions Elements and Element Shapes , General procedure to conduct FEA FEA software , Key Assumptions in FEA , Types of Engineering Analysis ANSYS Workbench 14.0 GUI
Design Modeler
Introduction to DesignModeler, Planes and Sketches, Modeling, Geometry Simplification and Repair, CAD Connections, Parameterization, Solid Modeling , Sketching, Pattern, Assembly, Beams and Shells , Lines and Surfaces
Material Properties
Material Definition, Explaining about nodes & elements, Creating and Adding Materials, Assigning Material to the Beam, Assigning Material to the Clamp, Assigning Material to the Assembly
Meshing
Introduction, Global Meshing Controls , Local Meshing Controls , Meshing of Plate with Holes, Generating the mesh, optimize the model and generating the local mesh Assembly Meshing, Mapped meshing. Mesh concatenation, Mesh extrusion, Mesh sweeping. Hexa – tetra conversion, Define loading & boundary conditions. Different types of loads, Different types of constraints.
Static Structural Analysis
Introduction to Static Structural Analysis , Loads , Supports, Nodal Loads and Supports

Solving Models, Beam analysis, Truss analysis, Stresses in bars
Static Structural Analysis of: Cantilever Beam , Plate with a central circular holes
Plate with a square slot , Pressure vessel, Bracket, Clevis assembly

Modal Analysis

Overview , Performing the Modal analysis
Specifying analysis settings
Modal analysis of Cantilever beam, Simply supported beam
Connecting rod, Motor cover Assembly

Vibrational Analysis

Basics of Free Vibration , Geometry , Contact , Solution Setup, Modal Results
Vibration with Prestress, Case Studies

Thermal Analysis

Introduction , Types of thermal analysis,
Geometry , Material Properties, Thermal Contact, Thermal Boundary Conditions
Solution Options
Steady state thermal analysis of Car Disk Brake Rotor
Heat sink , Transient thermal analysis of Piston
Thermal stress-uniform temperature change
Thermal stress in a cylinder

Results and Postprocessing

Viewing Results, Scoping Results, Exporting Results, Coordinates Systems
Solutions Combinations, Stress Singularities, Error Estimation ,Convergence

Advanced Named Selection

Named Selection Basics, Direct Named Selections, Criteria Named Selections
Named Selection Summary

Constraint Equations

Constraint Equations, Constraint Equations Worksheet

Design Centre

www.dcpune.in