



IFS Academy

Training for the future!!!

ANSYS Basic Training Course Curriculum

Chapter 1: Before you start using Ansys

- a. Introduction to the Finite Element Method
- b. What is the Finite Element Method?
- c. History
- d. General Steps of the Finite Element Method
- e. Explanation of 1D, 2D and 3D Elements with examples of ANSYS Elements
- f. Need of FEM
- g. Enlisting different FEM methods and detailed explanation of any one
- h. Derivation of stiffness matrix equation
- i. Types of analysis that can be done using ANSYS
- j. Advantages of the Finite Element Method
- k. Limitations of FEA
- l. About ANSYS Inc.
- m. ANSYS Family of products with their capabilities
- n. Types of analysis that can be done with ANSYS.
- o. Introduction to the Ansys GUI
- p. Operation Modes of Ansys
- q. Product Launcher
- r. Launcher Tasks
- s. Use Custom Memory Settings
- t. Launcher Menu Options
- u. The ANSYS GUI
- v. The Icon Toolbar Menu
- w. Quitting Ansys

Chapter 2: Selection Logic

- a. Plotting
- b. Pan-Zoom-Rotate
- c. Picking
- d. Coordinate Systems
- e. Select Logic

Chapter 3: Solid Modeling

- a. An Overview of Solid Modeling Operations
- b. Working with Boolean operations
- c. Working Plane
- d. Importing of 3D models

Chapter 4: Meshing

- a. Free meshing or Mapped meshing
- b. Setting Element Attributes
- c. Selecting Element Type
- d. Shape Function
- e. Defining Element Types
- f. Real Constants
- g. Defining Section Properties
- h. Assigning Element Attributes before meshing
- i. Mesh Controls
- j. The ANSYS MeshTool
- k. Smartsizing
- l. Meshing
- m. Free Meshing
- n. Mapped Meshing
- o. Hybrid meshing
- p. Mesh Extrusion
- q. Volume Sweeping

Chapter 5: Material Properties

- a. Material Library

- b. Specifying properties

Chapter 6: Boundary Conditions

- a. Types of Loads
- b. Applying loads

Chapter 7: Solvers

- a. Types of Solvers
- b. Solver Setup
- c. Load Step Options
- d. Solving Multiple Load Steps

Chapter 8: Post-processing

- a. Contour Plot Viewing
- b. Path Operations
- c. Estimating Solution Error
- d. Time History Postprocessor (POST26)
- e. Report Generator

Chapter 9: Introduction to Non-Linear Analysis

Chapter 10: Sample Structural Analysis

- a. Workshop

Chapter 11: Sample Thermal Analysis

- a. Workshop

Chapter 12: Sample Modal Analysis

- a. Workshop

Chapter 13: Tips & Tricks

- a. Using the Toolbar & Creating Abbreviations
- b. Introduction to APDL
- c. Using Parameters
- d. Using the Start File
- e. Using the Session Editor
- f. Using Input Files

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