



Simulation Mechanical 2012 Part I Course Outline

This course will introduce you to the static stress, heat transfer, and linear dynamics analyses capabilities available within Autodesk Simulation Mechanical (formerly Autodesk Algor Simulation) and Multiphysics. You will learn about meshing, loads, and constraints for each of the covered analysis types. Most importantly, you will learn how to evaluate the results. You will also learn how to create custom presentations and reports of the results. This course is a prerequisite to Autodesk Simulation Mechanical Part II, where large scale motion, large deformation, large strain with contact, and non-linear material models are covered.

Topics:

Introduction

Overview
Software Installation,
Services, and Support
Background of FEA
Stress and Strain Review
Heat Transfer Review
Linear Dynamics Review

1. Using Autodesk Simulation

Navigating the User Interface
Steel Yoke Example

2. Static Stress Analysis Using CAD Solid Models

Archiving a Model
Types of Brick Elements
Generating Meshes for CAD Models
Tips for Modeling with CAD
Solid Model Software for FEA
Simplifying CAD Solid Models with Autodesk Fusion
Working with Various Unit Systems
Loading Options
Constraint Options
Design Scenarios
Load and Constraint Group
Local Coordinate Systems

Defining Materials and Using the Material Library Manager
Examples of Loads and Constraints

3. Results Evaluation and Presentation

Background on How Results are Calculated
How to Evaluate Results
Presentation Options

4. Midplane Meshing and Plate Element Orientation

Meshing Options
Element Options
Loading Options
Result Options

5. Meshing

Refinement Options
Creating Joints
Creating Bolts
Mesh Convergence Testing

6. Introduction to Contact

Uses for Contact
Contact Options
Contact Example
Shrink Fit Example
Result Options

7. Introduction to Linear Dynamics

Model Analysis
Lumped Masses
Load Stiffening
Example of Natural Frequency (Model) Analysis
Critical Buckling Analysis
Result Options
Other Linear Dynamics Analysis

8. Steady-State Heat Transfer

3D Radiator Example
Meshing Options
Element Options
Loading Options
Result Options

9. Transient Heat Transfer

When to Use Transient Heat Transfer
Element Options
Loading Options
Result Options

10. Thermal Stress

Multiphysics Overview
Performing a Thermal Stress Analysis

Duration: 3 day

Classroom Tuition:
\$825.00/student

Group rates are available

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