



## **Simulation Mechanical 2012 Part II Course Outline**

This course will introduce you to large scale motion, large deformation, large strain with contact, and non-linear material analyses capabilities available within Autodesk Simulation Mechanical and Multiphysics. This course assumes you have a working knowledge of the Autodesk Simulation user interface and basic FEA theory. It is recommended that you attend the Autodesk Simulation Mechanical Part I course prior to attending this class. Many people choose to take both Part I & II in the same week.

### **Topics:**

#### **Introduction**

Background of MES  
Stress and Strain Review  
Steps for MES

#### **1. Example Using MES**

Examples:  
Meshing the Model  
Setting up the Model  
Adding Loads and Constraints  
Specifying the Element Definition and Material  
Defining the Analysis Parameters  
Analyzing the Model  
Reviewing the Results  
Saving an Image and Animation  
Generating a Report

#### **2. Setting up the Event and Prescribing Motion**

Introduction  
Dynamic Analysis Techniques  
Modeling Options  
Element Options  
MES Loading Options  
Setting up Time-Dependant Loads  
Event Setup  
Loading Options  
Result Options  
Example of Prescribing Motion  
Meshing the Model  
Defining the Element and Material Data  
Adding Loads and Constraints  
Defining the Analysis Parameters  
Running the Analysis  
Viewing the Results

#### **3. Introduction to Contact and Impact**

Uses for Contact and Impact  
Surface-to-Surface Contact Options  
Impact Plane Options  
Acceleration  
Results Options  
Example of Contacts  
Example of an Impact Plane

#### **4. Overview of Material Models**

Material Model Options  
Results Options  
Example using von Mises Material Models

#### **5. Geometric Nonlinearities**

Overview  
Buckling Analysis  
Restarting Existing Analysis  
Example of an MES Restart

#### **6. Multiphysics and Results-Based Loading**

Results Based Loading  
Magnetic Force Example  
Thermal Stress Analysis

#### **7. Planar Elements**

Element Options  
Loading Options

**Duration:** 2 day

**Classroom Tuition:** \$550.00/student

*Group rates are available*

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