

SOLIDWORKS Motion

OVERVIEW

CLASSROOM LENGTH: 2 days

PREREQUISITES: Knowledge of SOLIDWORKS and the basics of the MotionManager is required. If you are not familiar with the basics of the MotionManager, the class manager will send you a self-paced lesson that should be completed before class begins. Knowledge of basic mechanical engineering concepts is recommended..

DESCRIPTION: Designed for users who would like to become productive quickly in using SOLIDWORKS Motion. This course will teach you how to use the SOLIDWORKS Motion simulation package to study the kinematics and dynamic behavior of your SOLIDWORKS assembly models.

LESSON 1:

INTRODUCTION TO MOTION SIMULATION AND FORCES

- Basic Motion Analysis
- Case Study: Car Jack Analysis
- Results

LESSON 2:

BUILDING A MOTION MODEL AND POST-PROCESSING

- Creating Local Mates
- Case Study: Crank Slider Analysis
- Mates
- Local Mates
- Power
- Plotting Kinematic Results

LESSON 3:

INTRODUCTION TO CONTACTS, SPRINGS AND DAMPERS

- Contact and Friction
- Case Study: Catapult
- Contact
- Contact groups
- Contact Friction
- Translational Spring
- Translational Damper
- Post-processing

LESSON 4:

ADVANCED CONTACT

- Contact Forces
- Case Study: Latching Assembly
- STEP Function
- Contact: Solid Bodies
- Geometrical Description of Contacts
- Integrators
- Instability Points
- Modifying Result Plots

LESSON 5:

CURVE TO CURVE CONTACT

- Contact Forces
- Case Study: Geneva Mechanism
- Curve to Curve Contact
- Solid Bodies vs. Curve to Curve Contact
- Solid Bodies Contact Solution

LESSON 6:

CAM SYNTHESIS

- Cams
- Case Study: Cam Synthesis
- Trace Path
- Exporting Trace Path Curves

LESSON 7:

MOTION OPTIMIZATION

- Motion Optimization
- Case Study: Medical Examination Chair
- Sensors
- Optimization Analysis

 **SOLIDWORKS** Motion**LESSON 8:****FLEXIBLE JOINTS**

- Case Study: System with Rigid Joints
- System with Flexible Joints

LESSON 9:**REDUNDANCIES**

- Case Study: Door Hinges
- How to Check For Redundancies
- Typical Redundant Mechanisms

LESSON 10:**EXPORT TO FEA**

- Exporting Results
- Case Study: Drive Shaft
- Export of Loads

LESSON 11:**EVENT BASED SIMULATION**

- Event Based Simulation
- Case Study: Sorting Device
- Servo Motors
- Sensors
- Task