

SOLIDWORKS Motion

Length: 2 Days

Prerequisite: SOLIDWORKS Essentials and experience with the MotionManager

Description: SOLIDWORKS Motion teaches you how to use the SOLIDWORKS Motion simulation package to study the kinematics and dynamic behavior of your SolidWorks assembly models.

Course Syllabus

Introduction

- About This Course
- More SOLIDWORKS Training Resources
- What is SOLIDWORKS Motion?
- Understanding Basics
- Basics of Mechanism Setup in SOLIDWORKS Motion
- Summary

Lesson 1 - Introduction to Motion Simulation and Forces

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

Lesson 2 - Building a Motion Model and Post-Processing

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

Lesson 3 - Introduction to Contacts, Springs, and Dampers

- Objectives
- Contact and Friction
- Case Study: Catapult
- Contact

- Contact Groups
- Contact Friction
- Translational Spring
- Translational Damper
- Post-Processing
- Analysis with Friction
- Summary

Lesson 4 - Advanced Contact

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

Lesson 5 - Curve to Curve Contact

- Objectives
- Contact Forces
- Case Study: Geneva Mechanism
- Curve to Curve Contact
- Solid bodies vs. curve-to-curve contact
- Solid Bodies Contact Solution
- Summary

Lesson 6 - CAM Synthesis

- Objectives
- CAMs
- Case Study: CAM Synthesis

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- Trace Path
- Exporting Trace Path Curves

Lesson 7 - Motion Optimization

- Objectives
- Motion Optimization
- Case Study: Medical Examination Chari
- Sensors
- Optimization Analysis

Lesson 8 - Flexible Joints

- Objectives
- Flexible Joints
- Case Study: System with Rigid Joints
- System with Flexible Joints
- Summary
- References

Lesson 9 - Redundancies

- Objectives
- Redundancies
- Case Study: Door Hinges
- How to Check for Redundancies
- Typical Redundant Mechanisms
- Summary

Lesson 10 - Export to FEA

- Objectives
- Exporting Results
- Case Study: Drive Shaft
- Export of Loads
- Direct Solution in SOLIDWORKS Motion

- Summary

Lesson 11 - Event Based Simulation

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

Lesson 12 - Design Project

- Objectives
- Design Project
- Case Study: Surgical Shear – Part 1
- Self-Guided Problem – Part 1
- Self-Guided Problem – Part 2
- Problem Solution – Part 1
- Creating the Force Function
- Case Study: Surgical Shear – Part 2
- Summary

Appendix A - Motion Study Convergence Solutions and Advanced Options

- Convergence
- Accuracy
- Integrator Type
- Integrator Settings
- Conclusion

Appendix B - Mate Friction

- Mate Friction





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CADIMENSIONS TRAINING CATALOG

