

## SOLIDWORKS Assembly Modeling

### OVERVIEW

**PREREQUISITES:** We recommend completing the SOLIDWORKS Essentials course. Access to SOLIDWORKS 2017 or newer and experience with the Windows® operating system.

**DESCRIPTION:** SOLIDWORKS Assembly Modeling builds upon the Essentials lessons to provide instruction on advanced features and capabilities in SOLIDWORKS.

#### LESSON 1:

##### ADVANCED MATE TECHNIQUES

- SOLIDWORKS Assemblies
- Assembly File Structure
- File References and Example
- Solving Mates
- Advanced Mate Techniques and Shortcuts
- Case Study: Mate Shortcuts
- Mate References and Design Library Parts
- Capture Mate References
- Multiple Selection Mate References and Mode
- Driven Mates and Using Misaligned Mates
- Copying Multiple Components
- Case Study: Copy with Mates
- Using Copy with Mates
- Fixed Components
- Summary: Inserting and Mating Components
- Advanced Mate Features
- Case Study: Advanced Mate Features
- Profile Center Mate
- Exercises 1-5

#### LESSON 2:

##### TOP-DOWN ASSEMBLY MODELING

- Top-Down Assembly Modeling
- Stages in the Process
- Making Changes to Dimensions
- Case Study: Editing and Building In-Context
- Adding Features In-Context
- Inserting a New Part into an Assembly
- Building In-Context Features
- Propagating Changes
- Saving Virtual Parts as External
- External References
- Breaking and Locking External References
- Machine Design Intent
- SOLIDWORKS File Utilities
- Removing External References
- Exercises 6-8

#### LESSON 3:

##### SMART TECHNOLOGY

- Assembly Features and Smart Fasteners
- Case Study: Assembly Features
- Assembly Features
- Hole Series
- Smart Fasteners
- Smart Components
- Case Study: Smart Component
- Flexible Components
- Exercises 9-14

#### LESSON 4:

##### ASSEMBLY EDITING

- Assembly Editing
- Key Topics
- Case Study: Assembly Editing
- Mate Errors
- Replacing and Modifying Components
- Converting Parts and Assemblies
- Troubleshooting an Assembly
- Replacing and Reloading Components
- Component Patterns
- Exercises 15-18

#### LESSON 5:

##### USING CONFIGURATIONS WITH ASSEMBLIES

- Using Configurations with Assemblies
- Case Study: Assembly Configurations
- Creating Configurations and Properties
- Using the Modify Configurations Dialog
- Context Toolbar and Changing Configurations
- Managing the Tree Display
- Assembly Evaluation Tools
- Case Study: Hole Alignment
- Controlling Dimensions in an Assembly
- Creating an Equality
- Equations With Functions
- Sensors and Using the Mate Controller
- Exercises 19-21

 **SOLIDWORKS** Assembly Modeling**LESSON 6:****DISPLAY STATES AND APPEARANCES**

- Display States and Bulk Selection Tools
- Case Study: Display States
- Advanced Select
- Using Envelopes
- Appearances, Materials and Scenes
- Case Study: Appearances and Materials
- Exercises 22-23

**LESSON 7:****LARGE ASSEMBLIES**

- Large Assemblies Key Topics
- Lightweight Components
- Large Assembly Mode
- Case Study: Large Assembly Options
- Using SpeedPak
- Using Configurations with Large Assemblies
- Defeature
- Modifying the Structure of an Assembly
- Assembly Visualization
- Large Design Review
- Tips for Faster Assemblies
- Drawing Considerations
- Exercise 24-27

**LESSON 8:****FACILITY LAYOUT**

- Facility Layout and Publishing an Asset
- Using Magnetic Mates
- Modeling Connection Point Geometry
- Exercise 28

**LESSON 9:****USING SOLIDWORKS TREEHOUSE**

- SOLIDWORKS Treehouse
- Setting Treehouse Instances
- Exporting Treehouse Data
- Exercise 29