



## Advanced Assemblies in SolidWorks (3+ Days)

**\* Ve-I Bonus! \* DriveWorksXpress + Motion & Animation**

### Assembly Structure

Creating Sub-Assemblies	Shows several methods for Creating Sub-Assemblies
Flexible Sub-Assemblies	Explains how sub-assemblies will move when as either Rigid or Flexible
Empty Sub-Assemblies	Shows how to create a new sub-assembly from an empty sub-assembly
Folders vs. Sub-Assemblies	Explains the difference between using sub-assemblies and folders
Sub-Assemblies in Drawings	Explains how Sub-Assemblies will behave in the BOM of a Drawing

### Assembly Features

Assembly Features	Explains how to use features created at the assembly level
Feature Scope	Shows how to control which components are affected by an Assembly Feature
Assembly Fillets	Shows how to create a fillet as an assembly feature
Assembly Chamfers	Shows how to create a chamfer as an assembly feature
Weld Beads	Shows how to add a weld bead assembly feature
Hole Series	Shows how to add a hole to multiple components in an assembly
Smart Components	Explains how to create smart components that automatically create associated features and hardware
Belts and Chains	Shows how to add belt or chain features in an assembly
Swept Cut	In assemblies the solid sweep feature is not available, but you can instead create a profile sweep

### Component Patterns

Linear Patterns	Shows how to use a Linear Pattern to create more instances of a component in an assembly
Circular Patterns	Shows how to use a Circular Pattern to create more instances of a component in an assembly
Pattern Driven Patterns	Shows how to pattern components in an assembly based on a pattern feature from another component

Sketch Driven Pattern	Shows how to pattern components in an assembly based on a sketch
Curve Driven Pattern	Shows how to pattern components in an assembly based on a curve
Mirroring Components	Shows how to create more instances of a component using the Mirror Component command

### **Advanced Mate Types**

Symmetric Mate	Shows how to use the Symmetric Mate
Width Mate	Shows how to use the Width Mate
Path Mate	Shows how to mate an entity to a path
Linear Coupler Mate	Shows how to give parts a translational relationship in a single direction
Cam Mate	Shows how to use the Cam Mate
Slot Mate	Shows how to use the Slot mate
Hinge Mate	Shows how to add a hinge relationship between two components
Gear Mate	Shows how to use the Gear Mate
Rack and Pinion Mate	Shows how to mate the linear motion of a rack with the circular motion of a pinion
Screw Mate	Add a rotational and translational relationship between two parts
Limit Mate	Define a range of motion by specifying a minimum and maximum position
Mate References	Shows how to set up references so that mates are added automatically when adding a part in an Assembly
Extracting Mate References	Shows how to get mate references from components that are already mated together
Mate Reference Pairs	Explains how you can use common mate references for several components

### **Troubleshooting Mates**

Assembly Mate Errors	Introduces Assembly Mate Errors and how they can occur
Repairing Mate Errors - Part A	Shows how to Identify and Repair Mate Errors
Repairing Mate Errors - Part B	Shows how to Identify and Repair Mate Errors
Mate Xpert	Shows how to use the Mate Diagnostics command to resolve mate issues
Replace Mate Entities	Shows how to reattach mate entities to replaced components

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## Assembly Configurations

Assembly Configurations - Part A	Shows how to create Assembly Configurations
Assembly Configurations - Part B	Shows how to create Assembly Configurations
Advanced Options	Shows how changes to one configuration will affect other configurations
Automatic Part Configurations	Shows how to create or specify configurations for a group of parts within an assembly
Assembly Design Tables - Part A	Shows how to utilize design tables at the assembly level
Assembly Design Tables - Part B	Shows how to utilize design tables at the assembly level
SpeedPak	Shows how to create simplified SpeedPak configurations

## Top Down Assembly Design

Introduction to Top Down Assembly Design	Design components in the context of an assembly
Edit Part Mode	Shows the difference between Edit Part Mode and Assembly Mode
Component Visibility	Shows how to control the display of components in Edit Part mode.
In-Context Features - Part A	Shows how to add a feature to a component in the context of an assembly
In-Context Features - Part B	Shows how to add a feature to a component in the context of an assembly
Inserting a New Component	Shows how to create a new component in the context of an assembly
Remove External References - Part A	Shows how to remove or lock references from components/features created within an assembly
Remove External References - Part B	Shows how to remove or lock references from components/features created within an assembly
Remove External References - Part C	Shows how to remove or lock references from components/features created within an assembly
No External References	Shows how to design a component in the context of an assembly without external references.
Virtual Components	Shows how to create components that are contained within the assembly

## Section Test

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## DriveWorksXpress for SolidWorks

### DriveWorksXpress

DriveWorksXpress Introduction	Introduction to DriveWorksXpress
Starting DriveWorksXpress	Explains how to start DriveWorksXpress and setup a database
Capturing SOLIDWORKS Data	Explains how to capture SOLIDWORKS data for DriveWorks automation
Creating the Input Form	Shows how to create the inputs for a DriveWorksXpress form
Creating Rules - Dimensions	Explains how to create the rules for dimensions in DriveWorksXpress
Creating Rules - Features & Properties	Explains how to create rules for features and properties in DriveWorksXpress
Creating New Variants	Shows how to use DriveWorksXpress to automate the creation of a model

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## Motion and Animation using SolidWorks

### Smoke and Mirrors - by Jim Boland

Introduction	Overview of animations and techniques covered in this workshop
The Basics	Animation basics and the rules of motion studies
Smoke and Mirrors Concepts	Discusses how to get the visual result you want for viewers
Stroboscopic Effect	A look at how frame rate can have an effect on the results of animations
Belts and Pulleys	Add visual references to make belt and pulley animations appear more realistic
Deforming Components	Design flexibility into an assembly to make components appear to flex
Wrap and Unwrap	Simulate the animation of a cable onto a spool
Animating Configurations	Switch to different configurations within an animation
Animating Chains	Assembly techniques to make the animation of a chain
Summary	Key things to remember what creating your own animations