

Course: SE2021 Advanced Assembly Course

Duration: 4 days

Version: SE2021

Course Description

Students will have learned how to apply all the relationships used to construct assembly models. They will have learned how to assemble and edit parts that already exist, and how to create new parts within an assembly; how to create exploded views, section views, simplified views, and custom views; how to manage very large assemblies; how to verify assembly integrity; how to design in the context of assemblies; and how to work with Alternate Assemblies. They will also learn advanced assembly's commands such as fastener systems, mirror assemblies, system libraries, assembly features, adjustable parts and assemblies, and virtual components.

Prerequisites

Here are the standard pre-requisites for the training course. Potential students should have completed the following prior to the class:

- **Completed the Solid Edge Fundamentals class**
- Understanding of Synchronous Technology is recommended but not absolutely necessary. **
- Have at least 6 months of modeling experience with Solid Edge.
- Mechanical Design Experience
- Windows Experience

Students who lack any of these prerequisites should realize the impact it will have on their learning experience.

Course Content

Course consists of;

- 17 Video Lectures (PowerPoint's to support the Instructor's lecture).
- 99 Instructor lead video demonstrations.
- 56 practical activities to reinforce the lessons.
- Solution videos for each activity.

**Note: Users, who do not know the synchronous paradigm, may find some of the activities beyond their capabilities. Each activity has a solution video, which may assist those who may not know synchronous technology. But the videos may not answer every question that could arise. To get the most out of this course, these users may want to attend the synchronous course first.

Course Outline

Day 1:

- **Module 1: Modeling assemblies (Review of Fundamentals)**
 - The Solid Edge Assembly User Interface
 - Creating new assemblies and placing parts into assemblies
 - Using relationships to properly position parts
 - Basic placement options and tools

- **Module 2: Additional relationships**
 - Assembly command
 - Match Coordinate Systems
 - Rigid relationship
 - Cam and Path relationship
 - Range
 - Assembly Relationship Assistant
 - Prevent accidental placement of components in Assembly

- **Module 3: Gears and motors**
 - Gear relationships
 - Motors
 - Rotational Motor
 - Linear Motor
 - Variable Table Motor
 - Simulate Motors
 - Assembly Suppression Variables

- **Module 4: Assembly patterning**
 - Assembly patterning
 - Duplicate Component
 - Clone Component
 - Pattern Along Curve using Chord Length
 - Skip count option

- **Module 5: Synchronous relationships**
 - Synchronous inter-part relationships
 - Persistent relationships
 - Synchronous Assembly Modeling Boolean Commands
 - Sync Commands options with IPA
 - Synchronous moves and copies in assemblies.
 - Option to Place PMI inside Part file.

Day 2:

- **Module 6: Assembly features and editing**
 - Group Command (PathFinder)
 - Move Components
 - Copy, Paste and Assemble multiple parts
 - Editing Assemblies
 - Replace Part
 - Repair missing files
 - Assembly Relationship Manager
 - Assembly Restructure

- **Module 7: Designing in the context of an assembly**
 - Bottom-Up Design vs. Top-Down Design
 - Create in Place
 - Associative modeling through Inter-Part Linking

- **Module 8: Additional assembly design tools**
 - Assembly based features
 - Fastener System command
 - System Libraries
 - 3Dfind.it

- **Module 9: Insert assembly copy and mirror assemblies**
 - Insert Assembly Copy (IAC)
 - Insert Assembly Copy - Mirror
 - Mirroring Components

Day 3:

- **Module 10: Working with large assemblies – Part 1**
 - Selection Tools
 - Display Tools
 - Queries
 - Find Components in Assembly
 - Zones
 - Configurations

➤ **Module 11: Working with large assemblies – Part 2**

- Simplified Parts
- Simplified Assemblies
 - Types
 - Visible faces
 - Model Command
 - Auto simplify
- Limited Update
- Limited Save
- Update options
- Large Assembly Performance Mode

➤ **Module 12: Inspecting assemblies**

- Measuring Tools
- Physical Properties
- Assembly Statistics
- Drag Component
- Sensors
- Interference Checking
- Component Tracker

➤ **Module 13: Exploded and section views**

- Creating exploded views
- Creating flow lines
- Simply Animation of exploded views
- Creating section views
- Section by Plane

Day 4:

➤ **Module 14: Alternate assemblies**

- Alternate components
- Creating and modifying new alternate assemblies
- The difference between alternate assemblies and alternate positions
- How to work with alternate positions

➤ **Module 15: Assembly reports and occurrence properties**

- Types of Reports
- Creating Assembly Reports
- Item numbers in assemblies
- Occurrence Properties

➤ **Module 16: Adjustable parts and assemblies**

- Adjustable Parts
- Adjustable Parts in Assemblies
- Adjustable Assemblies
- Override Relationships

➤ **Module 17: Virtual components in assemblies**

- Virtual components
- Creating virtual components
- Using the Virtual Component Editor
- Publishing virtual components
- Internal Components/Internal References

Note: The number of lessons covered on any given day could vary due to the progress of the student.