Autodesk Inventor Introduction to Solid Modeling

Course Length: 5 days

The Autodesk® Inventor® Introduction to Solid Modeling training course provides you with an understanding of the parametric design philosophy through a hands-on, practice-intensive curriculum. You will learn the key skills and knowledge needed to design models using Autodesk Inventor, starting with conceptual sketching, through to solid modeling, assembly design, and drawing production.

The main topics include:

- Understanding the Autodesk® Inventor® software interface
- Creating, constraining, and dimensioning 2D sketches
- Creating and editing the solid base 3D feature from a sketch
- Creating and editing secondary solid features that are sketched and placed
- Creating equations and working with parameters
- Manipulating the display of the model
- Resolving feature failures
- Duplicating geometry in the model
- Placing and constraining/connecting parts in assemblies
- Manipulating the display of components in an assembly
- Obtaining model measurements and property information
- Creating Presentation files (Exploded views)
- Modifying and analyzing the components in an assembly
- Simulating motion in an assembly
• Creating parts and features in assemblies
• Creating and editing an assembly Bill of Materials
• Working with projects
• Creating and annotating drawings and views
• Customizing the Autodesk Inventor environment

Prerequisites:
As an introductory training course, Autodesk Inventor Introduction to Solid Modeling does not assume prior knowledge of any 3D modeling or CAD software. Students do need to be experienced with the Windows operating system and a background in drafting of 3D parts is recommended.

Training Course Contents – Part 1

Chapter 1 – Introduction to Autodesk Inventor
• 1.1 Introduction
• 1.2 Autodesk Inventor Fundamentals
• 1.3 Getting Started
• 1.4 Autodesk Inventor Interface
• 1.5 Model Manipulation
• Practice 1a Open and Manipulate a Part

Chapter 2 Creating the Base Feature
• 2.1 Creating a New Part File
• 2.2 Sketched Base Features
• 2.3 Editing Sketched Features
• Practice 2a Extruded Base Features I
• Practice 2b Extruded Base Features II
• Practice 2c Revolved Base Feature
• Practice 2d Additional Parts
Chapter 3 Additional Sketching Tools

- 3.1 Additional Entity Types
- 3.2 Basic Editing Tools
- 3.3 Additional Constraint Tools
- 3.4 Additional Dimension Tools
- Practice 3a Apply Constraints
- Practice 3b Create Sketched Geometry I
- Practice 3c Create Sketched Geometry II
- Practice 3d Create Sketched Geometry III
- Practice 3e Manipulating Entities (Optional)

Chapter 4 Advanced Sketch Editing Tools

- 4.1 Advanced Editing Tools
- 4.2 Rectangular Sketch Patterns
- 4.3 Circular Sketch Patterns
- 4.4 Sketch Preferences
- Practice 4a Sketch Editing Tools
- Practice 4b Copy and Paste a Sketch
- Practice 4c Pattern Sketched Entities

Chapter 5 Sketched Secondary Features

- 5.1 Sketched Secondary Features
- 5.2 Using Existing Geometry
- Practice 5a Create a Sketched Revolve
- Practice 5b Create Sketched Extrusions
- Practice 5c Share Sketch

Chapter 6 Creating Pick and Place Features

- 6.1 Edge Chamfer
- 6.2 Constant Fillets
- 6.3 Variable Fillets
- 6.4 Face Fillets
- 6.5 Full Round Fillets
- 6.6 Straight Holes
- 6.7 Threads
- 6.8 Editing Pick and Place Features
- 6.9 Creation Sequence
- Practice 6a Add Pick and Place Features
- Practice 6b Create a Coaxial Hole
- Practice 6c Add Fillets
- Practice 6d Adding Pick and Place Features (Optional)

Course description shown for Autodesk Inventor 2016. Topics, curriculum, and/or prerequisites may change depending on software version.
Chapter 7 - Work Features
- 7.1 Work Planes
- 7.2 Work Axes
- 7.3 Work Points
- Practice 7a Using Work Features to Create Geometry I
- Practice 7b Using Work Features to Create Geometry II
- Practice 7c Using Work Features to Create Geometry III (Optional)

Chapter 8 - Equations
- 8.1 Equations
- 8.2 Parameters
- Practice 8a Add Equations
- Practice 8b Add Parameters
- Practice 8c Working with Parameters

Chapter 9 - Additional Features
- 9.1 Face Draft
- 9.2 Splitting a Face or Part
- 9.3 Shells
- 9.4 Ribs
- Practice 9a Create Shell and Ribs
- Practice 9b Create Ribs with Bosses
- Practice 9c Splitting a Face

Chapter 10 – Model and Display Manipulation
- 10.1 Reordering Features
- 10.2 Inserting Features
- 10.3 Suppressing Features
- 10.4 Section Views
- 10.5 Design Views
- Practice 10a Section and Design Views
- Practice 10b Feature Order

Chapter 11 – Fixing Problems
- 11.1 Sketch Failure
- 11.2 Feature Failure
- Practice 11a Resolve Sketch Problems
- Practice 11b Resolve Feature Failure I
Chapter 12 - Sweep Features
- 12.1 Sweep Features
- Practice 12a Creating Swept Geometry I
- Practice 12b Creating Swept Geometry II
- Practice 12c Additional Swept Geometry (Optional)

Chapter 13 - Loft Features
- 13.1 Rail and Center Line Lofts
- 13.2 Advanced Loft Options
- Practice 13a Rail Lofts
- Practice 13b Center Line Loft I
- Practice 13c Loft Creation I
- Practice 13d Loft Creation II (Optional)

Chapter 14 - Duplication Tools
- 14.1 Rectangular Feature Patterns
- 14.2 Circular Feature Patterns
- 14.3 Mirror Parts or Features
- 14.4 Manipulate Patterns and Mirror Features
- Practice 14a Pattern Features
- Practice 14b Mirror a Model
- Practice 14c Mirror Features

Chapter 15 - Feature Relationships
- 15.1 Establishing Relationships
- 15.2 Controlling Relationships
- 15.3 Investigating Relationships
- 15.4 Changing Relationships
- Practice 15a Change Feature Relationships
- Practice 15b Delete a Sketch Plane

Appendix A - Sketching Options
- A.1 Sketch Geometry Creation Options
- A.2 Sketch Editing Options
- A.3 Sketch Constraint Options
- A.4 Dimension Type Options

Appendix B - Primitive Base Features
- B.1 Primitive Base Features
- Practice B1 Creating a Primitive

Course description shown for Autodesk Inventor 2016. Topics, curriculum, and/or prerequisites may change depending on software version.
Appendix C - Additional Practices I

- Practice C1 Part Creation
- Practice C2 Shelling
- Practice C3 Creating a Sweep and Loft

Training Guide Contents – Part 2

Chapter 16 - Assembly Environment
- 16.1 Assembling Components Using Constraints
- 16.2 Content Center
- 16.3 Assembly Browser
- 16.4 Saving Files
- Practice 16a Assembly Basics I

Chapter 17 – Joint Connections
- 17.1 Assembling Components Using Joints
- Practice 17a Assembly Basics II

Chapter 18 - Manipulating Assembly Display
- 18.1 Moving and Rotating Assembly Components
- 18.2 Suppressing Constraints
- 18.3 Component Display
- 18.4 Selection Options in Assemblies
- Practice 18a Assemble Components

Chapter 19 – Model Information
- 19.1 Measurement Tools
- 19.2 Model Properties
- Practice 19a Properties and Measurements
- Practice 19b Model Measurements (Optional)

Chapter 20 – Design Presentation and Animation
- 20.1 Exploded View Presentations
- Practice 20a Create an Explode Presentation
- Practice 20b Animate an Assembly
Chapter 21 - Assembly Tools
- 21.1 Replacing Components
- 21.2 Restructuring Components
- 21.3 Driving Constraints
- 21.4 Contact Solver
- 21.5 Interference
- 21.6 Error Recovery
- Practice 21a Using Assembly Tools
- Practice 21b Replacing Components
- Practice 21c Restructuring the Assembly
- Practice 21d Controlling Assembly Motion

Chapter 22 - Assembly Parts and Features
- 22.1 Assembly Parts
- 22.2 Assembly Features
- Practice 22a Creating Parts and Features in an Assembly

Chapter 23 – Assembly Bill of Materials
- 23.1 Create Virtual Components
- 23.2 Create Bill of Materials
- Practice 23a Bill of Materials

Chapter 24 – Working with Projects
- 24.1 Project Files
- 24.2 Resolving Links
- Practice 24a Creating a Project File

Chapter 25 - Drawing Basics
- 25.1 Creating a New Drawing
- 25.2 Base and Projected Views
- 25.3 Additional Drawing Views
- 25.2 Manipulating Views
- Practice 25a Create a Drawing I
- Practice 25b Create a Drawing II
- Practice 25c Create a Drawing III
Chapter 26 – Detailing Drawings

- 26.1 Dimensions
- 26.2 Drawing Sheets
- 26.3 Parts List
- 26.4 Balloons
- 26.5 Styles and Standards
- 26.6 Hatching
- Practice 26a Detailing a Drawing I
- Practice 26b Detailing a Drawing II
- Practice 26c Create a Drawing (Optional)

Chapter 27 – Drawing Annotations

- 27.1 Text
- 27.2 Symbols
- 27.3 Hole and Thread Notes
- 27.4 Chamfer Notes
- 27.5 Center Marks and Center Lines
- 27.6 Hole Tables
- 27.7 Revision Tables and Tags
- Practice 27a Adding Text and Symbols
- Practice 27b Notes, Center Marks, and Centerlines
- Practice 27c Adding a Revision Table and Tags
- Practice 27d Adding Hole Tables

Chapter 28 - Customizing Autodesk Inventor

- 28.1 Application Options
- 28.2 Document Settings
- 28.3 File Properties
- 28.4 Changing Part Units
- 28.5 Command Customization
- Practice 28a Customizing File Properties

Appendix D - Effective Modeling

- D.1 Design Considerations
- D.2 Modeling Tips and Techniques
- D.3 Model Investigation
Appendix E - DWG Interoperability

- E.1 Introduction
- E.2 Autodesk Inventor and AutoCAD Files
- Practice E1 DWG Files in Autodesk Inventor
- Practice E2 Autodesk Inventor DWG files in AutoCAD (Optional)

Appendix F - Additional Practices II

- Practice F1 Turntable Assembly
- Practice F2 Assembly Parts and Features
- Practice F3 Drawing Creation I
- Practice F4 Drawing Creation II
- Practice F5 Drawing Creation III

Appendix G – Autodesk Inventor 2015 Certified Professional Exam Objectives
Cancellation Policy

The following cancellation policy shall apply to all training engagements, Live Online, Consulting Services and Dedicated/Custom Training:

- Company reserves the right to reschedule or cancel the date, time and location of its class at any time. In the event that a Training Class is cancelled by Company, Customer is entitled to a full refund. Company shall not be responsible for any other loss incurred by Customer as a result of a cancellation or reschedule.

- For Customer cancellations when written notice is received (i) at least ten (10) business days in advance of the class, the Customer is entitled to a full refund of its payment or reschedule enrollment, (ii) less than ten (10) business days, Customer shall not be entitled to a refund, but shall receive a class credit to be used within three (3) months of the date of the original class.

- Student substitutions are acceptable with at least two (2) days prior notice to the class, provided substitution meets course prerequisites and is approved by Company’s Training Coordinator (trainingcoordinator@rand.com).

- For all Training orders, cancellation notices must be submitted to trainingcoordinator@rand.com. Company is not responsible for any error in the delivery of the email notice. In the event of any reschedule of Consulting Services and/or Dedicated/Custom Training by Customer, Company will invoice Customer for all non-cancellable travel expenses.

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