AutoCAD Fundamentals

Course Length: 5 days

The AutoCAD Fundamentals training course is designed for those using AutoCAD with a Windows operating system. This training course is not designed for the AutoCAD for Mac software.

The objective of AutoCAD Fundamentals is to enable you to create, modify, and work with a 2D drawing in the AutoCAD software.

Part 1 (chapters 1 to 20) covers the essential core topics for working with the AutoCAD software. The guide begins with learning the basic tools for creating and editing 2D drawings. It then continues to explore the tools used to annotate drawings by adding text, hatching, dimensions, and tables. More advanced tools, such as working with blocks and setting up layouts, are introduced to improve your efficiency with the software. Not every command or option is covered, because the intent is to show the essential tools and concepts, such as:

- Understanding the AutoCAD workspace and user interface.
- Using basic drawing, editing, and viewing tools.
- Organizing drawing objects on layers.
- Using reusable symbols (blocks).
- Preparing a layout to be plotted.
- Adding text, hatching, and dimensions.

Part 2 (chapters 21 to 32) continues with more sophisticated techniques that extend your mastery of the software. For example, here you go beyond the basic skill of using a template to understand the process of setting up a template, creating annotation styles, and how to work with external references. You learn such skills as:

- Using more advanced editing and construction techniques.
- Adding parametric constraints to objects.
- Creating local and global blocks.
- Setting up layers, styles, and templates.
- Attaching External References.

Prerequisites

- A working knowledge of basic design/drafting procedures and terminology.
- A working knowledge of your operating system.

Course description shown for AutoCAD 2019. Topics, curriculum, and/or prerequisites may change depending on software version.
Training Guide Contents

Chapter 1: Getting Started with AutoCAD

▪ 1.1 Starting the Software
▪ 1.2 User Interface
▪ 1.3 Working with Commands
▪ 1.4 Cartesian Workspace
▪ 1.5 Opening an Existing Drawing File
▪ 1.6 Viewing Your Drawing
▪ 1.7 Saving Your Work

Chapter 2: Basic Drawing and Editing Commands

▪ 2.1 Drawing Lines
▪ 2.2 Erasing Objects
▪ 2.3 Drawing Vertical and Horizontal Lines
▪ 2.4 Drawing Rectangles
▪ 2.5 Drawing Circles
▪ 2.6 Undo and Redo Actions

Chapter 3: Projects: Creating a Simple Drawing

▪ 3.1 Create a Simple Drawing
▪ 3.2 Create Simple Shapes

Chapter 4: Drawing Precision in AutoCAD

▪ 4.1 Using Running Object Snaps
▪ 4.2 Using Object Snap Overrides
▪ 4.3 Polar Tracking at Angles
▪ 4.4 Object Snap Tracking
▪ 4.5 (Optional) Drawing with Snap and Grid

Chapter 5: Making Changes in Your Drawing

▪ 5.1 Selecting Objects for Editing
▪ 5.2 Moving Objects
▪ 5.3 Copying Objects
▪ 5.4 Rotating Objects
▪ 5.5 Scaling Objects
▪ 5.6 Mirroring Objects
▪ 5.7 Editing with Grips

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Chapter 6: Projects: Making Your Drawings More Precise

- 6.1 Schematic Project: Electronics Diagram
- 6.2 Architectural Project: Landscape
- 6.3 Mechanical Project: Using Polar and Tracking
- 6.4 Mechanical Project: Surge Protector
- 6.5 Mechanical Project: Satellite

Chapter 7: Organizing Your Drawing with Layers

- 7.1 Creating New Drawings With Templates
- 7.2 What are Layers?
- 7.3 Layer States
- 7.4 Changing an Object’s Layer

Chapter 8: Advanced Object Types

- 8.1 Drawing Arcs
- 8.2 Drawing Polylines
- 8.3 Editing Polylines
- 8.4 Drawing Polygons
- 8.5 Drawing Ellipses

Chapter 9: Analyzing Model and Object Properties

- 9.1 Working with Object Properties
- 9.2 Measuring Objects

Chapter 10: Projects: Drawing Organization and Information

- 10.1 Architectural Project
- 10.2 Mechanical Project
- 10.3 Civil Project

Chapter 11: Advanced Editing Commands

- 11.1 Trimming and Extending Objects
- 11.2 Stretching Objects
- 11.3 Creating Fillets and Chamfers
- 11.4Offsetting Objects
- 11.5 Creating Arrays of Objects

Chapter 12: Blocks

- 12.1 What are Blocks?
- 12.2 Inserting Blocks
- 12.3 Inserting Blocks using the Tool Palettes
- 12.4 Working with Dynamic Blocks
- 12.5 Inserting Blocks using the DesignCenter

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Chapter 13: Projects: Creating More Complex Objects

- 13.1 Mechanical Project 1: Plate
- 13.2 Mechanical Project 2: Gasket
- 13.3 Mechanical Project 3: Plate
- 13.4 Mechanical Project 4: Rocker Arm
- 13.5 Architectural Project 1: Floor Plan
- 13.6 Architectural Project 2: Floor Plan
- 13.7 Civil Project: Parking Lot

Chapter 14: Setting Up a Layout

- 14.1 Working in Layouts
- 14.2 Creating Layouts
- 14.3 Creating Layout Viewports
- 14.4 Named Views
- 14.5 Guidelines for Layouts

Chapter 15: Printing Your Drawing

- 15.1 Printing Concepts
- 15.2 Printing Layouts
- 15.3 Print and Plot Settings

Chapter 16: Projects: Preparing to Print

- 16.1 Mechanical Project
- 16.2 Architectural Project

Chapter 17: Text

- 17.1 Working with Annotations
- 17.2 Adding Text in a Drawing
- 17.3 Modifying Multiline Text
- 17.4 Formatting Multiline Text
- 17.5 Adding Notes with Leaders to Your Drawing
- 17.6 Creating Tables
- 17.7 (Optional) Modifying Tables

Chapter 18: Hatching

- 18.1 Hatching
- 18.2 Editing Hatches

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Chapter 19: Adding Dimensions

- 19.1 Dimensioning Concepts
- 19.2 Adding Linear Dimensions
- 19.3 Adding Radial and Angular Dimensions
- 19.4 Editing Dimensions

Chapter 20: Projects: Annotating Your Drawing

- 20.1 Mechanical Project
- 20.2 Architectural Project 1
- 20.3 Architectural Project 2
- 20.4 Civil Project

Chapter 21: Working Effectively with AutoCAD

- 21.1 Creating a Custom Workspace
- 21.2 Using the Keyboard Effectively
- 21.3 Object Creation, Selection, and Visibility
- 21.4 Working in Multiple Drawings
- 21.5 Copying and Pasting Between Drawings
- 21.6 Using Grips Effectively
- 21.7 Additional Layer Tools

Chapter 22: Accurate Positioning

- 22.1 Coordinate Entry
- 22.2 Locating Points with Tracking
- 22.3 Construction Lines
- 22.4 Placing Reference Points

Chapter 23: Projects: Productivity Tools

- 23.1 Schematic Project: Purifier Unit
- 23.2 Mechanical Project: 2 Views
- 23.3 Architectural/Civil Project: Formal Garden
- 23.4 Mechanical Project: Cover Plate
- 23.5 Architectural Project: Addition
- 23.6 Mechanical Project: Block
- 23.7 Mechanical Project: Plate

Chapter 24: Parametric Drawing

- 24.1 Working with Constraints
- 24.2 Geometric Constraints
- 24.3 Dimensional Constraints

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Chapter 25: Working with Blocks

- 25.1 Creating Blocks
- 25.2 Editing Blocks
- 25.3 Removing Unused Elements
- 25.4 Adding Blocks to Tool Palettes
- 25.5 Modifying Tool Properties in Tool Palettes

Chapter 26: Projects: Creating and Organizing Blocks

- 26.1 Mechanical Project: Control Panel
- 26.2 Architectural Project: Furniture Layout
- 26.3 Civil Project: Utility Layout

Chapter 27: Creating Templates

- 27.1 Why Use Templates?
- 27.2 Controlling Units Display
- 27.3 Creating New Layers
- 27.4 Adding Standard Layouts to Templates
- 27.5 Saving Templates

Chapter 28: Working with Layouts

- 28.1 Creating and Using Named Views
- 28.2 Advanced Viewport Options
- 28.3 Layer Overrides in Viewports
- 28.4 Annotative Scale Features

Chapter 29: Annotation Styles

- 29.1 Creating Text Styles
- 29.2 Creating Dimension Styles
- 29.3 Creating Multileader Styles

Chapter 30: Projects: Drawing Setup and Utilities

- 30.1 Interiors Project
- 30.2 Mechanical/Schematic Project
- 30.3 Civil/Map Project
- 30.4 Mechanical Project: Dimension Styles

Chapter 31: External References

- 31.1 Attaching External References
- 31.2 Modifying External References
- 31.3 Xref Specific Information

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Chapter 32: Projects: Drawing

- 32.1 D-sized Title Block (36x24)
- 32.2 Mechanical Project: Drill Press Base
- 32.3 Architectural Project: Office Tower
- 32.4 P&ID Project: Oil Lubrication System
- 32.5 Civil Project: Warehouse Site

Appendix A: Skills Assessment 1

Appendix B: Optional Topics

- B.1 Using QuickCalc
- B.2 Additional Zoom Commands
- B.3 Additional Text Tools
- B.4 Additional Dimensioning Tools
- B.5 Creating Boundaries and Regions
- B.6 Modifying Length

Appendix C: Skills Assessment 2

Appendix D: AutoCAD Certification Exam Objectives

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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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