

EXAM OBJECTIVES



Autodesk Certified Professional: AutoCAD for Design and Drafting

The Autodesk Certified Professional (ACP) certification is designed for industry professionals who possess advanced skills and can solve complex challenges in workflow and design. ACP is the industry recognized credential for users who have mastered the Autodesk software skills covered in these exams. This type of experience typically comes from having worked with the software on a regular basis for at least 2 years, equivalent to approximately 400 hours (minimum) - 1200 hours (recommended), of real-world Autodesk software experience. Certification at this level demonstrates a comprehensive skill set that provides an opportunity for individuals to stand out in a competitive professional environment.

Prerequisites

It is expected that you will have a general understanding of:

- Technical drawing & design
- The Help system within AutoCAD
- Basic techniques used to create and modify objects with accuracy in an AutoCAD drawing
- Annotation tools, layouts, printing, and alternative outputs
- Organizing objects, reusing content, and managing drawings

The topics and features of the Autodesk software that may be covered in the exam are listed below each objective.

Note: Within the context of this exam, all references to “create, select, manage, etc.” indicate “know how to create, select, manage, etc.”

1. Draw and Organize Objects

1.1 Create advanced drawing objects

1.1.a Create and edit polylines, arcs, polygons, and splines

1.1.b Work with regions

i. May include creating and editing boundaries; extracting design information; and applying hatching and shading to regions.

1.1.c Create xlines, rays, and multilines

1.1.d Create 2D isometric drawings

- i. May include switching between standard isometric planes; and using drawing and tracking tools to be aligned along the corresponding isometric axes.*

1.2 Select and organize objects

- 1.2.a** Use Quick Select to select objects based on shared properties
- 1.2.b** Select similar objects
- 1.2.c** Isolate or hide objects in a drawing
- 1.2.d** Control the draw order of overlapping objects
- 1.2.e** Match the properties of one object to other objects
- 1.2.f** Remove objects from a selection set

1.3 Manage layers

- 1.3.a** Save, restore, and manage layer settings using layer states
- 1.3.b** Use layer filters to control which layers are listed in the Layer Properties Manager
- 1.3.c** Apply and remove layer overrides per viewport
- 1.3.d** Use the Layer Walk tool to display objects on selected layers
- 1.3.e** Remove layers from a drawing
 - i. May include deleting layers and reducing the number of layers in a drawing by merging layers.*
- 1.3.f** Control the properties of referenced layers

2. Draw with Accuracy**2.1 Apply advanced object snaps**

- 2.1.a** Use object snaps
 - i. May include quadrant, apparent intersect, extension, parallel, geometric center, and midpoint between two points (M2P) combined with object snap tracking.*
- 2.1.b** Use polar tracking to restrict the cursor movement to specified angles

2.2 Control the User Coordinate System (UCS)

- 2.2.a** Understand and define the User Coordinate System
- 2.2.b** Move the UCS origin
- 2.2.c** Rotate the UCS
- 2.2.d** Restore the UCS to the World Coordinate System (WCS)
- 2.2.e** Restore the previous UCS
- 2.2.f** Use named UCS definitions and preset orientations

3. Advanced Editing Functions**3.1 Control Rotate and Scale options**

- 3.1.a** Rotate objects around a specified base point.
 - i. May include copying selected objects while rotating; entering a specific rotation angle; dragging the cursor; or specifying a reference angle to align to an absolute angle.*
- 3.1.b** Enlarge or reduce the size of objects.
 - i. May include copying selected objects while scaling; using a scale factor and a reference distance and copy options; and reference points.*

3.2 Apply Array techniques

3.2.a Work with arrays

- i. May include creating and editing rectangular, polar, and path arrays; replacing items in an array; and understanding the use of associative and non-associative arrays.

3.3 Control Trim and Extend options

3.3.a Use the advanced options of the Trim, Extend and Lengthen commands

- i. May include the Edge and Project options; and selection methods such as Crossing, Fence, and Shift-Select.
- ii. May include being able to differentiate the results of trimming or extending objects with Trim mode turned on or off.

3.4 Apply Offset options

3.4.a Use the advanced options of the Offset command

- i. May include the Layer, Erase, Through, and Multiple options.

3.5 Perform multi-functional grip editing

3.5.a Copy objects using grips

3.5.b Add, stretch, or remove vertices from an object

3.5.c Convert an object segment to an arc or line

3.5.d Lengthen an arc

3.5.e Use the multi-functional grips of selected objects

3.6 Apply Fillet and Chamfer options

3.6.a Create a fillet between two parallel objects

3.6.b Create a corner between two non-parallel objects using the SHIFT key

3.6.c Use the Multiple and Polyline options

3.6.d Understand the effects of Trim mode

- i. May include being able to differentiate the results of performing the Fillet or Chamfer commands with Trim mode turned on or off.

4. Advanced Layouts, Printing, and Alternative Outputs

4.1 Create and manage layouts and viewports

4.1.a Use the Page Setup Manager

4.1.b Define and apply custom scales (scale list)

4.1.c Customize the size and shape of viewport boundaries

- i. May include creating polygonal viewports; rotating viewports; clipping viewports; and defining viewport boundaries from objects.

4.1.d Assign a named view to a viewport.

4.2 Manage output formats

4.2.a Publish one or more drawings to a plotter, printer, DWF, or PDF file

- i. May include setting plot options.

4.2.b Control how objects appear during output using plot styles

- i. May include working with color-dependent and named plot style tables (CTB/STB files).

4.2.c Create a zipped transmittal package (eTransmit)

4.2.d Save or export the objects in a drawing to a different file format

- i. May include saving drawings as pdf or dxf files; and exporting to formats such as step, iges, acis, etc.

5. Annotation Techniques

5.1 Apply markup tools

- 5.1.a Create and modify revision clouds
- 5.1.b Use wipeouts to mask underlying objects in specific areas of a drawing
- 5.1.c Compare two drawings for differences
 - i. *May include using the Drawing Compare tool; drawing compare Import; and editing the current drawing while in compare state.*

5.2 Manage Hatch or Fill options

- 5.2.a Specify Hatch and Fill options
 - i. *May include options such as annotative, associative, create separate hatches, draw order, origin transparency, island detection, gap tolerance, set origin, and inherit properties (use current origin, use source hatch).*
- 5.2.b Recreate the boundary around a selected Hatch or Fill pattern
 - i. *May include associating the hatch object with the new boundary.*

5.3 Format text and tables

- 5.3.a Apply text and multiline text properties
 - i. *May include width factors, justification, and background masks.*
- 5.3.b Create, modify, and apply text styles
- 5.3.c Create and adjust text columns
 - i. *May include inserting column breaks.*
- 5.3.d Insert tables and manipulate cell data
- 5.3.e Use fields in text and tables
- 5.3.f Insert symbols from the character map
- 5.3.g Check the spelling of text and dimension annotation
 - i. *May include the use of Spellcheck and dictionaries.*

5.4 Adjust multileaders

- 5.4.a Create and modify multileaders
 - i. *May include editing and applying multileader styles; multileaders with custom blocks; and understanding multileader options.*
- 5.4.b Add and remove leaders
- 5.4.c Align and collect leaders

5.5 Create and edit annotation with advanced dimensioning techniques

- 5.5.a Create and modify dimension styles
 - i. *May include editing and applying dimension styles.*
- 5.5.b Create multiple dimensions with a single command
 - i. *May include continue and baseline dimensions.*
- 5.5.c Set the dimension layer
- 5.5.d Associate or re-associate dimensions to objects
- 5.5.e Break and restore dimension and extension lines
- 5.5.f Adjust the spacing between dimensions

5.6 Apply annotative properties and styles

- 5.6.a Understand annotative properties and styles as they pertain to objects

i. May include objects such as text, dimensions, multileaders, and hatches.

5.6.b Define and apply annotative object styles

5.6.c Control the annotative scale of an object or viewport

5.6.d Add annotative scales to an object

6. Reusable Content and Drawing Management

6.1 Create blocks and apply attributes

6.1.a Insert and modify blocks

i. May include ByBlock property settings, insertion units, blocks with attributes, and using the Enhanced Attribute Editor.

6.1.b Create and modify block definitions

i. May include creation techniques, redefining a block, using the Block Editor, and defining attributes.

6.1.c Modify attribute definitions with the Block Attribute Manager

i. May include attribute modes and attribute order.

6.2 Control external reference and underlay files

6.2.a Attach external reference and underlay files

i. May include path types (no path, relative, full/absolute); reference types (attachment versus overlay); setting location (geographical location); and importing objects from a PDF as linework.

6.2.b Clip and control the visibility of referenced and underlay files

i. May include blocks; external references; images and underlays; and controlling the visibility of the clipping boundary frame.

6.2.c Understand layer naming conventions when you bind a referenced drawing

i. May include using the bind and insert options.

6.2.d Adjust the settings of an underlay file or image

i. May include fade, contrast, brightness, and monochrome.

6.2.e Create a hyperlink to another file

6.2.f Snap to objects in external reference and underlay files

6.3 Access and apply content resources

6.3.a Use the Blocks palette, Tool palettes, and the Design Center

6.3.b Create and manage saved sets of objects using groups

6.3.c Transfer information between drawing files

i. May include using the Copy with Basepoint; or drag and drop across multiple open drawings.

6.4 Perform file maintenance with drawing utilities

i. May include drawing audit, recover, overkill, and purge