AUTODESK

Autodesk Certified Associate in CAD for Mechanical Design

Exam objectives

Target audience

The Autodesk Certified Associate (ACA) certification is designed for candidates with essential knowledge and skills in Autodesk software who are ready to enter the job market or improve their skills in pursuit of a new career path. Becoming an Autodesk Certified Associate is an excellent way for individuals with approximately 150 hours of Autodesk software experience to validate their product or workflow skills.

Candidates who obtain this certification will have demonstrated mechanical design skills for jobs as a CAD technician/mechanical designer in a competitive environment. This exam covers common skills that can be applied across a wide range of engineering and design industries, including aeronautical, aerospace, defense, automotive, mechanical, industrial design, manufacturing, medical, and energy.

Prerequisite skills

It's expected that candidates will already know how to:

- Create fully defined sketches.
- Use solid, freeform and direct modeling tools.
- Create construction planes and axes.
- Inspect geometry with section analysis and measure.
- Create and manage assembly components.
- Understand assembly joints, rigid groups, motion links, and interference.
- Create drawings with views, annotations, and title blocks.

Exam format

You won't have access to the software during the exam, as all questions are in a selected response format and are designed to be answered without the software user interface. Learn more about our exam format and question types in our Autodesk Certification FAQs.

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Exam outline

Here are some topics and software features that may be covered in the exam. This table lists the main content domains and their weightings, followed by the complete exam content outline.

Exam domain	% of exam
3D component modeling and project files	61%
3D assembly modeling and management	24%
Technical detailed drawing creation	15%

Exam objectives

Here are some topics and software features that may be covered in the exam.

1. **3D component modeling and project files**

    1.1. Create a project file structure

    1.1.a. Digital project creation

    1.1.b. Import Data

        i.   May include STEP or intermediate CAD formats

    1.1.c. Create a Share-Link

    1.1.d. Invite Collaborators to a Project

    1.2. Create and modify sketches

    1.2.a. Create a sketch

    1.2.b. Apply dimensions to a sketch

        i.   May include length, diameter, radius, and angle

    1.2.c. Apply constraints to a sketch

        i.   May include horizontal/vertical, parallel, or perpendicular

    1.2.d. Select and delete a sketch constraint

    1.2.e. Create a sketch projection from an edge or face

    1.3. Create construction planes and axes

    1.3.a. Create a construction plane

    1.3.b. Create a construction axis

    1.4. Create and modify 3D solid features.

    1.4.a. Create solid features

        i.   May include extrude, revolve, sweep, loft, counter bore hole, and threaded hole

    1.4.b. Create a feature pattern

    1.4.c. Apply a fillet or chamfer

    1.4.d. Use Shell

       1.4.e.   Use Spilt to divide faces and bodies

            i.   May include remove faces

       1.4.f. Modify a design, feature, or sketch

1.5. Inspect and analyze models

       1.5.a.   Use Measure to inspect a model

       1.5.b.   Use Section Analysis to inspect a model

       1.5.c.   Define WCS offset in a CAM setup

       1.5.d.   Define a machine configuration in Fusion 360

1.6. Use direct modeling features

       1.6.a.   Demonstrate how to use the Press Pull tool

       1.6.b.   Use Delete to remove a feature

       1.6.c.   Use Move/Copy

1.7. Create and modify freeform parts

       1.7.a.   Create a Freeform Primitive

       1.7.b.   Create a primitive sphere form

       1.7.c.   Use Edit Form for freeform modifications

       1.7.d.   Use Edit Form to translate a selection

       1.7.e.   Use Edit Form to rotate a selection

       1.7.f. Use Thicken to convert a surface to a solid form body

2. 3D assembly modeling and management

2.1. Create and organize assembly components

       2.1.a.   Create a component

       2.1.b.   Organize and manage assembly components

       2.1.c.   Insert Fastener

2.2. Create motion with assembly joints

       2.2.a.   Use Align and Capture Position to position components

       2.2.b.   Apply an as-built joint

            i.   May include all joint types

       2.2.c.   Apply a joint

            i.   May include all joint types

       2.2.d.   Create a rigid group of components

2.3. Create and manage motion links

       2.3.a.   Create a motion link

2.4. Apply assembly interference inspection tools

       2.4.a.   Manage assembly component's position for interference detection and mechanical review

2.4.b.   Use Interference to check for component overlap

3. Technical detailed drawing creation

3.1. Create a basic technical drawing

3.1.a.   Create a detailed drawing from a design

3.1.b.   Place views on a drawing sheet

  i.   May include base, projected, detail, or section