Learn CAD in 90 Minutes

Instructor guide

Course duration: ~897 minutes

Level: Beginner

Product: Autodesk® Fusion®

This instructor guide is a comprehensive tool for facilitating this in the classroom. Prepare to teach this course by thoroughly reviewing this document, as well as all related course materials and resources.

We’ve summarized the core Fusion Skills in the Learn CAD in 90 minutes course so you can familiarize yourself with them before delivering this learning content in the classroom. It’s always recommended that you work through the course yourself in preparation for each lesson.

**Learning objectives:**

* Navigate the Fusion interface and manage project files.
* Create and constraint 2D sketches.
* Model solid 3D parts.
* Apply features such as fillets, holes, and patterns.
* Build and manage component assemblies with constrain components and joint.
* Produce basic technical drawings with dimensions.
* Render a 3D design.

Each module is listed below along with suggested time allocations for instruction. The referenced demonstrations are based on the step-by-step instruction included in the course. Review the video tutorials for the detailed instruction in each module.

**Getting started**

**Total time required for module**: 20 minutes

**Discuss objectives:** 3 minutes

**Demonstrate:** 10 minutes

* Review course overview and learning objectives
* Download the course resources and software
* Create an Autodesk ID
* Install the software
* Review the starter activity and articles

**Hands-on time:** 5 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

**Set up and navigate Fusion**

**Total time required:** 63 minutes

**Discuss objectives:** 3 minutes

**Demonstrate:** 15 minutes

* Navigate the Fusion User Interface.
* Create a project and sub-folder.
* Manipulate a 3D model.

**Hands-on time:** 13 minutes

**Review objectives:** 2 minutes

**Datasets:**

*90128A331\_Zinc-Plated Alloy Steel Socket Head Screw.step*

**Assignments:**

* **Practice exercise:** 10 minutes
* **Challenge exercise:** 5 minutes
* **Module quiz:** 15 minutes

**Create simple 3D parts**

**Total time required:** 99 minutes

**Discuss objectives:** 3 minutes

**Demonstration:** 15 minutes

* Create a sketch.
* Define a sketch with dimensions and constraints.
* Create an extruded solid.
* Create a revolved solid.

**Hands-on time:** 29 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

* **Practice exercise:** 15 minutes
* **Challenge exercise:** 20 minutes
* **Module quiz:** 15 minutes

**Create a detailed revolved part**

**Total time required:** 90 minutes

**Discuss objectives:** 3 minutes

**Demonstration:** 15 minutes

* Create a detailed sketch.
* Apply dimensions and constraints.
* Create a revolve.
* Create modeled thread.
* Apply a physical material.

**Hands-on time:** 20 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

* **Practice exercise:** 15 minutes
* **Challenge exercise:** 20 minutes
* **Module quiz:** 15 minutes

**Create and modify a complex part**

**Total time required:** 143 minutes

**Discuss objectives:** 3 minutes

**Demonstration:** 15 minutes

* Create a fully defined sketch.
* Create an extrude cut with taper.
* Mirror sketches and features.
* Use the hole tool.
* Create a revolved cut.
* Apply a physical material and appearance.

**Hands-on time:** 28 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

* **Practice exercise:** 30 minutes
  + *Pedal Practice.f3d*
* **Challenge exercise:** 40 minutes
* **Module quiz:** 15 minutes

**Build an assembly**

**Total time required:** 99 minutes

**Discuss objectives:** 3 minutes

**Demonstration:** 15 minutes

* Create an assembly of external components.
* Apply a joint.
* Use Constrain Components.
* Insert hardware.

**Hands-on time:** 19 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

* **Practice exercise:** 15 minutes
* **Challenge exercise:** 30 minutes
* **Module quiz:** 15 minutes

**Communicate your design**

**Total time required:** 88 minutes

**Discuss objectives:** 3 minutes

**Demonstrate:** 15 minutes

* Create a detailed drawing.
* Apply drawing annotations.
* Create a rendered image.

**Hands-on time:** 13 minutes

**Review objectives:** 2 minutes

**Datasets:**

**Assignments:**

* **Practice exercise:** 20 minutes
* **Challenge exercise:** 20 minutes
* **Module quiz:** 15 minutes

**Assignments:**

* **Course Assessment:** 45 minutes
* **Course Challenge:** 220 minutes

**Module:** Next steps

**Total time required:** 30 minutes