

Learn Docs and Takeoff in 90 minutes

Instructor guide

Course duration if teaching with this material in class: 2 hours or more depending on lecture time and additional challenge assigned.

Recommended student level: Students in architecture, engineering, and construction programs

Products: Autodesk Docs and Autodesk Takeoff in Autodesk Construction Cloud

This instructor guide is a comprehensive tool for facilitating this course in the classroom. Prepare to teach the course by thoroughly reviewing this document, as well as all related course materials and resources. You may also share this document with your students to guide them in their assignments. It's always recommended that you work through the course yourself in preparation for each module.

Learning objectives:

- Describe the functions of the Autodesk Construction Cloud products.
- Navigate the Autodesk Docs interface to locate and open files.
- Use viewing tools such as ViewCube, pan, zoom, and section planes to explore 3D models.
- Measure distances, areas, and obtain metadata with the Measure and Properties tools.
- Evaluate 2D sheet sets.
- Compare different versions of sheets and models to identify changes.
- Publish markups and create/resolve issues to communicate design issues.
- Create and configure takeoff packages for 2D and 3D takeoffs.
- Perform 2D and 3D takeoffs to count, measure lengths, compute areas, and calculate volumes.

The overall course contains the following resources:

- 5 video modules covering all the topics in the course.
- Dataset files for use when following the video modules.
- Quiz questions with timecodes for remedial knowledge check.
- Exam-style final test questions at the conclusion of the course.
- 7 practice exercises with exercise files and solutions.
- 1 challenge assignments with recommended assessment criteria.
- Lecture slides that introduce topics and themes covered in the course.

Pre-requisites:

In this course, learners gain hands-on practice accessing and navigating Autodesk Construction Cloud projects, using Autodesk Docs to view and review 3D models and 2D sheets, performing design reviews, and executing 2D and 3D

quantity takeoffs in Autodesk Takeoff. The course offers students some of the core concepts to start using these tools and could be assigned in the first week or two of class. It is expected that the student has basic computer knowledge.

This course is designed to provide students with a foundational understanding of construction workflows using Autodesk Docs and Autodesk Takeoff. By exploring these workflows, students will gain insights into how ACC drives efficiency, collaboration, and innovation across all project stages by professional teams.

To that end, students should be given access to the various products within the course. **Instructions for granting students product licenses and setting up ACC in the classroom are included with the Teaching Supplements downloads as a separate video for the instructor.**

Structure of the course:

The course is split into 7 modules and is designed to cover core Autodesk skills required get up and running with Autodesk Docs and Autodesk Takeoff.

Videos:

Each video begins with a list of learning objectives covered in the video. The dataset mentioned throughout all the videos are available if students wish to follow along or practice after the video.

Dataset:

The example used in the videos is of a simple building project with a Revit model for the architecture discipline, with additional models for the structural discipline to give learners hands-on experience. The dataset is available to follow along with the instruction in both metric and imperial formats.

Practice exercises:

There are 7 practice exercises included, each exploring a different set of topics. The practice exercises are designed to give students an opportunity to test their knowledge and apply what they have learned. Each practice exercise is accompanied by a dataset and video solution.

Challenge exercise:

A course challenge assignment is included, focusing on a set of topics covered in the course. Students are presented with a challenge in an applicable real-world situation, and they apply their skills and the techniques learned to solve the challenge. A grading rubric is provided for the instructor, giving guidelines on assessment criteria. You can also encourage students to work in small groups, first discussing the desired outputs and working collectively to derive the best process and execution in the software.

Video quiz questions:

Quiz questions are included with each video of the course and the timecodes are included so that students can review the related sections in the video for questions they have answered incorrectly.

Final test questions:

A cumulative set of exam-style questions are included at the conclusion of the course for students to measure what they have learned against realistic multiple-choice questions.

Lecture slides:

Lecture slides are offered to help facilitate in-class discussion.

Using the course in the classroom or self-paced

This course can be implemented as an independent, self-paced project, or can be completed in the classroom in a team setting. A couple of options are outline below:

Option 1: Self-paced

Each student will log into Autodesk.com/learn using their Autodesk Account credentials and follow along with the project instruction. (Alternatively, you may choose to assign the material through your LMS.) Students can work through the projects on their own by following the project steps and challenge instructions, and by exploring any supporting assets. This is a great way to allow students to move through the learning materials at their own pace and explore additional learning opportunities or increase lab time. The self-paced option can also be used for out of classroom or remote assignments. A certificate of completion is awarded once the course is completed.

Option 2: Instructor-led

In this option, instructors will log into Autodesk.com/learn using their Autodesk Account credentials and download the learning materials. Instructors can then guide the students through each project, using the accompanying lecture slides for instruction and practice exercises as handouts. This option allows for guided, step-by-step classroom engagement. This approach works well in a more traditional classroom setting and will allow instructors to easily keep students on the same pace. The challenge exercise can be used as a learning opportunity for students who complete their work early or are looking for additional hands-on opportunities.

Each section is listed below along with suggested time allocations for instruction. The referenced demonstrations are based on the step-by-step instruction included in the videos.

Course contents

Each module is listed below along with suggested time allocations for instruction. Review the video tutorials for the detailed instruction in each module.

Module 1-01 Introduction to Autodesk Construction Cloud

Total time required for module: 10 minutes

Discuss course objectives: 1 minutes

Demonstrate: 3 minutes

- Navigate between projects and products using the Autodesk Construction Cloud.
- Describe the core purpose of each major ACC product, including Docs, Build, Takeoff, Model Coordination, and Design Collaboration.

Hands-on time: 5 minutes

Datasets:

Download datasets from course resources. In advance to following along with this course's content, instructor should create the project and folders (see video, *Instructor guide to ACC setup*). Students to watch video, *Student Project Setup*.

Assignments (additional):

- **Quiz:** 1 minute
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Module 1-02 Inspect 2D drawings and 3D models

Total time required for module: 12 minutes

Discuss course objectives: 2 minutes

Demonstrate: 4 minutes

- Navigate project files in ACC Docs.
- Navigate and interact with 3D models and 2D sheets.
- Measure elements in 3D and 2D views.
- Access element metadata.

Hands-on time: 5 minutes

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 1:** Explore sheets and models in ACC (or use in class for hands-on time)
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Module 2-01 Control visibility of model elements

Total time required for module: 13 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Filter by level, category, and discipline.
- Isolate BIM elements and control their visibility.
- Access and interpret type and instance properties.
- Efficiently explore and extract metadata from the model.

Hands-on time: 5 minutes

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 2:** Use the Model Brower (or use in class for hands-on time)
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Module 2-02 Measure sheet areas

Total time required for module: 18 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Locate and open 2D sheets in Docs.
- Use the Area tool to measure enclosed spaces.

- Adjust measurement precision and units.
- Record and manage area markups.

Hands-on time: 8 minutes

Review objectives: 2 minutes

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 3:** Measure areas on 2D sheets (or use in class for hands-on time)
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M3-01 Compare file versions in 2D and 3D

Total time required for module: 15 minutes

Discuss objectives: 2 minute

Demonstrate: 3 minutes

- Use the Compare tool in ACC Docs to identify changes between file versions.
- Visualize and interpret comparison results.
- Export comparison data.

Hands-on time: 8 minutes

Review objectives: 1 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 4:** Identify design changes with the Compare tool (or use in class for hands-on time)
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M3-02 Create markups and issues

Total time required for module: 17 minutes

Discuss objectives: 2 minute

Demonstrate: 5 minutes

- Use markup tools to visually highlight design discrepancies on 2D sheets.
- Create and manage issues to track open tasks and coordinate follow-up actions.

Hands-on time: 7 minutes

Review objectives: 2 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 5:** Create markups and issues (or use in class for hands-on time)
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M4-01 Set up a Takeoff package and types for 2D sheets

Total time required for module: 13 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Create a Takeoff package.
- Publish sheets and models from Docs to Takeoff.
- Define structured Takeoff types for 2D takeoff.
- Manage and duplicate Takeoff types to support variations in element size and outputs.

Hands-on time: 5 minutes

Review objectives: 1 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
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M4-02 Execute a takeoff from 2D sheets

Total time required for module: 13 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Execute 2D takeoffs in Autodesk Construction Cloud.
- Review and export takeoff data.

Hands-on time: 5 minutes

Review objectives: 1 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise 6:** Perform 2D takeoffs (or use in class for hands-on time for M4-01 and M4-02)
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M5-01 Configure Takeoff types for 3D models

Total time required for module: 8 minutes

Discuss objectives: 1 minute

Demonstrate: 3 minutes

- Define Takeoff types for structural elements.
- Manage and duplicate Takeoff types to support variations in element size and outputs.

Hands-on time: 3 minutes

Review objectives: 1 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
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M5-02 Execute a takeoff from 3D models

Total time required for module: 10 minutes

Discuss objectives: 2 minute

Demonstrate: 2 minutes

- Perform 3D takeoff workflows in ACC.
- Efficiently locate and quantify model elements.
- Export takeoff results for further analysis.

Hands-on time: 3 minutes

Review objectives: 2 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 1 minute
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M5-03 Edit and manage 2D and 3D takeoffs

Total time required for module: 13 minutes

Discuss objectives: 2 minute

Demonstrate: 4 minutes

- Customize takeoff type appearance to improve on-screen clarity.
- Locate, reassign, or delete takeoff objects using Select All, Review in Inventory, and Reassign tools.
- Audit inputs and formulas with Detailed Takeoff to validate quantity calculations.

Hands-on time: 5 minutes

Review objectives: 2 minute

Datasets:

See instructions for Module 1-01.

Assignments (additional):

- **Quiz:** 2 minutes
 - **Practice Exercise 7:** Perform 3D takeoffs (or use in class for hands-on time for M4-01 and M4-02)
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Next steps (additional):

End-of-course exam questions: 10 minutes

Course Challenge exercise: 45 minutes

In the *Generate a concrete and steel quantity summary* challenge, you will produce a one-page summary of all concrete foundations and structural steel in the provided structural model and sheets.

Datasets:

Use the same dataset provided in the course downloads.

Grading: A grading rubric is provided in the Teaching Supplements to provide you with a guide to grade your students on this challenge.