Introduction to BIM for Construction Management

# Instructor guide

Course duration: ~3.5 hours to 5 hours, depending on lecture time and slides used

Recommended student level: 4-year construction management degree students

Products: Autodesk Revit, Autodesk Navisworks, 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:**

* Model to match construction methods and use parts to improve model accuracy.
* Create and manage callouts and views
* Create a federated model.
* Use LIDAR for construction.
* Create and manage 4D simulations in Navisworks.
* Segment elements to model location for scheduling tasks.
* Use 4D simulations for materials planning and management.
* Run clash tests, create clash reports, and retest.
* Create quantity takeoffs.
* Use the BIM model to add maintainable asset data.

The overall course contains the following resources:

* 10 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.
* 6 practice exercises with exercise files and solutions.
* 2 challenge assignments with recommended assessment criteria.
* Lecture slides that introduce topics and themes covered in the course.

**Course description:**

In this course, learners will discover how to use Autodesk Revit, Navisworks, and Autodesk Construction Cloud for the tasks they’ll encounter during the design and planning stages of a construction project 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.

During the course students will discover how 3D modeling in Revit impacts construction project planning. They’ll learn how to use mass modeling as a means of achieving conceptual cost estimates and use the same data to inform and drive ongoing design decisions.

Students will gain core skills in model federation and effective navigation within Navisworks and then create 4D simulations and identify areas for improvement on a range of construction tasks based on site location and material management.

They’ll take on tasks such as clash detection, reporting, and creating simple quantity takeoffs in Autodesk Construction Cloud. As a wrap up, students will discover how to track assets during the project’s lifecycle.

**Structure of the course:**

The course is split into 10 modules and is designed to cover core Autodesk skills required for construction management and planning.

**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 building project with a Revit model for the architecture, structural, and MEP discliplines, and the dataset is available to follow along with the instruction.

**Practice exercises:**

There are six 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:**

Two challenge assignments are 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**

The Introduction to BIM for Construction Management 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 shop 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 Use BIM for construction**

**Total time required for module:** 15 minutes

**Discuss course objectives:** 5 minutes

**Demonstrate:** 10 minutes

* Download dataset files.
* Download the required software (Revit, Navisworks, Recap Pro).
* Gain access to ACC.

**Datasets:** *No datasets for this video*

**Assignments (additional):**

* **Quiz:** 2 minutes

**Module 2-01 Work with steel model**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Work with steel models to prepare for construction.
* Adjust column constraints.
* Split structural columns and structural framing.
* Add structural connections.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**Module 2-02 Work with precast models**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Work with precast models to prepare for construction.
* Use precast systems.
* Configure precast elements.
* Segment concrete elements.

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-STR-XX-ZZ-M3-S-0002.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**Module 2-03 Work with cast in-situ concrete models**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Work with cast-in-situ models to prepare for construction.
* Manage concrete joins
* Swap families for detailed modeling

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-STR-XX-ZZ-M3-S-0003.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M3-01 Create parts to add construction details**

**Total time required for module:** 17 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Create 3D construction details
* Create parts
* Exclude parts

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M3-02 Edit parts and review quantities**

**Total time required for module:** 17 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Adjust part geometry
* Divide parts
* Review material quantities

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0002.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M3-03 Work with parts and division profiles**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Divide a floor
* Assign and configure divisions
* Override material properties

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0007.rvt*

**Assignments (additional):**

* **Practice Exercise 1: Compare material takeoff and parts schedule:** 5 minutes
* **Quiz:** 2 minutes

**M4-01 Develop detailed construction views**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Control view detail and levels
* Create callouts
* Place tags and keynotes

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0004.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0004.rvt*

*ADSK-STR-XX-ZZ-M3-S-0004.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M4-02 Create 3D views**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Generate 3D section views
* Create exploded views
* Use displace elements

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0005.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0005.rvt*

*ADSK-STR-XX-ZZ-M3-S-0005.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M4-03 Import and export PDF documents**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Use ISO19650 document naming
* Work with PDF documents
* Link PDF drawings into Revit
* Export and name PDF documents

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:** *ADSK-ARC-XX-ZZ-M3-A-0006.rvt*

*REBAR LAYOUT V2.pdf*

*REBAR LAYOUT.pdf*

*STEEL CONNECTION DETAIL.pdf*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M5-01 Use LIDAR for construction**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Understand LiDAR
* Link Recap Pro files into Revit
* Work with point clouds in Revit
* Extract linear features from Infraworks

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*AutodeskReCapSampleProject Support  
AutodeskReCapSampleProject.rcp*

**Assignments (additional):**

* **Practice Exercise 2: Export sheets with point cloud data:** 5 minutes
* **Quiz:** 2 minutes

**M6-01 Use conceptual modeling**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Work with cost estimates
* Describe architectural massing
* Use mass floor to quantify key metrics

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M1-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M6-02 Create schedules and use formulas**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Create schedules to organize and prepare data
* Use simple formulas to estimate material costs

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0002.rvt*

**Assignments (additional):**

* **Practice Exercise 3: Create a ceiling schedule:** 5 minutes
* **Quiz:** 2 minutes

**M7-01 Create a federated model**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Understand NWC, NWF and NWD file types
* Export NWC files from Revit
* Open and append model files within Navisworks
* Create an NWF file

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0001.nwc*

*ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

*ADSK-FED-XX-ZZ-V-0001.nwf*

*ADSK-FFE-XX-ZZ-M3-I-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0001.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-02 Model alignment in Navisworks**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Append project models into Navisworks
* Review origin and orientation values
* Edit values to align models

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0001.nwc*

*ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

*Completed Exercise.nwf*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-03 Work with viewpoints**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Navigate the project model
* Save viewpoints in the model
* Review and edit viewpoints
* Organize viewpoints using folders

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0001.nwc*

*ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

*ADSK-FED-XX-ZZ-M3-X-0001.rvt*

*ADSK-FED-XX-ZZ-X-0001 - Completed.nwf*

*ADSK-FED-XX-ZZ-X-0001.nwf*

*ADSK-FFE-XX-ZZ-M3-I-0001.nwc*

*ADSK-FFE-XX-ZZ-M3-I-0001.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.nwc*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0001.nwc*

*ADSK-MEP-XX-ZZ-M3-ME-0001.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-04 Create search sets**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Select model elements to include in search sets
* Create and refine search criteria
* Save search sets

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0001.nwc*

*ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

*ADSK-FED-XX-ZZ-M3-X-0001.rvt*

*ADSK-FED-XX-ZZ-X-0001 - Completed.nwf*

*ADSK-FED-XX-ZZ-X-0001.nwf*

*ADSK-FFE-XX-ZZ-M3-I-0001.nwc*

*ADSK-FFE-XX-ZZ-M3-I-0001.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.nwc*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0001.nwc*

*ADSK-MEP-XX-ZZ-M3-ME-0001.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-05 Manage search sets**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Export and import search sets
* Manage search sets

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0001.nwc*

*ADSK-ARC-XX-ZZ-M3-A-0001.rvt*

*ADSK-FED-XX-ZZ-X-0001 - Search Sets.xml*

*ADSK-FED-XX-ZZ-X-0001.nwf*

*ADSK-FFE-XX-ZZ-M3-I-0001.nwc*

*ADSK-FFE-XX-ZZ-M3-I-0001.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.nwc*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0001.nwc*

*ADSK-MEP-XX-ZZ-M3-ME-0001.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-06 Run construction simulations**

**Total time required for module:** 17 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Understand construction sequencing
* Simulate a construction sequence

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-S-0001-Simulation - Completed.nwf*

*ADSK-STR-XX-ZZ-S-0001-Simulation.nwf*

*ADSK-STR-XX-ZZ-S-0001.nwc*

*ADSK-STR-XX-ZZ-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-07 Use parts in simulations**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Review the model for simulation inaccuracies
* Use parts to improve simulation accuracy

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-M3-S-0001-Completed.rvt*

*ADSK-STR-XX-ZZ-M3-S-0001.nwc*

*ADSK-STR-XX-ZZ-M3-S-0001.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-08 Segment building elements**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Identify location based parallel task workflows
* Use parameters to segment building elements

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-M3-S-0002-Completed.rvt*

*ADSK-STR-XX-ZZ-M3-S-0002.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-09 Run detailed simulations**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Link an external construction sequence plan
* Assign elements to location-based tasks
* Run a detailed simulation

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-M3-S-0004-Completed.nwf*

*ADSK-STR-XX-ZZ-M3-S-0004.nwc*

*ADSK-STR-XX-ZZ-M3-S-0004.nwf*

*ADSK-STR-XX-ZZ-M3-S-0004.rvt*

*ADSK-STR-XX-ZZ-M3-S-0004.xml*

*Detailed Structure Construction Plan.csv*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-10 Track building elements**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Add properties to models to track elements
* Use schedules to plan and manage materials

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-M3-S-0005 - completed.rvt*

*ADSK-STR-XX-ZZ-M3-S-0005.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M7-11 Manage materials in Navisworks**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Display material status in the model
* Use timeliner to confirm task material availability

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-STR-XX-ZZ-M3-S-0006 - Completed.nwf*

*ADSK-STR-XX-ZZ-M3-S-0006.nwc*

*ADSK-STR-XX-ZZ-M3-S-0006.nwf*

*ADSK-STR-XX-ZZ-M3-S-0006.rvt*

**Assignments (additional):**

* **Practice Exercise 4: Create a construction simulation:** 5 minutes
* **Quiz:** 2 minutes

**M8-01 Define a coordination space**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Create a coordination space in ACC Model Coordination
* Review settings for coordination spaces

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M8-02 Save views to manage clash sets**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* View models and filter categories
* Save views to manage clash sets

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M8-03 Run clashes**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Choose views or models to clash
* Define object exclusions
* Explore clash results

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M8-04 Review clashes**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Work with clash groups
* Edit clash tolerance
* Create issues for clashes

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M8-05 Review issues**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Review coordination issues
* Create an issue report

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M8-06 Update clashes**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Re-run clashes with updated models
* Close resolved issues

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*V2 Models for M8-06 Update clashes*

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

*ADSK-ARC-XX-ZZ-M3-A-4000.rvt*

*ADSK-LAN-XX-ZZ-M3-L-0001.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-4000.rvt*

*ADSK-STR-XX-ZZ-M3-S-4000.rvt*

**Assignments (additional):**

* **Practice Exercise 5: Apply advanced filters in ACC Model Coordination:** 5 minutes
* **Quiz:** 2 minutes

**M9-01 Set up the takeoff project**

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

**Discuss objectives:** 1 minute

**Demonstrate:** 8 minutes

* Set up measurement system, currency and output definitions
* Create Packages
* Upload 3D models

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Architecture\_2025.rvt*

*Services\_2025.rvt*

*Structure\_2025.rvt*

*NRM1 Template.xlsx*

*Uniclass2015 Template.xlsx*

*ZZ - Takeoff\_output\_definitions.xlsx*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M9-02 Perform a takeoff from 3D models**

**Total time required for module:** 22 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 12 minutes

* Create or import Takeoff types
* Use Takeoff types to extract quantities to the Inventory
* Add additional outputs and rules to Takeoff types

**Hands-on time:** 10 minutes

**Review objectives:** 1 minute

**Datasets:**

*Architecture\_2025.rvt*

*Services\_2025.rvt*

*Structure\_2025.rvt*

*NRM1 Template.xlsx*

*Uniclass2015 Template.xlsx*

*ZZ - Takeoff\_output\_definitions.xlsx*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M9-03: Analyze takeoff results**

**Total time required for module:** 12 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Review the inventory
* Export quantities
* Create inventory snapshots
* Update models

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*Architecture\_2025.rvt*

*Services\_2025.rvt*

*Structure\_2025.rvt*

*NRM1 Template.xlsx*

*Uniclass2015 Template.xlsx*

*ZZ - Takeoff\_output\_definitions.xlsx*

**Assignments (additional):**

* **Practice Exercise 6: Measure material quantities in ACC Takeoff:** 7 minutes
* **Quiz:** 2 minutes

**M10-1 Map assets and extract**

**Total time required for module:** 34 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 12 minutes

* Add a Revit model to ACC Build
* Set up build assets ready to map a model
* Map model properties to assets
* Add a new model version and update assets

**Hands-on time:** 20 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0004.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0004.rvt*

*ADSK-STR-XX-ZZ-M3-S-0004.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**M10-02 Track project progress**

**Total time required for module:** 10 minutes

**Discuss objectives:** 1 minute

**Demonstrate:** 5 minutes

* Review assets in the model and sheets
* Change asset statuses to reflect progress
* Access progress tracking via mobile device

**Hands-on time:** 5 minutes

**Review objectives:** 1 minute

**Datasets:**

*ADSK-ARC-XX-ZZ-M3-A-0004.rvt*

*ADSK-MEP-XX-ZZ-M3-ME-0004.rvt*

*ADSK-STR-XX-ZZ-M3-S-0004.rvt*

**Assignments (additional):**

* **Quiz:** 2 minutes

**Next steps: End of course (additional)**

**Challenge exercise – Create a construction simulation for an architectural model:** 90 minutes

**Datasets:**

*ADSK-ARC-XX-ZZ-C1-A-4000.rvt*

**Challenge exercise – Coordinate and quantify models in ACC:** 90 minutes

**Datasets:**

*ADSK-ARC-XX-ZZ-C2-A-4000.rvt*

*ADSK-LAN-XX-ZZ-C2-L-0001.rvt*

*ADSK-MEP-XX-ZZ-C2-ME-4000.rvt*

*ADSK-STR-XX-ZZ-C2-S-4000.rvt*

**End-of-course exam questions:** 20 minutes