

Learn Forma Site Design in 90 minutes: Workflows for design studios

Instructor guide

Course duration if teaching with this material in class: 6 hours or more depending on lecture time and additional challenge assigned. Note that the 90 minutes in the course title refers to video time.

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

Products: Autodesk Forma Site Design

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.

*For additional tips for teaching this course, refer to the lecture notes in the accompanying PowerPoint lecture slides.

Learning objectives:

- Evaluate site feasibility using contextual, climate, regulatory, and experiential data.
- Set up Forma projects for geolocation, navigation, and collaboration.
- Model existing conditions with context, constraints, and imported data.
- Develop massing proposals to test form, function, and feasibility.
- Run performance simulations to guide data-driven design decisions.
- Compare design options to identify trade-offs and stronger outcomes.
- Communicate design intent through views and the Forma Board.

The overall course contains the following resources:

- 7 video modules covering all the topics in the course.
- Dataset files for use when following the videos and exercise in module 5.
- Quiz questions with timecodes for remedial knowledge check.
- Exam-style final test questions at the conclusion of the course.
- 7 practice exercises with video solutions and grading rubrics.
- 7 challenge assignments with recommended assessment criteria.

- Lecture slides that introduce topics and themes covered in the course.

Pre-requisites:

In this course, learners gain essential principles and practice for quickly evaluating site opportunities, exploring design concepts, and making confident early-phase decisions using real-world data. The primary course project is a low-rise downtown site in Springfield, MO. Additional challenges extend students' learning across a broader range of site types, densities, geographies, and climates—from high-density urban conditions to rural and landscape-driven contexts—so they can see how Forma supports design exploration at multiple scales.

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. This course is designed to provide students with a foundational understanding of site design workflows using Forma Site Design. By exploring these workflows, students will gain insights into how these tools create performance-optimized designs.

To that end, students should be given access to the Forma Site Design product. Descriptions and tips are included. **Instructions for granting students product licenses are included with the Teaching Supplements downloads as a separate software guide PPT for the instructor.**

Structure of the course:

The course is split into 7 modules and includes the following components.

Videos:

Each video begins with a list of learning objectives covered in the video. The details of the Forma project used in the example can be found in the PDF included in the Course Downloads. Students can use this project if they wish to follow along or practice after the video.

Dataset:

The example used in the videos is of a fictitious building project in Springfield, MO. The **Proposed Building Program.pdf** file includes reference information on the project program and dimensions for each building. Also included is a simple Revit model and OBJ files that can be imported into the design in Module 5 of the course.

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 from the videos. Each practice exercise is accompanied by a video solution and a grading rubric (see the Teaching Supplements for the rubric).

Challenge exercise:

Additionally, 7 challenge assignment are included, focusing on a set of topics covered in the course and expanding the site locations and conditions to explore. 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 Evaluate sites for feasibility and develop a site layout in Forma Site Design

Module unit 1-01 What is outcome-based BIM?

Total time required for module unit: 10 minutes

Discuss course objectives: 1 minute

Demonstrate: 8 minutes

- Define the variables of site layout design that affect feasibility.
- Describe ways that Forma Site Design is used to build, manage, and convey complex site information.

Assignments (additional time):

- **Quiz:** 1 minute
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Module unit 1-02 Create a project site in Forma Site Design

Total time required for module unit: 15 minutes

Discuss course objectives: 2 minutes

Demonstrate: 8 minutes

- Create the project site in Forma Site Design and define the site's geolocation.
- Describe the layout of the interface in Forma Site Design.
- Navigate the Forma Site Design canvas.
- Apply the tools in Forma Site Design to accommodate site layout design requirements.

Hands-on time: 5 minutes

Assignments (additional time):

- **Quiz:** 1 minute
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Module unit 1-03 Visualize the data in a project site

Total time required for module unit: 20 minutes

Discuss course objectives: 2 minutes

Demonstrate: 8 minutes

- Create site constraints.
- Develop basic proposals, massing forms, and simulations.
- Use the primary toolbars: Navigate, Analyze, and Design.

Hands-on time: 10 minutes

Assignments (additional time):

- **Quiz:** 1 minute
 - **Practice Exercise: Evaluate a site for design potential** 20 min (or use in class for additional hands-on time in this module)
 - **Challenge Exercise: Build an initial site layout in Forma Site Design with coasts, hotels, and coffee shops** 45 min (or use in class for additional hands-on time in this module)
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Module 2 Developing existing conditions for Forma Site Design projects

Module unit 2-01 Establish existing conditions

Total time required for module unit: 20 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Revise context to match form and height of adjacent buildings.
- Create and size trees in a project.
- Edit objects in the base and a proposal, and recognize the behavior differences between them.
- Create a collaborative workspace in Forma Site Design accelerate matching existing conditions with a team.

Hands-on time: 13 minutes

Assignments (additional time):

- **Quiz:** 1 minute
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Module unit 2-02 Create site limits and constraints

Total time required for module unit: 20 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Create site limits and constraints.
- Determine a proposal's impact on adjacent site elements and buildings.
- Run a solar hours analysis.

Hands-on time: 13 minutes

Assignments (additional):

- **Quiz:** 1 minute
- **Practice Exercise: Complete the context for an established site** -20 min (or use in class for hands-on time in this module)

- **Challenge Exercise: Build an initial site layout in Forma Site Design with coasts, hotels, and coffee shops** 45 min (or use in class for additional hands-on time in this module)
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Module 3 Create mass models of design proposals in Forma Site Design

Module unit 3-01 Design basic mass models

Total time required for module unit: 22 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Create basic buildings in Forma Site Design.
- Create floor levels.
- Create specific functions in levels, varying form and function.

Hands-on time: 15 minutes

Review objectives: 1 minute

Datasets:

***Building-Program.docx** includes reference information on the project program and dimensions for each building.*

Assignments (additional):

- **Quiz:** 1 minute
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Module unit 3-02 Model a building with 3D Sketch

Total time required for module unit: 17 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Describe when additional formal complexity will shape simulation data.
- Draw outside of the plan view on the Forma Site Design canvas.
- Modify a basic building massing form by drawing and using sketch lines and advanced modeling tools.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise: Create a new conceptual site layout proposal** -30 min (or use in class for hands-on time in this module)
 - **Challenge Exercise: Create masses for high-rise buildings** -30 min (or use in class for additional hands-on time in this module)
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Module 4 Create core analysis simulations in Forma Site Design

Module unit 4-01 Perform a sun analysis

Total time required for module unit: 17 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Run a sun hours simulation.
- Label the measurable results.
- Describe what the sun hour values represent.
- Study the impact of a design proposal on surroundings.
- Explain how sun hours impact future design decisions.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module unit 4-02 Run a daylight potential simulation

Total time required for module unit: 17 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Run a daylight potential simulation.
- Label the measurable results.
- Describe the definitions and values of daylight potential.
- Explain the impact on interior spaces and envelope systems in a design.

Hands-on time: 15 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module unit 4-03 Perform a wind analysis

Total time required for module unit: 20 minutes [Note that if you perform the detailed wind analysis, this could take up to an hour. Perform the analysis and then return to those results later.]

Discuss objectives: 1 minute

Demonstrate: 8 minutes

- Run both rapid and detailed wind simulations and describe the differences between each approach.
- Label the measurable results.
- Work with wind roses and apply seasonal thinking.

- Visualize wind flow in early design concepts.
- Apply wind analysis insights to inform site layout design strategies.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
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Module unit 4-04 Run a microclimate simulation

Total time required for module unit: 17 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Run a microclimate simulation.
- Label the measurable results.
- Explain how Microclimate combines sun, daylight, wind, and local weather data to estimate thermal comfort
- Apply the baseline data from the microclimate simulation to generate design ideas centered around human comfort and experience

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 2 minutes
 - **Practice Exercise: Build depth on a design proposal through site simulations** – 20 min (or use in class for hands-on time. The dataset file is included in the course downloads.)
 - **Challenge Exercise: Run simulations for high-rise designs** -30 min (or use in class for additional hands-on time in this module)
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Module 5 Develop variables and proposals in Forma Site Design

Module unit 5-01: Integrate Forma Site Design into BIM workflows

Total time required for module unit: 16 minutes

Discuss course objectives: 1 minute

Demonstrate: 5 minutes

- Adapt Forma Site Design to your specific workflows.
- Import a sketch to develop a site layout proposal.
- Import OBJ files from Rhino, Revit, and SketchUp to develop a site layout in Forma Site Design.

Hands-on time: 10 minutes

Assignments (additional time):

- **Quiz:** 1 minute
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Module unit 5-02 Add site elements

Total time required for module unit: 20 minutes

Discuss course objectives: 2 minutes

Demonstrate: 8 minutes

- Develop imagery to convey how a human will experience the site.
- Use the Surface tool to communicate elements like parking, green space, parks, water retention, etc.
- Use the Surface Parking tool.

Hands-on time: 10 minutes

Assignments (additional time):

- **Quiz:** 1 minute

Module unit 5-03 Develop multiverse proposals

Total time required for module unit: 22 minutes

Discuss course objectives: 2 minutes

Demonstrate: 5 minutes

- Create collaborative files in Forma Site Design to build depth in proposal options.
- Document observable variables across multiple options to develop outcome-based design solutions.

Hands-on time: 15 minutes

Assignments (additional time):

- **Quiz:** 1 minute
 - **Practice Exercise: Develop a range of analyses in multiple Forma Site Design proposals** 30 min (or use in class for additional hands-on time in this module)
 - **Challenge Exercise: Challenge Assignment: Create a comprehensive layout analysis for structures in arid climate** 45 min (or use in class for additional hands-on time in this module)
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Module 6 Extending performance analysis in Forma Site Design

Module unit 6-01 Analyze the site for sound

Total time required for module unit: 20 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Define the input parameters and values for analyzing noise.
- Apply traffic data to road centerlines.

- Use the data to inform design decisions.
- Develop sound mitigation strategies.

Hands-on time: 13 minutes

Assignments (additional time):

- **Quiz:** 1 minute
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Module unit 6-02 Evaluate solar energy

Total time required for module unit: 20 minutes

Discuss objectives: 2 minutes

Demonstrate: 5 minutes

- Set up the simulation for the roof area and additional surface areas.
- Describe potential energy use for a building.
- Evaluate solar energy creation for an area on a site.
- Evaluate solar energy payback.

Hands-on time: 13 minutes

Assignments (additional):

- **Quiz:** 1 minute
 - **Practice Exercise: Expand Forma Site Design simulations to incorporate sound and solar** -30 min (or use in class for hands-on time in this module)
 - **Challenge Exercise: Incorporate solar panels into a design and run a solar energy analysis** 30 min (or use in class for additional hands-on time in this module)
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Module 7 Communicate ideas through the Forma Board

Module unit 7-01 Develop a collaborate space in Forma Board

Total time required for module unit: 22 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Set up the Forma Board for team-based collaboration.
- Create specific Boards to track team design development.
- Import data linked to Forma Site Design proposals that update with proposal development.
- Build communication clarity in a complex collaborative process.

Hands-on time: 15 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 1 minute
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Module unit 7-02 Use Forma Board to develop presentations

Total time required for module unit: 17 minutes

Discuss objectives: 1 minute

Demonstrate: 5 minutes

- Set up a Forma Board for site layout presentations.
- Understand the key components for a presentation.
- Use frames to organize and navigate a presentation in Forma Board.

Hands-on time: 10 minutes

Review objectives: 1 minute

Assignments (additional):

- **Quiz:** 1 minute

- **Practice Exercise: Create presentations and deliver a story with the Forma Board** -30 min (or use in class for hands-on time in this module)
 - **Challenge Exercise: Present a full narrative of design proposals using Forma Site Design** -30 min (or use in class for additional hands-on time in this module)
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Next steps (additional):

End-of-course exam questions: 10 minutes