

Building 3D Cities Using Esri CityEngine

Level: Advanced | Course duration: 3 days

Register now

SGD\$1,440 / pax

Create compelling 3D cities to visualize landscapes, generate virtual city simulations and support geodesign projects.



What is the course about?

Esri CityEngine uses a rule-based approach to help you efficiently produce highly realistic 3D models. This course introduces the CityEngine procedural modeling workflow and best practices to create compelling 3D cities that can be used to visualize urban landscapes, explore impacts of proposed development, generate virtual city simulations, and support geodesign projects.

Who is the target audience?

GIS analysts, specialists, and others who manage or conduct GIS analysis projects.

Are there any prerequisites?

Completion of [ArcGIS I: Introduction to GIS](#) and [ArcGIS 2: Essential Workflows](#), or [ArcGIS Pro: Essential Workflows](#), or equivalent knowledge is required.

What skills will I learn?

After completing this course, you will be able to:

- Import 2D and 3D data from a variety of sources
- Create 3D urban scenes by applying procedural rules
- Modify and update 3D city features
- Create and inspect feature rules and modify rule parameters to quickly review design changes
- Share 3D models online

Course topics

Getting started with Esri CityEngine

- 3D across the platform
- ArcGIS Pro and Esri CityEngine
- Procedural modeling in Esri CityEngine
- Why use procedural modeling?
- What can you model in Esri CityEngine?
- Procedural modeling examples
- Esri CityEngine modeling workflow

Managing Esri CityEngine projects

- Workspaces and projects
- User interface and project folders

Building the foundation of a 3D city

- Esri CityEngine modeling workflow
- How is data represented in Esri CityEngine?
- Shape creation
- Importing data
- Using Get Map Data to import data
- Evaluating data for 3D modeling
- CGA strategies
- Finding and applying rules

Using construction tools for urban planning and design

- Use cases
- 3D shape creation and editing
- Generating parcels and applying rules
- Using handles to edit in 3D

Sharing 3D content

- Sharing 3D content

Basic CGA shape grammar

- Basics of rule-based modeling
- Visualizing the components of a rule
- CGA rules, operations, and comments
- Attributes and annotations
- Identifying rule components

Importing and modifying rules

- Importing and modifying rules
- Importing rules
- Importing rules to texture buildings
- Working with parameterized rules

Writing rules

- Writing rules strategy
- Basics of rule-based modeling
- Working with the color operation
- CGA and building rules
- Adding random variation to a city model
- Working with functions

Detailed modeling with CGA

- Understanding the concept of scope
- Exploring scope using the model hierarchy window
- Understanding projections and texturing
- Using scope to texture buildings
- Using dashboards and creating reports
- Creating a smart city with reporting and dashboards
- Key CGA learning concepts

Putting it all together

- Model a 3D city