

## BUILDING INFORMATION MODELING CERTIFICATE PROGRAM COURSE CATALOG

Building Information Modeling (BIM) is a key topic that professionals in the built environment must be aware of to prepare themselves for digital transformation and the future of the industry. As reported by many professional organizations, such as McGraw Hill Construction, National Building Specifications, and the National Institute of Building Sciences, BIM adoption in the U.S. and UK continues to rise. The owner stands to benefit most when compared to other industry stakeholders, by implementing BIM across a project or asset’s lifecycle (National Institute of Building Sciences, 2017). However, less than 60% are confident in their knowledge and skills of BIM (Malleison, 2018). BIM skills are an area of training that needs to be addressed.

BIM use is on the rise and the return-on-investment of BIM and its benefits are:

- ✓ Provides a system that can illustrate the 3-dimensional nature of a project
- ✓ Highlights clashes between systems prior to construction
- ✓ Enables more direct communication across build environment professionals
- ✓ Can be used to document and record changes to the record drawings
- ✓ Scheduling functionality
- ✓ Estimating functionality
- ✓ Can be used to link to operations key data for ongoing maintenance and renovations

Owners, Contractors, Facility Managers, Designers, and other built environment industry professionals can gain from the benefits that BIM provides to advancing the design, construction, and operation of buildings and other facilities. This Certificate Program is designed for industry professionals or anyone who would like to expand their knowledge of BIM. BIM allows for the user to create models with information embedded within them. This program will give practitioners practical skills in how to create 3D models to enhance the efficiency of their facilities.

The estimated time to complete the full **BIM Certificate Program is 3-6 months.**

### Certificates Available:

Course	Title	CEUs	LUs	Suggested Prerequisite
SK100	Sketchup Basics and Site Utilization	3	26	None
REV100	Revit Basics and Quantity Takeoffs	2	20	SK100
NAV100	Navisworks Clash Detection and Standards Documentation	2	15	SK100

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## Sketchup Basics and Site Utilization Certificate

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**Course code:** SK100

**Suggested prerequisite:** None

**Approximate duration:** 4-6 weeks

**3 CEUs, 26 LUs**

### Overview

The goal of this Certificate is to familiarize yourself with Sketchup's use as a BIM software tool and to create a data rich 3D Site Utilization Plan. It focuses on the quick development of a building model. The units start from the basics of Sketchup user interface with the end goal of a completed site plan that you can use for a project of your own.

### Topics:

- Learn the basics of Sketchup user interface and navigation
- Draw and connect lines to form a surface
- Push & pull surfaces to form solids and modify solids
- Change a solid and create a group to lock a solid form
- Create levels, modify groups and add lines to subdivide
- Add default textures to solids with and without exploding
- Import a custom image and the difference between adding an image and adding texture
- Open the layer and entity information toolbars, create a layer and add elements
- Open the scene toolbar, add scenes and configure options within scenes

### Units:

1. Learning the Fundamentals
2. Model Appearance and Organization

### Assignments:

- Applying the Fundamentals: 3D real world object.
- 3D Site Utilization Plan

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## Revit Basics and Quantity Takeoffs Certificate

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**Course code:** REV100

**Suggested prerequisite:** SK100

**Approximate duration:** 4-6 weeks

**2 CEUs, 20 LUs**

### Overview

The purpose of this Certificate is to teach you the basics of Revit and to create both a basic 3D model of a simple house as well as a quantity takeoff of doors and windows. The units begin by teaching the essential software functionality. Experience and practice in building upon these functionalities, via step-by-step exercises, will give you skills to help you create a workable 3D model.

### Topics:

- Understand the basics of Revit's interface
- Learn how to create models manipulate model parameters for walls, doors, and windows
- Learn how to elevate model, manipulate wall heights, and add a level to your model
- Learn how to create and edit floors and roofs
- Add different elements
- Create a drawing sheet, add views and define section lines
- Further explanations on parametric concepts
- Select materials to generate quantity take-off to do estimations
- Export generated take-off content to Microsoft Excel files

### Units:

1. Introduction & Basic Models
2. Modeling Content at a Deeper Level
3. Creating a Drawing Sheet
4. Details and Development

### Assignments:

- Revit House Model

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## Navisworks Clash Detection and Standards Documentation Certificate

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**Course code: NAV100**

**Suggested prerequisite: SK100**

**Approximate duration: 4-6 weeks**

**2 CEUs, 15 LUs**

### Overview

The goal of this Certificate is to provide you with step-by-step videos demonstrating how to use the most utilized Navisworks software functionality, in order to create a BIM Coordination Structure, BIM Signoff List, and your own Clash Detection Reports that are specific to your company's needs and can be immediately implemented on the job.

### Topics:

- Understand the basics of what BIM is and its potential to bring value to the industry overall.
- Identify the benefits of Navisworks software.
- Understand how the window and software is laid out.
- Understand how to change visibility settings and save viewpoints.
- Understand how to create selection sets and search sets.
- Understand how appearance profiler works.
- Understand how clash detection works.
- Be able to create a Navisworks file, which is required for the assignment.
- Be able to create your own clash tests which is required for the assignment.
- Understand the importance of having a model sign off process.
- Understand some of the challenges associated with change management for BIM.

### Units:

1. Introduction & Setup
2. Setting Up Your Model
3. Clash Detection
4. Governance & Change Management

### Assignments:

- BIM Coordination Structure
- Clash Detection Testing and Reporting
- BIM Signoff List

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