



# Autodesk Navisworks Essentials

## Course Objective

Autodesk Navisworks is a powerful project review software primarily used in the construction industry for 3D coordination, collaboration, and clash detection. The course aims to equip participants with the necessary skills to effectively use Autodesk Navisworks for project coordination, collaboration, and analysis within the construction industry.

## Course Outcome

Learner will be able to...

- Students will demonstrate mastery in navigating 3D models within the Navisworks environment, including zooming, panning, rotating, and sectioning to effectively review project models.
- Learners will be able to identify clashes and interferences between various building elements using Navisworks clash detection tools and implement strategies to resolve conflicts efficiently.
- Participants will develop the ability to review and analyze project models for accuracy, completeness, and compliance with project requirements, ensuring smooth project progression.
- Students will learn to utilize Navisworks for collaboration by adding annotations, comments, and markups to communicate project issues and facilitate discussions among project stakeholders.

## Course Outline

The course comprises 32-hours of theory and labs and is divided into 10 different modules.

### Chapter 1 - Introduction to Autodesk Navisworks

- Autodesk Navisworks
- Autodesk Navisworks Products
- Autodesk Navisworks Simulate
- Autodesk Navisworks Manage
- Autodesk Navisworks Freedom
- Autodesk Navisworks Interface
- Autodesk Navisworks Workspaces
- Native File Support
- Autodesk Navisworks File Formats
- Collaborating Designs in Autodesk Navisworks
- Scene Statistics
- Sheet Browser
- Saving Your Work
- Deleting Files from the Scene



- Navigating Through the Model
- Changing the Camera Options
- Changing the Render Style Option
- View Cube
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 2 - Selecting and Manipulating Objects in the Scene**

- Object Selection
- Controlling the Visibility of the Objects
- Item Tools
- Modifying Units, Size, and Location of a CAD File
- Selection Sets and Search Sets
- Viewing Object Properties
- Dynamically Displaying Object Properties on the Model
- Selection Inspector
- Appearance Profiler
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 3 - Viewpoints, Animations, and Measurements**

- Realtime Navigation in the Design
- Controlling the Object Drop Outs During Navigation
- Viewpoints
- Viewpoint Shortcut Menu
- Adding Realism to the Navigation
- Global Viewpoint Default Settings
- Creating Walkthrough Animations
- Exporting and Importing Viewpoints
- Measuring Objects
- Object Snapping
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 4 - Reviewing and Sectioning the Design**

- Design Review in Autodesk Navisworks
- Sectioning the Model
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)



- Skill Evaluation
- Class Test Questions

## **Chapter 5 - Autodesk Navisworks Productivity Tools**

- Displaying Grids and Levels in an Autodesk Revit File
- Linking Files and URLs to the Objects in the Scene
- Comparing Models or Objects in the Scene
- Linking External Databases to the Autodesk Navisworks Objects
- Working With the Batch Utility Tool
- Splitting the Autodesk Navisworks View
- Working With the Full Screen Display
- The SwitchBack Functionality
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 6 - Working with the Autodesk Rendering Module**

- Creating Photorealistic Renderings
- The Autodesk Rendering Window
- Ray Trace Rendering of the Autodesk Navisworks Scene
- Saving Rendered Images
- Rendering in Cloud
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 7 - Working with the Animator and Scripter Modules**

- The Animator Module
- Procedure for Creating Animator Animations
- The Scripter Module
- Enabling the Scripts
- Procedure for Adding Interactivity to the Model Using Scripts
- Exporting Animations
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 8 - Creating Construction Simulations Using the TimeLiner Module**

- The Timeliner Module
- Procedure for Automatically Adding Tasks
- Procedure for Automatically Attaching Items to the Tasks Using Rules
- Procedure for Importing Scheduling Tasks By Linking External Project Files
- Procedure for Customizing the Simulation Overlay Text



- Procedure for Adding an Animator Camera Animation As a Task
- Procedure for Linking a Viewpoint Animation or an Animator Camera Animation to the Simulation
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 9 - Introduction to the Quantification Module**

- The Quantification Module
- Types of Quantity Takeoffs
- The Quantification Workbook
- Item and Resource Catalogs
- Takeoff Property Mapping
- Procedures Required While Working With the Quantification Module
- Getting Autodesk Navisworks Ready to Perform Model Takeoff From the AutoCAD Plant 3D Files
- GUID Property For Quantity Takeoff
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions

## **Chapter 10 - Working with the Clash Detective Module**

- The Clash Detective Module
- Procedure for Performing Various Clash Test Related Activities
- Hands-On Exercise (Plant)
- Hands-On Exercise (BIM)
- Skill Evaluation
- Class Test Questions