

Autodesk Navisworks Essentials

Target Audience

This course is intended for architects, engineers, construction professionals, and BIM coordinators who are new to Autodesk Navisworks and want to learn the essential tools for project review, coordination, and clash detection in collaborative BIM environments.

Course Objective

The objective of this course is to provide participants with the skills to efficiently navigate, review, and manage 3D models in Autodesk Navisworks, facilitating improved coordination, issue detection, and project visualization.

Course Outcome

- Learn to navigate and manipulate 3D models in Autodesk Navisworks for effective project review.
- Understand how to perform clash detection and resolve design conflicts across multi-disciplinary models.
- Develop skills in creating animations and walkthroughs to enhance project presentations.
- Gain proficiency in generating coordination reports and managing project collaboration using tools like Navisworks Manage.

Course Outline: The course comprises **40 -hours** of theory and labs and is divided into **9** different chapters. Each chapter will be followed by hands-on lab exercises to reinforce learning and gauge understanding of the topics covered.



Chapter 1. Introduction to Autodesk Navisworks

Introduction

Basic Features of Navisworks Manage

- Navigation and Reviewing Tools
- TimeLiner
- Quantification
- Clash Detection
- Autodesk Rendering
- Animator and Scripter

Benefits of Navisworks

Starting Autodesk Navisworks

User Interface

- Title Bar
- Quick Access Toolbar
- InfoCentre
- Application Menu
- Ribbon
- Scene View
- Navigation Bar
- ViewCube
- Dockable Windows
- Status Bar

Autodesk Navisworks Dialog Boxes

Configuring Settings in Navisworks

- Configuring the Local Settings
- Configuring the Global Settings

Keyboard Shortcuts

File Types in Navisworks

- NWC File Format
- NWD File Format
- NWF File Format

File Readers

Managing Files in Navisworks

Opening Files

Appending Files

Merging Files

Saving Files



Publishing Files

Emailing Files

Working with Batch Utility

- Creating a List of Design Files
- Appending Multiple Files into a Single Navisworks File
- Converting Multiple Files into Single NWD File

Sharing Data in Navisworks

- Printing Files
- Importing Files
- Exporting Files
- Exporting Images and Animations
- Export Data

Setting Units in Navisworks

Navisworks Workspaces

- Safe Mode
- Navisworks Extended
- Navisworks Standard
- Navisworks Minimal

Autodesk Navisworks Help System

- Using the Offline Help
- Using the Autodesk Online Help
- Using the Context Sensitive Help

Chapter 2. Exploring the Navigation Tools in Navisworks

Introduction

Using the Head-Up Display Feature

Setting View Orientations

The ViewCube

The Navigation Bar

- Pan Tool
- Zoom Tools
- Orbit Tools
- Look Tools
- Walk and Fly Tools
- SteeringWheels

Camera

Reference Views



Chapter 3. Selecting, Controlling, and Reviewing Objects

Introduction

Object Selection Methods

- Direct Selection Method
- The Selection Tree Window
- Setting Selection Resolution
- Find Items Window
- Quick Find

Saving Selections

- Selection Sets
- Search Sets
- The Selection Inspector Window

Object Properties

- Properties Window

Linking External Databases to Objects

- Adding Database Link Locally
- Adding Database Link Globally

Measure Tools

- Point to Point Tool
- Point to Multiple Points Tool
- Point Line Tool
- Accumulate Tool
- Angle Tool
- Area Tool
- Shortest Distance Tool
- Clear Tool
- Convert to Redline Tool

Direction Constraints for Measurements

- X Axis Tool
- Y Axis Tool
- Z Axis Tool
- Perpendicular Tool
- Parallel Tool

Redline Tools

- Adding Text to Redline
- Drawing Cloud



Tags and Comments

- Adding Tags
- The Comments Window
- The Find Comments Window

Comparing Models

- Find Differences In
- Results

Controlling the Visibility of Objects

Controlling the Appearance of the Model in the Scene View

Controlling Object Attributes

- Controlling Object Attributes using Gizmo
- Controlling Object Attributes Numerically

Links

- Types of Links
- Customizing Appearance of Links in the Scene View
- Adding Links
- Managing Links

The Appearance Profiler Window

- Selector Area
- Appearance Area
- Selector List Area

Chapter 4. Viewpoints, Sections, and Animations

Introduction

Working with Viewpoints

- Saving Viewpoints
- Organizing Viewpoints
- Editing Viewpoints
- Sharing Viewpoints

Sectioning in Navisworks

- Creating Section Views Using Planes Mode
- Transforming Section Planes
- Linking Section Planes
- Creating Section Views Using the Box Mode
- Transforming Section Box



Animation in Navisworks

- Creating Viewpoint Animations By Recording
- Creating Viewpoint Animations Frame By Frame
- Playing Viewpoint Animations
- Combining Multiple Animations
- Editing Viewpoint Animations
- Sharing Animations

Chapter 5. TimeLiner

Introduction

Introduction to Timeliner

The Timeliner Window

- Tasks Tab
- Data Sources Tab
- Configure Tab
- Simulate Tab

Playing Simulation

Exporting Animation from the TimeLiner

Adding Animation to the TimeLiner

- Adding Animation to the Entire Schedule
- Adding Animation to Tasks

TimeLiner Costs

Importing Schedules From External Scheduling Software

Chapter 6. Working with Animator and Scripter

Introduction

The Animator Window

- Animator Toolbar
- Animator Tree View
- Animator Timeline View

Creating Object Animations

- Creating Object Animation Using the Animation Set
- Creating Animation Using Camera
- Creating Animation Using the Section Plane

Editing Keyframes

- Editing Animation Set Keyframes
- Editing Camera Keyframes



- Editing Section Plane Keyframes

The Scripter Window

- The Scripts Area
- The Events Area
- The Actions Area
- The Properties Area

Enabling Scripts

Chapter 7. Quantification

Introduction

Quantification Workbook Window

- Components of Quantification Workbook Window
- Creating a Project
- Item Catalog
- Resource Catalog

Takeoff Methods

- Model Takeoff
- Virtual Takeoff
- 2D Takeoff

Chapter 8. Clash Detection

Introduction

Clash Detective Window

- Test Panel
- Rules Tab
- Select Tab
- Results Tab
- Report Tab

Managing Clash Tests

- Merging Clash Tests
- Creating Custom Clash Tests

Linking Clash Test with Timeliner and Object Animation

- Time-Based Clash Test
- Soft Clashing
- Time-Based Soft Clashing

Customizing Clash Detective Window

Creating Clash Report



Chapter 9. Autodesk Rendering in Navisworks

Introduction

The Autodesk Rendering Window

- The Rendering Toolbar
- Materials Tab
- Material Mapping Tab
- Lighting Tab
- Environments Tab
- Settings Tab

Rendering Using Autodesk Graphics

Rendering Using Autodesk 360

