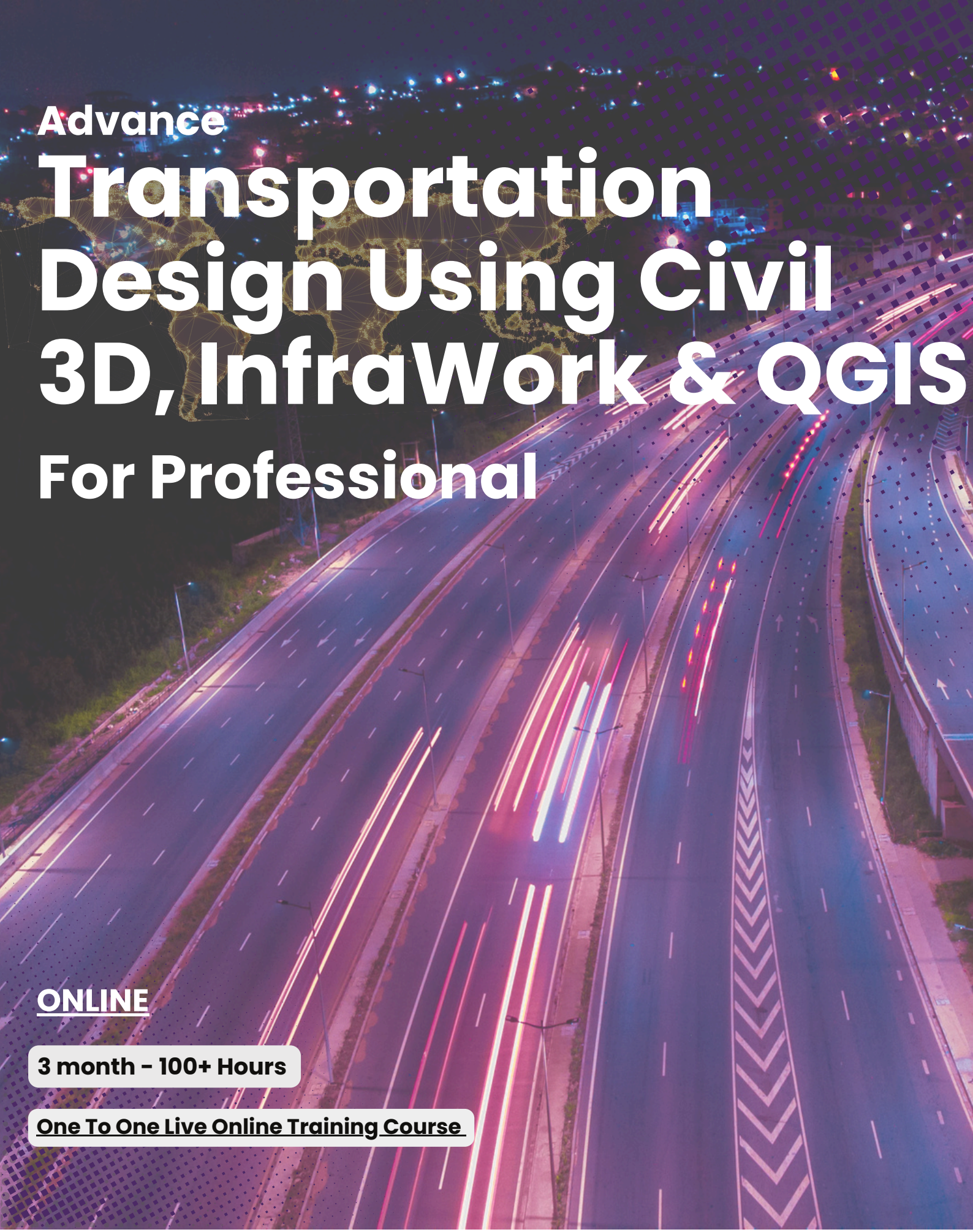

Advance

Transportation Design Using Civil 3D, InfraWork & QGIS

For Professional

ONLINE

3 month - 100+ Hours

One To One Live Online Training Course

CERTIFIED BY

BIM Castallio

ISO 9001 QUALITY MANAGEMENT ISO 9001

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www.learning@castallio.com

Course Overview

Advance Transportation Design Using Civil 3D, InfraWorks and QGIS For Professional

Duration:- 100+ Hours

Elevate your expertise in delivering complex infrastructure projects, including highways, rail, airports, land development, and utility networks, by mastering a fully integrated digital workflow. This course focuses on leveraging the synergistic power of Autodesk Civil 3D, QGIS, Infraworks, Navisworks, Autodesk Construction Cloud (ACC), and Speckle to optimize project delivery from initial concept through to construction management and handover. This course is designed for experienced Civil Engineers, Transportation/Highway Engineers, GIS Specialists, BIM Managers, and Infrastructure Project Managers aiming to reduce rework, enhance decision-making, accelerate timelines, and lead the adoption of advanced digital delivery methods in the AEC sector.

Key Features

Live One-to-One Training
Personalized learning experience with expert trainers

Hands-on Training with 5+ Industry-Leading Software, workflow and Plugin

Live Project Training
Experience Real-World Design and Modeling Challenges!

Career Advancement
Enhance your BIM Management skills to stay ahead in the industry

"If you consistently practice daily and complete project work on time, we guarantee 100% placement to help you secure a job in the Design industry."

AUTODESK Civil 3D
AUTODESK Navisworks Manage
AUTODESK InfraWorks
SPECKLE
AUTODESK CONSTRUCTION CLOUD
QGIS

We live in a world where information is essential to transportation design, mapping, and infrastructure development. Engineers, planners, and stakeholders rely on accurate data at the right time for informed decision-making. Our experts bring best practices and cutting-edge knowledge in specifying, procuring, delivering, assuring, storing, and utilizing transportation data, with open standards at the core of our approach. By implementing advanced information management processes, we ensure that transportation design, mapping, and infrastructure data remain robust, reliable, and reusable for long-term planning, development, and operation.

Course Modules

Industry Focus: Design Engineer, Infrastructure Civil 3D Modeler, GIS Specialist / Analyst (AEC Focus),BIM Manager, BIM Engineer, Design Coordinator, Project Managers , Infrastructure Consultant and Working Professionals in AEC

Modules	Table of contents	Duration
Module 1	**Introduction and Software Workflow**	**5 HR**
M-1.1	***Foundations of Transportation Data & BIM for Infrastructure*** • *Overview of transportation infrastructure systems (roads, bridges, transit)* • *Fundamental of Civil 3D, QGIS, Naviswork Manage, InfraWorks and Autodesk Construction Cloud.* • Introduction to BIM in Infrastructure	*120 Min*
M-1.2	***Software Ecosystem for Infrastructure Projects*** • *QGIS: Spatial data prep, terrain & route analysis* • *Civil 3D: Road design, surfaces, profiles, corridors* • *InfraWorks Conceptual planning, visualization, analysis* • *Navisworks: Coordination, clash detection, construction simulation* • *ACC: Cloud-based project collaboration & issue tracking* • *Speckle for Data connector and exchange* • *Understand Design fundamentals, workflows, and industry standards (ISO 19650, AASHTO, IRC)*	*180 Min*
Module 2	**Introduction to Civil 3D and Course Workflow**	**35 HR**
M-2.1	***Introduction of Civil 3D and User Interface*** • *What is Civil 3D software and Uses* • *User Interface, Works Spaces, Tools Spaces, Panorama and Tools Pallets* • Understanding Transportation Data (survey, points cloud, cad file and counter and GIS)	*120 Min*
M-2.2	***Parcel Creation & Layout Tools – Key Features*** • *Line By Bearing* • *Parcels Overview : land development and site design* • *Parcel Layout Management* • *Advanced Parcel Editing & R.O.W. Design* • *Parcel Renumbering and Table Generation*	*180 Min*
M-2.3	***COGO Points & Survey Data Module*** • *Overview of Points : precise data management* • *Editing marker and label styles* • *Display Configuration* • *Geographic Coordinates : Managing latitude and longitude data* • *Data Integration : Importing point data and survey information*	*180 Min*
M-2.4	***Surface Module and Creation*** • *Overview of Surface Modeling* • *Advanced Surface Modification* • *Surface Modeling & Flexible Surface Types* • *Surface Editing & Refinement* • *Visualization & Annotation*	*120 Min*

Modules	Table of contents	Duration
M-2.5	***Alignment Module*** • *Precision Alignment Design* • *Dynamic Relationships* • *Geometric Flexibility* • *Labeling & Annotation Tools* • *Integrated Design Workflow*	*120 Min*
M-2.6	***Profile Module – Existing & Design Profiles*** • *Automatic Existing Ground Profiles* • *Smart Design Profiles* • *Profile View Manage & Edit* • *Clear Documentation & Annotation* • *Customize Profile view Bandset*	*180 Min*
M-2.7	***Assembly & Subassembly Module*** • *Versatile Assembly Building* • *Custom Subassembly Creation* • *Parametric Control* • *Full Corridor Integration*	*120 Min*
M-2.8	***Corridor Creation Module*** • *Model-Based Corridor Design* • *Dynamic, Data-Driven Workflow* • *Multi-Region Support* • *Integrated Surface & Quantity Tools* • *Visualization & Analysis Ready* • *Cut & Fill Analysis*	*180 Min*
M-2.9	***Intersection Design – Curb Return & Ribbon Methods*** • *Automated Intersection Creation* • *Curb Return Method* • *Ribbon-Based Design Flexibility* • *Customized and Standards-Based* • *Roundabout creation*	*180Min*
M-2.10	***Sample Line Module*** • *Automated Sample Line Generation* • *Crossing Object Sampling* • *Cross-Section Views* • *Customizable Styles & Labels* • *Integrated Quantity Takeoff*	*120Min*
M-2.11	***Grading Module*** • *Feature Line creation, Edit, set grade* • *Building Footprint grading* • *Residential grading: Lot grading & % criteria* • *Basic Pond grading*	*180Min*
M-2.12	***Pipe Network Modeling – Gravity & Pressure Systems*** • *Comprehensive Network Model: Gravity & Pressure* • *Create and manage gravity (storm, sanitary)* • *Create and manage pressure (water, force main) pipe networks* • *Intelligent Connectivity & Editing* • *Labeling, Quantities & Analysis*	*240 Min*
M-2.13	***Advanced Commands Module*** • *Custom Styles & Formulas* • *Data shortcut, D-view, X-Ref, X-clip etc.* • *Project explorer, Report generation.*	*180 Min*

Module 3	**QGIS for Infrastructure & Highway Projects with Civil 3D**	**10HR**
M-3.1	***Introduction to QGIS and User Interface*** • *What is QGIS* • *User Interface and Installation* • *Coordinate Reference Systems (CRS) and projections* • *Vector and raster data basics* • *Loading survey and topo data (CSV, SHP, GeoTIFF)*	*120Min*
M-3.2	***Spatial Data Processing for Route & Site Selection*** • *Terrain analysis: Contours, slope, aspect, hillshade* • *Creating buffer zones for environmental or ROW setbacks* • *Reclassifying raster land use/land cover for planning* • *Road influence zones & spatial queries*	*120Min*
M-3.3	***Working with Transportation Layers*** • *Importing and editing OpenStreetMap & shapefile roads* • *Creating custom road centerlines and ROW boundaries* • *Editing and digitizing alignments manually* • *Symbology and labeling for design maps*	*120Min*
M-3.4	***Integration with Civil 3D*** • *Preparing base data for Civil 3D (LandXML, SHP to CSV, GeoTIFF)* • *Exporting terrain and breaklines for surface modeling* • *Using QGIS for georeferencing scanned maps for use in Civil 3D* • *Coordinate system alignment with Civil 3D* • *Visualizing Civil 3D outputs (DWG/DXF) inside QGIS*	*120Min*
M-3.5	***Civil 3D Side – Connecting QGIS Outputs*** • *Creating surfaces from QGIS-generated DEMs and CSV points* • *Importing alignment and corridor data* • *Using QGIS for drainage catchment and flood zones before importing* • *Combining QGIS-based land use maps with Civil 3D design sheets*	*120Min*
Module 4	**Visualization for Infrastructure Projects using InfraWorks**	**14HR**
M-4.1	***Introduction to InfraWorks & Model Creation*** • *What is InfraWorks? Key use cases in civil infrastructure* • InfraWorks vs. Civil 3D – Conceptual vs. Detailed Design • *Model Builder: Creating real-world context models using GIS and terrain data* • *Importing data: SHP, GeoTIFF, Revit, LandXML, DWG, CSV* • Managing coordinate systems & model extents	*120 Min*

Modules	Table of contents	Duration
M-4.2	**Conceptual Road & Highway Design** • Creating and editing road alignments (design roads vs. component roads) • Profiles and cross-sections • Applying design standards and parametric controls • Adding lanes, shoulders, medians, and custom assemblies • Intersection and roundabout design basics	120 Min
M-4.3	**Massing and site, Conceptual Mass and model site** • Massing & Site Tools Overview • Site Modeling – Helps create topography, roads, parking, and landscaping. • Creating Conceptual Masses, In-Place Massing and Using Sketch-Based Mass Forms • Model Site in Revit, Topography, Adding Site Components and Building Pad & Site Modifications	120 Min
M-4.4	**Bridges, Drainage, and Structures** • Detects Inconsistencies Between Models (Architecture vs. Structure) and Used for Clash Detection & Quality Control • Creating & Managing Work sets, Synchronizing with Central Model to Update Changes. • Work-sharing Display Modes for Identifying Ownership Issues. • Managing Links & Projects and Managing & Reloading Links for Updated Design Changes.	120 Min
M-4.5	**Visualizations, Presentations, and Scenarios** • Working with proposals and design scenarios • Theming and styles for land use, roads, and buildings • Creating sun studies and traffic animations • Rendering techniques, camera paths, and storyboard creation • Exporting images, videos, and presentations .	120 Min
M-4.6	**Analysis Tools and Civil 3D Interoperability** • Sight distance and profile analysis • Traffic simulation basics • Drainage area and flood simulation overview • Exporting design roads and surfaces to Civil 3D • Round-tripping workflows between InfraWorks ↔ Civil 3D ↔ Revit	120 Min
M-4.7	**InfraWorks + BIM & GIS Integration** • Connecting InfraWorks to Autodesk Construction Cloud (ACC) • Incorporating Revit and Civil 3D models in InfraWorks • Overlaying GIS and terrain data (SHP, GeoTIFF, CityGML) • IFC and LandXML handling for interoperability • Workflow overview for design to construction visualization	120 Min

Module 5	**BIM Coordination & Construction Simulation with Navisworks Manage**	**10 HR**
M-5.1	***Civil 3D & Navisworks Integration Basics*** • *Introduction to Navisworks Manage: Overview & key features* • *Civil 3D data types supported (surfaces, corridors, pipe networks)* • *Exporting Civil 3D models to Navisworks using NWC export* • *Managing coordinate systems and model geolocation* • *Combining Civil 3D with other disciplines (Revit, IFC, etc.)*	*120 Min*
M-5.2	***Clash Detection for Civil Infrastructure*** • *Understanding Civil 3D elements in Navisworks (corridors, surfaces, pipes, structures)* • *Clash Detection setup: Civil vs. MEP/Structure/utilities* • *Clash rules and tolerance settings for civil geometry* • *Grouping and filtering results (e.g., drainage vs. utilities)* • *Reporting and markup for clash resolution.*	*120 Min*
M-5.3	***4D Simulation with Civil Elements*** • *Using Timeliner with Civil 3D corridor and surface data* • *Linking construction schedules (CSV/Primavera/MS Project)* • *Mapping tasks to model elements (grading, road layers, drainage)* • *Simulating roadway construction phases* • *Exporting animations for stakeholders and presentation*	*120 Min*
M-5.4	***Quantity Takeoff from Civil 3D Models*** • *Preparing Civil 3D corridor solids and pipe networks for quantification* • *Using Quantification Workbook with Civil elements* • *Catalog-based vs. model-based takeoff* • *Setting up WBS codes and categorizing civil components (subgrade, base, surfacing, structures)* • *Exporting cost/quantity reports for estimation teams*	*120 Min*
M-5.5	***Issue Tracking, Viewpoints & Collaboration*** • *Using saved viewpoints to communicate issues (grading, clashes, phasing)* • *Markups, redlines, and notes* • *Connecting Navisworks to Autodesk Construction Cloud (Model Coordination)* • *Assigning and tracking coordination issues* • *Exporting review files and animations*	*120 Min*
Module 6	**BIM Coordination & Construction Simulation with Navisworks Manage**	**8 HR**
M-6.1	***Introduction to ACC and Cloud-Based Civil Collaboration*** • *Overview of Autodesk Construction Cloud (ACC)* • *Understanding key modules: Docs, Design Collaboration, Model Coordination* • *ACC vs. BIM 360 Docs: What's new for Civil 3D?*	*120 Min*
M-6.2	***Civil 3D + ACC Collaboration Workflows*** • *Working on shared Civil 3D files through ACC* • *Sharing design packages for review using Design Collaboration* • *Multi-user access and file locking*	*120 Min*

M-6.3	***IIssue Management & Model Coordination*** • *Using Model Coordination module to detect clashes in civil files* • *Viewing Civil 3D models in the ACC web viewer* • *Assigning, tracking, and resolving issues* • *Linking Navisworks clash reports to issues in ACC*	*120 Min*
M-6.4	***Managing Submissions, Reviews & Approvals*** • *Submittal workflows in ACC Docs* • *Setting up Review Workflows* • *Document versioning and transmittals* • *Exporting sheets, PDFs, and DWGs for stakeholder approval* • *Setting up naming conventions and file standards in ACC*	*120 Min*
Module 7	**Speckle Basics for Infrastructure Workflows**	**4 HR**
M-7.1	***Getting Started with Speckle*** • *Create a free Speckle account* • *Set up your first project (stream)* • *Use the Speckle Web Viewer to see data* • *Explore how sharing works (web links, permissions)*	*60Min*
M-7.2	***Speckle for Civil 3D*** • *Install Speckle connector for Civil 3D* • *Send a surface or alignment to Speckle* • *View Civil 3D model online* • *Share model with a link*	*60Min*
M-7.3	***Speckle for QGIS (Basics)*** • *Install or connect QGIS to Speckle (CSV for basic use)* • *Export a shapefile or map layer to Speckle* • *View and compare Civil 3D and GIS data together* • *Basic use case: visualize flood zones, utilities, or land use*	*60Min*
M-7.4	***Speckle for Navisworks (Indirect)*** • *Send Civil 3D model to Navisworks using NWC* • *Use Speckle (via Civil 3D or Revit) to track design changes* • *View coordination issues online using Speckle screenshots or metadata*	*60 Min*
Module 8	**Live Work Final Model, Portfolio & Interview Preparation**	**15 HR**
M-8.1	***Live Project, Portfolio & Interview Skills for Infrastructure Professionals*** • *Live Final Model – Integrated Infrastructure Project* • *Final Submission Checklist* • *Portfolio Development & Project Showcase* • *Job Interview Preparation & Placement Assistance* • *Resume Building for Transportation BIM & AEC Industry.* • *100% Placement Assistance for Successful Candidates.*	*900 Min*

REGISTRATION

Advance Transportation Design Using Civil 3D, InfraWorks and QGIS For Professional

ENROLLMENT PROCEDURE

1. FILL OUT THE REGISTRATION FORM
2. PROVIDE BASIC DETAILS (NAME, EMAIL, CONTACT NUMBER, QUALIFICATION, EXPERIENCE).
3. RECEIVE YOUR LETTER OF ADMISSION
4. CHOOSE PAYMENT METHOD (ONLINE TRANSFER, UPI, CREDIT/DEBIT CARD)
5. START LEARNING & PROJECT WORK

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