COURSE SYLLABUS

# Civil 3D Certificate Program (Self-Paced)

Develop the skills to design and refurbish public infrastructure using AutoCAD Civil 3D. This hands-on program prepares you for a career in civil engineering, focusing on 3D modeling, data management, and real-world project applications.

> Group classes (Live Online) and onsite training are available for this course. For more information, email onsite@graduateschool.edu or visit: https://www.graduateschool.edu/certificates/civil-3d-certificate-program-online




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## Course Outline

This package includes these courses

- Intro to AutoCAD Course (Self-Paced) (30 Hours)
- Intermediate AutoCAD Course (Self-Paced) (30 Hours)
- Surveying & Mapping Civil 3D Course Online (30 Hours)
- Transportation Design Civil 3D Course Online (30 Hours)
- Land Development Civil 3D Course Online (30 Hours)

### Intro to AutoCAD Course (Self-Paced)

In this beginner-friendly AutoCAD course, you'll learn how to draw drafting symbols, kitchen and bath fixtures, and create a floor plan, all while assembling everything into one cohesive sheet file. You'll get hands-on experience with AutoCAD's user interface and essential commands, including drawing, modifying, layering standards, text, dimensioning, and plotting. Using source AutoCAD files, you'll work on a Habitat for Humanity residential project, starting from scratch and building your skills along the way.

- Create drafting symbols, kitchen and bath fixtures, and a floor plan, then combine them into a deliverable sheet file.
- Understand the differences between drawings for annotation and those for real-world modeling components.
- Learn to create and insert blocks, use external references, and know when to apply these skills.
- Master file management, layer-based drafting, integrating drawing components, and plotting while working on a residential project.

### Intermediate AutoCAD Course (Self-Paced)

In this course, you will draft an abbreviated set of CAD construction documents for a Habitat for Humanity project, including floor plans, roof plans, and elevations. You'll learn to create blocks, use external references, and optimize workflow with advanced AutoCAD commands. Topics include file referencing, user coordinate systems, dynamic viewing, and managing model/layout environments. This course strengthens your AutoCAD foundation and introduces intermediate-level techniques for

efficiency and accuracy.

- Draft an abbreviated set of construction documents, including floor plans, foundation plans, electrical plans, and building elevations for a small residential project.
- Create and insert blocks, use external references, and apply these techniques to improve project efficiency.
- Demonstrate file and layer management, use of external file references, and navigate model/layout environments with user coordinate systems.
- Apply intermediate skills, including layer management, creating sheet layouts, and plotting, while refining your overall AutoCAD workflow.

## Surveying & Mapping Civil 3D Course Online

In this Civil 3D course, you'll gain hands-on experience with the surveying and mapping features within the Civil 3D environment. You'll learn to work with survey and COGO points, point marker and label styles, point groups, linework code sets, figure prefix databases, survey imports, parcels, sites, surface labels, and surface analysis.

- Create, Label, and Organize Points: Learn to create and label points, organizing them into groups for efficient management of large survey datasets in Civil 3D.
- Develop Description Key Sets and Linework Code Sets: Build Civil 3D description key sets, linework code sets, and figure prefix databases to streamline the processing of survey data.
- Perform Survey Imports and Subdivide Parcels: Gain expertise in importing survey data, creating and subdividing parcels, and labeling parcel areas and segments for accurate land design.
- Create and Edit TIN Surfaces: Learn to create and modify TIN surfaces in Civil 3D, apply surface labels, and adjust surface definitions for precise terrain modeling.

## Transportation Design Civil 3D Course Online

This Civil 3D course is designed for professionals in design, engineering, and construction looking to enhance their skills and career prospects. Focusing on intermediate civil engineering tools within Civil 3D, the course will familiarize you with transportation design elements, including alignments, surface profiles, design profiles, view windows, assemblies, corridors, intersections, sample lines, cross sections, and 3D visualization.

- Create various types of alignments for transportation projects.
- Develop surface and design profiles for accurate design and planning.
- Adjust profile view windows for better visualization.
- Label both alignments and profiles for easy reference.
- Build and customize corridors with necessary sub-elements, including cul-de-sacs.
- Design intersection corridors and create sample lines along the corridors.
- Display cross sections for detailed project analysis.
- Visualize a roadway in a 3D drive-through for enhanced presentation.

## Land Development Civil 3D Course Online

In this Civil 3D course, you will explore key land development design elements and commands within the Civil 3D environment. You'll gain hands-on experience with drawing template files, data shortcuts, feature lines, grading groups, pipe networks, and pressure networks. This course is designed for professional designers, engineers, contractors, and anyone seeking career advancement or transitioning into the field with enhanced CAD skills.

- Create and label multiple Civil 3D objects and styles.

- Develop a custom drawing template file for efficient workflows.
- Manage and utilize data shortcuts for project coordination.
- Create and edit feature lines and grading groups for accurate design.
- Explore pipe and pressure parts catalogs for system design.
- Lay out and configure pipe and pressure networks for infrastructure projects.
- Annotate pipe and pressure networks to ensure clear documentation.
- Create customized drawing sheets tailored to your project needs.