COURSE SYLLABUS

CAD Certificate Program

Learn 2D drafting skills with AutoCAD and enhance your design capabilities with specialized tools like Revit and SketchUp. This program prepares you for a successful career in construction design, with real-world applications and project-based learning.

> Group classes (Live Online) and onsite training are available for this course. For more information, email partnerships@vdci.edu or visit: https://vdci.edu/certificates/cad-certificate-program



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Course Outline

This package includes these courses

- Intro to AutoCAD Course Online (30 Hours)
- Intermediate AutoCAD Course Online (30 Hours)
- AutoCAD Construction Documents I Course Online (30 Hours)
- AutoCAD Construction Documents II Course Online (30 Hours)
- CAD Detailing Course Online (30 Hours)
- CAD Project Management Course Online (20 Hours)
- CAD Capstone Project (18 Hours)
- CAD Certificate Elective Courses (80 Hours)

Intro to AutoCAD Course Online

Learn AutoCAD in this beginner-friendly online course. You'll start by drawing drafting symbols and common kitchen and bath fixtures, then create a complete floor plan and assemble everything into a single deliverable sheet file. The course introduces the AutoCAD interface and commands, including drawing and modifying tools, layering standards, text, dimensioning, and plotting.

- Create drafting symbols, kitchen and bath fixtures, and a complete floor plan, then integrate all elements into one deliverable sheet file
- Understand the difference between drawings used for annotation and those used as real-world model components
- Create, insert, and manage blocks and external references, and learn when each should be applied
- Practice file management, drafting on layers, integrating drawing component files, and plotting while completing the residential project

Intermediate AutoCAD Course Online

In this course, you'll create an abbreviated set of CAD construction documents for a Habitat for Humanity project, including floor, roof, foundation, and electrical plans, plus building elevations. You'll use blocks and external references to link drawings and improve workflows while reinforcing core AutoCAD skills and learning advanced techniques such as file referencing,

coordinate systems, dynamic viewing, and model and paper space conventions.

- Create an abbreviated set of construction documents, including floor plan, foundation plan, electrical plan, and building elevations for a small residential project.
- Create and insert blocks, externally reference files, and determine the appropriate times to apply those skill sets to optimize project efficiency.
- Demonstrate layer and file management, external file referencing, use of model/layout environments, and user coordinate systems.
- Apply intermediate-level skills, including layer management, user coordinate system development, creating sheet layout environments, and plotting.

AutoCAD Construction Documents I Course Online

In this course, we use AutoCAD to d evelop titleblock drawings from scratch, draft a floor plan, multi-scale enlarged plans, roof plan and building elevations for a more complicated one-story residence. You will learn important, relevant & practical CAD workflow skills, including AutoCAD commands, menuing systems and project workflow. The course covers two-dimensional (2D) drawing commands and drafting techniques for developing construction documents, including dimensioning, layout environments, layering systems and plotting.

- Create titleblock and titleblock/drawing label components for a professional office to facilitate development of deliverable sheet files.
- Create floor plan, enlarged plan, roof plan and building elevation of a moderately complex residential project. Includes the development of floor plan, roof plan and elevation notes.
- Successfully integrate referenced files to create construction documents. Demonstrate layer and file management, use of model/layout environments and multi-scale drawing presentation.
- Organize deliverable sheet set to conform to the National CAD Standards.
- Apply intermediate-level skills to create sheet layout environments and plotting.

AutoCAD Construction Documents II Course Online

This is an advanced-level course designed to elevate your expertise in producing professional construction documents using AutoCAD. This course builds upon fundamental drafting and AutoCAD skills, focusing on the creation of precise, detailed construction drawings that meet industry standards. You will learn how to create cohesive and technically accurate sets of plans, allowing for better communication across various teams.

- Create building elevations, building sections, wall sections; modify detail drawings; create metes and bounds (Civil) drawing; create relevant deliverable sheet files for a moderately complex residential project. Includes the development of title sheet and appropriate general and keynote legends.
- Successfully integrate referenced files to create construction documents. Demonstrate layer and file management, use of model/layout environments and multi-scale drawing presentations.
- Apply intermediate/advanced-level skills to create sheet layout environments and plotting.
- Organize deliverable sheet set to conform to the National CAD Standards.

CAD Detailing Course Online

Create detail drawings in this course. Students learn the two dominant CAD standards that AEC firms use, making detail drawings from scratch and by referencing and clipping information from other drawings. Learn drawing standards and about organizing your details.

- Create detail drawings pertinent to the course project.
- Create relevant deliverable sheet files.

- Integrate referenced files to create details for construction documents.
- Demonstrate layer and file management, use of model/layout environments and multi-scale drawing presentations.
- Apply intermediate/advanced-level skills to create sheet layout environments and plotting.

CAD Project Management Course Online

Bridge the gap between CAD drafting and project management in this practical course designed to enhance your ability to manage AutoCAD projects efficiently. Through hands-on exercises and theory, you will learn to coordinate workflows, maintain project accuracy, and improve communication among team members. This course emphasizes industry standards and best practices, preparing you for real-world project management challenges in CAD environments.

- Demonstrate understanding of the technical and managerial skills required to succeed as a CAD and Project Manager.
- Organize the AutoCAD User Interface to optimize productivity and standards for an office.
- Use office standard file naming and file organization.
- Master an understanding of the National CAD Standards.
- Convert “an inherited CAD project” into a format that supports the National CAD Standards and Office CAD Standards.

CAD Capstone Project

Throughout the CAD Certificate Program, you will complete a final capstone project that will serve as a comprehensive showcase of your skills and knowledge:

- Apply your understanding of CAD design principles by creating a detailed, professional-level CAD model for a real-world project of your choice.
- Use industry-standard software such as AutoCAD or other CAD tools to model, draft, and refine building systems, ensuring precision and efficiency in your designs.
- Document your process from initial sketches and technical drawings to the final CAD model, presenting your work in a professional construction document that is portfolio-ready.
- Work on your capstone both in and outside of class, utilizing scheduled mentoring sessions to review your progress, troubleshoot challenges, and receive valuable feedback from your instructor.
- Review and analyze examples of CAD capstone projects from past students to understand the range of possibilities and expectations for your own project.

See examples of CAD capstone projects from students.

CAD Certificate Elective Courses

Select 60-80 clock hours of elective courses to complement your CAD Certificate Program training. You can specialize in Revit Architecture, Civil 3D, or SketchUp Pro.