COURSE SYLLABUS

CAD/BIM Certificate Program

Build expertise in both AutoCAD and Revit to excel in drafting and building information modeling (BIM). This program prepares you for a dynamic career in the construction and design industries through hands-on, real-world projects.

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-bim-certificate-program



admissions@vdci.edu • (619) 758-9300

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)
- Intro to Revit Course Online (30 Hours)
- Intermediate Revit Course Online (30 Hours)
- BIM Construction Documents I Course Online (30 Hours)
- BIM Construction Documents II Course Online (30 Hours)
- CAD/BIM Certificate Elective Courses (120 Hours)
- Capstone Project (60 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.

Intro to Revit Course Online

In this beginner-friendly course, you'll dive into how Revit (BIM) links all your project information using the Revit Architecture tools. You'll learn how to design 3D models that automatically generate 2D architectural drawings, including floor plans, elevations, and 3D perspective views. Starting with a pre-made template, you'll build a Building Information Model, create floor

plans and elevations, generate 3D views, place them on sheets, and print them to PDF.

- Describe Primary Revit Concepts and how they relate to Building Information Modeling (BIM).
- Explore the Revit User-Interface.
- Design a 3D building model to explain how information is interrelated
- Determine the appropriate workflow to complete tasks within Revit.
- Develop a project that includes floors, walls, ceilings, stairs, curtain walls, and roof design to strengthen 3D modeling and 2D documentation skills.
- Create presentation-level architectural graphics.
- Catalog building information using schedules.

Intermediate Revit Course Online

In this intermediate BIM class, you'll learn advanced Revit techniques for documenting projects, including scheduling components, creating 2D/3D families, refining graphics, and making a streamlined construction document set. You'll also build on an existing model, explore design options, create custom schedules, and develop custom Revit families. By the end, you'll turn a conceptual model into a complete, integrated construction document set.

- Integrate DWG Files to create Revit details.
- Tag elements for cost estimation and material take-offs.
- Explore the capabilities of design options and how to present different options.
- Create 3D parametric families.
- Build customized door, material, and room schedules that can be used for construction take-offs.
- Explore BIM project management techniques to keep models efficient and user-friendly.

BIM Construction Documents I Course Online

This online Revit course is the first of three focused on creating construction documents. You'll model a single-story commercial building, import AutoCAD drawings, create a site model, and then add a two-story extension, simulating real-world AEC workflows. The course covers advanced Revit techniques for commercial projects, led by an Autodesk Certified Instructor with experience in commercial, medical, and biotech design.

- Using BIM tools to model existing buildings, partial demolition, and new constructions.
- Creating site plans with topography, hardscape, and landscaping.
- Differentiating construction phases through graphics.
- Producing presentation-quality renderings for documentation.

BIM Construction Documents II Course Online

In this intermediate course, you'll create construction documents for the commercial building and site created in BIM Construction Documents I. You'll also create the sheet drawings and will add keynotes, detail drawings, and schedules.

- Prepare a set of architectural construction documents incorporating the site and building models created in BIM Construction Documents I.
- Develop progress sets of construction documents, reflecting 30/60/90/100 percent deliverable submittals.
- Produce plan, section, and elevation views of the project for sheet layout.
- Keynote elements of the project model. Develop schedules and a limited number of architectural details extracted from the BIM model.

CAD/BIM Certificate Elective Courses

Select 100-120 clock hours of elective courses to complement your CAD/BIM Certificate Program training. You can specialize in high-level AutoCAD, Revit Architecture, Revit MEP, or Revit Structure.

Capstone Project

The VDCI Capstone Project course empowers students to apply their acquired skills in a real-world, project-based environment. Participants will complete a comprehensive design or construction project from concept to execution, showcasing their expertise in software like AutoCAD, Revit, or other industry-standard tools. This hands-on experience prepares students to excel in professional roles by demonstrating their ability to manage and deliver complex, detail-oriented projects.