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 in Live Online and onsite training is available for this course. For more information, email partnerships@vdci.edu or visit: https://vdci.edu/certificates/cad-bim-certificate-program

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Course Outline

This package includes these courses

- Introduction to AutoCAD (30 Hours)
- Intermediate AutoCAD (30 Hours)
- AutoCAD Construction Documents I (30 Hours)
- AutoCAD Construction Documents II (30 Hours)
- Introduction to Revit (30 Hours)
- Intermediate Revit (30 Hours)
- BIM Construction Documents I (30 Hours)
- BIM Construction Documents II (30 Hours)
- Capstone Project (60 Hours)

Select **100-120 clock hours** of elective courses to complement your Certificate Program training.

CAD/BIM Certificate Elective Courses

Introduction to AutoCAD

We start at the very beginning, using AutoCAD to draw drafting symbols, kitchen and bath fixtures, and then create a floor plan. We assemble everything into one sheet file. Learn about Drawing on Layers, Adding Text, Dimensions & Plotting.

- Create drafting symbols, kitchen and bath fixtures, a floor plan and integrate all information into one deliverable sheet file.
- Distinguish the differences required to generate drawings for use as annotation and real-world model components.
- Create and insert blocks and externally reference files and determine the appropriate times to apply those skill sets.
- Master file management, drafting on layers, integrating drawing component files and plotting while creating on the class residential project.

Intermediate AutoCAD

Use AutoCAD to draw an abbreviated set of construction documents for a residential project: floor plan, roof plan, foundation plan, electrical plan & building elevations. Create, insert and link drawings. Learn the best workflow.

- 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

Develop titleblock drawings from scratch. Then we draw a floor plan, multi-scale enlarged plans, roof plan and building elevations for a large one-story residence which will be continued in CAD 302.

- 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

Develop titleblock drawings from scratch. Then we draw a floor plan, multi-scale enlarged plans, roof plan and building elevations for a large one-story residence which will be continued in CAD 302.

- 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.

Introduction to Revit

In this online Revit course, you will learn how information is interrelated throughout the Revit (BIM) model using the Revit Architecture tools. You will design 3D building models that simultaneously document the project in schedules and in 2D construction documents.

What You Will Learn

- 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 inter-related
- 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.

Course Information

In this Revit course, you will create a Building Information Model starting from a pre-made template, create floor plans, elevations and 3D presentation views, place views on sheets, and print drawing sheets to PDF. You will be provided both source Revit files, which you will use to start your project, as well as videos which will guide you through the learning process. There will be quizzes relating to your project as well as discussion forums in which you will be participating. You will receive a Revit Course Certificate upon completion.

If you are interested in Revit Certification (also referred to as BIM Certification), we recommend completing the Revit Certification Course series to be fully prepared for the Autodesk Certified User Exam for Revit.

Intermediate Revit

In this online BIM class, you will learn more advanced methods to document a project in Revit Architecture. Topics include scheduling building components, using the family editor to create 2D and 3D components, refining graphics, and creating an abbreviated set of construction documents.

What You Will Learn

- 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.

Course Information

In this online intermediate BIM class, students explore advanced methods of documenting a building project in Revit Architecture by revising and continuing to develop an existing Revit model, exploring design options, creating custom schedules, and learning the skills required to create custom Revit families. By the end of this course, students will be able to turn a conceptual Revit model into integrated and interoperable construction document set.

You will be provided both source Revit files, which you will use to start your project, as well as videos which will guide you through the learning process. There will be quizzes relating to your project as well as discussion forums in which you will be participating. You will receive a Revit Course Certificate upon completion.

If you are interested in Revit Certification (also referred to as BIM Certification), we recommend completing the Revit Certification Course series to be fully prepared for the Autodesk Certified User Exam for Revit.

BIM Construction Documents I

This online Revit course is the first of two Construction Document courses, using the Revit Architecture tools. You will model an existing single story commercial building (importing AutoCAD drawings as a base) and also create a site model. You will continue learning Revit when you create the model for a significant two-story expansion to that first building model. This project scenario is typical of projects currently being handled by AEC teams who use Revit in their offices.

- Apply BIM modeling tools to create an architectural model, including existing building, partial demolition and a new construction.
- Build topography for a project using existing external files and develop a site plan, including hardscape and landscaping.
- Graphically differentiate phasing of a project from existing construction through new construction.
- Produce renderings suitable for presentation and documentation.

BIM Construction Documents II

You will create construction documents for the commercial building and site created in BIM 301. You will 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 301.
- 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.

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.