COURSE SYLLABUS

CAD/BIM Certificate Program (Self-Paced)

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 onsite@graduateschool.edu or visit: https://www.graduateschool.edu/certificates/cad-bim-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)
- AutoCAD Construction Documents I Course (Self-Paced) (30 Hours)
- AutoCAD Construction Documents II Course (Self-Paced) (30 Hours)
- Intro to Revit Course (Self-Paced) (30 Hours)
- Intermediate Revit Course (Self-Paced) (30 Hours)
- BIM Construction Documents I Course (Self-Paced) (30 Hours)
- BIM Construction Documents II Course (Self-Paced) (30 Hours)
- CAD/BIM Certificate Elective Courses (120 Hours)
- Capstone Project (60 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.

AutoCAD Construction Documents I Course (Self-Paced)

Develop key AutoCAD skills by creating construction documents for a moderately complex one-story residence. This course takes you through drafting titleblock drawings, floor plans, multi-scale enlarged plans, roof plans, and building elevations. You will also learn practical CAD workflows, covering 2D drawing commands, dimensioning, layering, layout environments, and plotting.

- Create titleblock components and drawing labels for professional office documentation to develop deliverable sheet files.
- Draft floor plans, enlarged plans, roof plans, and building elevations for a moderately complex residential project, complete with detailed notes.
- Integrate referenced files to produce construction documents while demonstrating layer and file management, model/layout environments, and multi-scale drawing presentation.
- Organize deliverable sheet sets according to National CAD Standards.
- Apply intermediate skills to create sheet layouts and prepare files for plotting.

AutoCAD Construction Documents II Course (Self-Paced)

Advance your AutoCAD skills in this course focused on creating detailed construction documents for moderately complex residential projects. You'll learn to produce building elevations, sections, wall details, and metes and bounds drawings. The course emphasizes annotation consistency, layer management, plotting styles, and custom block creation to streamline documentation workflows.

- Create building elevations, sections, wall sections, modify detail drawings, and produce metes and bounds (Civil) drawings for a moderately complex residential project.
- Develop title sheets and appropriate general and keynote legends.
- Integrate referenced files to build construction documents, manage layers and files, and use model/layout environments for multi-scale drawings.
- Apply intermediate and advanced skills to create sheet layout environments and manage plotting.
- Organize deliverable sheet sets following National CAD Standards for consistency and accuracy.

Intro to Revit Course (Self-Paced)

In this beginner course, you'll explore how information is connected throughout a Revit (BIM) model using Revit Architecture

tools. Learn to create 3D building models that automatically generate 2D architectural drawings, including floor plans, elevations, and 3D perspectives. You'll work from a pre-made template to build a complete Building Information Model, place views on sheets, and export drawings to PDF. The course provides source Revit files and step-by-step instructional videos to guide you through each stage of the project.

- Understand core Revit concepts and their role in Building Information Modeling (BIM).
- Navigate and utilize the Revit User Interface effectively.
- Build a 3D model to see how project information is connected throughout the design.
- Apply proper workflows to complete Revit tasks efficiently.
- Develop a complete project with floors, walls, ceilings, stairs, curtain walls, and roofs to enhance 3D modeling and 2D documentation skills.
- Produce high-quality presentation graphics for architectural projects.
- Organize and manage building data using schedules.

Intermediate Revit Course (Self-Paced)

In this online intermediate BIM course, you will build on your Revit Architecture skills by learning advanced techniques for documenting a building project. You'll refine an existing Revit model, explore design options, create custom schedules, develop 2D and 3D parametric families, and produce a streamlined set of construction documents. By the end of the course, you'll be able to transform a conceptual model into a fully integrated and interoperable construction document set.

- Incorporate DWG files to enhance Revit details and drawings.
- Apply element tagging for accurate cost estimation and material take-offs.
- Utilize design options to present and compare multiple design scenarios.
- Develop 3D parametric families for reusable building components.
- Create customized schedules for doors, materials, and rooms to support construction documentation and take-offs.
- Implement BIM project management strategies to maintain efficient, well-organized models.

BIM Construction Documents I Course (Self-Paced)

This online Revit course is the first in a series focused on creating construction documents using Revit Architecture. You'll model a single-story commercial building, import AutoCAD drawings, and create a site model. Then, you'll expand the model with a two-story addition, applying advanced Revit techniques used in real-world AEC workflows.

- Use BIM modeling tools to create an architectural model, including an existing building, partial demolition, and new construction.
- Build topography and create a site plan using external files, incorporating hardscape and landscaping elements.
- Differentiate project phases by visually distinguishing between existing construction and new construction.
- Create professional-quality renderings for presentations and documentation.

BIM Construction Documents II Course (Self-Paced)

You will develop construction documents for the commercial building and site from BIM 301, including sheet drawings, keynotes, detail drawings, and schedules.

- Prepare a complete set of architectural construction documents that integrate site and building models from BIM Construction Documents I.
- Create progress sets of construction documents, representing 30%, 60%, 90%, and 100% deliverable submittals.

- Produce floor plans, sections, and elevations for sheet layouts.
- Add keynotes to elements of the project model and develop schedules and architectural details extracted from the BIM model.

CAD/BIM Certificate Elective Courses

Round out the CAD/BIM Certificate Program with 100 to 120 clock hours of electives. Specialize in advanced AutoCAD, Revit Architecture, Revit MEP, or Revit Structure.

Capstone Project

Put everything you have learned to work on a real-world design or construction project, taking it from concept to a finished set of documents in AutoCAD, Revit, or other industry tools. You finish with a portfolio-ready project that shows employers you can manage detailed work from start to finish.