COURSE SYLLABUS

CAD/BIM Certificate Program (Self-Paced)

Develop expertise in AutoCAD and Revit to support professional drafting and Building Information Modeling (BIM) workflows. Gain hands-on, real-world experience that prepares you for a versatile career in the construction and design industries.

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-self-paced



support@graduateschool.edu •
(888) 744-4723

Course Outline

This package includes these courses

- Commercial Blueprint Reading Course (Self-Paced) (6 Hours)
- Residential Blueprint Reading Course (Self-Paced) (6 Hours)
- Construction Estimating (Self-Paced) (6 Hours)
- AutoCAD Level I Course (Self-Paced) (18 Hours)
- AutoCAD Level II Course (Self-Paced) (12 Hours)
- AutoCAD Level III (Self-Paced) (18 Hours)
- AutoCAD Construction Documents I Course (Self-Paced) (18 Hours)
- AutoCAD Construction Documents II Course (Self-Paced) (12 Hours)
- Civil 3D Professional Bootcamp (Self-Paced) (24 Hours)
- Introduction to Revit Course (Self-Paced) (18 Hours)
- Intermediate Revit Course (Self-Paced) (18 Hours)
- BIM Construction Documents I Course (Self-Paced) (12 Hours)
- BIM Construction Documents II Course (Self-Paced) (6 Hours)
- Revit Mechanical (Self-Paced) (12 Hours)
- Revit Electrical (Self-Paced) (12 Hours)
- Revit Plumbing (Self-Paced) (12 Hours)
- CAD/BIM Capstone Project (Self-Paced) (18 Hours)
- CAD/BIM Industry & Portfolio (Self-Paced) (12 Hours)

Commercial Blueprint Reading Course (Self-Paced)

This course provides students with the essential skills to confidently read, interpret, and assess commercial construction drawings.

- Learn to navigate and understand architectural, structural, MEP (mechanical, electrical, and plumbing), and site plans.
- Explore how multiple drawing sets work together and identify shared details across plans.
- Work with authentic blueprints and construction documents to apply concepts in practical situations.
- Understand how construction drawings support estimating, scheduling, and accurate execution in the field.

Residential Blueprint Reading Course (Self-Paced)

This self-paced course introduces the fundamentals of reading and interpreting residential construction drawings. Created for beginners and experienced professionals, it covers architectural symbols, notations, scales, and abbreviations while helping you understand floor plans, elevations, sections, and construction details so drawings can be confidently translated into real-world construction.

- Understand how different drawings function together within a complete set of Construction Documents
- Review how scale is applied across various drawing types
- Identify common elements and formatting used in blueprint submissions for building permits
- Learn why consistent formatting and clear information presentation are essential across all Construction Documents

Construction Estimating (Self-Paced)

This self-paced course offers a clear, practical introduction to the principles and techniques used to create construction cost estimates. It explains why estimating is critical and guides you through producing accurate, professional estimates used in bidding and project planning. You'll work with quantity takeoffs, apply pricing from measured drawings, and learn how to assemble complete, well-organized estimate proposals. These skills are valuable for contractors, project managers, and anyone involved in construction budgeting and forecasting.

- Build core estimating skills for residential and commercial projects
- Extract quantities and pricing from architectural and structural drawings
- Compare estimate types, including conceptual, preliminary, and detailed estimates
- Calculate material, labor, equipment, and other project-related costs
- Become familiar with commonly used construction estimating tools and digital software
- Identify potential cost risks early and refine estimates to improve accuracy

AutoCAD Level I Course (Self-Paced)

This AutoCAD course introduces the essential tools and techniques to produce mechanical and architectural designs.

- Learn essential drawing and editing commands to create and modify lines, circles, rectangles, and more
- Master object snaps, tracking, and coordinate input for precise and accurate drawings
- Organize and manage projects using layers, templates, and advanced objects like polylines and ellipses
- Apply real-world workflows to create complex layouts, floor plans, and design elements for mechanical and architectural projects
- Insert, manage, and reuse blocks using Tool Palettes and DesignCenter
- Prepare drawings for print with layouts, viewports, annotations, and dimensioning tools

AutoCAD Level II Course (Self-Paced)

Advance your AutoCAD skills in this intermediate course, mastering advanced layering, styling, and blocking techniques to create professional templates and print-ready layouts. Enhance your precision and proficiency with the AutoCAD interface to

tackle more complex projects.

- Boost productivity using advanced tools for precise positioning, parametric constraints, and block management
- Create, organize, and manage reusable content with custom block libraries
- Set up and customize drawing templates to maintain consistency across projects
- Design and manage advanced layouts using viewports, paper space, and scaling techniques for print-ready drawings
- Master annotation styles for standardized dimensions, text, and hatching
- Integrate external references (Xrefs) to manage large-scale drawings and collaborate efficiently across teams

AutoCAD Level III (Self-Paced)

Master advanced AutoCAD skills, including annotation and customization. This course is designed to boost productivity and elevate your AutoCAD proficiency.

- Enhance drawings using advanced annotation tools, tables, and text objects for improved clarity and control
- Create dynamic blocks and attribute data to build versatile, intelligent design components
- Develop and publish professional drawing sets with sheet sets, layout tools, and collaboration features
- Customize the AutoCAD interface with user-defined settings, tool palettes, and productivity-boosting macros
- Implement CAD standards across teams to ensure consistent, high-quality output
- Utilize 2D automation tools and cloud-based collaboration to streamline workflows

AutoCAD Construction Documents I Course (Self-Paced)

In this course, you'll work in AutoCAD to build title blocks from the ground up and produce detailed residential construction documents for a moderately complex single-story home. Project-based exercises help you develop practical CAD workflow skills while reinforcing core AutoCAD commands, interface navigation, and professional drafting practices. Emphasis is placed on essential 2D construction documentation methods, including dimensioning, layout setup, layer control, and plotting.

- Create title blocks and drawing labels used to assemble complete, professional sheet sets
- Draft floor plans, roof plans, enlarged views, and building elevations with clear, accurate annotation and detailing
- Integrate external references while managing layers, model space, layouts, and multiple drawing scales
- Organize final sheet sets to align with National CAD Standards for industry-ready documentation
- Apply intermediate AutoCAD techniques to produce precise layouts and properly configured plots for final output

AutoCAD Construction Documents II Course (Self-Paced)

This self-paced, advanced course is designed to help you produce accurate, professional construction documentation using AutoCAD. Building on core drafting skills, the course focuses on creating detailed drawings that support clear communication across architecture, engineering, and construction workflows. Guided, project-based lessons reinforce layout organization, annotation methods, and drawing consistency across full project sets, while also covering advanced layer control, plotting configurations, and custom block development.

- Draft building elevations, wall sections, and site-specific drawings, including metes and bounds plans, for a complex residential project
- Use external references to assemble complete drawing sets while managing layers, viewports, and multi-scale layouts
- Apply advanced drafting techniques to organize sheet sets and create polished, ready-to-plot construction documents
- Format final deliverables to align with commonly used architectural and engineering drawing standards

Civil 3D Professional Bootcamp (Self-Paced)

Advance your Civil 3D skills for professional surveying, transportation design, and land development projects. Gain practical, hands-on experience working with alignments, profiles, parcels, corridors, grading groups, and pipe networks used to produce construction-ready documentation. This self-paced course is taught by industry experts and available online.

- Create and manage survey points, parcels, and surface data
- Develop alignments, profiles, and corridor models for roadway design
- Subdivide land and label parcel geometry using Civil 3D tools
- Design and annotate grading groups, pipe networks, and pressure systems
- Build and customize templates, label styles, and construction documents

Introduction to Revit Course (Self-Paced)

Learn industry-standard Building Information Modeling (BIM) software in this introductory Revit course. Created for aspiring architects, engineers, and designers, the course develops essential skills for designing, documenting, and analyzing buildings with greater efficiency. Through guided instruction, hands-on exercises, and real-world examples, you'll build a strong foundation in Revit and its core workflows.

- Explore the interface, workspace, and essential tools
- Create parametric building elements such as walls, doors, windows, roofs, and floors
- Generate floor plans, sections, and elevations directly from Revit models
- Create and manage Revit families to customize project elements
- Produce photorealistic renderings and walkthroughs to communicate design intent
- Explore Revit tools used to support multi-disciplinary project coordination

Intermediate Revit Course (Self-Paced)

Enhance your Revit expertise with this comprehensive course designed for users who already have a strong foundation in the software. Suited for professionals seeking to boost productivity and create more detailed, sophisticated designs, the course covers advanced tools, workflows, and techniques used in real-world projects. Through industry-relevant, self-paced learning, you'll expand your Revit skill set and apply advanced features with confidence.

- Create and refine complex 3D models using Revit's advanced architectural and engineering tools
- Increase efficiency by streamlining workflows and supporting coordination across multi-disciplinary teams
- Produce professional construction documents with precise annotations, schedules, and detailing
- Manage viewports, visibility settings, and presentation techniques for clear, polished output
- Build and customize parametric families to improve flexibility and adaptability across projects

BIM Construction Documents I Course (Self-Paced)

Advance your BIM skills. Built to establish a strong foundation in construction documentation, this course teaches you how to create, manage, and deliver clear, accurate documents using Building Information Modeling tools. Designed for designers, architects, and project managers, it emphasizes practical methods used to produce professional, industry-ready documentation.

- Learn the role of construction documents within the building lifecycle and how they align with BIM workflows
- Create clear annotations, schedules, and detailed views that support effective communication

- Develop professional sheet layouts using industry-standard practices for consistency and readability
- Work within multidisciplinary teams to integrate design models into project documentation
- Review and troubleshoot documents to reduce errors and improve overall project outcomes

BIM Construction Documents II Course (Self-Paced)

Intended for learners who have completed the introductory course or bring equivalent experience, this advanced course examines more in-depth documentation techniques with an emphasis on efficiency, accuracy, and consistency with industry standards. Through guided, practice-based learning, you'll build the skills needed to produce complex, professional project documentation using Revit.

- Master advanced Revit tools for developing detailed drawings and construction documents
- Work with complex models and incorporate additional BIM data into documentation
- Improve accuracy and consistency across all stages of the documentation process
- Apply strategies for managing large-scale projects and collaborating with multidisciplinary teams
- Follow industry best practices to deliver high-quality, professional results

Revit Mechanical (Self-Paced)

Build core skills for creating and managing mechanical systems in Autodesk Revit with this course. Designed for design and construction professionals at all experience levels, the course develops practical BIM expertise for mechanical systems design, analysis, and documentation through real-world workflows.

- Use Revit tools for HVAC and plumbing system design
- Create and manage 3D mechanical components, families, and system types
- Lay out equipment and ductwork while maintaining system accuracy and connectivity
- Coordinate mechanical systems with other disciplines in a collaborative BIM environment
- Produce professional construction documents and schedules for mechanical systems
- Apply advanced workflows to address mechanical system design challenges

Revit Electrical (Self-Paced)

This course offers in-depth training in the design and documentation of electrical systems using Autodesk Revit. Through structured, hands-on instruction, you'll learn core electrical design concepts and essential BIM workflows, including circuiting, panel schedules, power distribution, and lighting layouts.

- Use Autodesk Revit for electrical design and construction documentation
- Apply key BIM concepts to electrical systems and workflows
- Create and modify electrical plans, including power distribution and lighting layouts
- Design electrical systems with accuracy and alignment to industry standards
- Annotate, document, and present electrical designs within Revit
- Coordinate electrical systems with other building disciplines using Revit tools
- Produce professional-quality electrical drawings and documentation
- Prepare and finalize technical deliverables that meet project requirements

Revit Plumbing (Self-Paced)

Build core skills for creating, designing, and managing plumbing systems in Revit with this comprehensive self-paced course. Through guided, hands-on lessons, you'll learn how to efficiently model, coordinate, and document plumbing systems within a BIM environment while following professional workflows and industry standards.

- Learn Revit fundamentals with an emphasis on tools used for plumbing system design
- Set up and manage clear, accurate plan views for plumbing layouts
- Design and model complete plumbing systems, including domestic water and sanitary systems, with proper piping and fittings
- Select and size pipes using Revit tools to support efficient system performance
- Annotate plumbing systems and produce detailed documentation such as schedules, layouts, and legends
- Coordinate plumbing systems with architectural, structural, and other MEP models
- Identify and resolve design issues to meet project requirements and industry standards
- Prepare polished, professional-quality drawings and documentation for final submission

CAD/BIM Capstone Project (Self-Paced)

In this course, students synthesize everything they've learned to complete a professional-level project. Key skills include:

- Lead a complete project workflow from initial concept through detailed documentation using CAD and BIM
- Integrate tools such as AutoCAD and Revit within a unified, real-world project setting
- Strengthen project coordination practices, including collaboration and effective file management
- Demonstrate professional drafting and modeling skills through detailed drawings and annotations
- Apply design and construction documentation standards for residential or commercial projects
- Deliver a finished capstone project that highlights technical skill and clear design intent

CAD/BIM Industry & Portfolio (Self-Paced)

Explore CAD and BIM career options at your own pace in this self-guided capstone course. Learn how tools such as AutoCAD, Revit, and Civil 3D are applied in architecture, engineering, and construction roles while refining your work into a polished, job-ready portfolio. The course also supports job search preparation with guidance on resumes, LinkedIn profiles, and interview strategies.

- Explore common career paths and industries for CAD and BIM professionals
- Learn how to organize and present a professional portfolio
- Practice techniques for strengthening resumes and online profiles
- Review best practices for job searching, interviewing, and long-term career growth
- Develop strategies for presenting technical projects effectively to employers