POINTFUL EDUCATION

Architectural Design II

Syllabus

» Course Overview

The Architectural Design II course provides specific methodologies used within the field of architecture as well as creative ways to think about and solve design challenges. Students will complete work using AutoCAD software aligned with objectives on the Autodesk Certified User (CAD) Certification exam, including basic drawing skills, modifying objects, annotating drawings, using layouts and printing, and applying accurate skills in dimensioning and scale. In later modules, students will study the built environment by learning about pioneers of architecture and engineering, architectural and engineering design feats, and how architecture and design is and will continue be influenced by innovative technology.

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» Course Outline by Module

Module 1	Basic Architectural Drawings	**Module 5**	Basic Civil Drawings
Module 2	Basic Architectural Drawings Part II	**Module 6**	Preparing Computer-Aided Drawings (CAD) Part I
Module 3	Basic Computer-Aided Drafting Functions Part I	**Module 7**	Preparing Computer-Aided Drawings (CAD) Part II
Module 4	Basic Computer-Aided Drafting Functions Part II	**Module 8**	Preparing for the Autodesk Certified User Exam

» Module Overview and Learning Objectives

Module 1. Basic Architectural Drawings

In this module, you will not only review fundamentals of drawings, but thought processes behind the designs themselves. What cognitive processes can be used to help you solve design and building problems? How can using divergent and convergent thinking help you when faced with different sorts of challenges? You'll be asked to apply critical thinking skills to come up with creative solutions in and out of the design realm.

The last several lessons will focus on specific techniques for creating things like site plans, floor plans, interior and exterior elevations, roof plans, well segments, and plot plans. You will be able to create work of your own in the module project!

***Learning Objectives*:** In this module, students will:

- Solve design problems, through convergent and divergent thinking, to gain new perspectives.
- Apply critical thinking and problem-solving skills to develop creative solutions for design problems.
- Draw a site plan and a floor plan.
- Draw interior and exterior elevations.
- Draw roof plan, wall sections, and a plot plan.

Module 2. Basic Architectural Drawings Part II

In part two of Basic Architectural Drawings, you will continue to learn techniques like preparing door and window schedules, drawing electrical plans, defining basic project lists, and calculating basic project quantity takeoffs in AutoCAD. You will learn about making revisions in AutoCAD to refine and polish your designs. Additionally, you will learn about the significance flexible and adaptable architectural design. Flexible architecture is a form of design in which innovation and contemporary design issues are the prime focus in an effort to create buildings that are responsive to change, whether in use, location, or in the manner in which they operate.

***Learning Objectives*:** In this module, students will:

- Prepare door/ window schedules.
- Draw electrical plan.
- Review and revise plans throughout the design process to refine and achieve design objective.
- Demonstrate flexibility and adaptability throughout the design process.
- Define a basic project materials list.
- Calculate a basic project quantity take-off.

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Module 3. Basic Computer-Aided Drafting Functions Part I

The many commands in AutoCAD can be easily accessed and make designing and drawing efficient. The use of these commands to do things like add features to your drawings will help communicate your vision and concept. They will also enhance your designs and give viewers of your drawings specific information about them. Commands in AutoCAD are abundant. They can be used to create lines, arcs, circles, splines, and every other geometric shape necessary to create designs and identify objects. Precision and speed are improved when it comes to creating and modifying any type of drawing. Using annotation tools can help improve what you've already created.

***Learning Objectives*:** In this module, students will:

- Demonstrate organizational skills to influence the sequential process when creating drawings.
- Construct geometric figures of lines, splines, circles and arcs.
- Create and edit text using appropriate style and size to annotate drawings.
- Use control accuracy enhancement tools for entity positioning methods such as snap and XYZ.
- Use editing commands as well as viewing commands to perform zooming and panning

Module 4. Basic Computer-Aided Drafting Functions Part II

In part two of Basic Computer-Aided Drafting Functions, you'll learn more about the manipulation of the objects in your drawings. You will discover how scale and layout are expressed and how they allow you to properly plot your drawings. You previously learned the way that AutoCAD commands are used to create shapes and lines. You will continue to learn about commands in this module that will be useful in helping you search for and find information. These commands are predominantly for queries and inquiries. You will review dimensions and how to apply dimensions to your drawings. Lastly, you will learn how to modify the elements of your drawings whether by stretching and reshaping them, trimming or extending them, or simply moving them to another location

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***Learning Objectives*:** In this module, students will:

- Plot drawings on media using layout and scale.
- Use query commands to interrogate database for entity characteristics, distance, area, and status.
- Apply standard dimensioning rules.
- Demonstrate an ability to move, stretch and offset objects; create a radius between objects; trim and extend objects; break and join objects, create and edit dimensions; and change object properties.

Module 5. Basic Civil Drawings

Civil drawings contain all the important information about a project site. This includes grading and landscaping conditions, where structural members are located (or placed), how buildings on the site are oriented, details about reinforcements of structural members, soil gradation - anything you need to know about a site is found in these drawings. Clearly, they are highly useful to building professionals regardless of their role. Since civil drawings encompass everything about the site, several types of drawings are created to communicate this information. These include site plans (or survey drawings), architectural drawings, and structural drawings. Civil drawings have their own "language" which comes in the form of terminology, symbols, and abbreviations. Throughout the module you'll learn about the elements of civil drawings as well as how to read and interpret them.

***Learning Objectives*:** In this module, students will:

- Apply use of effective and accurate civil terminology throughout the design process.
- Read and interpret civil drawings.
- Draw plan and profile drawings.
- Develop topographic drawings.

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Module 6. Preparing Computer-Aided Drawings (CAD) Part I

Throughout this module you will focus on specific AutoCAD processes. You are encouraged to work in AutoCAD as you move through each lesson. You will review drawing floor plans and site plans. In the module, you'll review how to create interior and exterior elevations as well as draw a roof plan. There will be a thorough review of schedules, particularly door and window schedules. All of the steps to create these schedule tables in AutoCAD will be outlined. Finally, you'll review how to create wall sections, plot plans, and electrical plans. The project for the module will be a demonstration of various processes.

***Learning Objectives*:** In this module, students will:

- Demonstrate the ability to draw a floor plan, draw a site plan, draw exterior and interior elevations and draw a roof plan.
- Prepare door and window schedules.
- Demonstrate the ability to draw a wall section, draw an overall site plan, draw a building plot plan, and draw an electrical plan.

Module 7. Preparing Computer-Aided Drawings (CAD) Part II

In the second portion of Preparing Computer-Aided Drawings, the focus is going to shift a little bit from the previous module. While you have learned a great deal about processes in AutoCAD, the emphasis in this section will be on the built environment itself. You'll explore the history of the built environment, which consists of structures, features, facilities, and the collective space in which people work and live. "Built" implies that humans created this environment. Additionally, you will read about the significant contributions of major architects, civil engineers and how they influenced the world around us. You'll wrap up by reviewing two ends of the architectural design spectrum - the history and the future.

***Learning Objectives*:** In this module, students will:

- Research the history of the built environment.
- Describe the significance of major architects, engineers or inventors to understand their historical influences.
- Research innovative historical architectural and/or engineering works and examine the significance of their legacy for the future.
- Identify transitions in design media, technique and focus to explain how technology has changed design throughout history.

Module 8. Preparing for the Autodesk Certified User Exam

This final module of the course will focus on the Autodesk Certified User Exam. Preparation is key and there are many ways to get prepared. Review the course modules and practice the AutoCAD skills you have learned. You will learn the specific skills that you must demonstrate in order to be successful on the exam. These are basic AutoCAD skills that you can practice until you're an expert!! You'll review how the exam is formatted. There are practice questions, online flashcards, and sample exams so that you can get acquainted with the types of questions you'll see and be ready to get them all correct.

***Learning Objectives*:** In this module, students will:

- Understand the requirements for the Autodesk Certified User (CAD) Certification.
- Understand the structure of the CAD exam.
- Demonstrate readiness for the CAD exam.
- Explore the job opportunities for an Autodesk Certified Users.