POINTFUL EDUCATION

Architectural Design III

Syllabus

» Course Overview

The focus of Architectural Design III course is to identify the common sequential processes used in computer-aided drafting (CAD). These processes will provide students with the foundation of creating drawings in CAD software including the use of lines, circles, arcs, text, varied text styles, multi-leaders, dimensions, dimension styles, crosshatching, object property commands, arrays, reference angles, layers, page setup, reusable content, and gradient patterns. Students will also explore concepts of ethics and legal responsibilities. They will identify how policies and procedures are used to develop company culture and professional standards. Students will have the opportunity to investigate career opportunities in the drafting professions. They will learn about the importance of developing a digital portfolio from their academic and professional experience. The course will culminate with a project that utilizes the processes they've learned in their readings.

» Course Outline by Module

Module 1	Computer-Aided Drafting Functions Part I	**Module 4**	Professional Ethics and Legal Responsibilities
Module 2	Computer-Aided Drafting Functions Part II	**Module 5**	Career Opportunities in Drafting
Module 3	Computer-Aided Drafting Functions Part III	**Module 6**	Architectural Drafting Project

» Module Overview and Learning Objectives

Module 1. Computer-Aided Drafting Functions Part I

Computer-Aided Drafting (CAD) has all but replaced the manual drawings that were prevalent only a short time ago. The concepts of drawing and designing still apply, but are now done through sophisticated software that allows drawing, editing, revising, and redrawing to be done in a fraction of the time. Additionally, the availability of expansion software to further enhance materials libraries and specialized content such as plumbing

or electrical work makes creating designs more efficient than ever. In this first part of three modules, you will learn some basic processes in CAD technology using lines, texts, and dimensions. Practice makes perfect in these processes, so take opportunities to use what you're learning and identify how you prefer to work within the software.

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

- Draw lines, arcs, circles, etc. to represent plans and/or mechanical assemblies.
- Create text styles, text justification and multi-line text.
- Create and use multi-leaders.
- Edit dimensions.
- Work with dimension styles.

Module 2. Computer-Aided Drafting Functions Part II

In the second part of Computer-Aided Drafting Functions, you'll learn about adding details to the objects you create. Filling objects with colors or hatch patterns is a way to differentiate one part of a building or room from another. It can also represent materials or properties. In addition, you will learn about isolating and hiding objects so that you can more easily work with one object at a time without other parts of the drawing being in your way. Applying external references to your drawings is a way to link drawings so that you can make modifications to multiple drawings at one time. It's an easier way to use content without having to create it again for another design. To wrap up the module, you will identify how to create selection sets and arrays. Both commands can help you organize the parts of your drawing in the way that they need to be laid out.

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

- Crosshatch objects.
- Apply external reference; isolate and hide objects.
- Use selection set methods.
- Use rectangular and polar arrays.
- Use rotation reference angles.
- Use elements of creativity and organizational principles to create visually coherent viewports and layouts.

Module 3. Computer-Aided Drafting Functions Part III

In this final module on Computer-Aided Drafting Functions, you'll round out your AutoCAD® knowledge by learning about layers. Layers are useful when creating drawings because they allow you to see what you need to see and easily combine them to create a total picture of your drawing. Picture transparent sheets of paper. On the bottom sheet, you may create a basic floor plan. The next sheet you create will have additional details like electrical or plumbing systems. The next sheet may have interior elements like switches and fixtures. As each of these is put on top of the original layer, you can see the floorplan with some or all of its elements. Layouts work in the same way. In addition, you'll learn about using page setup for plotting drawings and other objects. You'll identify ways to create content and keep it so that you can use it for future designs and drawings. Finally, you'll be able to interact with various linetypes as well as hatch patterns and fills.

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

- Create and manage layers.
- Use page setup for plotting.
- Create, insert, and edit reusable content such as symbols and blocks.
- Use specific line types.
- Create fills and gradients.
- Edit hatch patterns and fills.

Module 4. Professional Ethics and Legal Responsibilities

Whenever you make a choice, it was possible that you could have chosen differently. You make decisions based on experience, values, morals, and beliefs. The principle of ethics is what designates the "best" option in a situation where a choice is made. Values, principles, and purpose are what guide people to ethical decisions. Value tells us what is good. Principles tell us what is right. Purpose is what gives life to values and principles. In your day-to-day life you may be faced with difficult decisions. When you apply ethics to decision making, you question, discover, and defend your values, principles, and purpose to what you decide. The same holds true in a professional setting. There may be instances where ethics are called into question - a time when decisions don't align with a company's

purpose, for instance. Developing a solid foundation of ethical behavior and making sound judgment based on ethical reasoning will help you in your personal and professional life.

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

- Evaluate and justify decisions based on ethical reasoning.
- Evaluate alternative responses to workplace situations based on personal, professional, ethical, legal responsibilities and employer policies.
- Identify and explain personal and long-term consequences of unethical or illegal behaviors in the workplace.
- Interpret and explain written organizational policies and procedures.
- Demonstrate personal responsibility, ethics and integrity, including respect for intellectual property, when accessing information and creating design projects.

Module 5. Career Opportunities in Drafting

There are professional skills and personal attributes that you must possess to be employable, and you must have both. If you are highly skilled but don't work well with others or manage your time, you are not useful to an employer. The same holds true if you are highly motivated, a great time manager, and a loyal person, but you bring no technical skills to the table. A good employee will exhibit the traits that fit well with company culture. Integrity, honesty, a strong work ethic, and the ability to function independently and in teams are traits that most employers value. Based on the career you desire, there will be criteria you need to meet with regard to education, certifications, licensure and other credentials. This module will help you begin to explore some of these topics.

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

- Identify and demonstrate positive work behaviors needed to be employable.
- Develop and use criteria to select works for a digital career portfolio.
- Evaluate and compare employment opportunities that match career goals.
- Examine licensing, certification, education, and industry credentialing requirements for careers in design and construction industry.
- Identify opportunities and research requirements for career advancement.

Module 6. Architectural Drafting Project

This module is unlike the other modules you have completed. Throughout this module, you will be creating and compiling parts of a project. Each lesson will consist of a task that will account for one part of the final project. You will be provided guidance to complete the tasks within the reading, but remember to look back at the other modules for information as well. You may also want to do some exploration on your own to learn additional information about working in AutoCAD.

As you complete each task, it is important to save your work. You can save your work in AutoCAD®, but you should also take a screenshot of what you've done and keep it saved on your computer. Your final project will be a slide presentation where each of the items you've completed will be displayed. The guidelines for submitting the final project will be in Part 5 of this module.