



## GREEN COUNTRY TECHNOLOGY CENTER

Career Cluster: Architecture and Construction

Pathway: Design/Pre-Construction

Major: Cad Technician Architectural

Local Name: Architectural Drafting and Design

Instructor: Todd Anderson

Total hours 1050

Course Number	Course Name	Hours
1013	Introduction to AutoCAD	100
1023	Technical Drawing	190
1043	Customizing AutoCAD	30
1050	3D Modeling and Rendering	60
1110	Residential Design	145
2110	Revit	60
2120	Introduction to Civil	30
2130	Introduction to Interior Design	30
2143	Commercial Architecture	150
2153	Architectural Design Project	150
2353	Advanced 3D Modeling	105

### Course Descriptions

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#### **1013 - Introduction to AutoCAD**

Students will learn basic use and application of AutoCAD as a drafting tool through the creation of geometrical shapes, parts, drawings, and electrical symbols and schematics. Students will also gain a basic understanding of the fields of civil, mechanical, and architectural design and drafting.

#### **1023 - Technical Drawing**

Using visualization skills and considering spatial relationships each learner will create technical drawings that include orthographic, section and auxiliary views. Complete dimensioned drawings will be created according ANSI and other industry standards.

**1043 – CAD Customizing**

Each learner will customize a CAD software package through the creation of menus and toolbars, writing basic programs, and through the production of a slide show. All learners will convert drawing formats for use on the internet and with other application software.

**1050 - 3D Modeling and Rendering**

Given a two-dimensional sketch or drawing, each learner will create three-dimensional object using CAD software, and extract two-dimensional views from that object. All learners will query the database of a three-dimensional model for mass property information. Basic shading, rendering and lighting techniques will be applied to three-dimensional objects while utilizing AutoCAD, and 3D Studio VIZ.

**1110 - Residential Design**

The theory and preparation of construction documents for light commercial structures including problems in basic architectural design. Space planning, materials, human factors and environmental issues related to architectural design. History and future trends in architecture. Generation of site plan, floor plan, reflected ceiling plan, foundation plan, schedules, details, and elevations.

**2110 - Revit**

The student will learn the basics of the interface of Revit. Create building elements and components of models using parametric techniques. Create plans, schedules, details and views of a building. Use Revit for design and 3d illustrations.

**2130 – Introduction to Civil**

Using survey data obtained from an existing construction site, students interpolate existing contours for use in developing a set of construction documents. Students will evaluate the need for storm water drainage, design a simplified drainage system, create a grading plan suitable for development, and calculate project quantities for the site. Students design utility relocations to accommodate any interference of existing and new utilities, and organize all data into a set of construction plans that meet current ANSI standards.

**2140 – Introduction to Interior Design**

The student will learn basic interior design techniques using AutoCAD. The student will design functional residential rooms and also design functional office layouts using space planning, materials, human factors and environmental issues related to architectural design. The student will also use correct ADA (Americans with Disabilities Act) requirements.

### **2143 - Commercial Architecture**

Students use architectural theories to design an aesthetic and structurally sound, light commercial building. Students apply drafting standards to produce construction documents while maintaining ADA specifications for the purpose of building a commercial structure.

### **2140 – Architectural Design Project**

This is the capstone classes. The student will use all of his or her knowledge to design a building. The student must design an original floor plan to meet simulated customer specification. They will have to consider space planning, materials, human factors and environmental issues related to architectural design. They must generation of site plan, floor plan, reflected ceiling plan, foundation plan, schedules, details, and elevations.

### **2353 – Advanced 3D Modeling**

The student will create a 3D model of the ether the architectural or mechanical project using 3D Studio VIZ. Then apply advanced shading, rendering and lighting techniques. After completion of the project the student will create a fly through of the model. Using rendering techniques they will create pictures and a movie. The student will give a presentation of the final product.