

## ARCH102 : Architectural Drafting And Design

### General Information

Author:	<ul style="list-style-type: none"><li>David D Martin</li></ul>
Course Code (CB01) :	ARCH102
Course Title (CB02) :	Architectural Drafting And Design
Department:	ARCH
Proposal Start:	Spring 2025
TOP Code (CB03) :	(0201.00) Architecture and Architectural Technology
CIP Code:	(04.0901) Architectural Technology/Technician.
SAM Code (CB09) :	Clearly Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000141068
Curriculum Committee Approval Date:	05/22/2024
Board of Trustees Approval Date:	07/16/2024
Last Cyclical Review Date:	05/22/2024
Course Description and Course Note:	ARCH 102 is the study single family dwelling design with emphasis on the ranch type structure. Discussion covers the latest construction innovations, framing techniques, scale detail drawing, and the drafting of working drawings. Students will explore applicable building codes pertinent to residential construction, modular construction, solar planning, insulation requirements, orientation, and other facets of construction in greater detail.
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none"><li>Credit</li></ul>
Author:	<ul style="list-style-type: none"><li>David D Martin</li></ul>

### Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none"><li>Architecture</li></ul>
Alternate Discipline:	No value
Alternate Discipline:	No value

### Course Development

<b>Basic Skill Status (CB08)</b> Course is not a basic skills course. <input type="checkbox"/> Allow Students to Gain Credit by Exam/Challenge	<b>Course Special Class Status (CB13)</b> Course is not a special class. <b>Pre-Collegiate Level (CB21)</b> Not applicable.	<b>Grading Basis</b> <ul style="list-style-type: none"><li>Grade with Pass / No-Pass Option</li></ul> <b>Course Support Course Status (CB26)</b> Course is not a support course
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## Transferability & Gen. Ed. Options

### General Education Status (CB25)

Not Applicable

### Transferability

Transferable to both UC and CSU

### Transferability Status

Approved

## Units and Hours

### Summary

<b>Minimum Credit Units (CB07)</b>	3
<b>Maximum Credit Units (CB06)</b>	3
<b>Total Course In-Class (Contact) Hours</b>	108
<b>Total Course Out-of-Class Hours</b>	54
<b>Total Student Learning Hours</b>	162

### Credit / Non-Credit Options

#### Course Type (CB04)

Credit - Degree Applicable

#### Noncredit Course Category (CB22)

Credit Course.

#### Noncredit Special Characteristics

No Value

#### Course Classification Code (CB11)

Credit Course.

Variable Credit Course

#### Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience  
 Education Status (CB10)

### Weekly Student Hours

	In Class	Out of Class
Lecture Hours	1.5	3
Laboratory Hours	4.5	0
Studio Hours	0	0

### Course Student Hours

<b>Course Duration (Weeks)</b>	18
<b>Hours per unit divisor</b>	54
<b>Course In-Class (Contact) Hours</b>	
Lecture	27
Laboratory	81
Studio	0
<b>Total</b>	108
<b>Course Out-of-Class Hours</b>	
Lecture	54
Laboratory	0
Studio	0
<b>Total</b>	54

## Time Commitment Notes for Students

No value

## Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
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No Value	No Value	No Value	No Value
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## Pre-requisites, Co-requisites, Anti-requisites and Advisories

### Prerequisite

ARCH101 - Drafting And Basic Design (in-development)

#### Objectives

- Describe the meaning of basic architectural vocabulary terms.
- Demonstrate proficiency in drawing on vellum and in the use of drawing instruments by the completion of various drawing assignments.
- Describe limited examples of the use of the International Building Code as it applies to residential construction.

### AND

### Advisory

ARCH250 - Introduction To Autodesk Revit Architecture (in-development)

#### Objectives

- Complete a series of architectural drafting problems using the Revit software.
- Explain the relationship between floor plans, elevations, and section views within a parametric environment.
- Create three-dimensional models and construction documents for a residential design project.
- Create photo-realistic renderings of architectural projects.

## Entry Standards

Entry Standards

## Course Limitations

Cross Listed or Equivalent Course

## Specifications

Methods of Instruction

<b>Methods of Instruction</b>	Lecture			
<b>Methods of Instruction</b>	Laboratory			
<b>Methods of Instruction</b>	Multimedia			
<b>Methods of Instruction</b>	Guest Speakers			
<b>Methods of Instruction</b>	Presentations			
<b>Out of Class Assignments</b> <ul style="list-style-type: none"> <li>• Field trips (e.g. visits to local construction sites, tour of architectural offices)</li> <li>• Final individual project. (e.g. a portfolio review of a set of working drawings or architectural model of a one story, two or three bedroom residential structure)</li> </ul>				
<b>Methods of Evaluation</b>	<b>Rationale</b>			
Exam/Quiz/Test	Midterm examination			
Project/Portfolio	Final individual project (e.g. a portfolio review of set of working drawings or architectural model of a one story, two or three bedroom residential structure)			
Exam/Quiz/Test	Final examination or presentation (e.g. a 5-10 minute presentation of the final project to the instructor and the rest of the class)			
<b>Textbook Rationale</b> No Value				
<b>Textbooks</b>				
<b>Author</b>	<b>Title</b>	<b>Publisher</b>	<b>Date</b>	<b>ISBN</b>
Bakhoun, Nagy R., Wakita, Osamu A.	The Professional Practice of Architectural Working Drawings	New York: John Wiley	2023	9781119875338
<b>Other Instructional Materials (i.e. OER, handouts)</b> No Value				
<b>Materials Fee</b> No value				

# Learning Outcomes and Objectives

## Course Objectives

Demonstrate proficiency with a expanded technical vocabulary.

Establish continued ability in the use of drafting instruments and media.

Execute a complete set of architectural working drawings using either traditional or computer aided drafting methods.

Develop a three dimensional model of his/her residential design.

Use International Building Code (IBC).

## SLOs

**Discuss the meaning of basic architectural/technical vocabulary.**

Expected Outcome Performance: 70.0

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*ILOs*  
Core ILOs

Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.

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Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

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*ARCH*  
Architectural Drafting and Design

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

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*ARCH*  
Architectural Drafting & Design - Certificate

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

**Utilize the AutoCAD and/or Revit drafting or design software.**

Expected Outcome Performance: 70.0

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*ILOs*  
Core ILOs

Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.

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Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

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*ARCH*  
Architectural Drafting & Design - Certificate

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

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Demonstrate techniques to accomplish drawings utilizing different computer aided design (CAD) software;

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*ARCH*  
Architectural Drafting and Design

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

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Demonstrate techniques to accomplish drawings utilizing different computer aided design (CAD) software;

**Discuss examples of the use of the International Building Code as it applies to their final project.**

Expected Outcome Performance: 70.0

ILOs  
Core ILOs

Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.

Demonstrate depth of knowledge in a course, discipline, or vocation by applying practical knowledge, skills, abilities, theories, or methodologies to solve unique problems.

ARCH  
Architectural Drafting  
and Design

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

ARCH  
Architectural Drafting &  
Design - Certificate

Demonstrate skills in the production of working drawings of residential and commercial structures; discuss how design/drawing techniques, application of the International Building Code (IBC), building construction techniques, and other standards affect the design of their structure.

## Course Content

### Lecture Content

#### Introduction to the Project (1 Hour)

- Size and location limitations
- Building code concerns
- Presentation methods of finished project
- Use of architectural materials
- Reference material sources-Sweet's catalogs
- Manufacturers' resources
- Library and on-line resources

#### Architectural Forms (1 Hour)

- The single family dwelling
- Traditional and contemporary expressions
- Materials determining structural forms

#### Building Codes (2 Hours)

- Needs of codes
- Health and safety
- Legal responsibilities

#### Planning of the Final Project (3 Hours)

- Occupancy requirements
- Floor plan options
- Site plan
- Orientation of the structure
- Utilities
- Site survey

#### Architectural Drafting (4 Hours)

- Cartooning of the project
- Lettering
- Dimension style
- CAD file setup
- Required working drawings

#### Elevation Views (3 Hours)

- Exterior elevations
- Interior elevations

#### Detail Drawings (5 Hours)

- Foundation details
- Foundation types
- Footer types
- Cabinet details
- Custom
- Prefabricated
- Door and window details
- Manufacturer's resources and software
- On-line data download techniques
- Fireplace details

#### Structural Concerns (2 Hours)

- Beam locations
- Bearing wall locations
- Seismic concerns
- Metal connectors
- Shear walls
- Lumber sizes
- Bearing walls
- Non-bearing walls
- Rafters, floor joists

#### **Heating Concerns (1 Hour)**

- Duct and vent locations
- Insulation
- Window and door openings

#### **Soundproofing Concerns (1 Hour)**

- Landscaping
- Framing practices
- Mechanical devices

#### **Sanitary Systems (1 Hour)**

- Plumbing
- Fixture location
- Pipe location and sizes
- Drainage
- Sewer systems
- Septic systems

#### **Soil Concerns (2 Hours)**

- Foundation design
- Grading
- Compaction

#### **Presentation of Project (1 Hour)**

- Portfolio review and critique
- Creating a three dimensional study model of project
- Verbal and written final presentation

**Total Hours: 27**

### **Laboratory/Studio Content**

#### **Introduction to the Project (3 Hours)**

- Size and location limitations
- Building code concerns
- Presentation methods of finished project
- Use of architectural materials
- Reference material sources-Sweet's catalogs
- Manufacturers' resources
- Library and on-line resources

#### **Architectural Forms (3 Hours)**

- The single family dwelling
- Traditional and contemporary expressions
- Materials determining structural forms

#### **Building Codes (3 Hours)**

- Needs of codes
- Health and safety
- Legal responsibilities

#### **Planning of the Final Project (11 Hours)**

- Occupancy requirements
- Floor plan options
- Site plan
- Orientation of the structure
- Utilities
- Site survey

#### **Architectural Drafting (22 Hours)**

- Cartooning of the project

- Lettering
- Dimension style
- CAD file setup
- Required working drawings

#### **Elevation Views (10 Hours)**

- Exterior elevations
- Interior elevations

#### **Detail Drawings (11 Hours)**

- Foundation details
- Foundation types
- Footer types
- Cabinet details
- Custom
- Prefabricated
- Door and window details
- Manufacturer's resources and software
- On-line data download techniques
- Fireplace details

#### **Structural Concerns (3 Hours)**

- Beam locations
- Bearing wall locations
- Seismic concerns
- Metal connectors
- Shear walls
- Lumber sizes
- Bearing walls
- Non-bearing walls
- Rafters, floor joists

#### **Heating Concerns (3 Hours)**

- Duct and vent locations
- Insulation
- Window and door openings

#### **Soundproofing Concerns (2 Hours)**

- Landscaping
- Framing practices
- Mechanical devices

#### **Sanitary Systems (3 Hours)**

- Plumbing
- Fixture location
- Pipe location and sizes
- Drainage
- Sewer systems
- Septic systems

#### **Soil Concerns (4 Hours)**

- Foundation design
- Grading
- Compaction

#### **Presentation of Project (3 Hours)**

- Portfolio review and critique
- Creating a three dimensional study model of project
- Verbal and written final presentation

**Total Hours: 81**

## **Additional Information**

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No



**GCC Major Requirements**

No Value

**GCC General Education Graduation Requirements**

No Value

**Repeatability**

Not Repeatable

**Justification (if repeatable was chosen above)**

No Value

**Resources**

**Did you contact your departmental library liaison?**

No

**If yes, who is your departmental library liaison?**

No Value

**Did you contact the DEIA liaison?**

No

**Were there any DEIA changes made to this outline?**

No Value

**If yes, in what areas were these changes made:**

No Value

**Will any additional resources be needed for this course? (Click all that apply)**

No Value

**If additional resources are needed, add a brief description and cost in the box provided.**

No Value