



COURSE OUTLINE : ARCH 102
D Credit – Degree Applicable
COURSE ID 001311
Cyclical Review: October 2020

COURSE DISCIPLINE : ARCH
COURSE NUMBER : 102
COURSE TITLE (FULL) : Architectural Drafting and Design
COURSE TITLE (SHORT) : Arch Draft/Des

CATALOG DESCRIPTION

ARCH 102 is the study of the design of the single family dwelling with emphasis on the ranch type structure. Discussion covers the latest construction innovations, framing techniques, scale detail drawing, and the drafting of working drawings. Study explores in greater detail the applicable building codes pertinent to residential construction, modular construction, solar planning, insulation requirements, orientation, and other facets of construction.

Total Lecture Units: 1.50

Total Laboratory Units: 1.50

Total Course Units: 3.00

Total Lecture Hours: 27.00

Total Laboratory Hours: 81.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 108.00

Total Out-of-Class Hours: 54.00

Prerequisite: ARCH 101 or equivalent. Recommended Preparation: ENGR 109 or ARCH 250.



ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ARCH	101	Drafting And Basic Design	Describe the meaning of basic architectural vocabulary terms;	Yes
2	ARCH	101	Drafting And Basic Design	demonstrate proficiency in drawing on vellum and in the use of drawing instruments by the completion of various drawing assignments;	Yes
3	ARCH	101	Drafting And Basic Design	describe limited examples of the use of the International Building Code as it applies to residential construction.	Yes
4	ENGR	109	Computer Aided Design AutoCAD 1	create a complete set of CAD drawings that communicates technical information for a complex geometric part or assembly	Yes
5	ENGR	109	Computer Aided Design AutoCAD 1	evaluate CAD designs to determine clarity and manufacturability	No
6	ENGR	109	Computer Aided Design AutoCAD 1	organize revised CAD drawings that document the iterative engineering design process	No
7	ENGR	109	Computer Aided Design AutoCAD 1	prepare high quality unambiguous CAD drawings	No
8	ARCH	250	Introduction to Autodesk Revit Architecture	Complete a series of architectural drafting problems using the Revit software;	Yes
9	ARCH	250	Introduction to Autodesk Revit Architecture	explain the relationship between floor plans, elevations, and section views within a parametric environment;	Yes
10	ARCH	250	Introduction to Autodesk Revit Architecture	create three-dimensional models and construction documents for a residential design project;	Yes
11	ARCH	250	Introduction to Autodesk Revit Architecture	create photo-realistic renderings of architectural projects.	Yes

EXIT STANDARDS

- 1 Demonstrate proficiency with a expanded technical vocabulary;
- 2 establish continued ability in the use of drafting instruments and media;
- 3 execute a complete set of architectural working drawings using either traditional or computer aided drafting methods;
- 4 develop a three dimensional model of his/her residential design;
- 5 use International Building Code (IBC).



STUDENT LEARNING OUTCOMES

- 1 discuss the meaning of basic architectural and technical vocabulary.
- 2 utilize the AutoCAD and/or Revit drafting or design software.
- 3 discuss examples of the use of the International Building Code as it applies to their final project.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Introduction to the project <ul style="list-style-type: none"> • 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 	1	3	4
2	Architectural forms <ul style="list-style-type: none"> • The single family dwelling • Traditional and contemporary expressions • Materials determining structural forms 	1	3	4
3	Building codes <ul style="list-style-type: none"> • Needs of codes • Health and safety • Legal responsibilities 	2	3	5
4	Planning of the final project <ul style="list-style-type: none"> • Occupancy requirements • Floor plan options • Site plan • Orientation of the structure • Utilities • Site survey 	3	11	14
5	Architectural Drafting <ul style="list-style-type: none"> • Cartooning of the project • Lettering • Dimension style • CAD file setup • Required working drawings 	4	22	26
6	Elevation views <ul style="list-style-type: none"> • Exterior elevations • Interior elevations 	3	10	13



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7	<ul style="list-style-type: none"> Detail drawings • 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 	5	11	16
8	<ul style="list-style-type: none"> Structural Concerns • Beam locations • Bearing wall locations • Seismic concerns • Metal connectors • Shear walls • Lumber sizes • Bearing walls • Non-bearing walls • Rafters, floor joists 	2	3	5
9	<ul style="list-style-type: none"> Heating Concerns • Duct and vent locations • Insulation • Window and door openings 	1	3	4
10	<ul style="list-style-type: none"> Soundproofing Concerns • Landscaping • Framing practices • Mechanical devices 	1	2	3
11	<ul style="list-style-type: none"> Sanitary systems • Plumbing • Fixture location} • Pipe location and sizes • Drainage • Sewer systems • Septic systems 	1	3	4
12	<ul style="list-style-type: none"> Soil concerns • Foundation design • Grading • Compaction 	2	4	6
13	<ul style="list-style-type: none"> Presentation of project • Portfolio review and critique • Creating a three dimensional study model of project • Verbal and written final presentation 	1	3	4
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OUT OF CLASS ASSIGNMENTS

- 1 field trips (e.g. visits to local construction sites, tour of architectural offices).
- 2 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.).

METHODS OF EVALUATION

- 1 midterm examination;
- 2 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);
- 3 final examination or presentation (e.g. a 5-10 minute presentation of the final project to the instructor and the rest of the class).

METHODS OF INSTRUCTION

- Lecture
- Laboratory
- Studio
- Discussion
- Multimedia
- Tutorial
- Independent Study
- Collaboratory Learning
- Demonstration
- Field Activities (Trips)
- Guest Speakers
- Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
The Professional Practice of Architectural Working Drawings	Required	New York: John Wiley	5	Print	Wakita, Osama	9781118880524	2017