Degree Applicable

Glendale Community College
February 1990
Revised: October, 2009

COURSE OUTLINE

Architecture 102
Architectural Drafting and Design

I. Catalog Statement

Architecture 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.

Units – 3.0
Lecture Hours – 2.0
Total Laboratory Hours – 4.0
(Faculty Laboratory Hours – 4.0 + Student Laboratory Hours – 0.0 = 4.0 Total Laboratory Hours)

Prerequisite: Arch 101 or equivalent

Recommended Preparation: Engineering 109

II. Course Entry Expectations

Skills Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

Prior to enrolling in the course, the student should:

1. have developed an architectural style of lettering;
2. have the ability to communicate visual ideas through the use of verbal, written and sketching techniques;
3. understand and have completed architectural working drawings of a small residential structure;
4. understand the use and care of various drafting equipment used in the completion of architectural drawings;
5. understand and have the ability to use traditional and computer aided design (CAD) software methods to complete architectural working drawings;
6. understand the purpose of architecture and how it relates to the design of a small residential structure;

7. have a basic knowledge of residential construction techniques.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will:

l. demonstrate proficiency with a limited technical vocabulary;
2. establish continued ability in the use of drafting instruments and media;
3. have the ability to execute a complete set of architectural working drawings using either traditional or computer aided drafting methods;
4. develop a three dimensional model of their residential design;
5. have an expanded usage of uniform building code.

IV. Course Content

A. Introduction to the project — 6 hours
   1. Size and location limitations
   2. Building Code concerns
   3. Presentation methods of finished project
   4. Use of architectural materials
      a. Reference material sources-Sweet's catalogs
      b. Manufacturers' resources
      c. Library and on-line resources

B. Architectural forms — 6 hours
   l. The single family dwelling
   2. Traditional and contemporary expressions
   3. Materials determining structural forms

C. Building codes — 6 hours
   l. Needs of codes
   2. Health and safety
   3. Legal responsibilities

D. Planning of the final project — 18 hours
   l. Occupancy requirements
   2. Floor plan options
   3. Site plan
      a. Orientation of the structure
      b. Utilities
      c. Site survey

E. Architectural Drafting — 11 hours
   l. Cartooning of the project
   2. Lettering
   3. Dimension style

4. CAD file setup
5. Required working drawings

F. Elevation views 6 hours
   l. Exterior elevations
   2. Interior elevations

G. Detail drawings6 hours
   l. Foundation details
      a. Foundation types
      b. Footer types
   2. Cabinet details
      a. Custom
      b. Prefabricated
   3. Door and window details
      a. Manufacturer's resources and software
      b. On-line data download techniques
   4. Fireplace details

H. Structural Concerns 8 hours
   1. Beam locations
   2. Bearing wall locations
   3. Seismic concerns
      a. Metal connectors
      b. Shear walls
   4. Lumber sizes
      a. Bearing walls
      b. Non-bearing walls
      c. Rafters, floor joists

I. Heating Concerns 4 hours
   l. Duct and vent locations
   2. Insulation
   3. Window and door openings

K. Soundproofing Concerns 3 hours
   l. Landscaping
   2. Framing practices
   3. Mechanical devices

L. Sanitary systems 6 hours
   l. Plumbing
      a. Fixture location
      b. Pipe location and sizes
   2. Drainage
      a. Sewer systems
      b. Septic systems

M. Soil concerns 8 hours
   l. Foundation design
   2. Grading
   3. Compaction
N. Presentation of project 8 hours
   1. Portfolio review and critique
   2. Creating a three dimensional study model of project
   3. Verbal and written final presentation

V. Methods of Presentation

The following instructional methodologies may be used in the course:
a. lecture;
b. multimedia;
c. guest speakers;
d. individual and group projects;
e. field trips.

VI. Assignments and Methods of Evaluation

1. Midterm examination.
2. Final individual project. (eg. this will typically consist of a set of working drawings or architectural model of a one story, two or three bedroom residential structure.)
3. Final examination or presentation (eg. this will typically be a 5-10 minute presentation of the final project to the instructor and the rest of the class.)

VII. Textbook

Wakita, O., The Professional Practice of Architectural Working Drawings, Current Edition, New York: John Wiley and Sons, 2003.
10th Grade Textbook Reading Level. ISBN: 0-471-39540-4

VIII. Student Learning Outcomes

1. Students will discuss the meaning of basic architectural/technical vocabulary as it applies to their project.
2. Students will demonstrate an ability to complete a set of working drawings for a two or three bedroom residential structure.
3. Students will discuss examples of the use of the Uniform Building Code as it applies to their final project.
4. If trained in its use, students will utilize the AutoCAD drafting/design software, in the completion of their project.