Glendale Unified School District

High School

May 23, 2017

Department:	Career Technical Education
Course Title:	Architectural Drafting & Design-ARCH 102 (Formerly CADD 2)
Course Code:	5425
Grade Level(s):	10-12
Course Credits:	10
Recommended Prerequisite:	Drafting & Basic Design-ARCH 101
Recommended Textbook:	Wakita, Osama, Richard M. Linde and Nagy R. Bakhoum The Professional Practice of Architectural Working Drawings. 4th Ed. New York: John Wiley, 2011. ISBN: 0-470-61815-9.
Course Overview:	Architectural Drafting & Design 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.

Course Entry Expectations

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

7. Explain residential construction techniques.

Course Exit Standards

1. Demonstrate proficiency with a expanded technical vocabulary;
2. 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;
3. Develop a three dimensional model of his/her residential design;
4. Use International Building Code (IBC).

Course Content

I. Introduction to the project (lecture 1 hour, lab 3 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

II. Architectural forms (lecture 1 hour, lab 3 hours)
   1. The single family dwelling
   2. Traditional and contemporary expressions
   3. Materials determining structural forms

III. Building codes (lecture 2 hours, lab 3 hours)
   1. Needs of codes
   2. Health and safety
   3. Legal responsibilities

IV. Planning of the final project (lecture 2 hours, lab 9 hours)
   1. Occupancy requirements
   2. Floor plan options
   3. Site plan
      a. Orientation of the structure
      b. Utilities
      c. Site survey

V. Architectural Drafting (lecture 3 hours, lab 19 hours)
   1. Cartooning of the project

2. Lettering
3. Dimension style
4. CAD file setup
5. Required working drawings

VI. Elevation views (lecture 3 hours, lab 9 hours)
1. Exterior elevations
2. Interior elevations

VII. Detail drawings (lecture 4 hours, lab 9 hours)
1. 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

VIII. Structural Concerns (lecture 1 hour, lab 3 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

IX. Heating Concerns (lecture 1 hour, lab 3 hours)
1. Duct and vent locations
2. Insulation
3. Window and door openings

X. Soundproofing Concerns (lecture 1 hour, lab 2 hours)
1. Landscaping
2. Framing practices

3. Mechanical devices

XI. Sanitary systems (lecture 1 hour, lab 3 hours)
1. Plumbing
    a. Fixture location
    b. Pipe location and sizes
2. Drainage
    a. Sewer systems
    b. Septic systems

XII. Soil concerns (lecture 2 hours, lab 4 hours)
1. Foundation design
2. Grading Compaction

XIII. Presentation of project (lecture 1 hours, lab 3 hours)
1. Portfolio review and critique
2. Creating a three dimensional study model of project
3. Verbal and written final presentation

Methods of Instruction
The following methods of instruction may be used in this course:
1. Lecture;
2. Multimedia;
3. Guest speakers;
4. Presentation of individual and group projects.

Out of Class Assignments
The following out of class assignments may be used in this course:
1. Field trips (e.g. visits to local construction sites, tour of architectural offices).

Methods of Evaluation
The following methods of evaluation may be used in this course:
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).

Learning Outcomes
Upon successful completion of the required coursework, the student will be able to:

1. Discuss the meaning of basic architectural/technical vocabulary;

2. Discuss examples of the use of the Uniform Building Code as it applies to their final project;
3. Utilize the AutoCAD drafting/design software.