**OFFICIAL COURSE TITLE: Introduction to Computer Aided Drafting and Design (CADD)**

 **LENGTH OF COURSE: 1 semester**

**CREDITS: 2.5**

**GRADE LEVEL**: 9-12

**COURSE PREREQUISITES: none**

**COURSE DESCRIPTION:**  Drawing fundamentals and design strategies are explored in a series of skill and design related activities. Activities focus on architecture, landscape architecture, and interior design problems.

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| **Unit 1:** **Fundamentals of Architectural Drafting** | **SUGGESTED TIMELINE : 15 days** |
| **BRIEF UNIT SUMMARY: Students will develop drafting skills and create a floor plan, section and elevation of a one-story building with a basement. Students will use drawing boards and tool to develop and understanding of how the three drawings are interrelated and form a detailed whole. Students will use common sizes of elements in use in buildings today, developing a kit of parts, that include windows, doors, walls, and structural elements. Students will use established techniques and organization methods to create the drawings. These strategies and the kit of parts will be used when students make the same building on the computer in the next unit.**  |
| **Unit 2: Fundamentals of Computer Aided Drafting** | **SUGGESTED TIMELINE: 15 days** |
| **BRIEF UNIT SUMMARY: Students will develop skills in AutoCAD to make a one story house. Students will use a house whose dimensions they are familiar with to develop AutoCAD skills. Using similar strategies mastered in unit 1, students will first create a plan, followed by the section, finishing with the elevation(s).** |
| **Unit 3: Alternate Solutions and the Design Loop** | **SUGGESTED TIMELINE: 15 days** |
| **BRIEF UNIT SUMMARY: Two houses will be designed in this unit. The first will involve the teacher presenting a brief program and modeling how to make alternate solutions on the white board. Students will choose one idea and complete the project-exploring schematic drawings, design development and making a final drawing. The second house will require a two-story solution. Using a program that states the requirements of the house, the teacher will demonstrate how to approach designing a multi-story building. Students will develop an understanding of stair systems and complete the house on AutoCAD.** |
| **Unit 4: Architectural Programming** | **SUGGESTED TIMELINE: 5 days** |
| **BRIEF UNIT SUMMARY: An architectural program is a written description of the requirements of a building. The document includes information about the size, location and specific requirements that are expected in the final design. Additional information, like images that can influence the design may be included. Students will develop a program for their dream house.** |
| **Unit 5: Interior Design** | **SUGGESTED TIMELINE: 10 days** |
| **BRIEF UNIT SUMMARY: Interior design topics will be introduced throughout the semester. Initially, students will place elements in drawings for function, scale and context. Students will bring focus to all the elements when they design the furniture layout for a house. Explorations include how placement of closets and windows affects the layout of bedrooms, how dimensional changes in a dining room may or may not affect the seating capacity.** |
| **Unit 6: Site Specific Architecture** | **SUGGESTED TIMELINE: 15 days** |
| **BRIEF UNIT SUMMARY: Students will explore how the slope of land affects the form of a building. Students will analyze a site and determine where entrances, garages and other improvements, like a swimming pool are best located. Understanding the complexities of a site will help in problem solving, making decisions based on practical concerns.** |
| **Unit 7: Landscape Architecture** | **SUGGESTED TIMELINE: 10 days** |
| **BRIEF UNIT SUMMARY:** Students will explore elements of landscape architecture, including slope, grade, drainage, and site planning. Landscape architecture is a licensed profession as their designs have safety environmental impacts. |
| **Unit 8: Form and Function in Architecture** | **SUGGESTED TIMELINE: 15 days** |
| **BRIEF UNIT SUMMARY: Students will perform an analysis of the program written in Unit 3, the dream house. They will make an adjacency diagram to analyze the spatial relationships. Students will analyze and use architectural elements to design their dream house.** |
| **Unit 9: CADD and Careers** | **SUGGESTED TIMELINE: 2 days** |
| **BRIEF UNIT SUMMARY: Students will explore fields where CADD technologies and skills are employed. Architecture, engineering, interior design, landscape architecture are examples where CADD is used. Career paths will also be explored. This is an ongoing unit and material will be covered throughout the course.**  |