Course Name: Computer Aided Drafting and Design II (CADD II)

Course #:H7692 Grades: 10 – 12 Level: 0 Sem: 5X Credits: 2.5

Prerequisite: CADD I with a grade of a "B" or better

Course Description:

Computer Aided Drafting and Design II (CADD II) is the second course in the sequence. In CADD II, students will expand their knowledge of 3-D modeling of more complex objects that require sectional and auxiliary views. Students will continue to become more proficient in using *Computer Aided Drafting* software to produce technical drawings following industry standards that are more complex.

Students will continue to add to their portfolio of technical drawings and design projects that document their ability to use *Computer Aided Drafting* software in the engineering design process. Furthermore, students will continue to gain understanding of how computer aided drafting is applicable in various career fields such as architecture, engineering, design, contracting, etc.

Course Proficiencies:

The following is a list of skills and concepts students will be proficient in upon successful completion of this course. These proficiencies form the basis of assessment of each student's achievement. Students who demonstrate understanding can:

1. Understand that technical drawings convey information according to an established set of drawing practices which allow for detailed and universal interpretation of the drawing. ***(8.1.12.A.2, 8.1.12.C.1, 8.2.12.C.5)***
2. Work collaboratively to support individual learning and contribute to the learning of others while developing an innovative solution to a real-world problem within a specific timetable. ***(8.1.12.C.1, CRP 1-12)***
3. Understand the broad range of career opportunities requiring technical drawing knowledge as a necessary prerequisite. **(CRP11, NJSLS 9.2.12.C.3)**
4. Navigate through CAD software with greater proficiency to produce two- and three-dimensional drawings of various views and levels of difficulty. ***(9.3.ST.6, 8.2.12.C.5)***
    a. Work in model space, paper space, templates and view-ports. ***(9.3.ST.6, 8.2.12.C.5)***
    b. Understand and know how to use basic drawing and modifying commands in 2-D and 3-D modeling. ***(9.3.ST.6, 8.2.12.C.5)***
    c. Know and apply basic line conventions for their specific uses within a drawing following ANSI standards. ***(9.3.ST.6, 8.2.12.C.5)***
    d. Know and apply basic dimension techniques following guidelines set by ANSI standards. ***(9.3.ST.6, 8.2.12.C.5)***
    e. Create layers with assigned colors, line-types, line thickness, and filtering for added visibility. ***(9.3.ST.6, 8.2.12.C.5)***
    f. Create 2D drawings from modeled 3D objects and model 3D objects from 2D drawings. ***(8.2.12.C.5, 9.3.ST.6)***

g. Understand and apply solid commands to make primitive solid shapes; combine primitive solid shapes using Boolean operators to make more complex solid shapes. ***(9.3.ST.6, 8.2.12.C.5)***

5. Produce auxiliary and sectional views in order to show more complex details of 3D objects. ***(8.2.12.C.5, 9.3.ST.6)***
6. Have a working knowledge of how to control and use construction planes as a requirement for creating solid objects in CADD; know the necessary commands to edit and manipulate objects in 3-D space. ***(8.2.12.C.5, 9.3.ST.6)***
7. Create, save, and plot drawings with appropriate title block and title information. ***(8.1.12.A.1, 8.1.12.A.2, 8.2.12.C.5)***
8. Determine and use appropriate resources in the engineering design, development and creation of a 3D product. ***(8.2.12.D.3, ETS1.A, ETS1.B, ETS1.C, 9.3.ST-ET.4)***
9. Present designs with supporting evidence with strategic use of digital media and visual displays to enhance presentation. ***(8.1.12.A.2, SL.11-12.4,SL.11-12.5, 9.3.ST-ET.2)***
10. Add to their portfolio of technical drawings and design projects that document the use of *Computer Aided Drafting* software in the engineering design process. **(8.1.12.A.1)**

Assessment:

1. Teacher observation
2. Classroom participation
3. Performance rubrics
4. Project evaluations
5. Drawing Rubrics

Board Approved Text:

None