

COURSE OUTLINE

Engineering Graphics Capstone

Course Description

EN 206. Engineering Graphics Capstone. 3 hours credit. Prerequisite: Second semester program student or instructor's approval. Offered by appointment only. This course will enable the student to further his/her knowledge and skills in an area of interest in drafting or design. The student will complete all work under the direction of the instructor with the aid of CAD.

Course Relevance

The skills learned in this class will further expand the student's knowledge in design, drafting, and CAD to prepare them to work in the industry.

Required Materials

Provided by Butler.

Supplementary Materials

The student will provide sufficient electronic storage device for saving CAD files.

Learning Outcomes

The intention is for the student to be able to:

1. Further the student's knowledge in a chosen area of design and drafting
2. Further the student's knowledge in a chosen area of CAD
3. Improve upon the student's design and drafting skills
4. Become more proficient in a CAD software of his/her choice

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Aesthetic Response
 - Through self-directed activities, the student will design and draw high quality drawings.

Secondary skills (developed but not documented):

Field-Related Technology
Nonverbal Communication

Major Summative Assessment Task(s)

These learning outcomes and the primary Learning PACT skills will be demonstrated by:

1. Developing a portfolio of drawings completed throughout the semester including a reflection component between the student and instructor

Course Content

- I. Themes - Key recurring concepts that run throughout this course:
 - A. Design
 - B. Drafting
 - C. CAD
 - D. Research
- II. Issues - Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Proper integration of CAD software
 - B. Producing legible drawings
 - C. Producing accurate drawings
 - D. Producing scaled drawings
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Correct use of CAD software
 - B. Text setup
 - C. Layer setup
 - D. Drawing scale
 - E. Lineweights
 - F. Line precedence
- IV. Competencies - Actions that are essential to achieve the course outcomes:
 - A. Demonstrate correct layer settings
 - B. Demonstrate the use of multiple views
 - C. Accurately plot/print drawings to assigned printer and paper
 - D. Demonstrate the use isometric views

Learning Units

- I. Project development
 - A. Design a project directed from the student
 - B. Estimate project cost
 - C. Develop bill of materials or schedule
 - D. Develop project timeline
 1. Proposal
 2. Check-set
 3. Due date
- II. Drafting
 - A. Draft a set of plans that describe the design
 - B. Implement ASME, ANSI and/or ISO standards
 - C. Demonstrate professional integrity
- III. Computer-Aided design
 - A. Complete drawings with the use of CAD software
 - B. Demonstrate mastery of CAD software

1. Dimensions
2. Text
3. Titleblock templates
4. Scaling
5. Plotting

IV. Plot plans

- A. Plot drawings at the completion of each project
- B. Plot plans to specified scale
- C. Plot plans to standard scale
- D. Plot to standard titleblock template

Learning Activities

Learning activities will require the student to exercise analytical and problem solving design, drafting, and CAD skills in his/her design project.

Grade Determination

All assignments will be evaluated on quality and quantity of work completed. The student's final grade will be determined by the student's level of development and competence in his/her design, drafting, and CAD skills and portfolio.