

College of San Mateo
Official Course Outline

1. COURSE ID: DRAF 121 **TITLE:** Computer-Aided Drafting I - AutoCAD

Units: 3.0 units **Hours/Semester:** 32.0-36.0 Lecture hours; 48.0-54.0 Lab hours; 64.0-72.0 Homework hours; 144.0-162.0 Total Student Learning hours

Method of Grading: Grade Option (Letter Grade or Pass/No Pass)

Recommended Preparation:

Eligibility for ENGL 100, or Eligibility for ENGL 105

2. COURSE DESIGNATION:

Degree Credit

Transfer credit: CSU; UC

3. COURSE DESCRIPTIONS:

Catalog Description:

A beginning 2D AutoCAD course. Covers basic entities, edit commands, display controls, layering, text, dimensioning and isometric drawing. This is a PC-based course, and an educational version of the software is provided.

4. STUDENT LEARNING OUTCOME(S) (SLO'S):

Upon successful completion of this course, a student will meet the following outcomes:

1. Utilize the power and precision of AutoCAD as a drafting and design tool used in the architecture, mechanical design and manufacturing industries.
2. Apply basic CAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions.
3. Integrate technical computer graphics knowledge to achieve viable solutions in producing CAD drawings.

5. SPECIFIC INSTRUCTIONAL OBJECTIVES:

Upon successful completion of this course, a student will be able to:

1. Demonstrate basic concepts of the AutoCAD software.
2. Apply software commands to create and revise architectural and mechanical drawings.
3. Apply ASME Y14.5 Standards in dimensioning and tolerancing of drawings.
4. Integrate their technical computer graphics knowledge to achieve viable solutions in producing CAD drawings.

6. COURSE CONTENT:

Lecture Content:

1. User Interface:
 - A. Mouse, menus, basic entities, editing, moving about in the drawing.
2. Editing commands.
3. Units.
4. Running object snaps and overrides.
5. Modifying commands.
6. Text styles.
7. Layers.
8. Dimensioning to ANSI Y 14.5 standards.
9. Polylines.
10. Blocks.
11. Isometrics.
12. Preparing sheet sets.

Lab Content:

LAB portion of each class session supports each lecture through design problems that support the given lecture theme.

7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Lecture
- B. Lab

- C. Critique
- D. Discussion
- E. Field Trips
- F. Observation and Demonstration
- G. Other (Specify): a. Communication: Students will read and translate data relative to geometry, fabrication and assembly/installation requirements into a graphical form easily understood by others with similar technical understanding. b. Reading assignments: Instructor will assign reading from course handouts each week. c. Computation: Students will use basic mathematical operations as required to define graphic geometry parameters. d. Writing/Drawing assignment: i) Student will be required to submit one Design Intent paper regarding their final project which is student driven. The paper will include a clear general and specific purpose, introduction, body, and conclusion, use of effective organizational format, and smooth transitional devices covering the need for, the use of, and the project's design and purpose. ii) Students will keep a portfolio of drawings that reflect their progress throughout the semester. e. Skill building: i) Instructor will demonstrate various CADD drawing processes. ii) Students will be asked to perform specific drawing exercises at increasingly challenging levels. f. Multimedia: i) Students will watch Videos and PowerPoint presentations of drawing constructions and techniques and analyze them according to theory and concepts taught in class. g. Critical thinking and problem solving: i) Lecture/discussion to understand use of specific drawing techniques. ii) Students will select and apply appropriate spatial relationship principles to determine problem solutions.

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Writing Assignments:

- A. Design intent for the final project that is student driven.
- B. The major means of communication is formal standardized mechanical and architectural drawings. Approximately twenty extensive drawings will be assigned which require problem solving and critical thinking.
- C. However, the students write production outlines for drawings later in the semester. In addition to production outlines, the students write justifications for their designs in the form of a Design Intent.

Reading Assignments:

- A. All reading assignment are from weekly handouts which distill a myriad of textbooks and information from current industry magazines.
- B. Information gathering on the internet.

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Class Participation
- B. Class Performance
- C. Class Work
- D. Exams/Tests
- E. Field Trips
- F. Final Class Performance
- G. Final Performance
- H. Homework
- I. Lab Activities
- J. Papers
- K. Portfolios
- L. Quizzes
- M. Written examination
- N. 1. Written homework - to reflect students' ability to write procedures that meet evidence and reasoning skills objectives. 2. Presentations - to demonstrate students' ability to inform and use evidence and reasoning skills when appropriate. 3. Written exams/timed drawing exams - to reflect students' knowledge of theories, concepts, recognize and use evidence and skills presented in class demonstrations, lectures, text and discussions. 4. Participation - to reflect students' involvement in class discussions, giving feedback on projects to fellow classmates, doing lab projects and homework assignments 5. Final Project - to reflect students' knowledge of theories, concepts, skill level, ability to organize information, and apply reasoning skills presented in demonstrations, class discussions, lectures and text.

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

A. Tickoo. *AutoCAD 2022: A Problem Solving Approach.*, 28th ed. CADCIM Technologies, USA, 2022

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