COURSE TITLE: Engineering 6   Engineering Graphics and CADD (required)

CATALOG DESCRIPTION: In depth graphical analysis and solution of typical three-dimensional space problems by applying the principles of orthogonal projection. Fundamentals of interactive computer aided design and drafting. Preparation of engineering drawings utilizing the CAD system. Lecture two hours; laboratory three hours. 3 units.

GOALS:
This course will educate the student to:
Gain in depth knowledge of the theory and practice of mechanical drawing and graphical solutions including the engineering scales, orthographic projection, 3D representation, presenting different views of mechanical object, sectional and auxiliary views presentation, dimensioning and using Computer Aided Design and Drafting (CADD) tool for drawing.

MEASUREMENT: Student performance is measured using the standard CSUS grading scale, A-F. Students must earn a C- or better to complete the course. Measurement of the extent to which each objective is met is done using standard tools (homework, quizzes, examinations). Three equally weighted and evenly spaced exams are given during the semester. The specific tools are indicated for each objective.

OBJECTIVES: By the end of semester, the students will be able to:

1. Distinguish and apply technical lines and lettering (Homework, Quizzes, Exam 1)
2. Distinguish and apply different engineering scales including architectural, civil, and metric (Homework, Quiz, Exam 2)
3. Understand and use the principles of orthogonal projection (descriptive geometry) to solve spatial three-dimensional problems (Homework, Exams 1, 2, & 3)
4. Extract the different views (6 views) of any simple mechanical object (Homework, Exam 1)
5. Extract sectional and auxiliary views of mechanical objects (Homework, Exam 2)
6. Dimension the mechanical drawing appropriately and with different formats (Homework, Exam 2)
7. Create, modify, print and save engineering drawing utilizing a CADD system (Homework, Exams 2 & 3)
8. Use AutoCAD for basic construction techniques, basic Editing, and dimensioning (Homework, Exam 2)
9. Use AutoCAD to create the template drawing (Homework, Exam 2)
10. Understand and apply manually and using CADD to manipulate the mechanical related objects to include creating and generating planes, edge views, true length, true shape, revolution, skew lines, and piercing points; calculate slope, clearance, and dihedral angles (Homework, Exam 3)
11. Design and complete the drawing for a simple mechanical project (Lab, Team Project)
12. Practice teamwork to accomplish a group project (Lab, Team Project)

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