

Course discipline/number/title: CAD 1225: Dimensioning and Tolerancing

A. CATALOG DESCRIPTION

1. **Credits:** 3
2. **Hours/Week:** 1 lecture, 4 lab
3. **Prerequisites (Course discipline/number):** CAD 1039
4. **Other requirements:** Students must receive a grade of C or better in all CAD courses.
5. **MnTC Goals (if any):** NA

B. COURSE DESCRIPTION:

This course provides the fundamentals of geometric dimensioning and tolerancing of engineering drawings. The student will become familiar with dimensioning standards and conventions along with dimensioning variants and learn to apply them to drawings. The proper use of a variety of tolerancing techniques will be practiced including both conventional and geometric tolerancing. This course will be taught using the latest release of SolidWorks. Students must receive a grade of C or better in all CAD courses.

C. DATE LAST REVISED (Month, year): May, 2022

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Basic Blueprint reading
2. Standards and Conventions
3. Systems of measurement
4. Dimensioning standards and variants
 - a) Ordinate Dimensions
 - b) Baseline dimensions
 - c) Tabular dimensions
5. Limits and Fit calculations
6. Conventional tolerancing calculations
7. Geometric dimensioning and tolerancing
8. Product Data Management

E. LEARNING OUTCOMES (GENERAL):

The student will be able to:

1. Develop working knowledge of dimensioning and tolerancing for detailed drawings.
2. Use conventional dimensioning techniques to describe engineering drawings.
3. Evaluate the correct placement of dimensions and notes on drawings.
4. Specify tolerances in a variety of formats including limits and plus/minus.
5. Determine dimensions for mating parts based on ANSI and Metric fits.
6. Describe the basic hole and shaft systems.
7. Calculate limits and fits.
8. Identify the geometric tolerancing symbols and describe how each is used.
9. Demonstrate the proper use of geometric tolerancing symbols in a variety of working drawings.

F. LEARNING OUTCOMES (MNTC): NA

G. METHODS FOR EVALUATION OF STUDENT LEARNING:

Methods may include but are not limited to:

1. Evaluate electronic drawing files
2. Skill proficiency exercises
3. Quizzes
4. Examinations

H. RCTC CORE OUTCOME(S).

This course contributes to meeting the following RCTC Core Outcome(s).
Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulation a position or conclusion.

I. SPECIAL INFORMATION (if any):

Tuition differential