

Course discipline/number/title: CAD 2323: Advanced Dimensioning and Design

A. CATALOG DESCRIPTION

1. Credits: 4
2. Hours/Week: 1 lecture, 6 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: The course is designed to follow different drafting standards such as ANSI, 150, MIL or our own school standards. Tolerancing methods and dual dimensioning will be covered as well as geometric tolerancing symbols and standards. Attention is given to fits and detailing practices, and the assembly of parts. 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. Mastering SolidWorks default settings
2. Tolerancing
  - a) bilateral
  - b) unilateral
  - c) plus/minus
3. Geometric dimensioning and symbols
4. Understand the use for Limits and Fits
5. Calculate Limits and Fits for RC, FN, and LC
6. Common dimensioning practices
  - a) Isometric dimensioning
  - b) Ordinate dimensioning
  - c) Standard dimension
7. Design, draft prints using SolidWorks, assembly drawings, BOM, parts lists
8. Standard revision or ECO practices
9. Best view orientation for each part drawn

E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Understand and use all SolidWorks default settings.
2. Override existing dimension variables.
3. Create drawings and dimension using required standards.
4. Use SolidWorks dimensioning dialogue boxes.
5. Use dimensioning styles as required.
6. Dual dimension a drawing.
7. Calculate Limits and Fits for RC, FN and LC.
8. Use tolerancing methods listed above for holes and shafts.
9. Use geometric dimensioning and tolerancing symbols.
10. Create detailed dimensioned drawings of parts to be manufactured in industry.
11. Create standard drawing revisions as necessary.
12. Understand what an ECO is.
13. Selecting best view orientation for each part drawn.
14. Draw assembled parts.
15. Draw detailed parts.
16. Understand and use the machinery handbook.
17. Demonstrate teamwork.

F. LEARNING OUTCOMES (MNTC): NA



- G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:
  - 1. Instructor graded electronic drawing files per drafting standards
  - 2. Tests
  - 3. Skill proficiency quizzes
  - 4. Dimensioned drawings
  
- H. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s):  
Personal and Professional Accountability. Students will take responsibility as active learners for achieving their educational and personal goals.
  
- I. SPECIAL INFORMATION (if any): Tuition differential