Prairie State College

Industrial Technology

Geometric Dimensioning and Tolerancing Applications and Interpretation

Course Syllabus

Spring 2014

COURSE INFORMATION

PREFIX/NUMBER: DRAFT 116-S1

TITLE: GD & T Application and Interpretation

CREDIT: 2 Hours

PREREQ: None

MEETING PLACE: Main Campus Room 4240

MEETING TIME: **Tuesdays: 3/19/14- 5/14/14**

**8 weeks from 6:00 pm to 9:40 pm**

LECTURE/LAB TIME: 2 HOURS

INSTRUCTOR INFORMATION

INSTRUCTOR: William Kuban

OFFICE: T 145

TELEPHONE: 708-709-3783

E-MAIL: wkuban@prairiestate.edu

OFFICE HOURS: By Appointment

MAIL BOX: 108

RECOMMENDED TEXT/SUPPLEMENTAL MATERIALS

TEXT: *GD & T Application and Interpretaion*5*th Edition:* Bruce A Wilson ISBN#: 978-1-60525-249-0

RECOMMENDED None

SUPPLEMENTALS:

COURSE DESCRIPTION:

WHAT YOU NEED TO

SUCCEED:

ASSESSMENT:

ATTENDANCE POLICY:

ACADEMIC INTEGRITY

POLICY:

DISABILITIES:

RELIGIOUS

OBSERVANCE:

This course provides the student with all the elements in order to apply geometric dimensioning and tolerances standards and practices for the interpretation of advanced manufacturing drawings.

Besides a willingness to learn, a Textbook, and regular attendance, expect an average of 2 hours per week on homework.

Evaluation: Attendance 20%, Quizzes 20%, Tests 20%, Homework 20%, and Final 20%.

a. A final score of 90% and above will be awarded a course grade of A

b. A final score of 80% to 89% will be awarded a course grade of B

c. A final score of 70% to 79% will be awarded a course grade of C

d. A final score of 60% to 69% will be awarded a course grade of D

e. A final score below 60% will be awarded a course grade of F

1. A final grade of FW will be assigned to students who fail to participate in course activities through the end of the semester.

Excessive unreported absenteeism will result in a drop from the course.

Cheating and/or plagiarism in any form will not be tolerated and may result in failure of the course. Violations of College policy concerning cheating will be determined by criteria printed in the College Catalog and Board Policy F-15.

Your success in this course, as well as any course I offer, is important to me. If you have a disability that requires some accommodations, please notify me, so I can refer you to the director of disability services.

The student is required to let the instructor know, during the first week of the semester, if he/she is planning to miss any classes due to religious observance.

**Course Goals/Objectives:**

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

1. Explain the importance of accurately specifying dimensions and tolerances
2. Review the history and development of dimensioning and tolerancing methods.
3. Explain how teamwork can result in better definition of the dimensions and tolerances shown on a drawing on in a computer-aided design (CAD) file
4. Analyze some possible industrial changes and possible impacts of these changes on dimensioning and tolerancing.

Detailed topical course outline

1. Introduction to Dimensioning and Tolerancing

 A. Development of Dimensional Control

 B. Required Dimensioning Skills

1. Dimensioning and Tolerancing Symbology
2. General Symbols and Abbreviations

 B. Geometric Tolerancing Symbols

 C. Feature Control Frames

 D. Datum Identification

 E. Basic Dimensions

1. General Dimensioning Requirements

 A. Dimensioning Methods

 B. Location and Size Dimensions

 C. Unidirectional Dimensions

 D. Aligned Dimensions

 E. Dimension Systems

 F. Dimension Placement

 G. Categories of Fit Between Parts

 H. Geometric Tolerances

 I. Dimension Application

 J. Limits of Size

 K. Calculation of Size Tolerances

 L. Surface Texture Dimensions

1. Form Tolerances

 A. Form Tolerance Categories

 B. Feature Control Frames

 C. Form Requirements from Size Limits

 D. Straightness

 E. Flatness

 F. Circularity

 G. Cylindricity

1. Datums and Datum Feature References

 A. Datum Reference Frame

 B. Datum Identification

 C. Establishing Datums and Datum Reference Frames from Datum Features

 D. Surfaces as Datum Features

 E. Datum Features of Size

 F. Datum Feature Reference in a Feature Control Frame

1. Orientation Tolerances

 A. Orientation Tolerance Categories

 B. Symbols

 C. Parallelism

 D. Perpendicularity

 E. Angularity

 F. Combined Form and Orientation Tolerances

VII. Position Tolerancing Fundamentals

 A. Position

 B. Effect of Material Condition Modifiers

 C. Tolerance Calculation

 D. Verifying Position Tolerances

 E. Advantages of Position Tolerances

1. Position Tolerancing-Expanded Principles, Symmetry, and Concentricity

 A. Composite Position Tolerances

 B. Functional Gaging of Position Tolerances

 C. Position Tolerance of Multiple and Simultaneous Patterns

 D. Symmetry

 E. Concentricity

IX. Runout

 A. Circular Runout

 B. Total Runout

X. Profile

 A. Profile Specification

 B. Achievable Levels of Control

XI. Practical Applications and Calculation Methods

 A. Floating Fastener Condition

 B. Fixed Fastener Condition

 C. Multiple Parts in Assembly

 D. Zero Position Tolerance at MMC

 E. Position Tolerance at LMC

**Methods of evaluation**

Tests

Homework

 Class Participation

All Homework Questions are due on date provided. If you are absent that day you can turn in the work the following class you return. If you are present for class and do not turn in your homework it must be turned in the following class or you get a zero for the homework in question. NO EXCEPTIONS!!

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| --- | --- | --- | --- |
| Date | Chapters | Assignment in Study Guide | In-Class |
| Week 1 | 1 & 2  | Chapter 1& 2 |   |
| Week 2 | 3 & 4 | Chapter 3 & 4 |  |
| Week 3 | 5 & 6 | Chapter 5 & 6 | Quiz 1, 2, 3,4  |
| Week 4 | 7 & 8 | Chapter 7 & 8  |  |
| Week 5 | 9 & 10 | Chapter 9 &10  | Quiz 5, 6, 7, & 8  |
| Week 6 | 11 & 12 | Chapter 11& 12  |  |
| Week 7 | Review | Review  | Review  |
| Week 8 | Final | Final | Final |
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