El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Computer-Aided Design**
COURSE RUBRIC AND NUMBER	**DFTG 2450**
COURSE TITLE	**Geometric Dimensioning and Tolerancing**
COURSE HOURS	**4 3 : 3** **Credits Lec Lab**

I. Catalog Description

Introduces geometric dimensioning and tolerancing, according to standards, application of various geometric dimensions and tolerances to production drawings. **Prerequisite: DFTG 1309. (3:3).**

II. Course Objectives

Upon satisfactory completion of this course, the student will be able to:

A. Unit I. Engineering Drawings and Tolerancing

1. Explain what Coordinate tolerance is.
2. Describe the various types of tolerances.
3. Determine dimensions of mating parts using standard fit tables.
4. Calculate proper dimensions using allowances and tolerances.
5. Define fundamental G. D. & T. concepts and terminology.
6. Prepare a sketch utilizing various precision tools.
7. Develop a drawing from a sketch utilizing proper layers and linetypes.
8. Utilize 3D virtual navigation software.

B. Unit II. Tolerancing Symbols and Terms

1. Differentiate between key terms and how they affect the interpretation of a drawing.
2. Identify the modifiers and symbols used in GD&T.
3. Analyze critical dimensions of an assembly of parts.

C. Unit III. Rules and Concepts of GD&T

1. Apply rule #1 and Rule #2.
2. Explain basic dimension, virtual condition, inner and outer boundary, worst-case boundary, and bonus tolerance.
3. Analyze the accumulation of tolerances.

D. Unit IV. Form Controls

1. Interpret form controls on mechanical drawings.
2. Apply Flatness, Straightness, Circularity, and Cylindricity tolerance symbols to drawings.
3. Calculate tolerance values to various drawing applications.

E. Unit V. Planer Datums

1. Explain the planer datum system.
2. Interpret datum targets.
3. Determine which part features in an assembly should be designated as datums.

F. Unit VI. Axis and Centerplane Datums

1. Interpret Feature of Size (FOS) datum specifications regardless of feature size (RFS).
2. Interpret Feature of Size (FOS) datum specifications at Maximum Material Condition (MMC).
3. Explain Datum shift.

G. Unit VII. Orientation Controls

1. Interpret orientation controls on mechanical drawings.
2. Calculate tolerance values to various drawing applications.
3. Apply Parallelism, Perpendicularity, and Angularity tolerance symbols to drawings.

H. Unit VIII. Tolerance of Position Basic Concepts

1. Interpret positional controls on mechanical drawings.
2. Interpret RFS and MMC tolerance of position applications.
3. Calculate position tolerance values on mating parts and hole patterns.
4. Calculate part distances using various gage methods.
5. Apply Feature Control Frames to control position tolerances to drawings.

I. Unit IX. Tolerance of Position Special Applications

1. Interpret positional controls on special applications.
2. Interpret RFS and MMS tolerance of position applications.
3. Calculate part distances using various gage methods.
4. Calculate position tolerance values on mating parts and hole patterns.
5. Apply Feature Control Frames to control position tolerances to drawings.

J. Unit X. Concentricity and Symmetry Controls

1. Interpret concentricity and symmetry controls on mechanical drawings.
2. Calculate tolerance Values to various drawing applications.
3. Apply runout tolerance symbols to drawings.

K. Unit XI. Runout Controls

1. Interpret runout controls on mechanical drawings.
2. Calculate tolerance values to various drawing applications.
3. Apply concentricity and symmetry tolerance symbols to drawings.

L. Unit XII. Profile Controls

1. Interpret profile controls on mechanical drawings.
2. Calculate tolerance values to various drawing applications.
3. Apply profile tolerance symbols to drawings.

III. THECB Learning Outcomes (WECM)

Apply tolerance, feature control frame, feature of size, datums, form, orientation, location, runout, and profile controls between various parts.

IV. Evaluation

A. Challenge Exam

There is a challenge exam available for this course. Coordination for any challenge exam should be made through the Drafting Department Coordinator.

B. Post-assessment

1. The instructor will maintain a continuous record of each student's progress.
2. Students should be evaluated periodically throughout the semester.
3. The instructor will determine the weight of each graded assignment.
4. Instructors may require drawing assignments, quizzes, practical/written drawing exams, and formal exams.

C. Grading Scale

A = 92.5 - 100
B = 85.0 - 92.4
C = 75.0 - 84.9
D = 65.0 - 74.9
F = below 65
I = Incomplete
W = Withdrew or Withdrawn

For grade percentage of individual assignments and exams refer to the Syllabus - Instructor's Course Requirements.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.