Form Version: February 2001 EFFECTIVE TERM: _Fall 2002___

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X___ Transfer Course _X__ A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: DT 116 Geometric Dimensioning and Tolerancing

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: DT 110

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

An introduction to geometric dimensioning and tolerancing as used in the electro/mechanical industry. The student will learn to identify and use appropriate geometric symbols and techniques of geometric dimension and produce industrial quality drawings.

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Identify basic geometric tolerancing symbols as they apply to dimensioning in the electro-mechanical industry.
2. Describe geometric dimensioning and tolerancing terms and applications.
3. Apply basic geometric tolerancing rules to industrial quality drawings.
4. Create datums for tolerance location applications.
5. Solve a variety of geometric dimensioning and tolerancing problems

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

I. Introduction to Geometric Tolerancing
II. Symbols
III. Terms

III. MODELING AND PRESENTATION

A. Basic Modeling Tools
   1. Terminology
   2. Window features, such as toolbars, menus and views
   3. Basic graphic operations
   4. The Feature Manager design tree

B. Initial Model Creation
   1. Creating base feature
   2. Adding boss feature
   3. Adding cut feature
   4. Modifying feature
   5. Displaying section view of part
   6. Displaying multiple views of a part

C. Creating an Assembly
   1. Building another part
   2. Adding parts to assembly mating relations that make the part fit together
   3. Specifying the mating relations that make the part fit together

D. Drawing Basics
   1. Opening and editing a drawing template
   2. Inserting standard views of a part model
   3. Adding model and reference annotations
   4. Adding another drawing sheet
   5. Inserting a named view
   6. Inserting, moving, editing and saving bills of materials

E. Using a Design Table
   1. Renaming features and dimensions
   2. Displaying feature dimensions
   3. Linking values of model dimensions
   4. Creating design table
   5. Verifying geometric relations
   6. Displaying part configurations

F. Resolve and Sweep Features
   1. Creating a revolved feature
   2. Sketching and dimensioning arcs and an ellipse
   3. Creating a sweep feature
   4. Using relations
   5. Creating an extended cut feature with a draft angle

G. Creating a Loft
   1. Creating planes
   2. Sketching, copying and pasting the profiles
   3. Creating a solid by connecting the profiles (lofting)

H. Working with Patterns
   1. Creating a revolved base feature
   2. Using mirroring to create a feature
   3. Creating a linear pattern
   4. Deleting and restoring an instance of the linear pattern
   5. Creating a circular pattern
   6. Using an equation to drive the circular pattern

I. Creating Fillets and Chamfers
   1. Using relations in your sketches
   2. Adding draft angles to extruded features

3. Adding face blend, constant radius and variable radius fillets
4. Using mirroring to assure symmetry

J. Mating Parts in an Assembly
1. Bringing parts into an assembly
2. Using assembly mating relationships
   a. Coincident
   b. Concentric
   c. Parallel
   d. Tangent
3. Using automatic mating
4. Testing mating relations
5. Exploding and collapsing the assembly

K. Advanced Design Techniques
1. Analyzing the assembly to determine the best approach
2. Using layout sketch
3. Suppressing features to create part configurations
4. Creating a new part in the context of the assembly

L. Creating a Sheet Metal Part
1. Extruding a thin feature
2. Inserting bends
3. Rolling back a design
4. Using the Feature Palette window
5. Applying a form tool
6. Creating, positioning and pattering a form feature

M. Creating a Mold
1. Linking dimension values
2. Creating an interim assembly from a design part and a mold base part
3. Editing in context by inserting a cavity
4. Deriving component parts
5. Understanding external references

N. Creating a Rendering
1. Rendering effects such as material
2. Lights
3. Shadows
4. Backgrounds

REQUIRED READING:

SolidWorks Corporation. Getting Started with SolidWorks 2001. Concord, MA: SolidWorks Corporation, 2001.

Howell, Steven K. Mechanical DeskTop Parametric Solid and Assembly Model #1. NY: AutoDesk Press, 1998.

SUGGESTED READING:

Murray, David. Inside SolidWorks. Albany, NY: OnWord Press, Thomsons Learning, 1998.

Jankowski, Gregory and David Murray. SolidWorks for AutoCAD Users, Second Edition. Albany, NY: OnWord Press-Thomsons Learning, 2000.

REQUIRED WRITING:

Skills demonstration of competencies identified in Specific Course Objectives.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Textbook and other resource reading assignments; additional lab time as needed to complete weekly assignments and projects.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

_____ lecture
_____ laboratory
_X_ lecture-laboratory combination
_____ directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.
Yes ____ No_X__

If yes, check all that apply:

_____ Television Course (Video one-way, e.g. ITV, video cassette, etc.)
_____ Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
_____ Two-Way Video Conferencing (Two-way interactive video and audio)
_____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
_____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

Completed Assignments	40%	Grading scale:	A = 90% - 100%
Midterm Exam	20%		B = 80% - 89%
Comprehensive Final Exam	20%		C = 70% - 79%
Semester-end Project	20%		D = 60% - 69%

The extent to which a student has met the stated objectives will be determined via:

1. Degree of accuracy on written tests

2. Completeness and accuracy of assigned design/presentation documents
3. Skill and knowledge level demonstrated in the final project

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?
Yes _X_ No ____ Number of times course may be taken for credit: _2_

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable: 58161 (c) (2) (A)

CONTACT PERSON: Dennis Lutz Ext. 2560

SIGNATURES:

By signing this form, I certify that this course outline of record meets all the minimum requirements for associate degree credit courses as specified in Title 5 Section 55002.

SIGNATURES ON FILE