

COURSE OUTLINE
Loc Nguyen, 2012

DEPARTMENT:	Professional Technical Education
CURRICULUM:	CAD / DESIGN Technology
COURSE TITLE:	Design of Machine Elements
COURSE NUMBER:	TDR 245
TYPE OF COURSE:	Technical Preparatory
COURSE LENGTH:	1 quarter
CREDIT HOURS:	4
LECTURE HOURS:	22
LAB HOURS:	44
CLASS SIZE:	20
PREREQUISITES:	TDR 179 and TDR 272 Applied mechanics II (or concurrent with) 2 nd year standing or Instructor's permission

COURSE DESCRIPTION:

A course designed to provide the students with a basic background of the vast field of machine design. Machine design principles are presented, and calculations are made in determining the strength, size and shape of various machine parts as Bearings, Shafts and Couplings, Gear Drive Systems, Clutches and Brakes. Also attention is given to loads of various types.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication - Read and translate technical data relative to geometric spatial relationships into a graphical form easily understood by others with similar technical understanding.
2. Computation - Use basic mathematical operations as required defining geometrical spatial relationships.
3. Human Relations - Use social interactive skills to enhance learning through informal tutoring activities.
4. Critical Thinking and Problem Solving - Organize and evaluate technical data, as well as select and apply appropriate spatial relationship principles to determine problem solution.

STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

5. Technology - Select and use appropriate technological tools to create technical graphics.
6. Personal Responsibility - Take pride in own work
7. Information Literacy - Access & use information from variety of resources / data

GENERAL COURSE OBJECTIVES:

Upon completion of the course the student will be able to:

1. Understand the AutoCAD 3-D environment
2. Create 3-D Wireframe Modeling
3. Create Solid Primitives
4. Create Surface Modeling
5. Create Models from 2-D Profiles
6. Create Multiview Drawings from 3-D Models
7. Create cameras and lights, assign material, and create rendered images.

TOPICAL OUTLINE:

APPROX. HOURS

I. Course Overview	1
II. Understand the AutoCAD 3-D environment	5
III. Create 3-D Wireframe Modeling	12
IV. 3-D Surface Modeling	12
V. Multiview Drawings from 3-D Models	12
VI. Advanced Modeling Tools & Techniques	12
VI. Introduction to Photorealistic Rendering	<u>12</u>

Total 66

Originated or Revised BY: L. NGUYEN
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