

**COURSE OUTLINE**

Revision: Loc Nguyen - Date: February 2009

DEPARTMENT:	Drafting Technology
CURRICULUM:	Drafting
COURSE TITLE:	Advanced CAD - 3-D
COURSE NUMBER:	TDR 231
TYPE OF COURSE:	Vocational Preparatory/
COURSE LENGTH:	1 quarter
CREDIT HOURS:	4
LECTURE HOURS:	33
LAB HOURS:	22
CLASS SIZE:	18
PREREQUISITES:	TDR 133 (Intermediate CAD-2D)

**COURSE DESCRIPTION:**

This course explores the three dimensional graphics and construction capabilities of AutoCAD Release 12. Topics covered include a review of point coordinate entry, X, Y and Z filters, and the user coordinate system (UCS). Spherical and cylindrical coordinate entry is introduced along with 3-D viewing options, 3-D geometry construction, surface mesh, region and solid modeling.

**STUDENT LEARNING OUTCOMES ADDRESSED:**

1. Computation - Apply basic math operations to technical drawings.
2. Critical Thinking and Problem Solving - Identify problems and evaluate alternative solutions, and apply appropriate analytical methods to develop optional solutions.
3. Technology - Demonstrate basic understanding of computer systems and use AutoCAD software to create engineering drawings.
4. Information Literacy - Access and use information from a variety of resources and data.

STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

5. Personal Responsibility- Take pride and value in one's own work.

PROGRAM OUTCOMES ADDRESSED:

- 1 Ability to apply knowledge of mathematics and scientific principles to technical engineering/drafting problems.
- 2 Ability to analyze and interpret data.
- 3 Ability to think critically in evaluating information, solving problems, and making decisions.
4. Ability to function on diverse, multi-disciplinary teams.
- 5 Ability to access and evaluate information from a variety of sources, including the Internet.
- 6 Understand professional and ethical responsibility.
- 7 Ability to communicate effectively with written, oral, and visual means.
- 8 Recognize the need for and ability to engage in life-long learning.
- 9 Ability to use modern technical engineering techniques, skills, and technology, including computing tools necessary for technical engineering/drafting practice.

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Select and use various 3-D display options.
2. Define and maintain user-defined coordinate system to aid in the construction of 3-D objects.
3. Extract two dimensional views from a three dimensional model for detail drawing.
4. Identify the various surface mesh types and their applications.
5. Create 3-D solid models and regions.

TOPICAL OUTLINE:

APPROX. HOURS

I. An introduction to 3-D and AutoCAD	5
II. Basic wire frame construction	6
III. Surfacing wire frame models	6
IV. Understanding the user coordinate system command (UCS)	6
V. Construct wire frame models with the aid of the UCS command	6
VI. Using the DVIEW command	6
VII. Surfacing wire frame models and advance curve generation	7
VIII. An introduction to solid modeling	6
IX. Extracting orthographic views from a solid model	6
Total	<u>55</u>

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