El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA   <u>**Computer-Aided Design**</u>

COURSE RUBRIC AND NUMBER   <u>**DFTG 2332**</u>

COURSE TITLE   <u>**Advanced Computer-Aided Drafting**</u>

COURSE CREDIT HOURS   <u>   3   2   4   </u>
                                          Credits   Lec   Lab

I.   Catalog Description

Provides the application of advanced CAD techniques. **Prerequisite: DFTG 1309. (2:4).**

II.   Course Objectives

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

A.   Unit I. Introduction and Advanced Production Drawings
1.   Discuss class policy and procedures.
2.   Work with linked database applications and use the advanced clipboard functions.
3.   Use object linking and embedding (OLE) to enhance drawing production.
4.   Create a working drawing with OLE features and a linked list of materials.
5.   Identify various file types, i.e., DWG, DXF, TIFF, JPEG, etc. and be able to convert one type to another

B.   Unit II. World Coordinate System
1.   Demonstrate an understanding of the 3D rectangular coordinate system used by AutoCAD.
2.   Demonstrate an understanding of 3D X, Y, Z coordinate data entry, polar coordinate data entry, and use both absolute and relative values with each.
3.   Demonstrate an understanding of cylindrical and spherical coordinate data entry.
      Unit 3 – 3D wire frame modeling.
4.   Define wire frame and surface modeling.
5.   Manipulate the UCS and apply 3D drawing and surfacing commands.
6.   Create complex wire frame models and apply surfaces to them.
7.   Create a layout for the complex wire frame model and apply text notes and dimensioning.

C.   Unit III. 3D Solid Modeling (ACIS Modeling)
1.   Create solid primitives.
2.   Create solids from existing 2D objects and by revolution.
3.   Create composite solids and apply solids editing commands to complete drawing.
4.   Use various precision tools.

D.   Unit IV. Creating and Using Multiview Layouts
1.   Create a multi-view layout using the SOLVIEW command.
2.   Use SOLDRAW and SOLPROF to complete profile and section views.

    E.   **Unit V. Shading and Rendering Techniques**
1. Display a model using SHADEMODE options, basic RENDER, Photo Real, Photo Raytrace.
2. Place light sources, apply textures and materials to models.
3. Create a background and use FOG command.
4. Locate and manipulate landscaping objects.
5. Save views, scenes, and image files.

    F.   **Unit VI. Presentations**
1. Create a presentation of a complex architectural model with light sources, attached textures and materials, and landscaping.
2. Create a presentation of a complex machined assembly with light sources and textures applied.
3. Convert 2D details, i.e., mechanical, structural, to 3D models.
4. Convert existing 2D drawings to 3D presentation models.
5. Integrate Feature Control Frames addressing various types of Geometric Dimensioning and Tolerancing applications and callouts into drawings.

    G.   **Unit VII. System Customization**
1. Utilize the AutoLISP language and the structure of AutoLISP routines.
2. Utilize Dialog Control Language (DCL).
3. Create a simple AutoLISP/DCL program to automate tasks.

III.   THECB Learning Outcomes (WECM)

1. Use a customized CAD system to create documents and/or solid models.
2. Use OLE with external software.

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 will require drawing assignments, quizzes, 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.