Course: Principles of CAD
Prefix No.: EGT 251
Effective Date: August 2010
Next Review Date: August 2012

Title: Principles of CAD
Credits: 3
Contacts: 3 0 3

Prerequisites: EGT 151 with a grade of “C” or better.

Description:

Level I: This course includes the additional use of CAD software for production of technical drawings and related documentation.

Level II: Auto Cad is a computer assisted drafting system produced by Auto Desk Corporation. This course expands the skills and reinforces knowledge previously learned to produce mechanical drawings.

Textbook(s) or Alternative:

Materials (specifying those to be purchased by student):

Collateral Reading:

Class Management Activities (Attendance, tardies, testing, etc.):

Academic Honesty:
During a test, as well as on any written assignment, paper, or project, anyone caught exchanging information or copying someone else’s work will be given a grade of “F” on that work and face further disciplinary action. Refer to the “Student Code Book” on “Academic Dishonesty”.

Attendance:
Absences in excess of 10% (4.5 class hours) will result in student being dropped for excessive absenteeism. Due to varying class times by the schedule, attendance will be monitored by the hour.

Tardies:
A student is tardy if he/she arrives for class after the instructor has checked the class roll. Three tardies will count as one absence. Any student who shows up for class more than ten minutes late will be counted as absent for that class.

Classroom Etiquette:
An integral part of an education is developing a sense of integrity and responsibility not only toward ourselves but also toward others. In the classroom, as on the job or in your home, exhibiting appropriate behavior reflects on your maturity. Arriving late to class, being unprepared, inappropriate talking while class is in session, etc. negatively reflect on you and your fellow students. Please be considerate.

No food or Drink is permitted in the classroom.

Computer User Responsibilities:

NETC Computers are for Educational Purposes Only!

Software
Software is protected by copyright and licensed for use by NETC only. Software may not be removed, transferred, copied or modified in any way.

Hardware
Computers are available for use only during scheduled or assigned hours. Student users have priority. Users may not abuse or alter any computer capabilities or settings.

Web Access
NETC provides access to the Internet for educational and research purposes. The College prohibits use of computer facilities for hacking accounts at NETC or any other location, games, chatting, personal e-mailing, downloading programs, changing settings, browsing offensive sites or transmitting illegal, unlawful or immoral information. NETC computers may not be used for personal gain or profit. Access to personal e-mail accounts without specific permission is prohibited due to e-mail delivery of viruses.

The NETC Computer Center monitors computer use with capabilities to track violations of computer user responsibilities. The College will impose disciplinary action for violation.
Student ID:

It is mandatory that every student wear his or her student ID at all times when on the Cheraw campus.

During the first week of classes, the instructor will issue a reminder to wear the ID. This reminder is a warning.

After the first week of classes, instructors are required to dismiss students without ID from class. The student may get his/her ID (or a new one in Student Services for $3.00) and return to class before the midpoint of the class. If the student cannot get an ID and return to class by the midpoint, the instructor will record the absence.

DISABILITIES STATEMENT:

Students with disabilities are encouraged to contact the Vice President for Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Vice President for Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See College Catalog)

RESOURCES (A-V, persons, tools/equipment):

COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.

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<th>WEEK</th>
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Course Outline
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Page 4

- General Dimensioning Symbols
- Grips and Dimensions
- Reassociating Dimensions in layouts
- Character Mapping for Dimension Symbols

Tutorial Exercise Page 569 Fixture Drawing (1)

Drawing
Page 581-583 (9) Drawings
Tutorial Exercise 12 Arch Dim Drawing (1) Drawing
Page 641-643 (9) Drawings
Page 644 (5) Drawings

3-5
CHAPTER 12 The Dimension Style Manager
- Modify or override and apply dimension style changes to new and existing dimensions
- Modify both existing and new dimensions that are placed on a drawing
- Control all aspects of a dimension
- Size, Placement, Text Styles, Decimal Places...
- Access through the Dimension or Format pull-down menus
- Also select from the
- Dimension Toolbar
- Styles Toolbar

Tutorial Exercise C-Lever Drawing, Field Calc Drawing (2) Drawings

COURSE TOPICAL OUTLINE (Continued)

WEEK TOPIC

6-8
CHAPTER 13 Analyzing 2D Drawings
- Retrieving area distances from linear and non-linear object shapes
- Calculating the total of an object with using subtraction
- Interpreting distance and ID information
- Analyzing the difference between objects when using the List Command
- Understanding the usage of the Status Command to determine free disk area and other properties
- Determining how long a drawing file took to be created through the Time Command
* Using Fields in Calculations


9-10

CHAPTER 14  An Introduction to Drawing Layouts
* Understanding Drawing Layouts
* Understanding Model Space
* Creating Viewports in Model Space
* Understanding Model Space and Paper Space
* Creating a Paper Space Layout
* Creating Viewports with the MVIEW Command
* Using Wizards to Create Layouts
* Arranging Architectural Drawings in Paper Space
* Typical Architectural Drawing Scales
* Arranging Metric Drawings in Paper Space
* Creating Multiple Drawing Layouts
* Using the Options Dialog Box to Control Layouts

Tutorial Exercise 14 HVAC Drawing Page 727 (1)

Drawing

11-12

CHAPTER 15  Plotting Your Drawings
* Configuring / Setup of a Plotting Device
* Output of your Drawing to Printer / Plotter
  o From Paper Space / Layouts
  o From Model Space
* Applying Lineweights to a Plot
* Controlling how the Plot looks
* Creating and Modifying a Color Dependant Plot Style
* Changing Plot Styles: Color to Named
* Using the Publish to the Web Utility

13-14

CHAPTER 16  Working with Blocks
* Creating a Symbol Block for use in both a current
drawing and a separate drawing
* Inserting a block into a drawing
* Applying block express tools for special
applications

COURSE TOPICAL OUTLINE  (Continued)

WEEK  TOPIC

* Redefining a block’s occurrence and rename it
* Applying measurement and inquiry tools to blocks
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- Block Management using Purge
- Utilizing the AutoCAD Design Center for Block Management
- Using the MDE - Multiple Design Environment
- Creating and Managing Dynamic Blocks

Page 832 Tutorial Exercise Electrical Schematic (1) Drawing
Page 841 Problem 16-6 (1) Drawing

15

CHAPTER 17 Using Attributes
- What Attributes are used for
- Create Attributes in a Drawing
- Editing Attributes and their Property Value
- Changing the Display Properties of Attributes
- Editing Attributes in Blocks
- Extracting Attribute Data from Drawings
- Creating Attribute Template Files
- Redefining Attributes in Drawings
- Using Enhanced Attribute Tools
- Redefining Attributes in Drawings
- Using Enhanced Attribute Tools

All Tutorial Exercises (5) Drawings

OBJECTIVES OF COURSE:
Upon successful completion, the student will be able to:

1. answer questions concerning the overall operation and nature of AutoCAD;

2. boot up the system and originate a drawing;

3. perform the various functions by using proper command syntax;

4. construct simple mechanical drawings using AutoCAD;

5. modify, dimension, store and recall drawings.

INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:
1. Lecture

2. Demonstration

3. "Hands-on" operation of the system
4. Instructor will provide drawing projects (exercises) for students to draw and plot for evaluation.

**EVALUATIVE METHODS TO APPRAISE OBJECTIVES:**
The numerical average will be based on:
   a) Chapter quizzes ........................................ 40%
   b) Drawing Exercises ........................................ 30%
   c) Final exam .................................................. 20%
   d) Class participation ....................................... 10%

**GRADING:**
A = 90 - 100
B = 80 - 89
C = 70 - 79
D = 60 - 69
F = Below 60