NORTHEASTERN TECHNICAL COLLEGE
COURSE OUTLINE

COURSE: PREFIX NO. | EFFECTIVE DATE | NEXT REVIEW DATE
EGT  252        | January 2010   | January 2012

TITLE: CREDITS CONTACTS
Advanced CAD 3 3 0 3

PREREQUISITES: EGT 251 with a grade of “C” or better

DESCRIPTION: LEVEL I: This course includes instruction in advanced concepts of CAD software and applications.

LEVEL II: AutoCAD 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: AutoCAD 2006 Tutor for Engineering Graphics by Alan J. Kalamejja. Thomson. 2006


CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):

Attention!

NETC Computers are for Educational Purposes Only!

Computer User Responsibilities:

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.

**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".

**Absences:** 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.

**Assigned Work:** If an assignment is given to the class while a student is absent, he/she is required to turn in the work or make the work up on the first day back in class.

**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.

Instructor will assign all drawings.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
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<tbody>
<tr>
<td>1-3</td>
<td>CHAPTER 18  Working with External References and Raster Image Files</td>
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<tr>
<td></td>
<td>• Creating an External Reference Link</td>
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<td>• Managing External Reference Layers and Block Objects</td>
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<td></td>
<td>• Using the XBIND to Edit Layers and Blocks</td>
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<td>• Applying In-place Reference Editing to Modify Nested Blocks or XREFs</td>
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<td>• Using the AutoCAD Design Center to attach XREFs into a Drawing</td>
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<td>• Using ETRANSMIT to Package and Compress a Drawing File</td>
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<td>• Using the Draw Order Tool to move Images forward and backward</td>
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<td>• Applying Raster Images to Drawings</td>
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| 4-6  | CHAPTER 19  Creating Advanced Layouts |
|      | • Creating and Arranging Multiple Views in a Layout |
|      | • Applying and Scaling Dimensions in a Layout |
|      | • Controlling the Visibility of the Layers in Separate Viewports |
Creating Detail Drawings in Paper Space with the Aid of External References
Creating a Detail Drawing in Layout Mode
Understanding Layer 0 Issues in Paper Space (Layouts)
Creating Viewports through various methods

7-10  CHAPTER 20  Solid Modeling Fundamentals
* Understand the Differences Between 3D Drawing Creation Options
* Use the UCS to Change and Develop Drawing Planes
* Understand the Differences between Different Types of Drawing Representations
* Apply the Use of Primitives in Solid Model Creation
* Incorporate the Use of Boolean Operations to Develop Models that Use More than One Object
* Utilize the Different User Coordinate System Options to Change the Drawing Plane on 3D Objects
* Applying Extrude and Revolve Commands to Polyline Objects to Develop 3D Solids
* Modifying 3D Solids Through the Fillet and Chamfer Commands
* Create Sections and Slices from Solid Models

COURSE TOPICAL OUTLINE: (continued)

WEEK    TOPIC

CHAPTER 20  (Continued)
* Obtain Information about the Solid Through Mass Properties
* Check for Interference Between Solids with the Interfere Command
* Change the Smoothness of Models using Isolines and Facetres
* Use Viewports to Assist in the Construction of Solids Models

11-12  CHAPTER 21  Editing Solids Models
* Aligning and Moving Solid Model Through Object Snaps
* Rotating Solid Models into the Correct Orientation
* Editing the Face of the Solid Through Adding and
Removing Features Based on the Face of a Solid Object
* Extruding
* Moving
* Rotating
* Offset
* Taper
* Copying
* Deleting
* Editing the Body of a Solid Through Imprinting, Separating, Shelling and Cleaning Objects

13-14 CHAPTER 22 Creating Orthographic Views from a Solid Model
* Utilizing the SOLVIEW Command to Develop 2D Orthographic Views from 3D Solids Models
  Section Views
  Auxiliary Views
  Orthographic
* Applying the SOLDRAW Command to the Viewport to Detail the Images in the Viewports
* Managing the Layers that are Created Through the SOLVIEW Command
* Applying Dimensions to the Orthographic Views using the Specific Layers for each View
* Creating a Section View
* Creating an Auxiliary View
* Creating an Isometric View in a Separate Viewport

15 CHAPTER 23 Producing Photorealistic Rendering
* Rending a 3D Model
* Applying a Background
* Introducing Fog in a Rendering

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

1. answer questions concerning the overall operation and nature of the software;
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 the software;
5. modify, dimension, store and recall drawings.

INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:
Lecture
Demonstration
"Hands-on" operation of the system

EVALUATIVE METHODS TO APPRAISE OBJECTIVES:
Instructor’s evaluation of Manual and-of-chapter tests/activities
Instructor’s evaluation of work habits, technique, drawing
efficiency, effort, and care of laboratory materials and equipment.

The numerical average will be based on:
  a) Chapter quizzes .................. 40%
  b) Evaluate completed drawings ....... 30%
  c) Class .................................. 10%
  d) Final Exam .......................... 20%

GRADING: Grading will be done on the following scale:

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