

East Tennessee State University
Engineering Technology, Surveying, & Digital Media

ENTC 2170
CADD—Computer Aided Drafting & Design
Summer 2018

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but mostly by appointment (please contact by E-mail; see above)
Web Site <http://faculty.etsu.edu/hemphill/entc2170>

I Course Description, Credit Hours, and Prerequisites

Fundamentals of engineering drawing & sketching: orthographic projections, dimensioning, tolerancing, and scaling; Introduction to the CAD interface and environment; 2D drawing basics: creating and modifying objects, object snaps, named layers, dimensioning, & blocks; Introduction to 3D modeling; extrusions, revolves, & rendering.

II Course Objectives

The purpose of this class is to introduce students to the myriad facets of engineering drawing & sketching as well as 2D and 3D CAD application environments. Upon the successful completion of the course, the student will have developed and demonstrated basic understandings of:

- the purpose of engineering drawing and sketching;
- creating orthogonal and section views;
- dimensioning and tolerancing;
- using 2D & 3D CAD software applications, interfaces, and drawing production environments;
- using of fundamental 2D CAD features including points, object snaps, named layers, pre-drawn objects (blocks), etc.;
- producing dimensionally accurate and annotated 2D mechanical "shop" drawings of a mechanical assembly and related components;
- producing at least one mechanical drawing of high enough quality to be used in a portfolio;
- exporting and importing geometric information for transfer of CAD data from one application to another; and
- creating 3D CAD models using extruding, revolving, and lofting.

Note: Course outcomes are in alignment with ABET Criterion 2 a. (appropriate mastery of the knowledge, techniques, skills, and modern tools of the discipline); d. (an ability to apply creativity in the design of systems, components, or appropriate to program objectives); f. (an ability to identify, analyze, and solve technical problems; and g. (an ability to communicate effectively). Additionally, aspects of ABET Criterion 2 b. (an ability to apply current knowledge [of] engineering and technology); i. (an ability to understand professional, ethical, and social responsibility); h. (a recognition of the need for and an ability to engage in lifelong learning); and k. (a commitment to quality, timeliness, and continuous improvement) are impacted.

III Texts:

Hemphill, W.K. & Stanton G.C (1997). *Language skills handbook* (On-line Ed.). Johnson City, TN: East Tennessee State University.
Available URL: <http://www.etsu.edu/scitech/langskil>

Required Materials:

- A set of drawing tools including
 - a protractor;
 - a compass &/or divider;
 - a 30°-60°-90° triangle 6" (minimum);
 - a 45° triangle 6" (minimum);

Note: The above items can be found in a drawing set such as the 8 piece Staedtler GEOSET available at one of the local or on-line bookstores &/or office supply stores (e.g., Office Max, Staples, etc.):

- a 12" triangular Engineer's scale; and
- a 12" triangular Architectural scale
- A pad of 8-1/2" x 11" graph paper with 1/5" or 1/10" grid (the green or beige, reverse print "Engineer's Pad" is an excellent choice.)
- a portable USB storage device (e.g., a solid state "Thumb Drive") for saving larger files. (Note: it is a **REALLY GOOD IDEA** to place a "Contact_Info.txt" file in the USB's root directory containing your name, E-mail(s) and cell &/or home phone numbers. A. Good. Idea.)

Recommended/Suggested Texts &/or Software:

An Engineering Design Graphics textbook (check local &/or on-line used bookstores)

Fully functional, down-loadable versions of “classic” AutoCAD and Fusion 360 are available for free for your personal desktop/laptop through the Autodesk Education Community (Available URL: <http://www.autodesk.com/education/home>). Register/sign in at the following URL: <http://www.autodesk.com/education/free-software/autocad>.

Other free/affordable 2D CADD applications include Siemens’ free [Solid Edge 2D Drafting](#). Check for on-line downloads of limited-use (i.e., 30 day) evaluation versions.

Rhino 3D Student Version (The software is available through the publisher [URL: <http://www.rhino3d.com>]). A number of free 3D CADD apps are available including, but are not limited to, [SketchUp](#) and [FreeCAD](#).

IV Attendance Policy

Students are expected to attend classes regularly. Attendance will be taken at some time during the class meeting. Your presence and participation is very important. Attendance is required for classes other than those designated “open labs”.

Only two **unexcused** absences (on days other than assignment due dates or project presentation dates) will be allowed during the term. The third **unexcused** absence may result in an automatic reduction your grade; i.e., an *A* becomes an *A-*, an *A-* becomes a *B+*, and so on. A forth **unexcused** absence may result in an automatic letter grade reduction; i.e., an *A* becomes a *B*, a *B-* becomes a *C-*, and so on. A fifth **unexcused** absence may result in an additional letter grade reduction; i.e., a *C* becomes a *D*, a *D* becomes an *F*.

If you know you are going to be absent from class (especially for an authorized University activity), please let the instructor know beforehand either in class or by E-mail. If unique, individual problems arise, consult with the instructor as soon as possible.

Cancellations, Alerts, & Emergencies: Classes are seldom canceled; cancellation announcements will be made using local television, radio, and ETSU’s Gold Alerts system. Visit <https://www.getrave.com/login/etsu> to register your mobile devices to receive official ETSU notifications, alerts, and emergency communications. The University radio station is WETS, 89.5 FM.

A test, exercise, or paper may be given (or submitted) early for a University sponsored absence (please provide suitable notice, if possible). Make-up tests will be given at the discretion of the instructor *if* a student presents suitable documentation (evidence) explaining the emergency absence to the instructor.

Students are responsible for the material covered in all class sessions as well as all assignments. Exams and assignments may include any material covered in the lectures, assigned readings, classroom demonstrations or homework exercises.

V Academic Integrity & Misconduct
(from [ETSU Undergraduate Catalog, Policies & Procedures, Student Conduct & Rights, and Institutional Disciplinary Rules](#))

Honor Code:

East Tennessee State University is committed to developing the intellect and ethical behavior of its students. Students found to be in violation of policies on plagiarism, cheating, and/or fabrication will be held accountable for their actions. Any knowledge of academic misconduct should be reported. Students are expected to act with honesty, integrity, and civility in all matters.

Academic and Classroom Misconduct

- (1) The instructor has the primary responsibility for maintenance of academic integrity and controlling classroom behavior, and can order the temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct that violates the general rules and regulations of the institution for each class session during which the conduct occurs. Extended or permanent exclusion from the classroom, beyond the session in which the conduct occurred, or further disciplinary action can be effected only through appropriate procedures of the institution.
- (2) Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the university's academic misconduct policy as a result of academic misconduct, the instructor has the authority to assign an "F" or a zero ("0") for the exercise or examination, or to assign an "F" in the course.

Copying/Sharing/Stealing CADD Assignment Files

Copying &/or appropriating—with or without permission of the original file creator—another student's work and calling it your own is plagiarism. ETSU does not and will not tolerate this serious type of academic misconduct. ***Sharing files with other students is itself an act of academic misconduct.*** CADD files can be easily copied, transferred electronically, and shared. However, please also note that your instructor is not an idiot and can, just as easily, electronically compare students' work. Even within seemingly identical assignments, there will be myriad differences among submitted drawings.

Everyone caught sharing, copying &/or turning in nominally identical files as his or her own work effort will receive zero (0) points for that assignment. A second instance of academic misconduct will result in failure of the class (F) for any/all involved students. All instances of plagiarism/academic misconduct will be documented and reported subject to published [University policies](#) and college/departmental procedures. If another charge of academic misconduct has been made in any ETSU class against one of the students involved, the instructor will work with the CBAT dean's office to determine the appropriate penalty for repeat offenders of academic misconduct.

In situations involving allegations of plagiarism or the theft of file(s), the instructor reserves the right to require any student(s) to resubmit one or more similar assignment(s)—with appropriate modifications—to demonstrate proficiency, understanding and competence. If determined that academic misconduct did occur, assignment grade and/or course grade will be adjusted accordingly; the actions will be documented and the individual(s) subject to relevant University policies & procedures.

VI Evaluation and Grading

Assignment	Percent
Drawing Assignments (hand, 2D & 3D)	85.0 %
Examinations/Quizzes (1 or 2)	10.0 %
Attendance & active participation in class	5.0 %
Total	100.0 %

Minimum Score to Receive

	A 93	A- 90
B+ 87	B 83	B- 80
C+ 77	C 73	C- 70
D+ 67	D 60	F Below 60%

Students with documented needs for note taking, test taking, or other classroom accommodations should make arrangements with the instructor early in the term. Contact the ETSU Disability Services
Voice: (423) 439-8346; Fax: (423) 439-8489; TDD: (423) 439-8370
URL: <http://www.etsu.edu/students/disable/>

Homework & Assignments:

Homework and classroom exercises are due at the end of class on the assigned date. Assignments may be completed early and are available via D2L and/or the course's assignments web page (URL: faculty.etsu.edu/hemphill/entc2170/assign.htm). No homework will be accepted after the posted date/time without penalty. The maximum late penalty rate is 25%/day (i.e., On time: 100% of possible points for the assignment; 1 day late: 75% of possible points; 2 days late: 50%; 4 days late: zero (0) points).

The above penalties are not even harsh; the penalty in industry for a single late assignment can be unusually severe (e.g., losing your job).

VII Access to Departmental and University Facilities

The University's Syllabus Attachment is available on-line at the following URL:
<http://www.etsu.edu/reg/academics/syllabus.aspx>.

Unless otherwise noted, the CADD lab facilities will be accessible—*when other classes are not in session*—on weekdays (M-F) from 8 a.m. - 8 p.m. and during weekend afternoons. The room's use schedule is posted beside the lab door.

The log-in user name/password is your ETSU (E-mail) username and password.

As access to the department's computer labs may be limited, it is suggested that you use other PC labs on campus, especially the large PC lab in the D. P. Culp center, for all computer work other than CADD.

For information on location and operating hours of other University computer labs, contact the Office of Information Technology (439-4648). Hours of operation of the University's library are posted at the library and in various handouts. For more information contact the Sherrod Library.

Parking and Access: There are numerous, on-going construction projects on campus nearby the building. Students are responsible for finding suitable parking in [appropriate and authorized places](#) and arriving for class on time. Best wishes.

Campus Safety and Security: ETSU strives to provide a safe and secure educational experience. Information regarding all aspects of the University's general emergency procedures is available at <http://www.etsu.edu/safety>. To register for approved ETSU emergency communications & other important information via text message &/or E-mail, visit the [Gold Alerts page](#).

VIII Food, Drinks, and Tobacco Products

***Food and drinks are not permitted in
any of the departmental computer labs.***

Bottled water—in sealable containers—may be brought and consumed within the computer lab. Never place water bottles anywhere near, on, or above the PCs and/or peripherals (e.g., monitors, keyboards, mice, etc.). Please place sealed water bottles on a nearby table away from computer assets.

ETSU is a Tobacco-Free campus.

The use of any type of tobacco products (repeating: any type, including “vaping”) is prohibited in and around all University buildings including doorways, sidewalks, behind the buildings... pretty much everywhere except in personally-owned vehicles.

It is highly recommended that you get with the plan & quit using all forms of tobacco products as soon as possible (i.e., before they maim &/or/then kill you). You've been warned; don't play cute.

VIII Rules & Guidelines for Departmental Computer Labs

1. No food, drinks, or tobacco products are to be brought into or consumed within the lab. The lab & break areas must be kept clean at all times. Please clean up all messes as you leave.
2. Do not place book bags or other trip hazards within the aisles; tuck things away.
3. ***Save and save often. Save on at least three (3) different physical media:*** i.e., one hard drive (typically, on the STUDENT drive or folder); at least one removal media (e.g., a solid-state USB “thumb” drive or portable HDD) &/or an E-mail server (your ETSU E-mail account &/or a personal E-mail account).
4. Unauthorized personnel are not allowed in the computer labs (e.g., girl or boy friends, significant others, children, roommates, tattoo buddies, etc.).
5. Do not give the door combination, usernames, &/or passwords to anyone.
6. Be respectable of others when using external speakers. It is strongly recommended that you bring your own headphones or ear buds. No singing... None.
7. Follow all directions when submitting assignment files electronically. It is strongly recommended that you save your CADD files within your allocated hard drive/server space in an appropriate directory (ENTC 2170) ***and on back-up media.***
8. Store your files locally on the lab machines at your own risk. Any temporary data will be deleted when you log off. All data files are subject to erasure after the last semester final is given. ***Save on at least two different physical media.***
9. Students may never install any software on any lab machine.
10. Do not change desktop settings or screen savers. You may change the desktop icons (adding, moving, etc.) but such changes may be deleted during maintenance activities.
11. Do not remove or install equipment (e.g., personal laptops) to the network.
12. Do not illegally copy software.
13. No viewing or downloading pornographic or other offensive materials on University devices or personal devices when connected to an ETSU network
14. Do not lock the computers for more than 15 minutes (i.e., bathroom breaks are acceptable but don't go to lunch and expect to return to the same computer.
15. Do not turn the machines off. Log out and turn of the monitor(s) when finished.
16. Promptly report any problem(s) to your instructor &/or systems support personnel (Ms. Loretta Fritz, bradley1@etsu.edu). When reporting difficulties, please note the machine name/number, the nature of the problem, and any out-of-the-ordinary events, error messages, etc.