

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

FUNDAMENTALS OF TECHNICAL DRAWING W/LAB
CID 1100 (formerly CID 1104)

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 3.0

Revised: Spring 05

Catalog Course Description:

A broadly focused CAD course for CIDD majors, Engineering Technologies majors and Engineering transfer students. This course covers the basic techniques and principles necessary to produce engineering drawings, including the use of drafting equipment, freehand sketching, geometric construction, orthographic and isometric drawings, dimensioning and assembly drawings. The computer is used as a drafting tool to teach CAD commands and reinforce the concepts of technical drawing. Word processing and spreadsheet software are also incorporated to prepare professional technical reports.

Entry Level Standards:

Must be able to read and write at the college level and have completed DSPM 0800.

Prerequisites:

None

Textbook(s) and Other Course Materials:

Required Text:

Technical Drawing. 11th ed. Giesecke, Mitchel, Spencer, Hill, Dygdon & Novak. Prentice Hall, 1999.

Architectural Drafting Using AutoCAD 2004. Madsen, Palma. The Goodheart-Wilcox Company, Inc.

Reference:

Engineering Drawing and Design. 3rd ed. Jensen/Helsel. McGraw-Hill.

Equipment:

A. Drafting kit:

1. Drafting dots or drafting tape
2. Triangles (8" 45/10" 30-60)
3. Erasing shield
4. White vinyl eraser (or pink pearl 400 A eraser - Optional)
5. Mechanical engineer's scale
6. Ames lettering guide
7. Board brush
8. 8" French curve or larger
9. 6" dividers or larger
10. Compass with F or H leads
11. Isometric ellipse template
12. Protractor
13. Circle template

- 14. Sand paper pad (Optional)
- B. Pencils as required by instructor (non-photo blue pencil - Optional)
- C. Storage Media for Computer files
- D. 8.5 x 11 (size A) drafting vellum (1000h or equal)
- E. Isometric grid paper
- F. Regular .10 grid paper
- G. Other equipment as may be required

I. Week/Unit/Topic Basis:

Unit	Topic
1	Use of instruments
2	Geometry & geometric constructions
3	Three view drawings & sketches
4	Three view drawings & dimensioning
5	Section drawing with dimensions
6	Section & Auxiliary drawing with dimensions
7	Auxiliary drawing
8	Introduction to CAD
9	Basic CAD commands
10	Geometric constructions CAD
11	Three view drawings CAD and Templates
12	Sections CAD
13	Auxiliary CAD
14	Final drawings CAD
15	Final exam on CAD timed drawing

II. Course Objectives*:

- A. Represent objects using orthographic projection (3-Views, isometric, sections, auxiliary) and sketches. (a, b, f, g, h)
- B. Be familiar with basic geometry and understand geometric construction. (a, b, e, g, h, k)
- C. Know fundamental mechanical dimensioning standards, lettering, graphic standards and techniques required for technical drawing. (a, b, e, g, h, k)
- D. Construct 2D drawings with annotation using Computer Aided Drafting (CAD) software. (a,

b, e, f, g, h, k)

*Letters (a-k) reference the CID Program Outcomes (as required by ABET).

III. Instructional Processes*:

Students will:

1. Use drafting equipment to create orthographic drawings. *Communications Outcome, Active Learning Strategies*
2. Use geometric construction to create complex shapes. *Communications Outcome, Active Learning Strategies*
3. Use ANSI standards to dimension objects. *Communications Outcome, Active Learning Strategies*
4. Use the LIMITS, SCALE, UNITS, GRID, and LAYER commands in AutoCAD to create a prototype drawing for a particular purpose. *Communications Outcome, Active Learning Strategies*
5. Create 2D drawings and dimension with ANSI standards with AutoCAD. *Communications Outcome, Active Learning Strategies, Transitional Strategy*
6. Print drawings to scale and with correct line thickness. *Communications Outcome*
7. Use computer skills to save and copy files. *Communications Outcome, Technological Literacy Outcome*
8. Use the computer for interactive communication. *Technological Literacy Outcome, Communication Outcome*

*Strategies and outcomes listed after instructional processes reference TBR's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Recognize and demonstrate proper use of drafting equipment. C
2. Understand how to read and use an engineering scale. A,C
3. Demonstrate proper sketching techniques for basic drawing. A,C
4. Understand and demonstrate appropriate engineering lettering techniques (ANSI standards). C
5. Demonstrate correct use of guidelines to accomplish spacing, uniformity of lettering. C
6. Be familiar with and use geometric construction. B
7. Be able to perform basic geometric constructions (bisectors, perpendicular lines, tangents, etc.). B

8. Know terminology of geometry (angles, triangles, polygons, etc.). B,C
9. Identify alphabet of lines used in engineering drawings. C
10. Understand proper methods of orthographic projection to develop 2 or 3 views of a part. A,C
11. Demonstrate proper spacing and placement of views. A,C
12. Know fundamental ANSI standards for dimensioning. C
13. Exhibit correct location of holes in circular views. A,C
14. Develop isometric drawings of parts that include regular, inclined, and curved surfaces. A,C
15. Understand and correctly present sectional views. A,C
16. Demonstrate proper use of a cutting plane line. A,C
17. Develop section drawing manually. A,B,C
18. Develop an auxiliary drawing manually. A,B,C
19. Understand the CAD system as a drafting tool. D
20. Dimension a drawing using CAD software. C,D
21. Place text using CAD software. C,D
22. Use layering concepts to organize graphic elements using CAD software. D
23. Produce plots from CAD software. D
24. Produce accurate drawings using CAD software. D
25. Produce section drawing using CAD software. A,D
26. Produce auxiliary drawing using CAD software. A,D
27. Produce a CAD drawing with professional quality graphic standards. A,D

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Evaluation in this course will be based on the quality of the final drawings produced, homework, and short quizzes given during the semester. There will be at least one individually produced, timed CAD drawing. Final grades will be calculated as follows:

Board Drawings - 35%
Computer Drawings - 35%
Quizzes & Homework - 30%

B. Laboratory Expectations:

This course is primarily a laboratory course. Lecture time will be spent explaining the various principles and standards required for professional quality graphics. The student's laboratory time will be spent applying these principles to create specific drawings on either the board or the computer. It is not intended that the time required completing projects fit within the scheduled class or lab period. All computer drawings will require the same graphic standards and information as the board drawings.

C. Field Work:

Outside reading and sketching assignments will be required.

D. Other Evaluation Methods:

N/A

E. Grading Scale:

A	90-100%
B+	85-89%
B	80-84%
C+	75-79%
C	70-74%
D	60-69%
F	59% and below

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Misconduct:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices: Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments. In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or zero for the assignment or (2) an F for the course.

Note: It is expected and desirable that CID students assist other students. However, students may only submit work completed by themselves.

C. Equipment:

Students are expected to take utmost care when using equipment provided by Pellissippi State. No tobacco use, eating, drinking will be allowed in labs. Students are not to load unauthorized software on the computers. Do not use floppy disks for CAD drawings in any

other computers other than in CID labs. Students are responsible for maintaining current copies of drawings on their disks. Do not relocate computers, monitors, digitizers or keyboards without supervision by an instructor. Do not copy, delete or move files without instruction by an instructor.

D: Accommodations for disabilities:

If you need accommodation because of a disability, if you have an emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately (privately after class for in the instructor's office).

To request accommodations, students must register with Services for Students with Disabilities' Office located in J. L. Goins Administration Building, Room 127 or 131 or by phone: (865) 539-7153 or (865) 694-6751 Voice/TTD.