

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

**CIVIL DRAWING W/LAB
CID 2195 (formerly CID 2190)**

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 2.0

Revised: Fall 05

Catalog Course Description:

This course covers traditional topographic representations of three-dimensional modeling of terrain. Students use the 3D models to generate profiles, cut and fill. Students also learn the basics of highway layout and basic bridge structures. 3D modeling is used as an animation tool to evaluate terrain and resulting cuts and fill.

Entry Level Standards:

A basic understanding of architectural drawings will be required. Basic math skills and an understanding of at least one computer-drafting package are required.

Prerequisite:

CID 1100, 1105 or consent of instructor

Textbook(s) and Other Course Materials:

Required Text:

Civil Drafting Technology 5th Edition, Madsen, Shumaker, Prentice-Hall, Inc
Harnessing MicroStation V8, Krishnan, Taylor, Delmar Learning

Reference Books:

Technical Drawing 11th Edition, Gieseche, Mitchell, Spencer, Hill, Dygdon, Novak, Prentice-Hall, Inc

I. Week/Unit/Topic Basis:

Week	Topic
1-14	Over the 14-week semester, the following topics will be covered: Review syllabus. Overview of Civil drawing requirements. Introduction to Microstation commands, file structure and level standards. Chap 3 & 4; Mapping symbols, measuring distance and elevation. Continue review of Microstation commands, level and symbology. Chap 5, 6 & 7; Surveying fundamentals, location and direction & legal descriptions and sub-division layout. Microstation commands; levels, symbology. Chap 8; Contour lines. Microstation cells; title blocks, station markers. Continue Chap 8; Interpreting topographic elevation points. Placing 3D elevation points in Microstation drawing. Generating 3D representation of land form with Microstation. Chap 9; Highway layout & Road profiles. Excel calculation for vertical curves and draw vertical curves for roadway. Use Word to create reports & memos. Use web resources for industry information.

Road cross-sections.
Welding symbology & connections for light standard.

15 Final Exam Period

II. Course Objectives*:

- A. Represent two dimensional and three dimensional land form with CAD application. A, D
- B. Represent road layout with standard Civil conventions of plan, profile & cross-section. A, B
- C. Understand Civil drafting conventions for sub-division layout. A
- D. Use Microstation to represent Civil discipline drawings. A, B
- E. Be knowledgeable of advanced Microstation functions. A, B, C, D
- F. Use Microsoft office products for calculations and reports. F, G
- G. Be knowledgeable of industry requirements, references & resources A, B, H, K
- H. Use CAD models, drawings & Excel as decision making tool. A, B, C, D
- I. Create technical documents required to communicate graphic information. D, G

*Letters after course objectives reference CID Program Outcomes (as required by ABET).

III. Instructional Processes*:

Students will:

1. Use the "graphic primitives" of MicroStation to generate common symbols used in the construction industry. *Technological Literacy Outcome*
2. Import graphic files, scale to standard industry requirements and use to generate standard construction details. *Numerical literacy, Technological Literacy Outcome, Active Learning Strategy*
3. Use standard industry reference materials in electronic format. *Technological Literacy Outcome, Communication Outcome, Active Learning Strategy, Information Literacy Outcome*
4. Use CAD applications to generate structural plans and structural details. *Technological Literacy Outcome, Active Learning Strategy*
5. Generate three-dimensional model using architectural application software. Use model to verify construction processes. *Technological Literacy Outcome, Active Learning Strategy*
6. Use three-dimensional model to generate 2D drawing for production drawings. *Technological Literacy Outcome, Active Learning Strategies*
7. Use dimensioning tools to completely and properly dimension final drawings as well as use annotation tools to completely annotate final drawing. *Technological Literacy Outcome, Communication Outcome, Numerical Literacy Outcome, Transitional Strategy*

8. Use word processor and spreadsheet to generate reports and memos and calculations.
Communication Outcome, Active Learning Strategy, Technological Literacy Outcome, Numerical Literacy Outcome
9. Use CAD application to generate plots according to industry standards.
Technological Literacy Outcome, Communication Outcome, Numerical Literacy 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. Use Microstation to draw topographic map. C,D
2. Use Microstation to draw highway layout. B,C,D
3. Use Microstation to draw sub-division layout. F
4. Use Microstation reference files to combine drawing files. F
5. Use Microstation to generate a 3D model of earth terrain. A,B,C,D,E
6. Learn & apply basic mapping symbols. A,C,D,E
7. Learn & apply basic surveying conventions. B,C,D,E,F
8. Learn & apply civil drafting conventions. B,C,D,E,F
9. Use Microstation to plot scale drawings. B,C,D,E,F
10. Use 3d virtual models to calculate cut and fill. C
11. Use word processor to write reports & memos. C,D
12. Use the internet to access reference material used by the civil discipline. E
13. Use the internet and email to communicate. C,E
14. Use the computer to annotate drawings following civil industry practices. C,E

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

V. Evaluation:

A. Testing Procedures: 10% of grade

There will be quizzes at the discretion of the instructor. (10%)

B. Laboratory Expectations: 70% or more of grade

This course is primarily a laboratory course. Lectures will be presented to explain various principles. While the majority of lab time will be dedicated to drawing it is expected the student will spend extra time outside of class to complete required drawings. Drawings will be the major portion (70% or more) of the student's grade.

C. Field Work: 20% of grade

Students will be required to write reports and memos which will include a spreadsheet with structural calculations. (10%)

A notebook will be required upon completion of the course. (10%)

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. Accommodations for disabilities:

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations

in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751(Voice/TTY) or 539-7153.