PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

ADVANCED SURVEYING W/ LAB
SURV 2510

Class Hours: 2.0  Credit Hours: 4.0
Laboratory Hours: 6.0  Revised: Spring 2011

Catalog Course Description:
Use of total stations, data collectors, GPS systems, surveying software, and AutoCAD. Field applications of traversing, topo-mapping, profiling and cross-sectioning, and construction stakeout. Related topics in surveying astronomy, photogrammetry, and horizontal and vertical curves.

Entry Level Standards:
Students with previous surveying experience may be admitted with instructor approval providing they can demonstrate proficiency with trigonometry, geometry, and algebra as well as the use of automatic and dumpy levels, transits and theodolites.

Prerequisites:
SURV 1550 or permission of instructor

Textbook(s) and Other Course Materials:

Reference: Surveying Principles and Applications, Kavanagh
Surveying Theory and Practice, Davis, et.al.
Surveying Practice, Kissam
Other:  - Field Note Book
- Scientific Calculator
- Emerphis Tables
- 2 - 3 1/2" Floppy Disk
- Paper - Pencil
- Flashlight (night students only)

I. Week/Unit/Topic Basis:

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<th>Week</th>
<th>Topic</th>
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| 1    | Lecture: Review traverse calculations (Lat, Dep & Area)  
      | Lab: Traverse Calculations |
| 2    | Lecture: Review traverse calculations (Misc.)  
      | Lab: Use of GTS 300 Total Station & FC48 Data Collector |
| 3    | Lecture: Topographic Surveying  
      | Lab: Traverse Survey (Point to Point & Radial) |
| 4    | Lecture: Topographic Surveying  
      | Lab: Introduction to Computer Applications |
II. Course Goals*:

The course will:

A. Expand the student’s understanding of the methods, equipment, field data and computations necessary for traverses, contour mapping, building stakeout and stakeout of horizontal and vertical curves. I, II, III & IV

B. Build the skills to select the proper method and equipment for any surveying task. I, II & III

C. Build the skills to accurately calculate all surveying data manually and by computer. I & II

D. Build the skills to efficiently use a Topcon GTS 300D Total Station with a FC48 Data Collector. I & II

E. Demonstrate self initiative to complete all assignments on time. IV

*Letters after course objectives reference Engineering Technology Program Outcomes.

III. Expected Student Learning Outcomes*:

The student will be able to:

1. Accurately calculate latitudes, departures and areas of traverses. A,C

2. Adjust Lat. and Dep. by the compass or transit rule. A,C

3. Compute traverse areas by one or more methods. A,C
4. Utilize computer software to complete Traverse Calculations. A,C,D
5. Collect and Convert appropriate field data into topographic maps. A,B,C,D
6. Utilize computer software to draw topographic maps. B,C,D
7. Accurately compute earthwork volumes. A,C
8. Compute and stake out a horizontal and vertical curve. A,B,C,D
9. Utilize computer software to upload stakeout data. A,B,C,D
10. Compute and stake out slope and grade stakes. A,B,C,D
11. Determine true North from Astronomical observations. A,C
12. Properly select the equipment, plan the survey and obtain the necessary field data for traverses, profiles, cross sections and mapping. A,B
13. Properly select the equipment, plan the survey and obtain the necessary field data for construction site layout. A,C
15. Demonstrate proficiency and knowledge in the use of a total station. D
16. Demonstrate proficiency and knowledge in the use of a data collector. D
17. Demonstrate ability to upload/download survey data from computer software to data collector. C,D
18. Demonstrate ability to complete standard drawings on the computer. C,D
19. Demonstrate knowledge in the use of AUTOdesk software. C,D
20. Demonstrate knowledge in the use of autocad. D

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures:

Three exams will be given. Exams are true-false, multiple choice, matching, short answer/essay. Exams are given over the internet at www.pstcc.edu, online courses and must be taken by the established deadline. All exams have a problem solving or essay take-home portion.

When a student misses an exam due to illness, he must contact the instructor immediately upon return and make-up the exam within one week.

Quizzes:
Quizzes may be given by the instructor. Most quizzes will be un-scheduled and randomly given. They cover the previous session’s materials or the reading assignment for that day. There is no make-up or extra credit given for quizzes missed.

Homework:
A minimum of one written report will be required. It will require outside reading and research.

Topics will be provided by the instructor.
Students may also be required to hand in answers to select questions at the end of each chapter or other appropriate homework at the instructor's discretion. All written assignments must be handed in on 8 1/2 x 11" engineering notepad paper, paper with smooth edges, or forms provided by your instructor.
All written assignments will be assessed a 10% penalty for each school day it is late.
All student work submitted for evaluation may be retained by the instructor.

B. Laboratory Expectations:

Each student is expected to complete all lab assignments in cooperation with assigned lab partners. Each student must complete a set of field notes for each lab. Each student will turn in a copy of her/his field notes along with appropriate calculations or drawings by the assigned deadline. All lab reports will be assessed a 10% penalty for each school day it is late.

C. Field Work:

N/A

D. Other Evaluation Methods:

A subjective evaluation based on attendance, classroom participation and attitude may be included.

E. Grading Scale:

CLASSROOM (55-60%)
Final grades will be computed from the grades obtained on homework, quizzes and examinations as follows:
Quizzes & Homework = 20% - 25%
Examinations = 35% - 40%

LAB (40-45%)
Final grades will be determined by grades obtained on field exercises. Each exercise is graded on completeness of field data, precision of field measurements, accuracy of calculations and graphic representation of data.
Attendance/Equipment Usage 15%-20%
Computations and drawings 15%-20%
Field Notes 40%-50%
Lab Final 20%

Grades are based on the following:
90 - 100 A
85 - 89 B+
80 - 84 B
75 - 79 C+
70 - 74 C
60 - 69 D
Below 60 F

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning 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 the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which
the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the Learning Division.

B. Academic Dishonesty and Classroom 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.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his 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, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd.