



**DATE: Spring Semester 2005**

**CURRICULA IN WHICH COURSE IS TAUGHT: Drafting and Design  
COURSE NUMBER/TITLE: CIV 170 PRINCIPLES OF SURVEYING  
DIVISION: Business & Engineering Technologies**

**CREDIT HOURS: 3 HOURS/WEEK LECTURE: 2 HOURS/WEEK LAB: 3 LEC/LAB COMB: 5**

## **I. CATALOG DESCRIPTION:**

Introduces the basic elements of plane surveying to include the use and care of modern surveying equipment and application of surveying to land description and construction.

## **II. RELATIONSHIP OF THIS COURSE TO CURRICULUM OBJECTIVES:**

Teaches the student to perform ordinary land and construction surveys using modern surveying equipment, create quality CAD and/or hand drawings, and apply this knowledge to actual situations.

## **III. REQUIRED BACKGROUND:** The student must have mastered the skills acquired in MTH 03.

## **IV. COURSE CONTENT:**

- History of and reasons for surveying
- Types of surveys
- Measurement – methods, accuracy and precision, corrections
- Care of equipment
- Field notes
- Leveling
- Earth's curvature and atmospheric refraction
- Contour maps and topography
- Profiles and cross sections
- Angles and directions
- Bearings and azimuths
- Meridians and parallels – longitude and latitude
- The compass and magnetic declination
- Practical astronomy
- Setting up and using transits and theodolites
- Closing the horizon
- Angle distance relationships
- Traversing
- Methods of calculating area
- Latitudes and departures
- Benchmarks, batter boards and construction layouts
- Electronic distance measurement and prisms
- The Universal Transverse Mercator grid
- GPS/GIS systems
- Code of ethics

## **V. EDUCATIONAL OBJECTIVES ADDRESSED:**

**Communication** - Students will read critically, write in an organized manner, listen objectively, and speak effectively.

**Learning Skills** - Students will recognize the need for lifelong learning. Students will demonstrate skills to locate and utilize information resources. Students will draw from knowledge of appropriate disciplines, identify problems, analyze alternate solutions, and make decisions.

**Critical Thinking** - Students will develop critical thinking skills including analysis, evaluation, synthesis, and reflection. Students will demonstrate the ability to function in an independent, self-directed manner.

**Interpersonal Skills and Human Relations** - Students will recognize the need for value judgments and will display a concern for ethics and social responsibility.

**Computational and Computer Skills** - Students will utilize mathematical procedures for effective performance on the job and in society. Students will be able to use appropriate computer technology.

## **VI. LEARNER OUTCOMES:**

- The student will learn the basic procedures used by surveyors in the field.
- The student will use a variety of tools and electronic devices to gather field data.
- The student will use that data to compute data used in creating plats.
- The student will create plats using the hand drawn method as well as constructing them using computer software.

### **Students with Special Needs:**

- ✓ If you are a student with special medical needs, please inform me as to how I can best assist you. All information will be considered confidential.
- ✓ If you are a student who needs special ADA-related accommodations, please inform the DCC ADA Coordinator at 804-797-8479. All information will be considered confidential.

### **PLAGIARISM AND ACADEMIC DISHONESTY**

Students will be expected to maintain complete honesty and integrity in their academic work in this class. Acts of academic dishonesty, such as cheating, plagiarism, or inappropriately using the work of others to satisfy course requirements, will not be tolerated and may result in failure of the affected assignments and/or failure of this class.

## COURSE OUTLINE

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**SEMESTER:** Spring 2004

**INSTRUCTOR:** Robert Huffman

**OFFICE NO:** Wyatt 209 (office is in the classroom)

**OFFICE HOURS:** Posted

**TELEPHONE:** 434-797-8548

**E-mail:** [rhuffman@dcc.vccs.edu](mailto:rhuffman@dcc.vccs.edu)

**TEXTBOOK:** Surveying, Jack C. McCormac ISBN # 0 471-23758 2  
Other necessary materials: Each student must bring a notebook and calculator to each class. The calculator must be capable of performing trigonometric functions, and it is highly recommended that the calculator have the ability to convert degrees, minutes and seconds to decimal degrees. I recommend a TI 36X calculator.

### **ATTENDANCE REQUIREMENTS:**

Regular attendance is necessary for successful completion of this course. Students with perfect attendance will earn 3 percentage points towards their final grade. One absence will earn the student 2 percentage points towards one's final grade. Two tardies will count as one absence. Quizzes given during class can not be made up even if the student is absent. **No exceptions will be made.**

If a student misses a lab, he/she may use data from a group member to complete the lab but since the student failed to participate in the lab experience, 15 points will be deducted from the lab grade. This may only be done 2 times during the semester. All other labs will have to be made up by gathering the data personally.

Students missing tests must take the makeup test within 2 class meetings of the original test date. Students taking makeup tests will not get credit for bonus questions and will not get the advantage of a grade curve.

### **Course Grade Procedures:**

Lab Reports	45 %
Tests	20%
Classwork/Homework	20%
Final Exam	15%

Letter grades will be determined as follows:

A - 92% - 100%

B - 84% - 91%

C - 76% - 83%

D - 68% - 75%

F - 0% - 67%

### **PROCEDURES FOR OUTDOOR LABS:**

- ❑ All lab reports are to be computer generated or neatly hand lettered on 8 1/2 x 11 smooth-edged sheets, clearly identified in the upper left corner of the first sheet. Multiple sheets must be stapled together. Submitted drawings should not be folded.
- ❑ Please inform me if you have any relevant allergies or disabilities that may affect your hiking in the fields and woods or traversing uneven ground.
- ❑ Lab activities are normally conducted outside so students should come to each class prepared to handle chilly weather. We will be outside as much as possible.
- ❑ Students should possess the ability to solve basic algebraic and trigonometric problems using computers and/or hand-held calculators.

**Cell Phones** – Cell phones are not to ring during class lectures but are permitted during lab time. During lectures, set them to vibrate if possible or turn them off until the lecture is finished. If your phone rings during a lecture, you may leave the class to answer it but do not return to the lecture that day if you disturbed the class. Students leaving class to answer phones during tests will not be permitted to continue the exam if they choose to leave the class to talk to someone.

### **WITHDRAW DATES TO REMEMBER**

Jan 20 - Last day to withdraw with full tuition refund/return books to bookstore for full refund

March 11 – last day to withdraw without mitigating circumstances (this means your failing grade will be held against you if you do not withdraw by this date).