BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

AET 26 - Basic Surveying **3 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level III; Math Level II
Transfer Status: CSU
34 hours Lecture
51 hours Lab

This is a basic surveying course. Topics will include selection, care and use of tapes and levels; field observations, note taking and office computations; use of surveying instruments and equipment for land measurement and mapping; practice in differential, profile, and contour leveling; building foundation layout; horizontal angles; cut and fill measurements and calculations for land grading. Laser and Global Positioning System (GPS) technology will be introduced at the basic level.

II. **OBJECTIVES**

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

A. Explain applications of surveying.
B. Properly use and care for instruments and equipment.
C. Conduct accurate field observations and keep complete field notes.
D. Categorize and calculate required data accurately and completely.
E. Create a contour map.
F. Estimate cut and fill for a surveyed tract.
G. Communicate and work cooperatively with others.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. Introduction to Surveying	2.00
2. Note-taking and Distance Measurement	3.00
3. Using Surveying Equipment	3.00
4. Differential Leveling	6.00
5. Profile Leveling	5.00
6. Contours and Graded Ditch	3.00
7. Grading Land	4.00
8. Angles and Directions	2.00
9. Building Layout	2.00
10. Land Surveys and Descriptions	2.00
11. Global Positioning Systems	2.00
Total Hours	34.00

Lab

Topics	Hours
1. Introduction to Surveying	4.00

2.	Note-taking and Distance Measurements	4.00
3.	Using Surveying Equipment	4.00
4.	Differential Leveling	9.00
5.	Profile Leveling	6.00
6.	Contours and Graded Ditch	4.00
7.	Grading Land	6.00
8.	Angles and Directions	4.00
9.	Building Layout	4.00
10.	Land Surveys and Descriptions	3.00
11.	Global Positioning Systems	3.00
Total Hours		51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Collaborative Group Work
C. Class Activities
D. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
E. Discussion
F. Demonstrations
G. Reading Assignments
H. Multimedia Presentations

V. METHODS OF EVALUATION

A. Exams/Tests
B. Quizzes
C. Projects
D. Demonstration
E. Homework
F. Class participation
G. Final Examination
H. Written Assignments
I. Laboratory evaluation will include problem solving exercises or skill demonstrations.

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Read the chapter in your book on using the average profile method for land leveling and be prepared to discuss in class.
   2. Read the text material on profile leveling and be prepared to discuss in class.

B. Writing Assignments
   1. Write out and define the surveying terms on the list provided by the instructor.
   2. In a two-page paper explain the object and uses of the surveying techniques for producing a contour map.

C. Out-of-Class Assignments
   1. Practice making maps of your street or ranch as you would for a survey. Be prepared to share your maps with the class.
   2. Use the Internet to find an article about compass directions. Explain the difference between cardinal directions and azimuth directions.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Materials Other Than Textbooks:

A. Reference: Salo, Glenn W. Agricultural Surveying AE 131. San Luis Obispo: California Polytechnic State University, Blake Printery. 1981.

B. Materials: Field notebook, 3H hard pencil, straight edge rule, calculator (square root capable)

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Date: 11/03/2014