Survey I – CIV K 150 & Lab CIV K 151
Syllabus
Fundamentals of Surveying or Geomatics Engineering
Fall 2010
Three Rivers Community College
Instructor; Donald W. Gerwick, P.E., L.S.
Office C 144

Class Location – B 107;
Times: Monday (Lab) 5:00 pm – 7:45; Wednesday (Lecture) 5:00 pm – 7:45

Text; **Elementary Surveying, An Introduction to Geomatics**, 12th edition
Charles Ghilani & Paul R. Wolf

On campus Phone Number 860-885-2337
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Office Hours: T 4:00 – 5:30, W 3:00 – 4:45, R 4:00 – 5:00
Additional Days and Times by Appointment are Available

This course introduces the student to the proper use and care of surveying equipment used in making linear and angular measurements, including tapes, transits, theodolites, levels and total stations. This leads to the development of the basic principles of traversing as it relates to boundary surveying. Course outcomes will include the ability for students to use levels for differential leveling, and using a Total Station for measuring distances and angles of a traverse, as well as trigonometric leveling. Students will be able to complete mathematical calculations for traverse closures and adjustment as well as mathematical calculations for leveling.

As both the lecture and lab sections of the course have evening schedules, **lab and lecture time will be intermixed** to maximize the daylight portions of the scheduled classes. Students are responsible for all assigned sections of text. Quizzes will be based on lecture material and text material.

Required for Course, text listed above and a basic calculator with trigonometric functions. Survey Field Book for Labs. Lab Exercises will be assigned weekly to mimic material as closely as possible.

Lab Topics are as follows;
Measurements, Pacing, Taping and chaining
Tripod Set Ups
Instrument Set Ups
Differential Leveling
Traverse Set Up
Traverse Data Collection
Traverse Field Checks – As needed
Traverse Closures
Traverse Adjustments
Traverse Plots
Stake-Out

Chap. 1 – Introduction and overview of Surveying/Geomatics. Additional material will be covered in lecture to give a slightly more in depth review of surveying history than covered in the text.

Homework Chap. 1 - 1.1, 1.2, 1.6, 1.8, 1.10 ; 1.16

Chap. 6 – Sections 6.1 through 6.13

Chap. 2 – Units, Significant Figures and Field Notes – All sections

Homework Chap 2 : 2.1 - 2.1, 2.2, 2.4, 2.5, 2.8, 2.9, 2.10
Using the "long hand" method of converting the angels of 2.16 a. to decimals degrees. And 2.17, 2.19

Chap. 3 – Theory of Errors in Observations – Sections 3.1 through 3.10

Homework Chap. 3 – 3.1 – 3.4

Paper 1 - Describe the historical developments of horizontal measurements from the Egyptians through the start of the 21st century. Due date to be assigned.

Chap. 4 - Leveling –Theory, Methods, and Equipment – Sections 4.1 through 4.5; Brief overview of remaining sections

HW Chap. 4 – 4.4, 4.5, 4.8, 4.12, 4.18, 4.29, 4.30

Chap. 5 – Leveling – Field Procedures and Computation – All sections

HW Chap. 5 – 5.1, 5.2, 5.6, 5.9, 5.12, 5.23, 5.35

Quiz 1 – Chap. 4 & 5 all lecture material and all noted sections of your text.

Chap. 8 - Total Station Instruments; Angle Measurements – Sections 8.1 to 8.5

HW Chap. 8 – Neatly, sketch and identify all elements of a Total Station, requires 2 views;

Chap. 6 – Distance Measurement – All remaining sections

HW Chap. 6 – 6.5, 6.6, 6.25, 6.31, 6.32, 6.35

Chap. 7 – Angles, Azimuths and Bearings – Sections 12.1 to 12.12 and 7.15 & 17.16

HW Chap. 7 – 7.3, 7.6, 7.8, 7.10, 7.13, 7.16, 7.30, 7.33

Chap. 8 - Total Station Instruments; Angle Measurements – Sections; 8.7 to 8.14 with brief discussion of other selected sections in lecture

HW Chap. 8 – 8.4, 8.9, 8.12, 8.21

Paper 2 - Describe the role of Surveying over the last 300 years in the U.S., the role it has played in the development of the country and what it's role will be into the 21st century. Due date to be assigned.

Quiz 3 – Chap. 6, 7, & 8 all lecture material and all noted sections of your text.

Chap. 9 - Traversing – All sections

HW Chap 9 – 9.2, 9.3, 9.9, 9.11, 9.15,

Chap. 10 - Traverse Computations – All sections

HW Chap 10 – Group 1; 10.1, 10.2, 10.6
Group 2; 10.7, 10.8,
Group 3; 10.25, 10.28, 10.29

Chap. 11 - Coordinate Geometry in Surveying Calculations – 11.1 to 11.5

HW Chap 11 – 11.1, 11.5, 11.7, 11.9

Quiz 4 All lecture material and all noted sections of your text.

Chap. 12 - Area – 12.1 – 12.7; 12.9 – 12.11

HW Chap. 12 – 12.1, 12.3, 12.5, 12.8*, 12.11*,
* Students will be given coordinate values for these problems, 12.11 should read by DMD Method

Chap. 23 – Construction Surveys – All Sections

HW Chap. 23 – 23.2, 23.8, 23.10, 23.15, 23.17, 23.27

Chap. 13 - GPS- the Global Positioning System – Introduction and Principles of Operation – 13.1 – 13.3; 13.5-13.8, 13.10 – 3.11

HW Chap 13 – 13.1, 13.3, 13.4, 13.7, 13.8, 13.34, 13.37 (2 pages)

Final Quiz All lecture material and all noted sections of your text.

Final Grade – The students final grade will be based on the weighted average of 5 quizzes and 2 papers taken during the semester which will account for 85% of your

grade. Assigned homework and class participation will make up the remaining 10 and 5% respectively.

Home Work (HW) – Home work assigned on a Monday or Wednesday will be due on the following Monday unless otherwise modified in class; Homework will be turned in at the beginning of class. Students must SHOW ALL WORK FOR MATH RELATED PROBLEMS. HW will be graded and returned by the following Monday. Home work will receive a grade of 0, 1, 2, 3, or 4
None turned in = 0
Minimal Attempt = 1
Moderate Attempt and Poor Results = 2
Moderate Attempt and Fair results = 3
Good Attempt and Largely Correct results = 4
Late home works, unless otherwise excused will be marked at 25% off.

Lab Grades will be based on the weighted average of assigned lab write ups. Missed labs generally cannot be made up, and will receive a "0" grade, unless arrangements have been made with the instructor.

Quizzes – Students will allowed one side of one 8 1/2 x 11 sheet of paper for formulas and conversion factors only (no definitions or other written notes.

Students must have their **calculators, cell phones will not be allowed** as a substitute; failure to bring a calculator will result in lost points as many questions will be impossible to answer without one. Quizzes will be based on lecture material and all assigned sections of the text, and homework.

Quizzes will be assigned a value by the instructor; quiz grades will be the number of points earned on the quiz divided by the total value of the quiz. Points earned for each problem will be awarded in a similar manner as noted in the homework section.

Class Attendance is expected, although, while students will not be penalized for non-attendance (with the exception as noted above for labs) they will be responsible for material covered in their absence. It will be the students responsibility to determine what assignments that may have been missed.

Class Room Policies - Cell phones brought to class shall be off and out of site (no texting). Language and behavior that is disrespectful, or disruptive, to others is unacceptable; Students should refer to their Student Handbook for examples of such behavior as well additional school policies.

Academic Integrity – Unless indicated by specific assignments, by the instructor, for group projects, all work for assignments shall be that of the individual student. Cheating on quizzes or using the work of others without proper credit (plagiarism) for assignments, or other forms of academic dishonesty, as defined by the Student Handbook, is unacceptable. If, after evaluation of the potential infraction(s), consistent with the Student Handbook, a grade of "0" for the assignment may be assigned.

Disabilities – If you have a visible or hidden disability that may require classroom or test taking modifications you are encouraged to contact Student Services for assessment.