



INSTRUCTIONAL PACKAGE

FOR-258

Forest Surveying & Engineering

Effective Term
Spring 2020

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Departmental Mission Statement:

Forestry Management Technology Department & Program Mission Statement

The mission of the Department, the Programs and its faculty is to support the broader College's goals as detailed above, but also provide a comprehensive silviculturally based environmental education that recognizes the broad multiple uses demanded from the forest environments of South Carolina, the Southeastern United States and the nation.

- We want our graduates to recognize how their daily decisions will have a lasting impact on the social, cultural, economic, and environment fabric of our state, region and country.
- Their natural resource decision making process must be based on the highest professional and ethical standards for the long term protection and promotion of a high demand resource.
- We strive to prepare well trained forest, wildlife and natural resource technicians for both public and private sector employers and promote career opportunities for our graduates.

Part I: Course Information

Effective Term: Spring 2020

COURSE PREFIX: FOR-258

COURSE TITLE: Forest Surveying & Engineering

CONTACT HOURS: Lecture: 3 – Lab: 3

CREDIT HOURS: 4.0

RATIONALE FOR THE COURSE: To help the student gain practical experience and working knowledge of the various surveying instruments and their respective uses, legal aspects and responsibilities of the surveyor, and the various mathematical skills required. To help the student gain a practical working knowledge of the layout, construction, and maintenance of forest roads. To help the student gain confidence in locating the boundaries of a parcel of property, and performing the necessary courthouse research required to determine ownership.

COURSE DESCRIPTION: This course covers the use of surveying and engineering as adapted to forest management. The use of the hand compass, staff compass, transit, and level in locating old boundary lines as well as procedures for recording and looking up deeds are included.

PREREQUISITES/CO-REQUISITES: (Co-requisite: Enrollment in MAT-170 or Credit level [MAT 170](#) Minimum Grade of C or Credit level [MAT 170](#) Minimum Grade of TC)

REQUIRED MATERIALS: Textbook: Kavanagh, Barry F., 2014. Surveying Principles and Applications, 9th Edition, Prentice Hall, 756pp. ISBN: 9780137009404. (Optional) Instructor will provide various handouts.

Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks. [BOOKSTORE](#). Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

ADDITIONAL REQUIREMENTS: Students will need to have a scientific calculator.

TECHNICAL REQUIREMENTS: Access to Desire2Learn (D2L), HGTC's student portal for course materials. WaveNet and D2L email access.

CLASSROOM ETIQUETTE: As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

SAFETY: Prior to going to the woods for a field lab, the instructor will hold a safety briefing identifying the boundaries of the study area, any known hazards and the proper use of Personal Protective Equipment assigned to that exercise.

LAB EXERCISES: This class has an outdoor lab associated with it. Please come appropriately dressed for lab with long pants and boots.

Part II: Student Learning Outcomes

PART II: STUDENT LEARNING OUTCOMES

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

Module #1

Materials Covered: Basic Surveying Techniques

**Assessment(s):* Weekly skill based labs / Complete class review activity / Unit Test

Learning Outcomes:

1. Define the three elements that comprise the art and practice of surveying: distance, direction and elevation.
2. Distinguish between plane and geodetic surveys.
3. Distinguish between accuracy and precision.
4. Distinguish between an error and a mistake.
5. Describe the correct format and procedures for surveying field notes.
6. Differentiate between horizontal distances and slope distances.
7. Describe the SI system of measurement units.
8. Accurately pace a given distance in the field. Use a steel chain to accurately measure horizontal distances.
9. Use an electronic distance meter (EDM) to measure horizontal or slope distances.
10. Distinguish between chain types (add and subtract).
11. Correctly use chaining pins, plumb bobs, and range poles while chaining distances.
12. Use proper hand signals and voice commands while chaining.

Module #2

Materials Covered: Differential Leveling and Cut & Fill Calculations

**Assessment(s):* Weekly skill based labs / Complete class review activity / Unit Test

Learning Outcomes:

1. Distinguish between profile and differential leveling.
2. Accurately read a Philadelphia rod.
3. Use the automatic or dumpy level, tripod and Philadelphia rod to perform an accurate differential leveling circuit.
4. Mathematically check the leveling circuit to ensure accuracy.
5. Identify the common leveling mistakes and errors.
6. Describe the procedure involved in profile leveling.
7. Describe the process of three-wire leveling.
8. Perform the computations involved in completing a set of profile level notes including the mathematical check.
9. Introduction to use of Global Positioning Systems.

Module #3

Materials Covered: Land Surveys and Acreage Calculations

**Assessment(s):* Weekly skill based labs / Complete class review activity / Unit Test

Learning Outcomes:

1. Distinguish between a true and a magnetic meridian.
2. Describe the four units used for measuring angles: sexagesimal system, radians, centesimal system and mils.
3. Distinguish between azimuths and bearings as a means of expressing direction.
4. Perform basic traverse computations given certain bearings and angles for an open or closed traverse.
5. Convert azimuths or bearings from magnetic to true, and vice versa.
6. Define the following terms: horizontal angle, elevation angle, zenith angle, depression angle, and vertical angle. Set up the transit and tripod and accurately measure the 5 types of angles stated above.
7. Describe the following methods of graphical area determination: Dot-grid, Planimeter, Triangle scaling and Weight estimation.
8. The student will be able to adjust and close a traverse by mathematical means, and determine the percent of error of closure and precision.
9. The student will be capable of determining the area of a closed traverse by the following methods: double meridian distance, triangle scaling, polar planimeter, dot-grid, and rectangular coordinate.
10. The student will be able to perform a topographic survey using the engineer's level.

Module #4

Materials Covered: Property and Feature Mapping

**Assessment(s):* Weekly skill based labs / Complete class review activity / Unit Test

Learning Outcomes:

1. The student will use the engineer's transit to perform a boundary survey of a parcel of real property.
2. The student will visit the local county courthouse Deeds and Records Department, and be able to find the deed of a landowner and the plat book in which it is recorded.
3. The student will visit the county Tax Assessor's office and discover the various uses of tax maps, their compilation and revision procedures, and the duties of the county Tax Assessor.
4. The student will identify some of the different legal responsibilities and procedures of a state registered land surveyor.
5. The student shall be able to construct and interpret a property plat.
6. Using the engineer's transit, the student will be able to run a profile and cross-section of a proposed forest road.
7. Using graph paper, the student will be able to graphically plot the centerline profile and cross-sections of a proposed forest road.
8. Given a starting and ending elevation, the student will calculate and stakeout cuts and/or fills for a drainage ditch.
9. Using a theodolite and engineer's level, the student will stake out side slopes for a proposed forest road.

****Students – please refer to the Instructor's Course Information sheet for specific information on assessments and due dates.***

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*

Students' performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Tests (3)	60%
Labs / Field Reports	15%
Homework	10%
Final Exam	<u>15%</u>
	100%

****Students, for the specific number and type of evaluations, please refer to the***

Instructor's Course Information Sheet.

GRADING SYSTEM:

The College's and Departmental grading system is delineated in the Catalog. Please note the College adheres to a 10 point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below. You must have your Dean's approval if changes in the scale are made.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the academic calendar for deadlines for add/drop ([ACADEMIC CALENDAR](#)). You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**



Part V: Student Resources

The Student Success and Tutoring Center (SSTC)

The SSTC offers to all students the following **free** resources:

- 1. Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills.**
- 2. On-line student success and academic support resources.**

Visit the SSTC website: [Student Success & Tutoring Center](#) and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, call: SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455 or go to the [Online Resource Center](#) to access on-demand resources any time.



TECH Central – Student Information Center

TECH Central provides quality enrollment and collegiate guidance for students, faculty, and staff. Services include phone, walk-in, and online technical support for technology training and troubleshooting. Additionally, we offer support in Office 365, Outlook E-mail setup, and ID cards.

Phone: 843-349-5340

Email: techcentral@hgtc.edu

Text: 843-357-8552

TECH Talk (Live Chat): Located on the “Home” tab in WaveNet.

Website: www.hgtc.edu/techcentral

Locations:

Conway Building 1100, Room 132D

Grand Strand Building 200, Room 136

Disability Services: HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to Beth Havens, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals will review documentation of the student’s disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student’s responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

Statement of Equal Opportunity/Non-Discrimination Statement

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

Inquiries regarding the non-discrimination policies: Students and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs, Dr. Melissa Batten, VP Student Affairs, Title IX Coordinator, Building 1100, Room 107A, Conway Campus, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, Melissa.Batten@hgtc.edu. Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources, Jacquelyne Snyder, VP Human Resources, Section 504, Title II, and Title IX

Coordinator, Building 200, Room 212A, Conway Campus, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, Jacquelyne.Snyder@hgtc.edu.

Title IX Requirements

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college’s Chief Student Services Officer, campus law enforcement, or with the college’s Title IX Coordinator, or designee.

*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

<p>Inquiries regarding the non-discrimination policies:</p>	
<p>Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.</p>	<p>Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.</p>
<p>Dr. Melissa Batten, VP Student Affairs <i>Title IX Coordinator</i></p> <p>Building 1100, Room 107A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5228 Melissa.Batten@hgtc.edu</p>	<p>Jacquelyne Snyder, VP Human Resources <i>Section 504, Title II, and Title IX Coordinator</i></p> <p>Building 200, Room 212A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5212 Jacquelyne.Snyder@hgtc.edu</p>