ENGR 1307: Plane Surveying, Lecture 010 MW (VIN 263) 12:00 pm – 12:50 pm, Lab 01Z W (HSEL) 1:00 pm – 3:50 pm, Lab 02Z R (HSEL) 9:30 am – 12:20 pm

1: Instructors:

Dick Apronti, PhD
- Email: dick.apronti@angelo.edu
- Phone: 325-486-5512
- Office: VIN 275
- Office hours: MTWRF (on Engineering Community Blackboard Collaborate) from 8:00 pm – 9:00 pm

William A. Kitch, PhD
- Email: william.kitch@angelo.edu
- Phone: 325-942-2483
- Office: VIN 266
- Office hours: check Dr. Kitch’s profile page

2: Materials

- Additional materials include surveyor’s field notebook, a calculator meeting NCEES rules, a pencil, a ruler, an engineering pad for in-class exercises and homework. Visit Other Course Info on the right pane of the course page for more information on these additional materials.
- Access to exams and quizzes may be through Respondus Lockdown Browser and will be video recorded via Respondus Monitor. Respondus requires a desktop computer or laptop (not a Chromebook) and a webcam. For best results, use an ethernet cable to connect to your Internet source instead of relying on Wi-Fi. Refer to the Blackboard course for Respondus installation instructions.
- Blackboard Collaborate shall be used for office hours and some tutorial sessions. You will need a web cam and a mic for participating on the Blackboard Collaborate sessions.

3: Prerequisites

- MATH 1314 – College Algebra or equivalent academic preparation
4: Course Description

In this course, you will learn to recognize and solve problems in surveying as they apply to engineering projects. You will be introduced to modern surveying equipment such as levels and total stations. You will learn to use these instruments to perform surveys of typical engineering projects. You will also be introduced to surveying using Global Navigation Satellite Systems.

5: Course Delivery

To maintain academic quality while accommodating social distancing needs this semester, this course will use a split delivery model that combines face-to-face teaching with remote instruction.

The goal is to provide face-to-face instruction to students who want to return to campus, while also allowing students who may need to learn remotely to participate via virtual class sessions.

How Does It Work?

Your class will be divided, and you will be placed into a smaller group of students to maintain physical distancing requirements in our assigned classroom space.

Your assigned group will receive a schedule of in-person class meetings. This schedule is not flexible. For instance, if you are supposed to attend class on a Monday, you cannot elect to go on Wednesday with another class group instead.

When you are not in the physical class, you will attend live remote sessions at the same time as our scheduled course. You will also be expected to complete coursework via Blackboard. Please refer to this Health and Safety web page for updated information about campus guidelines as they relate to the COVID-19 pandemic.

6: Communication

The instructor will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of Blackboard Collaborate. Instructor will post all announcements on Blackboard and create threads for discussing general class problems such as problems with homework, projects, and exams. You are highly encouraged to participate on discussion boards and to regularly check postings.

7: Student Learning Outcomes

When you complete this class, you should be able to:

1. Determine errors in measurements and the accuracy of a set of measurements by propagating the errors through computations
2. Use tapes, levels, and total stations to perform field measurements of elevation and location in the context of engineering projects and document measurements in accurate field notes
3. Use plane survey measurements to create maps, contours, site plans and other engineering descriptions of a given site.
4. Use plane surveying methods to layout engineering constructions such as buildings, roads, horizontal and vertical curves.

5. Solve common civil engineering survey problems related to leveling, traversing, earthworks, and highway curves.

6. Describe the components in Global Navigation Satellite Systems and how they are used in surveying.

8: Course outcome mapping

The mapping of the course outcomes to the ABET Criterion 3 student outcomes is shown in Error! Reference source not found..

Table 1: Mapping Course Outcomes to ABET Criterion 3

<table>
<thead>
<tr>
<th>ABET Criterion 3</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Solve Problems</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>2. Design</td>
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<tr>
<td>3. Communication</td>
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<tr>
<td>4. Ethics &amp; Professionalism</td>
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<tr>
<td>5. Teamwork</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Experimentation</td>
<td></td>
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<tr>
<td>7. Acquire New Knowledge</td>
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</tbody>
</table>

9: Professionalism

Professional engineering standards apply in this class. You are expected to demonstrate a behavior consistent with the conduct of an individual practicing in the engineering profession. You are expected to: (1) come prepared for class; (2) respect faculty and peers; (3) demonstrate responsibility and accountability for your own actions; (4) demonstrate sensitivity and appreciation for diverse cultures, backgrounds, and life experiences; (5) offer and accept constructive criticism in a productive manner; (6) demonstrate an attitude that fosters professional behavior among peers and faculty; (7) be punctual to class meetings; (8) maintain a good work ethic and integrity; and (9) recognize the classroom as a professional workplace.

10: Graded Material

10.1: Class Attendance, Participation, Timeliness and Teamwork

You are expected to meet every class meeting on time and prepared. Attendance may be taken through exercises and other graded activities. Should you find it necessary to miss a class for any reason, you are expected to notify your instructor as early as the absence is known—preferably before the absence.

Nearly all worthwhile accomplishments from raising a family to launching the space shuttle are the work of teams. Civil engineering is no exception. All significant civil engineering projects are completed by teams. You will work in teams to complete the semester project. The purpose of the teams is to give you practice working together and to provide a support group for you within the class. Outside of class, please collaborate and work with anyone you wish.
10.2: Homework

Homework will normally be due a week after assignment and will be based on the current or previous topic. Due dates will be indicated in the assignments. Any assignments submitted in hard copy are due at the beginning of class on the due date. Late submissions will not be graded.

10.3: In-class Quizzes & Exercises

There will be in-class quizzes. The quizzes may be unannounced and unscheduled. The quizzes are mainly intended to determine whether you understand a topic or are prepared for class. They will also serve the purpose of checking attendance. Your lowest score will be dropped.

10.4: Field Notes & Lab Submittals

Engineers have both an ethical and professional responsibility to take accurate, understandable field notes. Field notes form the basis of both engineering and legal decision making. Your field notebooks will be evaluated for accuracy, completeness and professionalism. All your lab work will be completed in teams. Five of the labs will be evaluated based on lab submittals (field note taking, taping, levelling, traversing, and topo-mapping). The remaining labs will be evaluated on your in-field performance and field notes.

10.5: Exams

There will be two exams. The first exam will be worth 20% and the second exam will be worth 25% of your final grade. The format and content of the exam will be discussed in class.

10.6: Grades: Weighting and Letter Grades

The weighting system shown in Table 2 will be used in determining final grade for the course.

Table 2: Grade Weighting

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-class Quizzes &amp; exercises</td>
<td>15%</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Field Notes/Lab Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Lab submittals</td>
<td>10%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam (Exam 2)</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The instructor will determine letter grades for the course using his professional judgment, and the following standards as described in the University Catalog:

A = excellent work  B = good work  C = average work  D = poor work  F = failing work

A = 90.00-100 points
B = 80.00-89.99 points
C = 70.00-79.99 points
D = 60.00-69.99 points
F = 0-59.99 points
11: Classroom and University Policies and Student Support

11.1: General Policies

All students are required to follow the policies and procedures presented in the Angelo State University Student Handbook and Angelo State University Catalog.

11.2: Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is in the Office of Student Affairs and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

11.3: Title IX Statement

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU’s Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.
Director of Title IX Compliance/Title IX Coordinator
Mayer Administration Building, Room 210
325-942-2022
michelle.boone@angelo.edu
You may also file a report online 24/7 at www.angelo.edu/incident-form.
If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix.

11.4: Required Use of Masks/Facial Coverings by Students

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory Facial Covering Policy to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

11.5: Observance of Religious Holy Day

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

11.6: Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

11.7: Student Conduct Policies

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s Statement of Academic Integrity.

Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.
Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

12: Instructor Prerogative

This class does not operate under democratic principles. Your instructor may change policies, procedures, of this course when he deems it necessary. You will be notified of any such changes.

13: Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

14: Course Outline

The course outline is presented in Table 3. Notes and homework assignments along with updates to this schedule will be provided via Bb.

Table 3: Tentative Lesson Outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Lab</th>
<th>Reading</th>
<th>Assignment</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 08/17</td>
<td>Class introduction, introduction to surveying</td>
<td>Pacing &amp; Field Notes</td>
<td></td>
<td>HW01; Lab01</td>
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<tr>
<td>W 08/19</td>
<td>Significant figures</td>
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<td>Recording 1</td>
<td></td>
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<tr>
<td>M 08/24</td>
<td>Units</td>
<td>Taping</td>
<td></td>
<td>Lab02</td>
<td>HW01</td>
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<tr>
<td>W 08/26</td>
<td>Measuring Distances</td>
<td>Taping</td>
<td>Recording 2</td>
<td>HW02; Lab01</td>
<td></td>
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<tr>
<td>M 08/31</td>
<td>Taping</td>
<td>Intro to Leveling</td>
<td></td>
<td></td>
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<tr>
<td>W 09/02</td>
<td>Theory of errors</td>
<td></td>
<td>Recording 3</td>
<td>Lab02</td>
<td></td>
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<tr>
<td>M 09/07</td>
<td>Labor Day Holiday</td>
<td></td>
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<tr>
<td>W 09/09</td>
<td>Theory of errors</td>
<td>Leveling I</td>
<td>Recording 4</td>
<td>HW03</td>
<td>HW02</td>
</tr>
<tr>
<td>M 09/14</td>
<td>Leveling: theory, methods &amp; Equipment</td>
<td>Leveling II</td>
<td></td>
<td>Lab03</td>
<td></td>
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<tr>
<td>W 09/16</td>
<td>Leveling: field procedures &amp; computations</td>
<td></td>
<td>Recording 5</td>
<td></td>
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<tr>
<td>M 09/21</td>
<td>EDM</td>
<td>Angles</td>
<td></td>
<td>HW04; Lab04</td>
<td>HW03</td>
</tr>
<tr>
<td>W 09/23</td>
<td>Angles, azimuths, bearing</td>
<td></td>
<td>Recording 6</td>
<td></td>
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<tr>
<td>M 09/28</td>
<td>Magnetic bearings and declination</td>
<td>Closed Traverse</td>
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<td>HW04</td>
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<td>W 09/30</td>
<td>Introduction to traversing</td>
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<td>Recording 7</td>
<td>Lab04</td>
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<tr>
<td>M 10/05</td>
<td>Exam 1</td>
<td>Traverse Computations</td>
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<td>Lab05</td>
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<td>W 10/07</td>
<td>Traverse computations</td>
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<td>Recording 8</td>
<td>HW05</td>
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<tr>
<td>M 10/12</td>
<td>Coordinate geometry</td>
<td>Topo Survey</td>
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<tr>
<td>W 10/14</td>
<td>Coordinate geometry</td>
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<td>Recording 9</td>
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<td>M 10/19</td>
<td>Construction surveying</td>
<td>Introduction to Civil3D</td>
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<td>HW06</td>
<td>HW05</td>
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<td>W 10/21</td>
<td>Horizontal curves</td>
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<td>Recording 10</td>
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<tr>
<td>M 10/26</td>
<td>Vertical curves</td>
<td>Introduction to Civil3D</td>
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<td>Lab05</td>
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<tr>
<td>W 10/28</td>
<td>Area computations</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Reading</td>
<td>Activity</td>
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<tr>
<td>M 11/02</td>
<td>Volumes</td>
<td></td>
<td>Reading 1</td>
<td></td>
<td></td>
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<tr>
<td>W 11/04</td>
<td>Earthworks computations</td>
<td>§19.1 - §19.6</td>
<td>Reading 2</td>
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<tr>
<td>M 11/09</td>
<td>Control surveys</td>
<td>§13.1 - §9.6</td>
<td>Reading 3</td>
<td></td>
<td></td>
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<tr>
<td>M 11/16</td>
<td>State Plane coordinates</td>
<td>§20.1 - §20.5; §20.10 - §20.13</td>
<td>Reading 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 11/18</td>
<td>Review for Finals</td>
<td></td>
<td>Quiz05</td>
<td></td>
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<tr>
<td>F 11/20</td>
<td>Final Exam (from 1:30 – 3:00 pm)</td>
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</tbody>
</table>
1 https://www.angelo.edu/content/profiles/2894-william-a-kitch
2 https://ncees.org/exams/calculator/
3 https://blackboard.angelo.edu/webapps/blackboard/execute/launcher?type=Course&id=53312_1&url=
   https://blackboard.angelo.edu/
4 https://www.angelo.edu/covid-19/returning-to-campus/health-and-safety.php
5 https://www.angelo.edu/student-handbook/
6 https://www.angelo.edu/catalogs/
7 https://www.angelo.edu/services/disability-services/
8 https://cm.maxient.com/reportingform.php?AngeloStateUniv&layout_id=1
9 https://www.angelo.edu/services/title-ix/
10 http://www.texastech.edu/downloads/ttus-policy-face-coverings.pdf
11 https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
12 https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
13 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
14 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
15 https://www.angelo.edu/dept/writing_center/academic_honesty.php
16