



WACO, TEXAS

COURSE SYLLABUS

AND

INSTRUCTOR PLAN

PLANE SURVEYING

ENGR - 1307 – H1

PAULINA SIDWELL

NOTE: This is a 16-week course.

NOTE: This is a Blended/Hybrid course.

COVID 19 Notice:

McLennan Community College is committed to providing you with every resource you need to reach your academic goals including your safety. We will continue to monitor the evolving situation with COVID 19 and adjust our safety guidelines to make sure we offer a safe environment for you and our faculty. Please make sure to consult your faculty and the MCC website at <https://www.mclennan.edu/crisis-management/coronavirus-updates/index.html> on any changes to these guidelines.

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Course Description:

Development of skills necessary to recognize and solve problems in surveying; introduction and use of various precision instruments used for surveying, including level, theodolites, electronic distance measuring equipment, and total stations for collecting field data; introduction of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) and their use in surveying; and use of graphic design software, such as AutoCAD or Microstation, in surveying problems. Semester hours 3 (2 lec, 4 lab)

This is HYBRID course. The lecture portion on this course will be delivered online. Most homework assignments will also be done online. The lab portion of this course will be face-to-face on specific dates.

Prerequisites and/or Corequisites:

C or better in MATH 1316—Plane Trigonometry or equivalent academic preparation, C or better in ENGR 1304—Engineering Graphics

Instructor Information:

Instructor Name: Paulina Z. Sidwell

MCC E-mail: psidwell@mclellan.edu

Office Phone Number: (254) 299 8544

Office Location: SB144

Office/Teacher Conference Hours: Mon/Wed 11:00 to 1 pm (on campus); Tues/Thurs 11:00 am to 1:00 pm (online only via Zoom, Meeting ID 4242506102); Fridays by appointment only. Make appointments here: www.psidwell.appointy.com/

****This course will be meeting online-only up until Spring Break. After Spring Break, there will be on-campus, face-to-face labs on specific dates from 1:15 pm to 5:20 pm.****

Required Text & Materials:

- Required
 - *Surveying* by McCormac, Sarasua, and Davis, 6th edition, ISBN: 978-0470496619
 - *Autodesk Civil 3D 2022 Fundamentals* by SDC Publications, ISBN: 978-1-63057-416-1
 - A calculator (any)
 - A lab notebook (provided by instructor)
 - Students should download the free AutoCAD Civil 3D 2022 software from www.autodesk.com.

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- Two separate internet-enabled devices (ideally a computer and a smartphone or tablet) for use on test days.
 - One must have a camera and microphone, and be able to connect to Zoom (like most smart phones)
 - One must be able to run Respondus Lockdown Browser

MCC Bookstore Website: <http://www.mclennan.edu/bookstore/>

Additional requirements:

Students must have a reliable computer and internet connection. Students must be able to demonstrate basic computer literacy skills such as keyboarding, sending and receiving email, and using a web browser.

MCC Engineering uses Slack for communication. All major course announcements will be posted in Slack – failure to check Slack will result in you missing important information. Also, anything we hear about jobs, scholarships, speakers, etc., will also be posted to Slack in the #general channel. Slack is free and used in the professional community as a workflow management system, so it is good to gain experience with the tool.

Please bear in mind that Slack is an open communication tool. Please do not ask for or reveal personal information through the tool. Note that anything you post in Slack in channels will be viewable by other channel participants. Do not post anything about personal grades, due dates, or personal issues. Do not post your own correct solutions to assignments, but you can post incorrect work and ask if anyone can see where you went wrong.

Slack can be used on both a desktop computer and as an app. For more information about Slack in general, visit <https://slack.com/>. You will be invited to our class channel via your MCC student account. Detailed guidelines for Slack are on Brightspace and on Slack itself.

Methods of Teaching and Learning:

Students will learn through online lecture videos, assigned readings, as well as through work on homework, labs, and exams. Additional methods may be used as opportunities present themselves.

Course Objectives and/or Competencies:

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

1. State the different classifications and types of surveys. *Chapter 1*
2. Apply principles of trigonometry to surveying problems. *All chapters*
3. Perform necessary unit conversions in surveying. *All chapters*

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4. Demonstrate skills necessary for field work such as safety, note keeping, and instrument care. *All chapters*
5. Operate surveying equipment such as level, theodolite, total station, electronic distance measuring equipment, and surveying tape. *All labs*
6. Determine the expected value and error bounds associated with measurements. *Chapters 2 & 4*
7. Perform horizontal and vertical measurements using standard surveying equipment for distance, angles, and contours. *All chapters*
8. Perform traverse and area calculations, including traverse closure. *Chapter 12*
9. Perform field layout for typical civil engineering applications such as highway geometrics and land development. *All labs*
10. Present surveying data in graphical form using engineering design software such as AutoCAD or Microstation. *Select labs*
11. Discuss the basic principles of GIS and GPS systems and their application to field surveying problems. *Chapters 16 – 18*

Course Outline or Schedule:

There are two schedules you must be aware of. The lecture and homework schedule (which pertain to the online portion of the course), and the lab schedule (which pertains to the face-to-face portion of the course).

<u>Lecture Schedule</u>			
Week	Topics	Chapters	Due Friday at 11:59 pm
Week 1: 01/10 - 01/14	Introduction to the course Introduction to Surveying	Ch 1	Orientation Quiz Download AutoCAD Civil 3D
Week 2: 01/15 - 01/21	Introduction to Measurements Measurement and Error Error Analysis Signification Figures and Rounding	Ch 2	Homework 1
Week 3: 01/22 - 01/28	Distance Measurement Taping Trigonometry Review Distance Corrections	Ch 3 & 4	Homework 2 & 3
Week 4: 01/29 - 02/04	Introduction to Leveling Differential Leveling Leveling Corrections	Ch 6 - 8	Homework 4 & 5
	Test 1 (Ch 1 - 8) on Monday, Feb 7, 1:15 - 3:15 pm		
Week 5: 02/05 - 02/11	Angles and Direction Azimuths and Bearings Traverse Computations	Ch 9 - 11	Homework 6

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Week 6: 02/12 - 02/18	Compass Rule Adjustment Area Computations	Ch 12	Homework 7
Week 7: 02/19 - 02/25	Topographic Surveying GPS GIS	Ch 14 - 18	Homework 8 & 9
Test 2 (Ch 9 -18) on Monday, Feb 28, 1:15 - 3:15 pm			
Spring Break			

Lab Schedule			
Week	Lab	Due Sunday (prior to this week)	Due at the End of Lab
Week 9: 03/13 - 03/18	Lab 1: Introduction and Determination of Pace	Lab Prep Quiz 1 Notebook 1 prep	Finalized Notebook entry 1
Week 10: 03/20 - 03/25	Lab 2: Length Measurement Techniques	Lab Prep Quiz 2 Notebook 2 prep Autodesk Civil 3D #1	Finalized Notebook entry 2
Week 11: 03/27 - 04/01	Lab 3: Differential Leveling	Lab Prep Quiz 3 Notebook 3 prep Autodesk Civil 3D #2	Finalized Notebook entry 3
Week 12: 04/03 - 04/08	Lab 4: Horizontal Angle Measurement	Lab Prep Quiz 4 Notebook 4 prep Autodesk Civil 3D #3	Finalized Notebook entry 4
Week 13: 04/10 - 04/15	Lab 5: Measurement of Closed Traverse with Total Station	Lab Prep Quiz 5 Notebook 5 prep Autodesk Civil 3D #4	Finalized Notebook entry 5
Week 14: 04/17 - 04/22	Lab 6: Compass Rule Adjustment of a Closed Traverse Lab 7: GPS	Watch videos	Lab 6 Excel Spreadsheet Lab 7 PPT
Week 15: 04/23 - 04/29	Test 3: Lab Practical on Monday, April 25th, 1:15 - 3:15 pm		
Final Exam (Comprehensive) on Wednesday, May 4th, 1:15 - 3:15 pm			

Course Grading Information:

Grade Distribution	
Homework	20%
Pre Lab Quizzes	5%
Field Work	30%
CAD Assignments	10%
Lab Practical	10%
Tests	25%
Total	100%

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A: 90%+ B: 80% – 89% C: 70% – 79% D: 60% – 69% F: 0% – 59%

Homework: All homework assignments will be completed on Brightspace. While most assignments involve answering questions directly on Brightspace, there may be assignments that need to be printed out, completed, scanned (using a proper scanner or a scanning app, like CamScanner), and then submitted on Brightspace. Assignments are due at 11:59 pm on Fridays as marked on the course calendar.

Pre Lab Quizzes: Before each lab, in order to be fully prepared, students must have watched all videos and completed the homework assignment on the topics the lab will be covering. Additionally, there will be a video which will give them additional information about the lab itself. Within the video is going to be a password, which you must have in order to take the quiz. Students will have unlimited attempts on the quiz, but must earn 100% on the quiz. **Students who do not complete the related quiz with 100% by the previous Sunday at 11:59 pm (before the lab) will not be allowed to participate on the week's lab and will receive a ZERO.**

Field Work: Labs will be graded on completeness, neatness, and accuracy. Details will be provided in the first lab meeting. There will be no opportunity to make up missed labs. Any unexcused lab absence will result in a zero for that lab. Excused lab absences (per official MCC policy) will result in the assignment being exempted (no grade given). It is the student's responsibility to learn the material, since it will still be covered in the lab practical.

All labs will occur after Spring Break. Labs will be held at various locations on MCC campus. Labs will begin promptly at 1:15 pm. Lab locations will be posted on Brightspace. Some things to keep in mind:

- Lab scheduling will be decided during the week prior to the scheduled lab, based on equipment availability and weather.
- Only one lab meeting per week is to be expected for each student, but it is important that all students keep the time slot open on both Mondays and Wednesdays and remain flexible to schedule changes.
- If arrive late to a lab, you will lose one letter grade on that lab for every 10 minutes you are late.
- For labs, students should wear comfortable clothing (closed-toed shoes, no skirts, etc.) and dress warmly as appropriate. Students are also required to bring water.
- Students should download a copy of the lab pdf to a phone or small mobile device (not a tablet or computer), or bring a printout. The instructor will not provide a copy of the lab on site.

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- Students who arrive unprepared for lab (not dressed properly, no water, no notebook) will not be allowed to participate in the lab activity and will be given a zero for the day's work.
- Students must prepare their field notebook templates by the previous Sunday and submit a scanned copy on Brightspace for verification. Students who do not complete by the deadline will receive a letter grade deduction on the week's lab.
- Students should keep an eye on Slack just prior to lab, since weather may force us to cancel or move a lab at the last minute. Changes will be announced at least one hour prior to the beginning of lab.
- Field notebooks should be completed during the lab and must be uploaded to Brightspace by the end of the day to receive a grade.
- If you have not ever been to a location where we will be having lab, you should find it prior to lab day. "Lost" students are also considered "absent" or "late."

CAD Assignments: We will be using AutoCAD Civil 3D 2022, which all college student may download from the AutoCAD website for free. AutoCAD Civil 3D activities will be posted on Brightspace and must be completed on the dates marked on the lab schedule.

Lab Practical: At the end of the semester, there will be an exam covering use of equipment and field theory. More information will be provided later in the semester.

Tests: Besides the Lab Practical, there will be three tests given during the semester (two tests and a final). Tests are closed notes/closed book. You will be allowed a 3 by 5 index card. You are also allowed your calculator and scratch paper. You will need to submit your scratch work as soon as the test is done in order to receive credit. The lowest test grade will be dropped.

- In order to take the test, there are some procedures you will need to follow:
 - You will need two internet-capable devices on the test day.
 - A phone – to log into Zoom
 - A computer/laptop – to log into Brightspace
 - On your phone: You'll join the class Zoom channel so I can proctor the exam.
 - Be ready to present your student ID (or another form of ID if you don't have one) so we can verify your identity).
 - I will need to watch you for the entire time you're taking the exam.
 - You can mute your mic, but not your video.
 - Your camera on your phone needs to be arranged so I can see you and your workspace.
 - I will record the Zoom meeting in case there are questions related to academic integrity, but will not post the video.

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- On your computer/laptop
 - Prior to the day of the exam, you will need to complete the Technology Check to make sure you have Respondus Lockdown Browser working on your machine.
 - The test is password protected – you cannot get the password without joining the Zoom meeting.
- Other important info:
 - The test dates are listed in the syllabus.
 - Please clear your schedule now as there will be no makeup exam except in cases where you can provide documentation of an MCC-approved absence.
 - Make sure you have a technology backup plan (like how to use your phone as a wifi hotspot) in case something goes wrong.
 - Try and get a distraction-free zone for testing, but we understand that things happen. Avoid a situation where someone could make the argument that you are getting unauthorized help on the exam from someone else.

Academic Dishonesty. Any student that is found guilty of academic dishonesty such as cheating, plagiarism, or collusion on any problem on an assignment, lab, or test will receive a grade of zero on the entire assignment, lab, or test. File sharing is considered cheating. For repeated violations (including multiple violations on the same assignment, lab, or test) and/or egregious violations, a guilty student can be assigned a failing grade in this course and can be recommended for suspension from the McLennan Community College District.

Academic Resources. The Engineering & Physics Club has regularly scheduled Homework Nights to assist students who need help with their engineering coursework. Free tutoring will be provided. Zoom and in-person options will be available. Please check Slack for location and/or Zoom link. This semester the meetings will be on Tuesdays and Thursdays from 5 to 7:30 pm.

Late Work, Attendance, and Make-Up Work Policies:

Late assignments will not be accepted. If you have to miss class on the day that a homework assignment is due, you must turn in the assignment early.

Attendance is mandatory. ***Per MCC policy, you may be automatically dropped after missing 25% of class meetings, this could mean missing four weeks-worth of work, which includes Homework assignments and/or labs.*** For this purpose, arriving late and leaving lab early both count as half an absence. If you are dropped before the official drop date date (***for Spring 2022, the date is March 25***), you will receive a grade of W. If you are dropped after the official drop date, you will receive a grade of F, unless there are highly unusual circumstances.

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MCC allows for “excused” absences caused by (1) authorized participation in official College functions, (2) personal illness, (3) an illness or a death in the immediate family, or (4) the observance of a religious holy day. It is your responsibility to let me know the reason for an absence the day you return to campus and provide sufficient documentation (doctor’s note, email from coach, etc.). Normally, please do not bring your children, friends, or guests to the class. (Please discuss this with me because I do not want you missing class if you cannot make child care arrangements.)

If you wish to drop this class, you must email me from your MCC student account before 5 pm on the last day for student-initiated drops, with the request “Please drop me from COURSE ID and SECTION NUMBER.” If the email does not come from your student account, or if the request is verbal, I cannot drop you. Alternatively, there is a form you can fill out and have me sign before 5 pm on the last day for student-initiated drops. Otherwise, you will stay on the roster for the rest of the semester and be awarded the grade earned. Drops past the drop date are only done in documented, extreme, life-crisis circumstances, which usually involve withdrawing from school entirely.

Student Behavioral Expectations or Conduct Policy:

Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of this educational opportunity.

[Click Here for the MCC Attendance/Absences Policy](https://www.mclennan.edu/highlander-guide/policies.html)

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Click on the link above for the college policies on attendance and absences. Your instructor may have additional guidelines specific to this course.

McLennan

C O M M U N I T Y

COLLEGE

ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:

Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu

254-299-8122

Room 319, Student Services Center

Title IX:

We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the Title IX Coordinator at titleix@mclennan.edu or by calling Dr. Drew Canham (Chief of Staff for Diversity, Equity & Inclusion/Title IX) at (254) 299-8645. Individuals also may contact the MCC Police Department at 299-8911 or the MCC Student Counseling Center at MCC at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting <http://www.lighthouse-services.com/mclennan/>.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:

MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at <http://www.mclennan.edu/campus-resource-guide/>

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Students may visit the Completion Center Monday-Friday from 8 a.m.-5 p.m. to schedule a meeting with a Success Coach and receive additional resources and support to help reach academic and personal goals. Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff based on household size. Text (254) 870-7573 to schedule a pantry appointment. The Completion Center and pantry are located on the Second Floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:

Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to <https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html> to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:

Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:

Go to <https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-and-Staff-Commons/requirements.html> for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:

Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:

In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:

McLennan Community College would like to remind you of the policy (<http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf>) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails.

Instructional Uses of Email:

Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:

The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

Forwarding Emails:

You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

Disclaimer:

The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.