

1: Course Number and Name

- a. **ENGR 1304:** Engineering Graphics, Fall 2021
- b. Section 010, VIN 245, Mondays 10:00 am – 11:50 am
- c. Section 01Z, VIN 245, Wednesdays 10:00 am – 11:50 am

2: Credits and Contact Hours

- a. **Credits:** 3
- b. **Contact Hours:** 2 hours/week (Classroom) 2 hours/week (lab)

3: Instructor Information

- a. **Course Coordinator:** Armita Hamidi
- b. **Instructors:** Armita Hamidi, 325-486-5518, armita.hamidi@angelo.edu. Office: VIN 273.
- c. **Office hours:** Mondays & Wednesdays 3:30 pm -5pm (face to face in VIN 273).

4: Required Course Materials

- Technical Drawing 101 with AutoCAD 2020 by Antonio Ramirez, Ashleigh Fuller, and Douglas W. Smith.
- Additional readings will be posted on-line.

5: Technology Requirements

- a. To successfully complete this course, you need access to Lynda.com. You can get this access for free with a Tom Green County library card. You have to visit a library branch in person to get your card. If you want you can pay for access either directly to Lynda.com or via LinkedIn. More info on these options is posted on Blackboard.
- b. This requires internet access and the ability to use the following online tools: Blackboard, Blackboard Collaborate, Adobe Acrobat (or another pdf maker), YouTube. No specific hardware is required, but access to a computer with webcam is highly encouraged.
- c. For secure online testing, you need to install Respondus and Respondus LockDown Browser and require a webcam. You can find the instruction on how to download and use the is provided at <https://www.angelo.edu/live/profiles/5052-respondus>.
- d. Software requirements:
 - Microsoft Excel: You can access Word, Excel, PowerPoint with your ASU email. Angelo State has partnered with Microsoft to make Office 365 available to students.
 - Autodesk AutoCAD: There is a free student software available at the Autodesk website when you register with your student email.
 - Autodesk Revit: There is a free student software available at the Autodesk website¹ when you register with your student email.
 - Autodesk Inventor: There is a free student software available at the Autodesk website when you register with your student email.
 - Solidworks: This software is not free for students but is available at the Engineering Computer Lab in VIN 245. It is an expensive piece of software, so you are not required to purchase it for your personal computer.

- Accessing Internet websites, using ASU Library resources, and proficiency with Microsoft Word and/or PowerPoint are expectations of the Engineering Graphics.

6: Other Supplemental Materials

Drafting materials including the items listed below

- Ruler with both inch and centimeter divisions--at least 6 inches or 15 cm long
- 30-60-90° triangles
- Protractor
- Compass
- 45° triangle – 5" to 10" size
- Engineers scale (10, 20, 30, 40, 50, 60)
- Mechanical Engineer's Scale (1/4 size, 3/8 size, 1/2 size, 3/4 size, 16)

7: Specific Course Information

- a. **Catalog Description:** As a future professional engineer, you will absolutely be required to understand the workings of Computer Aided Drafting and Design (CADD) and have the ability to produce reports and present results to clients, employers, the public and other stakeholders. The primary objective of this course is to provide you with the basic tools and knowledge of CADD. Additionally, you will be introduced to using tools such as Microsoft Excel, to analyze and present data plots.

Modern engineers use CADD in every aspect of planning, design, and estimation. The CADD tools are essential for the accurate and timely design of all engineering projects. However, traditional drafting knowledge remains essential for implementing CADD operations and tools. The drafting theory portion of this course includes the application of sketching, multi-view projections (orthographic and isometric), descriptive geometry (representation of three-dimensional objects in two dimensions), and dimensioning. This course will provide you with the proper drafting background for future use in any engineering discipline you may pursue.

- b. **Prerequisites:** ENGR1201
 c. **Required or elective:** Required for the BSCE and BSME Majors.

8: Specific Goals for the Course

- a. Course Learning Outcomes:
1. Demonstrate proper documentation, data reporting, and plotting skills.
 2. Demonstrate proficiency in visualization techniques, including freehand sketching.
 3. Apply common geometric constructions to the drawing of instrumental figures and practical designs.
 4. Communicate design solutions through CADD software using the accepted industry graphical representation methods.
 5. Derive a three-dimensional (3-D) drawing from multi-views of an object and multi-views from a three-dimensional image.
 6. Working as a team, apply drafting and design skills to create and present a technical drawing project to meet predefined requirements.
 7. Apply different learning strategies to learn a CAD program to complete a given project.
- b. Course Learning Outcome Mapping to ABET Criterion 3 Student Outcomes:

Table 1: Course Learning Outcomes mapped to ABET Student Outcomes

ABET Student Outcomes	1	2	3	4	5	6
1. Solve Problems	X			X	X	X
2. Design					X	X
3. Communication	X	X	X	X	X	
4. Ethics & Professionalism						
5. Teamwork					X	
6. Experimentation						
7. Acquire New Knowledge						X

9: Topics Covered

1. Spreadsheets and documentation
2. Scales and drafting
3. Basics of Computer Aided Drafting and Design
4. Three-dimensional modeling in CAD

10: Course Delivery and Communications

10.1: Delivery Method(s)

This is a face-to-face course with learning resources and supplemental materials posted in [Blackboard](#)¹. Accommodations will be made for students who are in quarantine or isolation and are unable to attend.

10.2: Communications

The primary means of communication during this course are Blackboard. Lesson materials will be delivered via Blackboard. Moreover, class discussion will be created on Blackboards for some topics and assignments for students to share their questions and ideas with others. The instructor will respond to email messages within 24 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 the Collaborate, Skype, Zoom or Microsoft team viewer.

11: 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.

12: Graded Material

12.1: Class Participation, Participation, Timeliness and Teamwork

The number one complaint of engineering clients is the timeliness of deliverables (reports, drawings, specifications, etc.). As a professional engineer you will be expected to arrive at scheduled meetings on time and prepared. Late proposals are not generally accepted. Late specifications or drawings may cost the engineer a monetary penalty. Professional engineering standards apply in this course.

You are expected to meet every class meeting on time and prepared. Attendance will be taken. 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. It's important that you communicate clearly your instructors.

Your online assignments will be due at the time specified on Blackboard. Any assignments submitted in hard copy are due at the beginning of class on the due date. Your instructor may assess penalties for late work.

12.2: Reading Assignments and Homework

Reading and homework assignments will be distributed via the Blackboard. Reading assignments will come from the assigned textbooks or other materials provided or available via the web. Homework will be due a week after the date of the assignment. Check Blackboard for specific due dates. Late Homework or in-class submissions will not be accepted unless consent has been sought and given by the instructor prior to the indicated deadline.

12.3: Quizzes

Instructors may give in-class quizzes. The quizzes will be unannounced and unscheduled. The quizzes are intended to determine whether or not you have completed the pre-class work and are prepared for class.

12.4: In-class Exercises

In-class assignments will be completed during the class time on the same day the work is assigned. Check Blackboard for specific instructions and due dates for each in-class exercise. Zero points will be awarded for missed exercises. These exercises cannot be made up.

12.5: Exams

There shall be three exams. The weights for the three exams are 5%, 10%, and 15% respectively. Make-up exams will only be given for extenuating circumstances unless prior arrangements with the instructor are agreed upon. Proof, such as a doctor's note or other official documents, may be required for unexcused absences during an exam.

12.6: Projects

There will be two projects for this class requiring some hands-on design work. Project 1 is an individual work where you will apply 2D drafting techniques. Project 2 is a team project work and will involve 3D modeling techniques and 3D printing your design. Projects one and two shall be worth 10% and 15%, respectively, of your final score.

12.7: 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

Item	Percent
Homework	15%
In-class Exercises	20%
Quizzes	10%
Exams (three)	30%
Projects (two)	25%
Total	100%

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

12.8: 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](#)² for more information.

13: Classroom and University Policies and Student Support

13.1: General Policies

All students are required to follow the policies and procedures presented in the [Angelo State University Student Handbook](#)³ and [Angelo State University Catalog](#)⁴.

13.2: Student Disability Services

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 located 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](#)⁵. 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

13.3: Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: [Incident Reporting Form](#)⁶

Face to Face: Mayer Administration Building, Room 210

Phone: 325-942-2022

Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State's policy please visit the [Title IX website](#).⁷

13.4: Student Absence for Observance of Religious Holy Days

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](#)⁸ for more information.

13.5: Information About COVID-19

Please refer to ASU's [COVID-19 \(Coronavirus\) Updates](#)⁹ web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

13.6: Student Conduct Policies

13.6.1: 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.

13.6.2: Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)¹⁰ 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 or SafeAssign. Resources to help you understand this policy better are available at the [ASU Writing Center](#)¹¹.

13.6.3: 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.

14: Course Outline

The course outline is presented in the table next page. Detailed reading and homework assignments along with updates to this schedule will be provided via Bb. The following schedule may be modified as the semester progresses.

Table 3: Course Lesson Outline

week #	Date	Topic	Course Materials	Assignments
1	23-Aug	Intro and learning strategy		
	25-Aug	Inclass assignment 1		
2	30-Aug	Spreadsheets and documentation	Microsoft Excel	Homework #1
	1-Sep	Inclass assignment 2	Microsoft Excel	
3	6-Sep	Labor Day-Holiday		
	13-Sep	Spreadsheets and documentation		
	15-Sep	Inclass assignment 3		
	20-Sep	Exam #1	Exam 1 includes: Intro, spreadsheet and documentation	Homework#2
4	22-Sep	Introduction to technical design		
	27-Sep	Inclass assignment 4		
5	29-Sep	Scales & Drafting		Homework#2
	4-Oct	Inclass assignment 5		
6	6-Oct	CAD Basics	AutoCAD	
	11-Oct	Inclass assignment 6	AutoCAD	Homework#3
7	13-Oct	Project 1 presentation	AutoCAD	
	18-Oct	Inclass assignment 7	AutoCAD	

8	20-Oct	Exam #2	Exam 2 includes: CAD basics, Scales & Drafting and 2D sketching	
	25-Oct	Project Presentation		Homework#4
9	27-Oct	3D Modeling	3D CAD software	
	1-Nov	inclass assignment 8	3D CAD software	
10	3-Nov	3D Modeling	3D CAD software	Homework#5
	8-Nov	inclass assignment 9	3D CAD software	
11	10-Nov	3D Modeling	3D CAD software	
	15-Nov	inclass assignment 10	3D CAD software	
12	17-Nov	inclass assignment 11	3D CAD software	
	22-Nov	Review & project discussion		
13	24-Nov	Spring break holiday		
	29-Nov	Project Presentation		

15: End Notes

¹ angelo.blackboard.com

² <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

³ <http://www.angelo.edu/student-handbook/>

⁴ <http://www.angelo.edu/catalogs/>

⁵ <http://www.angelo.edu/services/disability-services/>

⁶ <https://www.angelo.edu/incident-form>

⁷ <https://www.angelo.edu/title-ix>

⁸ <http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

⁹ <https://www.angelo.edu/covid-19/>

¹⁰ <http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php>

¹¹ http://www.angelo.edu/dept/writing_center/academic_honesty.php