



ENGR 110: Introduction to Engineering & Technology
Section 02E, Course Syllabus, Fall 2024
Rev 3, 10/28/2024

INSTRUCTOR INFORMATION

Instructor	Gerald L. Fudge, PhD
Office Location	AG/ET 217
Office Hours	Wednesday (9:00 am – 11:30 am) Friday (9:00 – 11:00 am, 1:00 pm – 2:00 pm)
Phone	Office: 903-468-8122
Office Fax	903-886-5960 (Inform instructor if fax is sent)
University Email Address	Gerald.Fudge@tamuc.edu
Preferred Form of Communication	Email, or per classroom guidance
Communication Response Time	Typically, within 48 hours on weekdays for email

COURSE INFORMATION

Class Meeting Schedule	See schedule at end of syllabus
Class Meeting Dates	Tuesday / Thursday 9:30 am - 10:45 am
Classroom	AG/ET 125
Textbook(s) Required	None
Software Required	Microsoft Office - MS Word, PowerPoint
Optional Texts and/or Materials	Engineering Fundamentals – An Introduction to Engineering, Saeed Moaveni, 5 th Edition; Excel

The syllabus/schedule are subject to change

COURSE DESCRIPTION

This course provides a solid foundation in fundamental skills needed for freshmen and transfer students to academically succeed and professionally prepare them for challenges within the disciplines of Engineering and Technology Management. The project-based assignments will provide students with opportunities to apply mathematics to solve engineering problems, acquire team working skills, practice written and verbal communication skills, and enhance problem solving and design skills. Early understanding of these skills will assist students throughout their undergraduate experience.

Prerequisites: Prerequisites: MATH 142 or MATH 2312 (precalculus), or concurrent enrollment.

Student Learning Outcomes

Upon successful completion of this course, students will achieve the following learning outcomes:

- Know basic quantities, including time, length, mass, force, work & energy, power, temperature
 - Know the corresponding SI units
 - Know scientific notation quantity prefixes from nano (10^{-9}) to giga (10^9)
- Be able to apply mathematical, chemical, and physical laws to solve engineering problems
 - Unit conversions and scientific notation
 - Basic trigonometry
 - Complex numbers & polar conversion
 - Basic probability & statistics
- Explain key engineering principles and the engineering design process
- Summarize professional & ethical responsibilities
- Describe basic characteristics of materials such as metals, plastics, glass, and concrete
 - Material properties including ductile, brittle, malleable
 - Recognize different types of material stress, including compressive, tensile, shear
- Demonstrate the fundamentals of teamwork, and be able to work in multi-disciplinary teams
- Explain interconnectedness and potential impact as an engineer (local, regional, global)
- Demonstrate effective oral and written communication skills:
 - Student introductions
 - Writing reports & resumes
 - Communications within your team
 - Class project presentations

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students must be able to access the Internet, use the D2L learning management system, and use Microsoft Office tools (Word, Excel, PowerPoint). Students should know how to use a scientific calculator.

Instructional Methods

The instructional methods in this course include lectures, class discussion and participation, informal quizzes, homework assignments, team projects, and exams. The team projects and class participation will include the use of teamwork for students to learn from each other under leader supervision, similar to a real-world engineering environment.

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Student Responsibilities or Tips for Success in the Course

- **Attendance & Participation:** On-time attendance is required. Students must show up awake and ready to participate with proper attire (see below). Attendance & Participation is a graded component because for optimum learning, students need to attend class and participate in all activities. The table below shows the potential grade penalty for unexcused absences for the T/R morning class. Coming late to class counts as half of an absence. Students should inform the instructor if they need to miss class. Student should bring a scientific calculator to class to support participation.

# of unexcused absences	< 4	4	5	6	7	>7
Grade penalty	0%	5%	10%	20%	30%	F

- **Homework Assignments:** Working through example problems is a critical component to learning. Late work may be penalized, including a grade of zero, unless student has an acceptable excuse proven by a doctor's note or other legal documentation.
- **Quizzes:** Quizzes will be used to assess problem solving skills and provide student feedback. In-class quizzes will be given to help reinforce the material. Unless otherwise specified, these must be turned in during the class; late submissions are not allowed.
- **Projects:** Students will be expected to work together in team projects, similar to real-world engineering, to design and build a system, and to document via in-class presentation, soft-copy presentation, and engineering report. Peer reviews will be collected for group projects to support group evaluation of team member performance.
- **Assignment Submission:** Students shall submit assignments either in class or in the assigned drop boxes on D2L. If problems are encountered using D2L, then email may be used as a backup with instructor permission.
- **Collaboration:** Students are strongly encouraged to collaborate, but must turn in their own work. Teamwork is an integral aspect of engineering.
- **Soft-Copy Report Formats:** Students should submit reports in Word or PDF (PDF preferred) following the required format in the assignment.
- **Exams:** The exams will be closed book & closed notes. Student will need to bring a scientific calculator. The use of a personal phone is prohibited during exams. A makeup exam may be offered but an official permit for absence that fulfills University procedures may be required by the instructor. See policy on midterm grades in the grading section.
- **Shoes & Attire:** This course requires laboratory work with power tools, and thus closed toe shoes are required for safety. In addition, as described in safety training, suitable attire will be required to minimize the risk of injury. Hoodies should not be worn over the head during class, nor should blue tooth and similar devices be worn in the ears during class.
- **Use of Artificial Intelligence (AI) Tools:** Students should use tools such as spelling and grammar checkers, page and section breaks, and format templates. However, other than as directed by the instructor for specific assignments, AI tools, ChatBots, and other software that has the capacity to generate text, or suggest replacements for text beyond individual words is prohibited. Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

GRADING

Final grades in this course will be based on the following scale:

A	B	C	D	F
100 - 90	89 - 80	79 - 70	69 - 60	59 - 0

Overall grades will be based on a weighted average as shown below. **Note that midterm grades below 90% will require correction and in-person review with the instructor.**

Assessment Type	Percent
Attendance & Participation (see attendance policy)	10
Quizzes	15
Homework	20
Exams	25
Projects	30
Total	100

Note: There may also be opportunities for bonus points; these will be discussed in class.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

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COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here: <https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

Use email, mobile, and office hours as presented under instructor information.

Course and University Procedures / Policies

Course Specific Procedures/Policies

As described above, student attendance and participation are required for this class.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#), and

- <http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>
- <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

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Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

- [Undergraduate Academic Dishonesty 13.99.99.R0.03](#)
- [Undergraduate Student Academic Dishonesty Form](#)
- <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>
- [Graduate Student Academic Dishonesty Form](#)
- <http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>
- <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) document and/or consult your event organizer. Web url: <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

AI use policy [Draft 2, May 25, 2023]

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

COURSE OUTLINE / CALENDAR

This course covers the following major topics: an introduction to the engineering profession, preparing for a career, an introduction to the engineering design process, engineering communications and ethics, fundamental dimensions and units, variables (length, time, mass, force, temperature, current and related variables), engineering materials, and mathematics in engineering. These major topics are integrated across the semester per the weekly schedule below. For example, this schedule introduces the systematic application of engineering mathematics in week 2 in the sub-topics on volume and unit conversion, and continues each week through the week 11 discussion and application of mechanical advantage. In addition, there is a heavy emphasis in experiential learning. For example, trigonometry, force, and friction are integrated into a hands-on team-based experiment to measure friction of a mass on a ramp. The course culminates in a team project that integrates multiple areas of discussion, including mechanical advantage.

Wk.	Days		Weekly Topic	Notes
	Tues.	Thur.		
1	8/27	8/29	W1: Course overview; lab safety; engineering profession	Safety Quiz
2	9/3	9/5	W2: Introductions; teams; volume, unit conversion method	9-2: Labor Day
3	9/10	9/12	W3: Calculations; bridge design; SI units, SI prefixes	9-11: Census Day
4	9/17	9/19	W4: Reports, resumes; more unit conversion	
5	9/24	9/26	W5: Trig, force, friction on ramp, bridge software	
6	10/1	10/3	W6: Energy, work, power; case studies: MacArthur Maze & Tacoma Bridge	
7	10/8	10/10	W7: Review -> Exam 1	Exam 1
8	10/15	10/17	W8: Balsa wood bridge build in-class project	
9	10/22	10/24	W9: Complex numbers; ethics; electrical current, voltage, resistance	
10	10/29	10/31	W10: Probability & statistics; material properties	
11	11/5	11/7	W11: Case studies: engineering disasters; mechanical advantage	
12	11/12	11/14	W12: Mouse trap project, team project time	Start project
13	11/19	11/21	W13: Team project time; final exam review	
14	11/26	11/28	W14: Team project time	11-27->29: Break
15	12/3	12/5	W15: Presentations, competition, final exam review	Projects due!
16			Final:	Final Exam
Notes:				
1. Specific dates are subject to change				

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