



ENGR 110.03E Introduction to Engineering & Technology

COURSE SYLLABUS: Fall 2024

INSTRUCTOR INFORMATION

Instructor: Taewoo Ko, Ph.D., Assistant Professor

Office Location: AG/ET 125

Office Hours: M, W, F 10:00 am - 12:00 pm or by appointment.

Office Phone: 9034688131

Office Fax: 9038865960

University Email Address: taewoo.ko@tamuc.edu

Preferred Form of Communication: Office Hours or Email

Communication Response Time: Emails will be responded to on the same day. Feel free to send an email at any time. Emails received during the weekend will be responded to on the evening of the same day.

Course Times: MWF 09:00 am – 09:50 am

COURSE INFORMATION

Textbook Required: None

Optional Texts and/or Materials: Engineering Fundamentals – An Introduction to Engineering, Saeed Moaveni, 5th Edition.

Course Description

This course provides a solid foundation in fundamental skills needed for freshmen and transfer students to succeed academically 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 teamwork 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: MATH 142 or 2312 (precalculus) or concurrent enrollment.

The syllabus/schedule are subject to change.

Student Learning Outcomes

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

- Understand key engineering principles and the engineering design process
- Recognize engineering disciplines and professional & ethical responsibilities
- Understand and be able to apply mathematical, chemical, and physical laws to model, analyze and investigate engineering problems
- Know basic quantities such as length, time, mass, force, temperature, and their related variables
- Be able to use scientific notation and interpret scales from nano (10^{-9}) to giga (10^9)
- Develop skills in using engineering computational tools to record, organize, and analyze data.
- Understand basic characteristics of materials such as metals, plastics, glass, and concrete
- Be able to select and apply appropriate engineering tools & techniques to solve problems
- Be able to verify and validate engineering designs or products
- Understand the fundamentals of teamwork and effective communication skills.
- Demonstrate the capacity to function in multi-disciplinary teams
- Demonstrate effective oral and written communication skills through:
 - Class participation
 - Effective communication among team members
 - Solving homework and exam problems
 - Effective engineering report writing

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.

Student Responsibilities or Tips for Success in the Course

- **Attendance Policy:** On-time attendance is required. Students must show up awake and ready to participate in proper attire for laboratory work with power equipment (see below). Attendance & Participation is a graded component because for optimum learning, students need to attend class and participate in

The syllabus/schedule are subject to change.

discussions, quizzes, demonstrations, lab work, and exams. The table below shows the potential grade penalty for unexcused absences; coming late to class counts as half of an absence. Note that even excused absences can negatively impact the participation component of the total grade.

# of unexcused absences	0 - 3	4	5	6	7	7+
Grade penalty	0%	5%	10%	20%	30%	F

- **Homework Assignments:** Working through example problems is a critical component of learning. The homework sets will include review problems in addition to problems illustrating new material. Homework will be due approximately once per week except during major projects. Late work may be penalized, including a grade of zero, unless the student has an acceptable excuse proven by a doctor's note or other legal documentation.
- **Projects:** Students will be expected to work together in team projects similar to real-world engineering to design and build a system and document their work 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.
- **Soft-Copy Report Formats:** Students shall submit assignments either in class or in the assigned drop boxes on D2L (directions will be provided in class). If problems are encountered using D2L, then the email may be used as a backup with the instructor's permission.
- **Collaboration:** Students are encouraged to collaborate on homework but must turn in their own work.
- **Soft-Copy Report Formats:** Students should submit reports in Word or PDF formats. APA or other standard format is required for all reports assigned during this class. Students should use MS Office and other available tools to improve their work, such as spelling and grammar checkers, page and section breaks, and format templates. This is highly encouraged PRIOR to the submission of assignments.
- **Exams:** Unless otherwise noted, the exams will be closed book and closed notes. Students must bring a scientific calculator for quizzes and exams. The use of a personal phone is strictly prohibited during exams. A makeup exam may be offered, but an official permit for absence that fulfills University procedures must be provided to the instructor in a timely manner.
- **Quizzes:** Quizzes will be used to assess problem-solving skills and provide student feedback. Students should bring a scientific calculator to class for quizzes.
- **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 serious injury.
- **D2L:** Log into the D2L course website regularly to monitor grades, homework

The syllabus/schedule are subject to change.

assignments, and directions from the instructor.

- **Scientific Calculator:** Students must be proficient in using a scientific calculator to perform analysis and problem-solving in assignments, quizzes, and exams. If a calculator is not available, students must accurately estimate the answers.

GRADING

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

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

The grades will be a weighted average with the following weights based on assessment type:

Assessment Type	Percent
Attendance & Participation (see attendance policy)	30
Assignments (individual & team)	25
Exams (2 exams)	25
Projects (individual & team)	20
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 the 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

The syllabus/schedule are subject to change.

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

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 coursework 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.

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

The instructor will respond to your questions on D2L tools within 24 hours. For urgent questions, and for questions that are not answered within 24 hours, please prefer e-mail correspondence.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

1. One day late assignment is accepted with a 15% grade deduction; after this, no assignment will be accepted.
2. You will be expected to do all the readings throughout the semester.

The syllabus/schedule are subject to change.

3. Each exam will be given in class. Exams are closed books and notes (necessary formulas will be provided on a separate page). Students will need a scientific calculator for exams. Cell phones are not acceptable as a calculator. The use of unauthorized aids on exams will result in a grade of zero.
4. There will be one group project.
5. 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.
6. No make-up exams will be permitted unless official documentation for absences is provided (e.g., death in the family, illness).

“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.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty”

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

The syllabus/schedule are subject to change.

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.

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

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

The syllabus/schedule are subject to change.

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

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

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](#) 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.

COURSE OUTLINE / CALENDAR

Week #	Week of	Topics
1	Aug 26	Course overview; lab safety; volume;
2	Sep 2	Introductions; engineering design & reports
3	Sep 9	Resumes; Trig & force; SI units, nano -> mega
4	Sep 16	Trig & complex numbers; unit conversions
5	Sep 23	Friction, time & rate, distance & speed

The syllabus/schedule are subject to change.

6	Sep 30	Energy, force, work, power
7	Oct 7	Review -> Exam 1
8	Oct 14	Engineering disasters; mechanical advantage
9	Oct 21	Destructive testing; engineering ethics
10	Oct 28	Probability & statistics; material properties
11	Nov 4	P1 Research methods; P2 Mouse Trap Car
12	Nov 11	Review -> Exam 2
13	Nov 18	Engineering video; Team project time
14	Nov 25	Special topics; project time; early presentations
15	Dec 2	Presentations; competition
16	Dec 9	Finals (no final for this class)

The syllabus/schedule are subject to change.