EE 470 – Senior Capstone Design Project I
[Semester Credit Hour (3)]
COURSE SYLLABUS: Fall 2025

INSTRUCTOR INFORMATION

Instructor: Nizar Tayem, PhD
Assistant Professor, Electrical Engineering
Department of Engineering and Technology

Office Location: AG/ET 218
Office Hours: Wednesday (1:00 PM -2:00 PM)

Office Phone: 903-886-5706
Office Fax: 903-886-5960 (Inform instructor when fax is sent)

University Email Address: Nizar.Tayem@tamuc.edu

Preferred Form of Communication: email
Communication Response Time: 24 hours (weekdays) to email

COURSE INFORMATION
Materials - Textbooks, Readings, Supplementary Readings

Class Meeting Schedule: Meets 8/25/2025 through 12/12/2025.
Class Meeting Dates: Monday &Wednesday (3:00 PM – 4:15 PM)

Classroom: AG/ET 214

Textbook(s) Required:

Textbook is not required for this course. Technical papers, project forms, and handout will be given to students during the course**.**

Software Required:

Microsoft Office - MS Word, Excel

MATLAB

LABVIEW

SIMULINK

The syllabus/schedule are subject to change.

Course Description:
This course represents the first part of the senior engineering capstone design project. In this course student will work in groups and will be engaged in a preliminary engineering design process including: design constraints, interaction with clients, identification of engineering problems, development of a design proposal, identification of design criteria, cost estimating, planning, and scheduling.

Prerequisites: Senior Classification, EE Majors only. Course must be scheduled in the fall semester prior to the final spring semester before graduation and Instructor's consent

Student Learning Outcomes:

After successfully completing the course, students will be able to:
1. Describe the engineering design process and discuss the importance of each step.
2. Sketch a block diagram for system to be designed, identify subsystem connections and select appropriate components.
3. Write a project proposal, progress reports, and technical reports.
4. Prepare a detailed project management plan using Gantt, Pert or other tools.
5. Recognize and discuss ethical issues of professional engineering from a global as well as project focus.
6. Apply engineering economics and market concepts to study customer needs and write product specifications.
7. Describe, discuss, and apply professional codes and standards.
8. Develop and use team skills and leadership in the process of engineering design and project management.

COURSE REQUIREMENTS:

Minimal Technical Skills Needed

Programing languages: C and C++

-Working knowledge and basic skills using Microsoft Word, Excel, and PowerPoint.

Instructional Methods:

The instructional methods in this course include; some lectures, writing proposal , class discussion, course project, progress report, weekly meeting, problem solving, writing technical Report, Oral presentations,

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Student Responsibilities or Tips for Success in the Course:

Attendance:

Attendance is a requirement for this course. The instructor will take attendance at each class. Class Attendance Requirement (one lateness = 1/2 absence)

# of Absences	0 – 3	4	5	6	7	>7
Point Deduction	0	- 5	- 10	- 20	- 30	F

Unless directed and/or approved by the instructor, only MS Office-compatible formats (.doc, .docx, .rtf, .xls, .xlsx, .ppt and .pptx) will be accepted for assignments and submissions. NO OTHER DOCUMENT OR FILE FORMATS WILL BE ACCEPTED.

Failure to comply with required document formats will result in late or rejected assignments (zero credit).

Other specific formats may be dictated based on assignment and will be coordinated with/by the instructor prior to submission to assignment drop boxes.

Microsoft Word, Excel, PowerPoint, or Project files will be placed in the assigned drop boxes in eCollege in the accepted formats only (identified above). **Note**: Many students do not fully utilize the power within this document processing software. This can assist the user when they know how to use more of the functions in these standard tools. The use of the spelling and grammar checkers, page and section breaks, and APA templates is highly encouraged PRIOR to submission of assignments.

APA Formatting is required for all reports assigned during this class. Non-adherence to APA formatting will result in points deduction on the assignment.

GRADING:

The final course grade is based on 100 possible points (as described below in Assessments) and will be calculated based on the following grading scale:

Grading Scale:
A = 90-100 points
B = 80-89 points
C = 70-79 points
D = 60-69 points
F = < 60 points

Assessments:

The following assessments will be performed throughout this course to assess individual progress toward learning outcomes. The final course grade will be calculated based on the following assessments:

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Assessment task	Due Time	Weight
Project proposal	First two weeks	10%
Project progress	biweekly	20 %
Midterm presentations and project demo	Week 8 and 9	10 %
Final Presentation	Week 15	15 %
Final Report	Week 16	30 %
Project demo (in progress)	Week 16	15 %

Senior Design Project: Students are required to work on their senior design project and submit a comprehensive report at the end of the course. The project should demonstrate the student's ability to link the theoretical knowledge and practical skills acquired in the EE courses to real-world applications. Student will work in a group up to three students. The project design process includes; problem statements, objectives, technical design specifications, component selections, design constraints, professional codes and standard, and project management and implementation**.**

Final Technical Report:

Final report template will be provided to students.

Student Outcomes (ABET):
The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

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This course will assess the achievement of the following student outcomes:

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

TECHNOLOGY REQUIREMENTS

- To fully participate in online courses, you will need to use a current Flash enabled internet browser. For PC and Mac users the suggested browser is Mozilla Firefox.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - 512 MB of RAM, 1 GB or more preferred
  - Broadband connection required courses are heavily video intensive
  - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - Adobe Reader https://get.adobe.com/reader/

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- Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/
- Adobe Shockwave Player   https://get.adobe.com/shockwave/
- Apple Quick Time   http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

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

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 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

The instructor's communication response time and feedback on assessments are stated clearly.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies
Attendance/Lateness, Late Work, Missed Exams and Quizzes and Extra Credit

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: Netiquette
http://www.albion.com/netiquette/corerules.html

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

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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](http://www.tamuc.edu)

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

[Graduate Student Academic Dishonesty 13.99.99.R0.10](http://www.tamuc.edu)

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA Statement

Students with Disabilities

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
Gee Library- Room 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)

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.

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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.

TAMU-C Pandemic Response

A&M-Commerce requires the use of face-coverings in all instructional and research classrooms/laboratories. Exceptions may be made by faculty where warranted. Faculty have management over their classrooms. Students not using face-coverings can be required to leave class. Repetitive refusal to comply can be reported to the Office of Students' Rights and Responsibilities as a violation of the student Code of Conduct.

Students should not attend class when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments.

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COURSE OUTLINE / CALENDAR:

The instructor reserves the right to adjust the schedule in order to serve the needs of the class and any changes will be communicated in a timely manner.

Course schedule:

1. **Topics Covered (Tentative Schedule)**

Week	Tasks	Comments
1	Confirm project group members	4-5 students in each group
2	Submission of Project Proposal	Project proposal submission
3	Presentation of project proposal	Project approval
8	Midterm Personation	Progress update
9	Project Demo	Progress update
15	Final Presentation	Progress update
15	Project Demo	Project Prototype (in progress)
16	Final Report	Project design process components, schematics, specification, testing and implementation

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.

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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.

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