Copilot

ENGR101 - Introduction to Engineering Design

University: Central Technical University

Course Duration: Fall 2023

Instructor: Dr. Jane Smith

Contact Information: jane.smith@ctu.edu

Office Hours: Mondays and Wednesdays, 2:00 PM - 4:00 PM

COURSE INFORMATION

Class Meeting Schedule: Meets 9/5/2023 through 12/12/2023

Class Meeting Dates: Weekly meetings; Tuesday and Thursday 10:00 AM - 11:30 AM

Classroom: Engineering Building, Room 101

Course Format: This course includes lectures, hands-on projects, team activities, and presentations.

Materials - Textbooks, Readings, Supplementary Readings

Textbook Required:

- "Engineering Design: A Project-Based Introduction" by Clive L. Dym and Patrick Little

Software Recommended:

- Microsoft Office - MS Word, Excel, PowerPoint
- CAD software (e.g., AutoCAD, SolidWorks)

Course Description

This first-year course introduces students to the fundamentals of engineering design. Students work in teams to solve a real-world problem presented by a fictitious client. Projects may include designing a simple mechanical device, creating a basic software application, or developing a sustainable solution for a community issue.

Prerequisites: None

Learning Outcomes of Instruction

By the end of this course, students will be able to:

1. Apply design thinking and problem-solving methodologies to engineering challenges.
2. Work effectively in teams to develop and implement design solutions.
3. Create prototypes and conduct testing to evaluate design performance.

4. Communicate design concepts and results through written reports and oral presentations.
5. Understand the ethical and societal implications of engineering design.

COURSE REQUIREMENTS

Minimal Technical Skills Needed:

- Microsoft Office - MS Word, Excel, PowerPoint
- CAD software (e.g., AutoCAD, SolidWorks)

Instructional Methods:

The instructional methods in this course include: lectures, hands-on projects, team activities, progress reports, and presentations. Course materials will be posted on the course website.

Student Responsibilities or Tips for Success in the Course:

Students must attend course meetings, participate in class work and discussions, and perform required course assessments supporting the anticipated learning objectives, such as progress reports and design demonstrations. Students are expected to regularly log into the course website to download course material, submit their coursework as instructed, and follow up on new announcements. This course covers advanced content that requires at least 6 hours of extensive work per week.

Attendance Policy

Class Attendance Requirement (one lateness = 1/2 absence):

# of Absences	Point Deduction
0 - 3	0
4 - 5	-2
6 - 7	-4
>7	-30

GRADING

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

Grade	Percentage
A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	59% or Below

Assessments

The following assessments will be performed during this course to assess individual progress towards learning outcomes:

Assessment	Weight	Due Time
Team Formation and Project Proposal	10%	September 15, 2023
Preliminary Design Review	15%	October 10, 2023
Prototype Development and Testing	20%	November 7, 2023
Midterm Presentation	10%	November 21, 2023
Final Design Review	15%	December 5, 2023
Final Prototype and Testing Report	20%	December 12, 2023
Final Presentation and Demonstration	10%	December 12, 2023

Relationship between Assessments and Course/Student Learning Outcomes

Learning Outcomes of Instruction	Assessment
1. Apply design thinking and problem-solving methodologies to engineering challenges.	Project Proposal, Design Reviews, Reports
2. Work effectively in teams to develop and implement design solutions.	Team Activities, Presentations
3. Create prototypes and conduct testing to evaluate design performance.	Prototype Development, Testing Reports
4. Communicate design concepts and results through written reports and oral presentations.	Reports, Presentations
5. Understand the ethical and societal implications of engineering design.	Discussions, Reports

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Capstone Project

Students are required to work on a design project, present their work progress on a regular basis, perform design demonstrations of their design, and submit a comprehensive final report of their design by the end of the course. Students will work in groups. The project design process includes problem statements, objectives, technical design specifications, component selections, design constraints, professional codes and standards, and project management and implementation. This project should demonstrate the student's ability to transfer the knowledge and skills acquired in their engineering courses to provide solutions for real-world applications.

Student Outcomes (ABET)

The engineering 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 engineering program. This course will assess the achievement of the following student outcomes:

1. 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.
2. An ability to communicate effectively with a range of audiences.
3. 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.
4. 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.
5. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

TECHNOLOGY REQUIREMENTS

LMS:

All course sections offered by Central Technical University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements:

- LMS Requirements: LMS Requirements
- YouSeeU Virtual Classroom Requirements: YouSeeU Requirements

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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@ctu.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 CTU 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: Brightspace Support

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COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies:

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. Student Guidebook

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette

Attendance:

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01. Attendance Policy

Academic Integrity:

Students at Central Technical University 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 [Academic Dishonesty Form] (http://www.ctu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.