# EL1402: Fundamentals of Engineering, Design, and Leadership

**Spring 2025 Syllabus (DRAFT v4)** **CRN: 27575**

## Teaching Team


**Faculty:**
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## Course Information

**Location**
E - Lead Studios - CRBL 103

**Office Location**
Department of Engineering Education and Leadership (E-230)

**Office Hours**
TBA via Blackboard and email

**About E-Lead & Course Goals**
In this course, we will take nature, an important source of inspiration and understanding, as a theme and develop ideas into functional prototypes. Our focus is on the general principles and methods that shape the practice of engineering design.

Students complete individual and team projects in an environment where we seek to develop a shared practice and understanding of engineering design.

Students will gain experience invisualization, experimentation, estimation, fabrication, and presentation related to design. This class is fast-paced, and thus requires significant time management and organization to stay on top of assignments.

***Attendance is required in every class period.*** Attendance is mandatory and is determined at the **beginning of class (10:30 AM).**
Three unexcused absences will result in a 10% drop (one letter grade) in your final grade. Every three late arrivals are counted as one absence.

***Absences.*** If you must miss class, contact a teaching team member in advance, letting them know you cannot attend. If you fail to do so or miss class for reasons not approved by the University (religious holidays, illness, etc.), it will be counted as an unexcused absence. If your absent for any reason, you are responsible for getting information communicated in the class from a fellow student or TA.

## Grade Distribution

| | |
|---|---|
| **Participation** | **10%** |
| **Assignments & Products** | **20%** |
| **Project 1: Design Nature** | **30%** |
| **Project 2: Board Game** | **40%** |

**Participation. Participation is required.**
Participation includes asking questions, answering questions, being active in class discussions, and seeking input from the teaching team as needed.

**Assignments & Products**
**Each week, we will have quizzes and assignments.** You are responsible for completing both individual tasks and team-assigned work (including quizzes and case studies) **on time and with quality.**

**Individual & Team Projects**
**You will undertake individual and team projects.** These endeavors are major products and require longitudinal efforts across the spring 2025 semester.

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**Special Accommodations** If you would like to request special accommodations due to a disability, we can certainly work that out. Please contact the Center for Accommodations and Support Services via their website http://sa.utep.edu/cass/.

**Academic Integrity Academic Dishonesty:** Students are encouraged to collaborate throughout the semester, but all graded materials must represent the student's individual work. (When in doubt, ask!) Academic dishonesty is the attempt to present the work of somebody else as his or her own work or attempting to pass any assignment by improper means. It is a serious offense and will not be accepted. Any misconduct will be handled according to the current university policy and reported in accordance with university regulations. For more information visit the Dean of Students or http://studentaffairs.utep.edu.

## Draft of Guidelines for AI Usage and Referencing

**By adhering to these guidelines, we trust you can leverage the power of AI to enhance your learning experience and develop essential skills for the future of engineering.**

The policy establishes clear guidelines for AI usage in engineering design thinking courses while maintaining academic integrity. Students are encouraged to use AI as an agent to enhance their learning experience through brainstorming, research assistance, content improvement, and design support. However, the policy prohibits plagiarism, misrepresenting AI-generated work as original content, and over-reliance on AI without critical thinking.

Transparency is paramount. Students must properly document their AI usage, including clear citations of AI tools and reflections on how AI influenced their design process. The policy emphasizes the importance of ethical considerations, including awareness of potential AI biases, data privacy, and respect for intellectual property rights. Students will have access to recommended AI tools and course-specific guidelines, and instructors will provide guidance on effective and ethical AI usage.

Given the rapidly evolving nature of AI technology, the policy encourages students to stay informed about developments in the field while maintaining academic standards. Violations of these guidelines may result in penalties ranging from grade reduction to university disciplinary action. This framework aims to help students leverage AI's capabilities while developing essential engineering skills and maintaining academic integrity.

Here are our draft guidelines:

### A. Acceptable AI Use

1. **Idea Generation and Brainstorming:** AI tools can be used to generate ideas, explore design concepts, and facilitate brainstorming sessions.
2. **Research and Information Gathering:** AI can assist in gathering relevant information, articles, and research papers related to your projects.
3. **Content Enhancement:** AI can help improve the clarity, organization, and grammar of your written work.
4. **Graphic Design Assistance:** AI tools can be used to generate design elements, suggest color palettes, and create initial drafts of visual materials.\

5. **Coding and Software Tutorials:** AI can provide support in learning and understanding coding concepts and software tools.

## B. Unacceptable AI Use

1. **Plagiarism:** Submitting work generated entirely by AI without proper attribution is strictly prohibited.
2. **Misrepresentation:** Passing off AI-generated work as your own original thought or creation is unethical.
3. **Over-Reliance:** Depending solely on AI to complete assignments without critical thinking or personal contribution is discouraged.
4. **Violation of Academic Integrity:** Using AI to fabricate data, manipulate results, or bypass assessments is unacceptable.

## C. Referencing AI

1. **Transparency:** Always clearly indicate when AI has been used in your work.
2. **Citation Format:** Develop a consistent citation format for AI tools, including the AI model's name, version, and any specific parameters used.
3. **Contextualization:** Explain how the AI tool was used and the extent of its contribution to the final product.
4. **Critical Reflection:** Include a brief reflection on how AI influenced your design process and decision-making.

## D. Ethical Considerations

1. **Bias Awareness:** Be mindful that AI models can reflect biases present in their training data. Critically evaluate AI-generated content and ensure it aligns with ethical and inclusive design principles.
2. **Data Privacy:** Use AI tools responsibly and avoid sharing sensitive or personal information.
3. **Copyright and Intellectual Property:** Respect copyright laws and intellectual property rights when using AI-generated content.

## E. AI Tools and Resources

1. During this course, you will create a list of recommended AI tools and resources relevant to your assignments and projects.
2. Students are encouraged to explore and experiment with different AI tools but must adhere to the abovementioned guidelines.

## F. Course-Specific AI Policies

1. Individual assignments and projects may have specific guidelines regarding AI usage. Pay close attention to the instructions provided for each task.
2. The course instructors are available to answer any questions and provide guidance on using AI effectively and ethically.

## G. Evolving Landscape

1. The field of AI is rapidly evolving. Stay updated on the latest developments and best practices for using AI in academic and professional settings.

## H. Consequences of Violation

Any violation of these guidelines may result in penalties, including but not limited to:

1. Assignment grade reduction or course grade reduction.

2. Course failure.
3. Disciplinary action by the university.

We welcome feedback and questions re this drafted policy.

There are a few potential additions we will be considering:

1. **Collaborative AI Use?** – how can we address how students should handle AI tools when working in teams. For instance, ensuring all team members understand and agree on how AI tools will be used in group projects, and maintaining transparency about AI contributions within the team.
2. A note about what we might call **Documentation and Process** – we encourage you (we may require) -- students to maintain records or logs of your AI interactions. How did the use of AI help you to shaped major design decisions? This can be valuable for both EL 1402 learning reflection and not to forget: academic integrity verification.
3. An **important final note about AI Limitations – we want to help you to understand that while AI is powerful, it may not understand physical constraints, material properties, or real-world engineering limitations.** This could prevent over-reliance on AI suggestions that might not be practically feasible.

   The ideas is for us to develop a framework together that provides clear guidance while maintaining flexibility for both you, our students, and our teaching team, as we guide the process this semester.

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**Additional Campus Resources Counseling and Psychological Services (CAPS):** The University Counseling Center is dedicated to providing high quality mental health services that support students' ability to benefit from their experience at the University of Texas at El Paso. To this end the center provides career counseling, psycho-educational workshops, individual and group counseling, crisis intervention, and professional training experiences that are responsive to the individual, cultural, and demographic diversity of our students.

https://www.utep.edu/student-ffairs/counsel/

**Career Center:** The University Career Center has as its mission the career development of the students and alumni of The University of Texas at El Paso (UTEP); to assist in relating their knowledge, interests, and skills to meaningful career options; to inculcate in them the sense of professionalism required for success; to aid them in their search for pre-professional and professional employment; to ease their transition from the University to a productive career; and to assist them as they navigate the world of work.

https://www.utep.edu/student-affairs/careers/students-alumni/student-services.html

**Math Resource Center for Students:** MARCS provides in person and online tutoring for all undergraduate level mathematics courses. When attending, please remember to bring your student ID in order to sign in.

**marcs@utep.edu**

For schedule information, please visit: https://www.utep.edu/science/math/marcs/