# Engineering Innovation & Leadership

**Syllabus**

**EL 1301 - Spring 2024**

<table>
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<tr>
<th>Teaching Team:</th>
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**Location:**

E-LEAD Studios - CRBL 201

**Times & Dates:**

9:30 -10:20 am on MWF  
Final exam time: May 8, 10:00 am - 12:45 pm

**Office:**

Department of Engineering Education and Leadership (E-230)

**Office Hours:**

Open door policy - if my door is open, come in.  
Also via email or calendly.com/lmhoughtalen

## Assessment and Evaluation: Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Being &amp; Doing</td>
<td>15%</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>15%</td>
</tr>
<tr>
<td>Written and Bus. Communication</td>
<td>15%</td>
</tr>
<tr>
<td>Team Project Final Presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Individual Project Final Presentation</td>
<td>15%</td>
</tr>
<tr>
<td>Class and Project Deliverables</td>
<td>15%</td>
</tr>
<tr>
<td>Final Assessment</td>
<td>5%</td>
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**Total class points/ percentage:** 100%

Grades will be comprised of points gained through individual and team-based activities. Grades will be determined according to the ranges below:

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

## Course Materials & Readings:

- We will provide online access to all needed resources
- Technology
  - you will be required to download and use Autodesk Fusion 360 software (instructions will be provided in class)
  - you may be required to set up a free Canvas account (instructions will be provided in class)

## Course Description:

Through the Engineering Innovation and Leadership course, students will gain engineering foundational knowledge of innovation, technological and leadership advancement in modern society, develop principles of personal, professional and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.
Course Objectives:

**Critical Thinking:**
EL 1301 content is designed to develop students’ critical thinking skills by teaching them engineering design thinking and mathematical problem solving skills. Students will be prompted to explain their reasoning when working through engineering problems and ask critical questions about another students’ work. Students will also think critically about the role of engineers in society, innovation, and leadership practices.

**Communication:**
EL 1301 will emphasize communication of student reasoning in both oral and written form. The ability to communicate and be open, honest, and respectful is a vital aspect of Engineering Innovation and Leadership Education. Students will always be encouraged to explain problems orally and empathetically and will be required to provide written explanations of scientific and mathematical reasoning at times. Class discussions will be used to encourage student collaboration and communication. Students will complete individual and team project presentations.

**Empirical and Quantitative Skills:**
EL 1301 will utilize analysis of numerical data to evaluate innovative alternatives and use observable facts resulting in informed conclusions. Engineering development propositions may include business analytics, accounting and reliability functions, systems of equations, and engineering design matrix calculations. The course content is focused on developing students’ empirical and quantitative skills.

**Teamwork Competencies:**
EL 1301 will emphasize the value of teamwork, which is common in technical or engineering environments. Whether it’s a project team, product development, a production line, a maintenance team or a manufacturing cell, effective teamwork is the basis for most modern engineering innovation and technical operations. Students will understand some benefits of teamwork such as:

- Increased morale, as people believe they have a stake in something, are supported by others and if stuck, can seek assistance to get the job done.
- Enables more challenging problems to be tackled faster by drawing on the team’s collective skills, experience, and knowledge.
- Often solutions proposed by the team have greater credibility and therefore are more likely to be accepted. Proposals tend to be thorough, having drawn on the collective experience and skills of the group, as well as being scrutinized by all team members.
- Working collaboratively helps team members to learn and develop, as they share ideas and experiences.
- Teamwork encourages communication, trust, support, and a positive working environment – all important for improved business productivity.
Social Responsibility:
EL 1301 will emphasize the social responsibility of the Engineering profession in terms of the commitment to place public safety and interest ahead of all considerations. Students will learn that the engineering professional considers and shows due regard for the consequences of their conduct for wellbeing of others as well as the impact of their work on society. Students will value intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities. Students will become aware of the role of professional societies, and diversity and equity initiatives arising therefrom.

Personal Responsibility:
EL 1301 will assist students to develop the ability to connect choices, actions and consequences to ethical decision-making of engineers. Students in training to be engineers will know engineering personal responsibility initiatives are categorized as follows:
- Environmental responsibility.
- Human rights responsibility.
- Philanthropic responsibility.
- Economic responsibility.

Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

Course Communication:
Here are the ways we can keep the communication channels open:
- Meetings are best scheduled through an appointment, see page 1 for information
- Email: UTEP e-mail is the best way to contact us. We will make every attempt to respond to your e-mail within 24 hours of receipt. When e-mailing us, be sure to email from your UTEP student e-mail account. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your name.
- Announcements: Check Blackboard and your UTEP email frequently for any updates, deadlines, or other important messages.

Academic Integrity:
Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.
Class Expectations:

- Participation: Students are required to actively participate in all class sessions. Please do not wear headsets or Bluetooth devices during class, as they can deter your participation or the participation of others with you. Absences are allowed for emergencies but must be justified/documented with the teaching team. Participation will be part of the course grade through the category “Being and Doing.” Each two unexcused absences will account for a 10% deduction in that grade component. It is the student’s responsibility to make up missed assignments as determined by their instructor.

- Students are to arrive to class on time. (Even better: arrive early so you are prepared to begin class on time.)

- Electronic devices: Use of computers and phones is allowed during the class for classroom activities only; all sounds should be off. Students will be asked to research topics, on occasion, during class. Please do not abuse the access: inappropriate use of technology detracts from your learning, as well as distracting those around you.

- Late work is unprofessional. Turn your work in on time. Late work, if accepted at all, may be penalized. If something arises that will prevent you from turning in your work on time, the professional way to handle it is to communicate with us prior to missing the deadline.

- Video or pictures of class must have written consent from the instructor prior to any recording taking place.

- Presentations will be informal, formal, individual, and team based. They may be announced or unannounced.

Guidance on Artificial Intelligence:

AI is allowed only with prior written permission from the instructor. Use of AI technologies or automated tools, particularly generative AI such as ChatGPT or DALL-E, is only allowed with PRIOR WRITTEN approval from the instructor BEFORE being used. Without permission, you will be expected to think creatively and critically to complete course-related without assistance from these tools.

Using AI for brainstorming: Some AI technologies can be beneficial during the early brainstorming stages of an activity. However, keep in mind that AI-generated ideas are not your own and may hinder your ability to think critically and creatively about a problem. It is also important to remember that these technologies often “hallucinate” or produce materials and information that are inaccurate or incomplete—even providing false citations for use.

That said, you are not allowed to submit any AI-generated work in this course as your own, and you must have permission before using it. If you use any information or materials created by AI technology, you are required to cite it like you would any other source. Consider how this will affect your credibility as a writer and scholar before doing so. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).
Additional Policies:

Make-up Policy:
No makeup exams will be allowed except with proper documentation, i.e. doctor’s note, hospital’s note, or UTEP excused absence document.

Course Attendance Policy:
A student may be dropped if the student misses 3 classes (being unexcused absences).

Disability Statement:
If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.utep.edu/CASS. CASS’ Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.

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-affairs/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/
Student Resources:

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources.