

**ENGR 1030.003 – Technological Systems
Fall 2026**

Instructor:

Karan Kakroo

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Office: TBA/Zoom

Office Hours: By appointment

Communication Expectations: Email is the primary mode of communication between the instructor and students. Students must use their official UNT student email account for all course-related communication; messages from personal email accounts may not receive a response. Students should also regularly check Canvas for course announcements, assignments, grades, feedback, and other course-related information.

Instructor Assistance:

TBA

Class Schedule:

Tu/Th 3:25PM - 4:45 PM in Room: B185

Recommended Textbooks:

Engineering Your Future 8th edition

William C Oakes, Les L Leone

Engineering Ethics – Concepts & Cases, 5th Edition, Wadsworth Publishing

Charles E. Harris, Michael S. Pritchard, Michael J. Rabins

ISBN-13: 978-1133934684

Or any other addition of the book

Catalog Course Description:

Introduction to technological systems with focus on past, present and future trends and influences and impact of the systems of technology on society. Satisfies the Discovery requirements of the University Core Curriculum.

Course Objectives:

This course serves as an introduction to the foundations of engineering, in respect to it as profession, scientific discipline and its aspects, impact on society, engineering ethics, and engineering technologies, and engineering trends (past, present, future). This course satisfies the Discovery requirements of the University of North Texas' Core Curriculum in regard to empirical & quantitative skills, social responsibility, communication skills, and critical thinking. Upon completion of this course, students will understand the following objectives:

1. Understanding the societal responsibilities of engineers regarding engineering ethics and engineering codes of ethics.
2. Understand how to analyze engineering case studies through the application of engineering ethics and critical thinking skills.
3. Understand how engineering fits into society a profession and as a scientific discipline.

4. Develop professional and teamwork communication skills through group-based projects.
5. Gain insights into engineering organizations and societies to see how they help with professional development and their impact on how engineering is done.
6. Understand how to write an engineering technical report while using empirical and quantitative skills to interpret data into meaningful information and being able to properly communicate this information to the reader.
7. Understand how to process, manipulate, interpret, and present scientific data by developing skills using excel.
8. Understand how to research engineering jobs and how the engineering degrees here connect to them.
9. Learn what resources and facilities are available in the MEEN department and Discovery Park.

Disability Policy:

All reasonable accommodation will be made to facilitate special needs. If special accommodation is required, the student must first meet with the staff of the Office of Disability Accommodation (ODA), (940) 565-4323. After meeting with that office, please contact me to discuss what accommodation will be necessary. For more information, see [Office of Disability Access | University of North Texas](#).

Attendance:

Responsibility for class attendance rests with students. Attendance at all class meetings is expected. Attendance surveys will be taken throughout the semester, and it is a student responsibility to ensure signing attendance survey during class. Per University policy 06.039, an absence may be excused for the following reasons: religious holy day, including travel for that purpose; active military service, including travel for that purpose; participation in an official university function; illness or other extenuating circumstances; pregnancy and parenting under Title IX; and when University is officially closed. It is the student's responsibility to provide satisfactory evidence to receive an excused absence. Attendance will be recorded in person during class assignments, projects, and for special lectures.

Assignments:

Assignments will be posted on Canvas and must be submitted by the due date indicated for each assignment. Submission requirements and file formats will be specified in Canvas. Assignments submitted by email will not be accepted.

Students are responsible for regularly checking Canvas for assignments, instructions, and due dates, and for submitting all work on time. It is the student's responsibility to verify that the assignment was successfully submitted in Canvas before the deadline. An assignment that was prepared but not successfully submitted will be considered missing.

Late or missed assignments will not be accepted unless prior approval has been granted by the instructor or an exception is required under university policy. Uploading the wrong file, an incomplete file, or failing to complete the Canvas submission process does not automatically qualify for an extension or late submission.

Projects:

Three team-based projects will be assigned during the semester. Project requirements, deadlines, and submission instructions will be provided through Canvas.

Project 1 – Artificial Intelligence in Engineering:

Students will work in teams of approximately 5–6 members. Each team will research an AI tool or application relevant to a specific engineering field. Teams will develop and present a professional poster summarizing the selected AI tool, its engineering application, and key findings. Students will also participate in peer feedback during class presentations.

Project 2 – Engineering Ethics / Bridge Building:

Students will work collaboratively on a project focused on engineering ethics and bridge-building concepts. Additional instructions and requirements will be provided on Canvas.

Project 3 – Hands-On Engineering Project:

Students will complete a team-based, hands-on engineering project. Specific project requirements will be announced during the semester and posted on Canvas.

Week	Topic	Due Dates
1 (Aug. 17–20)	General Overview/ Intro to UNT Mechanical Department	
2 (Aug. 24–27)	Microsoft Skills (Suite and Power Platform)	ICA/Assignment #1
3 (Aug. 31–Sept. 3)	Professional Communication	
4 (Sept. 7–10)	Types of Engineering	ICA/Assignment #2
5 (Sept. 14–17)	Paper Plane Lab Demo	ICA/Assignment #3
6 (Sept. 21–24)	Material Selection	
7 (Sept. 28–Oct. 1)	Practice Design with Materials / Intro to Ethics	ICA/Assignment #4
8 (Oct. 5–8)	Project #1 Presentations – AI in Engineering	Project #1
9 (Oct. 12–15)	Sustainability in Engineering	
10 (Oct. 19–22)	Ethics – Group Discussions	ICA/Assignment #5
11 (Oct. 26–29)	Ethics – Group Discussions	
12 (Nov. 2–5)	In-Class Testing / Bridge Building	Project #2
13 (Nov. 9–12)	Ethics / Engineering Design	
14 (Nov. 16–19)	Thermodynamics	ICA/Assignment #6
15 (Nov. 23–29)	Thanksgiving Break – No Classes	
16 (Nov. 30–Dec. 3)	Demo Day – Hands-On Engineering Project	Project #3

Grade Evaluation:

Assignments	15%
Attendance	10%
Project 1	25%
Project 2	25%
Project 3	25%

A – 90-100%

B – 80-89%

C – 70-79%

D – 60-69%

F - < 60%

Grades in this class will not be curved.

Subject Matter for the Course: (Topics and the order in which they are covered may be adjusted based on course progress, available time, and instructional needs)

- Engineering Ethics
- Spreadsheets for Engineering
- Engineering Disciplines
- Mathematics Review
- Unit Conversions
- Engineering Communications
- Intro to Engineering Design
- Intro to Engineering Economics

Academic Integrity Standards and Consequences

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. <https://policy.unt.edu/policy/06-003>

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Syllabus Changes

The instructor reserves the right change the syllabus. Any changes will be announced in class and posted to Canvas with an accompanying email to the student's UNT email address.