

# Discover Mechanical and Energy Engineering, MEEN 1000

## Instructor Information

Dr. Maurizio Manzo ([maurizio.manzo@unt.edu](mailto:maurizio.manzo@unt.edu), 940-369-8266) is an Associate Professor in the Department of Mechanical Engineering at the University of North Texas. Dr. Manzo got his Ph.D. from the Southern Methodist University, Dallas, Texas in 2015, and both bachelor's and master's degrees in aerospace engineering from Italy. During his training, he has worked on different research areas of mechanical engineering such as experimental optics, photonics and sensing, and experimental fluid mechanics. He has authored several referred journal papers, conference proceedings, and has 3 US patent, one utility and two provisional. He is a member of the American Society of Mechanical Engineering (ASME), and the American Society for Engineering Education (ASEE).

## Course Description, Structure, and Objectives

2 hours. Discovery Core course in Mechanical and Energy Engineering (MEE) which also serves as the heart of the MEE first year experience. Topics include experiences of practicing engineers; engineering ethics, professional conduct, and values; and an introduction to the principle disciplines of MEE taught through a hands-on, energy-concentrated project. The project is a major, team-based, competitive engineering design-and-build effort. The course teaches students to think critically and creatively by applying a range of analysis techniques borrowed from many engineering and science disciplines.

Prerequisite(s): MATH 1650 (with grade of C or better).

Class meetings: Mo We 11:30AM - 12:20PM, E265

Office Hours: Mo 10:00am - 11:00am, We 1:30pm - 2:30pm or by appointment. F115G.

## Course Learning Outcomes (CLO):

Upon successful completion of this course, students will be able to:

1. Understand and explain professional and ethical responsibilities in engineering practice.
2. Describe the roles and experiences of practicing engineers and different disciplines within Mechanical and Energy Engineering.
3. Apply basic problem-solving techniques drawing on mathematics and science fundamentals relevant to engineering contexts
4. Work effectively as part of a multidisciplinary team on engineering projects.
5. Communicate engineering ideas clearly in written and oral formats (reports, presentations, etc.).
6. Participate in a hands-on team-based engineering project, integrating principles learned in class.
7. Identify available departmental resources and facilities and how to use them as engineering students.
8. Connect core engineering and mathematical fundamentals to real engineering contexts encountered in MEEN disciplines.

## How to Succeed in this Course

*Attend class regularly, submit your work following the problem statements instructions, and if needed, connect with me through email and/or by attending office hours. During busy times, my inbox becomes rather full, so if you contact me and do not receive a response within two business days, please send a follow up email. A gentle nudge is always appreciated.*

*UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and information on how you can be successful at UNT, go to [unt.edu/success](https://unt.edu/success) and explore [unt.edu/wellness](https://unt.edu/wellness). To get all your enrollment and student financial-related questions answered, go to [scrappysays.unt.edu](https://scrappysays.unt.edu).*

## Supporting Your Success and Creating an Inclusive Learning Environment

*Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding ([Code of Student Conduct](https://policy.unt.edu/policy/07-012)) (<https://policy.unt.edu/policy/07-012>).*

## Required/Recommended Materials

**Textbook:** This course does not require a textbook. Required and recommended reading materials, including the *NSPE Code of Ethics for Engineers*, are available free of charge online.

**Software:** Use of large language models (LLMs) such as ChatGPT and Gemini (as permitted by course AI policy).

## Course Requirements/Schedule

| <b>Date</b> | <b>Topic</b>  | <b>Assignment</b>                               |
|-------------|---|---|
| 01/12       | Syllabus Review   | Syllabus acknowledgment                         |
| 01/14       | Lecture 1 – General Overview of Mechanical & Energy Engineering                                     |   |
| 01/19       | Martin Luther King Jr. Day – no class   |   |
| 01/21       | Lecture 2 – MEEN Facilities Overview  |   |
| 01/26       | MEEN facilities Tour  | Quiz #1 – Facilities & Safety                   |
| 01/28       | Lecture 3 – Technical Writing for Engineers & AI/LLMs   | Quiz #2 – Technical Writing & AI Awareness      |
| 02/02       | Lecture 4 – Engineering Disciplines & Project 1 Signup  | Project 1 team signup                           |
| 02/04       | Teamwork and Communication Exercise (Project 1 support)   | Team contract (LLM allowed for drafting)        |
| 02/09       | Lecture 5 – Degree Plan & Academic Success  | Quiz #3 – Degree Plan                           |
| 02/11       | Lecture 6 – Engineering Resources   |   |
| 02/16       | Project 1 Presentations   | Project 1 presentation                          |
| 02/18       | Lab Report Exercise (Technical Communication Skills)  | Lab report draft (LLM allowed for editing only) |
| 02/23       | Faculty Guest Speaker   | Speaker reflection                              |
| 02/25       | Lecture 7 – Engineering Ethics I (Profession & Codes of Ethics)                                     | Quiz #4 – Ethics Reading (NSPE Code of Ethics)  |
| 03/02       | Lecture 8 – Engineering Ethics II (Framing the Problem)   | Quiz #5 – Ethics Fundamentals                   |
| 03/04       | Lecture 9 – Engineering Ethics III (Resolving Problems & Case Studies)                              | Ethics reflection                               |
| 03/09       | Spring Break – no class   |   |
| 03/11       |   |   |
| 03/16       | Lecture 10 – Engineering Ethics IV (Organizations & Professional Responsibility) & Project 2 Signup | Project 2 proposal                              |
| 03/18       | Lecture 11 – Engineering Professional Societies   | Society report                                  |
| 03/23       | Lecture 12 – Engineering & the Environment  |   |
| 03/25       | Project 2 Presentations   | Project 2 presentation                          |
| 03/30       | Project 2 Presentations   | Project 2 presentation                          |
| 04/01       | Project 2 Presentations   | Project 2 presentation                          |
| 04/06       | Project 2 Presentations   | Project 2 presentation                          |
| 04/08       | Lecture 13 – Engineering Equipment, Software & Tools  | Software reflection                             |
| 04/13       | Lecture 14 – Engineering Design & Project 3 Signup  | Project 3 proposal                              |
| 04/15       | Lecture 15 – Engineering Design: Methods, Simulation & Big Picture                                  |   |
| 04/20       | Microsoft Excel/Matlab Exercise   | Quiz #6 – Excel/Matlab Basics                   |
| 04/22       | Lecture 16 – Engineering Communication & Teamwork   | Senior design reflection                        |
| 04/27       | Project 3 – Build Day   | Project 3 build                                 |
| 04/29       | Project 3 – Final Submission  | Project 3 submission                            |
| 05/04       | Finals week no class  |   |

Students will be notified by Eagle Alert if there is a campus closing that will impact a class and describe that the calendar is subject to change, citing the [Emergency Notifications and Procedures Policy \(https://policy.unt.edu/policy/06-049\)](https://policy.unt.edu/policy/06-049).

## Assessing Your Work

A = 81-100

B = 71-80

C = 61-70

D = 51-60

F = 0-50

| <b>Assignment</b>            | <b>Percentage of Final Grade</b> |
|------------------------------|----------------------------------|
| Project 1                    | 15%                              |
| Project 2                    | 15%                              |
| Project 3                    | 15%                              |
| Assignments/quiz             | 30%                              |
| Attendance                   | 25%                              |
| <b>Total Points Possible</b> | <b>100%</b>                      |

*Every student in my class can improve by doing their own work and trying their hardest with access to appropriate resources. Students who use other people's work without citations will be violating UNT's Academic Integrity Policy. Please read and follow this important set of [guidelines for your academic success \(https://policy.unt.edu/policy/06-003\)](https://policy.unt.edu/policy/06-003). If you have questions about this, or any UNT policy, please email me or come discuss this with me during my office hours.*

## Attendance and Participation

Punctuality is important for maintaining a respectful and productive learning environment. Students are expected to arrive on time for each class session. Habitual tardiness can disrupt the flow of the class and negatively impact your learning and that of your peers. If you arrive late, please enter quietly and take a seat near the door to minimize disruption. Repeated tardiness may result in a deduction of participation points or other penalties as outlined in the course grading policy.

## Late Work Submission Policy

Assignments are expected to be submitted by the specified deadline. Late submissions can disrupt the grading process and delay feedback for the entire class. Therefore, the following policy will be enforced for late work:

- **0-24 hours late:** 10% deduction from the total possible points.
- **24-48 hours late:** 20% deduction from the total possible points.
- **48-72 hours late:** 30% deduction from the total possible points.
- **More than 72 hours late:** The assignment will not be accepted, and a grade of zero will be recorded.

Exceptions to this policy may be made in cases of documented emergencies or extenuating circumstances, which must be communicated to the instructor as soon as possible. Extensions must be requested in advance, not after the deadline has passed.

## Accommodations

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter

to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the [Office of Disability Access](https://studentaffairs.unt.edu/office-disability-access) website (<https://studentaffairs.unt.edu/office-disability-access>). You may also contact ODA by phone at (940) 565-4323.

## UNT HONOR CODE

[https://policy.unt.edu/sites/default/files/07.012\\_CodeOfStudConduct.Final8\\_19.format\\_0\\_0.pdf](https://policy.unt.edu/sites/default/files/07.012_CodeOfStudConduct.Final8_19.format_0_0.pdf)

## Use of AI Tools in MEEN 1000

The use of AI tools (e.g., ChatGPT, Copilot, Gemini) can be beneficial for generating ideas, summarizing concepts, or assisting with writing, but they must be used responsibly, ethically, and in alignment with course learning objectives.

### 1. Permission Levels

For each assignment, the problem statement will indicate one of the following categories:

- Explicitly Allowed – AI tools may be used for brainstorming, proofreading, grammar/style refinement, summarization, generating ideas/outlines, or coding assistance, provided all AI contributions are disclosed.
- Limited Use – AI may be used for conceptual explanations or tutoring assistance, but not for generating entire solutions, essays, or problem sets unless specifically permitted.
- Prohibited – AI-generated content must not replace original student work in assignments requiring personal reflection, analytical reasoning, problem-solving, or research synthesis. AI use during exams or quizzes is strictly forbidden.

### 2. Documentation Requirement

If you use AI for any part of your work:

1. Include an AI usage disclosure statement at the end of your submission.

Example (Basic Acknowledgment):

“I used ChatGPT to help refine the organization of my homework. All content, calculations, and ideas are my own.”

2. For substantial AI input, use a Detailed or Reflection-Based acknowledgment:
  - Detailed – Tool used, purpose, type of output, and modifications made.
  - Reflection-Based – In addition to the above, reflect on how AI shaped your learning and what you verified independently.
3. Failure to disclose AI usage may be considered academic dishonesty under UNT’s Academic Integrity Policy and could result in grade penalties or referral for review.

### 3. Ethical & Accuracy Expectations

- AI is a learning aid, not a substitute for your own understanding.
- You are responsible for verifying technical accuracy of AI-generated content.
- Cross-check AI outputs with the textbook, lecture notes, or reputable sources before submission.

### 4. Consequences for Misuse

If AI is used in violation of the assignment's permission level, or without disclosure:

1. Revision required with proper attribution.
2. Grade penalty of up to -20% for undisclosed AI use.
3. Referral to academic integrity review for repeated violations.
4. Restorative options may include writing a reflection on responsible AI use or completing an alternate assignment.

### 5. Why This Policy Exists

The goal is to help you develop critical thinking, problem-solving, and engineering judgment while learning to use emerging tools appropriately. Using AI responsibly will prepare you for professional practice where such tools are common but must be applied with care.