



ENGR 1201 – Introduction to Engineering

Course Syllabus: Fall 2021

“Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed.”

Instructor: Mr. Mark Ellermann II

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| Office | Monday | Tuesday | Wednesday | Thursday | Friday | Online |
|--------|------------------------------|-------------|------------------------------|----------|--------|--------|
| Hours | 10:30 – 12:20 1:30 – 5:00 | 4:30 – 6:00 | 10:30 – 12:20 4:30 – 6:00 | N/A | N/A | N/A |

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description: This course is an introduction to the engineering profession with emphasis on technical communication and team-based engineering design. Two hours of college credit.

Prerequisite(s): MATH 1314 or equivalent

Student Learning Outcomes:

- 1201.1** Describe the engineering profession and engineering ethics including professional practice and licensure.
- 1201.2** Use technical communication skills to explain the analysis and the results of laboratory exercises in engineering and computer science.
- 1201.3** Explain the engineering analysis and design process.
- 1201.4** Analyze data collected during laboratory exercises designed to expose students to the different engineering disciplines.
- 1201.5** Describe the impact that engineering has had on the modern world.
- 1201.6** As part of a team, design a simple engineering device, write a design report, and present the design.
- 1201.7** Demonstrate computer literacy.

Program Student Learning Outcomes:

Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

EQS.3 Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

Teamwork

TW.2 Students will work with others to support and accomplish a shared goal.

Evaluation/Grading Policy:

| | |
|---|------------|
| Exams (3 @ 15% each) | 45% |
| Quizzes/Homework (17 @ 1% each, drop 2) | 15% |
| Engineering Paper & Presentation | 10% |
| Small in-class Projects | 5% |
| Bridge Project | 10% |
| <u>Team Project</u> | <u>15%</u> |
| Total | 100% |

Grading scale:

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F = 0-59%

Required Instructional Materials: *Engineering Fundamentals: An Introduction to Engineering*, 5th Edition, Moaveni, 2019

Publisher: Cengage Learning

ISBN Number: 978-1305084766

Optional Instructional Materials: None

Minimum Technology Requirements: Scientific calculator

Required Computer Literacy Skills: Capability to run trial versions of engineering software

Course Structure and Overview: This is a hybrid course and therefore will be a blend of in-class and out-of-class instruction. You will have lecture for two hours each week.

Communications: Email will be responded to within 24 hours IF SENT SUNDAY-THURSDAY. Due to the lack of internet availability at my home, I cannot guarantee responses over the weekend, though I will do my best. You can also call my office during office hours if you need to speak with me but can't make it to campus. However, I prefer face-to-face discussions, especially if you have a question about a homework problem. Any information that I send out will be done in class, via Blackboard, or via NTCC email. I will NOT email sensitive information to address that don't end with "@ntcc.edu".

Institutional/Course Policy: Late work will not be accepted without prior approval by the instructor. Students and instructor are expected to treat each other with respect in and out of the classroom. Prompt attendance is expected for all class meetings. Missing lecture means missing discussion and important notes. During lecture, students are expected to be attentive to the topic discussed. Students found being consistently inattentive will be asked to leave.

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

NTCC Academic Honesty/Ethics Statement:

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

ADA Statement:

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

Family Educational Rights and Privacy Act (FERPA):

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Tentative Course Timeline (*note* instructor reserves the right to make adjustments to this timeline at any point in the term):

| Chapter | Title | Week |
|----------------|---|-------------|
| | Course Introduction | <i>1</i> |
| 1 | Introduction to the Engineering Profession | <i>2</i> |
| 2 | Preparing for an Engineering Career | <i>3</i> |
| 3 | Introduction to Engineering Design | <i>4</i> |
| 4 | Engineering Communication | <i>5</i> |
| 5 | Engineering Ethics | <i>6</i> |
| | Exam 1 | <i>7</i> |
| 6/7 | Fundamental Dimensions and Units / Length and Length-Related Variables in Engineering (Assign Team Project) | <i>8</i> |
| 8 | Time and Time-Related Variables in Engineering | <i>9</i> |
| 10 | Force and Force-Related Variables in Engineering | <i>10</i> |
| | Exam 2 | <i>11</i> |
| | Bridge Design Project | <i>11</i> |
| | Bridge Design Project (continued) | <i>12</i> |
| 14 | Computational Engineering Tools Electronic Spreadsheets | <i>13</i> |
| 20 | Engineering Economics | <i>14</i> |
| 16 | Engineering Drawings and Symbols / Team Project Presentations / Review for Final Exam | <i>15</i> |
| | Final Exam | <i>16</i> |