



# ENGR 2301 – Engineering Mechanics I: Statics

Course Syllabus: Fall 2025

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

**Instructor: Mrs. Monica Jenkins**

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## **Office Hours: By Appointment**

***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:** Basic theory of engineering mechanics, using calculus, involving the description of forces, moments, and couples acting on stationary engineering structures: equilibrium in two and three dimensions; free-body diagrams; friction; centroids; centers of gravity; and moments of inertia. Three hours of lecture each week (Three Credit Hours). Note: This is a required course for the THECB Engineering Compact Agreement.

**Prerequisite(s):** MATH 2414 (completed or concurrent), PHYS 2425

## **Student Learning Outcomes:**

- 2301.1** State the fundamental principles used in the study of mechanics.
- 2301.2** Define magnitude and directions of forces and moments and identify associated scalar and vector products.
- 2301.3** Draw free body diagrams for two- and three- dimensional force systems.
- 2301.4** Solve problems using the equations of static equilibrium.
- 2301.5** Compute the moment of a force about a specified point or line.
- 2301.6** Replace a system of forces by an equivalent simplified system.
- 2301.7** Analyze forces and couples acting on a variety of objects.
- 2301.8** Determine unknown forces and couples acting on objects in equilibrium.
- 2301.9** Analyze simple trusses using the method of joints or the method of sections.
- 2301.10** Determine the location of centroid and the center of mass for a system of discrete particles and for objects of arbitrary shape.

**2301.11** Analyze structures with a distributed load.

**2301.12** Calculate moments of inertia for lines, areas, and volumes.

**2301.13** Apply the parallel axis theorem to compute moments of inertia for composite regions.

**2301.14** Solve problems involving equilibrium of rigid bodies subjected to a system of forces and moments that include friction.

**2301.15** Solve problems involving dry sliding friction, including problems with wedges and belts.

**Evaluation/Grading Policy:**

Exam 1	12%
Exam 2	12%
Exam 3	16%
Final Exam	20%
<u>Homework</u>	<u>40%</u>
Total	100%

Grading scale:

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

**Required Instructional Materials:** *Engineering Mechanics: Statics & Dynamics*, 15<sup>th</sup> Edition, R.C. Hibbeler, 2022

**Publisher:** Pearson

**ISBN Number:** 978-0-13-478095-5

**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:** You will have lecture for three 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. 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):**

<b>Chapter</b>	<b>Title</b>	<b>Week</b>
1	Course Overview / General Principles	1,2
2	Force Vectors	2,3,4
	<b>Exam 1</b>	5
3	Equilibrium of a Particle	4,5
4	Force System Resultants	5,6,7
5	Equilibrium of a Rigid Body	7,8
	<b>Exam 2</b>	9
6	Structural Analysis	8,9,10
7	Internal Forces	10
8	Friction	11
	<b>Exam 3</b>	12&13
9	Center of Gravity and Centroid	12,13
10	Moments of Inertia	14,15
	<b>Final Exam</b>	16