

Identification	Subject	ENGR 205 Engineering Mechanics, 6 ECTS
	Department	Mechanical Engineering
	Program	Undergraduate
	Term	Fall 2023
	Instructor	Khalig Mammadov
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	Phone:	
	Classroom/hours	Saturday 11:50 - 13:20 & 13:40 – 15:10
	Office hours	
Prerequisites	Mathematics, Physics I	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	Engineering Mechanics: Statics, 9 th edition J.L. Meriam, L.G. Kraige and J.N. Bolton, 2018	
Course outline	<p>Engineering Mechanics is a physical science that focuses on the impact of forces on objects, making it an essential component of both engineering analysis and industrial applications. In engineering, the extensive use of mechanics' principles is crucial to assess how forces and other factors influence various subjects or systems. The progress and advancements in numerous fields heavily rely on the application of these mechanics' principles, which serve as the cornerstone for conducting research and facilitating further developments in areas such as vibrations, fluid dynamics, engine performance, and more.</p> <p>A profound comprehension of this subject stands as a fundamental requirement for professionals working in these domains and many others. Additionally, a solid grasp of Engineering Mechanics paves the way for a deeper understanding of material sciences in subsequent courses, providing students with a solid foundation for their future studies.</p>	
Course objectives	<p>Engineering mechanics is considered as a foundation for many other fields which are developing day by day. Majority of the topics such as civil, mechanical, agricultural engineering, as well as the engineering mechanics are relied about statics and dynamics. Almost all the subjects being applied in industry use the version of engineering mechanics despite they are not relevantly related to the mechanical topics such as electrical components of a robotic equipment or manufacturing process of some items/ units. Hence, engineering mechanics is very important to the engineering curriculum. This leads to providing a guideline for solution of the problems in future important subjects including applied mathematics, physics, and material sciences etc. Moreover, students' understanding is being expanded for problem solving in current subject and ability of solution-oriented thinking is being developed.</p>	
Learning outcomes	<p>On successful completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Apply Newton's laws of motion to the real-life problems, 2. Explain vectors and their applications in 2D, 3D coordinates systems, 3. Identify the moment of a force and calculate its value about a specified axis. Define the moment of a couple, 4. Find out the force applications in different points, 5. Construct "Free Body Diagrams" of real-world problems and apply Newton's Laws of motion and vector operations to evaluate equilibrium of particles and bodies, 6. Apply the principles of equilibrium of particles and bodies to analyze the forces in planar truss members, 7. Describe the overview of friction forces and analyze the equilibrium of rigid bodies work under those forces, 8. Find out the resultants of a general distributed load in a beam or other kind of structures and find out the shear force as well as bending moment in the 	

	structures,		
Teaching methods	Lecture		x
	Group discussion		x
	Case analysis and assignments		x
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		25
	Class Participation	At each lesson	5
	Quiz	During the semester	10
	Assignment	During the semester	20
	Final Exam		40
	Total		100
Policy	<ul style="list-style-type: none">▪ Ethics Copy of other students’ work is highly discouraged. All assignments must be handled by the student himself. This is a university policy and violators will be reprimanded accordingly.▪ Preparation for class The structure of this course demands your individual effort outside the classroom for extra practice of many problems within the textbook. After each session, every student needs to put sufficient time to practice and finish the assignments by the predetermined date. In this Engineering Mechanics course, students will encounter four assignments aimed at reinforcing their theoretical and practical understanding. Timely submission is essential, as late assignments incur a 10% daily penalty. Six quizzes will be conducted to assess students' grasp of recent lecture topics, serving as self-assessment tools. There won't be makeup quizzes except for documented emergencies or prior arrangements. The final grade will be determined by assignments, quizzes, and a comprehensive final exam, with provided grading criteria. Uphold academic integrity by ensuring your work is original, as plagiarism or cheating is strictly prohibited. Should students have any queries or need clarification, don't hesitate to reach out to the instructor.• Withdrawal (pass/fail) This course strictly follows grading policy of the School of Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.▪ Cheating/plagiarism Cheating or other plagiarism in handling the assignments, Mid-term and Final Examinations will lead to course failure. In this case, the student will automatically get zero (0), without any considerations.▪ Professional behavior guidelines The students shall behave in a way to create a favorable academic and professional environment during the class hours. attend the whole classes▪ Attendance Students who attend the whole classes will get 5 marks. for three absence student loses 1 mark.▪ Quiz There will be quizzes for checking understanding of content during class. We are not going to give make up for a missing Quiz due to any reason other than medical report.▪ Assignment There will be a homework assignment for every chapter composed of exercises and problems.		

Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments
1		Introduction to statics	Chap 1
2		Force Systems-A	Chap 2
3		Force Systems-B	Chap 2
4		Force Systems-C	Chap 2
5		Equilibrium-A	Chap 3
6		Equilibrium-B	Chap 3
7		Equilibrium-C	Chap 3
8		Midterm/ delivery of assignments -review	
9		Structures-A	Chap 4
10		Structures-B	Chap 4
11		Distributed Forces-A	Chap 5
12		Distributed Forces-B	Chap 5
13		Distributed Forces-C	Chap 5
14		Friction	Chap 6
15		Area and Mass Moments of Inertia	Appendix A & B
16		Final Exam/ Delivery of assignments	

This syllabus is a guide for the course and any modifications to it will be announced in advance.