Identification	**Subject**	ME 201 Introduction to mechanical engineering, 6 ECTS
	Department	Mechanical Engineering
	Program	Undergraduate
	Term	Spring 2024
	Instructor	Khalig Mammadov
	E-mail:	khaliq.mammadov@khazar.org
	Phone:	
	Classroom/hours	
	Office hours	
Prerequisites	General knowledge in Mathematics, Physics and Chemistry	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	An introduction to mechanical engineering by Jonathan Wickert, Kemper Lewis, 3rd edition, 2013	
Course website		
Course outline	This course will introduce students to the field of mechanical engineering, production, theory of machines, solid mechanics, fluid mechanics and thermal and energy systems. This subject will also cover technical communication skills, problem definition and engineering ethics concepts.	
Course objectives	This course aims to equip the mechanical engineering students with the basics of this branch of engineering. The followings are the main objectives of the introduction to mechanical engineering course: 1. Match the background, maturity, and interests of students early in their study of engineering. 2. Expose students to the significance of mechanical design principles in the development of innovative solutions to technical challenges that face our global societies. 3. Help students think critically and learn good problem-solving skills, particularly with respect to formulating sound assumptions, making order-of-magnitude approximations, performing double-checks, and bookkeeping proper units. 4. Convey aspects of mechanical engineering science and empiricism that can be applied at the freshman and sophomore levels. 5. Expose students to a wide range of hardware, innovative designs, engineering technology, and the hands-on nature of mechanical engineering. 6. Generate excitement through applications encompassing urban infrastructure development, nanomachines, aircraft, space flight, robotics, engines, consumer products, transmissions, renewable energy generation, and more. 7. Demonstrate and explain basic working principles of widely seen equipment, automotive parts	
Learning outcomes	On successful completion of this course students will be able to: 1. Define mechanical engineering. 2. Describe some of the subfields of mechanical engineering. 3. Distinguish mechanical engineering from other types of engineering. 4. Describe important components of engineering design and project management. 5. Employ engineering measurements, units, and conversions. 6. Demonstrate an understanding of engineering ethics and ethical dilemmas. 7. Perform basic oral and written technical communication according to the accepted standards of the mechanical engineering community. 8. Perform several basic computations in commonly encountered problems in mechanical engineering. 9. Describe basics of principle mechanical equipment such as pumps, compressors, internal combustion engine etc.	

Teaching methods	**Lecture**		x
	Group discussion		x
	Experiential exercise		--
	Tutorials once a month on weekends		--
	Case analysis and assignments		x
	Course paper		--
	Others		--
Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam		20
	Class Participation		5
	Assignment		10
	Quizzes		10
	Seminar		15
	Final Exam		40
	Total		100

Policy

- **Ethics**
  Copying 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 enough time to practice and finish the assignments by the predetermined date.

- **Withdrawal (pass/fail)**
  This course strictly follows the 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 semester 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.

- **Attendance**
  Students who attend the sessions will get 5 marks. For three absence student loses 1 mark.

- **Quiz**
  There will be quizzes during the semester. The questions will be relevant to the previous weeks' topics. If you read your assignments weekly and you actively listen to the lectures and participate in the discussions, you will be successful in answering the quiz questions.

- **Seminar**
  In this course, a seminar on one of the new topics related to mechanical engineering should be presented by the students. Relevant topics will be given to students during the course. The way of presentation and the degree of mastery of the subject will determine the grade of the students.

	▪ **Final exam** The final exam in this course includes solving problems, definitions, and basic concepts of the course.

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/Assignments
1		The Mechanical Engineering Profession	Chap 1
2		Introduction to MECHANICAL DESIGN	Chap 2
3		Manufacturing process	Chap 2
4		Technical problem-solving	Chap 3
5		Forces in Structures and Machines	Chap 4
6		Materials	Chap 5
7		Stresses	Chap 5
8		Review **Midterm exam**	
9		Fluids Mechanics	Chap 6
10		Introduction to pumps and compressors	Chap 6
11		Thermal and Energy Systems	Chap 7
12		Motion and Power Transmission	Chap 8
13		Introduce CAD/ CAM	Will be provided
14		Introduce CAD/ CAM	Will be provided
15		A preliminary step to engineering design in a team environment.	
16		**Final Exam**	