



UNIVERSITETI / UNIVERSITY
"ISA BOLETINI"
MITROVICA

Course Curriculum Model (Syllabus)		
Faculty:	FACULTY OF MECHANICAL AND COMPUTER ENGINEERING	
Department:	Mechanical Engineering	
Level:	Bachelor	
Code of the course:	101 ME	
Course:	Mathematics I	
Course Status:	Mandatory	Mandatory/Elective
Semester:	First (I)	Winter/Summer
Number of hours per week:	3+2	
ECTS:	6	
Time / location:	Wednesday, 9 ⁰⁰ -10 ³⁰ , L106	
Year of studies:	2024/2025	
Lecturer:	Prof. Assoc. Dr. Faton Merovci	
Assistant:		
Contact details:	Professor	Assistant
Email:		
Telephone:		
C o u r s e d e s c r i p t i o n	This Mathematics I course is designed to provide students with a solid foundation in fundamental mathematical concepts, tools, and techniques that are essential in various fields of engineering, including mechanical engineering. The course covers a wide range of topics, including mathematical logic, sets and set operations, algebraic structures, real and complex numbers, matrices, determinants, linear equation systems, vector algebra, equations of lines and planes in space, and quadratic surfaces. Through lectures, problem sets, and assignments, students will develop their critical thinking, problem-solving, and analytical skills, as well as their ability to apply mathematical concepts and methods to real-world problems. The course aims to equip students with the mathematical knowledge and skills necessary to succeed in their future academic and professional endeavors in engineering and related fields.	
P u r p o s e (G o a l s)	The purpose of this Mathematics I course is to provide students with a strong foundation in mathematical concepts and techniques that are essential in various fields of engineering, including mechanical engineering. The course aims to help students develop their critical thinking, problem-solving, and analytical skills, as well as their ability to apply mathematical concepts and methods to real-world problems.	

L e a r n i n g o u t c o m e s	Upon completion of this Mathematics I course, students should be able to:
	• Demonstrate a solid understanding of mathematical logic, sets and set operations, and algebraic structures.
	• Perform arithmetical operations with complex numbers, including multiplication, division, and exponentiation, and apply De Moivre's formula and the n-th root of complex numbers.
	• Solve systems of linear equations using various methods, including Cramer's rule, Gauss elimination, and inverse matrix.
	• Apply vector algebra to solve problems involving vectors and planes in three-dimensional space, and understand the concept of scalar, vector, and mixed product of vectors.
	• Analyze, interpret, and solve problems using mathematical concepts and techniques, and apply their knowledge of mathematics to real-world problems in engineering and related fields.
	• Demonstrate proficiency in using mathematical tools and software to perform calculations, graphing, and data analysis. • Communicate mathematical concepts and solutions effectively through written and oral presentations.

	Weeks	Lecture
P r o g r a m	<i>First week:</i>	Mathematical Logic
	<i>Second week:</i>	Sets and Set Operations
	<i>Third week:</i>	Algebraic Structure
	<i>Fourth week;</i>	Sets of Real and Complex Numbers
	<i>Fifth week:</i>	Multiplication and division of complex numbers in trigonometric form
	<i>Sixth week:</i>	Matrices
	<i>Seventh week:</i>	Determinants and their properties
	<i>Eighth week week:</i>	Colloquium I
	<i>Ninth week:</i>	Linear Equation Systems and Their Solutions using inverse matrix
	<i>Tenth week</i>	Linear Equation Systems and Their Solutions using inverse matrix
	<i>Eleventh week:</i>	Vector algebra
	<i>Twelfth week:</i>	Scalar, vector and mixed product of vectors and their applications
	<i>Thirteenth week:</i>	Equations of Lines and Planes in Space
	<i>Fourteenth week:</i>	Relative Positions of Lines and Planes. Distances Between Points, Lines, and Planes. Quadratic surfaces
	<i>Fifteenth week:</i>	Colloquium II Course Review

Literature

L i t e r a t u r e	Principal literature:
	1. Hamiti, E.(2008). Matematika I, Shtëpia Botuese Libri Shkollor, Prishtinë.
	Recommended Literature:
	1. Sadiku, S., Merovci, F. (2008). Matematika I-përmbledhje detyrash të zgjidhura, GrafoBeni, Prishtinë.
	2. Neri, F. (2019). Linear algebra for computational sciences and engineering. Springer International Publishing.
	3. "Engineering Mathematics" by K.A. Stroud and Dexter J. Booth (7th edition) - 2013
	4. "Mathematical Methods for Physics and Engineering" by K.F. Riley, M.P. Hobson, and S.J. Bence (3rd edition) - 2006
	5. "Linear Algebra and Its Applications" by Gilbert Strang (4th edition) - 2006

T e a c h i n g m e t h o d o l o g y	The teaching methodology for the Mathematics I course may involve a combination of the following:			
	• Lectures • Problem-solving sessions • Exercises • Discussion • Homework, seminar papers • Group work • Assignments and assessments • Online resources			
	Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours)			
	Activity	Hours	Days/weeks	Total
	Lectures	3	15	45
	Exercise sessions (with TA)	2	15	30
	Practical work			
	Office hours			
	Fieldwork			
	Midterms, seminars	2	2	4
	Homework	2	8	16
	Self-study	3	15	45
	Final exam preparation	5	1	5
	Time spent in exams	2	1	2
	Projects, presentations, etc.	3	1	3
Total				150

E v a l u a t i o n	Assessment methodology:	
	Assessment methods may include the following:	
	Exams, Homework and quizzes, Projects and presentations, Participation. (according to the Statute and Regulation for studies of UMIB)	
	Tests / Colloquia (First Test) (Second test)	40%
	Practical test during exercises (Essay)	
	Workshop seminar	20%
	Interpretation and presentation of artistic creativity and other works.	

	Assignments and courses during the semester	
	Professional practice	
	Other, Continuity	
	Final exam	40%
	Total	100%
	Final grade	Points (%) Mark
		91 – 100 10
		81 - 90 9
		71 - 80 8
		61 - 70 7
		51 - 60 6
Academic issues	Criteria for regular attendance and rules of etiquette during the organization of the lesson are set.	
	Computer work:	
	Graphic works, I have to draw and write with a computer. In the works it is obligatory to respect the criteria for both the visual and the content aspect of the required works.	
	Ethics in teaching:	
	Graphic works should be personal works of each student. There will be no tolerance for copying, "borrowing" from the Internet or any other material. The same or similar works will have negative evaluations in the final evaluation of the student.	
	Time:	
	In agreement with the students, the deadlines for submitting works will be determined. There will be no tolerance for delays in the submission of works. Failure to arrive at the time when the assignment is explained does not justify the student for not submitting the paper. The deadline will be given earlier. If you are going to travel abroad, then you need to submit the paperwork in advance. The student has the right to request a consultation with the professor whenever he / she deems it reasonable and necessary for the performance of his / her work.	
	Rules of conduct and academic policies:	
	• active participation of students in lectures or participation in discussion, comments and free expression of opinion, opinion and academic position (with arguments) • Mandatory independent work and use of additional sources of information (various scientific websites, scientific journals, conference proceedings, etc.) • Respecting lecture schedules without compromising academic freedom (silent cell phones) of respecting the word, thoughts and ideas of colleagues, • It is not allowed to arrive late and leave without a valid reason from the lecture, test or exam or preparation and holding of relevant lectures, (obligation of the teacher). • if the student is absent more than four times without reason in lectures and exercises, does not receive the signature for attendance. or the student cannot take the exam without an official document, • if the student is dissatisfied with the grade obtained, has the right to complain in writing to the dean, within two working days after the announcement of the results, UMIB Statute or if the student does not follow the rules, in the exam uses tools that are not allowed, it is evaluated with a negative grade.	

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Mitrovicë; 07/07/2023

Prof. Assoc. Dr. Faton Merovci