



FACULTY OF ENGINEERING AND  
NATURAL SCIENCES

Course name: MATH 213 Linear Algebra I		Department: Mathematics		Semester			
				3			
Methods of Education					Credit (ECTS)		
Lecture	Recitation	Lab	Exams	Homework	Other	Total	10
56	0	0	90	0	154	300	

Language: English

Compulsory/Elective: Compulsory

Prerequisites: None

Weeks	Subjects
1	<ul style="list-style-type: none"> <li>Systems of Linear Equations</li> <li>Matrices</li> </ul>
2	<ul style="list-style-type: none"> <li>Elementary Row Operation</li> <li>Row-Reduced Echelon Matrices</li> </ul>
3	<ul style="list-style-type: none"> <li>Matrix Multiplication</li> <li>Invertible Matrices</li> </ul>
4	<ul style="list-style-type: none"> <li>Vector Spaces</li> <li>Subspaces</li> </ul>
5	<ul style="list-style-type: none"> <li>Bases and Dimension</li> <li>Coordinates</li> </ul>
6	<ul style="list-style-type: none"> <li>Summary of Row-Equivalence</li> <li>Computations Concerning Subspaces</li> </ul>
7	<ul style="list-style-type: none"> <li>Linear Transformations</li> <li>The Algebra of Linear Transformations</li> </ul>
8	<ul style="list-style-type: none"> <li>Isomorphism</li> <li>Representation of Transformations by Matrices</li> </ul>
9	<ul style="list-style-type: none"> <li>Representation of Transformations by Matrices</li> <li>The Double Dual</li> </ul>
10	<ul style="list-style-type: none"> <li>The Double Dual</li> <li>The Transpose of a Linear Transformation</li> </ul>
11	<ul style="list-style-type: none"> <li>Algebras</li> <li>The Algebra of Polynomials</li> </ul>
12	<ul style="list-style-type: none"> <li>Lagrange Interpolation</li> </ul>
13	<ul style="list-style-type: none"> <li>Determinants</li> <li>Determinant Functions</li> </ul>
14	<ul style="list-style-type: none"> <li>Permutations and the Uniqueness of Determinants</li> <li>Additional Properties of Determinants</li> </ul>

Course Objectives: At the end of this course, the student will learn

- The main concepts about linear algebra,
- the main ideas about systems of linear equations, vector spaces, linear transformations and determinants.

Learning Outcomes and Competences: At the end of this course a student should learn

- the basic skills about solving systems of linear equations
- the basic knowledge about matrices
- the basic skills on vector spaces and subspaces.
- the main properties of linear transformations
- the main properties of determinants

Textbook and /or References	Linear Algebra, Second Edition Authors: Kenneth Hoffman, Ray Kunze Publisher: Prentice-Hall, (2010)		
Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	40
	Quizzes		
	Homework		
	Projects		
	Term Paper		
	Laboratory work		
	Other		
Instructors	Final Exam		
		X	60