Course title		Code	semester	T+U	credit	ECTS
Linear Algebra			3	3+0	3	3

Prerequisite Courses	None
Language of the Course	English
Course Level	Undergraduate
Type of Course	Compulsory
Course Coordinator	
Instructors	
Course Assistants	
The aim of lesson	It is aimed to examine the concepts of linear equation systems, vector spaces, linear transformations, eigenvalues and eigenvectors and to realize various applications.
Course Content	Linear equation systems are explained; Detailed information about matrix operations, determinants and their applications will be given.
Course Learning Outcomes	**At the end of this course, the student;** **1.** Will be able to add and multiply scalars on vectors. **2.** Knows the properties of matrices, can operate on matrices and take matrix inverses. **3.** Knows the properties of determinants and can perform operations on matrices with the help of determinants. **4.** Solve systems of linear equations with the help of matrices. **5.** Determine vector spaces by applying the definition of vector spaces. **6.** Knows the concepts of rank, linear independence and basis. **7.** Knows the definition of linear transformation and can understand whether a given function is a linear transformation. **8.** Find and use eigenvalues and eigenvectors with the help of linear transformations. **9.** Knows and can use the concept of inner product space and orthogonality.

Weeks	Topics
one	Systems of Linear Equations, Gaussian Elimination Method
2	Matrices and Matrix Operations
3	Determinants and Applications
4	Rank of a Matrix and Inverse Matrix
5	Solving Systems of Linear Equations Using Matrices
6	Solving Systems of Linear Equations with the Help of Matrices and Applications
7	Homogeneous Systems of Linear Equations
8	Vectors in Euclidean Space
9	General Vector Spaces and Subspaces
10	Linear Independence and Base Concept
11th	Inner Product Spaces
12	Linear transformations, eigenvalues and eigenvectors
13	Diagonalization, Symmetric Matrices
14	Second Degree Forms
15	Examples of Second Degree Forms

General Competencies

resources

Kolman, B. & David R., Applied Linear Algebra. Palme Publishing.
Lipschutz, S. & Marc Lipson, Linear Algebra (Linear Algebra). Nobel Publishing House.

Evaluation System

The dates, days and hours of the Midterm Exam, Quiz, Final Exam and Evaluations will be announced later, according to the decision of the Faculty Administrative Board.

WITH PROGRAM LEARNING OUTCOMES COURSE LEARNING OUTCOMES RELATIONSHIP TABLE										
	PO 1	PO 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 9	PC10	PC 11
ÖK1	5	4	4	5	3	3	two	3	3	3	two
ÖK2	5	5	5	4	3	4	1	4	two	two	3
ÖK3	5	5	5	5	3	3	1	2	2	2	3
ÖK4	5	4	4	5	3	3	2	3	3	3	2
ÖK5	5	4	4	5	3	3	2	3	3	3	2
ÖK6	5	5	5	4	3	4	1	4	2	2	3
OK7	5	5	5	5	3	3	1	2	2	2	3
OK8	5	4	4	5	3	3	2	3	3	3	2
OK9	5	4	4	5	3	3	2	3	3	3	2
LO: Learning Outcomes OP: Program Outcomes											
Contribution Level	1 Very Low		2 Low		3 Medium		4 High		5 Very High		

OUTCOMES OF THE PROGRAM AND THE RELATIONSHIP OF THE RELATED COURSE

Course name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
Linear Algebra	5	5	5	5	3	3	one	3	2	2	3