Course Name	Course Code	Semester	T + P	Credit	ECTS
Numerical Analysis		4	3 + 0	3	4

Prerequisite Courses	None

If the language of Code	Turkish
Course class	Compulsory
If the Coordinator of Code	
Instructor	
Assistant Course	
Objective of Course	Introduction to advanced numerical analysis methods such as basic algorithms, function approximation methods, curve fitting methods, numerical differentiation and integration methods, ordinary differential equations, eigenvalues and eigenvectors in order to solve nonlinear equations and systems of linear equations.
Course Learning Output	Numerical solution of nonlinear equation at any point
Contents Course	Newton interpolation polynomial, Hermite polynomial analysis, cubic curves, Pade approximation. Curve fitting: least squares polinomu, nonlinear curve fitting, logistic curves, FFT and trigonometric polynomials, cone fitting, radius of curvature. Numerical derivative: Richardson extrapolation, inference of numerical derivative formulas. Numerical Integrals: Riemann sums, midpoint rule, trapezoid rule, Simpson rule, Simpson rule 3/8, Boole rule, Monte Carlotum. Solution of differential equations: Euler method, Taylor series method, Runge-Kutta method, finite difference method, Frobenius series solution, Picarditerasyonu. Eigenvalues and eigenvectors: Power method, partition model, matrix grading. Numerical optimization: Golden ratio search, Fibonacci search, Newton search method.

Weeks	Topics
1	General Introduction and Concepts
2	Solution of a Variable Equations I
3	Solution of a Variable Equations II
4	Solution of Linear Equation Systems
5	Solution of Linear Equation Systems
6	Interpolation
7	Polynomial Approach
8	MIDTERM
9	Curve Fitting
10	Numerical Differentiation and Richardson Extrapolation
11	Digital Integrity
12	Numerical Solutions of Differential Equations
13	Eigenvalues
14	Eigenvectors
15	FINAL EXAM

General Sufficiency
Model and analyze numerical analysis concepts and problems.
References
Assessment
Midterm: 40% Final exam: 60% of the project or assignment can be made and announced at the beginning of the semester evaluations.