Course title	Code	semester	T+U	credit	ECTS
Differential equations		4	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	Basic definitions and terminology of differential equations, Solutions of 1st, 2nd and higher order differential equations, Laplace transforms, Fourier Series, Solutions of differential equations with series, Solutions of systems of differential equations, Formation and solution of differential equations in engineering modeling problems, orthogonal trajectories.
Course Content	Examination and analysis of differential equations.
Course Learning Outcomes	1. Comprehends the application of mathematics to engineering problems. 2. Learns mathematical solution methods of engineering problems. 3. Applies Engineering Mathematics to the solution of Mechanical Engineering problems. 4. Defines engineering problem with mathematics.

Weeks	Topics
one	General definitions and concepts in differential equations
2	First-order differential equations
3	Exact differential equations
4	Integral factor
5	dd that can be solved with respect to y
6	Clairaut and Lagrange dd
7	Orbit vertically and obliquely
8	n. Right neutral differential equations with order linear and constant coefficients
9	n. Solution methods of order linear and right-sided differential equations with constant coefficients
10	Uncertain coefficients method
11th	Lagrangian method
12	Linear differential equations with variable coefficients Euler diff.denk.
13	Linear differential equations with variable coefficients Legendre diff.denk
14	Numerical solution methods of differential equations

General Competencies

Modeling and analyzing differential equations, taking into account the concepts and techniques.

resources

Aydın, M. Kuryel, B., Differential Equation. and Applications Lecture Notes, EU Faculty of Arts and Sciences.
Can, M. Differential Equations Lecture Notes, ITU Faculty of Arts and Sciences.
Karadeniz, A. Higher Mathematics Lecture Note, KTU Faculty of Arts and Sciences.
Yaşar, B. Differential Equations and Applications Lecture Notes, Gazi University Faculty of Arts and Sciences.

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.

	TABLE OF RELATIONSHIP OF PROGRAM LEARNING OUTCOMES AND COURSE LEARNING OUTCOMES										
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
LO1	5	5	5	5	4	4	4	5	5	4	4
INCREASE2	5	4	4	4	4	3	3	3	5	4	5
INCREASE3	5	5	5	4	4	4	4	4	4	4	4
INCREASE4	4	4	5	5	5	4	3	3	3	3	3
LO: Learning Outcomes OP: Program Outcomes											
Contribution level	**1 Very Low**		**2 Low**		**3 Medium**		**4 High**		**5 Very High**		

Relation of Program Outcomes and Related Course

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
Differential equations	5	5	5	4	4	4	4	4	5	4	4