Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Mechanical Engineering Department
2024-2025 Spring Semester
SYLLABUS

Code/Name	MEC 106 / Fundamentals of Electrical-Electronical Engineering
Type	Required
Credit/ECTS	3/3
Hour per Week	2 (2+0+0)
Level/Year	Undergraduate/1
Semester	Spring
Classroom	A004
Content	Fundamental circuit laws. Kirchhoff voltage and current law. Resistive circuit analysis. Sinusoidal steady-state response of circuits. Three-phase circuits. Magnetic circuits and transformers. Electromechanical energy conversion. Semiconductor electronics. Transistor biasing. Amplifiers.
Prerequisites	NA
Textbooks	***Primary*** G Rizzoni, J Kearns, *Fundamentals of Electrical Engineering*, 2nd edition, McGraw-Hill Education, 2022. ***Supplementary*** G Rizzoni, J Kearns, *Principles and Applications of Electrical Engineering*, 7th edition, McGraw-Hill Education, 2022.
Objectives	• To know, understand and apply the basic concepts of electric circuits • To understand the charge, current and voltage analogy • To know and apply the Kirchoff's Laws and Resistance and Ohm's Law
Course Outcomes	In this course you will be able to: CO1 Describe the features of networks and circuits CO2 Identify the charge, current and voltage terms and apply its basic principles CO3 Interpret ideal voltage and current sources CO4 Analyze I-V characteristics of sources CO5 Examine principles of Kirchhoff's Laws and Resistance and Ohm's Law

Weekly Schedule of Topics

W	Topic
1	Features of networks and circuits
2	Features of networks and circuits
3	Charge, current, and Kirchhoff's current law
4	Voltage and Kirchhoff's voltage law
5	Power and the passive sign convention
6	Resistance and Ohm's law
7	Resistance and Ohm's law
8	Resistors in series and voltage division
9	Resistors in parallel and current division
10	Measurement devices
11	Network analysis: The node voltage method
12	Network analysis: The mesh current method
13	Introduction to electric machines
14	Introduction to electric machines

Professional Contribution	Utilize both theoretical and practical knowledge in electrical and electronical engineering field including the basic circuit theories and laws.

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	4	2	1	3	2	2	0	1	2	2	3
CO2	4	2	1	3	2	2	0	1	2	2	3
CO3	4	2	1	3	2	2	0	1	2	2	3
CO4	4	2	1	3	2	2	0	1	2	2	3
CO5	4	2	1	3	2	2	0	1	2	2	3

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions	The consequence of violation of the attendance rule is to receive a grade of **NA.**
Requirements	NA
Evaluation	Midterm Exam 30% Quiz, Assignment 25% Final Exam 45% Total 100%
Rubric	NA
Course Policy	1. You must attend at least 70% of the sessions, including add-drop period. 2. Be in the class on time. 3. English should always be used to communicate with one another. 4. Mobile phones should be switched off and put away during the class. 5. You cannot talk to your friends during class no matter what the subject is.
Cheating & Plagiarism	• Copying or letting someone to copy your work on exams, assignments, or reports is cheating. • Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism. • The consequence of academic dishonesty is to receive a grade of **F** for the course.

Instructor

Name/Surname	Alparslan Topcu	Email	alparslan.topcu@alanya.edu.tr
Office	230	Office Hours	Monday : 13:30 – 14:30 Thursday : 13:30 – 14:30

Prepared by Alparslan Topcu on February 04, 2025