

## SYLLABUS – 2022/2023 Spring

Department	: Electrical and Electronics
Course Code	: EE 371
Course Name	: Electromechanical Energy Conversion
Course Credit	: 3 (3+0+0) ECTS 7
Semester	: 2022-2023 Academic Year, Spring Semester
Instructor	: Canbolat Uçak
Schedule	: Wednesday 11:00-12:00, Thursday 11:00-13:00
Address	: Department of Electrical & Electronics Engineering Faculty of Engineering 26 Agustos Campus, Kayisdagi Street 81120 Kayisdagi, Istanbul, Turkey
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Office Hours	: Wednesday 12:00-14:00:16:00-18:00, Thursday 14:00-16:00, Friday 13:00-14:00

### Objective:

The objective of this class is to combine mechanics with the fundamentals of electricity and magnetism.

### Course Outlines:

Magnetic Circuits and Magnetic Materials: Transformers: Electromechanical Energy Conversion Principles: Introduction to Rotating Machines: Synchronous Machines: Polyphase Induction Machines: DC Machines: Variable-Reluctance Machines and Stepper Motors: Single- and Two-Phase Motors

### Course Outcomes:

1. Apply mathematics, science, and engineering knowledge to the electromechanical energy conversion devices.
2. Understand electromechanical energy conversion principles
3. Identify, formulate, and solve electromechanical device problems
4. Use the techniques, skills, and modern engineering tools for better understanding of electromechanical devices.
5. Understand professional and ethical responsibilities
6. Communicate effectively

### Textbooks:

- A. E. Fitzgerald, C. Kingsely, S. D. Umans, “Electric Machinery”, McGraw-Hill, Inc., 2014. 7<sup>th</sup> edition.
- Turan Gönen, “Electrical Machines”, Power International Press, 1998.
- Stephen J. Chapman, “Electric Machinery Fundamentals”, McGraw-Hill, Inc., 1991.
- Herbert H. Woodson and James R. Melcher, “Electromechanical Dynamics: Part I Discrete Systems”,

### Grade Distribution

Type	Percent (%)	When?
Quiz/Project/Homework	25	Anytime
Midterm Exam	15	(Date may change) 13 April 2023, Thursday: <b>TIME 11:00-13:00</b>
Final Exam	60	Final Week
Makeup Exam	-	2 June 2023, Thursday: <b>TIME 14:00-16:00</b>
<b>Total</b>	<b>100</b>	