



ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151227453 - 151247453 **COURSE TITLE:** Electrical Machinery

Semester	Weekly Hours		COURSE			
	Theoretical	Practical	Credits	ECTS	Type	Language
7	3	0	3	5	Compulsory () Elective (x)	Turkish () English (x)
Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).						
Math and Basic Science		Electrical Engineering [mark (√) if there is high design content]		General Education	Humanities	
0		3 ()		0	0	
Assessment		THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES	
		Type	Number	%	Activity Type	Number %
Midterm		Midterm	1	30	Quiz	
		Quiz	3	30	Lab performance	
		Homework			Report	
		Project			Oral exam	
		Other (.....)			Other (.....)	
Final			1	40		
Makeup exam (Oral/Written)		Oral				
Prerequisites		Principles of Energy Conversion				
Brief content of the course		Basic concepts of rotating machines. DC generators and motors. Induction motors. Synchronous generators. Special electrical machines.				
Objectives of the course		To learn the constructional features and operational principles of electrical machines used in industrial applications. To know the solution methods in order to solve problems related with the electrical machines.				
Contribution of the course towards professional education		In this course, students will be familiar with electrical generators and motors. They will also have sufficient theoretical information in order to analyze systems including electrical machines.				
Outcomes of the course		1- Students will learn the theory of electrical machines. 2- Students will analyze the electrical machines. 3- Students will solve the problems related with the electrical machines				
Textbook of the course		A.E. Fitzgerald, C. Kingsley and A. Kusko, Electric Machinery, McGraw-Hill.				
Other reference books		M. Kostenko and L. Piotrovsky, Electrical Machines. O.I. Elgerd, Basic Electric Power Engineering. Hindmarsh, Electrical Machines and Their Applications.				
Required material for the course						

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Basic concepts of dc, induction and synchronous machines
2	Expression of voltages generated on dc and ac generators
3	DC generators
4	DC motors
5	Speed control of dc motors
6	Constructional features and operational principles of induction machines
7	Derivation of equivalent circuit of induction machines
8	Midterm
9	Midterm
10	Analysis of induction motors
11	Starting and speed control methods of induction motors
12	Calculation of parameters in the equivalent circuit of synchronous machines
13	Regulation and efficiency in the synchronous machines
14	Special electrical machines
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving complex problems of Electrical and Electronic Engineering		X		
2	Ability to identify complex engineering problems in Electrical and Electronic Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.		X		
3	Having skills to apply modern design methods to design a complex system, process, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronic Engineering.				
4	Having skills to develop, select and apply modern techniques and tools needed to analyze and solve complex applications in Electrical and Electronic Engineering, skills to use information technology effectively.				
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of complex problems in Electrical and Electronic Engineering		X		
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.		X		
7	Communicating effectively in oral and written form both in Turkish and English. Effective report writing and understanding written reports, preparing design and manufacturing reports, making effective presentations, skills to give and receive clear and concise instructions.				
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				
9	Understanding of professional and ethical responsibility				
10	Information on project management, change management and risk management practices, awareness on entrepreneurship and innovation, knowledge on sustainable development.				
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.				

Scale for assessing the contribution of the course to the program outcomes:

4: High 3: Medium 2: Low 1:None

Name of Instructor(s): Prof. Dr. M. Bilginer Gülmezoğlu

Signature(s):

Date: