AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Electrical Machines						
Course Code	MKE152		Couse Level		Short Cycle (Associate's Degree)		
ECTS Credit	3	Workload	75 *(Hours)*	Theory	2	Practice	1	Laboratory	0
Objectives of the Course	To learn the structure properties and working properties of DC and AC machines and to apply them						
Course Content	Structures and working principles of electric motors and dynamos						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods		Explanation (Presentation), Experiment, Demonstration, Problem Solving					
Name of Lecturer(s)	Assoc. Prof. Murat ÜNVERDİ						

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	Electrical Machines Textbook

Week	Weekly Detailed Course Contents	
1	Theoretical	To recognize the structures and working principles of DC electrical machines,
2	Theoretical	Defining and examining the basic operating characteristics of DC machines.
3	Theoretical	Explaining the control of DC machines as generators and motors.
4	Theoretical	Investigation of DC motor idle and different loads operating characteristics.
5	Theoretical	The concept of AC electrical machines; induction, Electromotive force and definition of forces.
6	Theoretical	Description of induction motors, working principles and structures and basic sizes.
7	Theoretical	Power losses and efficiency calculations in induction machines.
8	Theoretical	Obtaining the basic characteristics of induction motors and examination of characteristics such as MOMENT / VOLTAGE and CURRENT / SHIFT.
9	Intermediate Exam	Mid-Term
10	Theoretical	Definition of basic parts of typical three-phase synchronous machines.
11	Theoretical	Three-phase synchronous machines: Structures, working principles and basic relations.
12	Theoretical	Explanation of working principle, structure and properties of synchronous motors.
13	Theoretical	Structural and operating characteristics of special design engines
14	Practice	Application of DC and AC machines
15	Practice	Application of DC and AC machines
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Lecture - Practice	14	1	1	28
Midterm Examination	1	2	1	3
Final Examination	1	1	1	2
			Total Workload (Hours)	75
			[Total Workload (Hours) / 25*] = **ECTS**	3

25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To recognize the structures and working principles of DC electrical machines,
2	Comprehension of different operation types of DA motors, sample analysis
3	To know the structures and working principles of AC electrical machines,

4	To know the structure and working principles of synchronous and asynchronous generators,
5	To learn the structure and working principles of special design engines

Programme Outcomes *(Machinery)*

1	To be able to know general properties and usage areas of industrial materials and make selection.
2	Design of machine elements.
3	To be able to make production using machining and welding machines without machining.
4	To be able to make measurement and quality control processes with machine tools for measuring and control equipment.
5	To be able to make necessary corrections in order to determine the mistakes by using the necessary non-destructive test methods in welded parts and to eliminate these mistakes.
6	Preventive measures to prevent the occurrence of these faults by preliminarily determining the faults that will occur in the machines as statistical data and to make necessary interventions in case of breakdown.
7	They can make drawings of work pieces on CAD station and apply them on CNC looms. Ability to operate and use CAD / CAM and AUTOCAD package programs.
8	To be able to transfer engineering science and technology to practice by making calculations in the direction of scientific principles.
9	It can repair the elements in pneumatic and hydraulic systems which are indispensable elements of automatic control systems and can regulate their work.
10	The student who is trained as a machine technician during the whole program knows that industrial task definition in the field of work is error finding, problem solving, decision making, planning of functions and activities and they can be achieved by aiming to acquire these characteristics.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	3	3	2	4	2
P2	3	2	3	3	5
P3	3	5	5	2	3
P4	3	5	4	5	2
P5	3	2	2	4	4
P6	3	5	3	3	1
P7	3	4	5	2	2
P8	3	2	2	5	3
P9	3	3	4	4	5
P10	3	2	3	5	2