AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Electronics I								
Course Code	FİZ317		Couse Level	First Cycle (Bachelor's Degree)					
ECTS Credit	6	Workload	156 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	To investigate fundamental characteristics of circuit components in Direct Current (DC) and Alternating Current (AC) circuits, To teach the fundamental methods and applications which are used to analyze DC and AC circuits.								
Course Content	Direct Current (DC) circuits, Alternating Current (AC) circuits, To analyze of Alternating Current circuits, diode circuits, Semiconductor devices, Transistor amplifiers.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Discussion								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	70
Quiz	6	10
Assignment	6	10

Recommended or Required Reading	
1	Fenciler için temel elektronik, James J. Brophy, Çeviren: Mehmet Zengin vd.
2	Elektronik elemanlar ve devre teorisi, Robert Boylestad ve Louis Nashelsky Laboratory notes

Week	Weekly Detailed Course Contents	
1	Theoretical	Current, Voltage, Ohm Laws, Resistance and Battery
2	Theoretical	Kirchhoff Laws and Maxwell Method
3	Theoretical	Voltage Divider and Bridge Circuits
	Laboratory	Voltage Divider and Bridge Circuits
4	Theoretical	Superposition, Norton and Thevenin theorems
5	Theoretical	Applications of Superposition, Norton and Thevenin Theorems
	Laboratory	Applications of Superposition, Norton and Thevenin Theorems
6	Theoretical	Frequency, phase, amplitute, power factor in AC circuits, Capacitor and Inductance, RL ve RC filter, differantiator and integrator circuits, resonance in RLC circuit, Q factor
7	Theoretical	Properties of Diodes, properties of Zener diode, voltage regulator circuits.
8	Theoretical	circuits of diodes
	Laboratory	circuits of diodes
9	Intermediate Exam	MİDTERM EXAM
10	Theoretical	Wave rectifier, clipper, clamper and voltage multiplier circuits.
11	Theoretical	Clipper, clamper and voltage multiplier circuits.
	Laboratory	Clipper, clamper and voltage multiplier circuits.
12	Theoretical	Semiconductors, Bipolar junction and Field-effect transistors.
13	Theoretical	Properties of transistors and circuits
14	Theoretical	Circuits with transistors
	Laboratory	Circuits with transistors
15	Theoretical	Transistor amplifiers, differential amplifier and Darlington amplifier
	Laboratory	Transistor amplifiers, differential amplifier and Darlington amplifier

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	3	56
Assignment	6	3	1	24

Quiz	6	3	1	24
Midterm Examination	1	20	1.5	21.5
Final Examination	1	29	1.5	30.5
			Total Workload (Hours)	156
			[Total Workload (Hours) / 25*] = **ECTS**	6
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To learn Current, Voltage, Ohm Laws, Kirchhoff Laws and Maxwell Method
2	To learn Superposition, Norton and Thevenin Theorems and applications
3	To learn properties of resistance, capacitor, inductance, diodes and transistors which are circuit component
4	To learn Voltage Divider and Bridge Circuits and applications
5	To learn Direct Current (DC) and Alternating Current (AC) circuits
6	To analyze of RL, RC and RLC circuits
7	To learn use of diodes as voltage regulator and applications
8	To learn principle of wave rectifier, Clipper, Clamper and Voltage multiplier circuits and applications
9	To learn properties of Semiconductors and applications
10	To learn circuits of transistors and applications
11	To learn how use transistors as amplifiers and applications

Programme Outcomes *(Physics)*	
1	To understand the importance of physics by understanding the general concepts of physics, matter and energy
2	To be able to define the movements of matter and to distinguish the characteristics of movements under different force (potential)
3	Be able to say the meaning of Lagrange and Hamiltonian formulations of the movement and apply them to simple problems,
4	To be able to express the fundamental concepts such as time, space, force, momentum and energy in the movements of matter close to the speed of light and be able to solve and interpret the simple problems related to
5	To be able to establish the relationship between electric and magnetic forces and to be able to illustrate their applications to technology and solve problems related to the movement of particles in electric and magnetic fields
6	Be able to say the basic laws of electromagnetics and apply them to problems, illustrate their applications to simple technology
7	To be able to tell the reasons of the differences between the classical cases and the quantum scale and explain the reasons
8	Explain the concepts of discontinuity, uncertainty, matter-antimatter, indecisiveness of quantum physics with examples and explain simple problems related to the subject.
9	To be able to solve the problems of micro-particles under different simple potentials and be able to say their meanings
10	To be able to establish the relationship between the movements and properties of multi-particle systems and the laws of probability and solve simple problems
11	To be able to illustrate the laws, meanings and applications of thermodynamics and use them
12	Be able to use their knowledge about quantum physics and mechanics in explaining some properties of atoms and nuclei
13	To be able to show the meanings of some theoretical concepts by experimenting, and develop a strong relationship between thought and the real world, develop analytical thinking
14	To be able to apply the meanings of the basic laws of physics, their comprehension of universality and the relations between them and the unity of the laws of nature.
15	Use computer to solve physics problems
16	To be able to understand the problems by using their analytical knowledge skills and to propose solutions by dealing with the laws of physics
17	Be able to use the knowledge of physics to understand new technologies
18	To be able to tell the relations between symmetry and conservation laws in laws of physics

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

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
P2	5		5		5						
P13				5		5	5	5	5	5	5
P17		3							4		
P18											4