



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title	Electronic Applications in Mechanical Engineering								
Course Code	MME503		Course Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	195 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The aim of this course is to provide students with the basic electrical and electronic knowledge required to take part in multidisciplinary and interdisciplinary working groups								
Course Content	Resistor, network analysis methods, capacitor, inductor, opamp, led, diode, basic concepts on signals and systems								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Project Based Study, Individual Study, Problem Solving								
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Quiz	4	15
Assignment	5	5
Term Assignment	1	5

### Recommended or Required Reading

1	Practical Electronics for Inventors 4th Ed., Paul Scherz, Simon Monk Understanding Microelectronics, a Top-Down Approach, Maloberti
---	---

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction - Signals and Systems
2	Theoretical	Frequency domain analysis and Fourier Transform
3	Theoretical	Introduction to Electromagnetism and Resistors
4	Theoretical	Ohm Law and Introduction to Circuit Analysis
5	Theoretical	Network Theorems
6	Theoretical	Capacitors - Inductors
7	Theoretical	Power in Electric Circuits
8	Intermediate Exam	Midterm Exam
9	Theoretical	RLC Circuits and Resonance
10	Theoretical	Impedance and Resistance Measurement
11	Theoretical	Semiconductors : Diode, LED
12	Theoretical	Semiconductors : BJT and MOSFET
13	Theoretical	OPAMPs
14	Theoretical	Passive OPAMP Circuits, Active OPAMP Circuits and Filters
15	Theoretical	Filters and Applications
16	Final Exam	Final Exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	2	4	96
Assignment	5	0	3	15
Term Project	1	15	10	25
Quiz	4	4	1	20
Midterm Examination	1	15	2	17



Final Examination	1	20	2	22
Total Workload (Hours)				195
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	To learn basic concepts on electromagnetism and electronics
2	To learn the relationship between signals and systems
3	To gain the ability to simulate electronic circuits
4	To use electronic prototyping in engineering applications
5	Comprehending OPAMP applications
6	Applications of filtering in electronic circuits

### Programme Outcomes (*Mechanical Engineering (English) Master*)

1	To be able to access wide and deep information with scientific researches in the field of Engineering, evaluate, interpret and implement the knowledge gained in his/her field of study
2	To be able to complete and implement "limited or incomplete data" by using the scientific methods
3	To be able to consolidate engineering problems, develop proper method(s) to solve and apply the innovative solutions to them
4	To be able to develop new and original ideas and method(s), to develop new innovative solutions at design of system, component or process
5	To be able to gain comprehensive information on modern techniques, methods and their borders which are being applied to engineering
6	To be able to design and apply analytical, modeling and experimental based research, analyze and interpret the faced complex issues during the design and apply process
7	To be able to gain high level ability to define the required information and data
8	To be able to work in multi-disciplinary teams and to take responsibility to define approaches for complex situations
9	To be able to transfer of the process and results of studies at national and international environments systematic and clear verbal or written
10	To be able to be aware of social, scientific and ethical values guarding adequacy at all professional activities and at the stage of data collection, interpretation, and announcement
11	To be able to become aware of new and developing application of profession and ability to analyze and study on those applications
12	To be able to interpret engineering application's social and environmental dimensions and it's compliance with the social environment

### 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
P1	4	4	4	4	4	5
P2	3	3	4	4	4	4
P3	5	5	5	5	5	4
P4	3	3	5	3	5	5
P5	4	4	3	3	5	4
P6	4	4	4	5	4	5
P7	5	4	4	4	4	3

