

DEPARTMENT OF MECHATRONICS
COURSE INFORMATION

Course Details						
Code			Academic Year			Semester
PHY 102			1			1
Title			T	A	L	ECTS
Electricity and Magnetism			3	1	1	6
Language	German					
Level	Undergraduate	X	Graduate		Postgraduate	
Department / Program	Mechatronics					
Forms of Teaching and Learning	Face to face					
Course Type	Compulsory	X	Elective			
Objectives	To give students fundamentals of electricity, magnetism and electrical engineering.					
Content	Electrostatics, capacitance, direct current circuits, magnetism, inductance, Maxwell-equations					
Prerequisites	-					
Coordinator	-					
Lecturer(s)	Asst. Prof. A. Kazım Çamlıbel					
Assistant(s)	Salih Nişancı, Cihan Katar, Bilge Kağan Dönmez					
Work Placement	-					
Recommended or Required Reading						
Books / Lecture Notes	- Physik: Lehr- und Übungsbuch, Douglas C. Giancoli, 2019 - Halliday Physik, David Halliday, Robert Resnick, Jearl Walker, 2017					
Other Sources	-					
Additional Course Material						
Documents	-					
Assignments	5 laboratory reports					
Exams	1 midterm exam, 1 final exam					
Course Composition						
Mathematics und Basic Sciences					50%	
Engineering					10%	
Engineering Design					%	
Social Sciences					%	
Educational Sciences					%	
Natural Sciences					40%	

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Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		40
Quiz			
Assignments	5		20
Attendance			
Recitations			
Projects			
Final Exam	1		40
Total			100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	4	56
Assignments	5	4	20
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory	5	6	30
Projects			
Final Exam	1	2	2
Total Work Load			166
ECTS Points (Total Work Load / Hour)			6
Learning Outcomes			
1	Students learn the main concepts in electricity and magnetism.		
2	Students learn the main laws in electricity and magnetism .		
3	Students can solve complicated problems.		
4	Students can conduct fundamental experiments of electricity and magnetism and report their results.		
5			
6			
7			
8			

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9	
10	
11	
12	

Weekly Content

1	Electric charge and electric field
2	Gauss law
3	Applications of des Gauß law
4	Electric potential
5	Electrostatic potential energy
6	Capacitance, dielectrics and electrical energy storage
7	Electric currents and electrical resistance
8	DC circuits
9	Midterm exam
10	Magnetism
11	Creation of magnetic fields
12	Electromagnetic induction and das Faraday's law
13	Inductance and electromagnetic oscillations
14	AC circuits
15	Maxwell-equations and electromagnetic waves

Contribution of Learning Outcomes to Program Objectives (1-5)

[illegible]

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Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=tr&curSunit=196	
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