



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018 Spring

PHYS1104 Physics Lab

COURSE DESCRIPTION FORM

Offering Department	Department of Computer Engineering		Undergraduate must course (2nd semester)							
Course Code	PHYS1104									
Course Name	Physics Lab									
Language of Instruction	English									
ECTS	4									
Contact Hours	Theoretical (T):			Practice (U):			Laboratory(L): 2			
Pre-requisites										
Instructor	Name	Hüseyin Yaltrık								
	E-mail	huseyin.yaltrik@marmara.edu.tr								
Course Materials	Mandatory	The materials and announcements for the class are shared on the course website: https://www.edmodo.com/								
	Recommended									
Course Objectives	To teach to measure electrical magnitudes by using basic rules with basic experiments.									
Course Content	Ohm's Law, nonlinear circuit elements, capacitor characteristics, series and parallel connection, Faraday's law, induction, to teach to measure electrical magnitudes by using basic rules with basic experiments.									
Learning Outcomes	LO1	To be able to comment on the physical fundamentals of electricity.								
	LO2	To explain the basic principles of circuit elements								
	LO3	To be able to experiment with alone and in groups.								
	LO4	To recognize devices such as voltmeter, ammeter, signal generator, power supply and oscilloscope and to apply electrical measurement principles.								
	LO5	To learn laboratory measurement methods.								
	LO6	Be able to apply the effects of magnetic field and magnetic field of magnet.								
Program Outcomes		LO1	LO2	LO3	LO4	LO5	LO6	LO7		
PO4	Ability to devise (a), select, and use (b) modern techniques and tools needed for engineering practice (1); ability to employ information technologies effectively (2).				1b					
PO5	Ability to design (a) and conduct experiments, gather data (b), analyze and interpret results for investigating engineering problems (c).	b	b, c			b, c	b			
PO6	Ability to work efficiently in intra-disciplinary (a) and multi-disciplinary teams (b); ability to work individually (c).			a, c						
PO13	Knowledge of mathematics, basic sciences (a), computer science (b) and engineering sciences (c) required for the design and analysis of complex electrical and electronic devices, software and systems including hardware and software.				a, c	a				
Subjects (Knowledge, Skills and Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5	LO6	LO7
	S1	1-2	Introduction to Laboratory Equipments		L	L	L	L	L	
	S2	3	Ohm's Law	R	L	R, L	R, L	R, L	R, L	
	S3	4	Specific Resistance of a Conductor	R	L	R, L	R, L	R, L	R, L	
	S4	5	Serial-Parallel Connection of Resistances and Equivalent Resistance Calculating	R	L	R, L	R, L	R, L	R, L	
	S5	6	Wheatstone Bridge	R	L	R, L	R, L	R, L	R, L	
	S6	7-8	Non-ohmic Devices – 1,2	R	L	R, L	R, L	R, L	R, L	
	S7	9	Capacitor Charge-Discharge Characteristics	R	L	R, L	R, L	R, L	R, L	
	S8	10	Kirchhoff's Law	R	L	R, L	R, L	R, L	R, L	
	S9	11	RC Circuits	R	L	R, L	R, L	R, L	R, L	
S10	12-13	Magnetic Field Lines	R		R, L	R, L	R, L	R, L		
Assessment Methods and Weights	No	Type	Weight	Implementation Rule			Make-up Rule			
	MF	Midterm, Final	-	-			-			
	Q	Quiz	-	-			-			

H	Homeworks	-	-	-
P	Project	-	-	-
R	Report	50%	The deadline for the reports is one week after the experiments are performed. The score of reports that are not submitted is 0. 10 reports are assigned in total.	A report is given for the experiment when a medical certificate or an assignment letter which is suitable according to the university regulations is provided.
S	Presentations	-	-	-
A	Participation / Interaction	-	-	-
L	Class/ Laboratory/ Field Work	50%	Every experiment is performed by groups of three people.	When a medical certificate or an assignment letter which is suitable according to the university regulations is provided, the experiment can be performed.
O	Others	-	-	-
TOTAL		100%		

- Determining Letter Grades**
- The letter grades will be determined based on the laboratory work and report.
 - In order to determine the letter grade, a curve or catalog based method will be followed based on the total average scores of the students.
 - The final exam score and the total average score of the student must be at least 35 to pass the course.

Assessment	Laboratory	Report	TOTAL
Weight	50	50	100

Time Applied by the Instructor

No	Method	Explanation	Hours
1	Lectures	Lectures are given in class using the board or via presentations. Example questions are solved to enhance the concepts.	
2	Problem Session/ Practice	Problems related to the course topics are solved on the board.	
3	Laboratory	Experiments are done in the laboratory or theoretical concepts covered during the lectures are practiced using computer exercises.	13*2=26
4	Interactive Courses	Questions are asked to students during lectures and they are encouraged to guess the answers (peer learning is also in this category)	
5	Field Work	Students attend activities outside the campus.	
6	Midterm	Midterm exam is given during the midterm week.	
7	Final	Final exam is given during the final exam week.	

Estimated Time to be Allocated by a Student

8	Project	The students carry out research about the problem given in the project, design and implement their solution and prepare a report.	13*2=26
9	Homeworks	The students solve the problems given as homework.	11*2=22
10	Pre-class learning of Course Material	The students study and learn the new subjects from course materials.	
11	Review of Course Material	Students review the course subjects from course materials to prepare for the exams and homeworks.	
12	Office Hour	Students ask questions to the instructor or the assistant during office hours.	2
Total			76

Academic Honesty

Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

In case academic dishonesty is observed, the first authority is the instructor of the course. The instructor may decide to give the student zero for the homework(s)/lab(s)/exam(s), give the letter grade FF, or may take disciplinary action.