



T.C.

ESKİŞEHİR OSMANGAZI ÜNİVERSİTİ

FACULTY OF ENGINEERING and ARCHITECTURE

ELECTRICAL and ELECTRONICS ENGINEERING DEPARTMENT



COURSE INFORMATION FORM

Course Name	Course Code
PHYSICS II LAB	151222199

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
2	0	2	1	2

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
2	0	0	0	0

Course Language	Course Level	Course Type
English	Undergraduate	Compulsory

Prerequisite(s) if any	
Objectives of the Course	Teaching through conducting experiments on the topics related to the content of Physics II; hence, enhancing the students' perception and understanding on the important concepts and fundamental laws of electricity and magnetism.
Short Course Content	Numerical analysis and error calculation, fundamental measurements and Ohm's law, electrolysis, magnetic force, Ohm's law, electric field lines, Kirchhoff's rules and Wheatstone Bridge, alternating current circuits, transformers.

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 To enhance observational and analytical skills.	1, 2, 11	13	C
2 Make measurements with common instruments.	4, 5	3	I
3 To analyze quantitative information and errors.	5, 6	15	E
4 To represent experimental data by using graphics.	2, 5	15	E
5 To compare experimental results with mathematical and physical models, hence make an interpretation.	5	8	E
6 Prepare a lab report.	1, 2, 4, 5, 6	15	E
7 Develop teamwork skills..	6	12	C, E, I, K
8 Running essential measurement devices such as voltmeter, ammeter, signal generator, and oscilloscope. Comprehend the working principles of circuit components. Understanding the pivotal relationship between electricity and magnetism.	1, 2, 4, 5	3	A, I
9 Encourage the curiosity for physics and improve the ability to apprehend the solid correlations between physics and engineering applications.	1	11	I
10 To obtain knowledge and experience on building basic experimental set ups upon need.	2, 3, 4	3, 6, 10	I

***Teaching Methods** 1:Expression, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Trouble/Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

****Measuring Methods** A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	Physics II Experiments Laboratory Book, Eskişehir: Eskişehir Osmangazi Üniversitesi Yayınları, Sertaç Eroğlu, Murat Kellegöz, Gökhan Kılıç, Halil Yasin Adıyaman
Supporting References	Halliday, D., Resnick, R., and Walker, J. (2008). Fundamentals of Physics (8th Edition). John Wiley & Sons, Inc. Serway, R.A., Beichner, R.J., Serway, R.A., Beichner, R.J., Physics For Scientists and Engineers with Modern Physics (2007), Harcourt College Publishers
Necessary Course Material	

Course Schedule	
1	Introduction to laboratory, and formation of lab groups.
2	Electrolysis experiment.
3	Basic measurements and Ohm's Law Experiment.
4	Ohm's Law experiment
5	Wheatstone Bridge experiment
6	Equipotential and electric field lines experiment
7	Equipotential and electric field lines experiment
8	Mid-Term Exam
9	Magnetic force experiment
10	Biot-Savart Law Experiment
11	Transformers experiment
12	Resonance in Wire experiment
13	Resonance tube and standing waves experiment
14	Resonance tube and standing waves experiment
15	Make up experiment, general review and preparation for final exam.
16,17	Final Exam

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Calculation of Course Workload			
Activities	Number	Time (Hour)	Total Workload (Hour)
Course Time (number of course hours per week)	14	2	28
Classroom Studying Time (review, reinforcing, prestudy,....)			
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)	10	2	20
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam			
Studying for Mid-Term Exam			
Final Exam	1	2	2
Studying for Final Exam	1	10	10
Total workload			60
Total workload / 30			2
Course ECTS Credit			2

Evaluation	
Activity Type	%
Mid-term	
Quiz	
Homework	
Report	50
Final Exam	50
Total	100

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RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	PROGRAM OUTCOME	Contribution
1	Adequate knowledge of mathematics, science and Electrical and Electronics Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving problems of Electrical and Electronic Engineering	5
2	Ability to identify complex engineering problems in Electrical and Electronics Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.	5
3	Having skills to apply modern design methods to design a complex system, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronics Engineering.	2
4	Having skills to develop, select and apply modern techniques and tools needed for Electrical and Electronics Engineering applications, skills to use information technology effectively.	2
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of Electrical and Electronics Engineering problems	4
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.	3
7	To communicate and represent effectively in both Turkish and English.	2
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.	1
9	Understanding of professional and ethical responsibility.	1
10	Information on project management, change management and risk management practices, awareness on entrepreneurship, innovation and sustainable development.	1
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.	2

LECTURER(S)				
Prepared by	Arş. Gör. Dr. Selçuk Temiz			
Signature(s)				

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