

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
PHY102	PHYSICS II	3.00	0.00	2.00	4.00	7.00

Course Detail

Course Language	: English
Qualification Degree	: Bachelor
Course Type	: Compulsory
Preconditions	: Not
Objectives of the Course	: We emphasize conceptual understanding and problem solving skills. Our goals are for you to continue developing knowledge and intuition about how the laws of basic electricity and magnetism works, to learn to approach, solve, and understand problems on basic electricity and magnetism both qualitative and quantitative levels, to relate classroom physics to the real world in laboratory experiments, and to develop a deeper appreciation of the scientific method.
Course Contents	: Electric charge: Coulomb's law, Electric field and field lines. Gauss' law. electric potential and electric potential energy. Capacitors and dielectrics. Currents in materials. Direct current circuits. The effects of magnetic fields. The production and properties of magnetic fields: Ampere's law, Gauss' law for magnetism, and the Bio-Savart law. Faraday's law of induction. Magnetism and matter:
Recommended or Required Reading	: 1. Main textbook: Physics for Scientists and Engineers, 8th edition by Raymond A. SERWAY and John W. JEWETT, Thomson - Brooks/Cole. ISBN 2. Physics, Principles with applications, 5th edition (1998) by Douglas C. GIANCOLI, Prentice Hall, Upper Saddle River, New Jersey 07458 3. Fundamentals of Physics, 8th edition (2007) by David HALLIDAY, Robert RESNICK and Jearl WALKER, John Wiley & Sons. Inc. New York.
Planned Learning Activities and Teaching Methods	: In the lectures we develop the theory, and we study how the theory is applied in solving physics problems. In the lab we perform experiments, which allow us to make the very important connection between the physical theory and the real world. For each lab, you will receive, at least one week prior to the lab date, a handout with all necessary information about the lab. These handouts will include (a) a study guide containing the topics a student must be familiar with in order to perform the experiments successfully, (b) descriptions of the experiments to be performed, and (c) the necessary space to complete the lab report.
Recommended Optional Programme Components	: The students should develop their learning skills themselves.
Instructors	: Dr. Öğr. Üyesi Aziz Kolkıran
Instructor's Assistants	: Other instructors: Cem Özdoğan, Gül Yakalı, Erdal Kurt, Gürkan Ergün
Presentation Of Course	: Theory, Problem solving, Laboratory.
En Son Güncelleme Tarihi:	: 7/16/2024 8:40:59 AM

Course Outcomes

Upon the completion of this course a student :

- 1 Understands and analyzes the phenomena of electric charge, electric field, electric force, electric potential and electrostatic energy and the relations between them.
- 2 Capacitor definitions, calculations and capacitor direct current circuit analysis, knows the areas of use in technology.
- 3 Makes electrical direct current circuit analysis.
- 4 Understands magnetism, sources, formation and basic laws of magnetism and uses them in problem solving.
- 5 Collects and analyzes data using experimental setups that explain the basic laws of electricity and magnetism.

Preconditions

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Weekly Contents						
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Electric Charge		*Measuring electrical quantities		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
2.Week	*Coulomb's law				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
3.Week	*Electric field and field lines		*Electric field lines and equipotentials		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
4.Week	*Gauss's Law				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
5.Week	*Electric Potential and electric potential energy		*Ohm's law (Current-Voltage relation, series and parallel connections)		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
6.Week	*Capacitance and Dielectrics				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
7.Week	*Currents in materials and Resistance				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
8.Week	*Direct Current Circuits		*Kichoffs rules		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
9.Week	*Magnetic Fields				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
10.Week	*Sources of Magnetic Field		*Charging of a capacitor		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
11.Week	*Amperes Law				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
12.Week	*Gauss' law for magnetism		*Current balance		*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
13.Week	*The Bio-Savart law				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	
14.Week	*Faradays's Law of Induction				*In class introduction to theories on the whiteboard, slide presentations, discussions, video lectures	

Assesment Methods %
1 Midterms : 30.000
5 Laboratory : 30.000
6 Final : 40.000

ECTS Workload			
Activities	Count	Time(Hour)	Sum of Workload
Vize / Midterms	1	2.00	2.00
Final / Final	1	2.00	2.00
Derse Katılım / Attending lectures	14	4.00	56.00
Laboratuvar / Laboratory	5	4.00	20.00
Ders Öncesi Biresysel Çalışma / Individual study before lecture	14	1.00	14.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	14	1.00	14.00

Activities	Count	Time(Hour)	Sum of Workload
Uygulama / Pratik Sonrası Biresysel Çalışma / Individual study after Application / Practice	12	2.00	24.00
Ara Sınav Hazırlık / Preparation for midterm	1	10.00	10.00
Final Sınavı Hazırlık / Preparation for final	1	20.00	20.00
Ev Ödevi / Homework	2	9.00	18.00
Bütünleme / Make-up	1	20.00	20.00
Problem Çözme	12	1.00	12.00
			Total : 212.00
			Sum of Workload / 30 (Hour) : 7
			ECTS : 7.00

Program And OutcomeRelation											
	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11
L.O. 1	5	0	0	0	0	0	0	0	0	0	0
L.O. 2	5	0	0	0	0	0	0	0	0	0	0
L.O. 3	5	0	0	0	0	0	0	0	0	0	0
L.O. 4	5	0	0	0	0	0	0	0	0	0	0
L.O. 5	5	0	0	0	5	5	0	0	0	0	0