

School of Engineering and Natural Sciences / Industrial Engineering (English)

2022 - 2023 Academic Year

PHYSICS II

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
PHYSICS II	IND1210752	Spring Semester	3+0	3	5
Prerequisites Courses	MATEMATİK I				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assoc.Prof. Muhammed Fatih TOY				
Name of Lecturer(s)	Lect. Saliha Zeyneb AKINCI				
Assistant(s)					
Aim	The aim of the course is to provide students with theoretical knowledge on basic electricity and magnetism and to understand the universe and engineering applications in the most effective way with this theoretical structure.				
Course Content	This course contains; Electric charge and electric field,Gauss' law,Electric potential,Capacitance and dielectrics I,Capacitance and dielectrics II,Current, resistance, and electromotive force,Direct current circuits,Magnetic field and magnetic forces,Sources of magnetic field,Electromagnetic induction,Inductance I,Inductance II,Alternating current,Electromagnetic waves.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
1. Students know the basic laws of electricity and magnetism and uses them in problem solving.			1, 14, 15, 3, 4	A, E	
2. Students have knowledge about electrostatic, capacitance and dielectric, direct current circuits and elements, electromotive force.			1, 14, 15, 3, 4	A, E	
3. Students gain knowledge about basic magnetism, electromagnetic induction, inductance, alternating current and electromagnetic waves.			1, 14, 15, 3, 4	A, E	
4. Students gain the ability to apply mathematical knowledge in problem solving.			1, 14, 15, 3, 4	A, E	
5. Students can model problems, interpret, evaluate and analyze data using basic theoretical knowledge on electricity and magnetism.			1, 14, 15, 3	A, E	
Teaching Methods	1: Lecture, 14: Self-Study, 15: Problem solving, 3: Discussion, 4: Exercise, Practice				
Assessment Methods	A: Written Exam, E: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Electric charge and electric field				
2	Gauss' law				
3	Electric potential				
4	Capacitance and dielectrics I				
5	Capacitance and dielectrics II				
6	Current, resistance, and electromotive force				
7	Direct current circuits				
8	Magnetic field and magnetic forces				
9	Sources of magnetic field				
10	Electromagnetic induction				
11	Inductance I				
12	Inductance II				
13	Alternating current				
14	Electromagnetic waves				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources
Serway R.A, Jewett, Jr J.W. Physics for Scientists and Engineers with Modern Physics. Brooks Cole, 9th Edition Young H.D, Freedman R.A. Sears and Zemansky's University Physics with Modern Physics. Pearson, 13th Edition College Physics, OpenStax College (From: https://openstaxcollege.org/textbooks/college-physics)