Identification	Subject	PHSC 112, Phys	ics II - 6 ECTS
	Department	Physics and Elect	
	Program	Undergraduate	
	Term	Fall 2023	
	Instructor	Ph.D. Shirkhan H	umbatov
	E-mail:	shirxanhumbatov	@gmail.com
	Phone:	+99477-631 32 8	
	Classroom/hours	08:30-15:35	
	Office hours		
Prerequisites	PHSC 111	I	
Language	English		
Compulsory/Elective	Compulsory		
Description	1 1	principles of electromagnetis	m and optics. Emphasis is
•	This course covers the principles of electromagnetism and optics. Emphasis is on conceptual development and numerical problem solving. A detailed		
	schedule of topics can be found later in this syllabus.		
Required textbooks	University physics with	h modern physics 14th edition	on global edition by Hugh
and course	D. Young, Roger A. Fr	eedman, and Lewis A Ford.	
materials			
Course website	Class assignments: www	v.edmodo.com	
Course outline	Physics II serves as a ca	alculus-based introduction to E	Electromagnetism. Students
	will investigate the principles of introductory physics through lectures,		
	seminars, and homework problems. The course will cover these topics- Electric Charge and Electric Field. Gauss Law, Electric Potential. Capacitance, Electric Current and Resistance, Circuits, Magnetism. Electromagnetic Induction, Electromagnetic Waves, Interference and the		
	Wave Nature of Light. Critical thinking		
	about physics problems is emphasized.		
Course objectives	To develop understand	ling of the concepts in ele	ectricity and magnetism,
	reinforce general problem. solving skills. Students should be able to apply the		
	basic laws of electricity and magnetism to solve simple problems concerning the motion and distribution of charges.		
Learning outcomes	Understanding topics related to Electric and Magnetic fields. Apply the		
	conceptual themes of Electromagnetism. Understand methods for solving		
	electromagnetic problem	ns in related fields of Engine	eering. To analyze simple
	Electrical Circuits. Application of fundamental methods of Circuit theory. To apply gained knowledge into practical work in Engineering.		
Teaching methods	Lecture		+
	Seminar		+
	Assisted work		Х
	Assisted lab work		Х
	Others		
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Class Participation	At each lesson	5
	andAttendance		
	Quizzes	During the semester, total	20
		2	

		quizzes, for each 10 points		
	Activity	At each lesson	10	
	Final Exam		35	
	Total		100	
Policy	Preparation for cla	ass		
	The structure of this	course makes your individual study an	d preparation outside	
	the class extremely i	important. The lecture material will foc	us on the major	
	pointsintroduced in	points introduced in the text. Reading the assigned chapters and having some		
	familiarity with them	familiarity with them before class will greatly assist your understanding of the		
	lecture. Afterthe lec	ture, you should study your notes and	work relevant	
	problems and cases	from the end of the chapter and sample	e exam questions.	
	Withdrawal (pass/	Withdrawal (pass/fail)		
	This course strictly	follows grading policy of the School of	f Science and	
	Engineering. Thus, a	a student is normally expected to achiev	e a mark of at least	
	60% to pass. In case	60% to pass. In case of failure, he/she will be required to repeat the course the		
	following term or ye	following term or year.		
	Cheating/plagiaris	m		
	Cheating or other	Cheating or other plagiarism during the Quizzes, Mid-term and Final		
	Examinations will	Examinations will lead to paper cancellation. In this case, the student will		
	automatically get ze	automatically get zero (0), without any considerations.		
	Professional behav	rior guidelines		
		The students shall behave in a way to create a favorable academic and professional		
	environment during behavior are strictly	the class hours. Unauthorized discussi	ons and unethical	
	Attendance	Freinenen		
		the whole class will get 5 marks. for t	hree absence student	
	loses 1 mark.			
	Activity			
	ť	be active during discussion of past les	ssons and who will	
		roblems in a seminar will be awarded		
	mark.		, and the second s	
	Quizzes			
	-	zes examination during the semester. Th	ne quizzes will be	
	1	sroom two weeks before. The quiz is ba	-	
		ework problems will be selected from q		
		hapter. The number of homework proble		
	after finishing ethch			
	•	an pass midterm and first quiz with max	x points automatically	
	get max 10 points fo		r - main accommunication	

Tentative Schedule			
Week	Date/Day	Topics	
	(Tentative)		Textbook/Assignments
1	16.09.2023	ELECTRIC CHARGE	1. University physics with
	16.09.2023	AND ELECTRIC FIELD	modern physics by Hugh D.
			Young, Roger A. Freedman
		Short description:	and Lewis A Ford., Chapter
		Electric Charge	21.
		Conductors, Insulators, and Induced Charges	
		Coulomb's Law	2. Handnotes given by teacher
		Electric Field and Electric Forces	
		Electric-Field Calculations	
		Electric Field Lines	
		Electric Dipoles	
2	23.09.2023	GAUSS'S LAW	1. University physics with
	23.09.2023		modern physics by Hugh D.
		Short description:	Young, Roger A. Freedman
		Charge and Electric Flux	and Lewis A Ford., Chapter
		Calculating Electric Flux	22.
		Gauss's Law	2. Handnotes given by teacher
		Applications of Gauss's	
3	30.09.2023	ELECTRIC POTENTIAL,	1. University physics with
	30.09.2023	CAPACITANCE AND DIELECTRICS	modern physics by Hugh D.
			Young, Roger A. Freedman
			and Lewis A Ford., Chapter
		Short description:	23-24.
		Electric Potential Energy	2. Handnotes given by teacher
		Electric Potential	2. Handhotes given by teacher
		Calculating Electric Potential	
		Equipotential Surfaces	
		Potential Gradient	
		Capacitors and Capacitance	
		Capacitors in Series and Parallel	
		Energy Storage in Capacitors and	
		Electric-Field Energy	
		Dielectrics Molecular Model of Induced Charge	
		Molecular Model of Induced Charge	
4		Gauss's Law in Dielectrics CURRENT, RESISTANCE	1. University physics with
+	07.10.2023		modern physics by Hugh D.
	07.10.2023	AND ELECTROMOTIVE FORCE	Young, Roger A. Freedman
	07.10.2023		
		Short description.	and Lewis A Ford Chapter
		Short description: Current	and Lewis A Ford., Chapter 25
		Short description: Current Resistivity	and Lewis A Ford., Chapter 25.

		Resistance	2. Handnotes given by teacher
		Electromotive Force and Circuits	
		Energy and Power in Electric Circuits	
		Theory of Metallic Conduction	
5	14.10.2023	DIRECT-CURRENT CIRCUITS	1. University physics with
5	14.10.2023	DIRECT-CORRENT CIRCOTIS	
	14.10.2025	Shout description.	modern physics by Hugh D.
		Short description: Resistors in Series and Parallel	Young, Roger A. Freedman
			and Lewis A Ford., Chapter
		Kirchhoff's Rules	26.
		Electrical Measuring Instruments	2. Handnotes given by teacher
		R-C Circuits	
		Power Distribution Systems	
6	21.10.2023	MAGNETIC FIELD AND	1. University physics with
	21.10.2023	MAGNETIC FORCES	modern physics by Hugh D.
			Young, Roger A. Freedman
		Short description:	and Lewis A Ford., Chapter
		Magnetism	27.
		Magnetic Field	
		Magnetic Field Lines and Magnetic Flux	2. Handnotes given by teacher
		Motion of Charged	
7	28.10.2023	SOURCES OF MAGNETIC FIELD	1. University physics with
	28.10.2023		modern physics by Hugh D.
		Short description:	Young, Roger A. Freedman
		Magnetic Field of a Moving Charge	and Lewis A Ford., Chapter
		Magnetic Field of a Current Element	28.
		Magnetic Field of a Straight	
		Current-Carrying Conductor	2. Handnotes given by teacher
		Force Between Parallel Conductors	
		Magnetic Field of a Circular	
		Current Loop	
		Ampere's Law	
		Applications of Ampere's Law	
8	04.11.2023	Midterm Exam	
Ŭ	04.11.2023	Problem solving	
	5		
9	11.11.2023	ELECTROMAGNETIC	1. University physics with
-	11.11.2023	INDUCTION	modern physics by Hugh D.
			Young, Roger A. Freedman
		Short description:	and Lewis A Ford., Chapter
		Induction Experiments	29-30.
		Faraday's Law	
		Lenz's Law	2. Handnotes given by teacher
		Motional Electromotive Force	
		Induced Electric Fields	
		Eddy Currents	
		•	
		Displacement Current and Maxwell's	
		Equations	

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