CSS-152: Physics 1
Fall - 2021

Course Description

The aims of the syllabus are: to give students an understanding of the fundamental principles of physics and their application to everyday life and technology; to develop an appreciation of physics as a human endeavour, thereby enriching the students' experience of life; to provide a reasonably broad perspective of physics, thus developing an understanding of the physical environment and of how human beings interact with it; to provide a general education in physics for all students, whether or not they proceed to further studies in physics; to develop the ability to observe, to think logically, and to communicate effectively; to develop an understanding of the scientific method; to develop an appreciation of physics as a creative activity, using informed intuition and imagination to create an understanding of the beauty, simplicity and symmetry in nature.

Prerequisites

- MAT 153 Math for Computer Science
- CSS 105 Fundamentals of Programming

Learning Outcomes

Students will be able to:

- Demonstrate conceptual understanding of fundamental **physics** principles.
- Communicate **physics** reasoning in oral and in written form.
- Solve **physics** problems using qualitative and quantitative reasoning including sophisticated mathematical techniques.
- Conduct independent research or work successfully in a technical position.

The SDU Principles:

- I will respect the dignity of all individuals within the SDU community
- I will practice academic integrity.
- I will demonstrate social and personal responsibility.
- I will be responsible for my own academic progress and agree to comply with all University policies.

Lecturers

Ualikhan Sadyk ualikhan.sadyk@sdu.edu.kz Room: F-407 (Engineering block) Office Hours: Thursday 14.00 - 14.50	*Assem Kaliyeva* assem.kaliyeva@sdu.edu.kz Room: F-207 (Engineering block) Office Hours: N/A

Practice Instructor

Gulnaz Baimenshina ualikhan.sadyk@sdu.edu.kz Room: F-406 (Engineering block) Office Hours: N/A	

Textbook

1. Physics for Scientists and Engineers 9th edition, Raymond A. Serway(https://drive.google.com/file/d/1wy0blHR7HQie1k3XiqbvFduVIkb3vSS4/view?usp=sharing)

Class Materials

All course related announcements, assignments, lecture notes, etc. will be posted at Telegram Channel. You can download Telegram applications for your mobile phone for free, or access the webpage from your computer. https://t.me/joinchat/lO1TUJYCpu9lZjIy

Grading Policy

Component	Description	Done on	Points
Quiz 1	• Electric Fields • Gauss's Law • Electric Potential	Week-4	10
Quiz 2	• Capacitance and Dielectrics • Current and Resistance • Direct-Current circuits	Week-8	10
Quiz 3	• Magnetic Fields • Sources of the Magnetic Fields • Faraday's Law	Week-12	10
Quiz 4	• Inductance • Alternating Current Circuits	Week-15	10

	• Electromagnetic Waves • Maxwell's Equations		
Practice activity	• Done individually (one student) • Solve problems • Definitions(theory)	Each week	15
Attendance	• Required for practice class	Whole term	5
Final Exam	• Done individually (one student) • Solve problems • Definitions(theory)	Finals period	40

Late Policy

Late submissions are NOT accepted. Excused absences may be considered, if a student has a permission confirmed by the relevant university department.

Schedule (subject to minor changes)

Week	Topic	Readings	Problems
1	Introduction to Scientific Physics & Electric Fields	Ch. 23	4,11,12,13,15,19,25,29,33,36,42,44,45,50.
2	Gauss's Law	Ch. 24	
3	Electric Potential	Ch. 25	
4	Capacitance and Dielectrics	Ch. 26	
5	Current and Resistance	Ch. 27	
6	Direct-Current circuits	Ch. 28	
7	Magnetic Fields	Ch. 29	
8	Sources of the Magnetic Fields	Ch. 30	
9	Faraday's Law	Ch. 31	
10	Inductance	Ch. 32	
11	Alternating Current Circuits	Ch. 33	

12	Electromagnetic Waves	Ch. 34	
13	Maxwell's Equations	Ch. 35	
14		Ch. 36	
15		Ch. 37	
Finals period	Final	All	Final exam

IMPORTANT
Any act of cheating in any of the assessments (task, project, exam, etc.) will result in a ZERO grade for that specific component only, but all the parties involved will be penalized, and get a strict warning. Consequent act (second one) will result in a FAIL(AW) grade for the overall course, and will be
reported to the Administration for further consideration.
1. Cell phone use is only allowed if used for class activities.
2. Eating is not allowed. However, covered drinks are allowed.
3. Attendance will be taken by seating chart at the beginning of class.
4. The instructor must be notified by email about any excused absences no later than 24 hours after the missed class. Even if you choose to notify the instructor in person, you must still follow up with email within 24 hours of the missed class. If you do not follow this policy, you will not be able to make up missed exams or turn in late work except in extreme circumstances.