PHYS 102 General Physics II	*SYLLABUS*	2023 - 2024 Spring Semester

Course textbook: University Physics Volume 2 (*https://openstax.org/details/books/university-physics-volume-2*)

COURSE OUTLINE

Week	Dates	Chapter	Contents
1	29.01-04.02	Ch. 5 Electric Charges and Fields	5.1 Electric Charge, 5.2 Conductors, Insulators, and Charging by Induction, 5.3 Coulomb's Law, 5.4 Electric Field, 5.5 Calculating Electric Fields of Charge Distributions, 5.6 Electric Field Lines, 5.7 Electric Dipoles
2	05.02-11.02	Ch. 5 Electric Charges and Fields	5.1 Electric Charge, 5.2 Conductors, Insulators, and Charging by Induction, 5.3 Coulomb's Law, 5.4 Electric Field, 5.5 Calculating Electric Fields of Charge Distributions, 5.6 Electric Field Lines, 5.7 Electric Dipoles
3	12.02-18.02	Ch. 6 Gauss's Law	6.1 Electric Flux, 6.2 Explaining Gauss's Law, 6.3 Applying Gauss's Law, 6.4 Conductors in Electrostatic Equilibrium
4	19.02-25.02	Ch. 7 Electric Potential	7.1 Electric Potential Energy, 7.2 Electric Potential and Potential Difference, 7.3 Calculations of Electric Potential, 7.4 Determining Field from Potential, 7.5 Equipotential Surfaces and Conductors, 7.6 Applications of Electrostatics
5	26.2-03.03	Ch. 8 Capacitance	8.1 Capacitors and Capacitance, 8.2 Capacitors in Series and in Parallel, 8.3 Energy Stored in a Capacitor, 8.4 Capacitor with a Dielectric, 8.5 Molecular Model of a Dielectric **Midterm 1 (Saturday 02 March, 09:30)**
6	04.03-10.03	Ch. 9 Current and Resistance	9.1 Electrical Current, 9.2 Model of Conduction in Metals, 9.3 Resistivity and Resistance, 9.4 Ohm's Law, 9.5 Electrical Energy and Power, 9.6 Superconductors
7	11.03-17.03	Ch. 9 Current and Resistance	9.1 Electrical Current, 9.2 Model of Conduction in Metals, 9.3 Resistivity and Resistance, 9.4 Ohm's Law, 9.5 Electrical Energy and Power, 9.6 Superconductors
8	18.03-24.03	Ch. 10 Direct-Current Circuits	10.1 Electromotive Force, 10.2 Resistors in Series and Parallel, 10.3 Kirchhoff's Rules, 10.4 Electrical Measuring Instruments, 10.5 RC Circuits, 10.6 Household Wiring and Electrical Safety
9	25.03-31.03	Ch. 11 Magnetic Forces and Fields	11.1 Magnetism and Its Historical Discoveries, 11.2 Magnetic Fields and Lines, 11.3 Motion of a Charged Particle in a Magnetic Field, 11.4 Magnetic Force on a Current-Carrying Conductor, 11.5 Force and Torque on a Current Loop, 11.6 The Hall Effect, 11.7 Applications of Magnetic Forces and Fields
10	01.04-07.04	Ch. 12 Sources of Magnetic Fields	12.1 The Biot-Savart Law, 12.2 Magnetic Field Due to a Thin Straight Wire, 12.3 Magnetic Force between Two Parallel Currents, 12.4 Magnetic Field of a Current Loop, 12.5 Ampère's Law, 12.6 Solenoids and Toroids, 12.7 Magnetism in Matter
11	08.04-14.04	Holiday Week	
12	15.04-21.04	Ch. 13 Electromagnetic Induction	13.1 Faraday's Law, 13.2 Lenz's Law, 13.3 Motional Emf, 13.4 Induced Electric Fields, 13.5 Eddy Currents, 13.6 Electric Generators and Back Emf, 13.7 Applications of Electromagnetic Induction **Midterm 2 (Saturday 20 April, 09:30)**
13	22.04-28.04	Ch. 14 Inductance	14.1 Mutual Inductance, 14.2 Self-Inductance and Inductors, 14.3 Energy in a Magnetic Field, 14.4 RL Circuits, 14.5 Oscillations in an LC Circuit, 14.6 RLC Series Circuits
14	29.04-05.05	Ch. 15 Alternating-Current Circuits	15.1 AC Sources, 15.2 Simple AC Circuits, 15.3 RLC Series Circuits with AC, 15.4 Power in an AC Circuit, 15.5 Resonance in an AC Circuit, 15.6 Transformers
15	06.05-12.05	Ch. 16 Electromagnetic Waves	16.1 Maxwell's Equations and Electromagnetic Waves, 16.2 Plane Electromagnetic Waves, 16.3 Energy Carried by Electromagnetic Waves, 16.4 Momentum and Radiation Pressure, 16.5 The Electromagnetic Spectrum
16	13.05-19.05	Review	

Other Recommended Textbooks:

1. *Young & Freedman, University Physics, (15th Ed.) Pearson*

2. Jewett and Serway, *Physics for Scientists and Engineers (7th Ed.)*, Thomson

3. Giancoli, Physics for Scientists & Engineers (4th Ed.), Pearson.

Course Web Page: You can find useful information concerning the course, including a copy of this syllabus, a list of staff, past exam solutions, etc., at **http://www.fen.bilkent.edu.tr/~phys102/**

Laboratory Web Page: Information on the laboratory work can be found at **http://www.fen.bilkent.edu.tr/~physlab/**

Grading Scheme:

Midterm Exam 1: 15%, Midterm Exam 2: 20%, Final Exam: 25%, Laboratory Work: 20%, Quizzes 10%, Homework 10%

Letter Grade Bins:

A [100,85], **A-** (85, 80], **B+** (80, 75], **B** (75, 70], **B-** (70, 65], **C+** (65, 60], **C** (60, 55], **C-** (55, 50], **D+** (50, 45], **D** (45, 40], **F** (40, 0]

Important Note:

Students will not be admitted into the final exam, and will receive an automatic **FZ** grade if:

- the lab grade is not a passing grade, i.e., less than 60;
- the weighted average of the two midterm grades is less than 30;
- the attendance is less than 70%.

Midterm Exam Dates:

Midterm Exam 1: 2 March 2024, 09:30, Midterm Exam 2: 20 April 2024, 09:30

General Information About Exams:

- All students should comply with the Honor Code. They will be asked to sign the following code for their exams to be graded: "*I pledge, on my Honor, not to lie, cheat, or steal in either my academic or personal life. I understand that such acts violate the Honor Code and undermine the community of trust of which we are all stewards.*"
- The exams will be common and will be administrated to all students at the same time. Questions and their solutions for each exam will be prepared by the exam committee and will be available on the course web site following the exam.
- Exam papers will be graded by the instructors. Each question will be graded by one instructor.
- Make-up exams for the midterms will be administrated in the last week of courses. Make-up for the final exam will be administrated within five work days following the final exam. Students are expected to present a valid medical report to their Dean's office within two work days to be able to sit in the make-up exam (University Rules and Regulations for Undergraduate Studies, Item No. 4.8).
- Students will have the right to ask for a reassessment of their exam paper **within five work days** after the announcement of their grades (University Rules and Regulations for Undergraduate Studies, Item No. 4.12). Reassessment applications should be done after a careful examination of the solutions posted on the web, and should contain a detailed description stating why the exam paper should be reassessed. Applications without a valid reason will mean that solutions are still not well understood, and therefore will result in further deduction of marks.
- Students who received **FZ** grades will not be admitted to the final exam. Attempting to take the final exam after receiving an **FZ** grade will result in a disciplinary action.

Quizzes

During the semester, a minimum of 10 short (15 min.) quizzes will be given. Average of these quiz marks will comprise 10% of each student's final grade.

Homework

Regular homework assignments will be given and monitored by the coordinator through the online tutoring and homework system "CENGAGE WebAssign™." This website will also provide a grading procedure for each student. The overall homework grade will make up 10% of the final grade.

To register on the website, you need an access code. If you have previously purchased a code for physics, you can use your old WebAssign code. If you don't have one, you can purchase it from the Meteksan bookstore.

When registering, remember to enter your Bilkent student ID number. Your homework grades will be retrieved from the WebAssign server using your student ID number. If you forget to enter it or input the wrong number, you won't receive a homework grade even if you complete the assignments.

To register for the PHYS 102 course, visit the website:

https://www.getenrolled.com/?courseKey=bilkent.tr15910084

The Class key field will be pre-filled for you (bilkent.tr 1591 0084); simply proceed to complete the registration.

You can find information on how to use WebAssign, along with registration guidelines, by watching the video at

https://www.youtube.com/watch?v=2eP385K0djg

Moodle

This course will require students to use the new integrated STARS/Moodle system. For this students must first create a Moodle account and then enrol (register) themselves to the desired Moodle course pages. Students can login the server using the "Moodle" button on their SRS screens. This must be done at least once at the beginning of the semester to create a Moodle account. Previous semester Moodle accounts will not work on the new server.

To access the course on Moodle students should:

1. Log in the STARS system
2. Click on the "Moodle" button next to the course PHYS 102 All Sections

If you experience any problems, please contact moodle@bilkent.edu.tr.

Labs

Please refer to the lab web page (www.fen.bilkent.edu.tr/~physlab/) for detailed information.

Attendance

According to Bilkent University Rules and Regulations attendance to lectures is compulsory. It will be monitored by the instructor regularly.

Gen. AI Policy

Gen.AI, a powerful artificial intelligence tool, can be utilized as a supplementary resource to enhance learning and assist with certain academic tasks. However, there are specific restrictions in place to maintain the integrity of academic assessments.

Students are allowed to use Gen.AI for the following activities:

a. Studying and Homework: - Utilizing Gen.AI to seek additional explanations, clarifications, and examples related to the subjects being studied. - Generating ideas, outlines, or drafts for homework assignments.

b. Research Assistance: - Employing Gen.AI to gather information, explore concepts, and enhance understanding of course materials.

c. Conceptual Understanding: - Interacting with Gen.AI to deepen comprehension of theoretical concepts covered in lectures.

The use of Gen.AI is strictly prohibited for the following activities:

a. Lab Reports: - Generating content for lab reports, including analysis, results, and conclusions. - Any involvement of Gen.AI in the creation of formal lab reports is considered a breach of academic integrity.

b. Lab Project Work: - Using Gen.AI to contribute to the design, execution, or analysis of laboratory projects. - All aspects of lab project work should be the result of individual effort without assistance from Gen.AI.

Best wishes for a healthy and prosperous semester.