

Philadelphia University	 PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	Approval date:
Faculty of Science		Issue:
Department of scientific basic sciences		Credit hours
Academic year: 2025/2026		Bachelor

Course information

Course ID	Course title			Prerequisite
021613200	General Physics (2)			021613100
Course type	Section	Class day	Class time	Room
☐ University Requirement ☒ Faculty Requirement ☐ Major Requirement ☐ Elective ☒ Compulsory	1	Sun. & Thu.	11:15 – 12:05	6305
		Sun.	22:10 – 23:00	Online
	2	Sat. & Mon.	9:45 – 10:35	61201
		Sat.	21:10 – 22:00	Online

Instructor Information

Name	Office No.	Phone No.	Office Hours	E-mail
Mustafa Al-Zyout	819	06 4779000 ext. 2341	Sat. & Mon.: 09:45 – 11:00 Sun. & Tues.: 12:30 – 13:30	mzyout@philadelphia.edu.jo

Course Delivery Method

☐ Physical ☐ Online ☒ Blended			
Learning Model			
Percentage	Synchronous	Asynchronous	Physical
		33 %	67 %

Course Description

This module is a first year physics course which will introduce the students majoring in engineering or physics and other sciences to the basic language and ideas of physics that occur in all branches of science and technology. In addition it provides them with a clear and logical presentation of the basic concepts and principles of physics, and to strengthen their understanding through a broad range of interesting applications to the real world. The course is a survey of the concepts, principles, methods and major findings of classical Physics. Primarily, it covers Electricity and magnetism in general, with topics that include: Charge and matter, Electric field, Gauss's Law, Electric Potential, Capacitance and dielectrics, Current and resistance, Direct current circuits, Magnetic field, Faraday's Law of Induction, Sources of the magnetic field, Electromagnetic waves (Optional) .
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Course Learning Outcomes

Number	Outcomes	Corresponding Program outcomes
Knowledge		
K1	Students will be able to identify key SI base quantities, understand and apply fundamental laws of electrostatics, electrodynamics, and magnetism, define and calculate essential electrical and magnetic quantities, explain electromagnetic induction, and state Maxwell's equations and the properties of electromagnetic waves.	
Skills		
S1	Students will be able to apply mathematical tools such as algebra, vectors, and calculus to calculate electrical and magnetic quantities, solve problems in electrostatics, electrodynamics, and magnetostatics, analyze DC and AC circuits, graphically represent electric and magnetic fields, and translate physical situations into mathematical formulations for quantitative analysis.	S2
Competencies		
C1	Students will be able to extend foundational concepts of electromagnetism to related scientific fields, understand the significance of physics in science, engineering, and medicine.	

Learning Resources

Course textbook	Raymond A. Serway and John W. Jewett, Physics for Scientists and Engineers, Cengage Learning; 9 th Edition, 2014.
Supporting References	D. Halliday, R. Resnick and Jearl Walker, Fundamentals of Physics, John Wiley and Sons (WIE); 10th edition , 2013. Roger A. Freedman and , Hugh D. Young, University Physics With Modern Physics, Pearson, ; 14th edition , 2015.
Supporting websites	➤ https://www.cengage.co.uk/books/9781285684796/ ➤ https://www.wiley.com/en-us/search?pq=1118230728%7Crelevance

	➤ https://www.pearson.com/uk/educators/higher-education-educators/program/Young-University-Physics-with-Modern-Physics-Global-Edition-15th-Edition/PGM2741904.html
	➤ http://www.brookscole.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&discipline_number=13&product_isbn_issn=0534408427
	➤ http://www.ux1.eiu.edu/~cfadd/1150/Hmwk/Ch02/Ch02.html
	➤ http://faculty.etsu.edu/lutter/courses/phys2010/index.htm
	➤ http://www.physics.umd.edu/courses/Phys121/Roberts/F06/lecture_notes.htm
	➤ http://romano.physics.wisc.edu/winokur/phys207/
	➤ http://www.sfu.ca/phys/100/
	➤ http://theory.uwinnipeg.ca/physics/
	➤ https://ocw.mit.edu/courses/physics/8-01-physics-i-fall-2003/
Teaching Environment	☒ Classroom ☐ laboratory ☐ Learning platform ☐ Other

Meetings and subjects timetable

Week	Topic	Learning Methods	Tasks	Learning Material
1	Electric Field • Electric charge	Lecture problem solving	Quiz	Ch.23
2	Electric Field • Electric force	Lecture problem solving	Quiz	Ch.23
3	Electric Field • Electric field due to a point charge • motion of charged particle in a uniform E	Lecture problem solving	Quiz	Ch.23
4	Electric Field • E of a Continuous Charge Distribution Gauss's Law • Electric flux	Lecture problem solving	Quiz	Ch.23 Ch.24
5	Gauss's Law • Gauss's law • applications of Gauss's law • conductor in electrostatic equilibrium	Lecture problem solving	Quiz	Ch.24
6	Electric Potential • Electric potential energy and potential • Calculating the potential from the field • Electric potential due to a point charges	Lecture problem solving	Quiz	Ch.25
7	Electric Potential • Obtaining E from V • V due to continuous charge distributions • Potential due to a charged conductor	Lecture problem solving	Quiz	Ch.25
8	Capacitance and Dielectrics • Capacitance • Capacitors combination and energy	Lecture problem solving	Quiz	Ch.26
9	Capacitance and Dielectrics • Electric dipole • Capacitors with dielectrics	Lecture problem solving	Quiz + Midterm exam	Ch.26
10	Current and Resistance current and resistance power and conduction	Lecture problem solving	Quiz	Ch.27
11	Direct current Circuits • emf, power and resistors combination • Kirchhoff's rules • RC circuits	Lecture problem solving	Quiz	Ch.28
12	Magnetic Field • Definition • Charged particle in a magnetic field	Lecture problem solving	Quiz	Ch.29
13	Magnetic Field • Magnetic force on a current carrying conductor • Torque on a current loop	Lecture problem solving	Quiz	Ch.29
14	Sources of the Magnetic Field • Biot-Savart law • FB between two parallel conductors	Lecture problem solving	Quiz	Ch.30
15	Sources of the Magnetic Field • Ampere's law • Magnetic flux and Gauss' law in magnetism	Lecture problem solving	Quiz	Ch.30
16	Final Exam			

Course Contributing to Learner Skill Development

Using Technology	
By the end of the course, students should be able to:	• use computational software to organize, condition and present experimental data. • solve systems of equations (e.g., projectile motion) using computational software.
Communication skills	

By the end of the course, students should be able to:

- Giving seminars on physics topics
- Teaching basic physics ideas
- Preparing technical reports

Assessment Methods and Grade Distribution

Assessment Methods	Grade Weight	Assessment Time (Week No.)	Link to Course Outcomes
Mid Term Exam	30%	8	K1, S1, C1
Various Assessments *	30%	2-15	K1, S1, C1
Final Exam	40%	16	K1, S1, C1
Total	100%		

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Learning Method	Assessment Method
Knowledge			
K1	Students will be able to identify key SI base quantities, understand and apply fundamental laws of electrostatics, electrodynamics, and magnetism, define and calculate essential electrical and magnetic quantities, explain electromagnetic induction, and state Maxwell's equations and the properties of electromagnetic waves.	lectures	• Quiz • Exam
Skills			
S1	Students will be able to apply mathematical tools such as algebra, vectors, and calculus to calculate electrical and magnetic quantities, solve problems in electrostatics, electrodynamics, and magnetostatics, analyze DC and AC circuits, graphically represent electric and magnetic fields, and translate physical situations into mathematical formulations for quantitative analysis.	Problem solving	• Quiz • Exam
Competencies			
C1	Students will be able to extend foundational concepts of electromagnetism to related scientific fields, understand the significance of physics in science, engineering, and medicine.		• Quiz • Exam

Course Policies

Policy	Policy Requirements
Passing Grade	The minimum passing grade for the course is (50%) and the minimum final mark recorded on transcript is (35%).
Missing Exams	• Missing an exam without a valid excuse will result in a zero grade to be assigned to the exam or assessment. • A Student who misses an exam or scheduled assessment, for a legitimate reason, must submit an official written excuse within a week from an exam or an assessment due date. • A student who has an excuse for missing a final exam should submit the excuse to the dean within three days of the missed exam date.
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lectures days (M, W) and seven lectures (S,T,R). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory excuse accepted by the dean of the faculty, s/he will be prohibited from taking the final exam and the grade in that course is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college, then withdrawal grade will be recorded.
Academic Honesty	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as: cheating, plagiarism (academic theft), collusion, and violating intellectual property rights.

Program Learning Outcomes to be Assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Target Performance level
SP2		General physics 2	Exam	80% of students score 70% or higher on the performance assessment scale.

Description of Program Learning Outcome Assessment Method

Number	Detailed Description of Assessment
SP2	A Multiple-choice assessment within the final exam

Rubric to Assess Term Paper			
Grading Scale / Indicators			
Assessment Dimensions 100 %	Exemplary 8 → 10	Satisfactory 6 → Less than 8	Unsatisfactory 4 → Less than 6
Aims & Purpose 10 %	● Covers a significant contemporary topic that is much related to the course outcomes. ● Employs an original approach to study the selected topic.	● Covers a topic that is much related to the course outcomes. ● Employs a logical approach to study the selected topic.	● Purpose of term paper is not clear. ● A poor approach is used to study the selected topic.
Completeness 30 %	● All required elements and components of term paper (Abstract, Introduction, Main Body, Conclusions, and Resources) are evidently addressed and included. ● All issues related to the topic are noticeably addressed, and outlined.	● All required elements and components of term paper (Abstract, Introduction, Main Body, Conclusions, and Resources) are included. ● All issues related to the topic are discussed.	● Some required elements are missing. ● Not all issues related to the topic are discussed
Content & Organization 25 %	● Sections are well organized and clearly presented. ● Sections and sequenced concepts are creatively and logically ordered, with clear transition sentences. ● Presentation of the term paper elements shows an accurate and through understanding of all aspects of the chosen topic. ● Reveals the student ability to powerfully use Technology in preparing written document.	● Sections are organized and clearly presented. ● Sections are logically ordered. ● Presentation of the elements of term paper shows an understanding of all aspects of the chosen topic. ● Reveals the student ability to use Technology in preparing written document.	● Sections are poorly organized ● Sections are illogically ordered. ● Presentation of the elements of term paper shows that student has gained the minimum understanding of the basic aspects of the selected topic ● Provides no evidence for familiarity with using Technology in preparing written document
Writing Quality 10 %	● Almost entirely free of spelling, punctuation, and grammatical errors. ● Sections are well written with strong sentence structure. ● Ideas and concepts are presented in a coherent and clear manner.	● A few spelling, punctuation, and grammatical errors are detected. ● Sections are clearly written with good sentence structure. ● Ideas and concepts are presented in a clear manner.	● Several spelling, punctuation, and grammatical errors are detected. ● Sections are unclearly written with weak sentence structure.
Resources 10 %	● Good quality significant recourses are effectively utilized in writing the Term Paper. ● Resources are clearly and correctly listed and cited.	● Some of the recourses utilized in writing the Term Paper are significant. ● Resources are clearly and correctly listed and cited.	● Most of the recourses utilized in writing the Term Paper are insignificant. ● Resources are incorrectly listed and cited.
Overall Layout 10 %	● Gives clear evidence of the excellent effort put in preparing the Term Paper. ● Reveals the writer ability to powerfully use Technology in preparing written document. ● Has attractive visual appeal.	● Gives evidence of the effort put in preparing the Term Paper. ● Reveals the writer ability to use Technology in preparing written document	● Shows no evidence for the effort put in preparing the Term Paper. ● Provides no evidence for familiarity with using Technology in preparing written document.