

Philadelphia University	 PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	Approval date:
Faculty of Science		Issue:
Department of Scientific Basic Sciences		Credit hours: 3
Academic year: 2025/2026		Bachelor

Course information

Course ID	Course title			Prerequisite
0216131	General Physics (1)			None
Course type	Section	Instructor	Class time	Room
☐ University Requirement ☒ Faculty Requirement ☐ Major Requirement ☐ Elective ☒ Compulsary	1	Mustafa Al-Zyout	Sat. & Mon.: 08:15 – 09:30	61201
	2	Mustafa Al-Zyout	Sat. & Mon.: 11:15 – 12:30	6305
	3	Mariam Al-qderat	Sun. & Tues.: 08:15 – 09:30	61201
	4	Mariam Al-qderat	Sun. & Tues.: 11:15 – 12:30	61202

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	mzyout@philadelphia.edu.jo
			Sun. & Tues.: 12:30 – 13:30	

Course Delivery Method

Course Delivery Method			
☒ Physical	☐ Online	☐ Blended	
Learning Model			
Percentage	Synchronous	Asynchronous	Physical
			100%

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 Newtonian mechanics, with topics include: Vectors, kinematics and dynamics of a single particle in one, two and three dimensions, Circular motion, Newton's laws of motion, Work, energy and power, Conservation of energy, Linear momentum, Rotational motion, Angular momentum; general rotation, and Static Equilibrium; Elasticity and Fracture.
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Course Learning Outcomes

Number	Outcomes	Corresponding Program outcomes
Knowledge		
K	Students will be able to identify SI base quantities, describe translational and rotational motion, define key physical concepts (velocity, acceleration, energy, momentum, torque, etc.), and apply fundamental laws of classical mechanics such as Newton's laws and conservation principles.	
Skills		
S	Students will develop the ability to use mathematical tools (algebra, vectors, calculus) to calculate physical quantities, analyze physical situations mathematically, and apply these skills to solve problems involving motion, forces, energy, and equilibrium.	
Competencies		
C	Students will be able to extend fundamental mechanics concepts to fields such as electromagnetism, 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_isbn=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	SI Units • SI Units Vectors • Properties of vectors	Lecture problem solving		Ch.01 Ch.03
2	Vectors • Component method of adding vectors • Vectors multiplication	Lecture problem solving	Quiz	Ch.03
3	Kinematics in one dimension • Position, speed and velocity • Acceleration and kinematic equations	Lecture problem solving		Ch.02
4	Kinematics in one dimension • Free falling Kinematics in two dimensions • Vector kinematics	Lecture problem solving	Quiz	Ch.02 Ch.04
5	Kinematics in two dimensions • Projectile motion • Circular motion	Lecture problem solving	Quiz	Ch.04
6	The Laws of Motion • Newton's laws • Some particular forces • Applications	Lecture problem solving		Ch.05
7	The Laws of Motion • Forces of friction Centripetal Force • Centripetal force	Lecture problem solving	Quiz Midterm exam	Ch.05 Ch.06
8	Work and Energy • Work • Work and kinetic energy	Lecture problem solving		Ch.07
9	Work and Energy • Work and gravitational potential energy • Work and elastic potential energy • Conservative forces • Power	Lecture problem solving	Quiz	Ch.07
10	Conservation of Energy • Conservative systems • Non-conservative systems	Lecture problem solving	Quiz	Ch.08
11	Linear Momentum • Linear momentum and its conservation • Impulse	Lecture problem solving		Ch.09
12	Linear Momentum • Collisions • Center of mass	Lecture problem solving	Quiz	Ch.09
13	Rotational Motion • Angular variables	Lecture problem solving		Ch.10

	- Kinematic Equations - Rotational K.E. and inertia			
14	Rotational Motion - Torque - Work and energy in rotational motion	Lecture problem solving	Quiz	Ch.10
15	Rotational Motion - Rolling Angular Momentum - Angular momentum and its conservation	Lecture problem solving	Quiz	Ch.10 Ch.11
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	
Various Assessments	30%	2-15	
Final Exam	40%	16	
Total	100%		

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Learning Method	Assessment Method
Knowledge			
K	Students will be able to identify SI base quantities, describe translational and rotational motion, define key physical concepts (velocity, acceleration, energy, momentum, torque, etc.), and apply fundamental laws of classical mechanics such as Newton's laws and conservation principles. Identify the base quantities in the SI system.	lectures	- Quiz - Exam
Skills			
S	Students will develop the ability to use mathematical tools (algebra, vectors, calculus) to calculate physical quantities, analyze physical situations mathematically, and apply these skills to solve problems involving motion, forces, energy, and equilibrium.	Problem solving	- Quiz - Exam
Competencies			
C	Students will be able to extend fundamental mechanics concepts to fields such as electromagnetism, 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 1	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.