



Philadelphia University
Faculty of Science

Department of Basic Sciences and Mathematics
Fall semester 2020/2021

Course syllabus

Course title	General Physics 1	Course code	0211101		
Lecture Time	Time	Days	Location	Lecturer	
	Section (4)	11:10 – 12:00	Sun, Tue, Thu.	Microsoft Teams	Ms. Mariam
	Section (34)	18:10 -19:00	Sun, Tue, Thu.	Microsoft Teams	Ms. Mariam
	Section (35)	17:45 -19:15	Mon , Wed	Microsoft Teams	Ms. Mariam

Academic Staff Specifics

Name	Mariam .F. Al -Qderate.		
Rank	MSc in applied Physics		
Office number and location	Faculty of Nursing (423; 2 nd floor).		
Office hours	Sun, Tue ,Thu	03:00-04:00 / 12:00 – 01:00	
	Mon , Wed	03:00- 04:00	
E-mail address	mqderate@Philadelphia.edu.jo		
Phone	+ 962 6 4779000 ,Ext:2335		

Course textbook

1	Title	Physics for Scientists and Engineers
	Author	Raymond A. Serway and John W. Jewett
	Publisher	Cengage Learning
	Edition	9 th Edition.
	Year	January 17, 2013
	ISBN	1133954057

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
Midterm examination	30
Assignments & Quizzes	20
Final examination	50
Total	100

Course/ academic calendar

period	Basic and support material to be covered
6 hours	CHAPTER 3: <u>Vectors</u>: Coordinate systems, vector and scalar quantities, some properties of vectors, components of a vector and unit vectors, the scalar product of two vectors (7.3), the vector product (11.1)
3 hours	CHAPTER 2: <u>Motion in One Dimension</u>: Displacement, Average velocity, Instantaneous velocity, average acceleration, instantaneous acceleration, one dimensional motion with a constant acceleration, free falling objects.
2 hours	CHAPTER 4: <u>Motion in Two Dimensions</u>: The displacement, velocity and acceleration vectors, two-dimensional motion with constant acceleration, projectile motion, particle in uniform circular motion, Tangential and Radial acceleration.
Midterm exam: (To be announced by the dept.)	
4 hours	CHAPTER 5: <u>The Laws of Motion</u>: The concept of force, Newton's first law and inertial frames, inertial mass, Newton's second law, weight and the force of gravity, normal force, Newton's third law, free body diagrams, friction force, some applications of Newton's laws.
2 hours	CHAPTER 6: <u>Circular Motion and Other Applications of Newton's Laws</u>: Newton's second law applied to uniform circular motion, non-uniform circular motion.
4 hours	CHAPTER 7: <u>Work and Energy</u>: Work done by constant force, work done by varying force, kinetic energy and the work energy theorem, Potential energy of a system, , conservative and non-conservative forces , conservative forces and potential energy.
4 hours	CHAPTER 8: <u>Conservation of Energy</u>: Conservative and non-conservative forces, Potential energy, Mechanical energy and Its conservation, Problem solving using conservation of mechanical energy, conservation of energy principle, Energy conservation with dissipative forces, Applications.
4 hours	CHAPTER 9: <u>Linear Momentum and Collisions</u> : Momentum and Its relation to force, Conservation of momentum, Collisions and Impulse, Conservation of energy and momentum in Collisions, Elastic collisions in one dimension, Inelastic collisions, Collisions in two or three dimensions, Central of mass (CM), Central of mass and translational motion, Applications.
6 hours	CHAPTER 10: <u>Rotational Kinematics and Dynamics</u> : Angular quantities, Vector nature of angular quantities, Constant angular acceleration, Torque, Rotational dynamics; Torque and rotational inertia, Solving Problems in Rotational Dynamics, Determining moments of Inertia, Rotational kinetic energy, Rotational plus translational motion; Rolling, Applications.
5 hours	CHAPTER 11: <u>Rolling Motion and Angular Momentum</u>: Angular momentum-objects rotating about a fixed axis, Torque as a vector, Angular momentum of a particle, Angular momentum and torque for a system of particles; General motion, Angular momentum and torque for a rigid object, Conservation of angular momentum, Applications
3 hours	CHAPTER 12: <u>Static Equilibrium and Elasticity</u>: Static equilibrium; Elasticity and fracture, Conditions for equilibrium, Solving statics problems, Stability and balance, Elasticity; Stress and Strain, Fracture, Applications.
Final exam: (To be announced by the dept.)	