



Jordan University of Science and Technology
Faculty of Science & Arts
Physics Department

PHY101 General Physics (1)
First Semester 2017-2018

Course Catalog
3 Credit Hours. This course is an introductory course in Newtonian mechanics with topics include: kinematics in one and two dimensions, dynamics (Newton's laws of motion), Newton's laws in circular motion, work and energy, collisions, rotational motion and equilibrium of rigid bodies.

Text Book	
Title	Physics for Scientists and Engineers with Modern physics
Author(s)	John W. Jewett and R. Serway
Edition	9th Edition
Short Name	Serway
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Giancoli	Physics for Scientists and Engineers with Modern Physics by	Douglas C. Giancoli	8th Edition	
Halliday	Fundamental of physics	Halliday and Resnick	6th Edition	
Tipler	Physics for Scientists and Engineers	Tipler	6th Edition	

Instructor	
Name	Dr. Adnan Shariah
Office Location	PH3 L1

Office Hours	Sun : 08:15 - 09:15 Mon : 10:00 - 11:30 Tue : 11:30 - 13:00 Wed : 10:00 - 11:30 Thu : 11:30 - 13:00
Email	shariah@just.edu.jo

Class Schedule & Room	
Section 1: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: NF40	

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Vectors: 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)	Ch. 3 From Serway
Weeks 2, 3	Motion in One Dimension: Displacement, velocity and speed, instantaneous velocity and speed, acceleration, one-dimensional motion with constant acceleration, freely falling objects.	Ch. 3 From Serway, Ch. 2 From Giancoli
Week 4	Motion in Two Dimensions: The displacement, velocity and acceleration vectors, two-dimensional motion with constant acceleration, projectile motion, particle in uniform circular motion, Tangential and Radial acceleration	Ch. 4 From Serway
Weeks 5, 6	Newton's laws of Motion: The concept of force, Newton's First law, Newton's Second law, The force of gravity and weight, Newton's Third law, some applications of Newton's law, forces of friction.	Ch. 5 From Serway
Weeks 6, 7	Circular Motion and Other Applications of Newton's Laws: Newton's second law applied to uniform circular motion, nonuniform circular motion.	Ch. 6 From Serway
Weeks 7, 8	Energy of a system: Work done by constant force, work done by varying force, kinetic energy and the work energy theorem, Potential energy of a system, conservative and nonconservative forces, conservative forces and potential energy	Ch. 7 From Serway
Week 9	Conservation of Energy: conservation of mechanical energy, isolated and non isolated systems, work done by nonconservative forces, power	Ch. 8 From Serway
Weeks 10, 11	Linear Momentum and Collisions: Linear momentum and its conservation, impulse and momentum, elastic and inelastic collisions in one dimension, two-dimensional collisions, the center of mass, motion of a system of particles	Ch. 9 From Serway
Weeks 12, 13	Rotational Kinematics and Dynamics: Angular displacement, velocity and acceleration, rotational kinematics, angular and linear quantities, rotational energy, calculation of moments of inertia, torque, relationship between torque and angular acceleration, work, power, and energy in rotational motion, Rolling motion of a rigid object.	Ch. 10 From Serway
Week 14	Rolling Motion and Angular Momentum: Rolling motion of rigid body, angular momentum of a particle, angular momentum of a rotating rigid body, conservation of angular momentum	Ch. 11 From Serway

Week 15	Static Equilibrium and Elasticity: The condition of equilibrium of a rigid object, examples of rigid objects in static equilibrium.	Ch. 12 From Serway
Week 16	Final exams starts	

Relationship to Program Student Outcomes (Out of 100%)										
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)

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