General

Physics #108136

COURSE OUTLINE

http://staff.hu.edu.jo/ribadran

Prof. Rashad Badran

Lectures as Videos on YouTube:

https://www.youtube.com/playlist?list=PLTXylkc9TfJBgmsmlwufXoObNmc29yhRG

The Hashemite University
Faculty of Science
Department of Physics
Course Description

Department: Physics	
Year: 2020/2021	Semester: Summer
Course Information	
Course Title	General Physics (I)
Course Number	170108136
Course Credits	Three credit hours
Prerequisite	None
Course Duration	7.5-weeks (Four sessions a week each 75 min)

Instructor	Office	Time of Lectures
Prof. Rashad Badran	**Physics Building # 204**	**Sun., Mon., Tue., & Wed. 11:00-12:15**

Textbook

Title	**Physics for Scientists and Engineers with Modern Physics.**
Authors	**Raymond A. Serway** and **John W. Jewett**
Publisher	**Thomson, BROOKS/COLE**
Year	**2014**
Edition	**9th edition**

References

(1) "Fundamentals of Physics" by David Halliday, Robert Resnick, and Jearl Walker, 5th Edition, John Wiley and Sons, 1995.

(2) "University Physics" by F. Sears, M. Zemansky, and H. Young, 7th Edition, Addison Wesley Publishing Company, 1987.

Evaluation Policy

Assessment Type	Expected Date	Weight
Midterm Exam	Third week after start of semester	**40%**
Activities	Will be assigned to students on due time	**10%**
Final Exam	To be announced by the Dean's office	**50%**

Course Objectives

1. Develop a clear understanding of basic physical concepts in mechanics as an integral part of the student's overall education.
2. Develop the ability to deal with the physical concepts quantitatively (numerically).
3. Form a good foundation for follow-up courses in mathematics, physics and chemistry.
4. Demonstrate the applications of modern methods to a variety of problems in physics.
5. Develop the learning skills of the student in using computers as educational tools, problem solving and demonstration.

Specific Outcomes of Instruction (Course Learning Outcomes, CLO's):

After completing the course, the student will be able to:

❑ distinguish between vectors and scalars and how to deal with vectors correctly.
❑ understand one and two dimensional motion.
❑ apply Newton's laws for systems in rectilinear motion.
❑ apply the conservation theorems and understand their importance in solving physical problems.
❑ apply Newton's laws for systems in circular motion and in rotational motion.
❑ Understand the linear momentum and its applications.

Student Learning Outcomes (SLO's) Addressed by the Course:

#	Learning Outcomes Description	Contribution
	Applied and Natural Sciences Student Outcomes	
(a)	an ability to apply knowledge of mathematics, science, and applied sciences	H
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to formulate or design a system, process or program to meet desired needs	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify and solve applied sciences problems	L
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of solutions in a global and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	M
	H = High, M = Medium, L = Low	

Course Schedule (tentative)

Week #	Topics	Chapter in Text	Sections	Suggested Problems	
				8th Edition	9th Edition
1	Physics and Measurements	One	1.1,1.3	9, 10, 13	11, 12, 15
2&3	Motion in One Dimension	Two	2.1- 2.7	1, 3, 8, 17, 21, 28, 43, 60	1, 3, 9, 21, 29, 38, 53, 74
4	Vectors	Three	3.1- 3.4	2, 8, 14, 25, 37	2, 12, 20, 31, 37
5&6	Motion in Two Dimensions	Four	4.1- 4.5	1, 5, 7, 9, 15, 18, 32, 50	1, 7, 9, 15, 21, 22, 40, 60
6	First Exam; Chapters: 1-4				
6&7	The Laws of Motion	Five	5.1-5.8	7, 13, 20, 28, 30, 41, 47, 48	11, 19, 28, 40, 42, 61, 65, 66
8	Circular Motion	Six	6.1 & 6.2	1, 6, 14, 18, 54	1, 6, 14, 18, 54
9&10	Energy of a System	Seven	7.2-7.8	1, 9, 11, 15, 22, 31, 39, 41, 45, 49	5, 9, 11, 15, 20, 33, 39, 41, 45, 49
11&12	Conservation of Energy	Eight	8.1-8.5	5, 7, 15, 19, 22, 23, 29	5, 7, 15, 19, 22, 23, 29
11	Second Exam; Chapters: 5-8				
13	Linear Momentum	Nine	9.1-9.5	1, 4, 6, 11, 21, 26, 29, 34	3, 5, 6, 13, 23, 30, 37, 44
14	Final Exam; Chapters: 1-9				