King Saud University – Al-Muzahmyiah Branch
College of Engineering
PHYS 1210 Physics for Engineering I
Course Syllabus

Lecture Information:

Module: Physics for Engineering I PHYS 1210.
Where: Engineering Faculty bldg.
When: See your timetable.
Pre-requisites: None.

Staff:

Module Convenor: Dr. Feras Younes.
Where: Engineering Faculty bldg. 1st floor Room F097.
Office Hours: Sun., Tue. and Thu. 10.00 – 11.00. Open door policy is applied.
Facebook Account: Feras.Fraige @ Facebook.com
Email address: fayalalhusan@ksu.edu.sa

Module Description:

Measurement, units, and dimensions, Vectors, Motion in One and Two dimensions, The laws of motion, Circular motion, energy and energy transfer, potential energy, linear momentum and collision, rotation of a rigid body about a fixed axis, Angular momentum, static equilibrium and elasticity, and introduction to fluid mechanics.

Module Aims:

The aims of this module are:
- Teaching students' basic physical principles relevant to their future study in engineering
- To appreciate physics importance to engineering
- Dealing with engineering problems in a logical and scientific way by knowing their physical basis.

Module Learning Objectives:

At the end of this module, the student is expected to:
  i.   Apply the conceptual framework underpinning that branch of physics known as classical mechanics. (a)
 ii.   Apply fundamental principles of physics to the solution of practical problems. (a)
iii.   Test and develop laboratory techniques useful to science and engineering disciplines. (b)
 iv.   Appreciate the importance of physics for engineers. (a)

These outcomes will be achieved through a set of examples, tutorials, applications and up to date problems. Focus will be on applications that are relevant to the students registering this module.

Course Learning Outcomes mapped to Student Outcomes:

Student Outcomes (ABET)	a	b	c	d	e	f	g	h	i	j	k
Course Learning Outcomes	i, ii, iv	iii	–	–	–	–	–	–	–	–	–
Emphasis	5	2	–	–	–	–	–	–	–	–	–

Module Schedule:

The lectures will follow the same order as that on the textbooks given below. The module will include the following topics:

Topics	No of Weeks	Contact hours
Physics and Measurement.	**1**	**3**
Motion in One Dimension.	**1**	**3**
Vectors	**1**	**3**
Motion in Two Dimensions	**1**	**3**
The Laws of Motion	**1**	**3**
Circular Motion and Other Applications of Newton's Laws	**1**	**3**
Energy and Energy Transfer	**2**	**6**
Potential Energy	**1**	**3**
Momentum and Collisions	**2**	**6**
Rotation of a Rigid Object about a Fixed Axis	**1**	**3**
Static Equilibrium and Elasticity	**1**	**3**
Fluid Mechanics	**1**	**3**
Total number of weeks and contact hours per semester	**14**	**42**

Textbook and Materials needed:

The textbook is <u>Physics for Scientists and Engineers, Serway Jewett, THOMSON BROOKS/COLE, 6th Edition</u>.

Other references cover the above sections and the one highlighted in the lectures should be ok to use as well.

The lecturer is highly recommending the students to serve the internet for preparation and study subjects related to this module.

You will need a simple scientific calculator that has sine, cosine, and exponential functions, along with their inverse functions. Please note that sharing calculators will not be allowed during exams.

Lectures:

The chapters to be presented during each lecture are indicated on the course schedule. To gain the most from the lectures, you should read the chapters and work through the entire example problems prior to attending a lecture. You are expected to attend all lectures and tutorials. Excessive absences will reduce your grade.

Laboratory:

Each week will have 2 hrs lab session. Defined set of experiments will be conducted where students are expected to do to elevate their practical experience. The students will learn how to use simple instruments and tools during experiments.

Exams and Grading:

The exams will be all closed book with formula sheet given if needed. Each student should bring his calculator. No sharing of calculators in exams is allowed. Quizzes will be given on Mondays. Homework problems will be given and the deadlines will be announced. The midterm exam will be announced by the faculty. The final exam will be announced by the registration department. The weight of the midterm exam will be 20%, quizzes 20% and the final exam will be 40%. Laboratory reports and exam will be 15%, homework and sharing in classroom discussions weigh 5%. The student should know that cheating on exams or other coursework will not be tolerated.

Notes:

If you have difficulties with any of the problems, or if you have questions about the course material, come to my office hours and discuss with the teaching assistant (TA) as well. Feel free to contact me by e-mail as well.

Let me know if you have any kind of disability. All help available will be given.

Good Luck,

Dr. Feras Fraige