

PHY 125
PHYSICS (2)
Term 2 - 2014

Course Profile

All details in this course profile for Physics (2);PHY 125 have been officially approved by College of Computer and Information Science, Majmaah University. The information will not be change unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

OVERVIEW

Physics is *'the'* fundamental science. Computer science students have good reason to learn some fundamental aspects of Physics. The physical theories are inspired by the computational theories are much better tailored for Computer Science applications as compared to their low-level counterparts. For example, the current tools available for developing quantum algorithms using 'network algorithms'.

The goal of physics is no less ambitious than to find and understand the laws that govern everything in the Universe starting from the behavior of the smallest building blocks of matter to the structure of the space-time and the Universe itself. Physics generates fundamental knowledge needed for the future technological advances that will continue to drive the computer engineer of the world. The emphasis on study of Physics aims to gain understanding of the basic concepts and principles of Mechanics, which relevant to their further studies. Get strong understanding of the concepts and principles of Mechanics through lectures and assessment tools.

DETAILS

Level	4
Credit Points	3
Student Contribution Band	-
Function of full Time Student Load	-

PRE-REQUISITES OR CO-REQUISITES

Pre-requisite: Physics (1);PHY 104

ATTENDANCE REQUIRMENTS

All CSIS students are expected to attend scheduled classes, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. The attendance and academic progress requirements in each study period (satisfactory attendance for all students is defined as maintaining at least a 75% attendance record).

ASSESSMENT OVERVIEW

Assessment Task	Weighting
1. Midterm Exam-1	:20%
2. Midterm Exam-2	:20%
3. Quizzes	:10%
4. Assignments/Report/Seminar	:10%
5. Final Exam	40%

This is a graded course: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the course of at least 60%, or an overall grade of 'pass' in order to pass the course. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 60%).

Consult the University's grades and results procedures for more details of interim results and final grades.

MAJMAAH University Policies

All University policies are available on the WEBPortal (<http://mu.edu.sa/en/contents/policies>) .

You may wish to view these policies:

- Assessment of Course work Procedures
- Grades and Results Procedure
- Review of Grade Policy
- Plagiarism Procedure
- Student Misconduct and Plagiarism Policy
- Monitoring Academic Progress Policy
- Monitoring Academic Progress Procedures
- Refund Excess Payments (Credit Balances)Policy
- Student complaints Policy
- Use of Internet, mail and Computing Facilities Policy

This list is not an exhaustive list of all University policies. The full lists of University policies are available on the <http://mu.edu.sa>.

Course Learning Outcomes

Upon successful completion of the course, students should be able to:

1. Gain **knowledge** of the basic concepts and principles of Mechanics, which relevant to their further studies.
2. Get strong **understanding** of the concepts and principles of Mechanics through lectures, laboratory experiments and assessment tools.
3. Be able to appreciate the basic principles of mechanics such as linear motion, Newton's law of motion, work, energy, and power, angular momentum and torque.
4. Solve Physics problem in a structured process.
5. Measurement of fundamental quantities and able to deal with standard instruments.

Alignment of Learning outcomes, Assessment and Graduate attributes

ALIGNMENT OF ASSESSMENT TASKS TO LEARNING OUTCOMES

Assessment Task	Learning Outcomes				
	1	2	3	4	5
1. Midterm Exam-1	1	2	-	4	.
2. Midterm Exam-2	1	.	.	4	5
3. Quizzes	1	2	.	.	.
4. Assignments/Report/Seminar	.	.	.	4	5
5. Final Exam	1	2	3	4	5

Textbook and Resources

PRESCRIBED TEXTBOOKS

Guide to Firewalls 7 VPN			
Author/s	: Jewett and Serway	Year	: 2008
Edition	: 7 th Edition (part 1, Chapters: 1 to 12 only)		: Thomson Brooks/Cole

IT RESOURCES

You will need access to the following IT resources:

- CSIS, Majmaah University Student Email
- Internet
- Course Website (Moodle)

Referencing style

All submissions for this course must use the **American Psychological Association (APA)** referencing style (details can be obtained here) OR **Harvard (author-date)** referencing style (details can be obtained here). For further information, see the Assessment Tasks below.

Teaching Contacts

Course Coordinator:	Dr Manjunatha S
Lab/Tutorial Instructor:	-
Email:	m.laskshmana@mu.edu.sa
Office Hours:	8.00 a.m. to 02.30 p.m.
Office Number:	0164045381

Schedule

Week	Module/Topic	Chapter	Event and submission
Week-1	Introduction	Classical Mechanics; standard of unit of length, mass and time	Brain storming and review of previous subject knowledge.
Week-2	Units	Dimensional analysis and Conservation of Units.	
Week-3	Laws of motion	The Motion in One and Two Dimensions. The Law of Motion. The Energy and Energy Transfer.	Quiz 1
Week-4	Energy	The Potential Energy and solution to the problems.	
Week-5	Momentum	The Linear Momentum and Collisions	Assignment 1
Week-6	Problems	Solution to the problems.	
Week-7	Rotational Motion	The Rotation of a Rigid Object About a Fixed Axis: Angular Position, Velocity, and Acceleration.	First Midterm Test
Week-8	Kinematics	Rotational Kinematics, Angular and Linear Quantities	
Week-9	Rotational energy	Rotational Kinetic Energy, Calculation of Moments of Inertia	Quiz2

		and solution to the problems	
Week-10	Torque	Relationship Between Torque and Angular Acceleration and solution to the problems.	Second Midterm Test
Week-11	Work and power	Work, Power and Energy in Rotational Motion.	Assignment 2
Week-12	Problems	Solution to problems and revision of the syllabus	
Review Exam Week			Final Examination
Exam Week			Final Examination

Assessment Task

WRITTEN ASSESMENT

Assessment Title	Midterm Exam-1
Task Description	This assignment is aligned to learning outcomes 1, 2, and 4. In that regard, the assignment contains questions that assess: 1) students' gain knowledge of units and its conversion, laws of motion in one and two dimension; 2) students' able to understand the difference between linear and rotational motion of objects; and 4) students' able to calculate problems on velocity, acceleration, force and linear momentum by applying suitable formulae. The complete details of the assessment task are provided in Module.
Weighting	20%
Assessment Due Date	Week 5, and 11 before 02:30p.m.
Weighting	10%
Assessment Criteria	4 and 5) The assessment criteria for this task are under continuous revision.
Quiz	Week 3 and 8 (regular class hour)
Weighting	10%
Quiz criteria	<ol style="list-style-type: none"> 1) The ability to understand content of unit and dimension and 2) Gain knowledge in measurement of physical quantities which are very much essential.
Assessment Title	Midterm Exam 2
Task Description	This assignment is aligned to learning outcomes 1, 4, and 5. In that regard, the assignment contains questions that assess: 1) students' gain knowledge of rotational motion of objects,

	<p>knowledge of torque and momentum; 4) students' able to apply formulae to calculate angular acceleration, momentum and torque; 5) students' able to calculate problems on velocity, acceleration, torque and momentum by applying suitable formulae and 5) students' able to understand the difference between linear and rotational motion of the object.</p> <p>The completed details of the assessment task are provided in Moodle.</p>
Weighting	20%
Learning Outcomes Assessed	<ol style="list-style-type: none"> 1. Gain knowledge of the basic concepts. 2. Get strong understanding of the concepts and principles. 4. Solve physics problem in a structured process. 5. Able to measure physical quantities

EXAMINATION

Outline	Complete an examination
Date	During University examination period
Weighting	40%
Length	180 Minutes
Details	Calculator, table log books, graph sheets are permitted.
Learning Outcomes Assessed	<ol style="list-style-type: none"> 1. Gain knowledge of the basic concepts and principles of Mechanics, which relevant to their further studies. 2. Get strong understanding of the concepts and principles of Mechanics. 3. Be able to appreciate the basic principles of mechanics such as velocity & acceleration, forces, Newton's law of motion, work, energy, and power, rotational motion and torque. 4. Solve physics problem in a structured process. 5. Measurement of fundamental quantities with standard instruments.