Kingdom of Saudi Arabia
Ministry of Higher Education
College of Computer & Information Sciences
Majmaah University

College of Computer and Information Sciences
كلية علوم الحاسب والمعلومات

جامعة المجمعة
Majmaah University

Course Profile

Course Name:-	Physics 2
Course Code:-	PHY 125
Academic Year:-	2013-14 (1434-34H)
Semester:-	Term 2,

Course Overview

This course is introducing the following topics: The Standards of Length, Mass and Time, Dimensional analysis, and Conservation of Units. The Motion in One and Two Dimensions. The Law of Motion. The Energy and Energy Transfer. The Potential Energy. The Linear Momentum and Collisions. The Rotation of a Rigid Object About a Fixed Axis: Angular Position, Velocity, and Acceleration. Rotational Kinematics, Angular and Linear Quantities, Rotational Kinetic Energy, Calculation of Moments of Inertia, Relationship Between Torque and Angular Acceleration, Work, Power and Energy in Rotational Motion.

Course Details

Level:-	Level 4
Credit:-	3(3+0+1)
Pre-Requisites:-	Phy 104
Co- Requisites:-	-

Learning Outcomes of Course

After successful completion of this course, student will be able to-

1. Gain **knowledge** of the basic concepts and principles of Mechanics, which is relevant and helpful for 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.

Course Assessment

Name of Assessment Task	Weight of Assessment	Week Due
1. Midterm Exam-1	20%	6-7
2. Midterm Exam-2	20%	12-13
3. Quizzes	10%	3 and 10
4. Assignments/Home Work	10%	5 and 13 / 2, 4, 6, 9, and 11
5. Final Exam	40%	16

Assessment Task and Learning Outcomes Alignment

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

Teaching Contact Details

Name of Course Coordinator:-	Dr Manjunatha S
Email of Course Coordinator:-	m.laskshmana@mu.edu.sa http://faculty.mu.edu.sa/mlaskshmana
Lab/Tutorial Instructor:-	Dr Manjunatha S
Email of Lab/Tutorial Instructor:-	m.laskshmana@mu.edu.sa
Office Hours:-	8.00 a.m. to 02.30 p.m.

Office Number:-	0164045381
Office Phone Number:-	0164045381

Details of Required Text Book

Book Name	Authors Name	Publisher	Year	Edition
1. Physics for Scientists and Engineers with Modern Physics	Jewett and Serway	Thomson Brooks/ Cole	2013	9th Edition (part 1, Chapters: 1 to 12 only)

Details of Required Reference Books

Book Name	Authors Name	Publisher	Year	Edition
1. Fundamentals of Physics Extended	David Halliday, Robert Resnick and Jearl Walker	Wiley	2010	10th Ed
2. College Physics	Jerry D. Wilson , Anthony J. Buffa and Bo Lou	Addison-Wesley	2009	7th Ed
3. The Feynman Lectures on Physics	Richard P. Feynman, Robert B. Leighton and Matthew Sands	Basic Books	2011	1st Edition (New Millennium Edition)

IT Resources

The following IT Resources will require to access-
1. CSIS, Majmaah University Student Email
2. Internet
3. Course Website (Moodle)

Course Schedule

Course Topics	Book's Chapter	Event Name	Week Due
Classical Mechanics; standard of unit of length, mass and time	Part: 1; Mechanics, Physics and measurement.	Brain storming and review of previous syllabus.	Week-1
Dimensional analysis and Conservation	Physics and	Home	Week-2

of Units.	measurement.	Work 1	
The Motion in One and Two Dimensions. The Law of Motion.	Motion in one dimension	Quiz 1	Week-3
Relation between u, v, a and t and problems. The Energy and Energy Transfer	Laws of Motion in one dimension, application of Newton's laws.	Home Work2	Week-4
The Potential Energy and solution to the problems.	Energy of a System	Assignment 1	Week-5
The Linear Momentum and Collisions	Conservation of Energy and Linear Momentum and Collisions.	Home Work3	Week-6
Solution to the problems.	Linear Momentum and Collisions and Problems	First Midterm Test	Week-7
The Rotation of a Rigid Object About a Fixed Axis: Angular Position, Velocity, and Acceleration.	Rotation of Rigid Objects about a Fixed Axis.		Week-8
Rotational Kinematics, Angular and Linear Quantities		Home Work4	Week-9
Rotational Kinetic Energy,	Rotational energy	Quiz2	Week-10
Calculation of Moments of Inertia and solution to the problems	Angular Momentum	Home Work5	Week-11
Relationship Between Torque and Angular Acceleration.	Angular Momentum	Assignment 2	Week-12
Mathematical relations and Solution to the problems.	Angular Momentum	Second Midterm Test.	Week-13
Work, Power and Energy in Rotational Motion.	Work and power		Week-14
Solution to problems and revision of the syllabus	Problems	Review of syllabus	Week-15
Final Examination			Week-16

Referencing Style

The **American Psychological Association (APA)** referencing style must be use for all submissions of this course.

Course Assessment Task

Assessment Name:-	Midterm Exam-1
Description of Task Assessment:-	This assessment is aligned to learning outcomes1, 2, and 4. The assignment contains questions like multiple choice, short question (statements) and problems. It helps to assess: 1) The knowledge of

	students' in particularly able to understand the difference between linear and rotational motion of objects. Also, student's gain knowledge of units and its conversion from one system into another. 2) The students are able to calculate problems Newton's laws, angular momentum, torque and acceleration. The complete details of the assessment task are provided in Module.
Task Assessment Due Week/Date:-	7th Week/03-03-2014
Return Week/Date to Students:-	7th Week/05-03-2014
Weight of Task Assessment:-	**20%**
List of Learning Outcomes Assessed:-	**1 and 2**

Assessment Name:-	Midterm Exam-2
Description of Task Assessment:-	This assignment is aligned to learning outcomes like 3 and 4. In that regard, the assignment contains questions that assess: 3) students' gain knowledge in laws of motion in one, two and three dimension representation. 4) Students' able to calculate problems on velocity, acceleration, force, linear momentum and rotator motion by applying suitable formulae. They able understand and resolve conceptual questions on the topic. The complete details of the assessment task are provided in Module.
Task Assessment Due Week/Date:-	13th Week/14-04-2014
Return Week/Date to Students:-	7th Week/16-04-2014
Weight of Task Assessment:-	**20%**
List of Learning Outcomes Assessed:-	**3 and 4**

Assessment Name:-	Final Exam
Weight of Task Assessment:-	**40%**
Duration:-	**3 hours**
Warning:-	Calculator (Scientific described by the university), table log books are allowed..
List of Learning Outcomes Assessed:-	**1, 2, 3, 4 and 5** 1. Gain knowledge in basic concepts and principles of Mechanics, which relevant to their further studies. 2. Get strong understanding of the concepts and principles of Mechanics. 3. 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 and able to convert from one system of unit into another system.
	5. Measurement of fundamental quantities with standard instruments like speedometer, Newton's meter and so on.