2309 PHYS101 Course Outline

Subject Code	:	PHYS101
Subject Title	:	PHYSICS I
Level	:	2
Credits	:	3
Teaching Activity	:	Lecture 45 hours
Prerequisite	:	MATH101/102: Calculus I/II
Class Schedule	:	

Class	Time		Classroom	Date
D1	WED	9:00-11:50	C508	2023/09/04 - 2023/12/17

Instructor	:	Dr. Xiaoping Zhang
Contact Number	:	(853)8897 1962
Email Address	:	xpzhang@must.edu.mo; xpzhangnju@gmail.com
Office	:	A506b
Office hours	:	Mon. 09:00-11:30; Tue. 15:00-17:30; Wed. 15:00-17:30; Tur. 09:30-12:00;

Course Description

This course aims at providing students with fundamental knowledge in physics focusing on the topics of mechanics and thermodynamics. It is the foundation of many professional courses. It prepares students to study science, engineering, or related programmes.

Textbook(s)

Book name：Principles of Physics, Global Edition
Author/Editor：Jearl Walker, David Halliday, Robert Resnick
Edition：11
ISBN： 9781119454014 / 9781119455493 (eBook)
Publisher：Wiley
Date：2020

Reference book:
Book name：Fundamentals of Physics (物理學基礎, in Chinese);
Author/Editor：David Halliday, Robert Resnick, Jearl Walker
Translator: SanHui Zhang, Chun Li etc.
Edition：6

ISBN：7-111-15715-X
Publisher：China Machine Press
Date：Jan. 2005

INTENDED LEARNING OUTCOMES

Upon successful completion of this subject, students will be able to:
1. Describe one dimensional and N dimensional transition motions, rotational motion of rigid body using calculus and vectors
2. Describe vibrational motion and waves using basic algebra
3. Describe basic laws of thermodynamics and the kinetic theory of gases
4. Grasp a basic understanding in the relation between forces and torques on above motions
5. Grasp a basic understanding in the relation between selected fundamental physical principles and motions
6. Solve real-life problems based on the above physical principles
7. Appreciate the importance of some physical principles as employed in various branches of engineering

Schedule

Item	Topic	Hours	Teaching Method
1	Kinetics: one dimensional and n dimensional transition motions	3	lecture
2	Dynamics: force and motion	6	lecture
3	Work, power, energy and the law of energy conservation	3	lecture
4	Impulse-momentum theorem, and the law of momentum conservation	3	lecture
5	Angular momentum and the law of angular momentum conservation	7	lecture
6	Vibration: simple harmonic motion, damped simple harmonic motion, forced oscillations and resonance	6	lecture
7	Wave: simple harmonic wave, interference of waves, standing wave	6	lecture
8	Basic law of thermodynamics	6	lecture
9	The kinetic theory of gases	3	lecture

10	Final review	2	lecture

ASSESSMENT APPROACH

Assessment method	Percentage %
1. Classwork	15
2. Homework	10
3. Report	25
4. Final exam	50
Total	100 %

Guideline for Letter Grade:

Marks	Grade	GPA
93-100	A+	4
88-92	A	4
83-87	A-	3.7
78-82	B+	3.3
72-77	B	3.0
68-71	B-	2.7
64-67	C+	2.3
60-63	C	2.0
56-59	C-	1.7
53-55	D+	1.3
50-52	D	1.0
Below 50	F	n/a

Notes:

The class participation includes students' attendance and class participation evaluation. The classwork includes classroom exercises and quizzes during

the class that aims at checking the progress of students' study throughout the class.

Homework in general includes end-of-chapter problems.

Report: Students are required to select a special topic that is related to the teaching content, deepen their understanding of this topic according to literature survey and write a report no less than 1200 English words.

Final examination will primarily cover all contents. The examination is usually composed of 5-8 problems that need to be solved by applying learned knowledge, methods, and principles. The emphasis of the assessment would be put on testing the understanding, analysis, and problem-solving ability of the students.