COURSE OUTLINE
PHYS 100– FALL 2021

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COURSE OBJECTIVES

Physics 100, a course designed mainly for pre-professional students, will enable the student to understand the major concepts in physics and to solve relative problems. Fundamental principles of mechanics, Waves, Heat, Electricity and magnetism, light, atomic and nuclear physics are covered. The students will develop the ability to interpret and apply the experimental laws and fundamental principles of physics to describe the behavior of the physical world. In the laboratory program, the student will develop the ability to appraise, use, and interpret data collected to express mathematically and/or explain the physical phenomena observed.

LEARNING OUTCOMES

Upon completion of this course, the student will be able to:

1. Assess the role of Physics in helping us to better understand the complex, technological society of which we are a part.
2. Apply physics principles to solve problems and explain practical physics applications.
3. Develop the ability to appraise, use, and interpret experimental laboratory and/or computer data Collected to correctly solve and/or explain the physical phenomena observed.
4. Write, using correct data collection, organization and analysis techniques, a complete formal Laboratory report.

COURSE OUTLINES

Scope of Physics, Kinematics and bodies in motion; communication, basic electricity medical physics and elements of astrophysics; laboratory: familiarization with measuring instruments and related experimentation.

Course Materials:

1. **Physics in Context,** Preliminary, 2nd edition, by Wiecek, Zealey, Hynoski, Mathur, Tatnell.
2. **Fundamentals of physics, 7th edition,** international student version, by David Halliday, Robert Resnick, Jearl Walker, John Wiley and Sons, June 2004.

Course grading: Your final grade will be based on the following:

Assignments + Quizzes + Class Participation	20%
Mid Term Examination	30%
Final Term Examination	30%
Laboratory	20%
	100%

Online Methods and Resources:

- Each Video lecture will also be delivered online through bigbluebutton and its recording will be available on Moodle.
- All lecture slides and relevant material will also be shared through Moodle.
- All the assignments, quizzes and exams will be uploaded and conducted on Moodle.
- WhatsApp group for the course will help you to ask any query during the semester.
- Online advising will be available by appointments through email or WhatsApp.

Syllabus and Tentative schedule:

This page lists the assigned readings on selected topics from textbook of **Physics in Context,** Preliminary.

Week	Learning Activity	Lecture Notes Sections	Quiz-Assignments
1	Nature of Physics, Observation and Measurement, Standards and units.	Ch-1	
2	Error Analysis, Significant Figures	CH-1	Assignment 1
3	Motion in 1D,Displacement, velocity and acceleration	CH-4	Quiz 1
4	Scalars and Vectors Motion in 2D and 3D	CH-4	
5	External Forces, Newton's laws of motion	CH-4	Quiz 2 Assignment 2
6	Force and interactions; Impulse and Momentum	CH-4	
7	Applications of Newton's laws	CH-4	
8	Momentum and Energy Conservation	CH-4	Midterm exam
9	Oscillations and Waves, Sound waves and communication	Ch-2	Assignment 3
10	Electromagnetic waves and Communication, Reflection and Refraction of Electromagnetic waves	Ch-2	Quiz 3

11	Electricity, DC Electrical circuits	Ch-3	
12	Electrical energy and power	Ch-3	Assignment 4
13	Magnetism and magnetic field	Ch-3	Quiz 4
14	Atomic and Nuclear Physics	Ch-3	

Assignments: They will be problems assigned from textbook of **Physics in Context,** Preliminary:

Assignment #	Chapter #
1	1
2	4
3	2
4	3