



SAMUEL ADEGBOYEGA UNIVERSITY
OGWA, EDO STATE
COLLEGE OF BASIC AND APPLIED SCIENCES
DEPARTMENT OF MATHEMATICS AND PHYSICAL SCIENCES

Course Code: PHY 111

Course Title: GENERAL PHYSICS I (Mechanics, Thermal Physics and Waves)

Status: 3 Credits Units (Core)

Semester: First

Course duration: 2 hours Lecture; 1 hour Tutorial per week for 15 weeks (45 hours)

Time: Monday 09:00 am – 10:00 am; Thursday 10:00 am - 12:00 pm

Location: Physics Laboratory

Lecturer: Popoola, Felix A. **Tel:** 08060148600

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Office Location: Office 18, Department of Mathematics and Physical Sciences,
College of Basic and Applied Sciences

Office Hours: Tuesday 1:00 - 3:00 pm; Thursday 12:00 – 2:00pm

A. INTRODUCTION

This course is designed to provide a conceptual understanding of the concepts in mechanics, thermal physics and waves. It serves as a pre-requisite for understanding higher level courses. It will help the students to have the necessary basic knowledge in physics and to develop problem-solving skills.

B. COURSE OBJECTIVES

At the end of the course, the students should have understood the following:

1. Units and dimension of physical quantities.
2. Fundamental laws of mechanics.
3. The phenomenon of elasticity.
4. The concept of hydrostatics.
5. The concepts and applications of temperature and heat.
6. Waves phenomenon and applications.

C. COURSE CONTENT

Space and Time, Units and dimension, Kinematics; Fundamental Laws of Mechanics, statics and dynamics; work and energy; Conservation laws. Moments and energy of rotation; Simple harmonic motion; Motion of simple systems. Elasticity; Hooke's law, Young's, shear and bulk moduli, Hydrostatics; Pressure; buoyance, Archimedes' Principles, Surface tension; adhesion, cohesion, capillarity, drops and bubbles. Temperature; heat; gas laws; laws of thermodynamics; kinetic theory of gases. Sound; Types and properties of waves as applied to sound wave and light energies. Propagation of sound in gases, solids and liquids and their properties. The unified spectra analysis of waves. Applications.

D. COURSE OUTLINE

Week	Topic
1	Space and Time, Units and dimension
2	Kinematics; Fundamental Laws of Mechanics, statics and dynamics
3	Work, energy & Conservation laws
4	Moments and energy of rotation
5	Simple harmonic motion
6	Elasticity
7 - 8	Hydrostatics
9 - 11	Concepts of temperature and heat energy
12 - 14	Waves and its properties
15	Revision

E. COURSE DELIVERY METHODOLOGY:

Face to face Lecture method.

F. METHOD OF GRADING

Attendance –	5%
Un-announced quizzes -	5%
Mid-Semester Test -	10%
Assignment –	10%
Examinations -	70%
Total	100%

Assignment: Weekly assignments will be given to students. The date for submission will be announced.

Course Requirements: A student must have nothing less than 75% attendance at lectures to be qualified to write the semester examination.

G. GROUND RULES AND REGULATIONS

1. University guidelines on attendance requirements will be strictly observed in this course. Thus, attendance as well as participation is a prerequisite and count for 10% of students' overall grade.
2. No student will be allowed into the lecture hall 5 minutes after the lecture must have commenced.
3. Improper and indecent dressing will not be allowed in the lecture hall.
4. Students are expected to be well disciplined and they should exhibit this through their punctuality at lectures and prompt attendance to class assignments.

H. ALIGNMENT WITH SAU VISION/MISSION/CORE VALUES/GOALS

Samuel Adegboyega University has the vision of becoming a world class university. For this to happen, Department of Mathematics and Physical Sciences must be the flagship.

I. RECOMMENDED TEXTS:

1. Michael Nelkon and Philip Parker (1995). *Advanced Level Physics* (5th ed.). London: Heinemann.
2. Serway, R. A. and Faughn, J. S. (2006). *Physics*. United States of America: Holt, Rinehart and Winston.
3. Guar R. K. and Gupta S. L. (2001). *Engineering Physics* (8th ed.). New Delhi: Dhanpat Rai

Note: All reference materials are available in the central library.