



### **Course Description**

#### **PHY2053L | Physics (without Calculus) 1 Laboratory | 1.00 credit**

This laboratory course is designed to complement PHY2053. Students will engage in hands-on experiments that reinforce theoretical concepts related to kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. Through practical applications of algebra and trigonometry, learners will develop analytical skills while conducting experiments that illustrate key physical principles. The course emphasizes critical thinking and problem-solving as students collect and analyze data, interpret results, and communicate their findings effectively. This lab experience aims to deepen students' understanding of the scientific concepts covered in the parent course and their relevance to real-world situations.

### **Course Competencies:**

**Competency 1:** The student will demonstrate an ability to make measurements in the laboratory by:

1. Using various instruments to make measurements that relate to the functioning of simple physical systems in the laboratory
2. Organizing and recording instrument readings onto a data sheet for each experiment in the lab
3. Estimating and recording the possible measuring errors with selected measurements in the lab

**Competency 2:** The student will demonstrate knowledge of the rudiments of laboratory report writing by submitting completed written reports by:

1. Organizing presentation of materials
2. Ensuring calculations are correctly done
3. Making sure graphs are correctly plotted, along with calculations of slopes and other parameters, when needed
4. Indicating how measuring errors can affect the results of an experiment
5. Interpreting results that are consistent with reported observations

**Competency 3:** The student will demonstrate an awareness of the importance of observations and measurements as the basis for scientific theory by:

1. Reporting his/her actual observations even if they conflict with his/her preconceptions
2. Proposing a formula or simple generalization that applies to the measurements made
3. Applying and verifying physics principles in a laboratory setting
4. Performing experiments in kinematics, mechanics, and waves

### **Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information