



## **Course Description**

### **PHY2048L | Physics with Calculus Lab 1 | 1.00 credits**

Laboratory for PHY2048. Laboratory fee. This calculus-based course serves as the first in a two-part series, covering topics like kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. Designed for science and engineering majors, the course integrates critical thinking, analytical skills, and real-world applications.

### **Course Competencies:**

**Competency 1:** The student will demonstrate proficiency in collecting and analyzing data in a variety of experiments by:

1. Conducting experiments by following proper procedures and techniques
2. Collecting accurate and precise data using appropriate measurement tools
3. Organizing and recording data in a systematic and organized manner

**Competency 2:** The student will develop the skills to effectively analyze and interpret data obtained from experiments by:

1. Applying statistical analysis techniques to determine trends and patterns in the data
2. Using graphical representations, such as charts and graphs, to visualize and communicate the results
3. Interpreting the data to draw meaningful conclusions and make scientific inferences

**Competency 3:** The student will be able to create comprehensive experiment reports that incorporate analysis in calculus based on the data collected by:

1. Applying calculus principles to analyze the relationship between variables in the experiments
2. Incorporating mathematical models and equations to describe and explain the observed phenomena
3. Presenting the experiment results, analysis, and conclusions in a clear and concise manner in written reports

### **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