

## **PHYS 102L Principles of Physics II Lab**

This course is designed to reinforce topics presented in PHYS 102 lectures. Through scientific experimentation, students will improve their understanding of basic concepts in electricity and magnetism while developing their foundation of the scientific process. Laboratory work includes the setting up and running of physics' experiments, whether hands on or online. Regular activities include data taking, data presentation, data visualization, data analysis, fitting, and drawing of conclusions.

*(Pre-requisites: PHYS 102)*

### **Course Learning Outcomes:**

By the end of the course, students will be able to:

1. Demonstrate improved understanding of the basic concepts behind electricity and magnetism, while being able to address alternative scenarios using the hands-on experience acquired in the laboratory
2. Clearly communicate methods in relation to scientific experiments pertaining to electricity and magnetism
3. Use basic and some advanced statistical tools to analyse and draw conclusions from data taken on scientific experiments pertaining to electricity and magnetism
4. Operate in teams while carrying out experiments with accountability for determining and achieving personal outcomes.

### **Textbook & Course Materials:**

- Principles Physics Laboratory Manual, David H. Loy, 4<sup>th</sup> ed (Cengage)

### **Course Content:**

1. Electrostatics
2. Coulomb's Law
3. Capacitors – Parts I-II
4. Capacitors – Parts III-IV
5. Circuits with resistors in parallel
6. Circuits with resistors in series and Ohm's law