

Faculty of Science and Technology
PHYS204 – Physics Laboratory
Syllabus
Spring 2010
Part A – Course Outline

Required course in Civil Engineering, Electrical and Electronics Engineering and Electromechanical Engineering

Course description:

(1 credit) This is a laboratory course of general physics for engineering students. Students are required to conduct experiments of electromagnetism, geometric optics and wave optics.

Prerequisite:

PHYS203

Reference:

“*Fundamentals of Physics*”, David halliday, Robert Resnick, Jearl Walker, 8th ed. John Wiley & Sons, Inc.

Major prerequisites by topic:

1. Electricity including concepts of electric field, electric potential and basic circuit theory.
2. Magnetism including concepts of magnetic field and magnet induction.
3. Image formation by lenses.
4. Properties of light wave.

Course objectives:

1. Learning to apply physics theory in conducting experiment. [a, e, i, k]
2. Develop experimental skill. [b, c, e, i, k]
3. Learning data analysis and interpretation. [a, b, i, k]

Topics covered:

1. The Wheatstone bridge
2. Electric field and potentials in plate capacitor
3. Internal resistance and matching in voltage sources
4. Magnetic induction

5. The speed of light
6. Diffraction at a slit
7. Michelson interferometer
8. Laws of lenses and optical instruments

Class/laboratory schedule:

One 120-minute laboratory per week (14 weeks)

Contribution of course to meet the professional component:

This course prepares students to work professionally in engineering area.

Relationship to program outcomes:

This course primarily contributes to program outcomes that develop student abilities to:

- (a) an ability to apply knowledge of mathematics, science and engineering.
- (b) an ability to conduct experiments, as well as to analyze and interpret data
- (e) an ability to identify, formulate, and solve engineering problems.
- (k) an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

The course secondarily contributes to program outcomes that develop student abilities to:

- (c) an ability to design electrical circuit and optical system.
- (i) an ability to recognize the need for, and to engage in lifelong learning.

Persons who prepared this description:

Ho Sut Kam, Assistant Professor of Faculty of Science and Technology

Par B – General Course Information

Fall 2010

Instructor: Dr. Ho Sut Kam

Office: N312

Office Hour: by appointment

Phone: 83974362

Assessment:

Final assessment will be determined on the basis of

In-class performance 40%

Laboratory report 60%

Comment:

The objective of the course is to apply physics theories in conducting experiments. Students must prepare each experiment by physics laboratory manual and are encouraged to review the reference prior to the class.

Note

1. No experiment is allowed if you are 15 minutes late. Even you are late in class, you must finish experiment at the due time.
2. No make-up experiment is allowed without rational reason.
3. Detailed guidelines for laboratory class will be distributed with physics laboratory manual and students must follow the guidelines strictly.
4. Course materials will be uploaded in webcourse and it can be accessed by <https://ummoodle.umac.mo/login>