



SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Co-requisites	Pre-requisites	Course Level	Language
PHY	381	Electromagnetism Laboratory	2	0	4	0	4	PHY 324	PHY 220	5	English

A. Course Description

Fundamental training in physical measurements in electric, properties of the magnetic field and other related topics introduction to laboratory techniques and experimental methods of physics with emphasis on linking the understanding of physics concepts with "Real-Life" situations. Every class will have a short lecture introducing the procedures, concepts, formulas and instructions relevant to the experiment. The lecture will also cover what is expected in the lab-report; don't be late. Attendance and participation is mandatory. Experiments will usually be performed in groups, but each student will turn in an individual lab report.

B. Course Outcomes

At the end of this course the student will be able to:

1. To observe and analyze physical data relevant to some of the experiments in electricity and magnetism.
2. To provide students with a thorough understanding of the basic concepts of physics and the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical analysis.
3. To develop the student's mathematical ability to manipulate formulae and derive correct numerical solutions that can be measured in the real world.
4. To instruct students in the competent use of laboratory equipment to collect and record data, apply relevant mathematical models and perform required computations, and present the derived results as an application of a measured observation of the physical world.

C. References

Required Textbook

- Laboratory Manual supplied by the Department of Physics.
- Laboratory Manual is available at the website of the Department of Physics.

Course Website: <http://www.imamm.org/>

D. Topics Outline

1. *Experiment 1: Determining the capacitance of a plate capacitor (Contact hours: 4).*
2. *Experiment 2: Parallel and series connection of capacitors (Contact hours: 4).*
3. *Experiment 3: The RC circuit (Contact hours: 4).*
4. *Experiment 4: Measuring the magnetic field for a straight conductor and on circular conductor loops (Contact hours: 4).*
5. *Experiment 5: The magnetic field of an air coil (Contact hours: 4).*
6. *Experiment 6: electron charge-to-mass ratio (Contact hours: 4).*
7. *Experiment 7: RL circuits (Contact hours: 4).*



8. **Experiment 8:** Alternating current with coil and Ohmic resistors (Contact hours: 4).
9. **Experiment 9:** Determining the capacitive reactance of a capacitor in an AC circuit (Contact hours: 4).
10. **Revision** (Contact hours: 4).

E. Office Hours

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

F. Exams & Grading System

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6th or 7th week.
- **Midterm 2:** 11th or 12th week.
- **Quizzes, Lab. reports & Homeworks:** During the semester.
- **Final Exam:** 16th week.

Your course grade will be based on your semester work as follows:

Midterm 1: 7.5 %	Midterm 2: 7.5 %	Final Exam: 50 %
Quizzes, Lab. reports, Homework, Attendance & Participation: 35 %		

The grading distribution:

A+	A	B+	B	C+	C	D+	D	F
[95, 100]	[90, 95]	[85, 90]	[80, 85]	[75, 80]	[70, 75]	[65, 70]	[60, 65]	[0, 60]

G. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

[Executive Rules for Study Regulations and Exams](http://goo.gl/ykm7t3)

goo.gl/ykm7t3

