

STATE UNIVERSITY OF NEW YORK
New Paltz, New York.

General Physics 2 (Laboratory)
Course No. PHY212 (Sec. 4) (1 credit)
Spring 2018

Instructor: Dr. T. Biswas
Office: SH 274
Phone: 257-3749
Email: biswast@newpaltz.edu
Website (Office hrs): www.engr.newpaltz.edu/~biswast

Course Description

The two hours of laboratory will give the student a better feeling of the principles taught in lecture classes of General Physics 2 (PHY202). Students should not expect the laboratory instructions* to be a recipe for “correct” results. Instead, it will provide broad directions and methods of experimentation. Students must define their own specific directions of investigation and write a clear report describing what they did. The reports will not be graded but they will provide good reference material for the laboratory exams. The laboratory exams will be based on the experiments done during the semester.

Grading Policy

The following weights will be assigned for the determination of the final course grade.

| | |
|------------------|-----|
| First lab. exam | 30% |
| Second lab. exam | 30% |
| Final lab. exam | 40% |

To be excused from an exam, the student must produce satisfactory written proof (e.g. doctor’s note) of inability to turn up. In case of a legitimate exemption for any exam (other than the final), the student will be required to take an alternate exam. In case of such exemption from the final exam, the student will receive an incomplete grade which must be completed (by taking the final exam) before the scheduled deadline next semester.

*Laboratory instructions are available at the instructor’s web page (www.engr.newpaltz.edu/~biswast).

Schedule

| Date | Laboratory |
|------|----------------------------------------|
| 1/24 | Electrostatics |
| 1/31 | Electric fields |
| 2/7 | Ohm's law |
| 2/14 | First lab. exam |
| 2/21 | Resistors |
| 2/28 | Voltage sources |
| 3/7 | Capacitors |
| 3/14 | Second lab. exam |
| 3/21 | ——— Spring break —— |
| 3/28 | Magnetic fields |
| 4/4 | Current balance |
| 4/11 | AC RLC Circuit |
| 4/18 | Lenses |
| 4/25 | Demonstrations |
| 5/2 | Final lab. exam (comprehensive) |

Laboratory Reports

The following items must be included in a laboratory report.

Object

This should be a one or two line statement. It could be identical to the one in the laboratory instructions unless you have added some components of your own to the standard experiment.

Procedure

This should be a short description of the experimental methods in your own words.

Data

Clear presentation of data is very important in an experiment. A tabular form is often used. The following is a typical data table.

| Trial # | Measured quantity x | Measured quantity y | Measured quantity z | Computed quantity a | Computed quantity b | Error in b |
|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------|
| 1 | ... | ... | ... | ... | ... | ... |
| 2 | ... | ... | ... | ... | ... | ... |
| 3 | ... | ... | ... | ... | ... | ... |
| 4 | ... | ... | ... | ... | ... | ... |
| Average | | | | | ... | |
| Std. err. | | | | | | ... |

For a specific experiment the number of measured quantities, the number of computed quantities and the number of trials will be different. The quantities for which you compute errors and averages will also be different.

Calculations

Here you should state the formulas used to compute quantities in the data table and demonstrate the computations for at least one row of the table.

Conclusion

This is a summary of the conclusions drawn from the data obtained.

Sources of error

Here you should list what you think are the shortcomings of the experimental method that contribute to experimental errors. What you consider as sources of error will demonstrate your understanding of the experiment.

Administrative Addenda

Student Learning Outcomes

To acquire basic skills in handling experimental aspects of the phenomena of electricity, magnetism and optics.

Academic Integrity Policy

http://www.newpaltz.edu/ugc/policies/policies_integrity.html

Disability Resources

https://www.newpaltz.edu/drc/policy_procedure_manual.html

Veterans Resources

<http://www.newpaltz.edu/veterans>

Computer and Network Policies

<https://sites.newpaltz.edu/csc/policies/acceptable-uses-and-privacy-policy/>

Deadlines

<http://www.newpaltz.edu/events/academic.php>