

THE WYOMISSING POLYTECHNIC INSTITUTE

Physics Department

Instructions for Laboratory Reports

I. PRELIMINARY

- (a) Each student is assigned to a group number. No temporary or permanent change is to be made by the student. If a change is necessary such change will be made by instructor.
- (b) Wherever possible assignments will be made in advance. The experiment assigned to a group for a given laboratory period is to be done during that period.
- (c) When a student reports to the laboratory he should have the cover completed in accordance with III (a).
- (d) The student should also have the objective, materials, and theory sections of the report completed when reporting to the laboratory.

II. IN THE LABORATORY

- (a) Report to the instructor and hand in the report of the previous week's experiment.
- (b) Obtain the necessary materials and equipment.
- (c) Proceed with the experiment getting as little help as possible from the instructor.
- (d) After the experiment is completed, check your data.
- (e) Return equipment.
- (f) Proceed through calculations on your own (when time permits).

III. METHOD OF WRITING LABORATORY REPORTS

- (a) The printed cover should contain:
 - (1) Number of experiment and Title.
 - (2) Name.
 - (3) Date.
 - (4) Class, section, and Table Numbers.
- (b) Each report should consist of
 - (1) Number of Experiment and Title.
 - (2) Objective - should be clearly and concisely stated.
 - (3) Materials -
 - (4) Theory - should not be copied word for word from text or lab. book. Whenever possible a development of equations to be used in the calculations should be included in the theory. Include in Theory definitions of terms to be used in procedure, etc.
 - (5) Procedure - should be well written so that another person can take your report, follow your procedure and perform the experiment, obtaining the desired results.
 - (6) Data - Record actual instrument readings in data record. Whenever possible record data in labeled columns, with proper units at the top of the column. Cross out incorrect values with a single line; do not erase them.

Instructions for Lab. Reports

- (7) Calculations - Make calculations after experiment is completed, carrying them out to an accuracy equal to that of the data taken using scientific notation. Make calculations with the slide rule. Do not put long-hand multiplications or divisions in any part of the report. If any type of calculation is to be repeated, give only one sample calculation.
 - (8) Drawing - May be done in ink, hard lead pencil, or colored pencil. Should be fully labeled.
 - (9) Graphs - (If any) Place an appropriate title near the top of the graph, label axes and specify units. If more than one curve is to be plotted on the same sheet, use several colors or key the curves.
 - (10) Conclusions - should consist of brief statements of the principle accomplishments continued in the main body of the report, statements of laws tested and conclusions as to their validity, average values of or quantities sought in the experiment, per cent difference between average values of quantities found and accurate values of these same quantities, or if such is not available per cent difference between values found and the average value, sources of error and reasons for inaccurate results, and any additional correct conclusions which can be drawn from the outcome of the experiment.
- (c) All reports, except drawings and graphs, will be in ink or typewritten. Use standard notebook paper and double space that is, write on every other line.
- (d) Incomplete reports as well as tardy reports will be penalized by a credit deduction.

Some students experience a slow start in this subject primarily because of their inability to analyze and reason. To attempt to see how someone else solves the problem merely adds to the difficulty. The mechanics of most of the solutions are usually quite easy to follow. What is missed completely in seeing another student's solution is the opportunity for improvement in the ability to analyze, reason, and visualize that the problem offers. Only a thorough study of the assignments - this means studying the assignment several times - and absolutely no reference to the textbook while the problems are being solved will, in due time, produce the desired results.

A physical education instructor cannot build up the muscles of a student, but he can guide him if the student does the necessary work. This analogy applies to Physics as well as to most other subjects. The text and the instructor in charge of the class can help if the student does an adequate job of studying and asks to have hazy points clarified. But, again, if the student is to improve materially, he must study until each fundamental is clear.

Although it is tempting to have a text open and attempt, with perhaps occasional success, to solve a problem by keeping one eye on the text and the other on the problem, the problem should be solved without using the text. Using the text as a direct aid in solving problems is, for all practical purposes, copying. A much more satisfactory procedure is to study the assignments well, then, without the help of the text, go to work on the problems. It will not be long before the student develops confidence in himself.

Some students have the mistaken notion that, if they see the solution, they will understand it. If "seeing" a solution is learning, then giving the student solutions to from 3,000 to 5,000 problems would be the answer to learning. Unfortunately, knowledge cannot so easily be acquired. A student who has examined 5,000 solutions would most likely fail any examination in which he were required to analyze, reason, and visualize in order to solve the problems.

Some students experience a slow start in this subject

primarily because of their inability to analyze and reason.

To attempt to see how someone else solves the problem merely adds to

the difficulty. The mechanics of most of the solutions are usually

quite easy to follow, what is missed completely in seeing another

student's solution is the opportunity for improvement in the ability

to analyze, reason, and visualize that the problem offers.

Only a thorough study of the 36

assignment several times - and absolutely no reference to the textbook

while the problems are being worked - will, in due time, produce the

desired results.

A physical education instructor cannot build up the muscles

of a student, but he can guide him if the student does the necessary

work. This analogy applies to physics as well as to most other subjects

The text and the instructor in the office of the class can help in

student does an adequate job of studying and asks to have any points

clarified. But again, the student is responsible for his own progress.

$$P_2 = \frac{1212.5}{6.167}$$

$$P_2 = 196$$

$$P = AS$$

$$A = \frac{P}{S}$$

$$A = \frac{196}{8000}$$

$$A = .0245 \text{ IN}^2$$

Don't forget to check your work!
After working on the problem, check your work!
Don't forget to check your work!

Washburn College
Physics Department

16

2020