

Physics 302 Laboratory Syllabus

VIRGINIA STATE UNIVERSITY
SCHOOL OF AGRICULTURE, SCIENCE, AND TECHNOLOGY
DEPARTMENT OF PHYSICS
COURSE SYLLABUS: SPRING 2004
PHYSICS 302 LABORATORY-1 Sem. Hr.

Mr. George W. Henderson

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COURSE DESCRIPTION:

A SET OF LABORATORY EXPERIENCES DESIGNED TO SUPPORT THE TOPICS COVERED IN PHYSICS
302 THE COURSE

COURSE TEXT:

NONE

LEARNING OUTCOMES, ACTIVITIES, AND EVALUATION PROCEDURES:

KNOWLEDGE

The student will:

a) Possess knowledge of the principle of operation of each of the instruments that he using in making measurements.

b) Recognize the different between a device such as a Mass and an instrument.

c) Possess knowledge of physical concepts from the course

Evaluation Strategy: Written reports and class activities

SKILLS

The student will:

- a) Learn how to use the learn how to use fundamental measuring instruments
- b) Compute the value of physical quantities not directly measurable from measurements taken of fundamental quantities.
- c) Use the PC to construct graphs and perform statistical analysis of data.

Evaluation Strategy: performance of experiments and written reports

ABILITIES

The student will:

- a) Make a statistical analysis of data.
- b) Design simple experiments.
- c) Develop simple measuring techniques.
- d) Interpret the results of the experiments
- e) Draw conclusions and make generalizations as a consequence of performing an experiment.

Evaluation Strategy: written reports and experimental techniques.

COURSE REQUIREMENTS:

Each student is expected to perform experiments and submit written reports for some.

Write reports and essays

Each student must read the Student Handbook and Catalog for specific academic regulations concerning cheating, plagiarism, absenteeism, etc.

Students who are covered under the **American Disability Act** should privately inform the teacher of this fact so that appropriate instructional arrangements can be made.

Each student will be required to perform at least two experiments using computer interfaces.

GRADING STANDARDS:

Grading: The Grade will be based on the performance of Twelve experiments.

A 90 - 100%

B 80 - 89

C 70 - 79

D 60 - 69

F Below 60

BIBLIOGRAPHY/READING LIST

BOOKS

Handbook of Chemistry and Physics, Chemical Rubber Publishing Company, Cleveland, Ohio.

Shamos, M. H., Great Experiments in Physics, Holt, Rinehart and Winston, New York, 1959

Weisman, Herman M., Basic Technical Reporting, Prentice Hall, Ohio, 1996

Pfeiffer, William S., Technical Writing, a Practical Approach, McMillan Publishing Company, New York, 1993

Hastings, R. B., Laboratory Physics, Bruce Publishing Company, Minnesota, 1965

Tipler, Paul A., Physics, Worth Publishers, Inc. New York, 1995

Baird, D. C., Experimentation - An Introduction to Measurement Theory and Experimental Design, Prentice Hall, Inc., New Jersey, 1962

JOURNALS

Physics Today
Physics Teacher
American Journal of Physics

LABORATORY SAFETY:

General Safety

Always Ground electrical Systems

Never Play or eat in Laboratory

Read Cautions included with every instrument

Never touch electrical and water faucets at the same time.

Never work with electrical systems with power on.

Laser Safety

Treat all lasers with respect

Never look directly at the laser beam with naked eye or optical device.

Never allow the laser beam to shine in the area of anyone's eyes.

Never place highly reflective objects in the beam path.

Turn the laser on only when actual measurements are taking place and be aware of the where the beam is shining.

Cover Outside windows to protect passers-by.