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**Ohio Articulation Number (OAN)
Course Submission Form
2005-2006**



College/Univ Youngstown State University
ersity _____

Course(s) Submitted(Title & Course #) General Physics Laboratory 1 for
Ohio Articulation Number OSC 017

Date 5/19/06 Course Phys. 2611L of a 2 Course OAN mapping.
2 of 2

Name and title of individual submitting on behalf of the college/university

Name William Sturuss Title Chair Department of Physics & Astronomy

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Credit Hours 1 qtr _____ sem X

Lecture Hours _____

Laboratory Hours 1 (if applicable)

Pre-Requisites(s) Course work : PHYS 2611 or 2602

Placement Score:

(Domain) _____ (Score) _____

Catalog/Course Description (Includes Course Title and Course #)

<p>2611L. General Physics Laboratory 1 Experimental work designed to supplement the PHYS 2610, 2611 sequence. Three hours per week. Prereq. or concurrent: PHYS 2611 or 2602 for 2611L. 1 S.H.</p>
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This is a resubmission. The previous submission lacked the weekly experiment schedule. The weekly experiment schedule is included at the end in the "Additional Materials" section.

Texts/Outside Readings/Ancillary Materials

The Physics Lab Manual 2: Experiments to Accompany Physics 2611
Laboratory – Youngstown State University

Course Objectives and/or Plan of Work

Goals and Objectives: The primary goal of this laboratory is to acquaint students with the ways theory applies to experiment, with various laboratory techniques and with the writing of laboratory results. We will show specific instances of the scientific method in action by attempting to verify some of the laws of physics.

Important objectives of these experiments are (1) mastery of a technique for measuring a specific physical quantity or a method for validating a specific set of physical laws by experimental means; and (2) learning to make a realistic estimate of the accuracy of the measurement of the reliability of the validation.

This course is a General Education course in the Natural Science Domain and emphasizes General Education goals (2) acquiring, processing and presenting quantitative and qualitative information using the most appropriate technologies including computers; (3) reasoning critically, drawing sound conclusions, and applying those conclusions to one's life and society; (6) understanding the scientific method, forming and testing hypotheses as well as evaluating results; (7) realizing the evolving relationships among science, technology, and society; and (13) understanding and appreciating the natural environment and the processes that shape it.

Description of Assessment and/or Evaluation of Student Learning

Students will develop the skills to test by measurement and/or quantify by measurement the following topics.

1. Coulomb's Law
2. Electric Potential
3. Induction and Inductance
4. Resistance
5. Capacitance
6. Basic circuit analysis
7. Electric power
8. Permeability of space
9. Electron charge to mass ratio
10. Electromagnetic waves
11. Kirchhoff's Laws
12. R-L-C circuits
13. Faraday's Law
14. Geometric optics
15. Diffraction
16. Interference

Master Syllabi and Working Syllabi (if both are used)

SYLLABUS-Physics 2611L
General Physics 2 Lab

Text: The Physics Lab Manual 2 – Experiments to Accompany 2611 Laboratory – Youngstown State University

Prereq.: Phys. 2611 or 2602 for 2611L

Goals and Objectives: The primary goal of this laboratory is to acquaint students with the ways theory applies to experiment, with various laboratory techniques and with the writing of laboratory results. We will show specific instances of the scientific method in action by attempting to verify some of the laws of physics.

Important objectives of these experiments are (1) mastery of a technique for measuring a specific physical quantity or a method for validating a specific set of physical laws by experimental means; and (2) learning to make a realistic estimate of the accuracy of the measurement of the reliability of the validation.

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Learning Outcomes:

1. Coulomb's Law
2. Electric Potential
3. Induction and Inductance
4. Resistance
5. Capacitance
6. Basic circuit analysis
7. Electric power
8. Permeability of space
9. Electron charge to mass ratio
10. Electromagnetic waves
11. Kirchhoff's Laws
12. R-L-C circuits
13. Faraday's Law
14. Geometric optics
15. Diffraction
16. Interference

Twelve experiments will be performed during the semester. Students will work in groups of usually not more than four each. Each group is to submit a report on each experiment, due one week after the experiment is performed. A captain is to be selected by each

group each week. He or she will be in charge of the actual writing of the report, but other members of the group must contribute to the calculations, etc. The captaincy will rotate so that each person usually gets to write at least three reports.

The Laboratory Report: The report should include the following:

1. The title of the experiment, the date it was performed, the names of everyone in the group, and a clear indication of which person was the captain for the experiment. This can be a separate page if you wish, but it need not be.
2. A brief introduction. This should state what was measured, how it was measured; and why (the purpose of the experiment).
3. The data. This may be recopied for neatness if you feel it necessary, but the original data sheet written during the lab should also be included.
4. Calculations, in table form if appropriate.
5. Analysis and conclusions. This should include sources of error, discussed quantitatively where possible; also, a summary of results and anything else you feel needs to be said.

Grading: Each report is given a letter grade on a scale of A+ to F-. The final grade is an arithmetic average of the individual letter grades where the letters correspond to a 4 point scale.

***In accordance with University procedures, if you have a documented disability and require accommodations to obtain equal access in this course, please contact me privately to discuss your specific needs. You must be registered with the Disability Services Office in Wick House and provide a letter of accommodation to verify your eligibility. You can reach the Disability Services Office at 330-941-1372.**

Additional Documentation

Weekly Experiment Schedule

Week 1	Syllabus distribution, lab report requirements, partner selection
Week 2	Coulomb's Law
Week 3	Electrostatic Balance determination of ϵ_0
Week 4	Electric fields and potentials
Week 5	Nominal resistance
Week 6	The oscilloscope
Week 7	Circuits and circuit elements
Week 8	Resistor and capacitor networks
Week 9	Inductance, oscillations and the RLC circuit
Week 10	Electron charge to mass ratio
Week 11	Current balance determination of μ_0
Week 12	Reflection and Refraction
Week 13	Mirrors, lenses and image formation
Week 14	Interference and diffraction
Week 15	Interferometers

OBR Use

Action

Approved	
Additional Information Requested	
Rejected	
Date	