This course syllabus is intended as a set of guidelines for PHYS 1402. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

Instructor Information:

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Course Information
Course title: College Physics
Course number: PHYS 1402
Section number: 76426 and 76427
Credit hours: 4
Class meeting time: INET Lecture and Lab

Course description:  The second semester of an algebra and trigonometry -based physics sequence. Principles and applications of electricity, magnetism, optics and modern physics are studied. Laboratory experiments supporting the topics are included.

Course prerequisites: Phys 1401
Required or Recommended Textbooks and Materials

   Or

2. Lab Kit Physics LP-2236-PK-01 from Hands on Labs. Follow the link [Use this link to order the lab kit](#) select “Order”, Login: C000258 and for password: labpaq.

PROGRAM-LEVEL OBJECTIVES FOR PHYSICS 1402

Physics 1402 develops the following objectives from the Texas Higher Education Coordinating Board:

- Communication Skills
- Critical Thinking Skill
- Empirical and Quantitative Skills
- Teamwork

Course Objectives

Physics 1402 supports the following learning outcomes from the Texas Higher Education Coordinating Board. At the end of the course students will be able to:

1. Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields and currents.
2. Apply Kirchhoff’s Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
3. Solve problems in the electrostatic interaction of point charges through the application of Coulomb’s Law.
4. Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them.
5. Use Faraday’s and Lenz’s laws to determine electromotive forces and solve problems involving electromagnetic induction.
6. Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
7. Describe the characteristics of light and the electromagnetic spectrum.

Laboratory objectives:

1. Develop techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
2. Demonstrate the collections, analysis, and reporting of data using the scientific method.
3. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
4. Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields and currents.
5. Apply Kirchhoff’s Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
6. Solve problems in the electrostatic interaction of point charges through the application of Coulomb’s Law.
7. Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them.
8. Use Faraday’s and Lenz’s laws to determine electromotive forces and solve problems involving electromagnetic induction.
9. Solve problems applying the principles of reflection, refraction, diffraction, interference, and superposition of waves.
10. Solve practical problems involving optics, lenses, mirrors, and optical instruments.

Course Outline

Posted on ecampus

Means of Assessment of Course Learning Outcomes

Solving problems, lab reports, multiple choice and free response questions exams.

Evaluation Procedures

EXAMS

There will be four exams in this course. The problems in the tests will be similar with the HW, reviews, the sample problems posted on ecampus for each section, and solved problems from the book. A formula sheet and scratch paper will be provided by the testing center for each test and you should have a pencil and a calculator. The tests are 3 h and you can take them just once. Plan your testing time carefully and always check the testing center hours and policies.

All the exams are completed through ecampus in a DCCCD testing center. If you don’t live in the DFW area you can take the tests at a local school’s testing center. If you want to nominate and gain approval for a proctor you will have to submit a form before the semester starts. The proctor nomination form is posted on ecampus under “Course Materials”.

There is no makeup test for a missed test.

LABORATORY GRADE

A passing grade (average of 60 or above) is required for the lab in order to pass the course. The grade is determined by the accuracy and quality of the lab work reflected by the lab report. Each laboratory report should follow the guidelines posted on ecampus.
HOMEWORK

Homework will be assigned for each chapter and submitted through ModifiedMasteringPhysics. If you buy the code independently of the book make sure you choose the correct edition. Deadlines are posted for each chapter on MasteringPhysics. There is no credit for late HW.

Exams and Assignments
Tests=60%
Lab grade=25%
Homework=15%

Grading Scale
Your final grade will be determined as follows.
Final Average-----------------------------------Letter Grade
90-100-------------------------------------------A
80-89-------------------------------------------B
70-79--------------------------------------------C
60-69--------------------------------------------D
50-59--------------------------------------------F

The Science Learning Center (SLC) provides student services in the following subjects (majors and non majors): Biology, Botany, Microbiology, Anatomy and Physiology, Chemistry, Geology, Physics and Ecology. The center is located in P-333 & P-334 and offers various resources all of which are free to the students. The SLC features tutors, software, videos, CDROM’s, internet, models, places to study quietly, places for group work, and other materials to assist in science classes. In order to access resources of the SLC a North Lake College ID Card is required. The subject specific schedule of tutors is updated every semester.

The link gives you direct access to Science Learning Center website.

INSTITUTIONAL POLICIES

Institutional Policies relating to this course can be accessed from the following link:

The link gives you access to NLC Institutional Policies
## Learning Activities, Outcomes, and Assessment

<table>
<thead>
<tr>
<th>Learning Activity</th>
<th>Assessment</th>
<th>Learning Outcomes</th>
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</thead>
<tbody>
<tr>
<td>Lab activity in which the students will investigate how the electric current in a circuit is changing with the applied voltage.</td>
<td>lab report</td>
<td>Students will apply Ohm’s to determine the value of an unknown resistance using graphical representation of $I \ vs \ V$.</td>
</tr>
<tr>
<td>Solving problems</td>
<td>test problem</td>
<td>Students will calculate magnetic field inside of a solenoid due to an electric current.</td>
</tr>
<tr>
<td>Solving problem</td>
<td>test problem</td>
<td>The students will calculate the image location formed by a converging lens.</td>
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