

**PHYS 2401 Principles of Physics II Lab**  
**Spring 2009**  
**Texas Tech University**  
**Course Syllabus**

**Lab Instructor:** \_\_\_\_\_

**Section:** \_\_\_\_\_

**Lab Coordinator:**

Dr. D.A. Barlow

SC 116

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**Meeting Place:** SC 130

**Course Description:** Each meeting will consist of a laboratory experiment for general physics II followed by a one hour recitation section. Topics include electricity, magnetism, electric circuits and optics. The purpose of the recitation section is to help students master the necessary skills for the lecture portion of the class. The material for the recitation section may come from questions or problems in the lab manual, home work assignments from the lecture portion of the class or from the lab instructor.

**Text:** **Laboratory Manual, Principles of Physics II**, Stipes Publishing

**Grading:**

**Labs are worth 10 points each.** 8 points come from the lab report and recitation. Students will be graded on the completeness, neatness and accuracy of lab reports written for each lab. The lab instructor may ask that problems or questions from the recitation section to be handed in for grading as part the lab report. The remaining 2 points come from the pre-lab quiz. The lowest lab grade will be dropped.

**Lab homework: There is a lab homework assignment worth 10 points. This assignment is to attend one of the physics departmental colloquiums.** These are held most Thursdays in SC 007. However, sometimes the talks are joint physics/EE events and are then held on Fridays in Langford Lab. Your instructor will give you a schedule for these talks. Students should regularly check the physics departmental website and/or look for postings in the science building hallway for upcoming talks as changes in the schedule often occur. **There will be a sign in roster available for students after the talk. Students must sign this roster to receive credit for attendance.** Colloquiums are normally around 75 minutes long.

Total number of points for the lab course: **120**

**Pre-Lab quizzes:**

Labs meetings will be preceded by a short quiz. These pre-lab quizzes will consist of 2 questions covering information in the lab instructions for that day's lab. Students should read the lab instructions for the upcoming lab to prepare for this quiz.

**Lab activities in chronological order:**

1. Jan 12-16, Refraction of light/thin lenses and mirrors
2. Jan 26-30, Diffraction and interference
3. Feb 2-6, The diffraction grating and optical spectra
4. Feb 9-13, Electrostatic fields and potentials/Electrostatic machines
5. Feb 16-20, Ohm's law: Simple resistance/Ohm's law III
6. Feb 23-27, RC Transient conditions/Use of a digital oscilloscope
7. Mar 2-6, Resistivity/RTD
8. Mar 9-13, Current balance
9. Mar 23-27, Dipole bar magnet/ e/m measurements/Making a speaker
10. Mar 30- April 3, Magnetic fields from currents
11. April 6-10, Electromagnetic induction and Faraday's law
12. April 20-24 Alternating current RL and RC circuits/LC oscillations and damping