

Texas A&M University – Texarkana

College Physics II Lab Course Syllabus

Effective Date: Spring 2014

- I. Course Number:** PHYS 1102
- II. Course Title:** College Physics II Lab
- III. Semester Credit Hours:** 1 credit hrs (2 contact hrs)
- Instructor:** Kenny Irizarry, PE, REM
Office: SCIT 318H, Hours: TBD
Email: kirizarry@tamut.edu
Phone: (903) 223-3041
- IV. Course Description:** A hands-on physics lab that covers the fundamental principles of physics including electricity, magnetism, electromagnetic waves, and light with emphasis on problem solving. Co-requisites: PHYS 1302 - College Physics II
- V. Course Delivery Method:** Face to face.
- VI. Required Textbooks/Resources:** None required. An electronic copy of the lab manual will be provided.

A scientific calculator will be needed for this course. (The library will have some calculators available for use on a first-come, first-served basis.)

- VII. Student Learning Outcomes: The Texas Higher Education Coordinating Board adopted Exemplary Educational Objectives (EEOs) to establish a common knowledge thread through the courses taught within the Texas Core Curriculum. The Natural Sciences EEOs are integrated into the Student Learner Outcomes below:**

- To understand and apply method and appropriate technology to the study of natural sciences. (EEO 1)
- To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing. (EEO 2)
- To identify and recognize the differences among competing scientific theories. (EEO 3)
- To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies. (EEO 4)
- To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture. (EEO 5)

Upon successful completion of this course, students will:

Course Objectives	EEO	Assessment
1. Determine the components of electric charge and electric fields.	1, 2	Quizzes, Exams, Final Exam, Labs
2. Solve problems involving electric potential, capacitance and resistance.	1, 2	Quizzes, Exams, Final Exam, Labs

3. Solve problems involving electric circuits.	1, 2, 4, 5	Quizzes, Exams, Final Exam, Labs
4. Identify magnetic fields and corresponding forces.	1, 2	Quizzes, Exams, Final Exam, Labs
5. Define different types of electromagnetic energy and understand their applications in everyday life.	1, 2, 4, 5	Quizzes, Exams, Final Exam, Labs
6. Apply the principles optics and light in order to understand the workings of optical instruments.	1, 2, 4, 5	Quizzes, Exams, Final Exam, Labs

Student Learning Outcomes Measured/Demonstrated by:

By the end of the course, 75% of all students should demonstrate an average or better mastery of the subject matter. Students will demonstrate successful outcomes by earning a 70% or higher on 10 of 11 lab reports, two midterm exams and a comprehensive final exam.

VIII. Course Outline and Schedule:

<i>Week</i>	Lab #	Lab Title	Lab Manual Page
<i>1</i>	2.0	Lab Safety	40
<i>2</i>	2.1	Experimental Errors and Uncertainty	N/A
<i>3</i>	2.2	Static Electricity or Electrostatics	53
<i>4</i>	2.3	Electric Fields	63
<i>5</i>		Lab Exam I – 2/11/14 or 2/12/14	
<i>6</i>	2.4	Introduction to Electrical Circuits	74
<i>7</i>	2.5	Resistors in Series and Parallel	87
<i>8</i>	2.6	Semiconductor Temperature Sensor	96
<i>9</i>	2.7	Capacitance in a Circuit	101
<i>10</i>	2.8	Electric Motor	112
<i>11</i>		Lab Exam II – 4/1/14 or 4/2/14	
<i>12</i>	2.9	Reflection and Refraction	118
<i>12</i>	2.10	Diffraction Grating	129
<i>13</i>	2.11	Polarized Light & <i>Review for Lab Final</i>	137
<i>14</i>		Lab Final Exam – 4/22/14* or 4/23/14*	
<i>15</i>		<i>Review for or take PHYS2326 Final Exam During this Hour</i>	

*This calendar will be adjusted to the needs of the course. Changes will be based on the course progress. The in-class exam dates could be moved one or two days up or down. The Final Exam date is fixed and will not change.

IX. Methods of Evaluation:

Eleven Lab Reports (10 Count)	20%	200 pts
Two Midterm Lab Exams	50%	500 pts
Comprehensive Final	30%	300 pts
Total	100%	1000 pts possible

X. Grading Scale:

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F = 0-59%

XI. Library/Media Resources Assessment:

A. Books/Periodicals/Electronic Data Bases/Software/Programs:

Resource	Available?	If "No,"	Signature,	Comments

	Yes	No	Est.Cost	Library Director	(including availability of funds to acquire unavailable resource(s) and commitment to do so)
Basic physics for all / B.N. Kumar. Lanham, Md. : University Press of America, c2009.	X				
College physics / Jerry D. Wilson, Anthony J. Buffa, Bo Lou. Upper Saddle River, N.J. : Pearson Education, 2007.	X				
Introduction to Modern Physics: Theoretical Foundations / John Dirk Walecka. New Jersey : World Scientific, c2008.	X				

B. Computing/Multimedia/Online Media Resources:

Resource	Available?		If "No," Est.Cost	Signature, Assoc. VP, IT	Comments (including availability of funds to acquire unavailable resource(s) and commitment to do so)
	Yes	No			
Applied physics [electronic resource] / by Arthur Beiser ; abridgement editor, George J. Hademenos. New York : McGraw-Hill, 2003	X				

XII. Student Participation:

- a. **Participation Policy:** You are expected to attend all lecture classes. Class attendance is very important since many of the exam questions will be drawn from the class lectures, demonstrations, and discussions. Taking good class notes is essential. Reading the chapter prior to coming to class is also recommended. You are expected to participate in all team project exercises.
- b. **Course Etiquette:** You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones should be turned off during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question.
- c. **Discussion Board Standards:** Not applicable to this course.

XIII. Disability Accommodations: Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

XIV. Academic Integrity: Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source constitute academic dishonesty and may be

grounds for a grade of 'F' in the course and/or disciplinary actions. For additional information, see the university catalog.

XV. A&M-Texarkana Email Address: Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

XVI. Drop Policy To drop this course after the census date (see [semester calendar](#)), a student must complete the Drop/Withdrawal Request Form, located on the University website (<http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html>) or obtained in the Registrar's Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an "approval" to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty member. The form must be submitted to the Registrar's office for processing in person, email Registrar@tamut.edu, mail (7101 University Ave., Texarkana, TX 75503) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar's Office for processing. It is the student's responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.

XVII. Student Technical Assistance:

- Solutions to common problems and FAQ's for your web-enhanced and online courses are found at this link: <http://www.tamut.edu/webcourses/index.php?pageid=37>
- If you cannot find your resolution there, you can send in a support request detailing your specific problem here: <http://www.tamut.edu/webcourses/gethelp2.php>
- Blackboard Helpdesk contacts:

Office hours are: Monday - Friday, 8:00a to 5:00p

Julia Allen (main contact) 903-223-3154 julia.allen@tamut.edu

Frank Miller (alternate) 903-223-3156 frank.miller@tamut.edu

Nikki Thomson (alternate) 903-223-3083 nikki.thomson@tamut.edu

XVIII. Additional Notes: The instructor reserves the right to modify this syllabus at any time as deemed necessary. Any modifications will be announced as soon as possible. The faculty of the College of Science, Technology, Engineering, and Mathematics is committed to the continuous improvement in the quality of instruction. Student input is important and will be obtained at the end of the course.

XIX. Important Lab Precaution: Any pregnant students, or students planning to become pregnant, should consult their health care provider to determine what, if any, additional precautions are needed based on their individual situation. It is the responsibility of the student to communicate their needs to the Director of Student Life as soon as possible in order for risk-reduction to begin when it can be most effective, and to determine if additional modifications are necessary. While the university cannot mandate that the student notify it that she is pregnant or is planning to

become pregnant, the university strongly recommends that students do provide notification so appropriate steps can be taken to ensure the health of both parent and child. To communicate health circumstances or to request additional information, please contact the Director of Student Life.