Physics 2126 Lab

Section 22
Fall 2021

TEXT: PHYSICS II 1102/2126 LABORATORY MANUAL
INSTRUCTOR: Dr. Walter Trikosko, Department of Physics and Astronomy, 207C Cole STEM Building
PHONE: 468-3001
EMAIL: wtrikosko@sfasu.edu

STUDENT HOURS (OFFICE HOURS): 10:00-11:00 a.m. MWF and 3:00-4:00 p.m. M-F or by appointment or on Zoom
LAB ASSISTANT: Chris Turner
LAB MEETING TIME: Tuesday 3:30 p.m.-6:20 p.m.
MEETING PLACE: STEM 305

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
<th>Lab Experiments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AUG 31</td>
<td>The Vibrating String</td>
</tr>
<tr>
<td>2</td>
<td>SEPT 7</td>
<td>Organ Pipe</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>A Stimulation of Radioactive Decay</td>
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<tr>
<td>4</td>
<td>21</td>
<td>Counting of Nuclear Radiation</td>
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<tr>
<td>5</td>
<td>28</td>
<td>The Oscilloscope</td>
</tr>
<tr>
<td>6</td>
<td>OCT 5</td>
<td>Ohm’s Law</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>Series and Parallel Circuits</td>
</tr>
<tr>
<td>8</td>
<td>19</td>
<td>AC Circuits</td>
</tr>
<tr>
<td>9</td>
<td>26</td>
<td>AC Circuits 2</td>
</tr>
<tr>
<td>10</td>
<td>NOV 2</td>
<td>The Ray Box</td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>Properties of Converging Lenses</td>
</tr>
<tr>
<td>12</td>
<td>16</td>
<td>The Diffraction Grating</td>
</tr>
<tr>
<td>FX</td>
<td>30</td>
<td>LAB EXAM ONLINE</td>
</tr>
</tbody>
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CREDIT HOUR JUSTIFICATION: Meets 3 hrs/wk for 14 weeks, and also meets for a 2-hour final examination. This is a problem oriented class and lab with homework problems. The lecture and lab combine for 6 hours of contact time each week. The work outside of class for the combined courses averages more than 12 hours.

SUPPLIES Each student MUST bring the following supplies to every lab session.
✓ Face mask
✓ Laboratory Manual (1102/2126 Laboratory Manual sold in local bookstores)
✓ USB flash drive
✓ Pencil and eraser
✓ Calculator
(If you do not bring the required supplies for a particular lab, you will not be able to complete the lab Please don’t forget to bring them!)

CLASSROOM POLICIES
Each day’s lab begins with a brief presentation by the teaching assistant (15-30 minutes). Important instructions, theory, and procedures for completing the lab exercise are given at that time. At the conclusion of the presentation students will then complete the lab exercise under the guidance of the lab assistant.
✓ Come prepared! Read over the lab exercise before coming to class (see calendar) and bring required materials.
✓ Arrive on time to avoid missing important instructions and/or possible pop quizzes!
✓ You will work in pairs with the same lab partner throughout the semester.

GRADING
✓ One quarter of your final grade for Physics 1301 will come from your laboratory performance. To arrive at your laboratory performance grade your best eleven experiment grades each with a weighting factor of one, will be averaged with your lab final exam grade with a weighting factor of three.

\[
\text{Lab performance grade} = \frac{1}{13} \sum (10 \text{ best experiment grades}) + 3(\text{lab final exam grade})
\]

This grade will be combined with your lecture grade to determine your overall final grade for Physics 132. (See lecture syllabus for further information.)
✓ Each experiment grade will be based on the experiment, weekly exercise and possible quiz. The exercise will count 20% of your grade. Quizzes may include questions over the present and/or most recent laboratory exercise.
✓ Each lab must be completed during the lab period. One or more will be presented as a formal lab report due the following week.
✓ Your lab report will be submitted as a single document in PDF format into a drop box set up in D2L. The title of the document will be formatted in the following way: last name first name 2126 exp#. For example Sissy Timberlake would submit her report for the fifth experiment using the file name “Timberlake Sissy 2126 exp5.pdf.” The following are examples of acceptable and unacceptable pages.

UNACCEPTABLE PAGES

ACCEPTABLE PAGE

V1.0 August 2021
There will be no make-up labs.
Your experiment average will be drastically affected if you have more than one absences and any of them are unexcused.
Excused absences must be approved by Dr. Trikosko within 1 week of the absence.
Experiment grades and absences will be posted each week on D2L. It is your responsibility to check these postings each day in order to identify errors in the previous day's experiment grade or absence designation. You have 1 week from the day each posting to correct any such errors.

COVID-19 MASK POLICY: You will be working in close proximity to others in the laboratory and social-distancing is not possible. Out of consideration of your classmates and for your wellbeing, it recommended that you wear a mask in the laboratory. Some of your lab mates are immunocompromised.

GENERAL EDUCATION CORE CURRICULUM

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment</th>
<th>Date Due in LiveText</th>
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</thead>
<tbody>
<tr>
<td>Critical Thinking Skills (CO 1)</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Addressed week 3 in the co-requisite lecture class.</td>
<td></td>
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<tr>
<td>Communication Skills (CO 2)</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Addressed week 1.</td>
<td></td>
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<tr>
<td>Empirical and Quantitative Skills (CO 3)</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Addressed in the Series and Parallel Circuits Experiment, Weeks 7</td>
<td>October 21</td>
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<tr>
<td>Teamwork (CO 4)</td>
<td>To include the ability to consider different points of view and to work</td>
<td>Addressed week 2</td>
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<tr>
<td>Personal Responsibility</td>
<td>To include the ability to connect choices, actions and consequences to ethical decision-making.</td>
<td>Addressed week 1 in co-requisite lecture course while discussing course syllabus</td>
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<tr>
<td>Social Responsibility</td>
<td>To include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.</td>
<td>Addressed week 1 in co-requisite lecture course while discussing course syllabus</td>
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</tbody>
</table>

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA SU is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

By enrolling in Technical Physics II you are also enrolling in a Core Curriculum Course that fulfills the Empirical and Quantitative Skills Requirement. You will see this course on your D2L list.

At one point during the semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University’s Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board. When you complete this one assignment, you need to upload the assignment to both your standard course dropbox determined by your Instructor and the “Core Curriculum” dropbox. The Core Curriculum dropbox will be identified by the Objective for which work is being collected. (Examples: Critical Thinking, Teamwork, Social Responsibility Empirical & Quantitative Skills, Personal Responsibility, Communication Skills-Written, Communication Skills-Written & Visual, and Communication Skills-Oral & Visual.) Please note that this only applies to the approved assignment. All other assignments should be submitted according to regular class operations. If you have any questions, please see your Instructor or the Office of Student Learning and Institutional Assessment.

When you complete the assignment mentioned above, you will upload the assignment to both the Technical Physics II dropbox and the Empirical and Quantitative Skills dropbox. Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.

If you have any questions, please see your instructor or contact the Institutional Effectiveness Office at (936) 468-1130.

The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L Empirical and Quantitative Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Empirical and Quantitative Skills dropbox. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the D2L Empirical and Quantitative Skills dropbox.

LAB ABSENCES: We realize that occasionally there are legitimate reasons for missing a lab such as illness, family emergency and participation in certain university-sponsored events. Please read the following absence policy carefully.

If you will be missing lab because of an approved university-sponsored event you must inform the laboratory supervisor at least one week before the absence.

- Students are responsible for providing timely documentation satisfactory to the laboratory supervisor for each absence. You have one week after missing a lab to bring a written excuse for an absence. If you do not bring a written excuse within one week, the absence cannot be excused.
- Students will receive a grade of zero for each UNEXCUSED lab absence.
- Whether an absence is excused or unexcused, a student is still responsible for all course content.

ACADEMIC INTEGRITY: Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty: Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1)
using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/student_academic_dishonesty.pdf

ACCEPTABLE STUDENT BEHAVIOR: Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, Policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom.

Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf

WITHHELD GRADES POLICY: Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

STUDENTS WITH DISABILITIES: To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

STUDENT COUNSELING CENTER
SFA values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

ON-CAMPUS RESOURCES:
SFASU Counseling Services
www.sfasu.edu/counselingservices
3rd Floor Rusk Building
936-468-2401

SFASU Human Services Counseling Clinic
www.sfasu.edu/humanservices/139.asp
Human Services Room 202
936-468-1041

CRISIS RESOURCES:
Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741