Fundamentals of Physics II

PHYS 2426 010

Fall 2018

VIN 158, MWF 11:00-11:50

Instructor: Scott Williams (VIN 128)

Office Hours: MWF 8:00 - 9:00 and 10:00 - 11:00, MW 14:00 – 16:00, and by appointment

E-mail: scott.williams@angelo.edu

Required Texts: Physics for Scientists and Engineers, by Serway and Jewett (any edition), and Physics 2426 Laboratory Manual, Fall 2018 edition

Course Description: A comprehensive course with emphasis placed on the capacity to utilize fundamental concepts of electricity, magnetism, and optics in the solution of problems.

Student Learning Outcomes: Upon completion of Physics 2426, students will have an increased understanding of the fundamental concepts, theories and physical laws relevant to the broad topical areas of electricity, magnetism, circuits, and optics. Students will have practiced and demonstrated a satisfactory level of mastery in critical reading, critical thinking, and problem solving skills. Students will have engaged in quantitative laboratory experimentation; practiced sound scientific laboratory methods; and utilized a variety of different laboratory measurement techniques, general laboratory skills, data analysis procedures, and error propagation techniques. Students will also develop and improve technical communication skills required for scientific reporting. These outcomes will be assessed using test grades and laboratory grades.

Policies: Mobile phones and music players must be turned off at all times. Note that this means that you cannot use a mobile phone as your calculator. Use of any electronic device other than your calculator during a test is not allowed. There are no make-up opportunities for quizzes or in-class activities. Homework will be assigned approximately once or twice a week. No late homework will be accepted.

Grading: Final grades are based on laboratory report, homework, in-class activity, quiz, and test grades. Four regular tests will be given during the semester. A comprehensive final test will be given during the normal final test time for this lecture period. Final grades will be weighted as follows:

- laboratory reports: 25%
- homework, activities, and quizzes: 15%
- tests: 40%
- final test: 20%

Accommodations: Persons with disabilities which may warrant academic accommodations must contact the Student Life Office (UC 112) in order to request and to implement academic accommodations. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Honor Code: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Any student caught cheating will receive a grade of F for the semester. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook.

Course Schedule
27 August-29 August
Ray Optics (chapter 35)
31 August-5 September
Image Formation (chapter 36)
7 September-10 September
Wave Optics (chapter 37)
12 September-14 September
Diffraction and Polarization (chapter 38)
17 September
Review
19 September
Test #1
21 September-24 September
Electric Fields (chapter 23)
26 September-28 September
Gauss' Law (chapter 24)
1 October-3 October
Electric Potential (chapter 25)
5 October-8 October
Capacitance and Dielectrics (chapter 26)
10 October
Review
12 October
Test #2
15 October-17 October
Current and Resistance (chapter 27)
19 October-22 October
DC Circuits (chapter 28)
24 October-26 October
Magnetic Fields (chapter 29)
29 October-31 October
Sources of the Magnetic Field (chapter 30)
2 November
Review
5 November
Test #3
7 November-9 November
Faraday's Law (chapter 31)
12 November-14 November
Inductance (chapter 32)
16 November-19 November
AC Circuits (chapter 33)
26 November-28 November
Electromagnetic Waves (chapter 34)
28 November
Review
30 November
Test #4
3 December-7 December
Review
12 December (10:30-12:30)
Final Test
Laboratory Schedule (03Z & 04Z)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>28/30 August</td>
<td>No laboratory meeting</td>
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<tr>
<td>4/6 September</td>
<td>Introduction to Lab Reports</td>
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<tr>
<td>11/13 September</td>
<td>Refraction and Snell's Law</td>
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<td>18/20 September</td>
<td>Thin Lenses</td>
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<tr>
<td>25/27 September</td>
<td>No laboratory meeting</td>
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<tr>
<td>2/4 October</td>
<td>Equipotentials and Electric Fields</td>
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<td>9/11 October</td>
<td>Ohm's Law and Resistivity</td>
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<td>16/18 October</td>
<td>RC Time Constant</td>
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<td>23/25 October</td>
<td>No laboratory meeting</td>
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<tr>
<td>30 October/1 November</td>
<td>Kirchhoff's Rules</td>
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<tr>
<td>6/8 November</td>
<td>The Magnetic Field of the Earth</td>
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<tr>
<td>13/15 November</td>
<td>Magnetic Induction</td>
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<td>20/22 November</td>
<td>No laboratory meeting</td>
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<tr>
<td>37/29 November</td>
<td>RLC Resonance</td>
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<tr>
<td>4/6 December</td>
<td>No laboratory meeting</td>
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<tr>
<td>11/13 December</td>
<td>No laboratory meeting</td>
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The instructor reserves the right to modify/adjust any of the procedures, grading scales, and scheduling presented in this syllabus.