Physics 1402-56400 Syllabus, Summer II 2019
El Centro College

Instructor Information
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Office Location: M1033
Office Hours: By appointment

Course Information
Course Title: College Physics II
Course & Section Number: PHYS-1402-56400
Semester/Year: Summer II 2018
Credit Hours: 4
Class Meeting Time/Location: Online

Course Prerequisites
Required: PHYS 1401 Lecture and Lab. College level ready in Reading.

Course Description
The second semester of an algebra and trigonometry-based fundamental principles of physics sequence. The principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics are studied with emphasis on problem solving. Laboratory experiments supporting the topics are included. (3 Lec, 3 Lab.)

Coordinating Board Academic Approval Number 4008015303

Statement of Purpose and Core Objectives
Statement of Purpose
Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

Core Objectives
This course supports, develops, and assesses the following Core Objectives:

• Critical Thinking Skills (CT) - creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
• Communication Skills (COM) - effective development, interpretation and expression of ideas through written, oral and visual communication
• Empirical and Quantitative Skills (EQS) - manipulation and analysis of numerical data or observable facts resulting in informed conclusions
• Teamwork (TW) - ability to consider different points of view and to work effectively with others to support a shared purpose or goal
• Social Responsibility(SR) - intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
• Personal Responsibility (PR) - ability to connect choices, actions and consequences to ethical decision-making

Student Learning Outcomes
Upon successful completion of the lecture part of the course, students will:

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.

Upon successful completion of the laboratory part of the course, students will:

Develop techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.

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

Course Materials

However, you may use any college physics textbook if you so desire.

Online Lab Experiment Kit: We will be using PhET simulations for all lab exercises. Instructor will provide this information in the course shell.

Course Activities

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Chapter</th>
<th>Lab</th>
<th>Homework</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>8-Jul</td>
<td>18: Electric Charge and Electric Field</td>
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<tr>
<td>Week 1</td>
<td>9-Jul</td>
<td>19: Electric Potential and Electric Field</td>
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<tr>
<td>Week 1</td>
<td>10-Jul</td>
<td>20: Electric Current, Resistance, and Ohm’s Law</td>
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<tr>
<td>Week 1</td>
<td>11-Jul</td>
<td>20: Electric Current, Resistance, and Ohm’s Law</td>
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<tr>
<td>Week 2</td>
<td>12-Jul</td>
<td>Exam 1 over chapters 18 to 20</td>
<td>Unit 1 Due</td>
<td>HW 1 Due</td>
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<tr>
<td>Week 2</td>
<td>15-Jul</td>
<td>21: Circuits and DC Instruments</td>
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<tr>
<td>Week 2</td>
<td>16-Jul</td>
<td>22: Magnetism</td>
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<tr>
<td>Week 2</td>
<td>17-Jul</td>
<td>22: Magnetism</td>
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<td>Week 2</td>
<td>18-Jul</td>
<td>23: Electromagnetic Induction, AC Circuits, and Electrical Technologies</td>
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<tr>
<td>Week 2</td>
<td>19-Jul</td>
<td>Exam 2 over chapters 21 to 23</td>
<td>Unit 2 Due</td>
<td>HW 2 Due</td>
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<td>Week 3</td>
<td>22-Jul</td>
<td>23: Electromagnetic Induction, AC Circuits, and Electrical Technologies</td>
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<tr>
<td>Week 3</td>
<td>23-Jul</td>
<td>23: Electromagnetic Induction, AC Circuits, and Electrical Technologies</td>
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<td>Week 3</td>
<td>24-Jul</td>
<td>24: Electromagnetic Waves</td>
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<tr>
<td>Week 3</td>
<td>25-Jul</td>
<td>24: Electromagnetic Waves</td>
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<tr>
<td>Week 3</td>
<td>26-Jul</td>
<td>Exam 3 over chapters 23 to 24</td>
<td>Unit 3 Due</td>
<td>HW 3 Due</td>
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<td>Week 4</td>
<td>29-Jul</td>
<td>25: Geometric Optics</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Assessments</td>
<td>Weight</td>
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<tr>
<td>4</td>
<td>30-Jul</td>
<td>25: Geometric Optics</td>
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<td>4</td>
<td>31-Jul</td>
<td>26: Vision and Optical Instruments</td>
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<td>4</td>
<td>1-Aug</td>
<td>26: Vision and Optical Instruments</td>
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<td>4</td>
<td>2-Aug</td>
<td><strong>Exam 4 over chapters 25 to 26</strong></td>
<td><strong>Unit 4 Due</strong></td>
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<tr>
<td>5</td>
<td>5-Aug</td>
<td>27: Wave Optics</td>
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<td>5</td>
<td>6-Aug</td>
<td>27: Wave Optics</td>
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<tr>
<td>5</td>
<td>7-Aug</td>
<td>27: Wave Optics</td>
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<tr>
<td>5</td>
<td>8-Aug</td>
<td><strong>Comprehensive Final Exam over chapters</strong></td>
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**Grading Policy**

<table>
<thead>
<tr>
<th>Assessments</th>
<th>Weight</th>
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<tbody>
<tr>
<td>5 Exams</td>
<td>50 %</td>
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<tr>
<td>Labs (4 units)</td>
<td>25 %</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15 %</td>
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<tr>
<td>Homework</td>
<td>10 %</td>
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**Total**

100 %

**Grade Scale:**

- A = 90 to 100
- B = 80 to 89
- C = 70 to 79
- D = 60 to 69
- F = Below 60

**Exams**

All exams will be in multiple choice format and each exam is worth 100 points. The lowest exam score will be replaced by the final exam score, provided that the final exam score is higher. If you miss a test, you will receive a zero. **There are no makeups.** Exams will be proctored and test stations will require Respondus Lockdown Browser. **All exams must be taken at any of the following DCCCD testing centers. No exceptions.**
or if you are outside of the district, you must take your exams at a college testing center that must meet my requirements.

Laboratory

Four unit labs will be posted on the course shell. Upon completion, students are to save lab reports as a single pdf file and upload the report in the drop box by the due date posted.

Quizzes

Quizzes will not be proctored and will be given after each chapter. They can be taken from any location, but make certain you use a “hard-line” connection – avoid WiFi.

Homework

Homework will be assigned regularly and posted on the course shell. Homework will be collected on a weekly basis and must be deposited in the designated drop box by the due date. The assignment must be formatted as a single pdf file. No late homework will be accepted.

Other Course Policies

- Review each assignment for expectations I may have regarding content.
- Be familiar with the importance of academic integrity as you progress through the course. Talk to me if you need clarification about instructions for completing your assignments.
- Manage your time, take notes correctly, and use the internet appropriately.
- Make sure you understand my guidelines about working with other students on assignments, receiving assistance from other students on assignments, using notes or exams from previous or other courses, and accessing information during an examination. If in doubt – ASK ME!
Institutional Policies
Institutional Policies relating to this course can be accessed using the following link:


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DISCLAIMER STATEMENT =================

The provisions contained in this syllabus do not constitute a contract between the student and El Centro College. The instructor reserves the right to modify the attendance policy, due dates of class presentations, tests, or assignments, and grading policy. When necessary, appropriate notice of such changes will be given to the student.