Instructor Information
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Office Location: INET
Office Hours: By appointment
Division Office and Phone: Building M, Room M217, 972-860-5211

Course Information
Course Title: College Physics II
Course Number: PHYS 1402
Section Number: 36481
Semester/Year: SU2020
Credit Hours: 4.0
Class Meeting Time/Location: INET
Certification Date: 7/9/2020
Last Day to Withdraw: 7/29/2020

Course Prerequisites
Prerequisite Required: PHYS 1401.

Course Description
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.)

Student Learning Outcomes
Upon successful completion of this course, students will:
• Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents.
• Apply Kirchhoffs Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
• Solve problems in the electrostatic interaction of point charges through the application of Coulombs Law.
• 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.
• Use Faradays and Len’s laws to determine electromotive forces and solve problems involving electromagnetic induction.
• Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
• Describe the characteristics of light and the electromagnetic spectrum.
• Develop techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
• Demonstrate the collections, analysis, and reporting of data using the scientific method.
• Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
• Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents.
• Apply Kirchhoffs Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
• Solve problems in the electrostatic interaction of point charges through the application of Coulombs Law.
• 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.
• Use Faradays and Lenzs laws to determine electromotive forces and solve problems involving electromagnetic induction.
• Solve problems applying the principles of reflection, refraction, diffraction, interference, and superposition of waves.
• Solve practical problems involving optics, lenses, mirrors, and optical instruments

Texas Core Objectives
The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the
Texas Core Objectives for Student Learning. In this course, the activities you engage in will give you the opportunity to practice two or more of the following core competencies:

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

**Required Course Materials**
- College Physics: Explore and Apply 2nd Edition by Etkina, with MasteringPhysics online access code ISBN: 9780134630465
- Internet access
- Computer
- Current edition of JAVA. Click here for download link, download JAVA SE.

**Graded Work**
The tables below provide a summary of the graded work in this course and an explanation of how your final course grade will be calculated.

**Summary of Graded Work**

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Points</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Quizzes</td>
<td>10 @ 20 points each</td>
<td>200 points</td>
</tr>
<tr>
<td>Labs</td>
<td>8 @ 25 points each</td>
<td>200 points</td>
</tr>
<tr>
<td>Unit Exams</td>
<td>2 @ 150 points each</td>
<td>300 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1 @ 300 points</td>
<td>300 points</td>
</tr>
</tbody>
</table>

**TOTAL: 1,000 points**
### Final Grade

<table>
<thead>
<tr>
<th>Points</th>
<th>Percentages</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>900-1,000</td>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>800-899</td>
<td>80-89%</td>
<td>B</td>
</tr>
<tr>
<td>700-799</td>
<td>70-79%</td>
<td>C</td>
</tr>
<tr>
<td>600-699</td>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>0-599</td>
<td>0-59%</td>
<td>F</td>
</tr>
</tbody>
</table>

#### Description of Graded Work

**Chapter Quizzes:** The chapter quizzes each have questions you must answer. You will be allowed 3 attempts at the quiz and your highest score will be counted towards your final course grade. The quizzes will be through Pearson's MasteringPhysics system online.

**Labs:** The labs will consist of online simulations in which you will be asked to observe and take data over the physics phenomenon. You will turn in a worksheet for the lab on eCampus.

**Unit Exams:** The unit exams will be after completing all chapters in a unit. The exam will be a mixture of multiple choice, problem solving, and written response questions. The exam will be timed and through Pearson's MasteringPhysics system online. You will have only 1 attempt.

**Final Exam:** The final exam will be on the last day of classes and is comprehensive. The final exam will be a mixture of multiple choice, problem solving, and written response questions. The final exam will be timed and through Pearson’s MasteringPhysics system online. You will have only 1 attempt.

**Attendance**

You are expected to participate in class. You will show participation through email, completing assigned tasks, and having a presence on eCampus.

**Late Work Policy**

Late work will not be accepted. Extensions will be provided for assignments on a case by case basis. Reach out to the instructor for the extension.
**Institutional Policies**

Institutional Policies relating to this course can be accessed using the link below. These policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

*Cedar Valley Institutional Policies* (http://www.cedarvalleycollege.edu/syllabipolicies)

**Course Schedule**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Readings &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Electric Field</td>
<td>Chapter 18 &amp; Electric Fields, Flux and Gauss’s Law</td>
</tr>
<tr>
<td>DC Circuits</td>
<td>Chapter 19 &amp; Voltage in Simple DC Circuits and Ohm’s Law lab &amp; Kirchhoff’s Circuit Rules Lab</td>
</tr>
<tr>
<td>Magnetism</td>
<td>Chapter 20</td>
</tr>
<tr>
<td>Electromagnetic Induction</td>
<td>Chapter 21 &amp; Magnetism and Electromagnetism Lab</td>
</tr>
<tr>
<td><strong>Unit 1 Exam</strong></td>
<td><strong>Chapters 17-21</strong></td>
</tr>
<tr>
<td>Reflection and Refraction</td>
<td>Chapter 22 &amp; Snell’s Law Lab</td>
</tr>
<tr>
<td>Mirror and Lenses</td>
<td>Chapter 23 &amp; Thin Lenses and Spherical Mirrors Lab</td>
</tr>
<tr>
<td>Wave Optics</td>
<td>Chapter 24 &amp; Laser Diffraction Lab</td>
</tr>
<tr>
<td>Electromagnetic Waves</td>
<td>Chapter 25</td>
</tr>
<tr>
<td><strong>Unit 2 Exam</strong></td>
<td><strong>Chapters 22-25</strong></td>
</tr>
<tr>
<td>Atomic Physics</td>
<td>Chapter 28</td>
</tr>
<tr>
<td>Nuclear Physics</td>
<td>Chapter 29</td>
</tr>
<tr>
<td><strong>Final Exam</strong></td>
<td><strong>Comprehensive</strong></td>
</tr>
</tbody>
</table>

1/17/20 Version