PHYS 2426 University Physics II Syllabus
Dallas College Eastfield Campus

Contacting Your Instructor
Instructors typically respond to emails from students within 24 hours. However, over the weekend and holiday periods responses may be delayed. Find out more about contacting your instructor.

Instructor Contact Information
Name: Dr. Uma Choppali
DCCCD Email: uchoppali@dcccd.edu
Office Phone: 972-860-7343
Office Location: C218
Office Hours: Monday, Tuesday, Wednesday, Thursday: 2:00 – 4:00 pm
Division Office and Phone: STEM Division, C-Building, Room 202 | 972-860-7297

Course Information
Course Title: University Physics II
Course Number: PHYS 2426
Section Number: 41001
Semester/Year: FALL 2020 (Harvester Term – II)
Credit Hours: 4
Class Meeting Time/Location: ONLINE
Certification Date: October 24 (Saturday), 2020
Last Day to Withdraw: November 25 (Wednesday), 2020

Course Prerequisites
PHYS 2425 and MATH 2414.
Course Description
The second semester of calculus-based physics sequence for science, computer science, and engineering majors. Principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics are studied. Performance of basic laboratory experiments supporting theoretical physics principles and applications of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics. Also includes experimental design, data collection and analysis, and preparation of laboratory reports. (3 Lec., 3 Lab.)

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

- Solve problems involving the inter-relationship of fundamental charged particles and electrical forces, fields and currents.
- Apply Kirchhoff's 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 Coulomb's Law.
- Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic field to the currents which produce them.
- Use Faraday's and Lenz'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 collection, 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.

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**

If your Dallas College course requires learning materials they will be provided as part of the [IncludED program](dcccd.edu/included) or as free materials you can access in your online course shell.

If you opt out of the IncludED program, you are responsible for obtaining all your required learning materials by the first day of the class. For more details, see [Institutional Policies](#).

- Computer w/ Internet access, Internet browser, CamScanner App
- A scientific calculator (one that does trigonometric and logarithmic functions, as well as scientific notation) and a ruler.
- Lecture notes and lab manual can be found on eCampus.

**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>%</th>
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</thead>
<tbody>
<tr>
<td>Orientation Quiz</td>
<td>1 %</td>
</tr>
<tr>
<td>Chapter Quizzes</td>
<td>20 %</td>
</tr>
<tr>
<td>Homework</td>
<td>15 %</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>4 %</td>
</tr>
<tr>
<td>Lab</td>
<td>20 %</td>
</tr>
<tr>
<td>Tests</td>
<td>40 %</td>
</tr>
</tbody>
</table>

**TOTAL: 100 %**

**Final Grade**

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>80-89%</td>
<td>B</td>
</tr>
<tr>
<td>70-79%</td>
<td>C</td>
</tr>
<tr>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>0-59%</td>
<td>F</td>
</tr>
</tbody>
</table>

**Description of Graded Work**

**Orientation Activities:** All students must read the orientation information and complete the Orientation Quiz posted in “Getting Started” by the assigned due date.

**Quizzes:** The course is divided into twelve lessons and there is a quiz for each lesson, which is graded for 20 points. Late assignments will not be graded, unless you have made arrangements with the Instructor. A 10-point orientation quiz is also required, to familiarize you with the various components of the website.

**Tests:** There will be four tests, each worth 100 points. Tests will be multiple choice, true false, short answers, and problem solving. All tests are taken on-line and are open-book, but are timed for 120 minutes. You will receive instructions and passwords prior to the test in the weekly emails.

**General Instructions for Taking Online Tests**
1. You will receive a password by email on the day the test begins. Please make sure you read the email and do not forget the password!
2. You have two hours (120 minutes) to complete the test.
3. Once you enter the test the clock will start. If you take more than two hours, the test will continue, but I will be informed you took longer. After 10 extra minutes, I will use my judgment to deduct points.
4. The test is open-book and notes. However, you need to study before hand!
5. You can enter the test ONLY ONCE. Begin the test only when you are ready.
6. Do not wait until the last minute to take the test! The test deadlines at 11:59 p.m. You must enter by 9:59 p.m. at the latest to give yourself the full two hours you are allowed.
7. If you do have problems, please send me an email.

**Discussion Board:** A discussion topic will be posted on the Discussion Board every other week. Post your frank and thoughtful responses to the original topic and at least twice to another classmate for each forum. Follow the rules for online etiquette. Your participation on the discussion board will be graded for 4% of overall grade.

**Lab exercises:** All the labs will be done online. Lab handouts will be posted on eCampus every week. You will answers the questions included in the lab and submit the completed lab via eCampus. Lab is worth 20% of the grade. If you have any difficulty completing any of the labs, please email the instructor for help. A student must make a passing grade in lab to pass the course. This course satisfies the core curriculum requirement for scientific discovery and sustainability. A minimum lab average of 60 is required in order to pass the course. If your lab average is below 60, regardless of your course average, your course grade will be changed to be equal to your lab average.

**Homework:** The homework problems for this class will be accessed online via the MasteringPhysics assignment system. There will be homework every week. Each homework will be on chapter/material covered in class. Late assignments will not be accepted.

**Late Work Policy**
It is in each student's best interest to submit work in a timely fashion. As this is an accelerated course, late work will not be accepted without the instructor's permission.

**Other Course Policies**
**Email:** The primary means of communication for this class is email. The instructor will reply to all emails sent in the proper format within 24 hours on weekdays, so double check your format and re-send your email if you do NOT hear back from the instructor within this time frame. Do NOT assume that an unanswered email was received – ALWAYS RESEND if you do not receive a reply in 24 hours on weekdays.
**Required Subject Line Format:** When contacting the instructor, the SUBJECT LINE must contain the course ID (PHYS 2426-41003) AND the student’s first and last name. The email itself (the body/message) must ALSO contain course ID and the student’s first and last name at the end of the message. Emails sent without this format will either receive no reply or a reply telling the student to re-send in proper format, which slows down response time.

**Institutional Policies**

Institutional Policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

**Course Schedule**

**Listing of Topics by Week**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings &amp; Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electric Charge and Electric Field, Gauss’s Law</td>
<td>Chapters 21, 22</td>
</tr>
<tr>
<td>2</td>
<td>Electric Potential, Capacitance and Dielectrics</td>
<td>Chapters 23, 24</td>
</tr>
<tr>
<td></td>
<td>Review – 1 + Test – 1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Current, Resistance, and Electromotive Force, Direct-Current Circuits</td>
<td>Chapters 25, 26</td>
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<tr>
<td></td>
<td>Review – 2 + Test – 2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Magnetic Field and Magnetic Forces, Sources of Magnetic Field</td>
<td>Chapters 27, 28</td>
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<tr>
<td>5</td>
<td>Electromagnetic Induction, Inductance</td>
<td>Chapters 29, 30</td>
</tr>
<tr>
<td></td>
<td>Review – 3 + Test – 3</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Alternating Current</td>
<td>Chapter 31</td>
</tr>
<tr>
<td>7</td>
<td>Electromagnetic Waves and The Nature and Propagation of Light, Geometric Optics</td>
<td>Chapters 32, 33, 34</td>
</tr>
<tr>
<td>8</td>
<td>Wave Optics</td>
<td>Chapters 35, 36</td>
</tr>
<tr>
<td></td>
<td>Review – 4 + Test – 4</td>
<td></td>
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</tbody>
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