

Syllabus
Physics 2326 - Lecture
University Physics II

Western Texas College

- I. Basic Course Information
 - A. Course Description: Principles of physics for science, computer science, and engineering majors, using calculus, involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics.
 - B. Any required prerequisites: Students must make a C or better in Physics 2425 (University Physics I) and Math 2414 (Calculus II).
 - C. Online course content is administered through the college's learning management system (LMS), Moodle, also called eCampus. A link to eCampus can be found on my.wtc.edu and to Moodle (the big M with a graduation cap) on the college's home page, www.wtc.edu.
- II. Student Learning Outcomes
 - 1) Articulate the fundamental concepts of electricity and electromagnetism, including electrostatic potential energy, electrostatic potential, potential difference, magnetic field, induction, and Maxwell's Laws.
 - 2) State the general nature of electrical forces and electrical charges, and their relationship to electrical current.
 - 3) Solve problems involving the inter-relationship of electrical charges, electrical forces, and electrical fields.
 - 4) Apply Kirchhoff's Laws to analysis of circuits with potential sources, capacitance, and resistance, including parallel and series capacitance and resistance.
 - 5) Calculate the force on a charged particle between the plates of a parallel-plate capacitor.
 - 6) Apply Ohm's law to the solution of problems.
 - 7) Describe the effects of static charge on nearby materials in terms of Coulomb's Law.
 - 8) Use Faraday's and Lenz's laws to find the electromotive forces.
 - 9) Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
 - 10) Articulate the principles of reflection, refraction, diffraction, interference and superposition of waves.
 - 11) Solve real-world problems involving optics, lenses, and mirrors.
- III. Testing Requirements – **Online Students Only**
 - A. Students are required to have their midterm and final proctored by an approved proctoring organization.
 - B. Students are allowed to use their book, notes and calculator while testing. Students are NOT allowed to use cell phones or access the internet during the exam.
- IV. Major Course Requirements
 - A. There will be 4 major chapter exams.

- B. There will be a proctored mid-term exam.
 - C. There will be a proctored comprehensive final exam.
- V. Grading System
- A. See the First Day Handout for the percentages of the average in this course and the letter grade breakdown for the final grade.
- VI. Information on Books and Other Course Materials
- A. **Online access required for all classes:** MasteringPhysics contains *University Physics* (e-book), 15th edition, Young and Freedman ISBN - 9780135206348. Additional textbook is optional. ISBN 9780135159552. Contact the WTC Bookstore.
 - B. Calculators: Required.
- VII. Other Policies, Procedures and important dates. Click this link <http://www.wtc.edu/publications.html> then on the appropriate catalog to find the following information.
- A. Campus Calendar
 - B. Final exam schedule
 - C. How to drop a class
 - D. Withdrawal information
 - E. Student Conduct/Academic Integrity
 - F. Class Attendance
 - G. Students with disabilities
- VIII. Topics for this course
- ELECTROMAGNETISM**
1. Electric Charges and Electric Fields
 2. Gauss's Law
 3. Electric Potential
 4. Capacitance and Dielectrics
 5. Current, Resistance and Electromotive Force
 6. Direct-Current Circuits
 7. Magnetic Field and Magnetic Forces
 8. Sources of Magnetic Field
 9. Electromagnetic Induction
 10. Inductance
 11. Alternating Current
 12. Electromagnetic Waves
- OPTICS**
1. Nature and Propagation of Light
 2. Geometric Optics
 3. Interference
 4. Diffraction

Modified 9/7/20