

Bossier Parish Community College
Master Syllabus

Course Prefix and Number: PHYS 212

Credit Hours 3

Course Title: Physics for Engineering and Science II

Textbook: Serway and Jewett; Physics for Scientist and Engineers, 10th edition

Course Prerequisites: PHYS 211

Course Description:

A continuation of Physics 211, this course places emphasis on gravitational fields and waves. This course is only offered in the spring & summer.

Learning Outcomes:

At the end of this course, the student will

- A. demonstrate the ability to use appropriate mathematical techniques and concepts to obtain quantitative solutions to problems in physics; and
- B. demonstrate the ability to think critically and to use appropriate concepts to analyze qualitative problems or situations involving the fundamental principles of physics

To achieve the learning outcomes, the student will

- 1. describe the fundamental principles of electrostatics. (B)
- 2. define Coulomb's law. (B)
- 3. describe the concept of superposition of electric forces and electric fields. (B)
- 4. explain the concept of electric potential energy and electric potential. (B)
- 5. calculate the electric potential produced by a single point charge or by several point charges. (A,B)
- 6. demonstrate the concept of capacitance and its relationship to electric charge and potential difference. (B)
- 7. calculate capacitance for some simple geometrics. (A,B)
- 8. define the electric current. (B)
- 9. exhibit the relationship between resistance and resistivity. (B)
- 10. apply the concepts of energy and power as applied to an electric circuit. (B)
- 11. define Ohm's law. (B)
- 12. solve simple series and parallel circuits. (A,B)
- 13. explain the concepts of magnetic field. (B)
- 14. demonstrate the concepts of A.C. circuits. (A,B)
- 15. define the meaning of the term geometrical optics. (B)
- 16. apply the law of reflection. (B)
- 17. explain the relationship of radius of curvature and focal length as applied to a spherical mirror. (A,B)

18. define the meaning of the term wave optics. (B)
19. demonstrate the production of interference effects by the thin films, single slits, double slits, diffraction gratings. (B)
20. explain the concepts behind the photon theory of light. (B)
21. define the basic atomic structure and identify its relevance to the macroscopic properties of matter. (B)

Course Requirements: To earn a grade of “C” or higher the student must earn 70% of the total points for the course and meet all of the following course requirements.

- minimum average of 60% on unit tests
- minimum average of 50% on the comprehensive final test

Course Grading Scale:

- A- 90% or more of total possible points and meet all course requirements.
- B- 80% or more of total possible points and meet all course requirements.
- C- 70% or more of total possible points and meet all course requirements
- D- 60% or more of total possible points and failed to meet one or more of the course requirements.
- F- less than 60% of total possible points and failed to meet one or more of the course requirements.

Attendance Policy: The college attendance policy is available at <http://catalog.bpcc.edu/content.php?catoid=5&navoid=369#class-attendance>

Nondiscrimination Statement

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COORDINATOR FOR SECTION 504 AND ADA

Angie Cao, Student and Disability Services Specialist

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318-678-6511

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Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator
Teri Bashara, Director of Human Resources
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Bossier City, LA 71111
Phone: 318-678-6056
Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Reviewed by C. Reed/ April 2022