

## SYLLABUS

**Department:** Institute of Engineering  
**Course Number:** PHY 255

**Credit Hours:** 4

- I. Title:**  
PHY 255- Electricity, Magnetism, and Light
- II. Catalog Description:** Electric and magnetic fields, circuits, electromagnetic oscillations, and optics. Calculus with vector notation used. PHY 255 and PHY256 must be taken concurrently. Four lectures per week for PHY 255.
- III. Purpose:** This course is designed for students planning to pursue a technical career (physics, engineering physics, pre-engineering, computer science, chemistry, medicine, etc.). Its basic purpose is to provide a foundation in electricity, magnetism, and optics at the general physics level with calculus-based concepts and computations.
- IV. Course Objectives:** The student should gain an understanding of, and proficiency in the following:
- A. The experimental foundations upon which physics is based.
  - B. The development of physical laws, and their expression in the form of mathematical models.
  - C. The application of physical laws in the solution of problems.
  - D. The development of analytical, logical thought processes which are required for problem solution, and which are also applicable in analyzing situations which occur in everyday life.
  - E. The experimental techniques which are used in science.
  - F. A familiarity with laboratory equipment and measuring devices.
- V. Content Outline:**
- A. Electric Fields
  - B. Electric Potential
  - C. Capacitance and Dielectrics
  - D. Electric Current
  - E. Direct Current Circuits
  - F. Magnetic Fields
  - G. Magnetic Induction
  - H. Alternating Current Circuits
  - I. Maxwell's Equations and Electromagnetic Waves
  - J. Light
  - K. Geometrical Optics
  - L. Interference and Diffraction
- VI. Instructional Activities:** Lecture, discussion, problem solution, and examinations. Problem solution by computer is planned.
- VII. Field, Clinical, and Laboratory Experiences:** PHY 256 consists of one 2-hour laboratory per week, with experiments complementing the PHY 255 lecture material.
- VIII. Resources:**  
Semester: Fall 2015  
Instructor: H. R. Kobraei, BL 169 &BL 112  
Classroom: Blackburn 135  
Class times: 9:30 M, T, W, F  
Office hours: Posted outside office door and on canvas. Appointments may be made at times other than posted office hours.

**IX. Grading Procedures:** Performance on regular examinations, homework sets, and a comprehensive final exam will be considered in determining the course grade.

Three Hourly Exams	50%
Homework-	20% - To be completed according to assigned format
Final Exam	30%

A= 90-100 B= 80-89 C= 70-79 D= 60-69 E= 0-59

**X. Attendance Policy: **Attendance record will be kept.**** Each student will be held responsible for all material covered, homework assignments made, changes in exam time, etc. that have occurred during the class periods.

Make-up: Permission from the instructor prior to the due date is necessary for the make-up of any assignment. Permission from the instructor prior to the scheduled exam time is necessary for the make-up of any missed exam. Exceptions will be made in the case of sudden illness or accident if supporting statements are received from a qualified physician, addressed to the instructor, stating that the student was prevented from performing the missed task.

**XI. Academic Honesty Policy: **ACADEMIC HONESTY POLICY:****

Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students' academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

**Violations of Academic Honesty include:**

**Cheating** - Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise.

**Fabrication and Falsification** - Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information.

**Multiple Submission** - The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor.

**Plagiarism** - Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as one's own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action.

Disciplinary action may include, but is not limited to the following:

- 1) Requiring the student(s) to repeat the exercise or do additional related exercise(s).
- 2) Lowering the grade or failing the student(s) on the particular exercise(s) involved.
- 3) Lowering the grade or failing the student(s) in the course.

**If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.**

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

**XII. Text:** Physics for Scientists and Engineers, Ninth Ed., Serway and Jewett.

**XIII. Prerequisites:** Prerequisite- PHY 235 and 236, MAT 250; Co requisite- PHY 256, MAT 308

**XIV: NON-DISCRIMINATION POLICY STATEMENT:**

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities.

**PHY 255 is intended to fulfill Program Educational Objectives A, B and C and Program Outcomes a, e, h, i, and k. (see attached sheet)**

**PHY 256 is intended to fulfill Program Educational Objectives A and B and Program Outcomes a, b, e, g, k and p. (see attached sheet)**