A. Identification:
   1. Subject Area: Physics (PHY)
   2. Course Number: 112
   3. Course Title: College Physics II
   4. Credit Hours: 4
   5. Course Description: Second-semester algebra based physics course. Introduction to the concepts of electricity and magnetism, light, and optics. Prerequisite: PHY 111. General Education: Physical and Biological Sciences. Three lecture. Three lab. Spring.

B. Course Goals: To give students a general understanding of physics laws, principles and concepts in electricity, magnetism, and optics. Provide the students with laboratory experience with circuits, magnetism, and optics.

C. Course Outcomes: Students will:
   1. participate in laboratory investigations, utilizing scientific methods and equipment;
   2. explain concepts in electricity and magnetism;
   3. solve problems involving electric force, fields, potential, and current;
   4. analyze DC circuits involving resistors and capacitors;
   5. solve problems involving magnetic force and fields;
   6. explain the concept of electromagnetic induction;
   7. solve problems involving magnetic flux;
   8. describe concepts of electromagnetic waves;
   9. analyze light;
   10. solve problems in light and optics;
   11. describe different lenses;
   12. and draw ray diagrams showing image formation from lenses and mirrors.

D. Course Outcomes Assessment will include:
   1. course grades determined by the instructor as outlined in the course syllabus;
   2. comprehensive final exam;
   3. and at least one formal lab report.

E. Course Content will include:
   1. electricity (charge, Coulomb force, potential, capacitance, currents, circuits);
   2. magnetism (field, electromagnetism, induction, electromagnetic waves);
   3. and optics (ray tracing, lenses, mirrors, reflection, refraction, wave behavior, optical instruments).