

COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

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| Prepared by: Rhonda I. Shaeffer | December 4, 1991 |
| Revised by: Rhonda L. Howard | February 23, 1996 |
| Revised by: Rhonda L. Howard | November 5, 1997 |
| Revised by: Rhonda L. Howard | May 11, 1998 |
| Revised by: Rhonda L. Howard | February 19, 1999 |
| General education criteria reviewed by: Rhonda L. Howard | February 19, 1999 |
| Revised: Maxie Inigo | Spring 2009 |
| Revised: Kathryn Kozak | October 19, 2009 |
| Status: Permanent | |
| Effective: 2010-9999 | |

A. Identification:

1. Subject Area: Physics (PHY)
2. Course Number: 262
3. Course Title: University Physics II
4. Credit Hours: 4
5. Catalog Description: Second semester calculus-based physics course. Topics include electrostatic phenomena, conductors, electric and magnetic fields, resistance, capacitance, and other basic circuit components and analysis, and magnetic forces and currents. Prerequisite: PHY161. Pre/Co-requisite: MAT 230. General Education: Physical/Biological Sciences. Three lecture. Three lab.

B. Course Goals: To give students a general understanding of physics laws, principles and concepts as pertaining to electricity and magnetism and to provide the students with laboratory investigations to strengthen the understanding of these concepts.

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, RC, and RL circuits.
5. solve problems involving magnetic force and fields.
6. solve problems involving magnetic flux.
7. describe concepts of electromagnetic waves.
8. explain the concept of electromagnetic induction.
9. describe magnetism and the effects of magnetic fields on matter.
10. apply Faraday's Law and Maxwell's Equations.
11. apply Coulomb's law to analyze situations involving electric charge.
12. apply concepts of electric fields and charge distribution.
13. solve problems involving Gauss's Law.
14. analyze AC current.
15. use calculus to solve various problems and applications in electricity and magnetism.

D. Assessment of Course Outcomes will include:

1. comprehensive final exam.
2. at least one formal lab report.

E. Course Content will include:

1. electricity (charge, force, field; potential; electrostatic energy; current; circuits; Gauss's Law).
2. Magnetism (field; electromagnetism; Induction; AC Current and circuits; electromagnetic waves;

Maxwell's Equations; inductors).