Northwest Arkansas Community College

(Science and Mathematics Division)

Discipline Code
PHYS

Course Number
2034

Course Title
College Physics II

Catalog Description
(F, S, Sum) The second of two algebra/trig-based physics course. Continuation of College Physics I (PHYS 2014). Not recommended for physics or engineering majors. Topics include electricity & magnetism, light & optics, and modern physics. Lecture and laboratory.

Prerequisites
PHYS 2014 with a grade of C or better.

Credit Hours
4 credit hours

Contact hours
45 lecture ,45 lab contact hours

Load hours
5 load hours

Semesters Offered
Fall, Spring, & Summer

ACTS Equivalent
PHYS2024 Algebra/Trigonometry-Based Physics II

Grade Mode
A-F

Learning Outcomes
Students completing this course will:

- Recall and apply physics vocabulary, concepts and laws consistent with courses taught nationally for: electromagnetism and optics.
- Use scientific reasoning to comprehend, evaluate and solve problems pertaining to course content.
- Apply physics formulas to any situation that models a physics concept or law.

- Properly use measuring devices, lab instrumentation and graphing techniques to test, analyze, and assess physics concepts and laws.

General Education Outcomes Supported

- Students develop higher order thinking skills.
- Students can achieve mathematical literacy.

Standard Practices

Topics list

- Electrostatics
- Electric fields, potential and energy
- Capacitance
- Current and resistance
- DC circuits
- Magnetism
- Magnetic induction
- Electromagnetic waves
- Light and optics
- Selected topics in modern physics

Learning activities

- Courses must, at a minimum, cover the core learning outcomes for each topic. Faculty may add to these outcomes but may not omit any of them.
- Laboratory exercises should average between 2-3 hours a week and include measured data along with calculated values, graph(s) of linear relationship, experimental result, and error analysis.
- Proper use of lab equipment and enforcement of safety protocols is the responsibility of each faculty.
- Since developing student higher order thinking skills and achieving mathematical literacy are essential outcomes of this course, all instructors should include learning activities that develop these outcomes in their courses and identify them in course syllabi. Instructors should describe how these activities will be evaluated in their course syllabi and/or reflected in their gradebooks.

Assessments

- The final is a departmental comprehensive exam. Results of the departmental finals will be submitted to the coordinator as part of course outcome assessment. The test will cover a select number of the core learning outcomes, which will be provided as a study guide.
- Higher order thinking and mathematical literacy assessment will be reflected in the application of the laws of physics to the problem, along with the computational ability of the student to find the solution. Results are to be submitted to the coordinator to be used as part of the college's process to assess mastery of the general education outcomes.

Grading guidelines

- At least 50% of the grade should come from proctored work
- Homework should comprise approximately 20% of overall grade.
- Lab activities should comprise approximately 20% of the overall grade.
- Performance/attendance should comprise no more than 10% of overall grade.