| **PROFESSOR:** |  |
| --- | --- |
| **OFFICE LOCATION:** |  |
| **OFFICE HOURS:** |  |
| **PHONE NUMBER:** |  |
| **E-MAIL:** |  |
| **SEMESTER:** |  |
| **DELIVERY METHOD:** |  |

# COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:

## PHY 2049 General Physics II (4 Credits)

This calculus-based physics course is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics, and modern physics.

## PREREQUISITES FOR THIS COURSE:

PHY 2048 and PHY 2048L with a minimum grade of “C” in each course

### CO-REQUISITES FOR THIS COURSE:

PHY 2049L

## GENERAL COURSE INFORMATION:

Topic Outline

Temperature and the kinetic theory of gases

Heat and thermodynamics

Thermal properties and processes

Electric field of discrete and continuous charge distributions

Electric potential

Electrostatic energy and capacitance

Electric current and direct-current circuits

The magnetic field and sources of the magnetic field

Magnetic induction

Alternating-current circuits

Maxwell’s equations and electromagnetic waves

Properties of light, optical images, interference and diffraction

Aspects of modern physics

## ALL COURSES AT FLORIDA SOUTHWESTERN STATE COLLEGE CONTRIBUTE TO THE GENERAL EDUCATION PROGRAM BY MEETING ONE OR MORE OF THE FOLLOWING GENERAL EDUCATION COMPETENCIES:

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

A. General Education Competencies and Course Outcomes

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student’s general education along with the general education competency it supports.

General Education Competency: Evaluate

Course Outcomes or Objectives Supporting the General Education Competency Selected:

Use the kinetic theory of gases to distinguish between “heat” and “temperature”; interpret and apply the concept of energy per degree of freedom.

Interpret and apply the laws of thermodynamics to explain natural phenomena.

Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.

Recognize the quantum nature of electric charge.

Explain the interaction between electric charges and use Coulomb’s law to solve problems involving charge distributions.

Explain the concept of “field” and compare it to “action-at-a-distance” using forces.

Explain and draw the electric field configuration due to various discrete and continuous charge distributions.

Relate the theoretical interpretation of electric potential to everyday phenomena and use it to solve problems.

Explain the meaning of electrostatic energy and apply it to solve problems involving capacitance.

Identify the theoretical framework for electric current and apply it to solving problems on direct current circuits and alternating current circuits.

Explain and draw the magnetic field configuration due to various current distributions.

Explain the concept of electromagnetic induction and use it to explain everyday physical phenomena.

Describe and use Maxwell’s equations to solve problems in electricity and magnetism.

Investigate the interaction of light with matter and light’s properties.

Compare and contrast the (special) relativistic view with the Newtonian view of nature.

Compare and contrast the quantum mechanical view with the Newtonian view of nature.

## DISTRICT-WIDE POLICIES:

### PROGRAMS FOR STUDENTS WITH DISABILITIES

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <https://www.fsw.edu/adaptiveservices>.

### REPORTING TITLE IX VIOLATIONS

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct. Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at [equity@fsw.edu](mailto:equity@fsw.edu). Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online. Additional information and resources can be found on the College’s website at <https://www.fsw.edu/sexualassault>.

## REQUIREMENTS FOR THE STUDENTS:

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

## ATTENDANCE POLICY:

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog and defers to the professor.)

## GRADING POLICY:

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

| **Grade Percent** | **Letter Grade** |
| --- | --- |
| 90 - 100 | A |
| 80 - 89 | B |
| 70 - 79 | C |
| 60 - 69 | D |
| Below 60 | F |

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

## REQUIRED COURSE MATERIALS:

(In correct bibliographic format.)

## RESERVED MATERIALS FOR THE COURSE:

Other special learning resources.

## CLASS SCHEDULE:

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

## ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

(Which would be useful to the students in the class.)