

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: PHY 241

Credits: 4

Course Title: University Physics I

Course Description (including lecture hours, lab hours, total contacts)

Teaches principles of classical and modern physics on calculus math level. Covers mechanics and heat. Students should consult the requirements of their individual program and transfer school to determine the correct course and the transferability of course to a senior institution. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

The credits earned in this course can be applied to the Science AS degree.

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)

Prerequisite: MTH 173 or school approval. Co-requisite: MTH 174 or school approval.

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

- a. Apply the language of physics.
- b. Explain and apply some of the basic laws of physics.
- c. Explain how the natural laws of physics are used both qualitatively and quantitatively and apply these laws to experimental situations using mathematical models.

Major Topics to be Included

- a. Units and standard of measurements
- b. The nature and use of vectors
- c. Newton's three laws of motion
- d. Various types of motion
- e. Work, energy, and power
- f. Conservation of energy
- g. The nature and uses of impulse and momentum
- h. Molecular structure of matter
- i. Elasticity, springs, and simple harmonic motion
- j. Fluids at rest, liquids, and gases
- k. Fluids in motion
- l. Heat energy and its effects

Effective Date of Course Content Summary (Month, Date Year): 2/16/09