I. Course Title
   • General Physics I Lecture

II. Course Prefix/Number
   • PHYS 230

III. Credit Hours
   • 4.0

IV. Prerequisites
   • MATH 120 Minimum Grade D
   • Co-requisite: PHYS 231

V. Catalog Description
   • A calculus-based study of the fundamental principles and concepts of mechanics, sound, and heat. Designed for students planning additional course work in chemistry, physics, engineering, or mathematics. The laboratory (PHYS 231) must be taken concurrently.

VI. Curricular Relationships
   • This course is required for students pursuing the B.S. degree in chemistry or chemical physics, and is a required course for nearly all engineering degrees. The lecture-lab combination is an approved general education course on the ASC campus and is on the statewide list of courses that have been given guaranteed transfer status for general education credit

VII. Student Learning Outcomes
   • Students will enhance their problem solving and critical thinking skills.
   • Students will demonstrate a conceptual understanding of many fundamental principles in physics including kinematics, dynamics, energy, momentum, heat, and sound.
   • Students will demonstrate a quantitative understanding of many fundamental principles in physics including kinematics, dynamics, energy, momentum, heat, and sound.
   • Students will apply Calculus to physical problems.

VIII. Content Outline
   • Vector kinematics.
   • Newton’s Laws of Motion and vector dynamics.
• Conservation of energy, linear momentum, and angular momentum.
• Harmonic motion.
• Newton’s Law of Universal Gravitation.
• Wave motion and sound.
• Thermodynamics.

IX. Course Procedures/Policies/Grading Scale
• Many students taking this sequence will transfer to other schools to complete an engineering degree. The course must be demanding and rigorous. Grading standards must be comparable to the engineering schools. Class-time should be spent deriving equations from basic principles, answering questions, or illustrating problem-solving strategies. The tests are problem oriented.
• Homework may be assigned with a representative group of problems being graded and weighted as a portion of the course grade.
• 3-5 examinations are given during the course of the semester in addition to a comprehensive final exam. Problems on the examinations should be of sufficient difficulty such that 4-5 problems should require one class period to complete.

X. Required/Recommended Readings
• The course will use a standard calculus-based University Physics textbook such as Physics For Scientists and Engineers by R. Serway (6th Edition, Sanders Publishing)

XI. Issues Unique to this Course
• None

XII. Additional Departmental Issues
• None