Common Course Outline for: PHYS 1110 College Physics 1

A. Course Description

1. Number of credits: 4
2. Lecture hours per week: 3
   Lab hours per week: *2*
3. Prerequisites: MATH 1110 College Algebra (C or higher)
4. Co-requisites: None
5. MnTC Goals: Goal 3 Natural Science

This is the first semester of a two semester sequence of non-calculus, introductory physics. This course uses College Algebra. Topics include kinematics, dynamics, gravitation, momentum, energy, heat, and fluids.

B. Date last revised: April 2017

C. Outline of Major Content Areas

Kinematics, dynamics, gravitation, momentum, energy, heat, and fluids.

D. Course Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Demonstrate an understanding of scientific theories and principles by: (2a, 2b, 2c, 3a)
   a. Stating and applying the fundamental laws and concepts relating to the course topics.
   b. Identifying which physical laws and principles are appropriate for the solution of physics problems relating to various applications.
   c. Using the appropriate physical laws and principles and College Algebra concepts and techniques to develop the mathematical expressions required to solve physics problems; solving those mathematical expressions.
   d. Using the terminology of physics correctly.
2. Formulate and test hypotheses by: (2a, 2b, 2c, 3b)
   a. Performing laboratory, simulation, or field experiments.
   b. Collecting data and analyzing it statistically and graphically.
   c. Identifying sources of error and uncertainty.
   d. Estimating the magnitude of error and uncertainty in data.
   e. Using appropriate software to perform experiments and analyze data.
3. Communicate experimental findings, analysis, and interpretations by: (2a, 2b, 2c, 3c)
   a. Presenting laboratory results orally.
   b. Orally explaining analysis and interpretations of laboratory results and relating the results to physics concepts and theories.
   c. Presenting written reports that interpret laboratory results and relate them to physics concepts and theories.

E. Methods for Assessing Student Learning: Assessment methods are at the discretion of the instructor and may include written and/or oral reports, homework, projects, quizzes, exams, and a final exam.

F. Special Information: Basic geometry, the Pythagorean Theorem, and right triangle trigonometry are reviewed and used in this course. This course is *not* recommended for pre-engineering, math, computer science, or physical science majors.