ABET Course Syllabus for PHYS 181: General Physics I

1. Course number and name: PHYS 181: General Physics I with Laboratory

2. Credits and contact hours: 5 credit hours, 5 hours per week

3. Instructor's Name: Darci Snowden

4. Textbook, title, author, and year:
   - Knight, *Physics for Scientists and Engineers*, 3rd Edition

   a. Other supplemental materials:
      - Mastering Physics Account

5. Specific course information:
   a. Brief description of the content of the course (catalog description): An integrated experimental and analytical investigation of topics including kinematics and dynamics. This integrated lecture/laboratory course includes the analysis of physical systems using algebra, trigonometry, and calculus along with inquiry-based activities and experimental investigation. Formerly PHYS 211, students may not receive credit for both.

   b. Pre-requisites or co-requisites: MATH 172; AP Calc AB or BC score of 3 or higher; or concurrent enrollment in a high school course equivalent to AP calculus AB or BC.

   c. Required, elective, or selected elective (as per Table 5-1) course in the program: Selective Elective

6. Specific goals for the course:
   This is a calculus-based course in general physics

   a. Specific outcomes of instruction:
      - Describe and explain key physics topics in kinematics and dynamics such as displacement, velocity, acceleration, and Newton's laws as well as key components of those main concepts
      - Explain and interpret information from basic physical systems when presented in a variety of mathematical forms such as equations, graphs, diagrams, tables, and basic statistical measures.
      - Solve problems in kinematics and dynamics using the appropriate physical principles and techniques by converting the information into relevant mathematical forms.
      - Apply the appropriate science and engineering practices to model, test, and analyze the data from physical systems to draw conclusions about the underlying physics.
      - Analyze and critique claims in physics problems and physics investigations involving quantitative information.
      - Perform college-level arithmetical, trigonometric, and calculus to solve physics problems and analyze data from physics investigations.

b. Criterion 3 student outcomes addressed by course:
   - 3 (1)

7. Brief list of topics covered:
   - Displacement, velocity, and acceleration
   - Newton's Laws of motion
   - Force
   - Circular motion