Institutional Syllabus

I. **Course Title**
   - College Physics I

II. **Course Prefix/Number**
   - PHYS 225

III. **Credit Hours**
   - 5.0

IV. **Prerequisites**
   - MATH 106 Minimum Grade D and MATH 107 Minimum Grade D; OR ACT Math score 26 or higher

V. **Catalog Description**
   - The first course of a two-semester lecture/laboratory sequence introducing the fundamental principles of physics. In the first semester, students will be introduced to the areas of kinematics, dynamics, energy, momentum, heat, and sound. Conceptual understanding as well as problem solving techniques will be emphasized in the lecture. Laboratory sections meet for two hours each week and the exercises performed in the laboratory coincide closely with the topics presented in the lecture.

VI. **Curricular Relationships**
   - This course is required for biology and geology majors. It 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 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 be able to solve problems relevant to the physical universe.
   - Students will be able to apply principles learned in lecture to the laboratory environment.
   - Students will be able to collect and interpret data within the context of the physical laws of the universe.
VIII. Content Outline

- Vector addition and subtraction.
- One and two-dimensional kinematics.
- Dynamics, forces, and Newton’s Laws of Motion.
- Energy, linear momentum, and conservation laws.
- Uniform circular motion.
- Torque, rotational kinematics, rotational dynamics.
- Heat energy.
- Oscillatory motion, waves, and sound.

IX. Course Procedures/Policies/Grading Scale

- Approximately 3-5 written examinations will be given during the semester in addition to a comprehensive final examination.
- Homework may be assigned with a representative group of problems being graded and weighted as a portion of the course grade.
- The laboratory will comprise approximately 15-20% of the course grade.
- The grading scale will be:
  
<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89</td>
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<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>&lt;60</td>
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X. Required/Recommended Readings

- The course will use a standard (algebra/trigonometry based) college physics textbook such as Physics by James S. Walker, published by Prentice-Hall Publishing.

XI. Issues Unique to this Course

- None

XII. Additional Departmental Issues

- None