<table>
<thead>
<tr>
<th>Course Number</th>
<th>PHY1053C</th>
<th>New (Add)</th>
<th>Revision</th>
<th>Textbook Revision Only</th>
<th>Deletion (Inactive)</th>
<th>Reactivate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title</td>
<td>Physics I</td>
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</tbody>
</table>

### Course Catalog Description:

The first half of a two-semester sequence of non-calculus physics designed for the non-physical science major. Physics covers the areas of mechanics, mechanical energy, temperature and heat. The entering student is assumed to have a working knowledge of basic algebra and trigonometric functions.

### Prerequisites

MAC1114 or equivalent

### Corequisites

### General Education

- No
- Yes, AA and AS
- Yes, AS Only

### Gordon Rule

- No
- Yes, Word Count

### Scheduling

- Fall
- Spring
- Summer
- All
- As needed

### Special Equipment/Facilities

Physics laboratory with tables providing variable AC/DC electrical outlets and sinks with hot-cold water. Basic freshman physics equip. for experiments in mechanics, heat, wave motion, IBM personal science laboratory hardware and software, Microsoft Windows.

### Recommended Text/Software:


### Special Designators

PA, PD

### Prepared By

Anthony Russo

### Date

01/15/2008

### Director/Chair Approval

Jon Bryan

### Date

01/15/2008

### Curriculum Committee Action

- Approved
- Disapproved
- Postponed

### Date

N/A for TBR

### Vice President for Instruction

See attached Adoption form

### Date

### President

N/A for Text Book Revision

### Date

### Course Dictionary Update by

White: VP Instruction    Yellow: Business Office    Pink: Registrar

9/98; revised 10/98,1/99
Course Number: PHY1053C  Title: Physics I

Prepared by: Anthony Russo  Date: 01/15/2008

Director/Chair: Jon Bryan  Date: 01/15/2008

Criteria: (1) Direction oriented; (2) student oriented — written in terms of what students will accomplish; (3) provide the lay reader with an understanding of the substance of the course; and (4) the number of statements should be sufficient to clearly identify the mission of the course.

<table>
<thead>
<tr>
<th>Goal Number</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLO 1</td>
<td>The student will demonstrate fundamental knowledge of the terminology, major concepts, and theories of one or more fields in the physical or biological sciences.</td>
</tr>
<tr>
<td>SLO 2</td>
<td>The student will distinguish among fact, scientific law, hypothesis, and theory, including the scientific method.</td>
</tr>
</tbody>
</table>

In addition to the specific course goals listed above, this course also addresses the college’s Scientific and Quantitative Reasoning General Education Goal/Outcome through the following Student Learning Outcomes (SLO’s):

SLO 1

The student will demonstrate understanding of the terms and laws relating to basic classical mechanics.

The student will demonstrate understanding of the concepts of work, power, mechanical energies and their transformations.

The student will demonstrate understanding of mechanical wave motion and behavior.

The student will demonstrate understanding of the concepts of temperature, heat, and thermodynamics.

The student will demonstrate understanding of the basic postulates of the special theory of relativity and their consequences.

The student shall perform laboratory experiments with IBM/PSL software and hardware to develop experimental techniques and to aid in the achievement of Goals 1-5.
# Performance Objectives

A specific objective is one in which the outcome and the level of achievement are defined in measurable terms.

<table>
<thead>
<tr>
<th>Object No.</th>
<th>Related Goals</th>
<th>Objectives (Student Learning Outcomes)</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1,6 SLO 1</td>
<td>The student will demonstrate understanding of the conditions necessary for mechanical equilibrium of a rigid body.</td>
<td>The students understanding will be measured by objective examination and/or written essay. A grade of “C” denotes basic competence. The specific percentage for the “C” may vary with the instructor, but in no case is a “C” awarded for less than 70% mastery of the assignment.</td>
</tr>
<tr>
<td>2.</td>
<td>1,6 SLO 1</td>
<td>The student will demonstrate understanding of the meanings of these terms: force, torque, vector, and pressure.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>3.</td>
<td>1,6 SLO 1</td>
<td>The student will demonstrate understanding of the relationships of speed, velocity, and acceleration in linear and curvilinear motion.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>4.</td>
<td>1,6 SLO 1</td>
<td>The students will demonstrate understanding of Newton’s 3 laws of motion, understand their significance, and relate them to familiar phenomena.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>5.</td>
<td>1,6 SLO 1</td>
<td>The student will demonstrate understanding of the basic defined and derived mechanical units of the 2 metric absolute system of units (SI and COS) and the British engineering system of units (FPS)</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>6.</td>
<td>1,6 SLO 1</td>
<td>The student will demonstrate understanding of the Universal Law of Gravitation, its significance and consequences.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>Object No.</td>
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<tr>
<td>-----------</td>
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<tr>
<td>7.</td>
<td>2,6 SLO 1</td>
<td>The student will demonstrate understanding of the following terms: work, energy, power, momentum, kinetic energy and potential energy.</td>
<td>The students understanding will be measured by objective examination and/or written essay. A grade of “C” denotes basic competence. The specific percentage for the “C” may vary with the instructor, but in no case is a “C” awarded for less than 70% mastery of the assignment.</td>
</tr>
<tr>
<td>8.</td>
<td>3,6 SLO 1</td>
<td>The student will demonstrate understanding of the definitions and classifications of wave motion.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>9.</td>
<td>3,6 SLO 1</td>
<td>The student will demonstrate understanding of the following terms: reflection, refraction, interference, diffraction, and Doppler effect.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>10.</td>
<td>4,6 SLO 1</td>
<td>The student will demonstrate understanding of the meanings and relationships of heat and temperature.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>11.</td>
<td>4,6 SLO 1</td>
<td>The student will demonstrate understanding of these terms: specific heat, heat of fusion, heat of vaporization, and temperature coefficient of expansion.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>12.</td>
<td>4,6 SLO 1</td>
<td>The student will demonstrate understanding of the relationship of pressure, volume, and temperature of gasses.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>13.</td>
<td>4,6 SLO 1</td>
<td>The student will demonstrate understanding of the basic concepts of thermodynamics and conversion of heat to mechanical energy.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>14.</td>
<td>5,6 SLO 1 SLO 2</td>
<td>The student will demonstrate understanding of the basic postulates of Einstein’s special theory of relativity.</td>
<td>SAME AS ABOVE</td>
</tr>
<tr>
<td>15.</td>
<td>5,6 SLO 1 SLO 2</td>
<td>The student will demonstrate understanding of how the special theory affects mass, time, length and relative speed.</td>
<td>SAME AS ABOVE</td>
</tr>
</tbody>
</table>