Course Name: Physics 1

Department Head/Coordinator: Andy Sellwood

Effective Date: June 2014

School or Centre: School of Arts and Science

Department: university Transfer - Science

Course History:

Revised Course: Yes (details below)

Name of Replacing Course:

(if applicable): PHYS 1100

Course Number: PHYS 1100

Number of Credits: 4.0

Year of Study: 1st Year Post-secondary

Course Pre-requisites (if applicable):

Physics 12 with a C+ or equivalent, Pre-calculus 12 with a C+; or MATH 1020 with a C; or Math 0983 and Math 0993 both with a minimum of a C+; or VCC Math Pre-calculus Test (MPT) with a C+.

Course Co-requisites (if applicable):

MATH 1100

PLAR (Prior Learning Assessment & Recognition) No Yes (details below):

Course Description:

This course covers the first half of a standard 1st year calculus-based physics course (PHYS 1200 is the second half). Topics include mechanics and heat, including vectors, kinematics, dynamics, energy, momentum, rotational motion, fluids, elasticity, oscillations, waves, sound, thermal properties of matter and thermodynamics. In the laboratory, students will develop measurement, analysis and lab report writing skills.
Instructional Strategies:

Lecture periods will emphasize an activity-based learning environment. This environment will be created through student investigation activities (using probes and sensors for example), problem-solving worksheets, discussion of concepts in class and interactive demonstrations. Six laboratory activities will focus on the determination of physical relationships.

Course Learning Outcomes:

At the end of the course the student will be able to:
- Explain the properties of vectors and use them to solve mechanics problems.
- Apply a structured knowledge of concepts, such as kinematics, Newton's laws, the Conservation laws, Hooke's law, Simple Harmonic Motion, waves and the First Law of Thermodynamics, when solving related problems.
- Use a step-by-step problem solving strategy to tackle sophisticated problems.
- Use drawings and graphs to demonstrate understanding of basic calculus ideas.
- Perform appropriate data collection and analysis to investigate a physical relationship.
- Apply research skills such as measurement taking, uncertainty propagation, graphical analysis, statistics and formal report writing, when working in the lab.

Program Learning Outcomes:

If this course is taken as a requirement or an elective in the following first year, University Transfer Certificate programs, the learning outcomes are found in the Program Content Guides available at the Counselling and Advising Service areas.

University Transfer Arts Certificate
University Transfer Pathway to Health Sciences Certificate
University Transfer Science Certificate
University Transfer Engineering Certificate
Evaluation/Grading System  
(Click on drop down box arrows to see list of options)

<table>
<thead>
<tr>
<th>Grading System</th>
<th>Specify if 'Other':</th>
<th>Specify Passing Grade:</th>
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<td>Letter Grades</td>
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Components and Weighting of the Assessment/Evaluation Plan:  
(Click on drop down box arrows to see list of options)

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<tr>
<th>Type</th>
<th>Percentage</th>
<th>Evaluation Plan</th>
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<tbody>
<tr>
<td>Exam</td>
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<td>2 written exams 15% each</td>
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<tr>
<td>Final Exam</td>
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<tr>
<td>Lab Work</td>
<td>30</td>
<td>informal labs 10% and 2 formal lab reports 10% each</td>
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<tr>
<td>Assignments</td>
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Total 100

Learning Environment/Type  
(Select all that are used within the course)

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<tr>
<th>Instruction Type</th>
<th>Hours Per Instruction Type</th>
<th>Comments</th>
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<tr>
<td>L - Classroom</td>
<td>120</td>
<td>classroom/lab</td>
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Enter Total Hours 120

Resource Material(s):

Resources are items in addition to tuition that the student is responsible for purchasing. Course resource information will be supplied by the department/instructor.
**Course Topics and Sequence Covered:**

Mechanics (vectors, kinematics, dynamics, work and energy, impulse and momentum, rotational motion, rigid-body equilibrium, fluids and elasticity, gravitation, oscillatory motion, waves, and sound)

Heat (thermal properties of matter, heat and thermodynamics)

Waves (travelling waves, sound and superposition)

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**VCC Education and Education Support Policies**

There are a number of Education and Education Support policies that govern your educational experience at VCC, please familiarize yourself with them.

The policies are located on the VCC web site at:

[http://www.vcc.ca/about-vcc/policies/index.cfm](http://www.vcc.ca/about-vcc/policies/index.cfm)

To find out how this course transfers, visit the BC Transfer Guide at [www.bctransferguide.ca](http://www.bctransferguide.ca).

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**FOR COMMITTEE USE ONLY**

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<tr>
<th>Date Approved by Education Council:</th>
<th>Date Approved by VCC Board (if applicable):</th>
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Course Outline, 20 August 2013 - [http://cid.vcc.ca/p2-cd/curricomm.html](http://cid.vcc.ca/p2-cd/curricomm.html)