OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use. Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor.

FACULTY/DEPARTMENT: Science/Physics

PHYS 105

COURSE NAME/NUMBER FORMER COURSE NUMBER UCFV CREDITS
NON-CALCULUS PHYSICS

COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

Though suitable for all science students, this course is of particular interest to students taking biology and chemistry. Topics include: thermodynamics, waves, geometric and wave optics, electricity and instrumentation, and an introduction to quantum phenomena. This course can be taken by students who only need one non-calculus physics course, and already have Grade 12 physics, or can be the second half of a full-year non-calculus program. The course can also be used in combination with Physics 111 as an entry into a UCFV physics major, although Physics 111 and 112 is the preferred route.

Note: Both PHYS 101 and PHYS 105 are often required for transfer.

PREREQUISITES: (Principles of Math 12 and Physics 11), or (Principles of Math 12 and PHYS 100), or one of Physics 12, PHYS 093, PHYS 101, or PHYS 111.

COURSE IMPLEMENTATION DATE: Fall 1995
COURSE REVISED IMPLEMENTATION DATE: May 2007
COURSE TO BE REVIEWED: September 2007
( Four years after implementation date )

TOTAL HOURS PER TERM: 105

TRAINING DAY-BASED INSTRUCTION

STRUCTURE OF HOURS:

LECTURES: 75 Hrs
SEMINARY: Hrs
LABORATORY: 30 Hrs
FIELD EXPERIENCE: Hrs
STUDENT DIRECTED LEARNING: Hrs
OTHER (SPECIFY): Hrs

MAXIMUM ENROLLMENT: 36

EXPECTED FREQUENCY OF COURSE OFFERINGS:

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) ☐ Yes ☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) ☐ Yes ☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: ☑ Yes ☐ No

AUTHORIZATION SIGNATURES:

Course Designer(s): T. Cooper; revised P. Mulhern
Chairperson: T. Cooper; revised G. Schlitt (Curriculum Committee)
Department Head: T. Cooper; revised P. Mulhern
Dean: K.W. Welsh, revised J. Snodgrass
PAC Approval in Principle Date: PAC Final Approval Date: Mar. 2, 2007
LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:
This course emphasizes the physics of greatest importance in the life sciences, and also serves as an overview of several topics for students interested in physics.
Students should be able to successfully understand:
1. Understand the fundamental laws behind the topics covered in the course
2. Apply physics principles to everyday situations involving these topics
3. Perform fundamental laboratory experiments, and interpret the data obtained
4. Develop a feeling for the order of magnitude of physical quantities in real experiments

METHODS:
Lecture, demonstration, small group practice, discussion, and laboratory.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):
Credit can be awarded for this course through PLAR (Please check :) ☒ Yes ☐ No

METHODS OF OBTAINING PLAR:
Course challenge plus evidence of having appropriate laboratory skills.

TEXTBOOKS, REFERENCES, MATERIALS:
[Textbook selection varies by instructor. An example of texts for this course might be:]
Cutnell and Johnson, Physics 4th ed.

SUPPLIES / MATERIALS:

STUDENT EVALUATION:
[An example of student evaluation for this course might be:]
Final exam 45%
Midterm Exam 25%
Laboratory 20%
Homework 10%

COURSE CONTENT:
[Course content varies by instructor. An example of course content might be:]
Week 1 Chap 2/Chap 4 Kinematics and Forces
Week 2 Chap 6 Work and Energy
Week 3 Chap 18/19 Electric Field and Potential
Week 4 Chap 20 Ohm’s Law, Circuits, and Power
Week 5 Chap 16 Waves
Week 6 Chap 17 Waves II
Week 7 Chap 12 Temperature
Week 8 Chap 13 Heat Transfer
Week 9 Chap 14/15 Ideal Gas Law and Kinetic Theory/Thermodynamics
Week 10 Chap 15 Thermodynamics
Week 11 Chap 25 Geometric Optics: Reflection
Week 12 Chap 26 Geometric Optics: Refraction
Week 13 Chap 27/29 Interference/Brief overview of “Modern” Physics

Laboratory Experiments
Week 1 Introduction, Error analysis, and Propagation of Errors
Week 2 Circuit Elements and Ohm's Law
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Week 3</td>
<td>Series and Parallel resistance</td>
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<td>Week 4</td>
<td>Standing Waves on a Wire</td>
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<tr>
<td>Week 5</td>
<td>Standing Waves in an Air Column</td>
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<td>Week 6</td>
<td>Calorimetry (Specific Heat of Assorted Metals)</td>
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<td>Week 7</td>
<td>Conservation of Energy (Electrical Equivalent of Heat)</td>
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<td>Week 8</td>
<td>Geometric Optics and Thin Lenses</td>
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<td>Week 9</td>
<td>Interference and Diffraction</td>
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<td>Week 10</td>
<td>Multiple Slit Diffraction (Grating Spectrometer)</td>
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<td>Week 11</td>
<td>Hydrogen Spectra and the Bohr Atom</td>
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