COURSE TITLE: Physics I with Calculus

COURSE NUMBER: PHY 2048C

COURSE DESCRIPTION (with prerequisites):
The first course in a two-semester sequence intended primarily for students majoring in physics, mathematics, chemistry or engineering. Course includes the study of forces, statics, linear motion, circular motion, momentum, energy, gravity, relativity, oscillatory motion, ideal gases, thermal properties of matter and thermodynamics, with laboratory applications of these topics. Corequisite or Prerequisite: MAC 2312 (Calculus and Analytic Geometry II). Four hours lecture and two hours laboratory per week. 5 semester hours credit.

NAME(S) OF INSTRUCTORS:
Dr. Jeff Bodart

EFFECTIVE ACADEMIC YEAR:
2011-12

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:
Essential University Physics, Richard Wolfson, Addison-Wesley, 2nd edition.

GRADING POLICY:
The standing of a student in each course is expressed by one of the following letters and corresponding grading system:
A – 90 – 100
B – 80 – 89
C – 70 – 79
D – 60 – 69
F – 59 or less
The Chipola Catalog provides policies and procedures regarding the grading system. A student’s Grade Point Average is derived from the grading system/quality point scale.

ATTENDANCE AND WITHDRAWAL POLICIES:
Chipola College expects regular attendance of all students. Students who are absent from classes for any reason other than official college activities must satisfy the instructor concerned that the absence was due to illness or other clearly unavoidable reasons. Otherwise, the student may suffer grade loss at the discretion of the instructor. Chipola policy allows each instructor to specify in the Instructor First Day Handout whether or not an absence is excusable and what affect the absence or tardy may have on the grade.
A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction (unless waived by Student Services), (2) cannot withdraw, and (3) must receive a grade.**

**MAKE-UP POLICY:**
Chipola allows each instructor to specify in the Instructor First Day Handout the makeup policy.

**ACADEMIC HONOR CODE POLICY:**
Students are expected to uphold the Academic Honor Code. Chipola College’s Honor Code is based on the premise that each student has the responsibility to (1) uphold the highest standards of academic honesty in his/her own work; (2) refuse to tolerate academic dishonesty in the college community; and (3) foster a high sense of honor and social responsibility on the part of students. Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

**STUDENTS WITH DISABILITIES POLICY:**
Chipola College is committed to making all programs and facilities accessible to anyone with a disability. Chipola’s goal is for students to obtain maximum benefit from their educational experience and to effectively transition into the college environment. Students with disabilities are requested to voluntarily contact the Office of Students with Disabilities to complete the intake process and determine their eligibility for reasonable accommodations.

**LIBRARY AND ON-LINE REFERENCE MATERIALS:**
The library is a comprehensive learning resource center providing information in print, electronic, and multimedia format to support the educational objectives of the College. On-line catalogs, e-books and electronic databases can be accessed by using the LINCCWeb icon on the Chipola Library website at [www.chipola.edu/library](http://www.chipola.edu/library). If you have questions about database usage consult the “How to Use the Chipola Databases” on the Library website or call the Library at 850/718-2274 during regular hours. Library hours are posted each semester at the building entrance and on the Library website. See your Instructor First Day Handout for individual instructor recommendations and resources.

**TECHNOLOGY RESOURCES:**
The Information Technology Center, located in the library, is equipped with computer workstations. Lab hours are posted each semester at the building entrance and on the Library website. The ACE Lab, located in Building L, is available for tutoring and is equipped with computer workstations. Lab hours are posted each semester at the room entrance. The college’s learning management system is **Desire 2 Learn (d2l)**. Classes become available on d2l on the first day of the semester. It is the student’s responsibility to log onto the d2l system the first day of class to establish the first day of attendance and to check announcements. For further information, contact your instructor or the Director of Online Learning.
ELECTRONIC DEVICE USAGE:
All electronic devices such as cell phones, beepers, pagers, and related devices are to be silenced prior to entering classrooms and/or laboratories to avoid disruption. Should it become necessary for a student to leave his/her “device” on to send or receive an emergency call and/or text message, the student must inform the instructor prior to class. If the student finds it necessary to send and/or receive an emergency call and/or text message during class/lab time, he/she is instructed to take all books and belongings and step outside the classroom to deal with the situation. To minimize classroom disruption and the distraction to classmates, the student will not be permitted to reenter the classroom during that class period. Any time a test is being administered, all such devices must be turned off and put away. If a device is seen or heard during an exam, a score of zero will be given for that exam. Initial and repeated infractions may result in disciplinary action.

DISCIPLINE SPECIFIC COMPETENCIES / LEARNING OUTCOMES:
Explore the History, Nature, Methods, and Limits of Science

NS-1 Use methods of scientific inquiry.
NS-2 Apply scientific principles.
NS-3 Identify differences among scientific ideas related to the history or nature of science.
NS-4 Examine issues and problems facing modern science, such as ethics, values, and public policies.
NS-5 Identify relationships between science and technology.

LINKING COURSE-LEVEL STUDENT LEARNING OUTCOMES WITH DISCIPLINE-SPECIFIC COMPETENCIES, ASSESSMENT METHODS, AND ARTIFACTS

<table>
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<tr>
<th>COURSE-LEVEL STUDENT LEARNING OUTCOMES FOR PHY 2048C</th>
<th>DISCIPLINE-SPECIFIC GENERAL EDUCATION COMPETENCIES</th>
<th>ASSESSMENT METHODS FOR COURSE LEVEL STUDENT LEARNING OUTCOMES</th>
<th>ARTIFACTS FOR AA PROGRAM ASSESSMENT</th>
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<td>• Describe real-world applications using proper SI units for physical measurements by applying problem-solving techniques in physics problems.</td>
<td>NS-1, NS-2, NS-3, NS-4, NS-5, M-1, M-2, M-3, M-4, M-5, C-2, H-1, T-1, T-3, SS-5</td>
<td>OT, PS, UT, CF Exp.</td>
<td>Analyze the static equilibrium of a mobile constructed using weights, string and light supporting rods, and electronically</td>
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<td>• Analyze the motion of particles moving in one- and two-dimensions to show the quantitative relationship between the kinematical parameters that determine the motion.</td>
<td>NS-1, NS-2, NS-3, NS-4, NS-5, M-1, M-2, M-3, M-4, M-5, C-2, H-1, T-1, T-3, SS-5</td>
<td>OT, PS, UT, CF Exp.</td>
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• Determine the motion of objects under the influence of various forces, including the special case of static equilibrium using Newton’s laws of motion and gravitation.

• Apply the conservation of energy to moving particle systems, including examples with friction.

• Analyze different types of collisions between objects in terms of the conservation of momentum and the impulses imparted to particles.

• Describe the motion of rigid bodies by treating them as a collection of rotating masses subject to external torques and positional changes.

• Identify the effect of temperature on the internal energy of large collections of particles to explain the macroscopic quantities that describe distributions of matter.

• Demonstrate textbook principles in a lab setting using computer-based measurement acquisition systems.

**MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:**
Lecture is the primary method of instruction covering topics primarily from the textbook and including numerous examples of the problem-solving techniques used in physics and engineering. The presentation makes use of the overhead projection system, class
demonstrations, and board illustrations. Students are responsible for any material contained within the assigned chapters of the textbook, as well as any material covered during lecture. Students should read the text, study in-class notes and work through the previous exam samples posted on the instructors website. The student’s understanding of the material and the problem-solving techniques covered in class are assessed using three to four multi-part problems which must be solved using the methods learned in class. Assignments completed in and outside of class count toward the semester grade, as well as participation in the required lab section accompanying the course. Laboratory exercises include measuring uniform and accelerated motions with a computer based interface and motion detector, examining the dynamics of collisions using an air track and photogate system, testing conservation laws, and work done by friction.

ASSIGNMENT AND/OR COURSE OUTLINE

See your Instructor First Day Handout for individual instructor assignment schedule.