# 7/27/2020

# brcc keystone logo

Baton Rouge Community College

*Academic Affairs Master Syllabus*

Date Approved: 11 September 2020

Term and Year of Implementation: Fall 2020

**Course Title:** Introduction to Physics

**BRCC Course Rubric:** PHYS 1103

**Previous Course Rubric**: PHYS 110

**Lecture Hours per week-Lab Hours per week-Credit Hours**: 3-0-3

**Per semester: Lecture Hours-Lab Hours-Instructional Contact Hours**: 45-0-45

**Louisiana Common Course Number:**

**CIP Code:** 40.0801

**Course Description:** Provides an introduction to calculus-based physics. Introduces the principles of classical mechanics based on Newton’s laws of motion. Covers kinematics, dynamics, scientific terminology, measurement, and problem solving using basic calculus. Intended for engineering and physical science majors.

**Prerequisites:** MATH 1223 (or MATH 111) or MATH 1235 (or MATH 120) with grade of ‘C’ or better

**Co-requisites:** MATH 2115

**Suggested Enrollment Cap:** 30

**Learning Outcomes.** *Upon successful completion of this course, the students will be able to:*

1. Describe physics as a natural science and demonstrate the relevance of physics to everyday life.

2. Demonstrate knowledge of physics concepts in the areas of kinematics, Newton’s laws of motion, rotations and uniform circular motion, work and energy, and energy conservation.

3. Apply principles of classic mechanics to solve scientific problems using proper scientific units and significant figures.

**General Education Learning Outcome(s):** This course supports the development of competency in the following area(s). Students will:

Apply scientific concepts to explain the physical world. (General Education Competency: Scientific Reasoning)

**Assessment Measures.** Assessment of all learning outcomes will be measured using the following methods:

1. Administration of unit exams during the semester and a comprehensive final exam at the end of the semester.

2. Instructor-designed assignments including, but not limited to, written and oral assignments, projects, homework, and quizzes. All assignments will be graded using an instructor-designed rubric.

**Information to be included on the Instructor’s Course Syllabi:**

* ***Disability Statement*:** Baton Rouge Community College seeks to meet the needs of its students in many ways. See the Office of Disability Services to receive suggestions for disability statements that should be included in each syllabus.
* ***Grading:*** The College grading policy should be included in the course syllabus. Any special practices should also go here. This should include the instructor’s and/or the department’s policy for make-up work. For example in a speech course, “Speeches not given on due date will receive no grade higher than a sixty” or “Make-up work will not be accepted after the last day of class”.
* ***Attendance Policy*:** Include the overall attendance policy of the college. Instructors may want to add additional information in individual syllabi to meet the needs of their courses.
* ***General Policies*:** Instructors’ policy on the use of things such as beepers and cell phones and/or hand held programmable calculators should be covered in this section.
* ***Cheating and Plagiarism*:** This must be included in all syllabi and should include the penalties for incidents in a given class. Students should have a clear idea of what constitutes cheating in a given course.
* ***Safety Concerns:*** In some courses, this may be a major issue. For example, “No student will be allowed in the lab without safety glasses”. General statements such as, “Items that may be harmful to one’s self or others should not be brought to class”.
* ***Library/ Learning Resources:*** Since the development of the total person is part of our mission, assignments in the library and/or the Learning Resources Center should be included to assist students in enhancing skills and in using resources. Students should be encouraged to use the library for reading enjoyment as part of lifelong learning.

**Expanded Course Outline:**

I. Introduction to Classical Mechanics

A. Physics as a Natural Science

B. Scientific Method

C. Measurement, units and significant digits

II. Kinematics

A. Vectors and vector operations

B. Motion in 1- dimension to include displacement, velocity and acceleration

C. Motion in 3 dimensions

III. Newton’s Laws of Motion

A. Tension, Normal Force and Friction

B. Applications of Newton’s Laws

IV. Rotations and Uniform Circular Motion

III. Work and Energy

A. Work and kinetic energy

B. Potential energy and applications of energy conservation