1. **COURSE TITLE\*:** College Physics for Scientists and Engineers Lab I
2. **CATALOG** **PREFIX**: PHYS  **COURSE NUMBER** 2231 **COURSE SECTION\*:**
3. **PREREQUISITE(S)\*:** None **COREQUISITE(S)\*:** PHYS 2221
4. **COURSE TIME/LOCATION: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*:** 1 **LECTURE HOURS\*:** 0

**LABORATORY HOURS\*:** 1 (2 contact) **OBSERVATION HOURS\*:** 0

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

This lab course provides concurrent hands on experiments, which require imperial data to be collected, analyzed, and synthesized to solidify the physical concepts in PHYS 2221. Lab must be taken concurrently with PHYS 2221 General Physics I.

1. **LEARNING OUTCOMES\*:**
2. The student will recognize the fundamental importance of the laboratory investigation.
3. The student will acquire an understanding of the measurement process, converting conceptual ideas into measurable quantities.
4. The student will use the correct procedure for making a measurement, paying attention to method, precision, accuracy, units, dimensions, and error analysis.
5. The student will understand that this laboratory will support or confirm the principles explored in the lecture
6. The student will solidify their understanding of concepts from lecture through analyzing and synthesizing data from experiments.
7. **ADOPTED TEXT(S)\*:**

There is no formal textbook. A series of supplemental notes will be distributed during the course.

1. **OTHER REQUIRED MATERIALS:** None
2. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: Below 60

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

Example: 10-12 Labs:

25% active participation in lab.

75% written lab reports

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

A minimum of 10 labs, of those, a minimum of 8 labs that have substantial data collection and analysis. A preference for hands on experimentation, with allowances for interactive simulations when hands on experiments are unfeasible or where simulations provide better data/outcomes than hands on experiments. Computation and formula manipulation are key skills germane to success in the course these labs support. A maximum of 4 computational labs (recitations) allowed. The specific lab, schedule, and topic are the prevue of the instructor.

**14. COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

A series of experiments will be performed supporting the course objectives. All learning objectives must be met for each lab

Example Schedule by Topic:

Trigonometry and Vectors

Kinematics – one and two dimensional

Force and Newton’s Laws of Motion

Work, Energy, Conservation of Energy

Linear momentum/Collisions

Rotational kinematics and dynamics

Angular momentum and rotational energy

Simple harmonic motion

Waves and sound

Solid and fluid properties

Heat and thermodynamics

Kinetic theory of gases

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

The course design provides instruction and materials to support the course objectives. Classes may consist of a variety of means to accomplish this including but not limiting to: lectures, class discussions, small group projects, supplemental materials, and outside assignments. Practice is an important part of the learning process. For every one hour of class time, two additional hours of study time should be expected

Students who exhibit behavior that is disruptive to the learning process will after a verbal warning be dismissed from the class.

In the laboratory, students are required to follow all safety rules and procedures specified by the instructor. Anyone not working quietly and safely will be asked to leave and will receive a zero for that day's lab assignment.

**16. FERPA:\***

Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. DISABILITIES:\***

Students with disabilities may contact the Disability Services Office, Central Campus, at 800-628-7722 or 937-393-3431.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the