1. COURSE TITLE*: General Physics I (Algebra Based)

2. CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION*: PHYS 2201

3. PREREQUISITE(S)*: MATH 1141 **and** 1142, or the equivalent. Or: MATH 1120 **or** MATH 1141 Students with the following majors: EENG, ENDS, AVIT, and CSCI

COREQUISITE(S)*:

4. COURSE TIME/LOCATION/MODALITY: (*Course Syllabus – Individual Instructor Specific*)

5. CREDIT HOURS*: 5 LECTURE HOURS*: 4
LABORATORY HOURS*: 1 (2 contact hours) OBSERVATION HOURS*:0

6. FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)*

7. COURSE DESCRIPTION*:
An introductory algebra-based survey course suitable for science and pre-med majors, covering the topics of measurement, space, time, vectors, one dimensional and multi-dimensional motion, dynamics, forces, work and energy, conservation of energy, systems of particles, collisions, rotational motion, rotational dynamics, elasticity, fluids, gravitation, waves and sound, heat and thermodynamics.

The lab portion of the course provides concurrent hands on experiments, which require imperial data to be collected, analyzed, and synthesized to solidify the physical concepts in PHYS 2201.

8. LEARNING OUTCOMES*:

According to OSC014 Ohio Transfer Assurance Guidelines, at the completion of this course the student will have an understanding of and be able to apply the following topics using algebra concepts of methods where appropriate:

1. Kinematics – one and two dimensional
2. Vectors – vector Arithmetic
3. Force and Newton's Laws of Motion
4. Work, Energy, Conservation of Energy

5. Linear momentum
6. Collisions
7. Rotational kinematics and dynamics
8. Angular momentum and rotational energy
9. Simple harmonic motion
10. Waves and sound
11. Solid and fluid properties
12. Heat and thermodynamics
13. Kinetic theory of gases

Lab learning outcomes:

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

9. ADOPTED TEXT(S)*:

College Physics
11th edition, 2017.
Serway, and Vuille.
Cengage Learning,
ISBN #978-0-357-53892-0 this is the Inclusive Access version

If you want to opt out of the inclusive access the print version of this book is
ISBN #9781337741620 loose leaf version

9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) *.**

10. OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.) **

A scientific calculator is needed.

11. 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: 0 – 59

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

EXAMPLE:

60% of final grade will be from tests, quizzes, and projects/ presentations
Breakdown of the 70%

50-55% of your final grade: 4-5 tests. Each test will consist of a take home and in class portion
5-10% of your final grade: 4-6 quizzes, announced and unannounced
0-10% of your final grade: A group project / presentation

20% of final grade will be from homework, attendance, and participation

20% of final grade will be from labs
5% active participation in lab
15% written lab reports

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

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.

Labs:

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)***

(Insert sample course outline with learning outcomes tied to assignments / topics.)

EXAMPLE:

By Topic:

1: Introduction.
2: Motion in One Dimension.
(OSC014 – Standard 1)
3: Vectors and Two-Dimensional Motion.
(OSC014 – Standards 1 and 2)
4: The Laws of Motion.
(OSC014 – Standard 2 and 3)
5: Energy.
(OSC014 – Standard 4)
6: Momentum and Collisions.
(OSC014 – Standards 2, 5 and 6)
7: Rotational Motion and the Law of Gravity.
(OSC014 – Standard 2, and 7)
8: Rotational Equilibrium and Rotational Dynamics.
(OSC014 – Standards 2, 7 and 8)
9: Solids and Fluids.
(OSC014 – Standard 11)
10: Thermal Physics.
(OSC014 – Standard 12)
11: Energy in Thermal Processes.
(OSC014 – Standard 13)
12: The Laws of Thermodynamics.
(OSC014 – Standard 12)
13: Vibrations and Waves.
(OSC014 – Standards 2, 9 and 10)
14: Sound.
(OSC014 – Standard 2, 10)

Lab: 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***:

Suggested pace for the course, by TOPIC:

Week 1:	1, 2
Week 2:	2, 3, Lab 1
Week 3:	3, 4, Lab 2
Week 4:	5, Lab 3
Week 5:	6, Lab 4
Week 6:	7
Week 7:	7, 8, Lab 5
Week 8:	8, Lab 6
Week 9:	9, Lab 7
Week 10:	10
Week 11:	10, 11, Lab 8
Week 12:	11, Lab 9
Week 13:	12, Lab 10
Week 14:	13, Lab 11
Week 15:	14, Lab 12
Week 16	Finals

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 their work may be seen by others. Others may see students' 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 their work may be submitted to other entities for the purpose of plagiarism checks.

17. ACCOMMODATIONS: *

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431 X 2604.

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 faculty member.