PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: PHYS 200 Fundamentals of Physics

UNIT VALUE: 5

MINIMUM NUMBER OF SEMESTER HOURS: 112

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: Completion of, or concurrent enrollment in, MATH 140

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE: A calculus-based course in classical mechanics, waves, sound, fluids and thermodynamics, with an emphasis on life science, pre-professional, and architectural fields. CSU; UC* (PHYS 230 series recommended for majors in engineering, computer science, or physics.)

SPECIFIC COURSE OBJECTIVES:
The successful student will be able to:

1. Demonstrate a comprehensive understanding of introductory classical mechanics, waves, thermodynamics, sound and fluids, which is intended for lower division students.
2. Apply physics concepts and principles of classical mechanics, waves, thermodynamics, sound and fluids at the undergraduate college level
3. Analytically solve quantitative physics problems.
4. Apply laws of classical mechanics, waves, thermodynamics, sound and fluids to laboratory situations, perform experiments, collect and analyze data, and prepare and present reports.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

LECTURE:

I. Classical Mechanics
   - A. Vectors
   - B. Kinematics
   - C. Dynamics
   - D. Work and Energy

E. Linear Momentum
F. Collisions
G. Rotational Kinematics
H. Rotational Dynamics
I. Angular Momentum
J. Harmonic Motion
K. Wave Motion
L. Gravitation

II. Waves
A. Sound waves
B. Superposition and Standing waves

III. Thermodynamics
A. Temperature, Heat, and the first law of thermodynamics
B. Kinetic theory of gases
C. Heat engines
D. Entropy and the second law of thermodynamics

IV. Fluids
A. Density and pressure
B. Fluids at rest
C. Pascal's Principle
D. Archimedes' Principle
E. Fluids in motion
F. Bernoulli's Equation

LAB:

Selected experiments dealing with the above subject matter.

Additional topics may be included at instructor's discretion for lecture or lab.

REQUIRED READING:

Serway, Raymond A., and Robert Faughn. Principles of Physics. 3rd Ed. New York: Saunders College Publishing, 2000.

OR

Heath, Richard. Physics Calculus. 2nd Ed. New York: Addison Wesley, 2000.

AND

Finkenthal, D. Physics 120/200 Lab Experiments. Palomar College, 2001.

SUGGESTED READING:

Faughn, Robert. Life Science Applications to Physics. 1st Ed. New York: Saunders College Publishing, 1996.

Ching, Francis D.K., Building Construction Illustrated. 3rd Ed. New York: John Wiley & Sons, Inc. 2001

REQUIRED WRITING:
The course exams, outside assignments, and laboratory reports emphasize the use of diagrams, data, and physics equations. Some instructors may require a formal lab write-up or the ability to summarize the laboratory in a written form. Problem-solving exercises are highly emphasized in this course.
OUTSIDE ASSIGNMENTS:
Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Preparation includes such activities as readings in the assigned text, review of lecture and laboratory materials, and solving assigned problems.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:
_X_ lecture
_X_ laboratory
_____ lecture-laboratory combination
_____ directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.
Yes ____ No_X_

If yes, check all that apply:

_____ Television Course (Video one-way, e.g. ITV, video cassette, etc.)
_____ Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
_____ Two-Way Video Conferencing (Two-way interactive video and audio)
_____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
_____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

Grades are primarily determined by student's scores on term exams and a comprehensive final exam. Exams are principally composed of physics problems that require quantitative solutions. The laboratory work will be weighted at 20% of the total course grade with the remainder to be determined by the instructor.

Suggested Grade Distribution:

Three or more exams	20-40%
Homework or Other Assignments	0-30%
Final exam	20-40%
Lab	20%

An insufficient performance in lab may result in effectively lowering the course grade by more than 20%.

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?
Yes ____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON: Daniel Finkenthal

SIGNATURES ON FILE