BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

PHYS 10 - Concepts of Physics **3 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level IV; Math Level IV
Transfer Status: CSU/UC
51 hours Lecture

Emphasis is placed on physics from a conceptual rather than a mathematical approach. Topics include: Newton's Laws of Motion, energy and momentum. Depending on the students' interests, further topics may include: Heat and Thermodynamics, Electricity and Magnetism, Light and Optics, and Atomic and Nuclear Physics. Not intended for students who have completed high school physics or Physics 21 or 41.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. demonstrate an understanding of concepts of thermodynamics: Laws of thermodynamics, heat transfer.
B. demonstrate an understanding in concepts of wave theory: Vibrations and waves, sound, light.
C. apply the laws of physics to new situations.
D. demonstrate an understanding of classical mechanics concepts: Newton's laws of motion, conservation of energy, conservation of linear momentum.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics		Hours
1.	Motion	4.00
2.	Newton's Laws	6.00
3.	Energy	3.00
4.	Momentum	3.00
5.	Rotational Motion	6.00
6.	Gravitation	3.00
7.	Properties of Matter	3.00
8.	Heat	6.00
9.	Sound	4.00
10.	Light	6.00
11.	Electricity and Magnetism	3.00
12.	Atomic and Nuclear Physics	2.00
13.	Relativity and Astrophysics	2.00
Total Hours		51.00

IV. **METHODS OF INSTRUCTION**

A. Lecture
B. Collaborative Group Work
C. Class Activities
D. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
E. Discussion
F. Demonstrations
G. Problem-Solving Sessions
H. Reading Assignments
I. Multimedia Presentations
J. The lecture will be used as the primary mode of instruction, supplemented with numerous demonstrations and experiments.

V. **METHODS OF EVALUATION**

A. Exams/Tests
B. Quizzes
C. Papers
D. Oral Presentation
E. Homework
F. Mid-term and final examinations

VI. **EXAMPLES OF ASSIGNMENTS**

A. Reading Assignments
B. Writing Assignments
C. Out-of-Class Assignments

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Materials Other Than Textbooks:

A. Conceptual Physics, 10th Edition, by Paul G. Hewitt 2006
B. Hewitt, Paul, Practicing Physics: Conceptual Physics, 10e

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