PHYS 10 Course Outline as of Spring 2009

CATALOG INFORMATION

Dept and Nbr: PHYS 10 Title: DESCRIPTIVE PHYSICS
Full Title: Descriptive Physics
Last Reviewed: 4/19/2010

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
Descriptive survey of principles of classical and modern physics emphasizing basic concepts, which may include some problem solving using elementary algebra.

Prerequisites/Corequisites:
Math 150B or Math 151 or equivalent.

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: Descriptive survey of principles of classical and modern physics emphasizing basic concepts, which may include some problem solving using elementary algebra. (Grade or P/NP)
Prerequisites/Corequisites: Math 150B or Math 151 or equivalent.
Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	C	Natural Sciences	Fall 1981	Fall 2015
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B1	Physical Science	Fall 1981	Fall 2015
IGETC:	**Transfer Area**		Effective:	Inactive:
	5A	Physical Sciences	Fall 1981	Fall 2015

CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2015
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive:	Fall 2015

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon completion of this course students should be able to do the following:

1. Explain motion in one dimension including free fall, and use Newton’s laws to solve problems related to motion.
2. Define force, energy, momentum, impulse, and describe the relationship between these parameters.
3. Describe types of rotational motion and their application to the movement of planets.
4. Explain the states of matter, and atomic and nuclear theory.
5. Define temperature, thermal energy and heat transfer and the effect of thermal energy on materials.
6. Describe different types of waves, their propagation and interference.
7. Describe static electricity, the field associated with charges and the force between various charges.
8. Interpret series/parallel circuits and Ohm’s law.
9. Define magnetism, Ampere’s law, Faraday’s law of induction and their practical applications.
10. Explain full electromagnetic spectrum, visible optics/colors and optical components and systems.
11. Describe the wave interference phenomenon.
12. Describe the concepts related to relativity, quantum physics, atomic physics and nuclear physics.

Topics and Scope:

1. Mechanics
   a. linear motion
   b. nonlinear motion
   c. Newton's law of motion
   d. momentum

e. energy
f. rotational motion
g. gravity
h. satellite motion

2. Properties of matter
   a. atomic nature of matter
   b. solids
   c. liquids
   d. gases and plasmas
3. Heat
   a. temperature, heat and expansion
   b. heat transfer
   c. change of state
4. Sound
   a. vibrations and waves
   b. sound
   c. musical sounds
5. Electricity and magnetism
   a. electrostatics
   b. electric current
   c. magnetism
   d. electromagnetic induction
6. Light
   a. properties of light
   b. color
   c. reflection and refraction
   d. light waves
   e. light emission
   f. light quanta
7. Atomic and nuclear physics
   a. the atom
   b. atomic nucleus and radioactivity
   c. nuclear fission and fusion
8. Relativity
   a. special theory of relativity
   b. general theory of relativity

Assignment:

1. Read approximately one chapter of textbook per week
2. Homework: 0-12 assignments
3. Quizzes: 0-16
4. Midterm exams: 2-4
5. Special projects: 0-1
6. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Homework problems	Writing 0 - 10%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Mathematical solutions to physics homework problems	Problem solving 0 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, true/false, matching items, completion	Exams 70 - 80%

Other: Includes any assessment tools that do not logically fit into the above categories.

Special project	Other Category 0 - 10%

Representative Textbooks and Materials:
CONCEPTUAL PHYSICS by Hewitt, 10th ed., Addison Wesley, 2006