PHYS 3B Course Outline as of Fall 1999

CATALOG INFORMATION

Dept and Nbr: PHYS 3B Title: GENERAL PHYSICS LAB
Full Title: General Physics Lab
Last Reviewed: 2/25/2019

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	0	17.5	Lecture Scheduled	0
Minimum	1.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		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: 0.00 Total Student Learning Hours: 52.50

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:
Laboratory experiments to accompany Physics 2B.

Prerequisites/Corequisites:
Phys 2B completed or in progress.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Lab experiments to accompany Physics 2B. (Grade or P/NP)
Prerequisites/Corequisites: Phys 2B completed or in progress.
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC. (CAN PHYS 3B+PHYS 2B=PHYS4)(PHYS 3B+PHYS 3A+PHYS 2B+PHYS 2A=PHYS SEQ A)
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B3	Laboratory Activity	Spring 1982	
IGETC:	**Transfer Area**		Effective:	Inactive:
	5C	Fulfills Lab Requirement	Fall 1981	

CSU Transfer:	Transferable	Effective:	Spring 1982	Inactive:	Fall 2021
UC Transfer:	Transferable	Effective:	Spring 1982	Inactive:	Fall 2021

CID:

CID Descriptor: PHYS 100S	Algebra/Trigonometry-Based Physics: AB
SRJC Equivalent Course(s):	PHYS20 AND PHYS20L AND PHYS21 AND PHYS21L OR PHYS20A AND PHYS20B
CID Descriptor: PHYS 110	Algebra/Trigonometry-Based Physics B
SRJC Equivalent Course(s):	PHYS21 AND PHYS21L OR PHYS20B

Certificate/Major Applicable:
Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon completion of the course, the student should be able to:
1. Explain concepts of electric charge, current, resistance, potential difference and emf.
2. Perform a number of experiments to analyze DC and AC circuits including constructing circuits containing various combinations of resistance, coils and capacitors and making measurements using a digital multimeter, the oscilloscope, and the computer with current probes and voltage probes.
3. Measure magnetic fields using the computer and a magnetic field probe and determine the direction of induced currents produced by changing magnetic fields.
4. Explain concepts involving the formation of images by pin holes and lenses.
5. Construct a microscope and telescopes and explain their operation.
6. Determine the wavelength of light from a gas discharge tube using a spectroscope.
7. Use a computer with a radiation detector to measure the activity of a radioactive source.
8. Construct graphs using computer graphing programs for the analysis of experimental data including variations of strength of magnetic field with distance from a permanent magnet or electromagnet, resonance curves for RLC circuits, the calibration

curve for a spectroscope, variations of intensity of radiation with distance from a radioactive source.

Topics and Scope:

Topics covered include:
1. Electrostatics.
2. Fundamental concepts of DC circuits: current, resistance, voltage, emf.
3. Fundamentals of DC circuits: resistance in series and parallel.
4. Magnetic fields: the earth•s field, permanent magnets, current-carrying coils.
5. Electromagnetic induction and transformers.
6. Inductance, capacitance and resonance.
7. Images formed using pin holes and lenses.
8. Microscopes and telescopes.
9. Analysis of light by a spectroscope.
10. Radioactive decay and the inverse square law of radiation.

Assignment:

1. No less than 12 laboratory experiments.
2. One mid-term exam.
3. 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.

None	Writing 0 - 0%

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

Lab reports, Exams	Problem solving 0 - 0%

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.

PHYSICS PROBLEMS TO SOLVE	Exams 20 - 30%

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

LAB REPORTS	Other Category 70 - 80%

Representative Textbooks and Materials:
Physics Laboratory Experiments by Wilson, 4th Edition, 1994, D.C. Heath & Co.