

**PHYS 21L Course Outline as of Summer 2013****CATALOG INFORMATION**

Dept and Nbr: PHYS 21L Title: GENERAL PHYSICS LAB II

Full Title: General Physics Lab Part II

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	6	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: PHYS 3B

**Catalog Description:**

Lab experiments to accompany Physics 21.

**Prerequisites/Corequisites:**

Phys 21 completed or in progress.

**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: Lab experiments to accompany Physics 21. (Grade or P/NP)

Prerequisites/Corequisites: Phys 21 completed or in progress.

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

**ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>		Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	B3	Laboratory Activity	Spring 1982	
<b>IGETC:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	5C	Fulfills Lab Requirement	Fall 1981	
<b>CSU Transfer:</b>	Transferable	Effective:	Spring 1982	Inactive: Fall 2021
<b>UC Transfer:</b>	Transferable	Effective:	Spring 1982	Inactive: Fall 2021
<b>CID:</b>				
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:**  
Major Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

Upon completion of the course, students will 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 by constructing circuits containing various combinations of resistance, coils and capacitors.
3. Measure voltages and currents using a digital multimeters and/or oscilloscopes.
4. Measure magnetic fields using magnetic field probes and determine the direction of induced currents produced by changing magnetic fields.
5. Explain concepts involving the formation of images by pin holes, mirrors and lenses.
6. Construct a microscope and telescope and explain their operation.
7. Determine the wavelength of light from a gas discharge tube using a spectroscope.
8. Use a computer with a radiation detector to measure the activity of 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 formal or group report for each experiment
3. 0-2 mid-term exam(s)
4. 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.

Lab reports

Writing  
60 - 90%

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

None

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.

Quizzes, mid-term exam, and final exam

Exams  
10 - 40%

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

None

Other Category  
0 - 0%

### Representative Textbooks and Materials:

Instructor prepared lab manual