

PHYS 21L Course Outline as of Fall 2019

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	8	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:**  
Course Completion of PHYS 20L; AND Course Completion or Current Enrollment in PHYS 21

**Recommended Preparation:**

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Lab experiments to accompany Physics 21. (Grade or P/NP)  
Prerequisites/Corequisites: Course Completion of PHYS 20L; AND Course Completion or Current Enrollment in PHYS 21  
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>			<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>			<b>Effective:</b>	<b>Inactive:</b>
	B3	Laboratory Activity		Spring 1982	
<b>IGETC:</b>	<b>Transfer Area</b>			<b>Effective:</b>	<b>Inactive:</b>
	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**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Collect and analyze experimental data related to alternating current (AC) and direct current (DC) circuits, magnetism, optical instruments, gas spectra and radioactivity.
2. Plot, curve fit, and interpret the data using spreadsheet software.

### **Objectives:**

Students will be able to:

1. Explain concepts of electric charge, current, resistance, potential difference and EMF.
2. Construct and analyze DC and AC 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 and determine the direction of currents induced 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. Measure the activity of a radioactive source.

### **Topics and Scope:**

Topics covered include:

1. Electrostatics
2. Current, resistance, voltage, EMF
3. Resistors in series and parallel
4. Magnetic fields
5. Electromagnetic induction and transformers

6. Inductance, capacitance and resonance
7. Images formation
8. Microscopes and telescopes
9. Analysis of light by a spectroscope
10. Radioactive decay and the inverse square law of radiation

### Assignment:

1. Laboratory experiments and reports (12 - 16)
2. Quizzes (0 - 10)
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.

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 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