



**Course Descriptor  
PHYS182 Physics II Lab)**

<b>Proposed Academic Year</b>	2021-22	<b>Last Reviewed Academic Year</b>	2018-19
<b>Course Code</b>	PHYS182	<b>Course Title</b>	Physics I Lab
<b>Credit hours</b>	1	<b>Level of study</b>	Undergraduate
<b>College / Centre</b>	CAHS	<b>Department</b>	DBS
<b>Co-requisites</b>	PHYS102	<b>Pre-requisites</b>	None

**1. COURSE OUTLINE**

[Physics is an experimental science. The theory that is presented in lectures has its origins and is validated by experimental measurement through experiments. Physics 182 laboratory is the lab companion for PHYS102 theory. This course focuses on experiments of the basic principles and concepts in Physics 102. It is designed for students who will take their undergraduate degree programs in Engineering and Applied Sciences.

**2. AIMS**

[The aim of this module is to lay a firm foundation for students to apply the basic principles and laws of Physics. The module will introduce students to calorimeters, magnetic field lines, optical constants of glass slabs, mirrors and lenses, AC signals and RLC series circuits. It will develop experimental techniques, in particular skills of data analysis, the understanding of experimental uncertainty, and the development of graphical visualization of data.

**3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS**

<b>Learning Outcomes (Definitive)</b>	<b>Teaching and Learning methods (Indicative)</b>	<b>Assessment (Indicative)</b>
Upon successful completion of this course, students will be able to:		
1. Demonstrate an understanding specific heat capacity of a solid object	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment
2. Analyse the magnetic field lines around a bar magnet	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment
3. Measure the amplitude and frequency of AC signals generated using a CRO	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment
4. Construct and analyse the series RLC circuits	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment
5. Determine the angle of refraction and measure the critical angle.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment



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6. Graphically represent and analyse experimental data.	Lecture and Demonstration Lab Work ,Group work	Lab work sheet, Pre lab assignment Written Examination
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**4. ASSESSMENT WEIGHTING**

Assessment	Percentage of final mark (%)
Midterm Examination	20%
Lab Report	20%
Quizzes	20%
Final Examination	40%
<b>TOTAL</b>	<b>100%</b>

**5. ACHIEVING A PASS**

Students will achieve **1** credit hours for this course by passing **ALL** of the course assessments [*alternatively, list the compulsory pass assessments\**] and achieving a **minimum overall score of 50%**

**NB \*Ensure that ALL learning outcomes are taken into account**

**6. COURSE CONTENT (Indicative)**

Specific Heat Capacity of A Solid	
Magnetic Field and Magnetic Lines of Force	
Analysis of an R-L Series Ac Circuit	
Analysis of an R-C Series Ac Circuit	
Analysis of An RLC Series Ac Circuit	
Measurement Of Amplitude and Frequency of AC Signals Using A CRO	
Refraction and Total Internal Reflection of Light	
Optical Constants of a Convex Lens	
Focal Length of A Concave Mirror	
<b>TOTAL HOURS</b>	<b>45</b>
Plus <b>RECOMMENDED INDEPENDENT STUDY HOURS</b>	<b>15</b>
<b>TOTAL COURSE HOURS</b>	<b>60</b>

**7. RECOMMENDED REFERENCES**

**Core text/s:**

Walker James S (2016) Fourth edition Pearson international edition



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Giancoli, Douglas C (2014) Physics: Principles with Application Seventh Edition Pearson  
Prentice Hall International edition

**Library + online resources:**

<http://www.physics.smu.edu/~scalise/apparatus/caliper/>  
<http://www.technologystudent.com/equip1/microm1.htm>  
[http://physicscatalyst.com/elec/current\\_4.php](http://physicscatalyst.com/elec/current_4.php)  
<http://hyperphysics.phy-astr.gsu.edu/hbase/electric/ohmlaw.html>  
<http://moodle.asu.edu/course/view.php?id=8463>

**Open Educational Resources:**

<https://archive.org/stream/physics00paul#>  
[https://archive.org/stream/isbn\\_9780470379257#](https://archive.org/stream/isbn_9780470379257#)  
[https://openlibrary.org/works/OL2538490W/Fundamentals\\_of\\_physics](https://openlibrary.org/works/OL2538490W/Fundamentals_of_physics)