



Course Descriptor PHYS101 Physics I)

Proposed Academic Year	2021-22	Last Reviewed Academic Year	2020-21
Course Code	PHYS101	Course Title	Physics I
Credit hours	3	Level of study	Undergraduate
College / Centre	CAHS	Department	DBS
Co-requisites	PHYS181	Pre-requisites	None

1. COURSE OUTLINE

[An understanding of the basic concepts of Physics is fundamental for developing students' understanding of the more applied scientific disciplines such as Chemistry, Biology and other Applied Sciences. Physics 101 is an introductory Physics module focusing on basic principles and concepts in Physics. It is designed for students who will continue their Second Year degree programs in Engineering and Applied Sciences.

2. AIMS

[The aim of this module is to lay a firm foundation for students in basic principles of Physics. The module will introduce students to the concepts of kinematics, Newton's laws, work and energy, gravitation, conservation laws, momentum, fluid dynamics, thermal physics and electricity. It will develop verbal, mathematical, critical thinking and problem-solving skills.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
Upon successful completion of this course, students will be able to:		
1. Demonstrate an understanding of core concepts in Physics which includes force and motion, work and energy, fluid dynamics, thermodynamics and electricity	Power point presentations , lectures and class activity	Written examinations, Assignment
2. Discuss different types of energy e.g. potential energy and kinetic energy.	Power point presentations , lectures and class activity	Written examinations, Assignment
3. Differentiate among density, mass, volume and weight and determine buoyancy using Archimedes' principle.	Power point presentations , lectures and class activity	Written examinations, Assignment
4. Construct DC circuits and measure electrical properties.	Power point presentations , lectures and class activity	Written examinations, Assignment
5. Apply critical thinking skills in solving physics related problems.	Power point presentations , lectures and class activity	Written examinations, Assignment



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4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quizzes	30
Midterm Examination	20
Assignment	10
Final Examination	40
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **3** 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)

Introduction to physics, units, dimensions and significant figures	3
Reference frames, displacement, velocity, acceleration, motion with constant acceleration, free fall of objects	3
Force Newton's laws of motion, momentum,	3
impulse ,free body diagrams, applications of Newton's laws	3
Work done by constant force and varying force, potential energy, kinetic energy	3
power, conservation of energy	3
Mid term 1	
Density, pressure, Archimedes' principle and buoyancy	3
, Pascal's principle	
Boyle's law and Bernoulli's principle	3
Temperature, heat, internal energy, specific heat capacity	3
, thermal expansion, heat transfer,	3
phase changes and latent heats, first law of thermodynamics.	3
Electric charges, force and field. Coulomb's law,	3
electrical potential , electric circuits ohm's law	3
DC Circuits	3
Revision	3



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TOTAL HOURS	45
Plus RECOMMENDED INDEPENDENT STUDY HOURS	15
TOTAL COURSE HOURS	60

7. RECOMMENDED REFERENCES

Core text/s:

Walker James S (2010) Fourth edition Pearson international edition

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://hyperphysics.phy-astr.gsu.edu/hbase/electric/ohmlaw.html>

<http://moodle.asu.edu.om/course/view.php?id=8463>

Open Educational Resources:

<https://archive.org/stream/physics00paul#>

https://archive.org/stream/isbn_9780470379257#

https://openlibrary.org/works/OL2538490W/Fundamentals_of_physics