2023
TP-153

Course Specification
(Bachelor)

Course Title:	**General Physics Lab.(1)**
Course Code:	**PHYS103-1**
Program:	**Physics**
Department:	**Physical Sciences**
College:	**Science**
Institution:	**Jazan University**
Version:	**1st**
Last Revision Date:	

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (1)					
2. Course type					
A.	☐University	☒ College	☐Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered:	**1st Level / 1st Year**				
4. Course general Description:					
This course covers experiments related to general physics (1) theory course includes: accurate measurements, vectors, free fall, projectile, friction, elasticity, Archimedes' Principle, Surface tension, viscosity, thermal conductivity, thermal expansion, specific heat and ohms law.					
5. Pre-requirements for this course (if any)**:**					
6. Co-requisites for this course (if any)**: PHYS102-3**					
7. Course Main Objective(s):					
This course was designed to provide students with the following skills: 1. Verification of some laws in electricity and magnetism. 2. Connection of different electric circuits and acquirement of some skills regarding the circuits' testing. 3. Plotting some graphs for the obtained data and analyzing the results. 4. Calculation of the unknown parameters from the graphs, comparing with the theoretical values and calculation of the mean values and determination of the error bars. **5.** Interpretation of the obtained results in view of the theoretical background					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	26	100%
2	E-learning		
3	Hybrid		

No	Mode of Instruction	Contact Hours	Percentage
	• Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	
2.	**Laboratory/Studio**	26
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		26

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Define** units of physical quantities, Newton laws, Archimedes' principal, the functional relationship between the height of the freefall and falling time, Ohm's law, heat, specific heat, calorimeter, latent heat and phase change, thermal conduction and thermal conductivity, thermal convection, and thermal .	**PLO 1.1**	Lectures, blackboard and visualization, group and interactive guided discussion, Interactive discussion	**Direct** (formative and summative): In class interactive questioning, quizzes, written exams Indirect: student survey

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
	.			
1.2	**State** vector quantity, scalar quantity, meter, kilogram, second, position, displacement, distance, velocity, acceleration, force, mass, weight, work, , , pressure, density, buoyant force, electric current, current density, thermal expansion of solids and liquids, specific heat	**PLO 1.2**	Lectures, blackboard and diagram illustration, group discussion, Interactive illustrations- Student contribution	**Direct** (formative and summative): In class interactive questioning, quizzes, written exams Indirect: student survey
…				
2.0	**Skills**			
2.1	**Calculate** dimension of physical quantity, velocity, acceleration, maximum height, range, force, weight, work, energy, power, pressure, density,resistance, current, potential difference, speed of sound, thermal expansion of solids and liquids and specific heat.	**PLO 2.1**	Lectures, blackboard and visualization, brain storming, group and interactive discussion, Interactive illustration – Problem based learning	Lectures, blackboard and visualization, brain storming, group and interactive discussion, Interactive illustration – Problem based learning
2.2	**Perform** experiments using different analog and digital devices and plot the characteristics of different types of devices	**PLO2.3**	Hands on lab demonstrations- guided discussion – guided discovery	**Direct** (formative and summative): Evaluation of assignments, Step-by-step checkpoint assessment of experiment, In lab interactive

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
				questioning, quizzes, written exams Indirect: student survey
2.3	**Develop** competencies in critical thinking, communication and writing lab reports.	**PLO 2.4**	Lectures, blackboard and visualization, brain storming, group and interactive discussion, Interactive illustration – Problem based learning	**Direct** (formative and summative): In class interactive questioning, quizzes, written exams Indirect: student survey
3.0	**Values, autonomy, and responsibility**			
3.1	**Demonstrate** abilities to work in groups and bear individual responsibility during lab work, interactive discussion and group assignments	**PLO3.1**	Interactive and Group discussion, expository and discovery teaching	**Direct** (formative and summative): In lab interactive questioning Indirect: student survey
3.2	**Show** awareness of safety for own and others when dealing with lab equipment	**PLO3.3**	Case study-interactive demonstration-guided discussion	**Direct** (formative and summative): In lab interactive questioning Indirect: student survey
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Determination the density of some regular shaped substances using accurate measurements.	2
2.	Study the composition and resolution of concurrent forces using force table.	2
3	Verification of the functional relationship between the height of the freefall and falling time.	2
4	Determination the initial velocity and range of the projectile.	3
5	Determination of the coefficient of static friction between two surfaces.	2
6	Verification of Archimedes' Principle.	2
7	Determination of the Surface tension of water.	2
8	Determination of the viscosity of a liquid.	2
9	Determination of the thermal conductivity coefficient for a solid.	2
10	Determination of the linear thermal expansion coefficient of a Solid.	2
11	Determination of the specific heat of a solid by the method of mixtures.	2
12	Verification of Ohms law.	3
Total		26

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Lab report	1-13	35 %
2.	Midterm exam	8	25%
3.	Final exam	14	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	• College Physics; R. A.Serway, C.Vuille and J.Faughn; BROOKS/ COLE, CENGAGE Learning; 8th Edition, 2008.
Supportive References	• A laboratory Manual of Physics; F Tylor, 4th edition, Edward Arnold LTD, 1974. • Fundamentals of Physics; Halliday, Resnik and Walker, John Wiley & Sons 9th Edition, 2011.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	laboratories
Technology equipment (projector, smart board, software)	smart board
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Peer and program leader	Indirect (CES)- Indirect peer evaluation
Effectiveness of Students assessment	Students, Program assessment committee	Direct/Indirect
Quality of learning resources	Students, Faculty members	indirect

Assessment Areas/Issues	Assessor	Assessment Methods
The extent to which CLOs have been achieved	Instructor	Direct/Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	BOARD OF PHYSICS DEPARTMENT
REFERENCE NO.	IT IS CURRENTLY PENDING APPROVAL
DATE	2023