هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**General Physics**
Course Code:	**PHYS101**
Program:	**Physics**
Department:	**Physics**
College:	**Science**
Institution:	**Jazan University**
Version:	**2022**
Last Revision Date:	**20-12-2022**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	4				
2. Course type					
a.	University ☐	College ☒	Department☐	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:	2^{nd}Level/1^{st}Year				
4. Course general Description The course provides Principles of dimensions and units, vectors, motion in one-dimension, projectile motion, Newton's laws of motion, work, power and energy. The course covers concepts of linear momentum, collisions, pressure, buoyant force, Archimedes' principle, electric current, resistance, Ohm's law, speed of sound and Doppler Effect. Some practical experiments are included to demonstrate the principles involved.					
5. Pre-requirements for this course (if any): NIL					
6. Co- requirements for this course (if any): NIL					
7. Course Main Objective(s) **This course is designed to provide students with:** - Principles of dimensions and units, vectors, motion in one-dimension, projectile motion, work, power, and energy. - Concepts of linear momentum and collisions, pressure, buoyant force, electric current, and resistivity, speed of sound and Doppler Effect. - Applications of Newton's laws of motion, Archimedes' principle and Ohm's law. - Skills to solve problems regarding the physical principles. - Physical experiments to be performed and analyzed.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	60%
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning	22	40%

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	33
2.	Laboratory/Studio	22
3.	Field	-----

4.	Tutorial	-----
5.	Others (specify)	-----
	Total	55

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	**State** units of physical quantities, vector quantity, scalar quantity, Newton laws, conservation law of mechanical energy, conservation law of linear momentum. Pascal law, Archimedes's principal, Ohm's law, Doppler effect.	**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
1.2	**Define** vector quantity, scalar quantity, meter, kilogram, second, position, displacement, distance, velocity, acceleration, force, mass, weight, work, kinetic energy, potential energy, mechanical energy, power, momentum, pressure, density, buoyant force, electric current, current density, resistivity, audible wave, infrasonic wave, ultrasonic wave.	**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** dimensions of physical quantity, velocity, acceleration, maximum height, range, force, weight, work, energy, power, momentum, pressure, density, appearance, weight, resistance, current, potential difference, speed of sound, sound frequency.	**PLO 2.1**	Lectures, blackboard and visualization, brainstorming, group and interactive discussion, Interactive illustration – Problem based learning	Lectures, blackboard and visualization, brainstorming, group and interactive discussion, Interactive illustration – Problem based learning
2.2	**Perform** experiments		Hands on lab	**Direct**

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	using different analog and digital devices and plot the characteristics of different types of devices	**PLO2.3**	demonstrations-guided discussion – guided discovery	(formative and summative):Evaluation of assignments, Step-by-step checkpoint assessment of experiment, In lab interactive 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, brainstorming, 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
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B. Course Content

1. Theory Part:

No	List of Topics (Theoretical and Experimental)	Contact Hours
1	Dimensions and units (dimensional analysis and conversion of units).	3
2	Vectors (addition, subtraction, multiplication and components of a vector).	4.5
3	Motion in one dimension (one dimensional motion with constant acceleration).	4.5
4	Newton's laws of motion and solve problems regarding their applications.	4.5
5	Motion in two dimensions (projectile motion).	1.5
6	The work, the power and the energy.	3
7	Linear momentum and collisions.	3

8	Pressure, buoyant force and Archimedes' principle.	4.5
9	Electric current, Ohm's law and specific resistance.	3
10	Speed of sound in solids, speed of sound in fluids and Doppler's effect.	1.5
Total		33

2. Experimental Part

No	List of Topics	Contact Hours
1.	Density of shaped regular solids by accurate measurements	2
2.	Composition of Forces.	2
3.	Force and Acceleration –Newton's second law.	2
4.	Projectile Motion.	2
5.	Centripetal force experiment.	2
6.	Determination of acceleration of gravity by Hook"s Law and Simple Pendulum.	2
7.	Density of water using Archimedes' Principle.	2
8.	Surface tension of water by using metallic ring and capillary tube.	2
9.	Viscosity of a liquid	2
10.	Ohm's Law.	2
11.	Velocity of Sound in Air.	2
Total		22

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Home work, student Activities and quizzes	1-10	15
2.	Mid-term exam	6	15
3	Final practical exam	12	20
4	Final exam	13	50

*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	**Physics for Scientists& Engineers with Modern Physics; 7th edition, Serway, Saunders Golden Sunburst Series, 2007.**
Supportive References	**1-University Physics; H. Young and R. Freedman, Addison-Wesley Publishing Company, Inc., 11th edition, 2004.** **2- Fundamentals of Physics; Halliday, Resnik and Walker, John Wiley and Sons Inc., 2007.**
Electronic Materials	**https://spie.org/** **http://hyperphysics.phy-astr.gsu.edu/**

Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms and 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
The extent to which CLOs have been achieved	Instructor	Direct/Indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	DEPARTMENT BOARD
REFERENCE NO.	PHYS2304
DATE	28/2/2023

Approved by:

Head of Physics Department

Dr. Hussain Alathlawi