هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification

(Bachelor)

Course Title: General Physics (1)
Course Code: 2031204- 4
Program: BSc. Of Physics
Department: Physics
College: Science
Institution: Taif University
Version: 1
Last Revision Date: *Pick Revision Date.*

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (4 hours)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (2nd Level/ 1st Year)					
4. Course general Description:					
5. Pre-requirements for this course (if any): **None**					
6. Co-requisites for this course (if any): **None**					
7. Course Main Objective(s):					
- **Introduces main topics such as vector and scalar quantities, motion in one dimension, newton's laws of motion, work and energy.**					
- **Establishes a foundation in thermodynamics in preparation for more advanced courses.**					
- **Establishes a foundation in electricity and magnetism in preparation for more advanced courses.**					
- **Introduces main topics such as electric field and flux, capacitors, electromotive force, Kirchhoff's laws, electric circuits, magnetic fields and the magnetic forces, Faraday's law and AC circuits, electromagnetism, and its applications.**					
- **Recognizes the connection between electricity and magnetism and its applications.**					
- **Establishes a foundation in geometrical optics in preparation for more advanced courses.**					
- **Gives an overview and understanding of basic physics, with moderate use of mathematical formalism.**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	7	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	**50**
2.	**Laboratory/Studio**	**20**
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		**70**

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 and define the basic concepts of vectors and scalar, the work and energy, the temperature, the electricity, and the light.	K2	Lecture Discussion	Written exam

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.2	Identify the basic concepts and theories of vectors and scalars, distance and displacement, speed and velocity, electric field, temperature scales.	K1	Lecture Discussion	Written exam
...				
2.0	**Skills**			
2.1	Apply the main fundamental laws and theories to solve the problems of vectors, energy, electricity, and light.	S1	Problem solving	Written exam Activities
2.2	Develop a skill versatility in solving problems in vectors, energy, electricity, and light.	S2	Problem solving	Written exam Activities
2.3	Analyze qualitatively and quantitatively experimental data of electric circuits.		Practical	Lab reports Lab exam
3.0	**Values, autonomy, and responsibility**			
3.1	Work effectively within a group when performing activities and experiments.	V2	Practical	Lab reports Lab exam Activities
3.2	Act responsibly and be able to prepare a written scientific report	V3	Practical Discussion	Lab exam Activities
...				

C. Course Content

No	List of Topics	Contact Hours

Part 1		
1.	Unit1: **PHYSICS AND MEASUREMENTS** ▪ Introduction ▪ International system units Conversion of units	3
2.	Unit2: **VECTORS** ▪ Coordinate Systems ▪ Vector and Scalar Quantities ▪ Some Properties of Vectors ➢ Sum of vectors ➢ Negative vectors ➢ Graphical method ➢ Analytical method ▪ Components of a Vector ▪ Unit Vectors	3
3.	Unit3: **MOTION IN ONE DIMENSION** ▪ Position, Velocity, and Speed ▪ Acceleration ▪ Motion with constant acceleration (Kinematic Equations) ▪ Freely Falling Objects	3
4.	Unit4: **THE LAWS OF MOTION** ▪ The Concept of Force ▪ Newton's First Law and Inertial Frames ▪ Mass ▪ Newton's Second Law ▪ The Gravitational Force and Weight ▪ Newton's Third Law ▪ Some applications of Newton's Laws ▪ Forces of Friction	6
5.	Unit5: **ENERGY OF THE SYSTEM** ▪ Work Done by a Constant Force ▪ Work Done by a Varying Force ▪ Work Done by a Spring (Hook's law) ▪ Kinetic Energy (KE) and the Work–Kinetic Energy Theorem ▪ Gravitational Potential Energy (GPE) ▪ Power	6
6.	Unit6: **THERMODYNAMICS** ▪ Temperature and the Zeroth Law of Thermodynamics ▪ Thermometers	3

	▪ The Celsius, Fahrenheit, and Kelvin Temperature Scales ▪ Linear of Thermal expansion of solid	
7.	Unit7: **ELECTRIC FIELDS** ▪ Properties of Electric Charges ▪ Charging Objects by Induction ▪ Coulomb's Law ▪ Electric Field Lines ▪ Motion of a Charged Particle in a Uniform Electric Field	6
8.	Unit8: **ELECTRIC POTENTIALPTER** ▪ Electric Potential and Potential Difference ▪ Potential Difference in a Uniform Electric Field ▪ Electric Potential and Potential Energy Due to Point Charges	3
9.	Unit9: **ELECTRIC CIRCUITSOUTLINE** ▪ Electric Current ▪ Resistance (Ohm's law) ▪ Resistors in Series and Parallel	3
10.	Unit10: **LIGHT AND OPTICS** ▪ The Nature of Light ▪ Internal Reflection ▪ Images Formed by Flat Mirrors ▪ Images Formed by Spherical Mirrors ▪ Images Formed by Refraction Images Formed by Thin Lenses	6
11.	**Revision**	3
	Part2	
1	Introduction	3
2	**Experiment 1:** Vectors: Force Table	3
3	**Experiment 2:** Simple Pendulum	3
4	**Experiment 3:** Hook's Law	3
5	**Experiment 4:** Ohm's Law	3

6	**Experiment 5:** Series and Parallel connections of resistors	**6**
7	**Experiment 6:** Determination of a resistance using Meter Bridge	**3**
8	**Experiment 7:** Convex Lens	**3**
9	**Experiment 8:** Concave Mirror	**3**
10	**Experiment 9:** Refractive Index of Glass	**3**
11	**Revision**	**6**
12	**Reports evolution**	**3**
13	**Practical exam**	**3**
Total		**90**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm exam I	8^{th} - 9^{th}	20%
2.	Midterm exam I I	13^{th} - 14^{th}	10%
3.	Activities (Quiz)	Periodically	10%
4.	Lab reports	Weekly/ 13^{th}	15%
5.	Final Lab Exam	13^{th}	5%
6.	Final exam	15^{th}	40%
7.	Total	-	100%

*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	Raymond A. Serway and John W. Jewett, Jr., Physics for Scientists and Engineers with Modern Physics, 9th Edition, Publisher: Brooks/Cole, Print ISBN-13: ISBN: 978-1133954057, (2014).
Supportive References	Raymond A. Serway, Chris Vuille, College Physics, 10th Edition, Publisher: Cengage Learning, 978-1285761954, (2014).
Electronic Materials	• Khan Academy: https://www.khanacademy.org/science/physics

	• Free Simulations from Colorado Uni. https://phet.colorado.edu/en/simulations/category/physics
Other Learning Materials	• CD associated with the text books (when available). • Short videos (YouTube videos). • Workshop. Lecture notes and PowerPoints presentations prepared by the lecturer.

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• Classrooms • General physics laboratory
Technology equipment (projector, smart board, software)	• Data show • Laptop • 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	Indirect
Effectiveness of Students assessment	• Pear reviewer • Program coordinator • Departmental council • Faculty council	Indirect
Quality of learning resources	• Students • Instructor • Faculty	Indirect
The extent to which CLOs have been achieved	• Program coordinator • Instructor	Direct
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**PHYSICS DEPARTMENT COUNCIL**
REFERENCE NO.	**NO. 4-45**
DATE	**27/09/2023 (12/03/1445)**