هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد
NCAAA

2024
TP-153

Course Specification
(Bachelor)

Course Title:	**Principles of Physics-2**
Course Code:	**109 Phys-2**
Program:	**Joint Program**
Department:	**Physics**
College:	**Sciences**
Institution:	**King Khalid University**
Version:	**TP-153-2024**
Last Revision Date:	**8/10/2024**

Table of Contents

A. General information about the course: 3

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods 4

C. Course Content 4

D. Students Assessment Activities 5

E. Learning Resources and Facilities 5

F. Assessment of Course Quality 5

G. Specification Approval 6

A. General information about the course:

1. Course Identification

1. Credit hours: (2 H)					
2 Hrs					
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:					
This course focuses on light and optics, Waves and Sound, Structure of Matter, Electric field and potential, Coulomb laws, electric field for point charges, Electric conductivity, electric current (Ohm's law) and electric energy, Magnets and Magnetism.					
5. Pre-requirements for this course (if any)**:**					
None					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
This course will introduce students to how to: □ Explain physical phenomena based on the general concepts of physics. □ Define general principles of light, electricity and magnetism. □ Solve problems in light, optics, electricity, and magnetism.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2h/week	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**	32
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		32

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	Explain basic scientific facts, concepts, and principles related to electricity and magnetism.	K1	Lectures, electronic lectures, group discussion.	quizzes, written exams Mini project reports Homework assignments
1.2	Describe the applications related to electricity and magnetism.	K2		
2.0	**Skills**			
2.1	Use the laws and mathematical methods of electricity and magnetism to solve problems.	S1	Class lectures Group discussion the internet resources	Tutorials Homework assignments. Research Assignments
2.2	Illustrate some physical phenomena using concepts of magnetism and electricity.	S2		
2.3	Choose the suitable concepts and laws of electricity and magnetism in solving and explaining problems.	S1		
3.0	**Values, autonomy, and responsibility**			
3.1	Practice self-learning skills	V2		Explain and discover an interactive discussion continuous observation
3.2	Participate information with his colleagues during discussion sessions	V1 & V3	Self-study Scientific discussion in group	

C. Course Content

No	List of Topics	Contact Hours
1.	**Measurements, units and vectors.** Standards of Length, Mass and Time, Density, Dimensional Analysis, Conversion of Units, Significant figures Vectors and Scalars, Properties of Vectors, Addition of vectors, Components of a vector and unit vectors, Product of two vectors.	4
2.	**Motion in one dimension** Introduction to position, distance, displacement, average speed and velocity. Instantaneous speed, Average and instantaneous acceleration, uniformly accelerated motion, freely falling motion	4
3	**Newton's Laws of Motion and Friction** Concept of Force, Newton's Laws of Motion, Gravitational force and weight, Objects in equilibrium, Force of friction.	4
4	**Work, Kinetic Energy and Potential Energy** Work done by a constant force and a varying force, Kinetic energy and Work energy theorem, Conservation of energy, Power, Potential Energy, Conservative and Non-conservative forces	4
5	**Fluid Mechanics Pressure**, Variation of pressure with depth, Buoyant forces and Archimedes principle, Fluid dynamics, Equation of continuity, Bernoulli's Equation	4
6	**Elasticity** Elastic properties of Solids, Stress, Strain and Young's modulus of elasticity, Bulk and Shear modulus of elasticity	4
7	**Heat**, Temperature, Specific Heat, Latent Heat Temperature, Thermometers, Temperature Scale, Thermal Expansion of Solids, Heat and Internal Energy, Specific Heat and Principle of Calorimetry, Latent Heat	2
8	**Electric Field and Potential** Properties of electric charge, Charging objects by induction, Coulomb's Law, Electric field. Potential Difference and electric potential, Electric potential	2
9	**Currents and Resistance and Electric Energy and Power** Electric Current, Resistance, Ohm's Law, Electric Power, Resistors in Series and Parallel	4
Total		**32**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Home works	Throughout the term	15%
2.	Class short exams or reports	7th week	10%
3.	Mid-term exam	9th week	25%
4.	Computerize short exams	After 12th weeks	10%
5.	Final examination	At end of the semester	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	Kyle, Ph.d. Kirkland, Electricity and magnetism, 1st edition, (2007), Publisher: Facts on File. ISBN 13: 9780816061129
Supportive References	Purcell E.M., Morin D.J., Electricity and Magnetism, 3ed Edition (2013), Cambridge University Press. ISBN 13:78-1-107-01402-2
Electronic Materials	Selected electronic lectures in electricity and magnetism.
Other Learning Materials	No further materials are recommended

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**A classroom with its facilities that accommodates forty students**
Technology equipment (projector, smart board, software)	**Data show, laptop, smart board and internet.**
Other equipment (depending on the nature of the specialty)	-----

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect method
Effectiveness of Students assessment	Course instructor	Direct method
Quality of learning resources	Students	Indirect method
	Program Leaders Faculty	Direct and indirect method
The extent to which CLOs have been achieved	Course instructor Program Leaders Faculty	Direct and indirect method
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physics Department Council
REFERENCE NO.	The meeting No. 3 for the academic year 1446, the recommendation No. 3.6 46
DATE	2/5/1446 H