Course Specification
(Bachelor)

Course Title:	Principles of Physics
Course Code:	104 Phis-4
Program:	Bachelor of Science (Engineering and Computer Science)
Department:	Physics
College:	Science and Arts
Institution:	Najran University
Version:	4
Last Revision Date:	08/12/2024

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A. General information about the course:

1. Course Identification

1. Credit hours: (4 H)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (1st Level)					
4. Course General Description:					
This course is devoted to educate the students with basic principles and concepts of physics.					
5. Pre-requirements for this course (if any)**:**					
none					
6. Co-requisites for this course (if any)**:**					
N.A.					
7. Course Main Objective(s):					
To educate core part of Physics in particular the laws such as Newton's Laws, Coulomb's Law, Ohm's Law, Kirchhoff's Law etc and the principles of physics. Introducing this course basically to motivate the students towards the understanding of mechanisms in the field of Kinematics, Dynamics, Waves, Oscillations, Charges, Electricity and Magnetism. In addition to it, solving the numerical problems and answering the reason based questions are working as a tool for the brainstorming of the student.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	5	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		

No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	**45**
2.	**Laboratory/Studio**	**30**
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		**75**

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Upon successful completion of this course, students should be able to** – **Describe the basics of Motion, Force, Work, Energy, Power, Oscillations, Waves, Electrostatics, Current Electricity, Magnetism, Crystal Structure, and Semiconductor.** – **State the laws, principles, and relations which have been learned during this course, such as the Law of Inertia, Newton's Laws of Motion, Coulomb's Law, Ohm's Law, Kirchhoff's Law,**	**K1**	**Lecture Dialogue and discussion**	**semester exam Final exam Homework**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	Principle of Conservation of Charges, etc.			
1.2	Upon successful completion of this course, students should be able to – Define the corresponding physical quantities, such as unit, vector, speed, velocity, acceleration, force, work, energy, power, waves, frequency, amplitude, time period, electric field, electrostatic potential, electric dipole, dipole moment, electric current, resistance, resistivity, magnetic field, semiconductor, etc. either by means of memorizing or by means of recognize. – Write the answers of theoretical as well as numerical problems based on these laws, principles and relations	K2	Lecture Dialogue and discussion	semester exam Final exam Homework
...				
2.0	**Skills**			
2.1	Upon successful completion of this course student should be able to – Explain the fundamental concepts of laws, principles, and relations of the basic physics. – Evaluate and appraise the related practical problems.	S1	Lecture Dialogue and discussion	semester exam Final exam Homework
2.2	Upon successful completion of this course student should be able to Develop the creative skill by analyzing the phenomena of physics carried out via experiment.	S3	Lecture Dialogue and discussion	semester exam Final exam Homework

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
...				
3.0	**Values, autonomy, and responsibility**			
3.1	**Students should be able to work independently as well as work in groups, interacting constructively with others.**	**V2**	**Lecture Dialogue and discussion**	**semester exam Final exam Homework reports**
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	**Theoretical Part** **Units; Vectors; Uniformly Accelerated Motion; Newton's Laws; Work, Energy, and Power; Oscillatory Motion; Wave motion; Electrostatics, The Electric Field and the Electric Potential; Electric Current, Magnetic Field, Electromagnetic Waves; Crystal Structure; Semiconductors.**	**45**
2.	**Experimental Part** **Introduction to laboratory work; Measurements of volume (with Vernier Caliper); Measurements of diameter (with Micrometer); Simple pendulum; Hook's law; Ohm's law; Convex lens; Spherometer; Specific heat; Revision for all experiments**	**30**

Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**First-semester exam (theoretical part)**	**7-9**	**10%**
2.	**Second-semester exam (theoretical part)**	**11-14**	**10%**
3.	**Homework (theoretical part)**	**1-15**	**5%**
4.	**First-semester exam (experimental part)**	**7-9**	**5%**

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
5.	Second-semester exam (experimental part)	11-14	5%
6.	Reports on (experimental part)	1-15	5%
7.	Final exam (experimental part)	17	10%
8.	Final exam	18-20	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	اساسيات الفيزياء تأليف: فريدريك.ج.بوش - دافيد.أ.جيرد - ترجمة: سعيد الجزيري - محمد امين سليمان- مراجعة: احمد فؤاد باشا–الناشر 2009: الدار الدولية للاستثمارات الثقافية
Supportive References	Survey and Ramond, Physics of Scientists and Engineers, Sunders College Publication
Electronic Materials	http://sciencebooksonline.info/physics.html
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom (20 seats). Laboratories (20 seats).
Technology equipment (projector, smart board, software)	Pc + data show
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student Evaluation	Indirect
Effectiveness of Students assessment	Student Evaluation	Indirect
Quality of learning resources	Student Evaluation	Indirect

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

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	PLANS AND CURRICULUM COMMITTEE
REFERENCE NO.	14450514-0804-00001
DATE	08/12/2024