هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Course Specifications

Course Title:	**General Physics**
Course Code:	**091 PHYS**
Program:	**Preparatory Year**
Department:	All Department
College:	**College of Applied Industrial Technology (CAIT)**
Institution:	Jazan University

Table of Contents

A. Course Identification

1. Credit hours:4
2. Course type **a.** University ☐ College ☑ Department ☐ Others ☐ **b.** Required ☑ Elective ☐
3. Level/year at which this course is offered: Level -2 / Year 1
4. Pre-requisites for this course (if any)**: None**
5. Co-requisites for this course (if any)**: None**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	45	60
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**	30	40

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	30
3	**Tutorial**	--
4	**Others** (specify)	--
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to enable students to acquire sufficient knowledge in Physics relevant to their specializations. The course provides physics concepts and applications in motion and forces, work and energy, electrostatic forces, energy, magnetism, magnetic forces, DC and AC electric circuit components, light nature, reflection and refraction of light. Techniques, skills and modern computerized apparatus necessary to make laboratory measurements possible are adopted. Experiments in mechanics, optic, electricity and magnetism are made to support the theory and to meet the needs of engineering technology programs as well as to familiarize students with team work.

What is the main purpose for this course?

This course is designed to provide students with:

- Basic principles of measurements and units
- Basic principles of kinematics of rigid bodies
- Basic principles of motion and force (linear and angular)
- Basic principles of work, energy and power
- Basic principles of electricity, electric circuits, and magnetism
- Basic principles of materials
- Basic principles of light and sound

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge**	
1.1	**State** the basic concept of measurements and units; kinematics of rigid bodies; work and power; electricity and magnetism; material; and light and sound	K1
1.2	**Differentiate** among different units of physical quantities	K1
2	**Skills:**	
2.1	**Solve** problems related to units conversion, decimal places, and significant figures	S1
2.2	**Solve** kinematics problems of rigid body, as well as forces and their resultant by applying Newton's laws using vectors, with calculation of work and power	S2
2.3	**Solve** problems related to simple electric circuits and magnetization	S2
2.4	**Solve** problems related to light and sound	S2
2.5	**Conduct** experiments as given in the lab sheet	S4
3	**Values:**	
3.1	**Plot** the characteristics of each experiment with execution in timeliness and quality.	V1

C. Course Content

No	List of Topics	Contact Hours
1	**1. Measurements and Units** 1.1 Dimension 1.2 Units and their conversions 1.3 Decimal places, significant figures, and engineering notations	10
2	**2. Kinematics of rigid bodies** 2.1 Kinematics in one dimension (linear and angular) 2.2 Scalars and vectors	10
3	**3. Motion and force (linear and angular)** 3.1 Newton's laws 3.2 Friction	10
4	**4. Work, energy, and power** 4.1 Kinetic energy 4.2 Potential energy 4.3 Work and Power	5
5	**5. Electricity** 5.1 Coulomb's law 5.2 Ohm's law 5.3 Current and resistance 5.4 Electric circuits	10
6	**6. Magnetism** 6.1 Magnetization Methods 6.2 Magnetic fields 6.2 Magnetic fields due to current	10
7	**Materials:** 7.1 Ferrous and Non-Ferrous Material 7.2 Metals and Alloys 7.3 Semiconductor Materials	10

No	List of Topics	Contact Hours
8	**Light and Sound:** 8.1 Electromagnetic wave 8.2 Light (Reflection and Refraction) 8.3 Sound properties (Production, transmission, Mach number)	10

Experimental Part

No	List of Topics	Contact Hours
1	Graphing	4
2	Accurate Measurements	4
3	Hook s Law	4
4	Simple Pendulum	4
5	Viscosity of Liquid	4
6	Refractive Index	2
7	Electric Circuits	4
8	Magnetic Field	4

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	**State** the basic concept of measurements and units; kinematics of rigid bodies; work and power; electricity and magnetism; material; and light and sound	Lectures and discussion	Homework Class Activities, Midterm exams and final exam.
1.2	**Differentiate** among different units of physical quantities		
2.0	**Skills**		
2.1	**Solve** problems related to units conversion, decimal places, and significant figures	Lectures and discussion	Homework assignments, Midterm exams and final exam.
2.2	**Solve** kinematics problems of rigid body, as well as forces and their resultant by applying Newton's laws using vectors, with calculation of work and power		
2.3	**Solve** problems related to simple electric circuits and magnetization		
2.4	**Solve** problems related to light and sound		
2.5	**Conduct** experiments as given in the lab sheet	Interactive discussion, Case study, open discussion	Lab Activities
3.0	**Values**		
3.1	**Plot** the characteristics of each experiment with execution in timeliness and quality	Group discussion	Class and Lab Activities

2. Assessment Tasks for Students

#	Assessment task	Week Due	Percentage of Total Assessment Score
1	Class Activities and Quizzes	Every week	15
2	Lab Activities	Every week	15
3	First midterm exam	6 or 7	10
4	First midterm exam	11 or 12	10
5	Final exam	As Scheduled	50

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

At least 16 office hours for each teacher available for student consultations and academic advice

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Physics for Scientists& Engineers with Modern Physics; 7th edition, Serway, Saunders Gold Series, 2007. • H.D. Young & R.A. Freedman, University Physics with Modern Physics, 13th Edition, Addison-Wesley, 2012, ISBN-13: 978-0-321-69686-1
Essential References Materials	• University Physics; Young and Freedman, pearson, Addison Wesley, 11th edition, 2004. • Fundamentals of Physics; Halliday, Resnik and Walker, John Wiley and Sons Inc., 2007.
Electronic Materials	*http://faculty.ccri.edu/joallen/M2990/University%20Physics%20with%20Modern%20Physics,%2013th%20Edition.pdf*
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms and laboratories,
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching / learning process	Students, Peer and program leader	Indirect (CES)- Indirect peer evaluation
Assessment	Students, Program assessment committee	Direct/ Indirect
Extent of achievement of course learning outcomes	Instructor	Direct/ Indirect
Quality of learning resources	Students, Faculty members	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	**CAIT Curriculum Committee**
Reference No.	**4/42/1443**
Date	**09/12/2021**