Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Erbil Technology College
Department	Information and Communication Technology Engineering ICTE
Module Name	General Physics
Module Code	GEP107
Degree	Technical Diploma ☐ Bachelor ☐ High Diploma ☐ Master ☐ PhD ☑
Semester	1st Semester
Qualification	
Scientific Title	Assistant Professor
ECTS (Credits)	5
Module type	Prerequisite ☐ Core ☑ Assist. ☐
Weekly hours	4	
Weekly hours (Theory)	(2)hr Class	(3)hr Workload
Weekly hours (Practical)	(2)hr Class	(1)hr Workload
Number of Weeks	12	
Lecturer (Theory)	Ilham Kadhim Onees
E-Mail & Mobile NO.	ilham.onees@epu.edu.iq
Lecturer (Practical)	Ilham Kadhim Onees
E-Mail & Mobile NO.	ilham.onees@epu.edu.iq
Websites	

Course Book

Course Description	This course is a serious introduction to physics for students who have high school algebra, geometry, and trigonometry at their fingertips, and have had, or are taking calculus. Calculus will be used in class but sparingly on exams. The algebra, geometry, and trig are absolutely essential. If some time has elapsed since your last math course, or you feel a lack of confidence in this area, you are strongly urged to study math intensively before we get too deeply into the physics course. Topics include kinematics and dynamics of particles; momentum, work, and energy; gravitation; circular, angular, and harmonic motion.
Course objectives	The main goals of the course are to: 1- Increase students' understanding of natural laws in mechanics, electromagnetism, thermal physics, and optics; 2- Develop students' curiosity about physical phenomena; 3- Enhance students' problem solving and critical thinking skills; 4- Enhance students' language proficiency in the domain (e.g., use of scientific discourse, writing of lab reports, etc); and 5- Increase students' ability to connect physical concepts, principles, and laws to the solution of realworld problems.
Student's obligation	<u>**Respect**</u>

A student has an obligation to exhibit honesty and to respect the ethical standards of the profession in carrying out his/her academic assignments. Without limiting the application of this principle.

<u>Attendance</u>

The student's absence must not exceed 10%. In the event that this percentage is exceeded, the student is considered to have failed in this module.

Questions

Asking questions about unclear material is an important part of the classroom experience. It is not uncommon for students to have similar difficulties, so speaking up will help everyone understand the discussed information. Teachers can also benefit from a student's questions. By finding out what subjects are hard to understand, instructors can adjust their lectures to clear up confusing topics.

Assignment

A student must submit the assignment on Moodle app. every week and also write a report about what he/she was studied in the laboratory

Required Learning Materials	Moodle Program, Data show for PowerPoint presentation

Evaluation		Task	Weight (Marks)	Due Week	Relevant Learning Outcome
		Paper Review			
	Assignments	Homework	5%		
		Class Activity	2%		
		Report			
		Seminar	10%		
		Essay			
		Project			

Quiz	8%			
Lab.	10%			
Midterm Exam	25%			
Final Exam	40%			
Total	100%			

Specific learning outcome:	By the end of this course the student will able to: • Develop knowledge and skills in basic measurement and uncertainty. • Understand the basic concepts of physics and the relations between them (Laws). • Describe and explain natural phenomena using the basic concepts and laws. • Apply the basic concepts and laws to practical situations. • Develop the algebraic skills needed to solve theoretical and practical problems. • Appreciate the applicability of physics to a wide range of disciplines.
Course References:	1- Physics for Scientists and Engineers with Modern Physics by Douglas C. Giancoli. 2- Physics for Scientists and Engineers with Modern Physics by Douglas C. Giancoli 3- Fundamentals of physics by David Halliday, Robert Resnick and Gearl Walker 4- College Physics by Hugh D. Young Sears Zemansky, 9th edition 5- Herman Cember and Thomas A. Johnson, Introduction to Health Physics, 4th ed., (2008). 6- William R. Hendee and E. Russell Ritenour, Medical Imaging Physics, 4th ed., (2002). 7- Tayal D.C. Basic Electronics. 2nd ed. Himalaya Publishing House Mumbai, (1998). 8- Theraja B.L., R.S. Sedha. Principles of Electronic Devices and Circuits, S.Chand and Company Ltd,

9- New Delhi, (2004).

10-   Introduction to Space Physics, M. G. Kivelson and C. T. Russell, Cambridge University Press, 1995.

11-   Stacey, Frank D.: Physics of the earth. 2nd Ed.,Wiley, 1977.

12-   https://sites.google.com/site/apphysics1online/home

13-   https://phys.libretexts.org/

Course topics (Theory)	Week	Learning Outcome
Introduction to General Physics, Physical quantities, SI Unit system, Standard prefixes, derived SI unit, Distance and displacement	1	
Motion in one dimensional, Speed, Velocity and Acceleration, Kinematic equations for motion of uniform acceleration	2	
Free falling and Newton's law	3	
Electric Current, voltage, resistance and ohms low, Electric Circuit	4	
The structure of atom and Properties of electric charges, Coulomb's Low	5	
Electric fields and its application	6	
Magnetic fields Charged particles moving	7	
Magnetic Field and Force Magnetic flux	8	
Electromagnetic Spectrum, properties of EM waves	9	
The nature and the properties of the light, Snell low formula	10	
Diffraction patterns, Grating Polarization of light waves	11	
the properties of sound waves	12	

Practical Topics	Week	Learning Outcome
The fall of a body through a viscous medium to deduce the coefficient of viscosity of the medium.	1	
The focal length of a convex lens by the lens displacement method using conjugate.	2	
To test validity of ohms law using an ammeter and voltmeter.	3	
The velocity of sound by means of resonance tube closed at one end.	4	
The acceleration of free fall by means of simple pendulum.	5	
The refraction of glass and liquid by real and apparent depth using traveling microscope.	6	
Resistance in series and parallel connection	7	
Magnetic field of Single coils Biot-Savart's law	9	
Confirming Coulomb's law - Measuring with the torsion balance,	10	
Generating an electric current through the motion of charged drops of water.	11	
Motions on the linear air track (Newton's equation of motion).	12	

Extra notes:

External Evaluator:
This course book has to be reviewed and signed by a peer. The peer approves the contents of the course book by writing the following sentences:
• This course book is written according to the university template.
• The course teacher put all necessary information in the course book.
• The course teacher follows the syllabus in writing the course book.

Peer reviewer name: Sevan H. Ali