Course Description Form

1. Course Name: **General physics**

2. Course Code:

3. Semester First / Year:1-2 2025/2026

4. Description Preparation Date:2024-2025

5. Available Attendance Forms: Daily attendance

6. Number of Credit Hours (Total) / Number of Units 2 Hours (Total) 30 week

7. Course administrator's name (mention all, if more than one name)

name:Ali Saeed hmaeed
email : **ali.saeed@mohesr.gov.iq**

Course Objectives .8

Course Objectives	This course includes a description of the fundamental principles of General Physics, the purpose of its study, and the philosophy of its teaching. The course aims to study the basic concepts of physics and their applications in everyday life and medical sciences. It focuses on the principles of mechanics, electricity, magnetism, heat, waves, and energy, as well as the relationship between physical laws and natural phenomena. The course also emphasizes the importance of measurements, scientific analysis, and practical experiments in understanding physical systems and solving scientific problems.

9. Teaching and Learning Strategies

Strategy	1. Education Strategy Collaborative Concept Planning 2- Brainstorming education strategy. 3. Education Strategy Notes Series 4- Presentation, training, discussion research and reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Knowledge	**Atomic and Nuclear Structure.** – Fundamental particles – Nuclear Binding energy – Nuclear Stability– Auger electrons.	Use the whiteboard display	Daily exam and oral questi ons
2	2	Knowledge	Radioactive Decay – Radioactive materials – Activity – Half life	Use the whiteboard display	Daily exam and oral questi ons
3	2	Knowledge	**Types of radiation** – Alpha particles Beta particles Gamma radiation Others, Decay models	Use the whiteboard display	Daily exam and oral questi ons
4	2	Knowledge	**Classification of Radiation** – Electromagnetic radiation – Particulate radiation – Ionizing and non-ionizing radiations • **Electromagnetic Energy** – Velocity and Amplitude – Frequency and Wavelength	Use the whiteboard display	Daily exam and oral questions
5	2	Knowledge	**Wave Model: Visible Light Particle Model: Quantum Theory** • **Matter and energy** • Interactions of photons with matter • Mechanisms of Energy Loss – Photoelectric effect – Thomson scattering • – Coherent (Rayleigh) scattering	Use the whiteboard display	Daily exam and oral questi ons

6	2	Knowledge	Incoherent scattering – Pair and triplet production – Compton scattering by free electrons – Scattering and energy transfer coefficients – stopping power	Use the whiteboard display	Daily exam and oral questi ons
7	2	Knowledge	**Photon Attenuation Coefficients** – Linear attenuation coefficient – Exponential attenuation – Mass attenuation coefficient – Energy-Absorption coefficient.	Use the whiteboard display	Daily exam and oral questi ons
8	2	Knowledge	**Interactions of electrons with matter** – Ionizational (collisional) interactions – Radiative Interactions – stopping power	Use the whiteboard display	Daily exam and oral questi ons
9	2	Knowledge	**Introduction of Nanomaterials** – Properties of nanoparticles – Types of nanoparticles	Use the whiteboard display	Daily exam and oral questi ons
10	2	Knowledge	Synthesis Routes – Bottom-Up Approaches – Top-Down Approaches **– Applications of nanomaterials in medicine & biology**	Use the whiteboard display	Daily exam and oral questi ons
11	2	Knowledge	**Oscillations** • Damped and Forced Oscillators • Damped and Driven Oscillation	Use the whiteboard display	Daily exam and oral questi ons

			• Periodic Motion Experimen		
12	2	Knowledge	**Elasticity and Gravitation** • Measure the Young Coefficient of the Wire • Gravitational Potential Energy	Use the whiteboard display	Daily exam and oral questi ons
13	2	Knowledge	**Heat and Temperature** • Specific Heat • Determination of the Specific	Use the whiteboard display	Daily exam and oral questi ons
14	2	Knowledge	**Heat,temperature - Latent heat - Specific Heat - Methods of heat transferring**	Use the whiteboard display	Daily exam and oral questi ons
15	2	Knowledge	**Gases,** • **Pressure & volume, laws of pressure**	Use the whiteboard display	Daily exam and oral questi ons

11. Course Evaluation

5 marks are calculated on reports
5 points are calculated on daily exams
5 degrees are calculated on the daily preparation
And the rest of the grade is for the monthly exams

12. Learning and Teaching Resources

Fundamentals of Physics – David Halliday, Robert Resnick & J Walker	**University Physics** – Hugh D. Young & Roger Freedman
College Physics – Raymond A. Serway & Jerry S. Faughn	**Physics for Scientists and Engineers** – Douglas C. Giancoli
General Physics – Schaum's Outline Series	**Conceptual Physics** – Paul G. Hewitt
Electronic References, Websites	**Physics: Principles with Applications** – Douglas C. Giancol