Department of General Science

College of Basic Education

Salahaddin University-Erbil

Subject: Advanced Physics

Course Book – *Master-Second Semester*

Lecturer: Dr. Wala Dizayee

Academic Year: 2023/2024

Course Book

1. Course name	**Advanced Physics**
2. Lecturer in charge	**Wala Dizayee**
3. Department/ College	**General Science/Basic Education**
4. Contact	**e-mail: wala.dizayee@su.edu.krd** **Tel: 0750 4666128**
5. Time (in hours) per week	**Theory: 2 hours /week**
6. Office hours	
7. Course code	
8. Teacher's academic profile	https://academics.su.edu.krd/wala.dizayee
9. Keywords	

10. Forms of teaching

- White board.

- Data Show power point presentation.

- Homework and problem solving in the class.

14. Assessment scheme

Breakdown of overall assessment and examination

- Two mid-term exams (two examinations in a semester, each 20%) and a final exam.

- Daily Activity.

- Attendance of students.

- Homework.

- Seminar

16. Course Reading List and References:

References:

1- Classical Mechanics PLUS, John R. Taylor, ISBN: 9781891389221.
2- Introduction to Classical Mechanics with Problems and Solutions. David Morin. Harvard University, USA.
3- 1000 Solved Problems in Classical Physics. An Exercise Book, Ahmad A. Kamal
4- Solved Problems in Classical mechanics.O.L.Delange & J.Pierrus. Oxford Press.
5- Lecture Notes on Classical mechanics. By Sunil Golwala 2007
6- See also the internet
7- Introduction to physic, 3rd ed ,F.L .Pedrotti, L.S Pedro(2007) .
8- Schaums outline series theory and problems of college phyiscs.7-edition. Frecerick J.Bueche. (1989).
9- Fundamental University Physics", Alonso/Finn.

10- Physical Science", Bill W. Tillery.
11- The Physical Universe", Konrad B. Krauskopf and Arthur Beiser.
12- Magazines and review (internet): Using internet to get more information about the subjects.

17. The Topics:	Lecturer's name
Classical Mechanics - Definitions - Terminology - Branches of physics. -Mechanics - Types Of Quantity In Physics. **Thermodynamics** - Thermal Sciences. -Thermodynamical systems -Thermodynamic Properties of Systems - Temperature. - Heat. - Thermodynamic Properties of Systems - The Zeroth Law of Thermodynamics. - The Kinetic Theory of Matter **Thermometer** - Temperature Scales - Comparing Temperature Scales - Conversions between Scales. - Thermometer Types - The Liquid in Glass Thermometer. - The mercury in glass thermometer	

-The alcohol in glass thermometer

- Digital thermometers OR Electronic thermometers

- Infrared Thermograms

- Tympanic membrane thermometer

- Forehead thermometers

Introduction to Nanotechnology

- What Is Nanotechnology?

- Fundamental Concepts in Nanoscience and Nanotechnology

- Techniques of nanotechnology

- Top-down Technique

- Bottom-up Technique

- Fundamentals concepts of nanotechnology

-Types of Nanoparticles

- Shapes of Nanoparticles

- Properties of nanotechnology

- Applications of nanotechnology

Introduction of Biophysics

- Definitions

- Terminology

- Applications

Use Of Electromagnetic Radiation In Medical Science/ Biophysics

- Electromagnetic radiation

- Medical Applications

- X-ray machines (scan) (Definition, Working)

- CT scan (Definition, Working)

- MRI (Magnetic Resonance Imaging) (Definition, Working) **Review on semiconductor historical and development industrial** -Classification of solid by electrical conduction - Types of material -Atomic structure -Band structure of a material defines the band of energy levels that an electron can occupy -Electronic Materials (Insulator, Conductors, Semiconductor) -Type of semiconductor (Intrinsic (Pure) Semiconductors and Extrinsic (Impure) Semiconductors)	
18. Practical Topics (If there is any)	
No Practice and Experiments. It is a theoretical subject.	

19. Examinations:

1. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?
With their typical answers
Examples should be provided

2. True or false type of exams:

In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided

3. Multiple choices:
In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided.

20. Extra notes:

21. Peer review:
All done

Dr.Wala Dizayee
25.02.2024