UNIVERSITY OF LADAKH

SYLLABUS

OF

THE INTER-DISCIPLINARY COURSE

OF

PHYSICS

(UNDER NEP – 2020)

(Implemented w.e.f Academic Session 2023-24)

UNIVERSITY OF LADAKH

SYLLABUS OF THE INTER-DISCIPLINARY COURSE IN PHYSICS
UNDER NATIONAL EDUCATION POLICY - 2020
(Session 2023-2024)

Semester: I **Credit: 03**
Course Title: Elementary Physics **Duration of Course: 45 Hr.**
Course Code: PCS-PH-101-G
Maximum Marks: 75 **Minimum Marks: 27**

Objectives: To develop an understanding of elementary concept of Physics which includes physical quantities and its units, basic concept of integration and differentiation and motion and its laws so that a basic scientific idea about the physical world may be inculcated.

Unit-I 11Hr

1.1: Physical quantities: Fundamental and derived quantities, Scalar and Vector quantity.

1.2: Unit and measurement: SI and CGS system of unit, fundamental and derived units, significant figure.

1.3: Dimensional analysis: Dimension, Dimensional equation and its application.

Unit-II 11Hr

2.1: Basic concept about Differentiation and Integration, Differentiation and Integration of some algebraic.

2.2: Trigonometric and logarithmic functions, and their applications.

Unit-III 11Hr

3.1: Motion: Rectilinear motion, uniform and non-uniform motion, Distance, Displacement, speed, velocity and acceleration, Position –Time graph and velocity-time graph.

Unit-IV 12 Hr

4.1: Laws of motion: Newton's first law of motion and the concept of inertia, concept of force and linear momentum, Newton's second law of motion, conservation of linear momentum, Newton's third law of motion and its common applications.

Text Books:

1) Concept of Physics (Vol.I&II) by H.C Verma.
2) Mechanics Vol.1 and 2 by DC Panday

References:

1) NECRT Physics Text Book of 11^{th} and 12^{th}
2) University Physics by Freedman young
3) Fundamental of Physics by Resnick, Halliday and walker
4) Introduction to Mechanics by Klepner and Kolenkow
5) Fundamental laws of mechanics by IE Irodov

UNDERGRADUATE INTER-DISCIPLINARY COURSE IN PHYSICS (NEP-2020)

Semester: 2nd **Lectures: 45**
Course title: Non-Conventional Sources of Energy **Hours Credits:3**
Course Code: PCS-PH-201-G **Maximum marks: 75**

Unit I

Non-Conventional Source of Energy: Solar, Nuclear, Hydro, Wind, Ocean Energy.
Solar Energy: Storage of solar energy, solar pond, solar water heater, solar distillation, solar cooker, solar green houses, Solar cell.
Nuclear Energy: Introduction, Types. Nuclear Reactor, Applications.

UNIT- II

Hydro Energy: Hydro Energy: Hydropower resources, environmental impact of hydro power sources, Potential of Hydro power in Ladakh.
Wind Energy: Wind Energy harvesting, Fundamentals of Wind energy, Wind Energy potential of India, Potential of wind power in Ladakh.

UNIT - III

Geothermal Energy: Geothermal Resources, Geothermal Power Plants/Technologies, Geothermal energy and source in Ladakh.
Ocean Energy: Tidal Energy, Wave energy, Ocean Thermal Energy Conversion and their technologies, Potential of Ocean Energy in India.

Reference Books:

1. Non-conventional energy sources, B.H. Khan, McGraw Hill.
2. Solar energy, Suhas P Sukhative, Tata McGraw - Hill Publishing Company LtD
3. Renewable Energy, Power for a sustainable future, Godfrey Boyle, 3rd Edn., 2012, Oxford University Press
4. Solar Energy: Resource Assesment Handbook, P Jayakumar, 2009.