Physics Multidisciplinary Courses (PH-MDC)

B.Sc. Semester-I
Course code: PH-MDC-1

Total Credits: 04 (Theory: 2, Practical; 2)

Total Hrs: Theory: 30, Practical: 60

Course Title: Mathematical Physics

PH-MDC-1 (Theory)

Unit-1	**Introduction:** What Is Physics? , Physics and Mathematics, Units, Definitions of Base Units, Dimension, Uses of Dimension, Order of Magnitude, Examples **Vectors and Scalars**: Definition Equality of Vectors, Addition of Vectors, Multiplication of a Vector by a Number, Subtraction of Vectors, Resolution of Vectors, Dot Product or Scalar Product of Two Vectors ,Cross Product or Vector Product of Two Vectors, Examples
Unit-2	**Differential Calculus**: Introduction, differential (dy/dx) as Rate Measurer, Maxima and Minima, Integral Calculus, Significant Digits in Calculations **Errors in numerical calculations**: Introduction, Mathematical preliminaries, Errors and their computations, A general error formula, Error in series approximation Examples

Reference books:

1. Concepts of Physics part 1 by H.C.Verma (second reprint edition 2020)
2. Introductory Methods of Numerical Analysis :S.S.Sastry (Fifth edition PHI-2012)
3. Physics by Halliday, Resnick and Krane volume 1 (Fifth edition)