Elective course (Interdisciplinary)

EPH- 403: APPLICATIONS OF COMPUTER IN PHYSICS

Software Package: **Mathematica**

UNIT-I
Introduction: interfaces, numerical and algebraic calculations.
Symbolic mathematics: differentiation, integration, sums and products, solving equations, differential equations, power series, limits, integral transforms, recurrence equations.
Numerical mathematics: numerical sums, products and integrals numerical equation solving, numerical differential equations, optimization.
Functions and programs,

UNIT-II
Lists
Graphics and sound,
Input/output
File operations.
Basic introduction of other scientific software packages such as MATLAB, MathCAD.

References:
(1) S. Wolfram, Mathematica book, 5th ed. 2003.
(2) Y. K. Singh, B. B. Chaudhuri, Matlab Programming, PHI, 2007.