



Code	Subject Title	Cr. Hrs	Semester
PHY-311	Computational Physics-I	3	VI
Year	Discipline		
3	Physics		

Physics problems solving using Numerical methods, Euler-Newton method for solving differential equations, the trapezoidal rule for numerical quadrature and applications of random number, brownian motion, solution of integral equations, linear algebra, solution of linear algebraic equations, sorting and curve fitting.

Programming techniques in practical applications to advanced Physics problems.

Introduction to simulation techniques and computer graphics, use of computation and computer graphics to simulate the behavior of complex Physical systems, computational techniques in investigating and visualizing fundamental physics, scientific packages, introduction to Scientific work bench for problem solving in electronics.

Books Recommended:

1. *Computational Physics* by J.M. Thijssen, CUP (1999).
2. *Computational Methods in Physic, Chemistry and Biology* by P.Harrison, John Willey and Sons (2001).
3. *A First Course in Computational Physics* by Paul L. Devries, John Willey and Sons. N.Y. (1994).
4. *Computational Physics* by Henry J. Gardner, World Scientific, Singapore (1997).
5. *Numerical Recipes: The Art of Scientific Computing* by William H. Press, Brian P. Flannery, Saul A. Teukolsky, and William T. Vetterling Cambridge University Press, (1988).
6. *Mathematica for Physics*: Robert L. Zimmerman Addison Wesley Publishing Company, 1994.