SUBJECT NO-PH49012, SUBJECT NAME- Computational Physics Lab.

LTP- 0-0-3,CRD- 2

SYLLABUS :-

1. Numerical Stability- Examples of numerical instability in recurrence relations.

2. Effect of round off errors.

3. Projectile problem in the absence of air resistance - numerical solution using
Euler method, determination of range and time of transit for different firing angles.

4. Projectile problem-incorporation of effects of air drag and variation of air density in the vertical and their effects on the maximum range of the projectile.

5. Random walk - drunkard performing a one dimensional random walk.

6. Numerical solution of planetary motion using Euler Cromer method.

7. Numerical integration -trapezoidal and Simpsons rule

8. Bounded particle in a one dimensional time-independent potential- determination
of the time period of oscillation of the particle using numerical integration methods.

9. Phase space trajectory of a particle in a one dimensional potential using Euler and Runge Kutta methods.

10. Motion of an electron in an electric and magnetic fields.