YEAR- III	NUMERICAL METHODS & BASIC COMPUTER PROGRAMMING ELECTIVE-II	EPH614S
SEMESTER VI		HRS/WK-4
Elective - 4		CREDIT-2

Unit 1: SOLUTION OF EQUATION

Eigen values, Eigen vectors, Cayley Hamilton ; characteristic equation of a matrix –Solution of simultaneous equations – Gauss elimination method – Gauss-Jordan method.

Unit 2: INTERPOLATION

Linear and Lagrange interpolation – Newton's forward & backward interpolation polynomial equation & determination of roots – Newton-Raphson method.

Unit 3: NUMERICAL INTEGRATION AND DIFFERENTIATION

Trapezoidal rule – Simpson rule 1/3 & 3/8 – Solution of first & second order differential equation: Taylor series – Euler's method (Improved & Modified) – Solutions of forth order Runge-Kutta method.

Unit 4: DATA TYPE OPERATORS

History & Features of C Language - Variable name – data type and sizes – declaration – arithmetic, relational and logical operators – perecedence and order of evaluation.

Unit 5: CONTROL STATEMENTS

Unconditional control statements – GOTO and labels – Conditional control statements – simple IF, IF..ELSE, nested IF..ELSE, ELSE IF ladder – switch case – break – continue statement. Looping statement – while – do..while – for – nested for loop – (**Basic Programs - Qualitative studies only)**

Books for study

1. Mathematical physics: Satya Prakash – 4th ed. Sultan chand & sons publication, New Delhi.
2. Numerical methods: A. Singaravelu – 1st ed. Meenakshi publication, Tamil Nadu.
3. Let us 'C' : Yeshwant kanitkar.
4. Numerical methods and computers: Kuo-Addison-Wesely London, 1966
5. Computer oriented numerical methods: Rajaram-3rd ed.prentice hall, New Delhi

Question Pattern

Time: 3 Hours **Max. Marks: 75**

Section – A (10 X 2 = 20)

(Answer ALL the questions)

(Two questions from each Unit)

Section – B (5 X 5 = 25)

(Answer all the questions)

(One question from each Unit; either or pattern and any one of the questions will be a problem; both part)

Section C (3 X 10 = 30)

(Answer any Three Questions out of five)

(One Question from each unit and it may have subdivisions)