Course Code	Course Title	H	C	I	E	T
17U3DAC4	STATISTICS AND NUMERICAL METHODS	4	3	25	75	100

Objectives:

- To impart the knowledge of computer arithmetic.
- Learning various statistical and numerical methods.

Unit – I: Computer Arithmetic **(12 hours)**

Floating point representation of numbers - Arithmetic operations with Normalized floating point numbers - Consequences of normalized floating point representations of numbers - Errors in numbers - Beginning an iterative method - The method of successive bisection - The methods of false position - Newton Rapson method - The Secant method - The method of successive approximation.

Unit – II: Iterative Methods **(12 hours)**

The gauss elimination method - Pivoting - Ill conditioned Equations-Refinement of solution obtained by Gaussian Elimination - Gauss Seidal iterative method & algorithm - Comparison of direct and iterative methods.

Unit – III: Interpolation **(12 hours)**

Forward difference method - Backward difference method - Central Difference method - Lagrange interpolation method - Divided difference method - Linear regression - Polynomial regression - Fitting exponential and trigonometric functions.

Unit – IV: Integration & Differentiation **(12 hours)**

Formulae for numerical differentiation - Numerical Integration-Simpson's 1/3 rule - Simpson's 3/8 rule - Errors in integration Formulae - Comparison of integration formulae.

Unit – V: Probability & Distribution **(12 hours)**

Basic probability - Random variables - Discrete random variables - Continuous random variables - Selecting the appropriate Distribution - Polynomial Regression - Simple linear regression.

Text books:

1. V.Rajaraman - "Computer Oriented Numerical Methods"- III Ed.,-PHI.
2. Billy Gillett - "Introduction To Operations Research"- TMH 1979.

Reference Books:

1. Sharma & Goyal - "Mathematical Statistics".
2. M.K. Venkatraman - "Numerical Methods for Engineering".