MSC (CA&IT) - Semester: III

(Effective from year 2024-25)

Course Code:	CAIT-104	**Course Title:**	Scientific and Statistical Computing
Course Credits:	04	**Hour of Teaching/Week:**	04
Internal Assessment Marks:	50	**External Exam Marks:**	50
Exam Duration	**2 Hrs**		

Unit	Contents
1	Computer Arithmetic Number System, Conversion of Numbers, Representation of numbers, Floating point representation, Arithmetic operations with Normalized Floating point Numbers, consequences of normalization, pitfalls in computing. Approximation and Errors Significant digits, Types of errors, absolute and relative error
2.	Numerical Solution of Non-Linear Equations: Bisection Methods, Iteration Method, False – Position Method, Secant Method, Newton – Raphson Method
3.	Introduction to Correlation and Regression: Definitions, Types of Correlation, Methods of Determining Correlation coefficient: Scatter Diagram , Karl Person's product moment, Rank Correlation. Difference of correlation and regression, Lines of Regression
4.	Probability: Definitions, Mathematical Probability, Subjective Probability, Bayes' Theorem

References:

1. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall, India.
2. S. S. Sastry, Introductory Methods of Numerical Analysis.
3. M. K. Jain, S.R.K. Iyengar & R. K. Jain, Numerical Methods for Scientific and Engineering Computation.
4. Balagurusamy, E., Numerical Methods, Tata McGraw Hill, 1999.
5. Rajaraman V., Computer Oriented Numerical Methods, 3rd Edition, Prentice Hall India, New Delhi, 1998.