MCA SEMESTER – II
MCA-26 : Computer Oriented Numerical & Statistical Methods

Teaching scheme (per week)		Examination scheme					
		Internal		External		Total	
Th. (hours)	Pr. (hours)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	30	--	70	--	100	--

UNIT I (25%)
Solutions of Non-Linear Equations :
- Absolute, Relative and Percentage Error, Roots of an equation, Linear and non-Linear equations (Definition and Difference), Methods for finding roots of non-Linear equations : Bisection Method, False Position Method, Iterative Method, Newton-Raphson Method and secant Method - Example only- No algorithm

UNIT II (25%)
Solution of Simultaneous Linear Equations :
- Definitions : System of linear equations, Existence of unique roots, multiple roots and no roots, Difference between direct and iterative methods, Gauss-Elimination Method, Gauss-seidel Method

UNIT III (25%)
Frequency Distribution :
- Collection of data, Classification of data, Class interval, Types of Classes, Class frequency, Class mark, Class Boundaries, Width of a class, Frequency density, Relative frequency, Percentage frequency, Cumulative frequency

Method of Central Tendency :
- Introduction, Arithmetic Mean, Simple and weighted for raw data, Discrete frequency distribution, Continuous frequency distribution, Properties of A.M., Merits & De merits of A.M., Median for raw data, Discrete frequency distribution, Continuous frequency distribution, Merits and demerits of Median, Mode for raw data, D.f.s., c.f.s., Merits & demerits of mode

Measures of Dispersion :
- Introduction, Range, coefficient of range, Quartiles, Quartiles deviations, coefficient of quartile deviations, Mean deviation and coefficient of mean deviation, S.D and variance for all types of frequency distribution, Coefficient of Dispersion, Coefficient of variation

UNIT IV (25%) Correlation and Regression :
Correlation :
- Definition of Correlation, Types of Correlation, Scatter Diagram Method, Karl Person's Correlation Coefficients, Correlation Coefficients for Bivariate frequency distribution, Probable error for Correlation Coefficients

Regression :
- Definition of Regression, Regression lines, Regression Coefficients, Properties of regression Coefficients, Fitting of regression lines and estimation for Bivariate frequency distribution

Text Books :
For Unit –I & II
1. Statistical Methods (S.P. Gupta)
2. Business Statistics (R.S. Bhardwarj)
3. Fundamental of Statistics (S.C. Gupta)

For Unit-III and IV
4 Introductory Methods of Numerical Analysis (S.S. Sastry)
5 Computer Oriented Numerical Methods (Rajaraman V.)

Question Paper Scheme: Section – I
Q.1 - Objective Type Unit I & II (11) Marks
Q.2 - Unit-I OR Q.2 Unit-I (12) Marks
Q.3 - Unit-II OR Q.3 Unit-II (12) Marks
Section – II
Q.4 - Objective Type Unit III & IV (11) Marks
Q.5 - Unit-III OR Q.5 Unit-III (12) Marks
Q.6 - Unit-IV OR Q.6 Unit-IV (12) Marks