**MCA**

**DATA SCIENCE SYLLABUS**

**UNIT - I**

Overview of R - Local Environment Setup - Basic Syntax - Data Types - Variables - Operators - Decision making - Loops - Functions - Strings - Vectors - Lists - Matrices - Arrays - Factors - Data Frames - Packages - Data Reshaping

**Unit - II**

R Data Interfaces : Pie Charts - Excel File - Binary Files - XML Files - JSON Files - Web Data - Databases

**Unit - III**

Charts & Graphs : - Pie Charts - Bar Charts - Boxplots - Histograms - Line Graphs - Scatterplots - R Statistics Examples: - Mean,Median and Mode - Linear Regression - Multiple Regression - Logistic Regression

**Unit - IV**

Normal Distribution - Binomial Distribution - Poisson Regression - - Analysis of Covariance - Time Series Analysis - Nonlinear Least Square - Decision Tree - Random Forest - Survival Analysis - Chi Square Test

**Unit - V**

Data analytics - Numpy - Data analysis pandas - Data Visualization with matplotlib - Data visualization with seaborn - Introduction to deep learning

**Core Practical -Data Science using R**

1. Write a R language using data frames.

2. Write a R language using built-in function

3. To Create a matrix taking a vector of numbers as input using R

4. Write a R language we can join multiple vectors to create a data frame using the cbind()function.

Also we can merge two data frames using rbind() function.

5. Write a R language using detting and setting the working directory

6. Write a R language verify and load the "xlsx" package

7. Write a R language for simple pie-chart is created using just the input vector and labels

8. Write a R language using boxplot with notch

9. Write a R language using mean, median and mode

10. Write a R language program using linear regression

11. Write a R language program using multiple regression

12. Write a R language program using logistic regression

13. Write a R language program using normal distribution

14. Write a R language program using binomial distribution

15. Write a R language program using poisson regression