

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031, Telangana State

DEPARTMENT OF INFORMATION TECHNOLOGY

**SYLLABUS OF B.E VI- SEMESTER
STATISTICAL PROGRAMMING USING R
(Open Elective-VII)
(for other Branches)**

Instruction: 2 Hrs /week	SEE Marks :70	Course Code :OE620IT
Credits : 2	CIE Marks: 30	Duration of SEE : 3 Hrs

Course Objectives	Course Outcomes
The course will enable the students to:	At the end of the course student will be able to:
The course will enable the students to apply the R programming language in the analysis of Statistical data.	<ol style="list-style-type: none">1. Write simple programs in R language to manipulate and visualize the data.2. Write complex program using different constructs of R language to solve simple problems.3. Use R programming language in the simulation of different types of random variables.4. Write programs using R language in the analysis and computation of different matrix operations.

Unit I: Introduction to R Language

Basic features of R, Built-in functions, logical vectors and relational operators, Data input and output, programming statistical graphs- High-level plots, low level graphic functions.

Unit II: Programming with R

Flow control, Managing complexity through functions, Miscellaneous programming tips, Debugging and maintenance, Efficient programming.

Unit III: Simulation

Montecarlo simulation, Generation of pseudo random numbers, Simulation of other random variables- Bernouli, Binomial, Poisson, Exponential and Normal random variables.

Unit IV: Computational Linear Algebra

Vectors and matrices in R, Matrix multiplication and inversion, Eigen values and Eigen vectors

Learning Resources:

1. A first Course in Statistical Programming with R, W. John Braun, Duncan J. Murdoch, Cambridge University Press, 2007.
2. <https://cran.r-project.org/manuals.htm>