

**SWARNANDHRA  
COLLEGE OF ENGINEERING AND TECHNOLOGY  
(AUTONOMOUS)**

**SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP**

**DEPARTMENT OF BACHELOR OF COMPUTER APPLICATIONS(Honours)**

**TEACHING PLAN**

Course Code	Course Title	Year / Sem.	Branch	Contact Hr/ week	Academic Year
24BC1L04	STATISTICS USING R LAB	I/I	BCA	3	2024-25

**Course Outcomes (COs):** At the end of the course, student will be able to

CO No.	Course Outcome	Knowledge Level (K)#
CO1	Understand and use basic R programming constructs such as variables, data types, arithmetic operations, and input/output.	K2
CO2	Apply functions, vectors, matrices, and data frames in R for data manipulation and basic operations	K3
CO3	Analyze and implement object-oriented programming in R using S3, S4, and reference classes.	K4
CO4	Utilize R for statistical analysis, including calculating descriptive statistics and visualizing data using various types of plots (box plots, scatter plots, bar plots).	K4
CO5	Develop R programs to work with probability distributions, perform correlation analysis, and use R for basic statistical modeling.	K4

S.No	Program	Proposed Number of Labs
1	a) Write an R program to print Hello World b) Write a program to demonstrate the basic Arithmetic in R c) Write a program to demonstrate the Variable assignment in R d) Write a program to demonstrate the data types in R	1
2	a) Write a program to demonstrate the creating and naming a vector in R b) Write a program to demonstrate the create a matrix and naming matrix in R. c) Write a program to demonstrate the Add column and Add a Row in Matrix in R d) Write a program to demonstrate the selection of elements in Matrixes in R	1
3	a) Write a program to demonstrate the Performing Arithmetic of Matrixes.	1

	<ul style="list-style-type: none"> <li>b) Write a program to demonstrate the Factors in R.</li> <li>c) Implement the Factor in R.</li> <li>d) Write a program to illustrate Ordered Factors in R</li> </ul>	
4	<ul style="list-style-type: none"> <li>a) Write an R program to take input from the user.</li> <li>b) Write an R program to Check if a Number is Odd or Even</li> <li>c) Write an R program to check if the given number is a Prime Number.</li> <li>d) Write an R program to Find the Factorial of a Number</li> </ul>	1
5	<ul style="list-style-type: none"> <li>a) Write an R program to Find the Factors of a Number</li> <li>b) Write an R program to Find the Fibonacci sequence Using Recursive Function</li> <li>c) Write an R program to make a Simple Calculator</li> <li>d) Write an R program to Find L.C.M of two numbers</li> </ul>	1
6	<ul style="list-style-type: none"> <li>a) Write an R program to create a Vector and to access elements in a vector</li> <li>b) Write an R program to create a Matrix and access rows and columns using functions colnames() and rownames()</li> <li>c) Write an R Program to create a Matrix using cbind() and rbind() functions.</li> <li>d) Write an R Program to create a Matrix from a Vector using the dim() function.</li> </ul>	1
7	<ul style="list-style-type: none"> <li>a) Write an R Program to create a List and modify its components.</li> <li>b) Write an R Program to create a Data Frame.</li> <li>c) Write an R Program to access a Data Frame like a List.</li> <li>d) Write an R Program to access a Data Frame like a Matrix.</li> <li>e) Write an R Program to create a Factor.</li> </ul>	1
8	<ul style="list-style-type: none"> <li>a) Write an R Program to Access and Modify Components of a Factor.</li> <li>b) Write an R Program to create an S3 Class and S3 Objects.</li> <li>c) Write an R Program to write an own generic function in S3 Class.</li> <li>d) Write an R Program to create an S4 Class and S4 Objects.</li> <li>e) Write an R Program to write an own generic function in S4 Class.</li> </ul>	1
9	<ul style="list-style-type: none"> <li>a) Write an R Program to create a reference class and modify its methods.</li> <li>b) Write an R program to create a scatter plot for the data frame columns.</li> <li>c) Write an R program to create a bar plot for the data frame columns.</li> <li>d) Write an R program to create a box plot for the data frame columns.</li> <li>e) Write an R program to add the legend to the plot.</li> </ul>	1
10	<ul style="list-style-type: none"> <li>a) Write an R program to change the width and height of the plot layout</li> </ul>	1

b) Write an R program to calculate mean, mode, median and standard deviation	
c) Implement R Script to create a Pie chart, Bar Chart, scatter plot and Histogram.	
d) Implement R Script to perform Normal, Binomial distributions.	
e) Implement R Script to perform correlation	

**References:**

1. R Cookbook Paperback – 2011 by Teetor Paul O Reilly Publications
2. Beginning R: The Statistical Programming Language by Dr. Mark Gardener, Wiley Publications
3. R Programming For Dummies by JorisMeysAndric de Vries, Wiley Publications
4. Hands-On Programming with R by Golemund, O Reilly Publications
5. Statistical Programming in R by KG Srinivas G.M. Siddesh, ChetanShetty&Sowmya B.J. - 2017 edition
6. R Fundamentals and Programming Techniques, Thomas Lumely.
7. R for Everyone Advanced Series Analytics and Graphics, Jared P. Lander- Addison Wesley
8. The Art of R Programming, Norman Matloff, Cengage Learning



Faculty

(K.LAKSHMAN RAO)



Head of the Department



Principal