PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23ANMIP121:FUNDAMENTALS OF R PROGRAMMING LAB

Offered to: All UG Programs **Semester: II**
Course Type: Practical – Minor **30Hours**
Credits:1

Course Objective

1. To make the students familiar with R – programming.
2. To understand the students to work with data types.
3. To understand the students to work with data frames.
4. To educate students on graphical analysis using various plots.
5. To understand the students to Regression models using R.

Course Outcomes

CO1: Able to load data in to R and spot problems with data types. **(PO4, PO5, PO6)**

CO2: Able to do programmes on data types. **(PO5, PO6)**

CO3: Able to organize data in R with Co-relation and Regression. **(PO4, PO5)**

CO4: Document and transfer the results and communicate the findings using visualization techniques. **(PO4, PO5, PO6)**

CO5: Able to organize data in R with data frames. **(PO4, PO5, PO6)**

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) & PSOs

CO	BTL	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3
CO1	L3				L	M	H			
CO2	L3					H	H			
CO3	L3				H	H				
CO4	L4				M	H	H			
CO5	L3				L	H	M			

Topics Covered

S. NO	SYLLABUS
1	Installing R and R studio
2	Create a folder DS_R and make it working directory. Display the current working directors.
3	Working with R Variables and Data types.
4	Working with Vectors: a) Create a vector v1 with elements 1 to 20. b) Add 2 to every element of the vector v1 c) Divide every element in v1 by 5. d) Create a vector v2 with elements from 21 to 30. Now add v1 to v2
5	Calculate the tendency and dispersion of the user defined vector. a) Calculate Median, Mode, Geometric mean, Harmonic mean b) Calculate Range or Variance, Standard deviation, Skewness.
6	Working with lists. a) Create and print list b) Access list elements c) Merge the lists d) Conversion – List to Vector, Vector to List

7	Working with lists a) One dimensional Array b) Two-dimensional Array c) Multidimensional Array d) Naming the Rows, Columns and Arrays
8	Working with Matrices a) Create and print matrix – 2*2, 3*3, n*n b) Accessing elements c) Matrix Addition, Transpose
9	Working with data Frames a) Create and print data frame b) Create a data frame from user defined vectors. c) Add a new row and column d) Change a row and column name
10	Visualization a) Import data from csv files b) Draw a Histogram, Bar chart, Pie-chart, stacked bar chart, Line Chart, Scatter plot. c) Adding Colors to charts
11	Correlation and Regression

Text Books:

S. No Author Title Publisher 1 Robert Kabacoff 'R'-in action - Data Analysis and Graphicswith R MANNING Publication

Michael J.Crawley "The R Book" John Wiley & Sons

Websites of Interest:

1 https://www.w3schools.com/r/r_intro.asp
2 https://www.geeksforgeeks.org/central-tendency-in-r-programming/
3 https://bookdown.org/taragonmd/phds/getting-started-with-r.html
4 https://bookdown.org/siju_swamy/Stat_Lab/correlation-and-regression-analysis-in-r.html
5. https://www.analyticsvidhya.com/blog/2015/07/guide-data-visualization-r/

Question Paper Pattern for Practical Course

SEE (LAB) Model Question Paper

23ANMIP121:FUNDAMENTALS OF R PROGRAMMING LAB

Offered to: BBA(BA)

Max. Marks: 50 **Max. Time: 3Hrs**

Pass. Min: 20

(A)	**Evaluation Procedure**		**35 Marks**
I	Experiments (Exam & Execution)	**30 Marks**	
II	Viva	**3 Marks**	
III	Record	**2 Marks**	
(B)	**CONTINUOUS ASSESMENT(Internal)**		**15 MARKS**

15 marks for the continuous assessment (Day to day work in the laboratory shall be evaluated for 15 marks by the concerned laboratory teacher based on the regularity/ record/viva). Laboratory teachers are mandated to ensure that every student completes 80%-90% of the lab assessments.

TOTAL: (A)+(B) = **50 MARKS**

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