

## SKILL BASED SUBJECT –II–BUSINESS STATISTICS WITH R PROGRAMMING

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
IV	21SMA4A	Skill Based Subject – II	Hrs/week	Hrs/Sem	Hrs/week	Hrs/Sem	-	2
			2	30	2	30		

### COURSE OBJECTIVES:

The students will be able to

- Understand the collection, classification, tabulation and diagrammatic representation of data.
- Use statistical tools in business and arrive at possible inferences relating to population under study.
- Expertise the novel applications of R language and give them a hands on experience of working with data.

### COURSE OUTCOMES:

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Acquire basic knowledge of collection, classification, tabulation and diagrammatic representation of data.	K1
CO2	Learn Index numbers and Methods of constructing Index numbers	K2
CO3	Study the behaviour of the variable and predict the behaviour in future	K2
CO4	Compares actual data with the predicted data	K3
CO5	Apply R language to import data and visualize the data	K3

*Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.*

### MAPPING OF PROGRAM OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	M	M	S	M	S
CO2	S	S	M	S	S	S
CO3	S	S	S	S	S	S
CO4	S	S	S	S	S	S
CO5	S	S	S	S	S	S

S- Strong; M-Medium; L-Low

**UNIT – I: COLLECTION, CLASSIFICATION AND DIAGRAMMATIC REPRESENTATION OF DATA** **6 Hours**

Introduction - Collection of data – Classification and Tabulation - Diagrammatic

Representation

(Text Book 1: Chapter 1 to 4)

**UNIT – II: INDEX NUMBERS** **6 Hours**

Index Numbers: Definition – Characteristics – Uses – General Problems in the construction of Index Numbers - Unweighted Averages of Relatives Methods – Weighted Aggregatives Methods – Weighted Averages of Relatives Methods – Calculations – Tests of Consistency and Adequacy - Circular Test - Fixed Base – Chain Base

(Text Book 2: Chapter 10 (Page No. 444 to 466))

**UNIT – III: INDEX NUMBERS AND ANALYSIS OF TIME SERIES** **6 Hours**

Index Numbers: Cost of Living Index Number – Deflating – Base Shifting – Splicing – Wholesale Price Index.

Analysis of Time Series: Components — Secular Trend - Seasonal variation – Cyclical variation – Measures of trend

(Text Book 2: Chapter 10, 14 (Page No. 467 to 488, Page No. 579 to 583))

**UNIT – IV: ANALYSIS OF TIME SERIES** **6 Hours**

Secular Trend– Graphic Method – Method of Semi-average – Method of Moving Averages, - Method of least squares – Problems, Merits and Demerits

(Text Book 2: Chapter 14 (Page No. 583 to 601))

**UNIT – V: BASIC CONCEPTS IN R** **6 Hours**

Assignment of values, Character, Vector arithmetic, Understanding Data types, importing/exporting data - Computation of tables and graphical representation in R: plot, pie chart, box plot, generating graphs from imported data.

**DISTRIBUTION OF MARKS: THEORY 30% AND PROBLEMS 70%**

### TEXT BOOKS

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	P.R. Vittal (Unit I)	Business Mathematics and Statistics	Margham Publishers	2011
2.	P.A. Navnitham (Unit II to IV)	Business Mathematics and Statistics	Jai Publishers, Trichi	2011
3.	Joseph Adler (Unit V)	R in a Nutshell A Desktop Quick Reference	O'Reilly	2010
4.	Mark Gardener (Unit V)	Beginning R The Statistical Programming Language	John Wiley & Sons, Inc	2012

### REFERENCE BOOKS

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	S.S.Chadha, R.N.Agarwal	Business Mathematics	S.Chand & Company Ltd, Ram Nagar, New Delhi	1996
2.	Sundaresan and Jayseelan	An introduction to Business Mathematics	Sultan Chand & Company, New Delhi	1988
3.	S.P.Gupta	Elementary Statistical Methods	Sultan Chand & Sons, New Delhi	2005
4.	S.C.Gupta and V.K.Kapoor	Fundamentals of Statistics	Sultan Chand & Sons, New Delhi	2007
5.	Joseph Adler	R in a Nutshell A Desktop Quick Reference	O'reilly	2010

### WEB RESOURCES

1. <https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-mg23/>
2. <http://www.r-tutor.com/elementary-statistics>
3. <https://www.r-project.org/>
4. <https://www.r-statistics.com/>

## **TEACHING METHODOLOGY**

1. Class room Teaching
2. Assignments
3. Seminars
4. Discussions
5. PPT Presentations
6. Hands on training in Computer Lab

## **SYLLABUS DESIGNER**

Mrs. G. VinuPriya, Head and Assistant Professor of Mathematics