Resolution No.: AC/I/(23-24).3.RUS11

S. P. Mandali's

Ramnarain Ruia Autonomous College

(Affiliated to University of Mumbai)

RUIA COLLEGE
Explore • Experience • Excel

Syllabus for

Program: F.Y.B.Sc.

Program Code: RUSSTA

(As per the guidelines of National Education Policy 2020-
Academic year 2023-24)

(Choice based Credit System)

Course Code- Skill Enhancement Course : RUSSECSTA.E111

Course Title: Data Condensation and Visualisation Techniques
Academic year 2023-24

COURSE OUTCOMES:

COURSE OUTCOME	DESCRIPTION A student completing this course will be able to:
CO 1	Identify and differentiate between various scales of measurement. Contrast different types of data and elucidate the methods utilized for data collection.
CO 2	Elucidate the definition and elucidate the interrelation between Yule's coefficient of association Q and Yule's coefficient of Colligation Y concerning two attributes.
CO 3	Develop Univariate and Bivariate frequency distributions for discrete and continuous variables along with Cumulative frequency distributions. Illustrate these distributions through graphical representations including Histograms, Polygons/Curves, Ogives, Heat Maps, and Tree Maps

DETAILED SYLLABUS

Course Code	Unit	Course/ Unit Title	No. of Hours
RUSSECSTA.O101	**Unit I**	**Types of Data and Data Condensation:** • Concept of Population and Sample. Finite, Infinite Population, Notion of SRS, SRSWOR and SRSWR • Different types of scales: Nominal, Ordinal, Interval and Ratio. • Methods of Data Collection: i) Primary data: concept of a Questionnaire and a Schedule, ii) Secondary Data • Types of data: Qualitative and Quantitative Data; Time Series Data and Cross Section Data, Discrete and Continuous Data • Univariate frequency distribution of discrete and continuous variables. Cumulative frequency distribution, Tabulation • Data Visualization: Graphs and Diagrams: Histogram, Polygon/curve, Ogives. Heat Map, Tree map.	15 Hours

		• Bivariate Frequency Distribution of discrete and continuous variables **ASSOCIATION** • Dichotomous classification- for two and three attributes, Verification for consistency • Association of attributes: Yule's coefficient of association Q. Yule's coefficient of Colligation Y, Relation between Q and Y	

References:

1. Medhi J.: "Statistical Methods, An Introductory Text", Second Edition, New Age International Ltd.
2. Agarwal B.L.: "Basic Statistics", New Age International Ltd.
3. Spiegel M.R.: "Theory and Problems of Statistics", Schaum's Publications series. Tata McGraw-Hill.
4. Kothari C.R.: "Research Methodology", Wiley Eastern Limited.
5. David S.: "Elementary Probability", Cambridge University Press.
6. Hoel P.G.: "Introduction to Mathematical Statistics", Asia Publishing House.
7. Hogg R.V. and Tannis E.P.: "Probability and Statistical Inference". McMillan Publishing Co. Inc.
8. Pitan Jim: "Probability", Narosa Publishing House.
9. Goon A.M., Gupta M.K., Dasgupta B.: "Fundamentals of Statistics", Volume II: The World Press Private Limited, Calcutta.
10. Gupta S.C., Kapoor V.K.: "Fundamentals of Mathematical Statistics", Sultan Chand &Sons
11. Gupta S.C., Kapoor V.K.: "Fundamentals of Applied Statistics", Sultan Chand & Sons

Work Load of Practical

Course	PRACTICALS	Credits	Hours / Week
RUSSECSTAP.O101	**Practical based on** RUSSECSTA.O101	**1**	**1**

Practical on SEC (1 Credit)

1. Univariate Frequency and Bivariate Frequency Classification and Tabulation
2. Frequency Curve and Frequency Polygon
3. Graphs:- Histogram
4. Graphs:- Cumulative Frequency distribution
5. Simple Bar Diagrams
6. Multiple Bar Diagrams
7. Subdivided Bar Diagrams
8. Pie Diagram
9. Association between attributes

10. Graphical representation using Excel
11. Revision 1
12. Revision 2

Modality of Assessment: Skill Enhancement Course

(1 Credit Theory Course)

A) Internal Assessment- 10 Marks

Sr No	Evaluation type	Marks
1	Class Test/ Project / Assignment / Open book test	10
	TOTAL	**10**

B) External Examination (Semester End)- 15 Marks

Semester End Theory Examination:

1. Duration – The duration for these examinations shall be of **30 min**.
2. Theory question paper pattern:

Paper Pattern:

Question	Options	Marks	Questions Based on
1	3 out of 5	15	Unit I
	TOTAL	**15**	

C) <u>Practical Examination Pattern:</u>

Practical Examination …….. **50 Marks**.

Journal and attendance …… **5 Marks**

At the end of the semester, examination of **2 hours** duration and **50 marks** shall be held for the **course**.

1. Practical paper will consist of **two questions**.

2. Every **question** will consist of **four sub-questions** based on the Unit

3. Learners to attempt **one question**.

PRACTICAL JOURNAL (5 marks)

The students are required to present a duly certified journal for appearing at the practical examination, failing which they will **not be allowed to appear for the examination. The journals will be certified if the student attends 75% practicals.**

In case of loss of Journal and/or Report, a Lost Certificate should be obtained from Head/ Co-ordinator / In charge of the department; failing which the student will not be allowed to appear for the practical examination.

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