Lecture Plan Name of the College: Government College of Arts, Science and Commerce, Sanquelim-Goa Name of Faculty: Amit Harichandra Thakur Subject: Mathematics Paper code: MAT-112 Elementary Statistics Program: F.Y.B.Sc. Division: Academic year: 2024-25 Semester: I Total Lectures: 60

Course Objectives:

This course is intended to familiarize students with organizing, summarizing, analyzing data, and drawing appropriate conclusions from it. The various tools and techniques are also intended to be used in day-to-day real – world problems.

Expected Course Outcome:

On successfully completing the course a student will have knowledge about:

- 1) Types of data
- 2) Bar Diagrams, Pie charts, Frequency polygon, Histogram and Ogives
- 3) Scales of measurement
- 4) Measures of central tendency
- 5) Correlation and regression
- 6) Probability, Events and Algebra of Events
- 7) Theorems on probability
- 8) Statistical quality control
- 9) Sampling methods
- 10) Non probability sampling methods.

- Student Learning Outcome:
 The student will be able to,
 1. Interpret data and graphically represent it.
 2. Calculate measures of central tendencies and variations.
 3. Analyze correlation and regression.
 4. Solve problems in Probability theory.
 5. Understand different data sampling techniques.
 6. Apply statistical quality control.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
July	01/07/2024	06/07/2024	4	Introductory concepts: Definition and scope of Statistics; Concept of population and sample. Types of data: Quantitative; Qualitative; Attributes; Variates.	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
	08/07/2024	13/07/2024	4	Tabulation of data: Class intervals; Frequency tables Presentation of data: Diagrams and graphs: Bar diagrams and their types; Pie charts; Frequency polygon; Histogram; Ogives. Consistency and independence of data with special reference to attributes.	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018

	15/07/2024	20/07/2024	4	Scales of measurement: Nominal, Ordinal, Interval, Ratio Measures of Central Tendency: Mathematical and Positional –		Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya
				Mean, Median, Mode, Quartiles, Percentiles.	Problem solving		Publishing House, 2018
	22/07/2024	27/07/2024	4	Measures of Dispersion: Range, Quartile deviation, Standard deviation, Coefficient of variation.	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
July August	29/07/2024	03/08/2024	4	Bivariate data: Definition; Scatter diagram SimpleCorrelation	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
	05/08/2024	10/08/2024	4	Correlation and Regression: Partial and Multiple Correlation (3 variables only); Rank correlation; Simple linear regression.	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
August	12/08/2024	17/08/2024	3	Introduction to Probability, Random experiment, Sample space Mutually exclusive, Exhaustive and Complementary events	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018

				 			
				Classical, Axiomatic and Statistical		Chalk	1.S. C. Gupta:
				Conditional Probability		Board	Fundamentals of
		24/08/2024	4	Conditional Frobability		Bound	Statistics, 7 th
	19/08/2024			Addition and Multiplication			Edition, Himalaya
				Theorem of probability			Publishing House,
					Problem		2018
					solving		
			4	Independent Events		Chalk	1.S. C. Gupta:
				•		ъ.	Fundamentals of
	26/08/2024	31/08/2024		Theorem of Total Probability		Board	Statistics, 7 th
							Edition, Himalaya
				Bayes Theorem and its applications			Publishing House,
					Problem		2018
					solving		
	02/09/2024	07/09/2024	3	Statistical Quality Control:		Chalk	1.S. C. Gupta:
				Introduction, Causes of variation in		Board	Fundamentals of
				quality, Objective, Advantages and			Statistics, 7 th
				techniques of SOC			Edition, Himalaya
				techniques of SQC	Problem		Publishing House,
				P chart,	solving		2018
				U chart,	SOIVING	Chalk	1.S. C. Gupta:
Septemb	09/09/2024	14/09/2024	1	o chart,			Fundamentals of
er						Board	Statistics, 7 th
							Edition, Himalaya
					Problem		Publishing House,
					solving		2018
	16/09/2024	21/09/2024	4	U chart, C chart		Chalk	1.S. C. Gupta:
				Gt1 -ht1		Board	Fundamentals of
				Control charts examples	Problem	Doard	Statistics, 7 th
					solving		Edition, Himalaya

										Publishing House, 2018
* Assessment Rubrics			-	23/09/2024	28/09/2024	4	Numerical Data: X bar chart, R bar chart, S bar chart	Problem	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House,
	Component	Max Ma	rks				Canadia da da incara Variana	solving	Chalk	2018 1.S. C. Gupta:
	ISA 1	10 10	Septemb				Sampling techniques- Various methods of data collection: Census		Board	Fundamentals of Statistics, 7 th
	Practical	Nil		30/09/2024	05/10/2024	4	survey and sample survey	F		
	Project	Nil	er October	30/09/2024	05/10/2024	4	, ,			Edition, Himalaya
	Semester End		October					Problem		Publishing House,
	Exam	80					Compling Mathods:	solving	Chalk	2018
				07/10/2024	12/10/2024	4	Sampling Methods: Simple random sampling, Systematic sampling, Stratified sampling and Clustered sampling	Problem solving	Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
			October	14/10/2024	19/10/2024	4	Non probability sampling methods: Convenience sampling, Consecutive sampling, Quota sampling, Purposive or Judgmental sampling, Snowball sampling	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
				21/10/2024	23/10/2024	4	Revision	Problem solving	Chalk Boatd	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018