

## 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 – Mean, Median, Mode, Quartiles, Percentiles.	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya 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 Simple Correlation	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

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

