Semester Lecture Plan

Name of the college: Government college of Arts, Science and Commerce , Sanquelim Goa		
Name of Faculty: Amit H Thakur	**Subject: Mathematics**	
Paper code: MAT-112	**Program/Course: F.Y.B.Sc.**	**Division: -**
Academic year: 2024 – 2025	**Semester: II**	**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 and 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	Lectures From:	To:	No. of lectures	Topic, Subtopic to be covered	Exercise	ICT Tools	Reference books
December	Week 1 09/12/24	14/12/24	03	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
December	Week 2 16/12/24	21/12/24	03	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

January	Week 3 02/01/25	04/01/25	03	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
January	Week 4 06/01/25	11/01/25	03	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
January	Week 5 13/01/25	18/01/25	03	Bivariate data: Definition; Scatter diagram SimpleCorrelation	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
January	Week 6 20/01/25	25/01/25	03	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
January-February	Week 7 27/01/25	01/02/25	03	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

February	Week 8 03/02/25	08/02/25	03	Classical, Axiomatic and Statistical Conditional Probability Addition and Multiplication Theorem of probability	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
February	Week 9 10/02/25	15/02/25	03	Independent Events Theorem of Total Probability Bayes Theorem and its applications	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
February	Week 10 17/02/25	22/02/25	03	Statistical Quality Control: Introduction, Causes of variation in quality, Objective, Advantages and techniques of SQC	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
February-March	Week 11 24/02/25	01/03/25	02	P chart, U chart,	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Publishing House, 2018
March	Week 12 03/03/25	08/03/25	03	Control charts examples	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya
March	Week 13 10/03/25	15/03/25	02	Numerical Data: X bar chart, R bar chart, S bar chart	Problem solving	Chalk Board	1.S. C. Gupta: Fundamentals of Statistics, 7 th

							Edition, Himalaya
March	Week 14 17/03/25	22/03/25	03	Sampling techniques- Various method of data collection, census survey and sample survey.	Problem Solving	Chalk-board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya
March	Week 15 24/03/25	29/03/25	02	Sampling Methods: Simple random sampling, Systematic sampling, Stratified sampling and Clustered sampling	Problem solving		1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya
March-April	Week 16 31/03/25	05/03/25	03	Non probability sampling methods: Convenience sampling, Consecutiv sampling, Quota sampling, Purposive or Judgmental sampling, Snowball sampling	Problem Solving	Chalk-board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya
April	Week 17 07/04/25	11/04/25	03	Revision	Problem Solving	Chalk-board	1.S. C. Gupta: Fundamentals of Statistics, 7 th Edition, Himalaya Course in Mathematics

* Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10
Practical	nil
Project	-
Semester End Exam	80