

Enclosure - IV

Offering Department: Mathematics Department

Part – II Generic Elective – I

To be offered in Semester – V

effective for the students admitted from 2016-2017 onwards

Semester – V			
16UMAGE01	GE-1 STATISTICS	2hrs/week	2Credits

Objectives:-

Upon completion of the course students will be able to

1. Identify the relevant population, sample, study units (subjects) and variables.
2. Identify data that follow a normal curve and find chances and percentages using a normal curve.
3. Produce and interpret numerical summary statistics using mean, median, mode, range, standard deviation and variance.
4. Select proper test for ANOVA and perform and interpret testing of hypothesis including chi-squared test and other ANOVA test for independence.
5. Draw and analyse the experimental data graphically.
6. Find and interpret correlation between two experimental parameters.

Unit 1: Data Collection and presentation (4Hrs)

- Sampling methods in various branches of sciences
- Random and non-random sampling
- Methods and guidelines to select the sampling methods for scientific experiments.

Unit 2 : Graphical presentation of data (5Hrs)

- Histogram, pie chart.
- Bar Diagram or Bar Graph
- Frequency Polygon
- Cumulative Frequency Curve or Ogive

Unit 3: Measures of central tendency and dispersion (6Hrs)

- Characteristics of a good average
- Mean, median and mode
- Measures of dispersion-
- Range, mean deviation, standard deviation, variance

Unit 4: Hypothesis testing (5Hrs)

- Meaning, Importance and types of hypothesis testing in various branches of sciences
- Ways to frame hypotheses and selection of proper tests for experimental data.
- Tests of hypothesis
- Types of hypothesis
- Tests of significance for small samples- student's t test, F test, Chi-square test ANOVA test.

Unit 5: Correlation and regression analysis**(4Hrs)**

- Meaning , Importance in various branches of sciences
- Utility of correlation test, types of correlation
- Methods to study correlation analysis
- Use of regression analysis
- Methods of regression analysis
- Scientific interpretation of correlation and regression

TEXT BOOKS: -

1. Digambar Patri, D. N. Patri, Statistical Methods, Kalyani Publications.

REFERENCE BOOKS:-

1. Nabendu Pal, Sabaded Sarkar, Statistics concepts and Applications, Prentice Hall of India.
2. J. N Kapur, H. C Saxena, Mathematical Statistics, S. Chand & Company Ltd.
3. P.S.S. Sundar Rao, J.Richard, Introduction to BioStatistics and Research Method, PHI Learning Private Ltd.