SCHOOL OF STUDIES IN STATISTICS, PT. R.S.U., Raipur

Syllabus
M.A./M.Sc.- Choice Based Credit System, 2023-25
Subject: Statistics

Scheme of Examination

Semester	Paper	Subject	Total Marks	Total Credits
Semester II	I	Basic Statistics-I	100	03
Semester III	I	Basic Statistics-II	100	03

M.A./M.Sc. II Semester: Choice Based Credit System
Subject: Statistics
Paper- I
BASIC STATISTICS-I

Learning Outcome: This course is useful for the students conversant with various techniques used inn summarization and analysis of data. The focus will be both on theoretical as well as practical aspects. This is highly useful in research methodology and case study.

Unit-I
Methods of Data Collection, types of data, construction of questionnaire, Processing and analysis of data. Presentation of data. Measure of central tendency and dispersion. Karl Pearson's coefficient of correlation, Rank correlation. Lines of Regression.

Unit-II
Mathematical and statistical definitions of probability. Idea of Probability distribution. Normal distribution. Test of Hypothesis, level of significance, p –value, Applications of chi square, t, F and Z Test. Chi square test for goodness of fit.

Unit-III
Sampling techniques: Simple random sampling, Stratified random sampling, non sampling error.

Unit-IV
One way and two way analysis of variance, Use of Statistical Software packages for data analysis – SPSS and Excel.

References:
1. Goon A.M., Gupta M.K., Dass Gupta B. (1991): Fundamentals of statistics, Vol.I & II, World Press, Calcutta.
2. Gupta V. K. and Kapoor S. C.(2005): Fundamentals of Mathematical Statistics S. Chand and Sons.
3. Mood A. M. Graybill F.A. and Boes D.C. (1974): Introduction to the Theory of Statistics, MegrawHill.
4. Bhatt B. R., Srivenkatramana T and Rao Madhava K.S. (1977): Statistics : A Beginner's text, Vol.II, New Age International (P) Ltd.
5. C.R.Kothari,"Research Methodology", Second Edition, Wishwa Publication, New Delhi.
6. Shukla S. M. & Sahay S. P. (): Business Statistics, Sahitya Bhawan Publications, Agra.

Learning Outcome: This course is highly practical and useful in daily life for the study of hike in prices and population growth. Employers use these techniques for payment of salaries of their employees.

UNIT-I
Sources of demographic data –census, register, adhoc survey, hospital records, measurement of mortality, crude death rate, age specific death rates, standardized death rate infant mortality rates, Complete life table and its applications. Laws of mortality and Makeham's law.

UNIT-II
Measurement of fertility-crude birth rate, general fertility rate ,age-specific birth rate, total fertility rate, gross reproduction rate. The Stable and Stationary populations, Logistic curve for population growth, Population Projection.

Unit III
Different Component of time series, Measurement of secular trend: Fitting of trend, method of moving average, effect of elimination of trend, seasonal components and its estimation, cyclical fluctuation.

Unit IV
Index number :meaning and construction of index number, different formulae for constructing index numbers, Laysperes and Paasche's index number, tests of a good index number, Fisher's Ideal index number. Chain base index numbers, Cost of living index numbers, Whole sale price index numbers.

References:
1. O. S. Srivastava (1983) – A text book of demography ,Vikas Publishing House.
2. Parimal Mukhopadhaya (1999) – Applied Statistics, Books and Allied (P) Ltd.
3. V. K. Kapoor and S. C. Gupta: Applied Statistics, Sultan Chand and Sons.