

SNDT Women's University
 Ph. D. Entrance Test (PET) Syllabus
 (RESEARCH METHODOLOGY)

1. RESEARCH METHODOLOGY - I

Objectives:

- The objective of this paper is to orient the students in basic research methodology.
- The students will also be equipped in the elementary Quantitative Techniques required in the processing and analysis of the data used in the research.

Sr. No.	Topic and Details
1	<p>Introduction and Research Design: Meaning – Objectives – Types – Significance - Research Process – Formulation of Research Problem Meaning of Research Design – Types – Exploratory or formulative – Descriptive – Diagnostic – Experimental.</p>
2	<p>Hypothesis and Sample Design: Meaning of Hypothesis- Types – Sources – Characteristics Basic Concepts – Testing of Hypothesis (in regression analysis) Basic Concepts – Theory – Sampling methods – Probability and non-probability – Sample size</p>
3	<p>Sources and Methods of data Collection and Processing of Data: Sources of data – Primary and secondary – Important secondary sources of data for Indian Economy Primary sources of data – methods of collection of primary data – Observation, Interview, Questionnaire, Schedule, Case study. Processing operations – problems – Statistical tools – Proportion and Percentage – Measures of Central Tendency – Dispersion – Asymmetry – Relationship – Correlation – Regression – Chi Square Test</p>
4	<p>Interpretation of data and Report Writing: Meaning and technique of interpretation – Precaution in interpretation – Significance of Report – Steps in Report Writing – Layout of the report – Presentation</p>

Course Outcomes:

- This paper is a background for the core research component introduced in the syllabus.
- This will enable the students to prepare proposals for the research and conduct research projects.

References:

- Aglawe Pradeep (2009) *Samajik Sanshodhan Paddhati*, Nagpur: Prakashan (Marathi)
- Allen, R.G.D. (1974) *Mathematical Analysis for Economists*, Macmillan Press and ELBS, London.
- Bhandarkar, P.L. (2009) *Sanshodhan Paddhati*, Pune: Dastane Ramchandra & Co. (Marathi)
- Casley D.J. and Lury D.A. (1977) *A Statistical Workbook for Social Science Students*, Philip Allan, U.K.
- Chiang, A.C. (1986) *Fundamental Methods of Mathematical Economics*, McGraw Hill, New York.
- Clough Peter, Nutbrown Cathy (2007) *A Student's Guide to Methodology: Justifying Enquiry*, 2nd Ed. Canada: Sage
- Galtung Johann (1969) *Theory and Methods of Social Research*, USA: Columbia University Press.
- Good William J. and Hatt Paul .K.(1981) *Methods in Social Research*, New York: McGraw hill Book Comp.
- Gujarati, Damodar, N. (2010) *Basic Econometrics*, McGraw Hill, New York
- Gupta, S.C. (1993) *Fundamental of Applied Statistics*, S. Chand & Sons, New Delhi.
- Kumar, Ranjit (2008) *Research Methodology- A Step by Step Guide For Beginners*, Australia: Pearson education.
- Shah, Arvind G. (2007) *Samajik Sanshodhan Paddhati*, Anada Prakashan, Ahmedabad. (Gujarati)
- Speigal, M.R, (1992) *Theory and Problems of Statistics*, McGraw Hill Book Co., London.
- Wilkinson and Bhandarkar (1983) *Methodology and Techniques of Social Research*, India: Himalaya publishing House.
- Yates Frank (1981): *Sampling Methods for Censuses and Surveys*, New York: Macmillan, 1981.

2. RESEARCH METHODOLOGY – II

Objectives:

- The objective of this paper is to train students to use statistical methods which can be applied to understand and analyze economic problems. They can understand economics with the help of quantitative techniques.
- To familiarize students with statistical theory and its application as the foundations for data analysis.
- To develop a reasonable understanding of economics relationships and relevant statistical methods.
- To strengthen the skill of students to make a statistical analysis of numerical facts and data.

Sr. No.	Topic and Details
1	<p>Descriptive Statistics: Measures of central tendency: Computation of Mean, Median, Mode, Harmonic Mean and Geometric Mean in discrete and continuous series, Measures of dispersion: Absolute and relative measures of dispersion, Properties of a good measure of dispersion, Quartile Deviation, Mean Deviation, Standard Deviation and coefficient of quartile and mean deviations, coefficient of variation, combined mean and standard deviation.</p>
2	<p>Correlation and Regression Analysis: Correlation: concept of simple, partial and multiple Correlation, Scatter diagram, Karl Pearson's coefficient of correlation and Spearman's rank coefficient of correlation and Concurrent Deviation Method, Probable Error of the Coefficient of Correlation and coefficient of determination, Regression: Least square method of estimating regression, two regression lines, regression coefficients and standard error of estimate.</p>
3	<p>Index Number and Time Series Analysis: Meaning, weighted and unweighted index numbers, methods of constructing index numbers, Paasche and Laspeyers method, Fisher's idle index, Marshall-Edgeworth and D-B formula of index number, Base shifting, splicing and deflating index numbers. Time series analysis: meaning, components of time series, three and four yearly moving averages, fitting the linear trend by least square method, uses of second degree trend in time series, forecasting based on time series data.</p>
4	<p>Theoretical probability distribution and hypothesis testing: Concept of probability distribution, the binomial distribution with properties and illustrative problems, normal distribution with properties and area under the normal curve, illustrative problems on normal distribution. Hypothesis Testing: Meaning and Procedure, Type 1 and Type 2 errors, the goodness of fit; Confidence intervals and level of significance, Tests of Significance for Large Samples and Small Samples- Student's 't'-test, Z test and Chi Square Test with illustrative examples.</p>

Course Outcomes:

By the end of the course students will be able to:

- Apply statistical tools in economic analysis.
- Appreciate statistical techniques used for understanding and analyzing economic problems and

variables.

- Get a broad outlook on analyzing and interpreting vast amount of economic data for getting a practical exposure to the world through research initiatives.

References:

- Gupta, S. C. (1993), Fundamentals of Applied Statistics, S. Chand & Sons., New Delhi.
- Gupta, S.P. (2016) Statistical Methods, Sultan Chand & Sons, New Delhi 9. Handry, A. T. (1999), Operations Research, Prentice Hall of India, New Delhi.
- Millar, J. (1996), Statistics for Advanced Level, Cambridge University Press, Cambridge.
- Monga, G. S. (1972), Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.
- Levin I Richard & Rubin S David, Statistics for Management, Pearson Prentice Hall, 2006
- Gupta & Kapoor, Applied Statistics, Sultan Chand & Sons, New Delhi
- Arora P N & Summet Arora, Comprehensive Statistical Methods, S. Chand & Company Ltd, New Delhi, 2007.
- Goon, A. M., M. K. Gupta and B. Dasgupta (1993), Fundamentals of Statistics, Vol. 1, The World Press Ltd., Calcutta.