

**PT. RAVISHANKAR SHUKLA UNIVERSITY, RAIPUR**

**SCHOOL OF STUDIES IN STATISTICS**

**Syllabus for Ph. D. Course in Statistics, 2016-17**

The Ph.D. Course in Statistics shall be of six months.. This course shall have two papers.. Paper I is theory paper and Paper II is project course work. Each paper is of 100 marks .Theory paper will be of 3 hours duration. In paper II, 40% marks will be assigned to seminar which will be evaluated by departmental research committee and 60% marks will be assigned to project work which will be evaluated by external and internal examiner jointly.

<b>Scheme of Examination</b>	
Paper I : <b>Research Methodology , Quantitative Methods &amp; Computer Applications</b>	<b>:100 Marks</b>
Paper II : <b>Review of Literature concerning the topic of research and Seminar/Project report</b> <b>(a) Seminar</b> <b>(b) Project work and Viva Voce</b>	<b>:100 Marks</b>  40 marks 60 marks
Total Marks	<b>200 Marks</b>

**Paper I**

**Research Methodology ,Quantitative Methods & Computer applications.**

**Unit I :** Research methodology: An introduction ,meaning of research ,objective of research, Research Methods versus Methodology, Selection of research problem, Necessity of defining the problem. Technique involved in Defining a problem.

Methods of Data Collection: Collection of Primary data, construction of questionnaire, Collection of data through questionnaire, Difference between questionnaires and schedules ,Some other methods of data collections, Collection of Secondary data ,Processing and analysis of data. Use of Statistical package, SPSS for data analysis.

**Unit II:** A review of Simple Random Sampling, Estimation of population proportion, Stratified, Optimum Allocation, Practical difficulty in adopting Neyman Allocation, formation of strata. Systematic sampling.

**Unit III:** PPS sampling , Horwitz-Thompson estimator and its variance estimation, Yates-Grundy form, Desraj Estimator, Midzuno sampling scheme, Rao- Hartley- Cochran's Procedure. Multistage sampling.

**Unit IV:** Ratio and Regression methods of estimation in various sampling designs. OIkin's multivariate ratio estimator, Multivariate regression estimator. Product method of estimation. Quenouille method of bias reduction. Introduction to super population models. Properties of Ratio and Regression estimators under super population models. Multiphase sampling.

UNIT-V: Four short notes, one from each unit will be asked. Students have to answer any two.

**References :**

1. Freedman,P.,”The Principles of Scientific Research,2<sup>nd</sup> ed.,new York Pergamon Press,1960
2. Gaum,Carl G.,Graves ,Harod F.,and Hoffman ,Lyme,S.S.,Report Writing ,New York : Barnes & Noble ,Inc,1956.
3. 3. Weller;S.;Romney,A,”Systematic Data Collection “,(Qualitative Research Method Series 10)
4. C.R.Kothari,”Research Methodology”,Second Edition,Wishwa Publication,Wiley Eastern Limited,New Delhi.
5. Mukhopadhyay, P. (1998): Theory and methods of Survey Sampling , Prentice-Hall of India Pvt. Ltd. New Delhi.
6. Sukhatme ,P.V. Sukhatme,B.V. Sukhatme S. and Ashok,C.(1984):Sampling Theory of Survey with Applications, IASRI Publication, New Delhi.