



Programme Name	<b>Pre-Ph.D. Course Work</b>	Programme Code	23
Course Code	RM-701	Credit	4
Year/Sem	1/1	L-T-P	4-0-0
Course Name	<b>Research Methodology</b>		
<b>Objectives of the Course:</b> <ol style="list-style-type: none"><li>1. To Equip the Students with the Concept and Methodology of Research.</li><li>2. To provide knowledge about type of research, preparation of reports and thesis, designing of Research using Scientific Methods.</li></ol>			
<b>UNIT I (Total Topics-12 and Hrs-10)</b> Introduction to Research: Definition, Nature and significance, Role and Objectives; Types of Research: exploratory, descriptive, experimental and diagnostic research, social and legal research and traditional, analytical, empirical & fundamental research, Doctrinal and non-doctrinal research methods; Various Research Designs; Scientific Research Process: Overview, Problem identification and formulation of research statement.			
<b>UNIT II (Total Topics-12 and Hrs-10)</b> Data Collection: sources, primary and secondary methods, significance of Primary and Secondary Data, questionnaire Vs. schedules; Data Processing: Editing, Coding Organization and Presentation; Attitude Measurement and scaling: Measurement Scales, Sources of Errors in Measurement, Techniques of Developing Measurement Tools, Classification and Testing (Reliability, Verification and Validity) Scales, Designing Questionnaires and Interviews.			
<b>UNIT III (Total Topics-10 and Hrs-10)</b> Sampling, Sampling Methods, Sampling Plans, Sampling Error, Sampling Distributions: Theory and Design of Sample Survey, Census Vs Sample Enumerations, Objectives and Principles of Sampling, Types of Sampling, Sampling and Non-Sampling Errors.			
<b>UNIT IV (Total Topics-10 and Hrs-10)</b> Interpretations and Report Writing: Meaning of Interpretation, Techniques of Interpretation, Precautions in Interpretation, Significance of Report Writing, Steps in Report Writing, Layout of Report and Precautions in Writing Research Reports, Reference Writing, Types of Manuscript.			
<b>Course Outcomes (CO)</b> <b>CO1.</b> Acquire in-depth knowledge of various fundamentals, theories and principles related to the research and apply the acquired knowledge in carrying out research studies in the area of interest. <b>CO2.</b> Identify, formulate and critically investigate research problems by applying research-oriented knowledge and analyze relevant data to reach certain conclusions in the form of alternative solutions to these problems. <b>CO3.</b> Apply the acquired knowledge and skills to develop minds to think out of the box while carrying out research operations to conclude something. <b>CO4.</b> Apply parametric and non-parametric statistical tests to verify the developed hypothesis to suggest innovative solutions to the problem being investigated.			
<b>Reference Books</b> <ol style="list-style-type: none"><li>1. William G. Zikmund, "Business Research Methods", Orlando: Dryden Press.</li><li>2. C. William Emory and Cooper R. Donald, "Business Research Methods", Boston, Irwin.</li></ol>			



3. Fred N Kerlinger, "Foundations of Behavioural Research", New Delhi: Surjeet Publications.
4. Naresh Malhotra, Marketing Research : An Applied Orientation, Pearson publication
5. David Nachmias and ChavaNachmias, "Research Methods in the Social Sciences", New York: St.Marlia's Press.
6. Bhattacharya, D. K. (2004) Research Methodology, New Delhi, Excel Books



Programme Name	<b>Pre-Ph.D. Course Work</b>	Programme Code	23
Course Code	RM-702	Credit	2
Year/Sem	1/1	L-T-P	2-0-0
Course Name	<b>Computer &amp; Stats Application in Research</b>		
<b>Objectives of the Course:</b> <ol style="list-style-type: none"><li>1. To develop and enhance computational skills for effective application in research, including data handling, analysis and scientific communication.</li><li>2. To understand and apply statistical methods for rigorous research analysis, interpretation, and validation of data.</li></ol>			
<b>UNIT I</b> (Total Topics-12 and Hrs-10) Evolution of computers, Computer generations, computer memory, Basic computer organization; System software, Application software, introduction to operating system, single user, multi-user, multitasking single tasking, MS-windows, Linux, Application of Internet in research : INFLIBNET, Use of Internet, sights (DOAJ), Use of E Journals, Use of E library, use of EBSCO HOST online database of Academic Libraries.			
<b>UNIT II</b> (Total Topics-12 and Hrs-10) Computer Application in Research, Use of Internet for Research Purpose: E-mail, WWW, Web browsing, technical skills, drawing inferences from data, Research publishing tools-MS Word, Adobe acrobat, Graphics tool-MS Excel, Presentation tool-MS Power Point, Data Analysis Software and Analysis Techniques point. Creating presentation and adding effects, Introduction to Data analysis software-SPSS: Definition, objectives and features, data analysis using SPSS.			
<b>UNIT III</b> (Total Topics-13 and Hrs-10) Statistical methods for research application in analysis of data, Measurement in Research , data interpretation, Measures of Central Tendency, Measures of Dispersion, Measures of Asymmetry (Skewness), std deviation, Measures of Relationship, Simple Regression Analysis, Correlation and Regression, Partial Correlation, Probability, Permutation & Combination.			
<b>UNIT IV</b> (Total Topics-13 and Hrs-10) Statistical Tools-Hypothesis and Hypothesis Testing: Parametric & Non-Parametric Tests, Important Parametric Tests, Hypothesis Testing of Correlation Coefficients ,U Test, Chi Square Test, ,T-Test. Analysis of Variance (ANOVA) , The Basic Principle of ANOVA ,ANOVA Technique, Setting up Analysis of Variance Table, Short-cut Method for One-way ANOVA, Coding Method, Two-way ANOVA.			
<b>Course Outcomes (CO)</b> <b>CO1.</b> Develop a comprehensive understanding of computer concepts and their applications in research. <b>CO2.</b> Apply computer-based tools and techniques to enhance academic presentation and communication skills. <b>CO3.</b> Acquire in-depth knowledge of statistical methods used in research. <b>CO4.</b> Apply statistical knowledge to analyze data and interpret the inductive nature of quantitative research.			
<b>Reference Books</b> <ol style="list-style-type: none"><li>1. C. R. Kothari, "Research Methodology: Methods and techniques", New Delhi: Vishwa Prakashan.</li><li>2. Brymann, Alan and Carmer, D., Qualitative data analysis for social scientist, New York, Routledge Publication.</li></ol>			



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3. Jain, Satish: "Introduction to Computer Science and basic Programming." BPB Publications, New Delhi.
4. Rajaraman, V., "Fundamental of Computers", Prentice Hall of India, New Delhi



Programme Name	<b>Pre-Ph.D. Course Work</b>	Programme Code	23
Course Code	RPE-703	Credit	2
Year/Sem	1/1	L-T-P	2-0-0
Course Name	<b>Research &amp; Publication Ethics</b>		
<b>Objectives of the Course:</b> 1. To provide concept of philosophy and ethics with respect to research. 2. To familiarise about scientific misconduct & best practices of research.			
<b>UNIT I</b> (Total Topics-10 and Hrs-08) Introduction to philosophy: definition, nature and scope, concept of philosophy , moral philosophy, branches of philosophy. Introduction about epistemology, metaphysics and axiology with illustration. Ethics: definition, connect with moral philosophy, nature of moral judgments and reactions, Ethics with respect to science and research.			
<b>UNIT II</b> (Total Topics-10 and Hrs-10) Ethical principles: Intellectual honesty and research integrity Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP) Plagiarism, types, tools for detection of plagiarism. Conflicts of interest, Authorship issues, best practices for authors Redundant publications: duplicate and overlapping publications, salami slicing Selective reporting and misrepresentation of data.			
<b>UNIT III</b> (Total Topics-12 and Hrs-10) Publication ethics: definition, introduction and importance Introduction about COPE & WAME, Best practices and guidelines of publishers and authors. Guidelines of COPE, WAME. Publication misconduct: definition, concept, problems that lead to unethical behaviour and vice versa, Violation of publication ethics, issues, consequences and legal implications Identification of publication misconduct, complaints and appeals Predatory publishers and journals, identification of predatory publishes.			
<b>UNIT IV</b> (Total Topics-12 and Hrs-10) Concept of Open Access & subscription Publishing: Open access publications and initiatives , hybrid online resources to check publisher copyright & self-archiving policies (SHERPA/ROMEO, directory of open access journals. Concept of data base and research metrics : Research data base, concept of indexing of journals, Scopus WOS- SCIE, SSCI, AHCI, eSCI,.Premier publishers and journals, researcher IDs Research metrics: citation, impact factor, cite score, SJR, h-index, i-10 index, g index etc. Journal finder/ Journal suggestion tools viz. JANE, Elsevier Journal finder, Springer Journal Suggester, etc.			
<b>Course Outcomes (CO)</b> <b>CO1.</b> Knowledge about basics of philosophy of science , ethics and integrity. <b>CO2.</b> Awareness about scientific misconduct and issues with respect to research publication. <b>CO3.</b> Knowledge about plagiarism software tools, open-source software tools and predatory publications. <b>CO4.</b> Knowledge about research data base, publication best practices, and research metrics.			



**Reference Books**

1. Research and Publication Ethics, Dr Sumanta Dutta, Bharti Publications.
2. Research and Publication Ethics, Dr Santosh kumar Yadav, Anne Publications.



Programme Name	<b>Pre-Ph.D. Course Work</b>	Programme Code	23
Course Code	RS-705	Credit	2
Year/Sem	1/1	L-T-P	0-0-4
Course Name	<b>Seminar Presentation</b>		
<b>Objectives of the Course:</b>			
<ol style="list-style-type: none"><li>1. To develop effective academic presentation skills among scholars for clear and impactful communication of research work.</li><li>2. To build strong understanding of review of literature, enabling scholars to critically analyze and properly utilize existing research in their own studies.</li></ol>			
<b>Guidelines for Seminar Presentation:</b>			
<p>Research scholars are required to conduct a comprehensive review of literature in the concerned field of research. Guidelines for the review of literature will be provided by the Dean (Research) and the concerned department. Scholars must prepare and deliver periodic presentations based on their literature review during the coursework. There will be minimum 3 presentations of review of literature during Pre-Ph.D. course work.</p> <ul style="list-style-type: none"><li>• For the Mid-term presentation, there should be minimum 30 reviews/references from books, research papers, and other sources must be included.</li><li>• Second presentation will be required by research scholar with extension of first presentation and more number of reviews/references would be added.</li><li>• End-term presentation would be required at the time of End-term/semester examination. there should be minimum 50 reviews from books, research papers etc.</li><li>• Each presentation will be assessed and evaluated based on critical analysis and presentation skills.</li><li>• Scholar would be required to submit soft copy and hard copy of presentation.</li><li>• Mid-term and End-term presentation marks will be awarded as per prescribed scheme.</li></ul>			
<b>Course Outcomes:</b>			
<p><b>CO1.</b> Develop and explore the literature review in the concerned research area.</p> <p><b>CO2.</b> Critically analyze the literature to identify research gaps.</p> <p><b>CO3.</b> Apply acquired knowledge to deliver systematic and effective seminar presentations.</p> <p><b>CO4.</b> Utilize learned skills to enhance overall research development.</p>			