

PHD201	<b>Research and Publication Ethics</b>	
	<b>Total Teaching Hours:</b>	<b>30 Hours</b>
<b>Module No.</b>	<b>Curriculum Coverage and Topic / Sub Topics</b>	<b>Teaching Hours</b>
1	<b>Philosophy And Ethics</b>	<b>03 Hours</b>
✓	Introduction to philosophy: definition, nature and scope, concept, branches. Ethics: definition, moral philosophy, nature of moral judgments and reactions.	
2	<b>Scientific Conduct</b>	<b>05 Hours</b>
✓	Ethics with respect to science and research. Intellectual honesty and research integrity. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP). Redundant publications: duplicate and overlapping publications, salami slicing. Selective reporting and misrepresentation of data	
3	<b>Publication Ethics</b>	<b>07 Hours</b>
✓	Publication ethics: definition, introduction and importance. Best practices / standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types. Violation of publication ethics, authorship and contributor ship. Identification of publication misconduct, complaints and appeals. Predatory publishers and journals <b>PRACTICE</b>	
4	<b>Open Access Publishing</b>	<b>04 hours</b>
	Open access publications and initiatives. SHERPA/ROMEO online resource to check publisher copyright & self-archiving policies. Software tool to identify predatory publications developed by SPPU. Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.	

5	<b>Publication Misconduct</b>	<b>04 Hours</b>
	<p style="text-align: right;"><b>02</b></p> <p><b>A. Group Discussions: Hours</b> Subject specific ethical issues, FFP, authorship. Conflicts of interest. Complaints and appeals: examples and fraud from India and abroad.</p> <p><b>B. Software tools: 02 Hours</b> Use of plagiarism software like Turnitin, Urkund and other open source software tools</p>	
6	<b>Databases And Research Metrics</b>	<b>07 Hours</b>
	<p><b>A. Databases:</b> Indexing databases. Citation databases: Web of Science, Scopus, etc.</p> <p><b>B. Research Metrics:</b> Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score. Metrics: h-index, g index, i10 index, altmetrics.</p>	
	<b>Note:</b> Minimum of three (10 marks each) hand written assignments are mandatory as part of CCE.	
<b>Mandatory assignment</b>	Write a review paper on the literature survey done by the research scholar's topic of research, and draft ready to be submitted to a UGC CARE/ SCOPUS Journal.	

## RESEARCH METHODOLOGY SYLLABUS (M.Phil/M.Tech/Ph.D)

1. Foundations of Research: Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method – Understanding the language of research – Concept, Construct, Definition, Variable. Research Process (10%)
2. Problem Identification & Formulation – Research Question – Investigation Question – Measurement Issues – Hypothesis – Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing – Logic & Importance (10%)
3. Research Design: Concept and Importance in Research – Features of a good research design – Exploratory Research Design – concept, types and uses, Descriptive Research Designs – concept, types and uses. Experimental Design: Concept of Independent & Dependent variables. (10%)
4. Qualitative and Quantitative Research: Qualitative research – Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches. (10%)
5. Measurement: Concept of measurement– what is measured? Problems in measurement in research – Validity and Reliability. Levels of measurement – Nominal, Ordinal, Interval, Ratio. (10%)
6. Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample – Practical considerations in sampling and sample size. (15%)
7. Data Analysis: Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis – Cross tabulations and Chi-square test including testing hypothesis of association. (10%)
8. Interpretation of Data and Paper Writing – Layout of a Research Paper, Journals in Computer Science, Impact factor of Journals, When and where to publish ? Ethical issues related to publishing, Plagiarism and Self-Plagiarism. (10%)
9. Use of Encyclopedias, Research Guides, Handbook etc., Academic Databases for Computer Science Discipline. (5%)
10. Use of tools / techniques for Research: methods to search required information effectively, Reference Management Software like Zotero/Mendeley, Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism (10)

### Books Recommended:-

1. Business Research Methods – Donald Cooper & Pamela Schindler, TMGH, 9th edition
2. Business Research Methods – Alan Bryman & Emma Bell, Oxford University Press.
3. Research Methodology – C.R.Kothari
4. Select references from the Internet