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SARVAJANIK UNIVERSITY
Sarvajanik College of Engineering and Technology
Department of Computer Engineering / Information Technology

Ph.D Semester 1/2
(CO / IT Engineering)

Subject Name: Research Methodology and Research Ethics **Subject Code:** PHGN11101
Type of course: PhD Credit Course
Prerequisite:

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
4	0	0	4	60	25	15	0	0	100

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests) CA2: Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

Preamble: Public trust in research and its output is essential for a healthy modern society. It is incumbent up on the stakeholders and the University to establish and maintain a culture of research integrity. This culture must be supported by robust policies, procedures, and processes. Although the research enterprise is self-correcting, this self-regulation occasionally needs help. University Grants Commission has issued two guiding documents to address this need. This Ph.D. Coursework paper is based on these two policy documents of the UGC cited in references here. However, scholars are supposed to extend their learning beyond these documents.

Unit 1: Research Design
- 1.1 Planning
- 1.2 Research Questions and Documentation
- 1.3 Literature Review
- 1.4 Data, Research Methods, and Analytical Approach

Unit 2: Conducting Research
- 2.1 Research Execution, Documentation, and Data Storage
- 2.2 Checks for Plagiarism, Falsification, Fabrication, and Misrepresentation
- 2.3 Collaboration and Authorship

2.4 Intellectual Property

Unit 3: Dissemination
- 3.1 Selection of the Right Medium for Publication
- 3.2 Choosing the Right Journal for Publication
- 3.3 Translation of Research

Unit 4: Understanding and Using Statistical Methods
- 4.1 Using Descriptive Statistics
- 4.2 Using Inferential Statistics
- 4.3 Methods used in Statistics
- 4.4 Software tools of Statistics

Unit 5: Research in Humanities
- 5.1 Research Methodology and Fallacy in Humanities and Social Sciences Research
- 5.2 Research Ethics in Social Science

Unit 6: Research in Sciences and Technology
- 6.1 Philosophy and Ethics of Research in Science
- 6.2 Ethics in Biomedical Sciences
- 6.3 Academic Dishonesty and Scientific Misconduct

Unit 7: Publication Ethics
- 7.1 Ethics in Research Publications: Fabrication, Falsification, and Plagiarism in Science
- 7.2 Sooner or Later Ethical Violations Get Exposed: Plagiarism Case Studies

Unit 8: Publication and Research Quality
- 8.1 Databases and Research Metrics

Reference Books:

1. Patwardhan B., Desai A., Chourasia A., Nag S., Bhatnagar R. (2020). Guidance Document: Good Academic Research Practices. University Grants Commission.
2. Baruah D., … Yadav M. (2021). Academic Integrity and Research Quality. University Grants Commission.
3. Writing@CSU: Understanding and Using Statistical Methods. Writing.colostate.edu. (2022). Retrieved 1 April 2022, from https://writing.colostate.edu/guides/guide.cfm?guideid=67.