Course No: CST - 1		Credit: 3	OUTCOME
Course Title: *Research Methodology*		Total marks:100	Demonstrate the ability to choose methods appropriate to research aims and objectives. Understand the limitations of particular research methods. Develop skills in qualitative and quantitative data analysis and presentation. Develop advanced critical thinking skills
Course Duration: One Semester			

Course No: CST - 2	Credit: 3	OUTCOME
Course Title: **Introduction to Computer Application for Research**	Total marks:100	To learn and acquire the skills using ICT tools. To learn the basics of Information Technology. To learn and acquire the word processing skills. To learn and acquire the spreadsheet processing skills.

		To learn and acquire the presentation skills using ICT tools. To learn and acquire the internet searching using ICT tools. This part aims at giving in-depth knowledge in important areas of computer science related to the capacity building of researchers prior to their actual research works. The objective is to refresh, and develop skills in the areas where advanced and in depth understandings of the theories and concepts are vital for successful research in the field of computer science. The semester long paper will include topics in the followings: - Advanced programming practices - Current developments in computer science - Current developments in computational infrastructures, including current trends in ICT hardware and software technologies, protocols, architectures, and world-class practices. - Simulation techniques
Course Duration: One Semester		

Course No: CS- 3	**Credit: 3**	**OUTCOME**
Course Title:	**Total marks:100**	This paper aims at building a thorough understanding of the domain of research in which the Ph.D. scholar will work for, and write the thesis. The basic objective of this course is to bridge the gap between his prior academic works and activities, and the strong-foundation required for carrying the research work in the particular domain. The course work will ensure building complete foundation regarding the in-depth knowledge and skills in the particular field of study. This paper concentrates on the very pin pointed field of

		studies related to the scholar's actual domain of research, and covers the topics related to the theories and practices in the domain, including the current developments.
		The paper will include:
		- Theories of the concerned domain - Auxiliary knowledge and information requirement for research in the concerned domain - Technologies and applications in the domain - Computational techniques related to the concerned research in the domain - Trends of research in the domain - Current happenings in the domain Futuristic approaches in the domain
Course Duration: One Semester		

Course No: CS - 4	Credit: 3	OUTCOME
Course Title: *Seminar Paper*	Total marks:100	The research scholar has to prepare a seminar paper on the proposed topic, and present in two phases, mid term and final term within the semester. The content of the seminar paper should mainly include the literature survey, and current happenings and developments in the field of study. The seminar paper will include all the road maps of the scholars Ph.D. work, including the work schedule, and visualization of the findings
Course Duration: One Semester		

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Course No: CS - 5	Credit: 2
Course Title: *Seminar Paper*	Total marks:50
Course Duration: One Semester	

Course structure

- The course comprises of six modules listed in table below. Each module has 4-5 units.

Modules	Unit title	Teaching hours
Theory		
RPE 01	Philosophy and Ethics	4
RPE 02	Scientific Conduct	4
RPE 03	Publication Ethics	7
Practice		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Databases and Research Metrics	7
	Total	30

Syllabus in detail

THEORY

- **RPE 01: PHILOSOPHY AND ETHICS (3 hrs.)**

    1. Introduction to philosophy: definition, nature and scope, concept, branches
    2. Ethics: definition, moral philosophy, nature of moral judgements and reactions

- **RPE 02: SCIENTIFICCONDUCT (5hrs.)**

    1. Ethics with respect to science and research
    2. Intellectual honesty and research integrity
    3. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP)
    4. Redundant publications: duplicate and overlapping publications, salami slicing
    5. Selective reporting and misrepresentation of data

- **RPE 03: PUBLICATION ETHICS (7 hrs.)**

    1. Publication ethics: definition, introduction and importance
    2. Best practices / standards setting initiatives and guidelines: COPE, WAME, etc.
    3. Conflicts of interest
    4. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types
    5. Violation of publication ethics, authorship and contributorship
    6. Identification of publication misconduct, complaints and appeals
    7. Predatory publishers and journals

PRACTICE

- **RPE 04: OPEN ACCESS PUBLISHING(4 hrs.)**

1. Open access publications and initiatives
2. SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies
3. Software tool to identify predatory publications developed by SPPU
4. Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.

• RPE 05: PUBLICATION MISCONDUCT (4hrs.)

A. Group Discussions (2 hrs.)

1. Subject specific ethical issues, FFP, authorship
2. Conflicts of interest
3. Complaints and appeals: examples and fraud from India and abroad

B. Software tools (2 hrs.)

Use of plagiarism software like Turnitin, Urkund and other open source software tools

• RPE 06: DATABASES AND RESEARCH METRICS (7hrs.)

A. Databases (4 hrs.)
1. Indexing databases
2. Citation databases: Web of Science, Scopus, etc.

B. Research Metrics (3 hrs.)
1. Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
2. Metrics: h-index, g index, i10 index, altmetrics

References

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Resnik, D. B. (2011). What is ethics in research & why is it important. *National Institute of Environmental Health Sciences*, 1–10. Retrieved from https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm

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