

**MANGALORE**



**UNIVERSITY**

**Scheme of Examination and Syllabus for  
Ph.D Programme in Computer Science**



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**DEPARTMENT OF POST-GRADUATE STUDIES  
AND RESEARCH IN COMPUTER SCIENCE  
MANGALAGANGOTRI-574 199**

## Course Work PhD in Computer Science Syllabus

### Preamble:

As per the letter from the University (No:MU/ACC/CR.46/2014-15/A2 dt. 6-3-2015) number of papers for the Ph.D course work in Computer Science has been reduced from the present FOUR to TWO. They are **Paper 1: Research Methodology** and **Paper 2: Review of literature**

Accordingly PG BOS in Computer Science revised the syllabus with the **Paper 1 as - CS01** and **Paper 2 as CS02** and also decided to frame the Regulation governing the Ph.D course work in Computer Science as per the University letter.

Papers	Particulars	Hours of Instruction Per week	Duration of the exam (Hrs)	Marks			
				IA	Theory	Total	Credits
Paper 1 - CS01	Research Methodology	4	3	30	70	100	04
Paper 2 - CS02	Review of Literature	16	-	-	-	150	08
	Review Report Viva	-	-	-	-	50	02
<b>Total</b>						300	14

## PAPER-1- CS-01: RESEARCH METHODOLOGY

### Programme Specific Objectives (PSOs):

- PSO 1: Researcher should be able to understand a general definition of research design.
- PSO 2: Researchers should be able to identify the overall process of designing a research study from its inception to its report.
- PSO 3: Researchers should be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research.
- PSO 4: Researchers should know the primary characteristics of quantitative research and qualitative research.
- PSO 5: Researchers should be able to identify a research problem stated in a study.
- PSO 6: Researchers should be familiar with how to write a good introduction to a scientific research study and the components that comprise such an introduction.
- PSO 7: Researchers should be familiar with conducting a literature review for a scholarly educational study with the steps in the overall process.
- I. The types of databases often searched.
  - II. The criteria for evaluating the quality of a study.
  - III. The ways of organizing the material found.
  - IV. The different types of literature reviews.
- PSO 8: Researchers should be able to distinguish a purpose statement, a research question or hypothesis, and a research objective.

# Paper 1-CS01: RESEARCH METHODOLOGY

Hours/Week: 4

I.A. Marks: 30

Credits : 4

Exam. Marks: 70

## Course Objectives (COs)

- CO1. Understand some basic concepts and properties of research and its methodologies
- CO2. Identify appropriate research topics through Literature Survey and Review
- CO3. Identity and define appropriate research problem and parameters
- CO4. Prepare a project proposal to undertake a project
- CO5. Organize and conduct research (advanced project) in a more appropriate manner
- CO6. Understanding and plagiarism and avoiding Plagiarisms
- CO7. Write a research report and thesis
- CO8. Writing a research proposal o Founding agencies

## UNIT - I

**Fundamentals of Research:** Introduction to Research issues in computer science, the objectives and dimension of research. Exploring research in computer science, browsing the periodicals sections of the library. **Tools of research:** General tools of research, library and its resource as a tool of research, the computer and its software as a tool of research, measurement as a tool as research, different measurements, statistics as a tool of research, the human mind as a tool of research, language as tool of research. Open research tools. **Focusing your research efforts:** Identifying and describing the research problem/project, stating the research problem, identifying subproblems and its characteristics, stating the hypotheses, preparing a research proposal, a sample research proposal.

## UNIT - II

**Reviewing the Related Literature:** Role of review, locating related literature, using library catalog indexes, abstracts, and other general reference, using the library's online database, organizing information collected, evaluating, organizing and synthesizing the literature, writing a sample research proposal. **Research planning:** planning a research proposal, basic format of a research proposal, research planning versus research methodology, general criteria for a research project, role of data in research, linking data and research methodology, comparing quantitative and qualitative approaches, **Writing the research proposal:** Organizing a research proposal, practical applications.

## UNIT - III

**Quantitative Research Methodologies:** Descriptive research Design, correlation research, development design, computerizing data collection in descriptive research, using the internet to collect questionnaire data, choosing a sample in descriptive study, sampling design, sampling in surveys of very large population, identifying a sufficient sample size, Bais in research sampling, population analysis for a descriptive survey.. **Strategies for Analyzing Quantitative data:** Exploring and Organizing a data set, analyze data, functions of statistics, considering the nature of data, descriptive statistics, the point of central tendency, measures of variability. Dispersion and deviation, measures of association: correlation, inferential statistics, estimating population parameters, testing hypotheses, meta-analysis, using statistical software

packages interpreting the data, general computational tools.

#### UNIT - IV

**Preparing The Research Report:** planning a research report, description of research, description of methods, presentation of the data, interpretation of the data, concluding the report, s graphic organizer for the research report, organizing the research report, the principles of writing, practical applications, **plagiarism:** Introduction, occurrence of plagiarism, types of plagiarism maintenance, open source plagiarism tools.

#### Reference Books:

1. Paul D Leedy, and Jeanne Eills Ormord, Practical Research Planning, and Design, person publication, 11<sup>th</sup> Edition, 2015.(Chapters 1,2,3,4,5,6,9,11nad 12)
2. MICHAEL P. MARDER, Research Methods of Science, Cambridge University Press, 2011 (Chapter-3 & 4)
3. Diane Pecorari, Teaching to Avoid Plagiarism: How to Promote Good Source use, 2013, open university Press. (Part-I and Part-II)



## Paper II-CS02: LITERATURE REVIEW

Hours/Week: 16

Credits : 8

Review of Literature: 150

Viva Marks: 50

Contents of the review of literature are based on the research field under the direction of Research Supervisor. Content of the Review report shall include the art of research work analysis, related implementation issues and motivation for the stated research problem.

### Course Outcomes:

- CO1. Identify the Research gaps in previous studies and progress over time and therefore establishes a foundation on which current research can be based.
- CO2. Collect more information about the current research project
- CO3. Evaluate pertinent theoretical framework for the current research project
- CO4. Discover relevant research methodology i.e. methods and approaches that have been successful in similar studies.
- CO5. Validate current arguments based on previous experiential findings
- CO6. Differentiate your approach and arguments and demonstrates your thinking on the subject matter
- CO7. Avoid plagiarism

