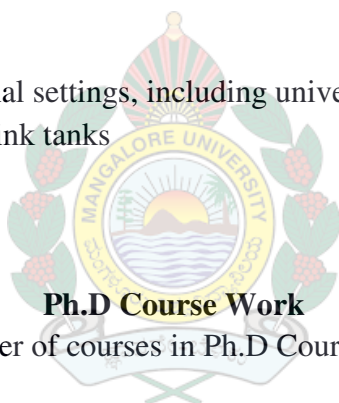


Programme Name: Ph.D in Electronics

Programme Specific Outcomes of Ph.D Programme

1. Conduct high quality research and disseminate it to scholarly and other audiences;
2. Enhance the critical thinking abilities and logical reasoning.
3. Develop a holistic approach to address problems pertaining to social, economical and technological relevance
4. Improve the knowledge base of technology and to address local and global challenges through sustainable development approach
5. Impart skills of scientific writing such as technical notes, literature review, scientific articles, manuals
6. Excel in a variety of institutional settings, including universities, industry and government research labs, and think tanks



Ph.D Course Work

(Total Number of courses in Ph.D Course Work : 02)

I Course Name: Research Methodology

- 1.To understand the definition of formal research and to dispel the wrong notions about research.
2. To understand the central role of research problem in a research and the literature review required for the discovery of the researchable problem
3. To understand the role of Null Hypothesis and Alternate Hypothesis to arrive at the solutions to the research problem.
4. To understand the roles of different tools of research namely, library, statistics, human mind, laboratory, collaboration etc.

Unit - I

What Is Research? Exploring Research in Your Field, Browsing Periodical Section of Library, Finding Journals on Internet.

Tools of Research: Library And Its Resources, Computer And Its Software As Tool of Research, Measurement As A Tool Of Research, Human Mind As A Tool Of Research, Language As A Tool Of Research

Unit - II

Focusing Research Efforts: Finding A Problem, Stating A Research Problem, Evaluating A Research Problem, Identifying Sub Problems And Its Characteristics, Stating The Hypothesis of Research Question.

Review of Literature: Role of Review, Locating Related Literature, Using Library Catalogue, Indexes, Abstracts and Other References, Using Online Database, Organising Information Collected, Evaluating and Synthesising The Literature.

Unit - III

Planning A Research Proposal: Basic Format of Research, Research Planning And Methodology, General Criteria For Research Project, Role of Data in Research, Linking Data in Research Methodology, Writing Research Proposal, Strengthening Research Proposal

Preparing the Research Report: Planning Research Report, Description of Problem, Description of Method, Presentation And Interpretation of Data, Preliminary Pages And Notes, Foot Notes, Reference List, Appendix, Organising The Research Report.

Unit - IV

MATLAB: Matlab Environment, Variables And Arrays, Initialising Variables In Matlab, Multidimensional Arrays, Subarrays, Special Values, Displaying Output Data, Data Files, Scalar And Array Operations, Hierarchy of Operations, Built-in Matlab Functions, Introduction to Plotting.

Branching Statements And Program Design: Introduction to Top-Down Design Techniques, Use of Pseudocode, Relational And Logic Operators, Branches, Additional Plotting Features
Loops: The *While* Loop, The *For* Loop, Logic Arrays And Vectorization

Unit V

User Defined Functions: Introduction to Matlab Functions, Variable Passing in Matlab: The Pass-By-Value Scheme, Optional Arguments, Sharing Data Using Global Memory, Preserving Data Between Calls To A Function, Function Functions, Sub-function And Private Functions.

Unit - VI

Complex Data, Character Data And Additional Plot Types: Complex Data, String Functions, Multidimensional Arrays, Additional Two-Dimensional Plots, Three-Dimensional Plots.

Input/ Output Functions: The Text Read Function, Load And Save Commands, Matlab File Processing, File Opening And Closing, Binary I/O Functions, Formatted I/O Functions, Comparing Formatted And Binary I/O Functions, File Positioning And Status Functions, Function ui Import.

Unit - VII

Handle Graphics; The Matlab Graphics System, Object Handles, Examining And Changing Object Properties, Using *Set* to List Possible Property Values, User Defined Data, Finding Objects, Selecting Objects With the Mouse Position And Units, Printer Positions, Default And Factory Properties, Graphics Object Properties.

GUI: How Does A GUI Work? Creating and Displaying A GUI, Object Properties, GUI Components, Dialog Boxes, Menus, Tips for Creating Efficient GUIs

Text Books:

1. Practical Research: Planning And Design – Paul D. Leedy And Jeanne Ellis Ormrod, 9th Edition, Pearson Publications ISBN – 978-0-13-715242-1, 2010.
2. Matlab Programming For Engineers – Stephen J Chapman, 2nd Edition Brooks/Cole Publications

II Course Name: Literature Review

Course Outcomes

1. Understand the basic research methodologies followed in similarly defined research problems
2. Critically analyzing the outcomes of previous studies in chosen domain of research
3. Understanding the importance of scientific writing to convey the outcomes to general public
4. A scientific study on challenges related to socio-economical and technical domains.
5. Organising technical data to fit into global standards and formats.