

Course Description

PC 874 – Research Methodology

Course Placement: PC 874 is a core course for Ph.D. students

Course Format: 3 hours of lectures per week.

Prerequisites: admission to Ph.D. program

Course Content:

The name "Research Methodology" defines this course.

The topics include

- (1) General guidelines on research
- (2) Research methodology for PhD students in DAIICT
- (3) Basic ideas of philosophy of knowledge and research
- (4) Basic ideas of Invention, Patenting and Innovations
- (5) Guidelines on Thesis and Paper writing and Presentations
- (6) Guidelines on Data Analysis using MATLAB and R
- (7) Ethics of research and communication, detection and removal of plagiarism

Throughout this course each of the participants will read, summarize and discuss 5-6 papers published in top journals in his/her area of research.

Also each participant will carry out research projects on (a) experimental data collection, analysis and interpretation and (b) computer simulation, analysis and interpretations. 2-3 students may work as a team. Joint papers will be written on each project by the teams. Each participant/team will also give a short presentation on research performed.

Reading Materials:

1. Lecture notes
2. Several E-books, papers and technical documents downloaded from the Internet.

Assessment Methods:

- Participation in Discussions
- Technical presentations and/or group discussions

- Short technical writing and reviewing exercises
- Research projects and papers
- End-Semester Examination

(If any instance of plagiarism, copying and cheating is detected an ``F" is given as the final grade irrespective of any other things.)

Course Outcome:

After completion of this course, students will be able to

- Start reading technical literature collecting material for their research projects
- Write their theses with confidence
- Present the research progress seminars, defend their thesis, and make technical presentations with confidence
- Write papers, proposals, and technical reports
- Be aware of research ethics and ethics of technical communication
- Work in small groups for presentation and discussions

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
X	X	X	X	X	X		X	X	X	X	X

Course Specific Outcomes:

PSO 1: Should be able to understand the concepts and philosophy of research in mathematics or physics or computer science and engineering or information and communication technology

PSO 2: Should have an ability to apply technical knowledge and usage of modern software tools related to writing, literature search and reviewing, and presentation towards writing thesis, papers, reports, and both oral and poster based presentations

PSO 3: Should have the capability to comprehend and review writings and presentations