

School of Computer & Systems Sciences

Doctor of Philosophy (Ph.D.)

(Direct Admission to Ph.D. Programme)

Course Structure & Syllabus

1. A student shall have to earn a minimum of 15 credits at the end of I year in the course work in order to be eligible to continue in the Ph.D. programme.
2. The Students are required to opt at least 2 elective courses and elective courses should be opted in the first/second semester of PhD programme.

Semester I

S.No.	Course Name	Credits
1.	Research Methodology CS-765	3
2.	Academic Ethics and Technical Writing CS-774	3
3.	Elective-I	3

Semester II

S.No.	Course Name	Credits
1.	Research Reading and Seminar CS-801	3
2	Elective-II	3

Note:

1. *Elective courses Elective-I and Elective-II should be opted from the list of courses offered to the M. Tech. students in respective semesters.*
2. *Elective-II can also be opted in the first semester of the PhD programme*

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Syllabus

Semester I

Compulsory Courses

1. Research Methodology CS-765

Science and Research, Verification Vs. Falsification, Objectivity: Facts, theory and concepts, Basic Steps for doing Research, Formulation of Research Problem, Scientific method Vs Arbitrary Method, Deductive and Inductive Reasoning, Error Analysis and Accuracy, Descriptive Statistics, Probability, Random Variables, Sampling distribution and Probability Distribution, Hypothesis Testing, Regression Analysis, Multivariate Analysis.

References:

1. Michael P. Marder, Research Methods for Science, Cambridge University Press, 2011.
2. C. Radhakrishna Rao, Statistics and Truth, CSIR, 1989.
3. Sheldon M Ross, Introduction to Probability and Statistics for Engineers and Scientists, Elsevier, 2010.
4. Day RA, How To Write and Publish a Scientific Paper, Cambridge University Press, London, 1992.
5. Latour, B. and Woolgar., Laboratory Life: The Construction of Scientific Facts, 2nd Edition, Princeton: Princeton University Press, 1986

2. Academic Ethics and Technical Writing CS-774

Significance of literature review, Writing scientific report, structure and components of research report, revision, writing project proposal, writing a Research Paper, Citation counting and Impact factor, Science citation index (SCI)/ Science citation index Expanded (SCI-E), H-index, Academic Ethics and Plagiarism, Intellectual Property Rights and Patent law.

References:

1. P. Oliver, *Writing Your Thesis*, New Delhi: Vistaar Publications, 2004.
2. Gregory, *Ethics in Research*, Continuum, 2005.

Elective Course

2. **Elective I** (to be opted from elective courses offered to M.Tech)

Semester II

Compulsory Course

1. Research Reading and Seminar CS-801

This course should be carried out under the concern supervisor in the area of related research for dissertation as suggested by the supervisor. The related research work should be presented. The research reading is evaluated by the concern supervisor and seminar is evaluated by the seminar evaluation committee. Research reading and Seminar have equal weightage.

Elective Course

2. Elective II (to be opted from elective courses offered to M.Tech)