



Janardan Bhagat Shikshan Prasarak Sanstha's



**CHANGU KANA THAKUR
ARTS, COMMERCE & SCIENCE COLLEGE, NEW PANVEL
(AUTONOMOUS)**

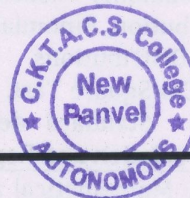
Re-accredited 'A+' Grade by NAAC
'College with Potential for Excellence' Status Awarded by UGC
'Best College Award' by University of Mumbai

**Affiliated to University of Mumbai with an autonomous
Status**

**Revised Syllabus of
Program: Common Ph.D. Course work**

(To be implemented from Academic Year 2022-2023)

Common Ph.D. Course work



Manu B
Principal
CHANGU KANA THAKUR
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Course Objectives

- To identify and apply appropriate research methodology in order to plan, conduct and evaluate basic research.
- To enable scholars to develop the foundation for research skills at appropriate levels.
- To explore techniques for recognizing, analyzing, and resolving ethical dilemmas
- To understand ethical norms for using humans and animals in research, data acquisition and management,
- To maintain academic integrity & prevention of misconduct including Plagiarism,
- To acquaint with reference management tools, proper attribution, copyright & intellectual property right policies etc

Course1: Research Methodology and computer applications

Paper I: Research Methodology and Computational Applications (60 hrs.) 4Credits

Course Code	Title	Credits	No. of Lectures
	Course1: Research Methodology and computer applications (Section I and Section II)	04	60 hrs.

Course Code	Title	Credits	No. of Lectures
	Course1: Research Methodology and computer applications Section I: Research Methodology	02	30 hrs.
Unit	Title		No. of Lectures
Unit-I Scientific Research	Scientific Research: Research: Definition, Characteristics, types, Need of research. Identification of the problem, assessing the status of the problem, formulating the objectives, Hypotheses, Research Methods and Methodology Selecting & defining Research problem, Research Process Research Design: preparing Research design (experimental or otherwise), Actual investigation, Determining the mode of attack.		10 hrs.
Unit-II Literature survey	Literature survey: Need for Literature Survey, References, Abstraction of a research paper, and Possible ways of getting oneself abreast of current literature. Sources of literature.		10 hrs.
Unit-III Documentation and scientific writing	Documentation and scientific writing: Results and Conclusions, Preparation of manuscript for Publication of Research paper, Presenting a paper in scientific seminar, Thesis writing. Structure and Components of Research Report, Types of Report: research papers, thesis, Research Project Reports, Pictures and Graphs, citation styles, writing a review of paper, Bibliography.		10 hrs.

Course Code	Title	Credits	No. of Lectures
	Course1: Research Methodology and computer applications Section II: Computer Applications	02	30 hrs.
Unit	Title		No. of Lectures
Unit-I: Computer Skills	Use of word processing, spreadsheet and database software. Plotting of graphs. Internet and its application: E-mail, WWW, Web browsing, acquiring technical skills, drawing inferences from data		10 hrs.
Unit-II: Statistical analysis and fitting of data	Statistical analysis and fitting of data : Introduction to Statistics – Probability Theories - Conditional Probability, Poisson Distribution, Binomial Distribution and Properties of Normal Distributions, Estimates of Means and Proportions; Chi-Square Test, Association of Attributes - t-Test -Anova- Standard deviation - Co-efficient of variations. Co-relation and Regression Analysis.		10 hrs.
Unit-III Data Analysis	Data Analysis: Mathematical and statistical analysis using software tools like MAT Lab, SPSS, PsiLAB or free ware tools.		10 hrs.
Main References	<ol style="list-style-type: none"> 1. Thesis & Assignment Writing–J Anderson, B.H.Dursten & M.Poole, Wiley Eastern, 1977 2. A Hand Book of Methodology of Research – P. Rajammal and P. Devadoss, R. M. M. Vidya Press, 1976. 3. The Craft of Scientific Writing by Michael Alley, (Springer). 4. Research Methodology by R. Panneerselvam, PHI, New Delhi 2005 5. Practical Research Methods, by Dawson, Catherine, 2002, UBS Publishers' Distributors New Delhi. 6. Research Methodology- A step by step Guide for Beginners, (2nd ed.) Kumar Ranjit, 2005, Pearson Education. 7. How to write and Publish by Robert A. Day and Barbara Gastel, (Cambridge University Press). 8. Survival skills for Scientists by Federico Rosei and Tudor Johnson, (Imperial College Press). 9. How to Research by Loraine Blaxter, Christina Hughes and Malcum Tight, (Viva Books). 10. The Craft of Scientific Writing by Michael Alley, (Springer). 11. A Student's Guide to Methodology by Peter Clough and Cathy Nutbrown, (Sage Publications). 12. Probability and Statistics for Engineers and Scientists" by Sheldon Ross, (Elsevier Academic Press). 13. Research methodology techniques and methods by C L Kothari, New age International publishers. 		

Course 2: Research and Publication Ethics (total hours 30 h; Credits: 2)

Course Code	Title	Credits	No. of Lectures
	Course2: Research and Publication Ethics	02	30 hrs.
Unit	Title		No. of Lectures
Unit-I Philosophy and ethics	Introduction to philosophy, Ethics		3 hrs.
Unit-II Scientific conduct	Ethics with respect to science and research, Intellectual honesty and research integrity, scientific misconducts, redundant publications, Selective reporting and misrepresentation of data.		5 hrs.
Unit-III Publication ethics	Publication ethics, Best practices / standards setting initiatives and guidelines, Conflicts of interest, Publication misconduct, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals		7 hrs.
Unit-IV Open access publishing	Publication ethics, Best practices / standards setting initiatives and guidelines, Conflicts of interest, Publication misconduct, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals		4 hrs
Unit-V Publication misconduct	Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals		2 hrs
	Software tools		2 hrs
Unit-V Databases and research metrics	Databases: Indexing databases, Citation databases		4 hrs
	Research Metrics: Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g index, i10 index, altmetrics		3 hrs
Course Code	Title	Credits	No. of Lectures
	MOOCS /SWAYAM/ NPTEL course in relevant discipline (check credits while selection of MOOCS)	02	
	Presentations in conferences/seminar Participation in Avishkar, /Review paper	02	
	Member of organizing committee	01	
	Pre-synopsis viva	01	