SANKALCHAND PATEL UNIVERSITY
।। अथातो ज्ञानजिज्ञासा ।।

Ph. D. Program
(July-2019)

Subject Code: 1RI3000101	**Subject Title:** Research Methodology And Statistics
Pre-requisite Subject	**- NONE -**

Objectives of course:
This subject will help scholar to understand meaning of the research, its type and purpose with importance of literature survey from authenticated sources. It will guide the scholar to identify the problem and design the research proposal along with its cost effectiveness and the idea about sources from which research grants can be procured. It will help researcher to select the proper method of research (quantitative, qualitative, questionnaire, etc) and documentation with their importance. Statistical tools will guide the scholar how to analyze their results and enable them to interpret results. The course also incorporates detail guidelines for report writing.

Learning outcomes:
On the completion of the course Scholar should be able to:

1. It will help how to identify the topic and objectives of the research area.
2. It enables the scholars to understand the research design, sources of information, various data collection methods and its implications.
3. The scholar can use various data analysis methods and can interpret them according to the need of their research area.

Teaching Scheme (Credit Distribution)				Assessment Scheme (Weightage)		Total Marks
Lecture	Tutorial	Practical	Credit	Hall Exam	Continuous Evaluation	100
3	1	0	4	80%	20%	

Subject Contents			
Sr. No.	**Topic**	**Total Hours**	**Weight (%)**
1	Meaning and types of Research: Basic Research, Applied Research, Modern Scientific approach to Research, Research in (Educational, Clinical, Experimental, Historical descriptive and Patent oriented Research), Research process, Designing a research study, Types of Research Design, Research Proposal, Literature Review.	12	20
2	Qualitative studies, Quantitative studies, Sources of Data, Various Data Collection methods, Sampling Methods, Sample size determination, Measurement of data, Development of instrument for data collection.	12	20
3	Getting data ready for analysis, Descriptive data analysis, Hypothesis-testing, Z-test, F-test, t-test, Chi-square test, Analysis of variance (One-way and Two-way Anova), Analysis of covariance, Manova, Tukey's test, Dunnett's test, Newman-Keuls test, Regression and Correlation analysis, Nonparametric methods in statistics Sign test, Wilcoxon test, Kruskal-wallis test, Friedman test, Data Analysis with Statistical Packages.	12	20

4	Structure and components of scientific reports, Types of report, Technical reports and thesis, Different steps in the preparation, Layout, structure and Language of typical reports, Illustrations and tables, Bibliography, referencing and footnotes, Documentation techniques, Research paper-article writing, Structure of a Research Paper, Importance of publishing research papers, Publishing papers, Preparation of presentation, Use of visual aids	12	20
5	Cost analysis of the research project, Sources for procurement research grants, international agencies, Government and private bodies, Industrial-institution interaction, Industrial projects and feasibility reports, Interaction with industries, Ethical conducts in research, Issues related to plagiarism, collaborative models and ethics, acknowledgements, Intellectual Property Rights, copyrights, Patents, Trademarks etc.	12	20

List of References:

1. Research Methodology, Methods & Techniques, C.R. Kothari, Viswa Prakashan, 2nd Edition, 2009.
2. Research Methods- A Process of Inquiry, Graziano, A.M., Raulin, M.L, Pearson Publications, 7th Edition, 2009.
3. Levin & Rubin: “Statistics for Management” Pearson Education
4. How to Write a Thesis:, Murray, R. Tata McGraw Hill, 2nd Edition, 2010.
5. Writing For Academic Journals, Murray, R., McGraw Hill International, 2009.
6. Writing for Publication, Henson, K.T., Allyn &Bacon, 2005.
7. What is this thing called Science, Chalmers, A.F., Queensland University Press, 1999.
8. Doing your Research project, Bell J., Open University Press, Berkshire, 4th Edition, 2005.
9. A Handbook of Academic Writing, Murray, R. and Moore, S., Tata McGraw Hill International, 2006
10. Manual for evaluation of industrial projects-United Nations
11. Research Projects and Research Proposals A Guide for Scientists Seeking funding by Paul G Chapin Cambridge University Press.