

**P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
**DEPARTMENT OF CHEMISTRY**  
**M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)**  
**II SEMESTER**  
**W.E.F 2022-23 (R22 Regulations)**

**Title of the Paper: RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS (IPR)**

Course Code	<b>22PG201</b>	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2017-2018	Year of Offering:	Year of Revision:----	Percentage of Revision: 100 %

S.No	COURSE OUTCOMES	PO'S
	After the completion of the course, Students will be able to	
1	Memorize the basic concepts of research and its methodologies.	2,7
2	Understand some basic and advanced concepts of research and its methodologies.	1,4,7
3	Demonstrate the ability to choose methods appropriate to research aims and objectives.	1,3,6
4	Analyze the role of research methodologies in designing the new strategies.	1,4,5

## Syllabus

### Course Details

Unit	Learning Units	Lecture Hours
I	<b>Foundations of Research:</b> Meaning of Research – Definitions of Research – Motivation in Research – General Characteristics of Research – Criteria of Good Research – Types of Research – Research Process – Research Methods vs. Methodology – Defining and Formulating the Research Problem – Review of Literature – Approaches to Critical Literature Review – Importance of Literature Review in Identifying Research Gaps and Defining a Problem – Development of Working Hypothesis.	12
II	<b>Research Design, Sampling Concepts, and Data Collection Methods:</b> Meaning, Significance and Characteristics of Good Research Design – Types of Research Design: Exploratory, Conclusive Research and Experimental – Sampling Theory: Types of Sampling and Errors in Sampling – Data Collection: Types of Data – Data Collection Methods and Techniques for Primary and Secondary Data.	12

III	<b>Measurement &amp; Scaling Techniques, Hypothesis Formulation and Testing, Overview of Data Analysis and Report Writing:</b> Basic measurement scales – Reliability & Validity – Definition and Types of Hypothesis – Hypothesis Formulation and Testing Procedure – Overview of Data Analysis: Methods, Process and Types – Report Writing: Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation, Mechanics of Writing a Research Report, Precautions for Writing Research Reports – How to Write a Research Proposal, Research Ethics, Conflict of Interest and Plagiarism.	12
IV	<b>Intellectual Property Rights (IPR):</b> Definition and Nature and Features of Intellectual Property Rights (IPR) – Types of Intellectual Property Rights – Procedure for Grants of Patents – Rights of a Patent – Scope of a Patent Rights – Licensing and Transfer of Technology – Why protection of intellectual property is important? – Enforcement of IPR – Infringement of IPR.	12
V	<b>Indian and International Scenario and New Developments in IPR:</b> IPR Developments in India for the past Five Years – Development of IPR Laws in India – International Cooperation on IPR – New Developments in IPR – Administration of Patent System – International Patent protection – Case Studies in Indian and Global Contexts.	12

#### REFERENCE BOOKS:

1. Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K., 2002, An introduction to Research Methodology, RBSA Publishers.
2. Cohen, L. Lawrence, M., & Morrison, K. (2005), Research Methods in Education (5th edition). Oxford: Oxford University Press.
3. Kothari, C.R., 1990, Research Methodology: Methods and Techniques, New Age International.
4. Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford: Oxford University Press.
5. Anthony, M., Graziano, A.M. and Raulin, M.L., 2009, Research Methods: A Process of Inquiry, Allyn and Bacon.
6. Fink, A., 2009, Conducting Research Literature Reviews: From the Internet to Paper. Sage Publications.
7. Day, R.A., 1992, How to Write and Publish a Scientific Paper, Cambridge University Press.
8. Wadehra, B.L. 2000, Law relating to patents, trade marks, copyright designs and geographical indications. Universal Law Publishing.
9. Coley, S.M. and Scheinberg, C. A., 1990, Proposal Writing, Sage Publications.
10. Carlos, C.M., 2000. Intellectual property rights, the WTO and developing countries: the TRIPS agreement and policy options, Zed Books, New York.
11. Leedy, P.D. and Ormrod, J.E., 2004, Practical Research: Planning and Design, Prentice Hall.
12. Satarkar, S.V., 2000. Intellectual property rights and Copy right. Ess Ess Publications.

**Course Focus:** Employability.