

Date-September 19, 2023

To

The Principal Secretary to Governor  
Raj Bhawan, Patna

Sub: Submission of Uniform syllabus for 4 year Undergraduate courses of Bachelor of Science under CBCS in the subject - Research Methodology.

Sir,

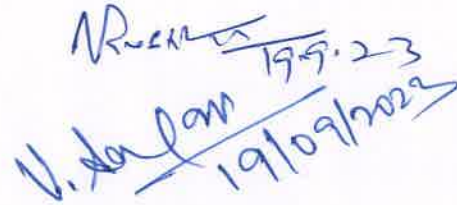
With reference to letter No. BSU (UGC)-02/2023-1473/GS (I) dated 18.09.2023, a meeting of the panel of experts in Research Methodology (Paper Code MJC-14) was held on 19.09.2023 to finalize the Syllabus for Research Methodology . We are submitting the syllabus.

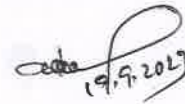
Yours sincerely,

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19/09/2023

  
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19.9.23  
V. Sagar  
19/09/2023

  
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# Syllabus for 4 Year Undergraduate Programme under CBCS System

## RESEARCH METHODOLOGY FOR FACULTY OF SCIENCE

### SEMESTER-VII: MAJOR COURSE-14 (MJC-14)

Credits: Theory-05

Full Marks:ESE-70 + CIA-30 = 100

#### Objective of the Course

- To introduce fundamental of research process including problem identification, hypothesis concept and to draw conclusion.

#### Learning outcome:

After completion of this course the students will be able to

- Develop the skill of contextualization of knowledge and critical thinking
- Choose appropriate methods of research aims and objectives.
- Apply ethical principle in research work.
- Understand the philosophy of research integrity and publication ethics.

MJC-XIV :Research Methodology (Credit: 5)		
Unit	Topics to be covered	No. of Hours (50)
1	<b>Fundamental of Research</b>	
	1.1 Philosophy, concept, aims, objectives, purpose and scope of research.	04
	1.2 Types of Research : Descriptive vs Analytical, Pure vs Applied, Conceptual vs Empirical, Qualitative vs Quantitative,Scientific vs Technical.	03
	1.3 Good Laboratory Practices and safety measures.	02
2	<b>Concept of Research Problem and Research Designing</b>	
	2.1 Identifying the Research Problem: meaning; importance; sources; selecting, stating and evaluating a research problem	03
	2.2 Hypothesis: Designing and Testing	03
	2.3 Experimental Research and Design: Approximation of data, simulation and modelling	02
	2.4 Sampling: Types of sampling, Questionnaire and observational methods of data collection.	03

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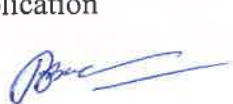
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3	<p><b>Use of Tools and Techniques in Research</b></p> <p>3.1 Use of Search engines for reviewing of literature and data retrieving(Google scholar, PubMed, ResearchGate and ShodhGanga)</p> <p>3.2 Use of Software: Microsoft Word, Microsoft Excel, Latex,SPSS/R/MATLAB/SCILAB/EndNote</p> <p>3.3 Basic Statistical Methods and Techniques: Descriptive Statistics, Test of Significance, ANOVA, Regression Analysis.</p> <p>3.4 Electronic submission of paper in different journals, Transferring big files through software</p>	02 03 03 03
4	<p><b>Scientific Communication</b></p> <p>4.1 Steps of Research Paper writing: Title, Abstract and Keywords, Introduction, Material and Methods, Results and Discussion, Conclusion, Conflict of Interest, Acknowledgment, Table and Graphs, Appendices.</p> <p>4.2 Research Proposal: Writing and Submission</p> <p>4.3 Funding Agencies: BCST, UGC, CSIR, ICMR,DST, DBT, ICAR</p> <p>4.4Seminar/Conference/Webinar presentation: Abstract writing and oral (PPT)and poster presentation.</p> <p>4.5Journal: Types, Indexing, Concept of Impact factor and Citation.</p>	04 03 02 02 02
5	<p><b>Research Publication and Ethics</b></p> <p>5.1 Ethical issues in Research</p> <p>5.2 Plagiarism : Meaning, Types and Implications, Checking Software</p> <p>5.3 IPR: Patent, Copyright and Trademark</p> <p>5.4 UGC guidelines on Research Ethics</p>	02 02 01 01
	<b>TOTAL</b>	<b>50</b>

**Recommended Books:**

1. Research Methodology- C.R. Kothari
2. Research Methodology :Methods & Technique (2023) – VimalSagar, AGPH, Bhopal
3. Research Methodology for PhD Coursework (2023)- D.N. Pandit, Hindustan Publishing Corporation, New Delhi
4. Statistics: A modern approach (2022) - D.N. Pandit, Hindustan Publishing
5. Essays on Research Methodology (2015)-Hegde D.S. Springer
6. Research Methodology Step by Step Guide for Beginners (2019)-Kumar R. Sage Publication.
7. Research Methodology for Science: Michael P. Marden Cambridge Univ. Press
8. Fundamentals of Research Methodology and Statistics (2006): Singh Y.K. New Edge Publication





  
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