

*Rayat Shikhan Sanstha's*  
**D. P. Bhosale College, Koregaon**  
**Department of Physics**  
**Add On Course -2020-2021**  
**Research Methodology**  
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Department of Physics  
D. P. Bhosale College, Koregaon

*Rayat Shikhan Sanstha's*  
**D. P. Bhosale College, Koregaon**  
**Department of Physics**

**2020-2021**

Date:- 21/06/2021.

To,  
The Principal,  
D.P. Bhosale college, Koregaon

Subject : - About Add on course

Respected Sir,

The department of Physics is going to run carrier oriented course on  
**"Research Methodology"** in academic year 2020-2021.

The course will be implemented according to University norms.

Thanking you.



Yours faithfully,

Head

Department of Physics.

*Rayat Shikhan Sanstha's*  
**D. P. Bhosale College, Koregaon**  
**Department of Physics**  
**Add On Course -2020-2021**

**Research Methodology**  
**Admission List**

Sr.No	Class	Date	Name of the student	Present/Absent
1	B.Sc-III	22/06/2021	Barge Karan Balaso	Present
2	B.Sc-III	22/06/2021	Barge Komal Dattatray	Present
3	B.Sc-III	22/06/2021	Barge Pranav Hatishchandra	Present
4	B.Sc-III	22/06/2021	Barge Vaishnavi Shashikant	Present
5	B.Sc-III	22/06/2021	Chavan Raj Somnath	Present
6	B.Sc-III	22/06/2021	Devkar Sayali Pandurang	Present
7	B.Sc-III	22/06/2021	Ghadage Karishma Ramesh	Present
8	B.Sc-III	22/06/2021	Jadhav Kiran Kalyan	Present
9	B.Sc-III	22/06/2021	Jadhav Murti Sayaji	Present
10	B.Sc-III	22/06/2021	Jadhav Rutuja Sudhir	Present
11	B.Sc-III	22/06/2021	Jadhav Sarika Suresh	Present

12	B.Sc-III	22/06/2021	Jagdale Dipti Balkrushna	Present
13	B.Sc-III	22/06/2021	Jagdale Aditya Sanjay	Present
14	B.Sc-III	22/06/2021	Phadtare Pratik Deepk	Present
15	B.Sc-III	22/06/2021	Pore Akshay Mahesh	Present
16	B.Sc-III	22/06/2021	Sapkal Sonali Gorakh	Present
17	B.Sc-III	22/06/2021	Shinde Pratiksha Sanjay	Present
18	B.Sc-III	22/06/2021	Sonawale Suraj Shankar	Present
19	B.Sc-III	22/06/2021	Sutar Pranali Satish	Present
20	B.Sc-III	22/06/2021	Udande Vrushali Kumar	Present



*[Signature]*  
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**Department of Physics**

**2020-2021**

***Autonomous (Self Financed) Add on course.***  
***Research Methodology***

**Objectives of the course –**

The Objective of this course is to pay attention to the most important dimension of Research i.e. Research Methodology. It will enable the Researchers to develop the most appropriate methodology for their Research Studies. The mission of the course is to impart research skills to the beginners and help improve the quality of Research by the existing researchers.

- to verify and test important facts
- to analyse an event or process or phenomenon to identify the cause and effect relationship
- to develop new scientific tools, concepts and theories to solve and understand scientific and nonscientific problems
- to find solutions to scientific, nonscientific and social problems and
- to overcome or solve the problems occurring in our every day life.

**Outcome of the course –**

- to equip researchers with research methodology essential for pursuing research degrees (Doctor of Philosophy (Ph.D.), Masters in Philosophy) and research in undergraduate and postgraduate courses.
- to enable researchers in writing various research reports, thesis, dissertation, research papers, articles, essays.
- to get a knowledge of Research Grants and how to write Research Grant Proposals
- to get a research position in countries like U.S.A., Canada, Germany, England, Japan, Australia, etc.
- curiosity to find new things

### **Reference Books:-**

1. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 4th Edition, by John W. Creswell (Author)
2. Qualitative Research: A Guide to Design and Implementation 4th Edition, by Sharan B. Merriam (Author), Elizabeth J. Tisdell (Author)
3. The Craft of Research, Third Edition, by Wayne C. Booth (Author), Gregory G. Colomb (Author), Joseph M. Williams (Author)
4. The Research Methods Knowledge Base, 3rd Edition, by William M. K. Trochim (Author), James P. Donnelly (Author)
5. Qualitative Inquiry and Research Design: Choosing Among Five Approaches 3rd Edition, by John W. Creswell (Author)
6. Doing Your Research Project (Open Up Study Skills) 5th Edition, by Judith Bell (Author)
7. Research Methodology by C. R. Kothari

### **Board of studies-**

1. Dr. V.S. Jamadade
2. Mr. Jadhav S. L.
3. Mr. Kadam P. S.
4. Mrs. Bhandekar S. S.
5. Miss. Khandare A. B.

### **Experts Name -**

1. Dr. P. K. Pagare (Yashwantrao Chavan Institute of Science, Satara)
2. Dr. R. K. Nimat (Balasaheb Desai College, Patan)



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**Department of Physics**  
**2020-2021**  
**Autonomous (Self-Financed) Add on course.**  
**Research Methodology**

- |                                  |   |
|----------------------------------|---|
| <b>1. Eligibility</b>            | : XII std. pass.  |
| <b>2. Duration of Course</b>     | : 3 Month.  |
| <b>3. No. of Students</b>        | : 20  |
| <b>4. Admission fee</b>          | : Rs.- 500 /-(Five hundred )  |
| <b>5. Examination</b>            | : Theory (50 marks),<br>: Practical (40 marks)<br>For Practical- Journal – 10 marks.<br>: Total 100 marks.        |
| <b>6. Faculty</b>                | : Dr. V.S.Jamadade<br>: Mr. Jadhav S. L.<br>: Mr. Kadam P. S.<br>: Mrs. Bhandekar S. S.<br>: Miss. Khandare A. B. |
| <b>7. Coordinator</b>            | : Mr. Jadhav S. L.  |
| <b>8. Co-Coordinator</b>         | : Mr. Kadam P. S.   |
| <b>9. Head of the Department</b> | : Dr. V. S. Jamadade  |
| <b>10. Director</b>              | : Principal, D. P. Bhosale College, Koregaon.   |



  
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**Add On Course -2020-2021**  
**Research Methodology**  
**Syllabus**

- 1) **Foundations of Research:** Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method – Understanding the language of research – Concept, Construct, Definition, Variable. Research Process.
- 2) **Problem Identification & Formulation :** Research Question – Investigation Question – Measurement Issues – Hypothesis – Qualities of a good Hypothesis –Null Hypothesis & Alternative Hypothesis. Hypothesis Testing – Logic & Importance
- 3) **Research Design:** Concept and Importance in Research – Features of a good research design – Exploratory Research Design – concept, types and uses, Descriptive Research Designs – concept, types and uses. Experimental Design: Concept of Independent & Dependent variables.
- 4) **Qualitative and Quantitative Research:** Qualitative research – Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches.
- 5) **Measurement:** Concept of measurement– what is measured? Problems in measurement in research – Validity and Reliability. Levels of measurement – Nominal, Ordinal, Interval, Ratio
- 6) **Sampling:** Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample – Practical considerations in sampling and sample size.

- 7) **Data Analysis:** Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis – Cross tabulations and Chi-square test including testing hypothesis of association.
- 8) **Interpretation of Data and Paper Writing :** Layout of a Research Paper, Journals in Computer Science, Impact factor of Journals, When and where to publish ? Ethical issues related to publishing, Plagiarism and Self-Plagiarism.
- 9) **Use of tools / techniques for Research:** methods to search required information effectively, Reference Management Software, Software for paper formatting, Software for detection of Plagiarism



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**Department of Physics**  
**Add On Course -2020-2021**

**Research Methodology**

**(30 Hrs.)**

**Schedule of the course**

<b>Sr. No.</b>	<b>Day &amp; Date</b>	<b>Time</b>	<b>Title of Topic</b>	<b>Faculty Name</b>
1	Thursday 24/06/2021	10:00 to 12:00 a:m	Foundations of Research	Mrs. Bhandekar S. S.
2	Friday 25/06/2021	10:00 to 12:00 a:m	Foundations of Research	Mrs. Bhandekar S. S.
3	Thursday 01/07/2021	10:00 to 12:00 a:m	Problem Identification & Formulation	Miss. Khandare A. B.
4	Friday 02/07/2021	10:00 to 12:00 a:m	Problem Identification & Formulation	Miss. Khandare A. B.
5	Thursday 08/07/2021	10:00 to 12:00 a:m	Research Design	Mr. Kadam P. S.
6	Friday 09/07/2021	10:00 to 12:00 a:m	Research Design	Mr. Kadam P. S.
7	Thursday 15/07/2021	10:00 to 12:00 a:m	Qualitative and Quantitative Research	Dr. V. S. Jamadade

8	Friday 16/07/2021	10:00 to 12:00 a:m	Measurement	Dr. V. S. Jamadade
9	Thursday 22/07/2021	10:00 to 12:00 a:m	Sampling	Dr. V. S. Jamadade
10	Friday 23/07/2021	10:00 to 12:00 a:m	Data Analysis	Mr. Jadhav S. L.
11	Thursday 29/07/2021	10:00 to 12:00 a:m	Data Analysis	Mr. Jadhav S. L.
12	Friday 30/07/2021	10:00 to 12:00 a:m	Interpretation of Data and Paper Writing	Mr. Jadhav S. L.
13	Thursday 05/08/2021	10:00 to 12:00 a:m	Interpretation of Data and Paper Writing	Mr. Jadhav S. L.
14	Friday 06/08/2021	10:00 to 12:00 a:m	Use of tools / techniques for Research	Mr. Jadhav S. L.
15	Friday 27/08/2021	10:00 to 12:00 a:m	Online Examinations	

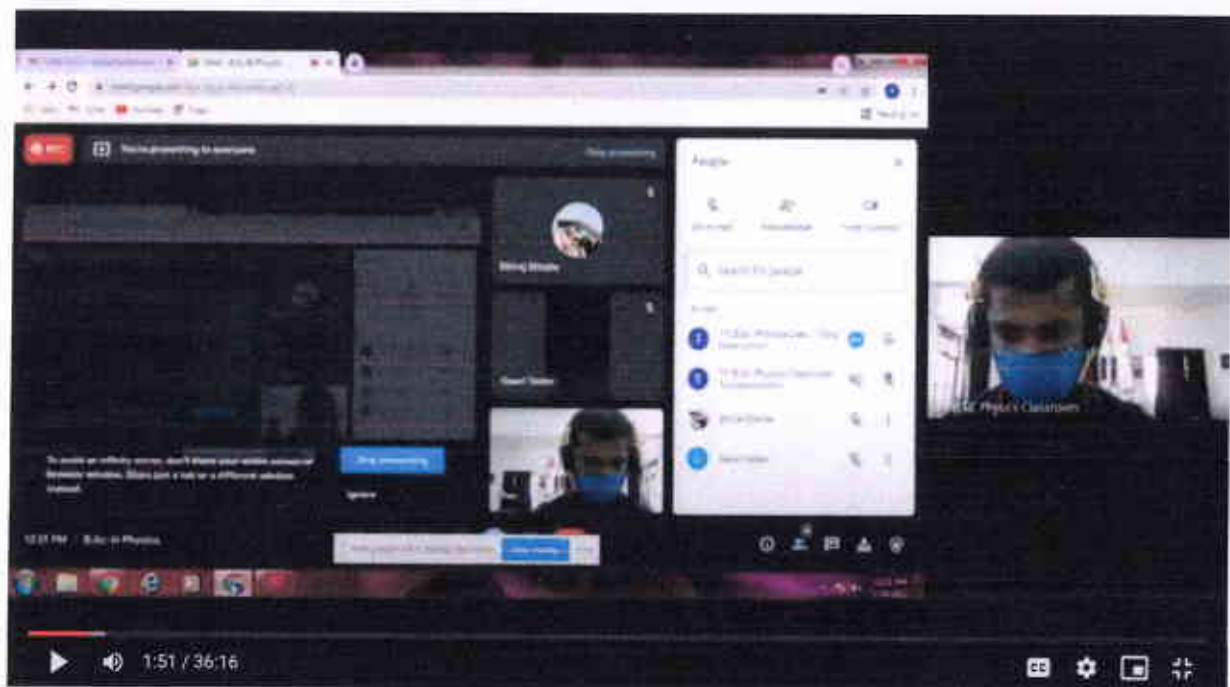


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**Head**  
 Department of Physics  
 J. P. Bhosale College, Koregaon

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**Department of Physics**  
**Add On Course -2020-2021**  
**Research Methodology**  
**Details of Lectures**

Google meet joining link  
<http://meet.google.com/wir-dmki-bfh>



**Rayat Shikshan Sanstha's**  
**D P Bhosale College, Koregaon**

**ADD ON COURSE**

**Dept. Of Physics**

**Question Paper- Objective (Online)**

**Name of Course: - Research Methodology**  
**Exam-2020-21**

**Date:- 27/08/2021**

**Time:- 11:00 a:m to 01:00 p:m**

**Que.: Choose the correct answer from the following:**

**Marks -50**

1) Who was the author of the book named "Methods in Social Research"?

- a. Kerlinger
- b. CR Kothari
- c. Goode and Hatt
- d. Wilkinson

2) What is the major attribute of Correlation Analysis?

- a. Association among variables
- b. Difference among variables
- c. Regression among variables
- d. Variations among variables

3) What is the name of the conceptual framework in which the research is carried out?

- a. Research hypothesis
- b. Synopsis of Research
- c. Research paradigm

d. Research design

4) What is the main role of research in education?.

- a. To upsurge one's social status
- b. To increase one's job prospects.
- c. To augment one's personal growth.
- d. To help an applicant in becoming a renowned educationalist.

5) Which of the following features are considered as critical in qualitative research?

- a. Collecting data with the help of standardized research tools.
- b. Design sampling with probability sample techniques.
- c. Collecting data with bottom-up empirical evidence.
- d. Gathering data with top-down schematic evidence.

6) How is random sampling helpful?

- a. Reasonably accurate
- b. An economical method of data collection
- c. Free from personal biases
- d. All of the above

7) A research intends to explore the result of possible factors for the organization of effective mid-day meal interventions. Which research method will be most appropriate for this study?

- a. Descriptive survey method
- b. Historical method
- c. Ex-post facto method
- d. Experimental method

8) Tippit table refers to as \_\_\_\_\_

- a. Table of random digits
- b. The table used in sampling methods

- c. The table used in statistical investigations
- d. All of the above

9) In order to pursue the research, which of the following is priorly required?

- a. Developing a research design
- b. Formulating a research question
- c. Deciding about the data analysis procedure
- d. Formulating a research hypothesis

10) The format of thesis writing is the same as in

- a. Writing of Seminar representation
- b. Preparation of research paper/article
- c. A research dissertation
- d. Presenting a workshop/conference paper

11) Which one among the following statements is false in the context of participatory research?

- a. It recognizes knowledge as power
- b. It is a collective process of inquiry
- c. It emphasizes people as experts
- d. Its sole purpose is the production of knowledge

12) Which one among the following statement is true in the context of the testing of hypotheses?

- a. It is only the alternative hypotheses that can be tested.
- b. It is only the null hypotheses that can be tested.
- c. Both the alternative and the null hypotheses can be tested.
- d. Both the alternative and the null hypotheses cannot be tested.

13) What are the conditions in which Type-I error occurs?

- a. The null hypotheses get accepted even if it is false
- b. The null hypotheses get rejected even if it is true

- c. Both the null hypotheses as well as alternative hypotheses are rejected
- d. None of the above

14) Research and Development become the index of development of the country. Which of the following reasons are true with regards to this statement?

- a. R&D targets human development
- b. R&D can enhance people's standard of living in the country
- c. R&D reflects the actual economic and social conditions being prevailed in the country
- d. All the above

15) What does the longitudinal research approach actually deal with?

- a. Long-term research
- b. Short-term research
- c. Horizontal research
- d. None of the above

16) What do you understand by the term "Anusandhan"?

- a. Goal-oriented
- b. Following an aim
- c. Attaining an aim
- d. Praying to achieve an aim

17) Evaluation Research is concerned with \_\_\_\_\_

- a. How well are we doing?
- b. Why are we doing?
- c. What are we doing?
- d. None of the above

18) Which of the following does not correspond to characteristics of research?

- a. Research is not passive

- b. Research is systematic
- c. Research is not a problem-oriented
- d. Research is not a process

19) Which of the following options are the main tasks of research in modern society?

- a. To learn new things
- b. To keep pace with the advancement in knowledge
- c. To systematically examine and critically analyze the investigations/sources with the objective
- d. All of the above

20) What is the main aim of interdisciplinary research?

- a. To over simplify the problem of research
- b. To bring out the holistic approach to research
- c. To create a new trend in research methodology
- d. To reduce the emphasis on a single subject in the research domain

21) The main aim of the scientific method in the research field is to \_\_\_\_\_

- a. Improve data interpretation
- b. Confirm triangulation
- c. Introduce new variables
- d. Eliminate spurious relations

22) A researcher is interested in studying the prospects of a particular political party in an urban area. So, what tool should he prefer for the study?

- a. Rating Scale
- b. Interview
- c. Questionnaire
- d. Schedule

23) The conclusions/findings of which type of research cannot be generalized to other situations?

- a. Casual Comparative Research
- b. Historical Research
- c. Descriptive Research
- d. Experimental Research

24) How to judge the depth of any research?

- a. By research title
- b. By research duration
- c. By research objectives
- d. By total expenditure on research

25) Who can successfully conduct Research?

- a. Someone who is a hard worker
- b. Possesses post-graduation degree
- c. Has studied research methodology
- d. Possesses thinking and reasoning ability

Rayat Shikshan Sanstha's

**D P Bhosale College, Koregaon**

**ADD ON COURSE**

**Research Methodology 2020-21**

**Examination Marklist**

Sr.No	Name of Student	Result	Grade
1	Barge Karan Balaso	PASS	B
2	Barge Komal Dattatray	PASS	A
3	Barge Pranav Hatishchandra	PASS	A
4	Barge Vaishnavi Shashikant	PASS	A
5	Chavan Raj Somnath	PASS	A
6	Devkar Sayali Pandurang	PASS	A
7	Ghadage Karishma Ramesh	PASS	A
8	Jadhav Kiran Kalyan	PASS	A
9	Jadhav Murti Sayaji	PASS	B
10	Jadhav Rutuja Sudhir	PASS	A
11	Jadhav Sarika Suresh	PASS	A
12	Jagadale Dipti Balkrushna	PASS	A

13	Jagdale Aditya Sanjay	PASS	B
14	Phadtare Pratik Deepk	PASS	A
15	Pore Akshay Mahesh	PASS	B
16	Sapkal Sonali Gorakh	PASS	A
17	Shinde Pratiksha Sanjay	PASS	A
18	Sonawale Suraj Shankar	PASS	B
19	Sutar Pranali Satish	PASS	A
20	Udande Vrushali Kumar	PASS	A



  
 Head  
 Department of Physics  
 D. P. Bhosale College, Koregaon



Rayat Shikshan Sanstha's

# D. P. BHOSALE COLLEGE, KOREGAON



## ADD ON COURSE

### Certificate

This is to certify that Mr./Miss...*Borge...Vaishnavi...Shashikant*.....

CLASS : ...*B.Sc. III*.....SUBJECT .....*Physics*.....

has successfully completed three months "Add on Course" in.....

.....*Research*.....*Methodology*.....

From ....*2020*..... to ....*2021*..... and obtained .....*A*..... Grade.

*Chairman*  
Chairman

*Course Co-ordinator*  
Course Co-ordinator



*Principal*  
Principal



Rayat Shikshan Sanstha's

**D. P. BHOSALE COLLEGE, KOREGAON**



**ADD ON COURSE**

## Certificate

This is to certify that Mr./Miss...Devkar...Sayali...Pandurang.....

CLASS : ...B.Sc...III.....SUBJECT...Physics.....

has successfully completed three months "Add on Course" in.....

.....Research.....Methodology.....

From ...2020.....to ...2021.....and obtained .....A..... Grade.

  
Chairman



  
Course Co-ordinator

  
Principal