



SHRI SHIVAJI EDUCATION SOCIETY, AMRAVATI'S

**Shri Shivaji Science & Arts College,
Chikhli, Dist. Buldhana - 443201 (MS).**



Department of Physics

- 1) **Title:** Bridge Course in Physics Practical for B.Sc.-I Students
- 2) **Date:** 04/08/2025 - 14/08/2025
- 3) **Coordinator:** Dr. V.B. Huse
- 4) **Members:** Dr. P. B. Nalle, Dr. D. N. Bhoyar, Dr. P. P. Padghan
- 5) **No. of Participants:** 48
- 6) **Objectives:**
 - a) To bridge the educational gap between the 10+2 and B.Sc. system.
 - b) Master the laws of logarithms (product rule, quotient rule, and power rule) through systematic instruction.
 - c) Develop computational skills using logarithm tables, calculators, and computational tools.

7) **Course Report:**

Students opting for B.Sc. Physics come from various educational backgrounds with diverse mathematical preparation levels. While they are expected to possess fundamental mathematical skills, including algebra, trigonometry, and specifically the use of logarithmic tables for complex calculations involving multiplication, division, powers, and roots. But they lack this proficiency due to various reasons, such as over-reliance on digital calculators during their previous education or a lack of practice in manual computation. In view of this, our department provides students with an opportunity to learn the basics of logarithmic calculations from the beginning. Students are given this course for approximately two weeks before the start of actual experiments and data analysis in the laboratory.

We conduct this induction program for the newly admitted students to B.Sc. - I (Sem. -I). In this program, students are given PowerPoint presentations based on "Laws of Logarithms", "Finding Characteristic and Mantissa", "How to use Log and Antilog Tables", and "Calculations involving Negative Powers (Bar Notation)".

After the presentation-based explanation, students were introduced to interactive demonstrations and simulations illustrating the use of logarithmic and antilogarithmic tables, error minimization through logarithmic operations, and practical examples such as calculating time periods, resistances, decay constants, and other physics parameters using log-based methods. Worksheets and practice sets were provided to students to strengthen accuracy and speed.

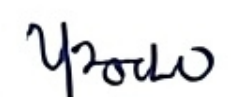
A hands-on training session was conducted where students solved numerical examples from mechanics, electricity, optics, and modern physics using logarithmic methods. These modules were specially prepared to bridge the gap between 10+2 level mathematics and university-level physics problem solving.

A total of 48 students of B.Sc.–I actively participated in this programme. The bridge course significantly improved their confidence and accuracy in performing physics calculations, ensuring better readiness for laboratory practical's and theoretical coursework.

8) Outcomes:

- i. Students demonstrated the ability to solve complex mathematical expressions involving multiplication, division, squares, square roots, and trigonometric functions without the aid of a digital calculator.
- ii. There was a noticeable improvement in the accuracy of numerical results in experimental calculation, with fewer errors related to decimal placement and power estimation.


Head of Physics Department
Shri Shivaji Science & Arts Coll
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BRIDGE COURSE ON
“Physics Practical for B.Sc. Students”

Academic Season 2025-26

Time Table

Date	Day	Time	Module	Hands-on Training	Speaker
04/08/2025	Monday	9:30 AM to 10:00 AM	I	11:00 AM to 12:00 PM	
05/08/2025	Tuesday	9:30 AM to 10:00 AM	I	11:00 AM to 12:00 PM	
06/08/2025	Wednesday	9:30 AM to 10:00 AM	I	11:00 AM to 12:00 PM	
07/08/2025	Thursday	9:30 AM to 10:00 AM	II	11:00 AM to 12:00 PM	
08/08/2025	Friday	9:30 AM to 10:00 AM	II	11:00 AM to 12:00 PM	
09/08/2025	Saturday	9:30 AM to 10:00 AM	II	11:00 AM to 12:00 PM	
11/08/2025	Monday	9:30 AM to 10:00 AM	III	11:00 AM to 12:00 PM	
12/08/2025	Tuesday	9:30 AM to 10:00 AM	III	11:00 AM to 12:00 PM	
13/08/2025	Wednesday	9:30 AM to 10:00 AM	III	11:00 AM to 12:00 PM	
14/08/2025	Thursday	Test			



(Dr. V.B. Huse)

Head & Course Coordinator
Sri Shivaji Science & Arts Coll
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List of participants

[illegible]

23	Pratiksha Ramesh Waghmare	A	P	P	P	P	P	P	P	P	P
24	Punam Bhanudas Thombre	P	A	P	P	P	P	P	P	P	P
25	Purva Sunil Jasudkar	P	P	A	P	P	P	P	P	P	P
26	Rani Haridas Dalimkar	P	P	P	A	P	P	P	P	P	P
27	Rayyan Ahemad Khan Jamil Ahemad Khan	P	P	P	P	A	P	P	P	P	P
28	Ritesh Gajanan Kale	P	P	P	P	P	A	P	P	P	P
29	Rina Shaikh Rais	P	P	P	P	P	P	A	P	P	P
30	Sakshi Balu Dalimkar	P	P	P	P	P	P	P	A	P	P
31	Sakshi Gajanan Maind	P	P	P	P	P	P	P	P	A	P
32	Saniya Parveen Shaikh Israil	P	P	P	P	P	P	P	P	P	A
33	Shaikh Mohammad Sharib Nadim Ahemad	A	P	P	P	P	P	P	P	P	P
34	Shaikh Rehan Shaikh Nazakat	P	A	P	P	P	P	P	P	P	P
35	Shailesh Rajesh Jadhav	P	P	A	P	P	P	P	P	P	P
36	Shazmina Parvin Mohammad Shafique	P	P	P	A	P	P	P	P	P	P
37	Shilpa Dhammpal Maghade	P	P	P	P	A	P	P	P	P	P
38	Shiza Asnal M Atik	P	P	P	P	P	A	P	P	P	P
39	Shruti Ravindra Jadhao	P	P	P	P	P	P	A	P	P	P
40	Shubham Naresh Ambhore	P	P	P	P	P	P	P	A	P	P
41	Sneha Milind Paithane	P	P	P	P	P	P	P	P	A	P
42	Snehal Nashon Siddiqui	P	P	P	P	P	P	P	P	P	A
43	Sumit Sanjay Padghan	A	P	P	P	P	P	P	P	P	P
44	Swapnil Dnyaneshwar Mahale	P	A	P	P	P	P	P	P	P	P
46	Vaishnavi Namdeo Usar	P	P	A	P	P	P	P	P	P	P
47	Vinayak Pandurang Bidve	P	P	P	A	P	P	P	P	P	P
48	Zahed Khan Nisar Khan	P	P	P	P	A	P	P	P	P	P

BRIDGE COURSE ON
"Physics Practical for B.Sc. Students"
Syllabus

➤ **Module I:**

1. Scalar and Vector Quantity
2. Fundamental Quantities and Units
3. System of Units
4. Measurement of Time, Mass & Length
5. Dimensions and Dimensional Analysis

➤ **Module II:**

1. Measurement
2. Significant Figures (Precision of Measurement)
3. Graph plotting
4. Least Count of Vernier calliper, Screw gauge, travelling microscope
5. Errors
6. Measurements of dimensions using Vernier Calliper, Screw Gauge & Travelling Microscope

➤ **Module III:**

1. Errors and Observations
2. Accuracy of Observations
3. Accuracy of the Result
4. Permissible Error in the Result
5. How to Estimate the Permissible Error
6. Estimating Maximum Permissible Error, Percentage Error
7. Significant Figures (Precision of Measurement)

➤ **References:**

1. B.Sc. Practical Physics by Harnam Singh & Dr. P. S. Hemne (2000), S. Chand
2. Physics Practical by R. K. Shukla & Anchal Shrivastav, New Age International
3. A Textbook of Practical Physics by Indu Prakash et al. (2011), Kitab Mahal
4. B.Sc. Physics Practical by C. L. Arora (2010), S. Chand

➤ **Syllabus Committee:**

1. Dr. P. B. Nalle– HOD (Physics) & Coordinator
2. Dr. P. P. Padghan– Member
3. Dr. D. N. Bhoyar– Member
4. Mr. S.D.Landkar– Member
5. Mr. S. L. Salwant – Member

Approved / Not Approved


Principal
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