

Bharti Magazine 2025-26

Department of Physics

Established in 1967, the Department of Physics stands as one of the oldest and most dynamic departments of the college. It is the second-largest department on campus, with **08 sanctioned faculty positions for the Undergraduate (UG) programme** and **05 for the Postgraduate (PG) programme**. Currently, the department is supported by **07 regular faculty members**, along with **03 ad-hoc teachers**, collectively catering to students of both **B.Sc. (Semester Pattern)** and **M.Sc. (Physics – Semester Pattern)** programmes. **04 students** have been awarded **Ph.D. degree** and 01 has submitted thesis while presently 02 students are working.

In the academic year **2024–25**, the department has successfully implemented the **National Education Policy (NEP) 2020** curriculum for **B.Sc. Semesters I & II, III & VI** and **M.Sc. Physics (All Semesters)**, aligning its academic structure with contemporary national educational standards.

Academic Milestones

- **M.Sc. Physics Programme** was introduced in the year **2011–12**, offering advanced studies in core and emerging areas of physics.
- In **2014–15**, the department earned recognition as a **Research Centre (now Center for Higher Learning)** by RTM Nagpur University, empowering it to register Ph.D. candidates and promote a strong research culture.

UGC-Sponsored Programmes and Achievements

- The department runs a **UGC-sponsored Career-Oriented Add-On Course** titled *Mathematical Modeling Using Maple*, valued at **₹ 10 lakhs**, enriching students' mathematical and computational skills.
- Under the prestigious **College with Potential for Excellence (CPE)** scheme, awarded in **2004**, the department received significant funding from the **University Grants Commission (UGC)** to enhance its academic and research infrastructure.
- Faculty members have successfully completed **TWO Major Research Projects** and **THREE Minor Research Projects**, collectively funded with **₹ 25 lakhs** by the UGC.
- From **2008 to 2013**, the department ran an **Innovative Programme** funded by UGC, launching a **Postgraduate Diploma in Nanotechnology**, with funding of **₹50 lakhs**.
- **(i) Dr. S. K. Sayyad** and **(ii) Dr. S. V. Kahangar**, Assistant Professors were awarded a research grant of **₹ 3 lakhs** under the **University Research Project Scheme (URPS)** of RTM Nagpur University in 2024 and 2026 respectively entitled (i) *Device Grade Compositionally engineered lead-free ceramic at morphotropic phase boundary to design superior high-temperature dielectrics for energy storage applications* and (ii) *Lithium Extraction from Waste Li-ion Batteries using Ultrasonic Assisted Technique*.

Research and Infrastructure

To support cutting-edge academic and research pursuits, the department boasts a **state-of-the-art laboratory infrastructure** for UG and PG programmes. A major highlight is the **Central Instrumentation Facility (CIF)**, developed through UGC assistance under multiple schemes including CPE, Innovative Programme, Career-Oriented Course, and Research Projects. The department has developed **Consultancy** through Samples Characterizations using FTIR, Impedance Spectroscopy, Luminescence and UV-VIS spectroscopy.

Academic Activities Report: Department of Physics: 2025–2026

The Department of Physics, Shri Shivaji Science College, Nagpur, undertook a vibrant array of academic and outreach activities during the 2024–25 academic session. A summary of the key events is as follows:

1. **Inauguration of Physics Society** The Physics Society was formally inaugurated on August 08, 2025, by Prof. Gajanan Muratkar-Grass Man of India, Science College, Chikhaldara. Office bearers, selected from among the students, took an oath to uphold the vision and values of the Society.
2. **Department of Physics** along with the Sub-Regional Council 08E (Vidarbha) of the **Indian Association of Physics Teachers (IAPT)** proudly organized a dynamic and engaging science outreach activity titled **“Physics Unplugged: A Science Demonstration Show”** on **24th November 2025**. The event featured **Shri Krishnendu Chakraborty**, Senior Science Educator from Kolkata (W.B.), whose exceptional expertise greatly enriched the programme at (i) Madan Gopal Agrawal High School, Sitabuldi, Nagpur — 10:00 am (ii) New English High School and Junior College, Congress Nagar, Nagpur — 12:30 pm (iii) Vidya Mandir and Junior College, Koradi — 03:30 pm
3. Shri Krishnendu Chakraborty, Senior Science Educator from Kolkata (W.B.), paid a courtesy visit to the Department of Physics on **24th November 2025 at 11:00 am** for an informal interaction with the faculty and students.
4. The Department of Physics in association with the Indian Association of Physics Teachers (IAPT), Sub-Regional Council 08E (Vidarbha) and the Physics Society (2025–26), successfully organized a guest lecture on **“Seeing the Invisible: Strong Gravitational Lensing by Black Holes”** on Friday, 12 December 2025, at 3.00 pm in the C4 Hall of the Department of Physics.
5. Dr S W Anwane worked as evaluator for **Vidarbha Vigyan Utsav VVU-2025** organized by Vighyan Bharti (**ViBha**) on 9th and 10th Jan 2026 at M P Deo Dharampeth Science College, Nagpur.
6. Organized Guest Lecture by Prof P C Deshmukh-Former Professor at IIT Madras at (i) Vishvesharya Institute of Technology, Nagpur on **QUANTUM PHYSICS - Enigmas to Technologies** on 13 Feb 2026 (ii) at Post Graduate Teaching Department of Physics, RTM Nagpur University in collaboration with SRC-08E Nagpur on **Attosecond physics - ultrafast dynamics** on 14 Feb 2026 (iii) at Department of Physics, G H Rasoni College of Engineering, Nagpur on **Important Contributions of Bharatiya Physicists** on 16 Feb 2026.
7. Addressed Members Board of Studies (Physics under Faculty of Science) and teachers in **One Day Workshop on Newly Implemented Syllabus for NEP and Design for Sem V, VI** at SFS College, Nagpur on 9th Feb 2026.

8. **Automotive Remote Access** developed prototype enables users to monitor and control vehicle functions through wireless technologies. This project explores the architecture, functionality, and security aspects of such systems. The developed unit allows remote control of features such as power windows, ignition, air conditioning, indicators, door locks, and headlights, improving convenience, safety, and smart accessibility. The project was developed by **Shraddha Raut, Sakshi Ukey, Pratik Upasak, Mayank Dongre, and Vanshika Gajbe** under the guidance of **Dr. R. N. Pathre** and **Prof. S. W. Anwane**, and was shortlisted by **Rashtrasant Tukadoji Maharaj Nagpur University** for the **Maharashtra State Level AVISHKAR Competition**.

Achievements of Faculty Members & Students: 2024–2025

The Department of Physics takes immense pride in highlighting the outstanding achievements of its students during the academic session 2025–26.

The faculty members published **SCOPUS 04 papers, 01 UGC care listed papers and 08 Books**.

Student Achievement :

1. Miss. Aishwarya Prakash Mendwade Awarded Shri V. S. Tamma **Silver Medal** in 113th Convocation for B. Sc. Physics
2. Mayank Dongre, Pratik Upasak , Vanshika Gajbe got 4th rank in **18th Maharashtra State Level Inter University Research Convention Avishkar 2025-26 Level-1** at Dharampeth Science College, Nagpur for project **“Auto sync: Smart car control Via App”**
3. Mayank Dongre, Pratik Upasak , Vanshika Gajbe got 3rd rank in **18th Maharashtra State Level Inter University Research Convention Avishkar 2025-26 Level-2** at Anjuman College of Engineering and Technology Nagpur for project **“Auto sync: Smart car control Via App”**
4. Mayank Dongre, Pratik Upasak , Vanshika Gajbe participated in **18th Maharashtra State Level Inter University Research Convention Avishkar 2025-26 Level-3** at Vasantao Naik Marathwada Krishi Vidyapeeth, **Parbhani** for project **“Auto sync: Smart car control Via App”**
5. Yugansh Knoje got First Prize in **“संवाद शृंखला नजरेसमोर राष्ट्र हृदयात महाराष्ट्र”** organized by MITSC & MSHT Career Katta at DELHI visit dated on 25th -30th November 2025.
6. Aishwarya Bode MBA (2025-27) Batch at IIM-Nagpur

Faculty members Academic/Leadership/Professional Service/Recognition/Awards/ Outreach/Training S W Anwane:

- **Nominated Head, IT Cell**, Indian Association of Physics Teachers (Central) for **2026–2030**; **Co-opted Member**, Executive Council (**2025–2027**); and **President**, SRC-08E (Vidarbha) (**2024–2027**).
- Received **Appreciation from National Programme on Technology Enhanced Learning** for outstanding performance as **Active SPOC** (July–Dec 2025 semester).
- Launched **two** online courses on Udemy: **“Essentials of Fluid Mechanics for Engineers”** (July 2025) and **“Fundamentals of Quaternions for 3D Rotation and Applications”** (Aug 2025); also completed a professional course on **Batteries for Electric Vehicles**.
- **Organized National Webinar on Maple (10 Feb 2026)** jointly by IAPT SRC-08E and **Shri Shivaji Science College, Nagpur**, in collaboration with **Binary Semantics**, focusing on computational modelling and AI-assisted reasoning.
- Served as **Evaluator** at **Vidarbha Vigyan Utsav 2025** organized by **Vigyan Bharati** (Jan 2026, Nagpur).

- **Resource Person** in the **NEP Syllabus Workshop (Sem V–VI Physics)** at **St. Francis De Sales College, Nagpur** (9 Feb 2026).
- **Session Chair and Panel Moderator** at the **39th IAPT National Convention (Goa, Oct 2025)**; chaired the invited lecture by **Dr. J. C. Kapoor (BARC–DRDO)** and moderated a panel on **career opportunities in AI, ML, Quantum Technologies, and Information Science**.
- Delivered an **expert lecture on Non-linear Fitting & Differential Equations** at **RTM Nagpur University** during the Workshop on **AI Tools & Computational Chemistry** (9 Oct 2025).

Dr. S. K. Sayyad: Recognized with the **first prize as Best College Coordinator Nagpur City** by MITSC & MSHTe Career Katta, Kolhapur

12th March 2026



Dr S W Anwane

Dr. S. W. Anwane
Professor and Head
Department of Physics
Shri Shivaji Education Society Amravati's
SCIENCE COLLEGE
Congress Nagar, Nagpur.