Report of NPL visit

EDUCATIONAL TRIP TO CSIR–NATIONAL PHYSICAL LABORATORY

1 October 2024 | Science Club, USAR, GGSIPU

Introduction

The Science Club of the University School of Automation and Robotics (USAR), Guru Gobind Singh Indraprastha University (GGSIPU), organized an educational visit to the CSIR?National Physical Laboratory (NPL), New Delhi, on 1 October 2024. The visit offered students an opportunity to learn about scientific research, precision measurement and the practical applications of physics beyond the classroom.

About CSIR–National Physical Laboratory

Established in 1947, CSIR–NPL is one of India's oldest national laboratories and a leading research institution in physics, engineering and metrology. Its areas of work include time and frequency standards, precision and quantum metrology, materials science and environmental science. The laboratory is equipped with advanced research facilities and instruments and provides calibration services to industries and organizations. Through its research and technical services, CSIR–NPL contributes to scientific development and measurement accuracy in India.

Objectives of the Visit

The visit aimed to connect theoretical learning with practical scientific work, introduce students to modern laboratory facilities, explain the role of physics and metrology in different industries, and provide opportunities to interact with researchers. It also sought to encourage scientific curiosity and help students understand how accurate measurement supports research and industrial applications.

Visit Highlights and Activities

On arrival, students and teachers were welcomed by the laboratory staff and taken on guided tours of research facilities. They observed advanced equipment and instruments used for scientific research and calibration. The demonstrations helped them appreciate the importance of precision, reliability and accurate measurement in laboratory work and industrial settings.

Students learned about the applications of physics and metrology across different fields. The visit also included short lectures and presentations by scientists and researchers, who explained the work being carried out at CSIR–NPL. These sessions provided a clearer understanding of the laboratory's research activities and the relevance of scientific measurement to practical problems.

A key part of the visit was the interaction with scientists. Students were able to ask questions and receive explanations of complex concepts in an accessible manner. The researchers' willingness to share their knowledge and enthusiasm for scientific work made the experience engaging and encouraged students to explore research further. Observing precision-measurement techniques also helped students understand how accurate measurements are essential in many industries.

Learning Outcomes

The visit strengthened students' understanding of physics and metrology by exposing them to real research environments and specialized instruments. It highlighted the importance of precision measurement, calibration and dependable scientific data. The guided tour and presentations helped bridge the gap between classroom concepts and their practical use, while direct interaction with researchers offered insight into scientific careers and research practices. The experience also encouraged curiosity, questioning and further exploration of scientific subjects.

Faculty Coordinators

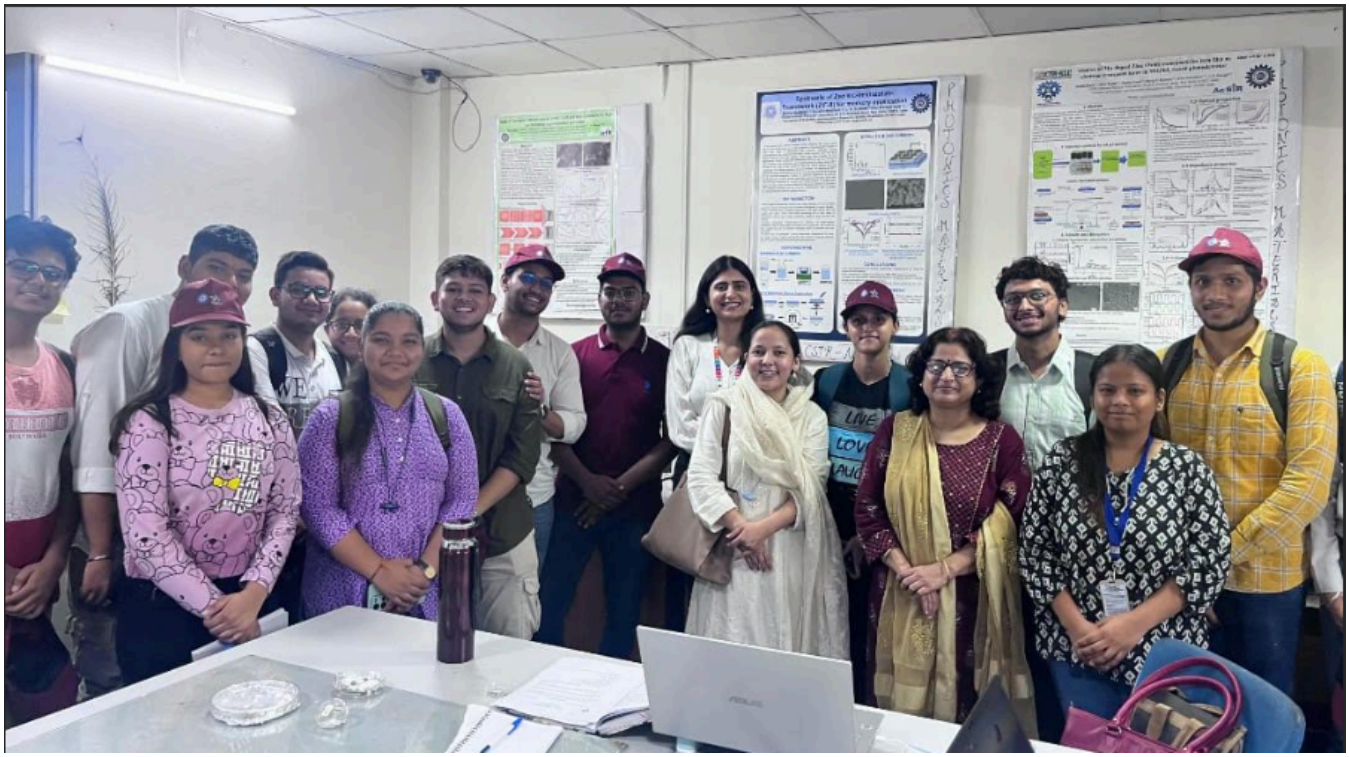
Prof. Kriti Batra; Dr. Pooja Rana; Dr. Mahesh Chand

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Eeshan Goel; Aditya Maiti; Abhiyansh Jain; Kriti Rastogi; Tanya Gupta

Conclusion

The educational trip to CSIR–NPL was an informative and motivating experience for the students of USAR, GGSIPU. By exploring research facilities, learning about measurement techniques and engaging with scientists, students gained a better appreciation of the role of physics and metrology in research and industry. The visit successfully complemented academic learning with practical exposure and inspired students to develop a deeper interest in scientific research and technological advancement.








SEPTEMBER




NATIONAL PHYSICAL LABORATORY