

## **Educational Visit to ARIES, Nainital, Uttarakhand**

*(Organized by the Department of Physics, Shyam Lal College on the occasion of National Science Day, 27–28 February)*

The Department of Physics, Shyam Lal College, organized an educational visit to Aryabhata Research Institute of Observational Sciences, located in Nainital, on the 27th and 28th of February, in celebration of National Science Day. This initiative aimed to provide students with practical exposure to advanced scientific research environments, particularly in the field of observational astronomy and astrophysics.

National Science Day, celebrated annually on February 28, commemorates the discovery of the Raman Effect by C. V. Raman. Marking this occasion with an academic excursion enriched the learning experience by bridging theoretical knowledge with real-world scientific applications.

The visit included undergraduate students and faculty members from the department. The program was carefully designed to maximize academic engagement, featuring interactive sessions, facility tours, and hands-on observational activities.

In modern science education, classroom learning alone is insufficient to fully grasp the complexities of advanced scientific research. Exposure to research institutes like ARIES plays a crucial role in, **Enhancing Conceptual Understanding, Inspiring Scientific Temperament, Career Awareness, and Skill Development**

ARIES, being one of India's premier research institutions in astronomy and astrophysics, provides an ideal platform for students to witness cutting-edge research infrastructure, including optical telescopes and atmospheric monitoring systems.

During the visit, students were introduced to a range of advanced scientific facilities at ARIES. These included:

### **1) Optical Telescopes**

Students explored high-resolution optical telescopes used for studying celestial objects such as stars, galaxies, and nebulae. The functioning of these telescopes, including light collection, focusing mechanisms, and imaging techniques, was explained in detail.

### **2) Solar Observation Facilities**

A key highlight of the visit was the observation of solar phenomena. Students were guided through specialized instruments designed for solar studies, enabling them to understand solar activity such as flares and sunspots.

### 3) Radar and Atmospheric Monitoring Systems

Students were also introduced to atmospheric research facilities, including radar systems used for studying weather patterns and atmospheric dynamics. This provided interdisciplinary exposure linking physics with environmental science.



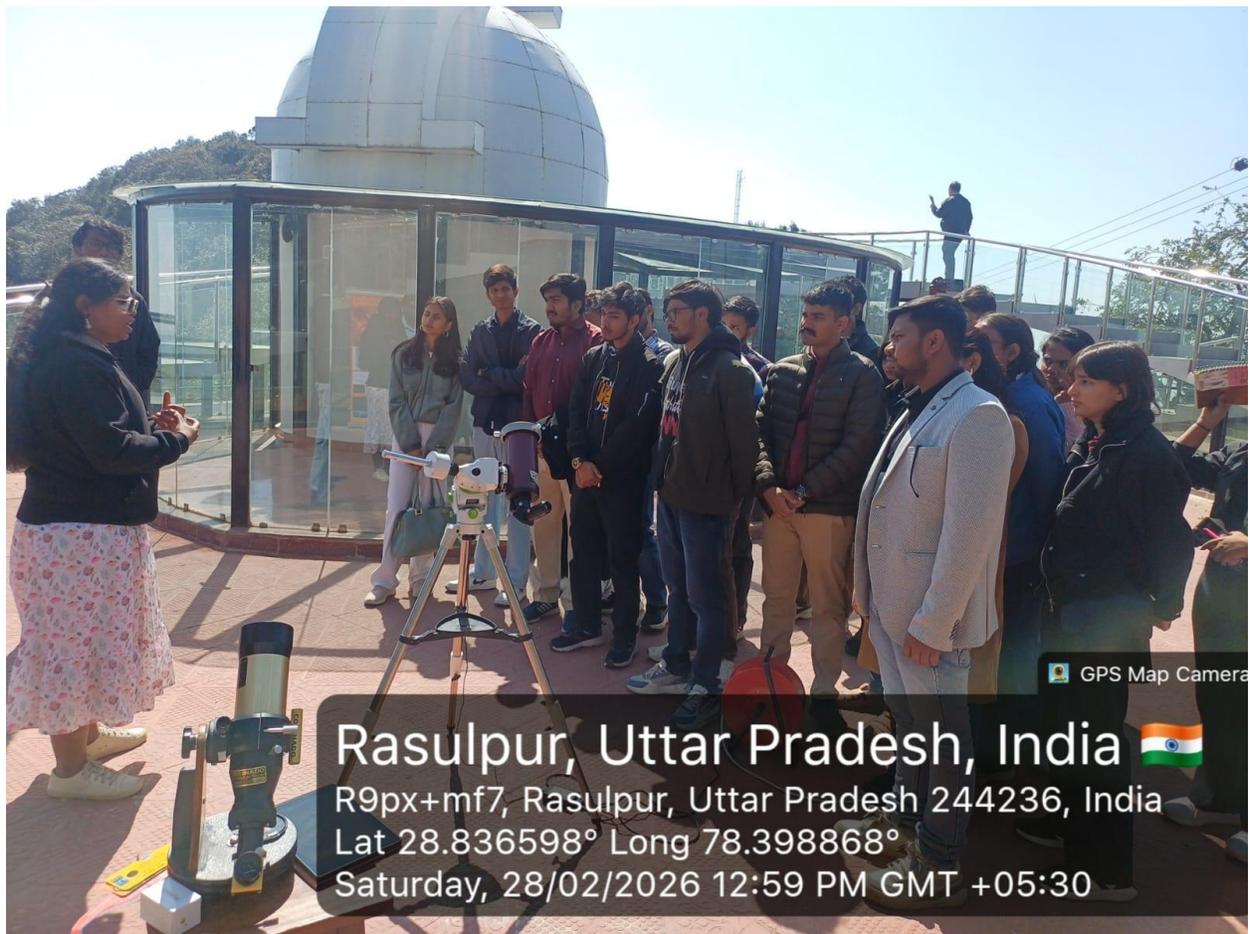
The two-day visit was structured to include a variety of academic and experiential activities:

#### **Interactive Sessions with Scientists and Research Scholar**

One of the most enriching aspects of the visit was the opportunity to interact with scientists and research scholars at ARIES. These sessions included:

- Discussions on ongoing research projects in astrophysics and atmospheric science.
- Insights into experimental techniques and data analysis methods.
- Guidance on pursuing higher studies and research careers.

Students actively participated by asking questions, leading to engaging and thought-provoking discussions.



### **Solar Observation**

During the daytime session, students observed solar activity using specialized solar telescopes. They were able to witness solar flares and understand their significance in space weather and their potential impact on Earth.

### **Night Sky Observation**

The night-time observation session was a memorable highlight. Due to minimal light pollution in Nainital, students experienced exceptionally clear views of the night sky. Using powerful telescopes, they observed:

- Stars and constellations
- Planetary bodies

- Deep-sky objects such as clusters and nebulae

This session provided a rare opportunity to connect theoretical astronomy concepts with actual celestial observations.



The educational visit proved to be highly beneficial for the participating students. Key learning outcomes included:

- **Practical Exposure:** Students gained firsthand experience with advanced scientific instruments and observational techniques.
- **Improved Understanding:** Complex concepts in astrophysics and atmospheric science became more accessible through real-world demonstrations.
- **Motivation for Research:** Interaction with scientists inspired many students to consider research-oriented careers.

- **Collaborative Learning:** Group activities and discussions enhanced teamwork and communication skills.

## **Conclusion**

The educational visit concluded successfully on 28th February, marking a fitting celebration of National Science Day. The program was well-coordinated, and all planned activities were executed smoothly.

Students expressed great enthusiasm and appreciation for the opportunity to visit a premier research institute. The faculty members also acknowledged the importance of such initiatives in enriching the academic experience.

In conclusion, the visit to ARIES, Nainital, was an intellectually stimulating and memorable experience. It effectively fulfilled its objective of promoting scientific awareness and fostering a deeper interest in physics and research among students. The Department of Physics looks forward to organizing similar educational programs in the future to continue nurturing scientific curiosity and excellence.