



## Academic Year 2024-25 Activities' Report

### 1. National Space Day ISRO Quiz Competition

The **National Space Day Quiz Competition**, organized by the VISHWAHI Astronomy Club, was held exclusively for the students of PVG's COET & GKPIM. The primary objective of the event was to foster a deeper interest in space science and commemorate India's milestones in space exploration. By centering the competition around the theme "*Touching lives while touching the Moon,*" the club aimed to bridge the gap between academic engineering and the practical triumphs of national space missions.



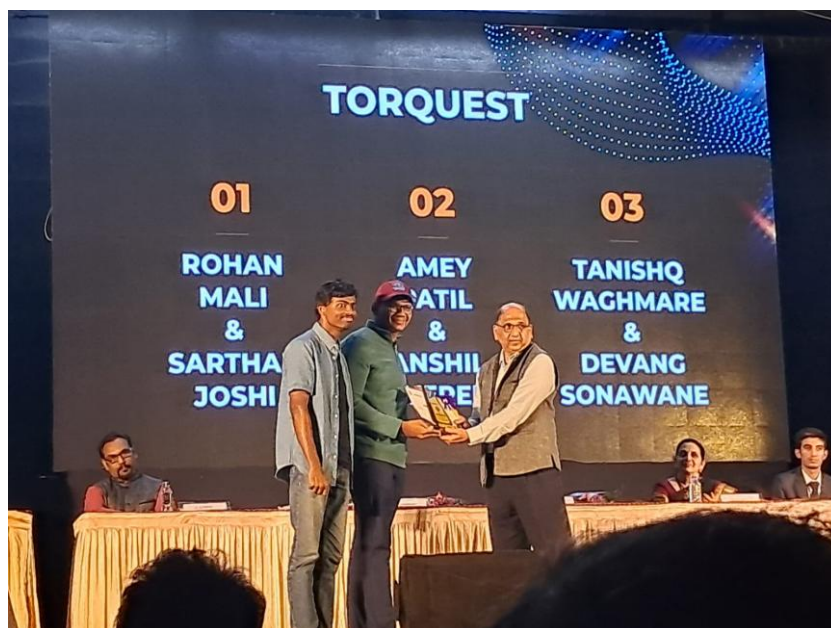
The event was conducted in the college's Smart Classroom, providing a high-tech environment for participants to engage with a series of challenging rounds. The execution focused on inclusivity and merit, ensuring that students from all engineering branches could test their knowledge in a structured, competitive format. The club's coordination team managed the proceedings seamlessly, from the initial briefing to the final evaluation, maintaining a high standard of academic integrity throughout the competition. The outcome of the quiz was a significant boost in campus-wide engagement with astronomy, as evidenced by the high turnout and spirited discussions post-event. In terms of results, the top three winners were awarded exciting prizes for their exceptional performance, while top-tier participants received **Certificates of Appreciation**. Furthermore, every student who participated was issued a **Certificate of Participation**, ensuring that the effort and curiosity of the entire PVG student body were recognized.



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## 2. National Triumph: VISHWAHI at COEP MindSpark's Torquest

VISHWAHI reached a significant milestone by securing a prestigious victory for the second time at the national-level space quiz, **Torquest**, held during **MindSpark**, the flagship technical festival of **COEP Technological University**. Competing against some of the brightest minds from across the country, our team demonstrated exceptional command over astrophysics, orbital mechanics, and space history. The multi-stage competition tested both rapid-fire recall and complex problem-solving, and our team's consistent performance throughout the rounds ultimately earned them the top spot on the podium.



Beyond the competitive thrill, the event served as a vital networking hub for space enthusiasts. Following the victory, the VISHWAHI team held an insightful meet-and-greet with the members of COEP's **Astronomy Club**, one of the oldest and most active student astronomy bodies in the region. This interaction allowed for a high-level exchange of ideas regarding telescope fabrication, observational techniques, and the management of large-scale campus events. The two teams discussed their respective journeys, sharing the technical challenges they face in urban stargazing and the innovative ways they engage the student community in space sciences.

The win at MindSpark has not only brought laurels to PVG's COET but has also sparked a new wave of motivation within the club. Interacting with the COEP team provided our members with fresh perspectives on collaborative projects and potential joint observation sessions in the future. This achievement stands as a testament to the hard work and technical depth of our members, proving that VISHWAHI is rapidly becoming a formidable name in the inter-collegiate astronomy circuit. The experience has paved the way for more rigorous technical training and a stronger focus on competitive excellence in upcoming national forums.

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### 3. Sky Viewing Event

On **April 9, 2025**, we hosted a sky-viewing session from 7:00 PM to 9:00 PM on the college ground. Attended by nearly **90 students**, the event was held in collaboration with **AXSX**, whose volunteers (Mr. Kailas Belekar, Sarthak, and Gauri) provided technical expertise. The session was coordinated by faculty members **Prof. Archana Mirashi** and **Prof. Vishal Tathe**.

#### ○ **Technical Observations**

The session utilized two distinct telescope setups to observe the night sky:

- **Reflector Telescope (Equatorial Mount):** Primarily used to observe the **waxing gibbous Moon**. Participants identified craters and *maria* (ancient lava flows), discussing their volcanic origins and potential for future lunar bases.



- **Refractor Telescope (Azimuthal Mount):** Focused on **Jupiter**. Despite urban light pollution, students observed the planet's faint red spot and its four Galilean moons: **Io, Europa, Ganymede, and Callisto**.



*The Moon seen via the Refractor telescope*



*Jupiter seen via the Refractor telescope*

### ○ **Guided Sky Tour & Cosmic Concepts**

Mr. Kailas Belekar led a laser-guided tour, highlighting several celestial landmarks:

- **Constellations:** The group traced the V-shape of **Taurus** (including the red star Aldebaran) and **Orion**, identifying Betelgeuse, Rigel, and the Orion Nebula.
- **Stellar Highlights:** Other stars identified included **Sirius** (the brightest in the sky) and **Procyon**. Though visible, Mars was not viewed via telescope due to lunar interference and light pollution.
- **Fundamentals:** Volunteers explained concepts like the **Zenith**, the navigation importance of the **Pole Star**, and the 88 officially recognized constellations.



Mythology—such as the "Seven Sisters" (Pleiades)—added a narrative layer to the scientific data.



*Live Sky Explanation*

### ○ Execution & Club Involvement

To ensure a quality experience, the event was split into two slots:

1. **7:00 – 8:00 PM:** Second and third-year students.
2. **8:00 – 9:00 PM:** First and fourth-year students.

The **VISHWAHI** team managed logistics, social media documentation, and photography. The **AXSX** volunteers praised the students' high level of engagement, noting that for many, this was their first hands-on experience with professional astronomical equipment.

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## 4. National Science Day IUCAA Visit

On **February 28, 2024**, the Astronomy Club “**VISHWAHI**” of P.V.G.’s COET visited the **Inter-University Centre for Astronomy and Astrophysics (IUCAA)**. Supported by Principal **Dr. Manoj Tarambale** and **Prof. Mirashi**, the visit provided students from all years a direct look at India’s frontline space projects and an opportunity to interact with world-class scientists.



## ○ Key Astronomy Models & Projects

The exhibition featured three primary models, each supported by experts providing technical briefings:

### **LIGO – India**

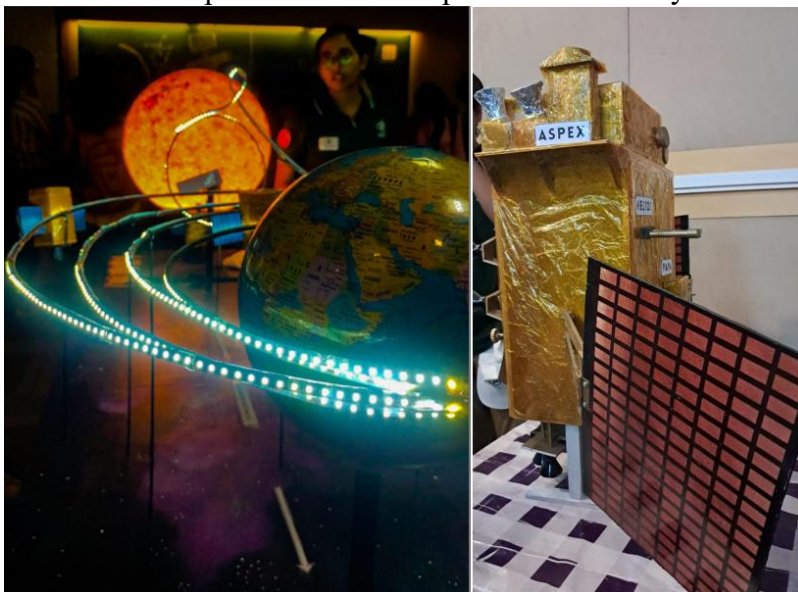
- **Concept:** The Laser Interferometer Gravitational-Wave Observatory is a massive collaborative project to detect gravitational waves.
- **Location:** India's detector will be located in the **Hingoli district, Maharashtra**, making India the second country in Asia (after Japan) to host such technology.
- **Black Hole Experiment:** Scientists demonstrated the concept of black holes—concentrations of matter so dense that even light cannot escape. They explained "squish" points and how these massive objects anchor the structure of the universe.

### **Aditya-L1**

- **Mission:** India's first successful mission to study the Sun.
- **Technical Detail:** The satellite is stationed at **Lagrange Point 1 (L1)**, where the gravitational pull of the Sun and Earth equalize, allowing the craft to remain stable.
- **Instrumentation:** The display (presented in collaboration with Fergusson College) detailed the **seven payloads** designed to study solar phenomena.

### **TMT (Thirty Meter Telescope)**

- Insight was provided into this next-generation extremely large telescope designed to observe the deep universe with unprecedented clarity.



## ○ Interactive Sessions & Q&A



The highlight of the day was the **Q&A Session**, featuring the renowned scientist and writer **Dr. Jayant Narlikar**.

- **VISHWAHI's Contribution:** Out of numerous entries, a question from our team (Shravani Sovani and Dhanashri Katarkhataavkar) was selected for the panel. They inquired about IUCAA's involvement in the upcoming **Gaganyaan** mission and research opportunities for **engineering students** in astronomy.
- **Expert Guidance:** Following the session, the team interacted with **Dr. Anand**, who discussed career paths for engineers at IUCAA and expressed interest in conducting future collaborative sessions for the club.



#### ○ Reflections

The visit bridged the gap between theoretical science and engineering applications. By interacting with the Astroclub of Fergusson College and IUCAA researchers, VISHWAHI members gained fresh perspectives on how to grow the club and pursue careers in space technology.

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## 5. IUCAA SciPop Sky Watching Event

On **March 16, 2024**, the club organized an evening excursion to the **Inter-University Centre for Astronomy and Astrophysics (IUCAA)** for a specialized sky-watching session. This visit was part of the **SciPop (Science Popularization)** initiative, designed to bring complex cosmic concepts to college students through hands-on observation. Under the guidance of IUCAA's resident experts, the group transitioned from theoretical classroom physics to the practical application of high-end optical instruments, fostering a deeper appreciation for the mechanics of the night sky.



The observation session centered on the most prominent members of our solar system, providing participants with a rare, high-resolution look at planetary features. Using IUCAA's professional-grade telescopes, students observed the **Moon's** craggy topography in stunning detail before turning their attention to the gas giants. **Jupiter** was a major highlight, with its atmospheric bands visible alongside the four **Galilean moons** (Io, Europa, Ganymede, and Callisto) appearing as sharp pinpricks of light. The evening concluded with a breathtaking view of **Saturn**, where the planet's iconic ring system was clearly discernible, leaving a lasting impression on the first-time observers.



Beyond the eyepiece, the event served as an interactive educational forum. IUCAA volunteers and scientists engaged the VISHWAHI team in discussions regarding planetary orbits, the history of telescope technology, and the current research being conducted at the institute. By witnessing these celestial bodies firsthand, the students gained a tangible sense of scale and distance that textbooks cannot provide. The



successful coordination of this visit not only strengthened the club's relationship with IUCAA but also ignited a renewed passion for observational astronomy among the diverse group of attendees.

