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IISC Open day Visit organized by
AE Department on 01/03/2025

Report on One-day Visit to IISC Bengaluru Open Day

A one-day Industrial visit to Indian Institute of Science, Bangalore was organized by AE Department, M V J college of engineering on March 1st, 2025. A one-day visit by students of the 6th semester Aeronautical Engineering with a total of 45 students and 2 faculties from Aeronautical Engineering department participated.

We departed from our campus at 8 AM, filled with enthusiasm to explore one of India's premier research institutions. Upon reaching IISc, our primary focus was on the Aeronautical and Aerospace departments, where we witnessed a range of innovative projects and research demonstrations. This visit provided us with valuable insights into cutting-edge advancements in aviation, space technology, and aerodynamics. The experience was both educational and inspiring, allowing us to connect theoretical knowledge with real-world applications. First the team visited Aerospace Department and interacted with day scholars and research scholars came to know about the various facilities and research activities like Open Circuit Wind tunnel (OCWT), Aeroelasticity lab, Combustion Research and Advanced Diagnostics Laboratory (CRADL), Turbulent Shear Flow Physics and Engineering Laboratory (TSFPEL) Laboratory for shockwave and hypersonic research (LSHR), Health Monitoring of Aerospace structures using Acoustic Wave Propagation, Unmanned aerial vehicle. Apart from the Lab facilities, an exhibition was also organized to explain the works done by the department in the past and ongoing projects.

Fig 1 Departure from MVJ college of Engineering.

Fig 2: Arrival at IISC Bangalore.

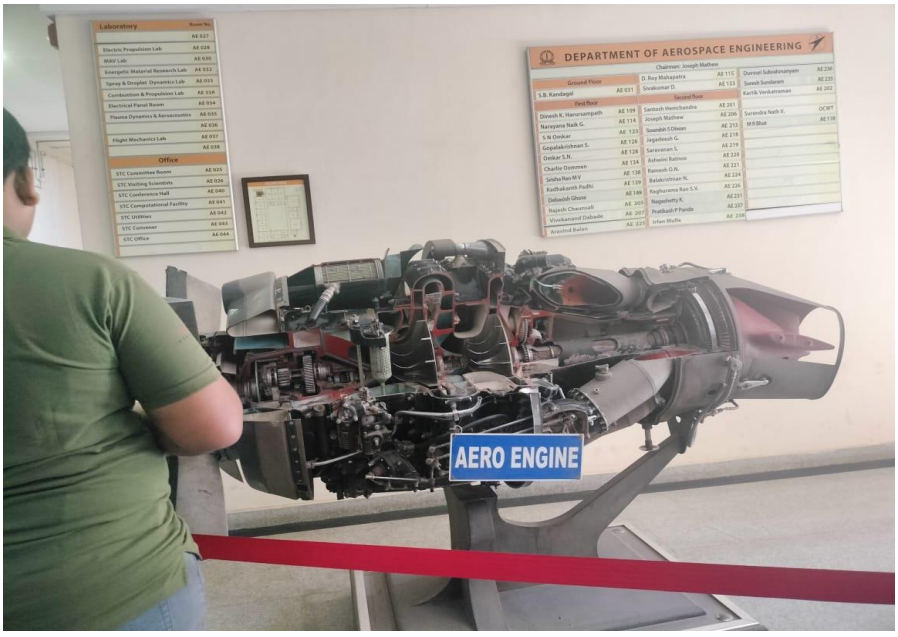


Fig 3: Aero engine.

The displayed aero engine is a jet engine, likely a turbofan or turbojet, used in aircraft propulsion. This exhibit provides an in-depth look into the engineering behind modern aircraft propulsion systems.

The model of the Light Combat Aircraft (LCA), a supersonic multirole fighter developed in India. The LCA, known as Tejas, is designed for air superiority, ground attack, and reconnaissance missions.

Fig 4: India's advancements in indigenous fighter jet development

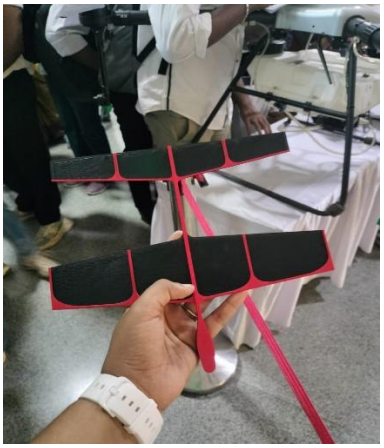
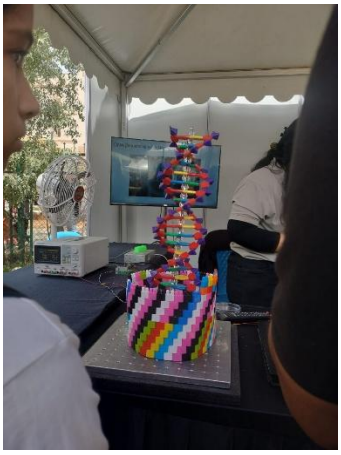
Fig 5: display on supersonic/hypersonic aerodynamics.

This display showcases research on supersonic/hypersonic aerodynamics, including flow instabilities, shock wave interactions, and advanced aerodynamic decelerators. Likely affiliated with IISc Aerospace Engineering, it focuses on high-speed flight innovations.

Fig 6: Showcasing a supersonic or hypersonic wind tunnel system.

This exhibit appears to showcase a supersonic or hypersonic wind tunnel system, used for aerodynamic testing of high-speed aircraft and space vehicles. The setup includes compressed air storage tanks and a complex pipeline system to regulate airflow through the tunnel. The presentation on the screen suggests research on shock waves, boundary layers, and high-speed aerodynamics, which are crucial for designing advanced aerospace vehicles. Such facilities help engineers analyze drag, lift, and thermal effects on aircraft traveling at extreme speeds. This project demonstrates cutting-edge experimental techniques in aerospace engineering.

Students participated in a competition where they had to make a paper plane and fly it till a point and if we completed the task, we would win a 3D printed glider and 8 students from our class won in that competition.

During the visit to various departments like Biology and Chemistry, we explored multiple scientific concepts and their real-world applications.

1. DNA and Genetics:
   - Observed models related to DNA, which demonstrated its structure and composition.
   - The significance of DNA sequencing and its role in medical advancements was explained.
2. Nanotechnology Advancements:
   - Learned how nanotechnology is being integrated into various fields, including medicine, electronics, and materials science.
   - The applications of nanotechnology in improving drug delivery systems and creating highly efficient materials were discussed.
3. Laser and Light Control Using UV Light:
   - witnessed how UV light can be used to manipulate lasers and other light sources.
   - The experiments showcased how precise control of light can be achieved, which has applications in optics, medical imaging, and communication systems.


4. Fun Scientific Experiments:
   - Various hands-on experiments demonstrated fundamental scientific principles in an engaging way.
   - These activities enhanced our understanding of complex topics through visual and interactive learning.

In the Robotics department we saw a quadruped robotic dog, likely a research prototype, demonstrating its movement capabilities.
The robot, labeled "GO1 Eduyu," appears to be an advanced AI-powered machine designed for agility and balance. A group of students and observers are attentively watching the demonstration, indicating an educational or tech exhibition setting. The robotic dog is walking on a reflective tiled floor, suggesting it has stable motion control and adaptability to different surfaces. This demonstration highlights advancements in robotics, automation, and AI integration for real-world applications.

Our visit to IISc was an incredible experience, where every moment was spent gaining valuable knowledge. From witnessing advanced aeronautical projects to exploring innovations in biology, chemistry, and nanotechnology, we were exposed to groundbreaking ideas. The demonstrations on laser technology, robotics, and AI applications were truly fascinating. Observing DNA models and learning about UV-controlled lights added to our excitement. The quadruped robot's precision and movement showcased the future of robotics. Each experiment and exhibit sparked curiosity and deepened our understanding of engineering and science. The experience left us inspired and eager to learn more. One day was simply not enough to explore everything!

Outcome of the event:

- The various test facilities of the IIsc are known.
- Research projects and knowledge regarding the same had been acquired.
- The research and internship opportunities for students.

Recommendations to MVJCE

- Test facilities to be showcased to public on open day.
- Past and present projects to be displayed.
- Science exhibition to motivate and inspire students.