



Graphic Era
Deemed to be University
DEHRADUN

APPLY NOW



DEPARTMENT OF AEROSPACE ENGINEERING

Programs Offered —

- * **B.Tech** in Aerospace Engineering
Specializations offered —
 - **Space Technology**
 - **Drone Technology**
- * **B.Tech** in Aerospace Engineering (Lateral Entry)
- * **Ph.D** in Aerospace Engineering

BROCHURE 2026-27

About the University

A Legacy of Excellence

Founded by Prof. (Dr.) Kamal Ghanshala with a vision to transform youth through quality education, Graphic Era began its journey in 1993 and evolved into Graphic Era Institute of Technology (GEIT) in 1997. In 2008, it was granted Deemed to be University status by the Government of India.

Today, Graphic Era stands as a NAAC 'A+' accredited university, ranked 52nd in Engineering, 52nd in Management, and 48th in the University Category by NIRF, Ministry of Education. With 6 NBA-accredited programs, the university fosters an industry-academia partnership through collaborations with Tata Technologies and IBM and hosts a DST-sponsored Technology Business Incubator for startups.

With global academic partnerships and student exchange programs across US, Europe, Australia, and Asia, Graphic Era provides a world-class learning experience. Its alumni shine at Apple, Google, Microsoft, HSBC, TCS, Wipro, Infosys, and the Indian Armed Forces, shaping the future with innovation and excellence.

Be a part of this legacy!



Welcome to the Department of Aerospace Engineering

Aerospace engineering is a gateway to exploring new frontiers in air and space travel. Our department is committed to pushing the boundaries of innovation while addressing real-world challenges.

With a strong foundation in aerodynamics, propulsion, avionics, and materials science, our programs prepare students to excel in designing next-generation aircraft, spacecraft, and sustainable aviation solutions. Cutting-edge research opportunities and collaborations with global aerospace leaders ensure hands-on learning and industry exposure.

As the aerospace industry evolves with advancements in urban air mobility and space exploration, we empower our students to lead and contribute to groundbreaking innovations.

Join us in redefining the future of aerospace engineering — where the sky is not the limit, but just the beginning!

Our Department

Vision: To impart aerospace and allied engineering education, producing world class professionals competent in the emerging technologies, research, and innovation for sustainable growth of the nation and society by ethically driven endeavors.

Mission:

M1: To create an ecosystem for aerospace education and research in fundamental and emerging domains.

M2: To implement recent methodologies and cutting-edge computational, analytical, and simulation tools.

M3: To engage with all stakeholders for technology and knowledge transfer, entrepreneurship, and ensuring a meaningful impact of our research and education.

M4: To inculcate ethics, social harmony, and a commitment to preserving and protecting the environment.

Key Facts & Achievements

Rankings

#48 University Category

#52 Engineering Category

#52 Management Category



Source: **NIRF 2025 Ranking**
Ministry of Education,
Govt. of India

#41 Sustainability Rank in India

#138 Southern Asia 2026

Diamond

I-Gauge Rating



#02 in India for Research Quality

#601-800

World University Ranking



World University Rankings 2026

Startups

₹500+ Cr

Valuation of Startup's

100+

Incubated Startups

90+

Startups Recognised

1000+

Interns Enrolled

8000+

Beneficiaries in 2025

Accreditations

NAAC A+

Grade Accredited



Source: National Assessment & Accreditation Council (NAAC)

UGC, AICTE, BCI, NMC, INC

Programs approved by University Grants Commission (**UGC**), All India Council for Technical Education (**AICTE**), Bar Council of India (**BCI**), National Medical Commission (**NMC**), and Indian Nursing Council (**INC**)



06 NBA

Courses Accredited

The only University in the region to have **B.Tech (CSE, ECE, ME, CE, Biotechnology)** and **MBA** accredited by NBA



Source: National Board of Accreditation (**NBA**)

Academic Snapshot

900+ Distinguished Faculty Members

14K+ Students

22 Departments (8 Engineering & 14 Non-Engineering)

100+ Programmes

Research & Innovation

Top 2%

34 faculty members of Graphic Era University included in Stanford-Elsevier-list.

₹2648.99 Lac

Research Project Funding from leading government agencies including DST, DBT, SERB, CSIR, UCOST, MoEF&CC and ISRO.

₹3472.17 Lac

Consultancy Project Funding

15500+

Research Publications

240+

Patents Granted

2100+

Patents Published



Courses Offered

B.Tech in Aerospace Engineering

Specializations Offered —

- Space Technology
- Drone Technology

Duration — 4 Years/ 8 Semesters

Eligibility — All interested candidates should have passed Class XII from a recognized board of examination with Physics, Mathematics and Chemistry or equivalent or as per AICTE guidelines.

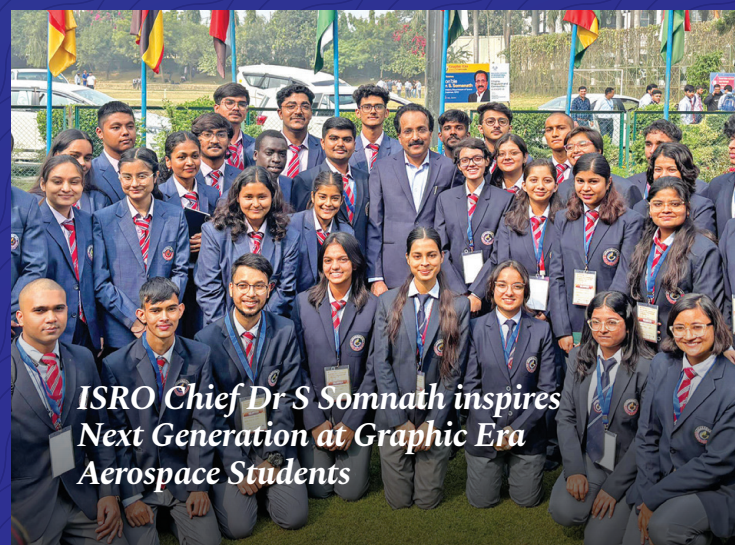
B.Tech in Aerospace Engineering (Lateral Entry)

Duration — 3 Years/ 6 Semesters

Eligibility — Diploma in Aeronautical, Mechanical, Mechatronics, Automobile, Civil, Electronics & Communication and Electrical Engineering.

Ph.D in Aerospace Engineering

Eligibility — Master's Degree from any AIU/UGC/AICTE recognized University/ Institutions or any other qualification recognized as equivalent thereto in the fields of study notified from time to time by the University.



ISRO Chief Dr S Somnath inspires Next Generation at Graphic Era Aerospace Students

Career Opportunities

The aerospace industry is set for rapid growth, fueled by tech advancements and rising interest in space exploration and sustainable aviation. Aerospace engineering offers an exciting, rewarding career for those eager to push the limits of air and space.

- ✦ Aviation Sector
- ✦ Space Exploration
- ✦ Defense Industry
- ✦ R&D
- ✦ Airline & MRO
- ✦ Manufacturing
- ✦ Engineering Services
- ✦ Management

✦ **Higher Studies:** Higher education in Aerospace Engineering offers avenues for specialization, research, and leadership roles in cutting-edge technologies. A master's degree provides advanced expertise in areas like:

- ✦ Aerodynamics and Propulsion
- ✦ Structures and Materials
- ✦ Avionics and Systems
- ✦ Space Engineering
- ✦ UAV and Drone Technology

Top universities worldwide and IITs in India offer specialized programs with research opportunities.

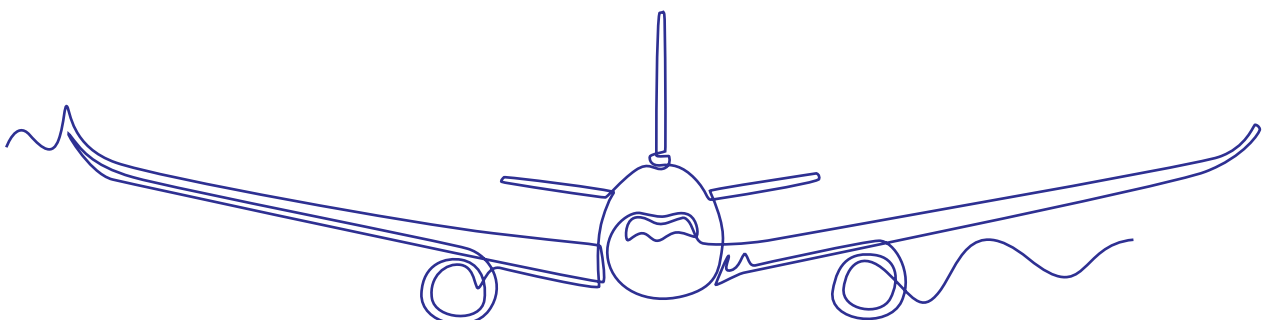
Doctoral studies focus on high-end research in fields such as hypersonics, advanced propulsion, AI in aerospace, and space exploration. Ph.D. graduates often work in academia, research labs (NASA, ISRO), or industries like Boeing and SpaceX

Major Recruiters

In India



Abroad



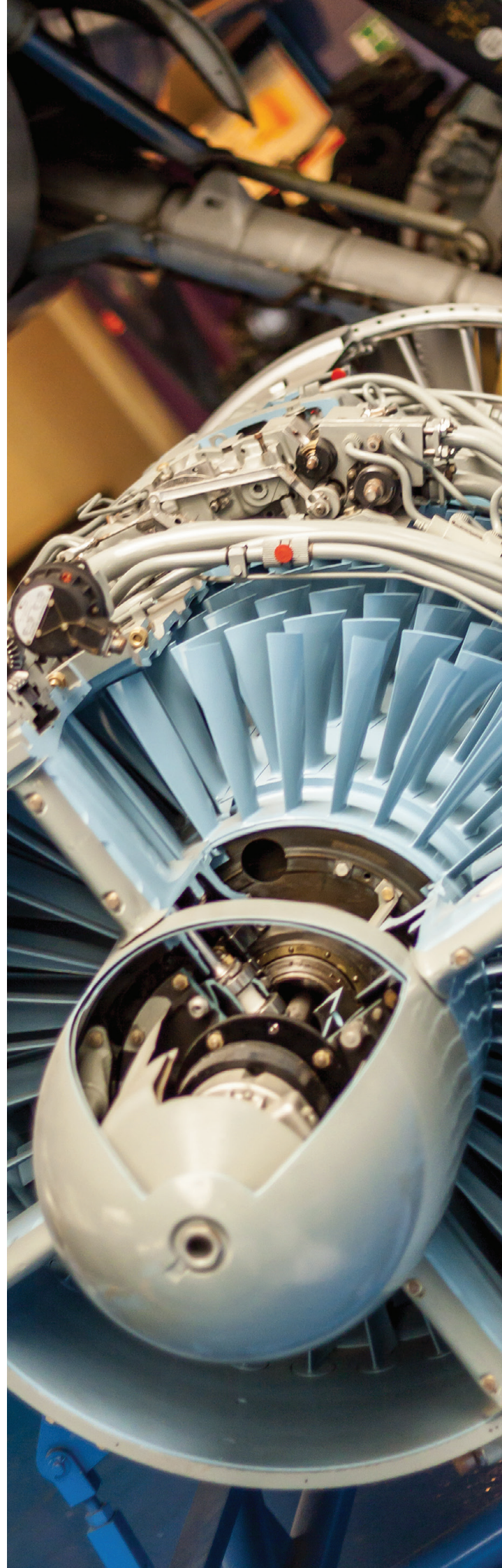
Special Offerings

- ✔ **Industry and Research Exposure:** Students will have opportunities to undertake training and projects with reputed public and private aircraft/system manufacturing organizations.
- ✔ **Comprehensive Curriculum:** The program addresses industrial and research demands by covering topics such as computational fluid dynamics, airport and airline management, aircraft design, and flight dynamics.
- ✔ **Expert Engagement:** Regular expert lectures and webinars by scientists from organizations like NASA, ISRO, DRDO, and HAL ensure exposure to the latest trends in aerospace engineering.
- ✔ **Certification Programs:** Students can enhance their knowledge through certifications in **Aerospace Quality Management, DRONE Technology, Re-entry Vehicle Technology**, and more.
- ✔ **Industrial Training and Flight Training Exposure:**
 - ✔ 10 to 12-day Flight training program enrich hands-on experience at IIT Kanpur

Curriculum Modules

The curriculum covers a wide array of aerospace topics, including:

- ✔ Aerodynamics, Supersonic and Hypersonic Aerodynamics
- ✔ Helicopter Aerodynamics and Wind Tunnel Techniques
- ✔ Aerospace Propulsion, Rocket Propulsion and Aircraft Structures
- ✔ Flight Mechanics and Aircraft Stability & Control
- ✔ Space Dynamics, Orbital Mechanics
- ✔ Drone Technology, Navigation Guidance & Control
- ✔ Composite Materials, Finite Element Analysis



Innovative Teaching Methods Adopted

The Department of Aerospace Engineering blends traditional teaching with hands-on learning through industrial visits, internships, and industry-focused projects. Regular guest lectures by renowned experts enrich both students and faculty. Additionally, value-added programs provide specialized training in software, design methodologies, and analytical techniques, guided by academic and industry professionals.

The department embraces innovative teaching practices to ensure a dynamic and engaging learning environment. These include:

- ✔ Project-Based Learning
- ✔ Integration of Relevant Software Applications within Courses
- ✔ Flipped Classroom Approach
- ✔ Virtual Labs for Enhanced Practical Understanding

MoU & Collaborations

The Department of Aerospace Engineering maintains strong associations with institutes and industries across the country to provide students with excellent opportunities for internships, placements, and higher studies. Department is having an MoU with Notable companies include **Abyom SpaceTech and Defence** and the **Institute of Research Development & Training**.

- ✔ A Memorandum of Understanding (MoU) has been signed with **Abyom SpaceTech and Defence Private Limited**, focusing on research and development in reusable rocket technology, advanced student training, and skill enhancement.
- ✔ An MoU has been signed with the **Institute of Research Development & Training**, focusing on advanced student training, skill enhancement, and delivering expert lectures on specialized topics.

Skill Enhancement Courses

The curriculum includes specialized courses to ensure students are industry-ready:

- ✔ Aerospace CAD
- ✔ Advanced Manufacturing Lab
- ✔ Unmanned Aerial Vehicle (DRONE) Technology
- ✔ Flight Training
- ✔ Aeromodelling
- ✔ MATLAB for Engineers
- ✔ Advanced MATLAB for Aerospace Engineers
- ✔ Python Programming
- ✔ Artificial Intelligence (AI) and Machine Learning (ML) for Aerospace Applications

With this holistic approach, the program ensures that graduates are equipped with the technical skills, practical experience, and global exposure necessary for success in the dynamic field of aerospace engineering.



Meet Our Experts

The Aerospace department is led by a team of expert faculty from prestigious institutions worldwide, specializing in advanced aerospace engineering concepts. Their diverse areas of expertise enrich the learning environment, providing students with valuable knowledge and research insights. Below are the distinguished faculty members and their specializations:

Name	Qualification	Area of Expertise
Dr. Sudhir Joshi Head of the Department	M.E Space Engineering and Rocketry, Ph.D in Aerospace Engineering	High-Speed Aerodynamics, Aircraft Maintenance
Mr. P.K. Pandey Professor of Practice	Strategic Advisor – Belcan Aerospace, Former Global Engineering Director – Collins Aerospace, Vice President – Aerospace Vertical CYIENT, Hyderabad	
Dr. Vijay Patidar	B.Tech in Aerospace Engineering, M.Tech in Aerospace Engineering (IIT Madras), and Ph.D. in Aerospace Engineering	Aircraft Structures, Fatigue & Fracture Mechanics, Structural Dynamics
Dr. Pushendra Kumar	Postdoc & PhD, University of Lille, France	Dynamics and Control, UAV
Dr. Kumar Gaurav	B.Tech in Aerospace Engineering, M.Tech in Aerospace Engineering (BIT Mesra), and Ph.D. in Aerospace Engineering	Aerodynamics & Computational Studies of multiphase flow and high-speed flows. High-Speed Underwater Vehicles, Super Cavitating Torpedoes, Weapon-Bay Cavitation
Dr. Chandra Kishor Gupta	M.Tech and Ph.D. (IIT Rorkee)	Aerospace Materials
Mr. Prabhat Singh	M.Tech. in Turbomachinery Engineering	Supersonic Aerodynamics, Turbomachinery, CFD
Mr. Alok Kumar	M.Tech in Aerospace Engineering (UAVs), DIAT Pune	Flight Mechanics, UAVs, Aircraft Design

Faculty-Student Ratio:

The Aerospace department maintains an impressive faculty-student ratio of 1:8, ensuring personalized attention and effective mentoring for every student. This allows for a collaborative and enriching learning experience, fostering academic and professional growth.

Faculty
Student
Ratio

1:8

Research & Achievements

Aerospace Engineering Research Labs

- ✔ The Aerospace Research Labs at GEU focus on advanced technologies in aerodynamics, propulsion, aircraft structures, and space dynamics. The **Computational Fluid Dynamics (CFD) Lab** and **Wind Tunnel Facility** support research in flight mechanics, high-speed aerodynamics, and fluid flow analysis.
- ✔ The **Energy-efficient Turbulent Wind Tunnel** developed at GEU is an innovative achievement that replicates complex, fluctuating flow conditions for aerodynamic testing.



Turbulent Wind Tunnel

Innovations in Aerospace Engineering

- ✔ The Innovative Aero Modelling and Fabrication Lab is another space where students and researchers engage in creating prototype models, testing them, and exploring new concepts in aircraft design and performance.
- ✔ GEU fosters innovation in areas like high-speed aerodynamics, propulsion technologies, and space vehicle design. The department is actively involved in the development of a tabletop wind tunnel and other experimental setups, which are used for hands-on research and student-led innovation projects.



Aerodynamics Lab

Research & Achievements

- ✔ Ms. Aditi Sharda and Ms. Tanishqa Soni presented a Technical Paper at 3rd International Conference on Modern Research in Aerospace Engineering (MRAE 2025), held on 25–26 September 2025.
- ✔ Abhinav Pant (Batch 2023–27) achieved Silver Medals in multiple NPTEL courses and secured a rank in the top 1% in the course Entrepreneurship and IP Strategy.
- ✔ Aditi Sharda, Tanishqa Soni and Swati secured Silver Medals in the NPTEL course Introduction to Ancient Indian Technology.

Research Opportunities for Students

- ✔ **Collaborative Research Projects:** Students engage in cutting-edge research with national and international universities, industries, and research organizations, often leading to high-impact publications and conference presentations.
- ✔ **Internships and Research Assistance:** The department offers research internships where students work with faculty on **fluid dynamics, thermoacoustics, aero-thermodynamics, and aircraft stability** projects, helping them strengthen research skills and contribute to innovative aerospace solutions.
- ✔ **Student-driven Research Initiatives:** Through the Orbit Quest Club, students undertake independent research and projects, often creating prototypes or patentable ideas. The department supports this work with access to specialized software, labs, and resources.

Graphic Era has taken support from TATA Technologies for Engineering programs currently offered at Graphic Era and Under this initiative, Tata Technologies has assisted Graphic Era in setting up high end “Centers of Excellence” in the domain of Product Design, tear down and bench marking process, Advanced Manufacturing, Robotics and Automation, Mechatronics, MES & Internet of Things (IoT) with huge financial investment partly supported by Tata Technologies.

Facilities and Infrastructure

Aerodynamics Laboratory

- ✦ **Wind Tunnel Facility:** The department houses a subsonic wind tunnel with a test section of 600 mm x 600 mm x 2000 mm, capable of achieving a maximum flow velocity of 60 m/s. It is fully equipped with instrumentation for data acquisition, serving both academic and research purposes. Additionally, an in-house tabletop bed-type water tunnel and Schlieren flow visualization setup are being developed collaboratively by students and faculty.
- ✦ **Turbulent Wind Tunnel:** The department features an energy-efficient, state-of-the-art turbulent wind tunnel capable of generating speeds of up to 40 m/s. Its advanced design includes 12 frequency-controlled fans in a 3x4 matrix for high-accuracy 3D flow simulations. This facility also functions as a conventional open-circuit wind tunnel.
- ✦ **Heleshaw Apparatus-Closed Circuit**

Computational Fluid Dynamics (CFD) Lab

Equipped with advanced computational tools for CAD modeling and flow analysis, the lab supports significant research in CFD. The department conducts internships and collaborative research, resulting in numerous publications and international partnerships.

Aircraft Structures Lab

- ✦ Thin walled pressure vessel
- ✦ Column test rig
- ✦ Shear Centre location for open section-angle
- ✦ Shear Centre location for open section-channel
- ✦ Shear Centre location for closed section-d section
- ✦ Constant strength beam
- ✦ Flexibility matrix for cantilever beam
- ✦ Beam with combined loading
- ✦ Photo elastic apparatus
- ✦ Vibration of beams-free, forced & torsional

Propulsion Lab

- ✦ Full Scale – R-13 Turbojet Engine
- ✦ Subsonic Ramjet Apparatus
- ✦ Nozzle Pressure Distribution Test Rig
- ✦ Nozzle Performance Test Rig
- ✦ Computerized Measurement of Nozzle Flow

Aero Modelling and Fabrication Lab

- ✦ Hands-on aircraft model design and building.
- ✦ 3D printing and rapid prototyping facilities.
- ✦ Basic wind-tunnel testing for model evaluation.
- ✦ Practical learning of aerodynamics and structures.
- ✦ Tools for CAD design and model simulation.
- ✦ Supports student projects and competitions.

Aero Fluid Mechanics Lab

- ✦ Reynolds number demonstration experiment
- ✦ Measurement of capillary rise in a tube
- ✦ Flow rate determination using a Venturimeter
- ✦ Discharge measurement using an Orifice meter
- ✦ Velocity measurement using a Pitot tube
- ✦ Discharge evaluation through weirs and notches
- ✦ Determination of friction factor in a pipe

Self-Learning and Advanced Tools

- ✦ **Software Tools:** Facilities include Ansys, CATIA, MATLAB, and more. Dedicated computer labs and a CFD center of excellence are accessible for project work beyond class hours.
- ✦ **Online Platforms:** Students can access courses on NPTEL, SWAYAM, and IIRS to further their knowledge in aerospace engineering.

Library and Resources

The university library offers an extensive collection of aerospace-related books, journals, and digital resources, enhancing research and self-study opportunities.

These facilities, combined with a cutting-edge curriculum and hands-on learning opportunities, provide a robust foundation for students in the field of aerospace engineering.



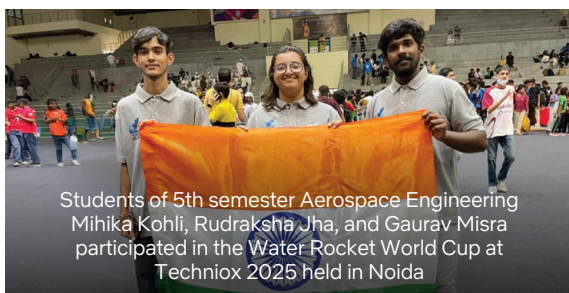
Clock-wise from top left: Nozzle Performance Setup;
 Computerised Subsonic Wind Tunnel; Subsonic Ram Jet;
 Aero Fluid Mechanics Lab; Wind Tunner Instrumentation;
 Nozzle Pressure Distribution Test Setup; Turbojet Engine;
 High Performance Computer Lab;



From Classrooms to Real-World Experiences

Aerospace Orbit Quest Club

Aerospace students, through the Orbit Quest Club, organize events like expert sessions, aeromodelling workshops, and paper glider competitions, fostering practical skills and industry exposure. Upcoming activities include the development of a static thrust measurement system and a table-top wind tunnel, enhancing hands-on learning opportunities.



These events and workshops exemplify the department's commitment to bridging the gap between academic learning and industry practices, fostering a culture of excellence and innovation in aerospace engineering.

Events and Workshops

The Aerospace Engineering Department boasts a distinguished faculty from premier institutions like IITs, NITs, and IISc, fostering a vibrant academic ecosystem. It promotes learning and innovation by engaging national and international aerospace experts to share insights.

Department events feature renowned experts, offering industry insights and inspiration to students and faculty.

- ✔ **Dr. S. Somanath**, Former Secretary Department of Space and Chairman ISRO.
- ✔ **Dr. Tessy Thomas**, popularly known as the Missile Woman of India, for her pioneering contributions to missile technology.
- ✔ **Dr. Sudhir Mishra**, Former Director of DRDO BrahMos, sharing insights into cutting-edge defense technology.
- ✔ **Dr. Sanjay Mittal**, Aerospace Professor at IIT Kanpur, delivered a session on sustainable space exploration.
- ✔ **Dr. Ravi Margasahayam**, NASA Global Space Ambassador, delivered a session on International Space Station.
- ✔ **Mr. Boris Otter**, Founder and President of Swiss Space Tourism, Geneva, Switzerland, presenting futuristic visions of space tourism.
- ✔ **Mr. George Salazar**, from NASA Johnson Space Center, USA, inspiring students with firsthand experiences in space exploration and human spaceflight systems.
- ✔ **Dr. Anil C. Mathur**, Group Director (Retired), Space Applications, highlighting real-world applications of space technologies.
- ✔ **Prof. Dr. Ugur Guven**, Member of the UN CSSTEAP Advisory Council, emphasizing global collaborations in aerospace education and research.
- ✔ **Dr. Bhanu Pant**, Outstanding Scientist and Former Group Director of Vikram Sarabhai Space Centre, ISRO, who delivered a lecture on a deeper understanding of ISRO's contribution to the field of space science and technology.
- ✔ **Mr. Roger Hunter**, Program Manager at NASA, who delivered a session on Small Spacecraft Technology and Upcoming NASA Missions.

Global Horizons with Shared Excellence

At Graphic Era (Deemed to be University), we nurture globally competent leaders through strong collaborations with top-ranked universities worldwide. Students benefit from transformative opportunities including dual-degree programs, semester exchanges, academic internships, twinning programs, and credit transfers, gaining unparalleled academic exposure, cultural diversity, and professional prospects across borders.

Global Language Learning Hub

The Office of International Affairs offers additional certification courses in French, Spanish, German, and Japanese, at GEU — benefiting 300+ students annually and enhancing cultural understanding, global career readiness, and higher education prospects abroad.

Celebrating International Excellence

Our international student community, representing over 10 countries, is honoured annually at the International Convocation, recognizing their achievements, resilience, and contributions to our global academic legacy.



Global Academic Engagement

- Our university proudly organizes **International Higher Education Fairs** with renowned universities such as **The University of Cambridge (UK)**, **Deakin University (Australia)**, **New York University (USA)**, and **The University of Nottingham (UK)**, among others.
- Our university regularly hosts international guest lectures inviting eminent professors from countries such as USA, U.K. Italy, Germany, France, and others to deliver lectures on diverse and engaging topics.

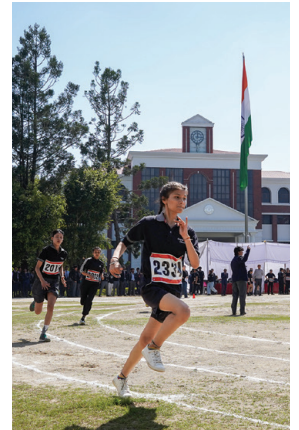
Partner Universities





Beyond Classrooms

Where Every Event Tells a Story



Join us in 2026!



Career Counselling Services

The Department of Aerospace Engineering equips students with the guidance, skills, and opportunities needed for career success. Our Career Counseling and Professional Development Services prepare them for every stage of their professional journey.

Domain-Specific Mentorship

We have dedicated Chair Heads for Marketing, Finance, and Human Resources, providing students with:

- Expert Mentorship
- Counseling Support

Professional Development Program (PDP)

Placement Support

Our Placement Department plays a vital role in shaping students' careers by providing:

- Support for Summer Internships (SIP) and Final Placements
- Internship Guidance

Alumni Mentorship

Graphic Era Common Entrance Test (GECET)

Scholarship upto

₹100  Cr

Unlock up to 100% scholarships with GECET – Graphic Era Common Entrance Test.

Secure your admission & financial support for a brighter future!

Apply Now – gecet.geu.ac.in



Scholarships & Support Benefits

- Upto **100%** Scholarship based on 12th or UG marks
- 10%** Scholarship to the Girl Candidates
- 05%** Scholarship to the children of Defense Personnel
- 05%** Scholarship to the Sport Person (National Level)
- 7.5%** Current Sibling Student Scholarship
- 05%** Passed out Sibling Student Scholarship
- 10%** Alumni Loyalty Scholarship
- 10%** Single Parent Scholarship (COVID Case)
- 05%** Single Parent Scholarship (Normal Case)
- 05%** Yearly Payment of Fees
- All students are covered under a comprehensive health insurance plan.
- Medical services are provided through the state-of-the-art Graphic Era Hospital.
- Student loan facilities are available to support financial needs.

Student Facilities & Engagement



Well-equipped and comfortable hostel facilities



Efficient transportation services



Extensive sports facilities



Free student uniform



Vibrant student clubs and extracurricular activities



Multiple hygienic and student-friendly cafeterias



Green, eco-friendly campus environment



ICT-enabled smart classrooms



Graphic Era

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