Indian Institute of Technology, Kanpur

भारतीय प्रौद्योगिकी संस्थान, कानपुर

PLACEMENT BROCHURE 2025 - 2026

DEPARTMENT OF AEROSPACE ENGINEERING

ABOUT US

- The Department of Aerospace Engineering at IIT Kanpur was established in 1964 and has ever since been a cornerstone of advanced flight research and development in India. It has been instrumental in advancing the nation's aerospace sector, spearheading pivotal projects that enhance national air superiority.

- Our academic and research programs are comprehensive, encompassing rigorous Engineering Science education, in-flight laboratory instruction, aerodynamic testing, and the indigenous design of cutting-edge facilities and instruments. We offer specialized streams in Aerodynamics, Flight Mechanics, Propulsion, Aerospace Structures, Computational Mechanics, Aero-Thermodynamics and Thermal Sciences , and Unmanned Aerial Systems.

- The department boasts unparalleled infrastructure, including a unique Flight Laboratory equipped with single-engine aircraft, a motored glider, and a dedicated 1,000-meter runway. Furthermore, our National Wind Tunnel Facility is a vital national resource, providing essential aerodynamic testing and validation services to both public and private enterprises, as well as academic and research organizations across India.

WELCOME ADDRESS

The Aerospace Engineering Department, with a history of over 40 years, was formerly known as the Aeronautical Engineering Department until 1991. The department maintains a balance between hardware development and theoretical/computational aspects in teaching, research, and development. Currently, the faculty consists of 33 members, sharing four with the Sustainable Energy Engineering Department.

The department has undertaken numerous research projects funded by agencies such as Aeronautics R&D Board, ISRO, ADA, DST, HAL, DMRC, NAL, IFCPAR, TERI, PCRA, and DRDO. Faculty contributions span areas like wind tunnels, flow measurements, CFD, aerodynamics, satellite dynamics, thermal rocket propulsion, structural dynamics, composite structures, smart structures, aeroelasticity, wind turbines, and advanced materials modeling.

Dr. G.M. Kamath

Professor & Head of the Department

Aerospace Engineering

Email ID : head_aero@iitk.ac.in

DEMOGRAPHY

Faculty Members	Lab Facilities
33	21

UG Students	PG Students *
305	436

Publications in the last 5 years	Sponsored Projects Registered in 2024-25
756	39

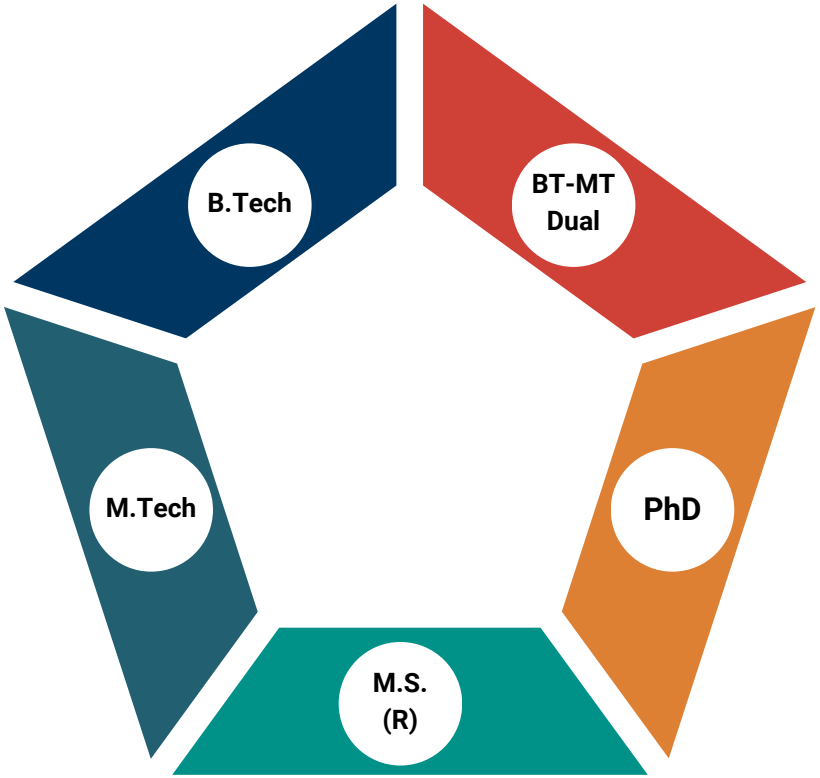
* Includes M.Tech , MS(R) & PhD

DEGREE PROGRAMS

4 Yr (Regular)
5 Yr (Dual Major)

B.Tech

In-depth exploration of engineering courses that introduce students to core curricula aligned with contemporary industry demands.



BT-MT Dual

5 Year Program

Students are introduced to core curriculum in bachelors and then they contribute towards research for an year. Both B.Tech and M.Tech degrees are awarded.

2 Year Program

M.Tech

Comprises of rigorous coursework followed by an year of research. Courses often include advanced level group projects and/or individual research project.

PhD

5 Year Program

Our premier degree program for aspiring researchers, enabling them to generate new knowledge and advance their field by providing cutting-edge facilities, expert guidance, industry collaborations, and dedicated funding.

2 Year Program

M.S.(R)

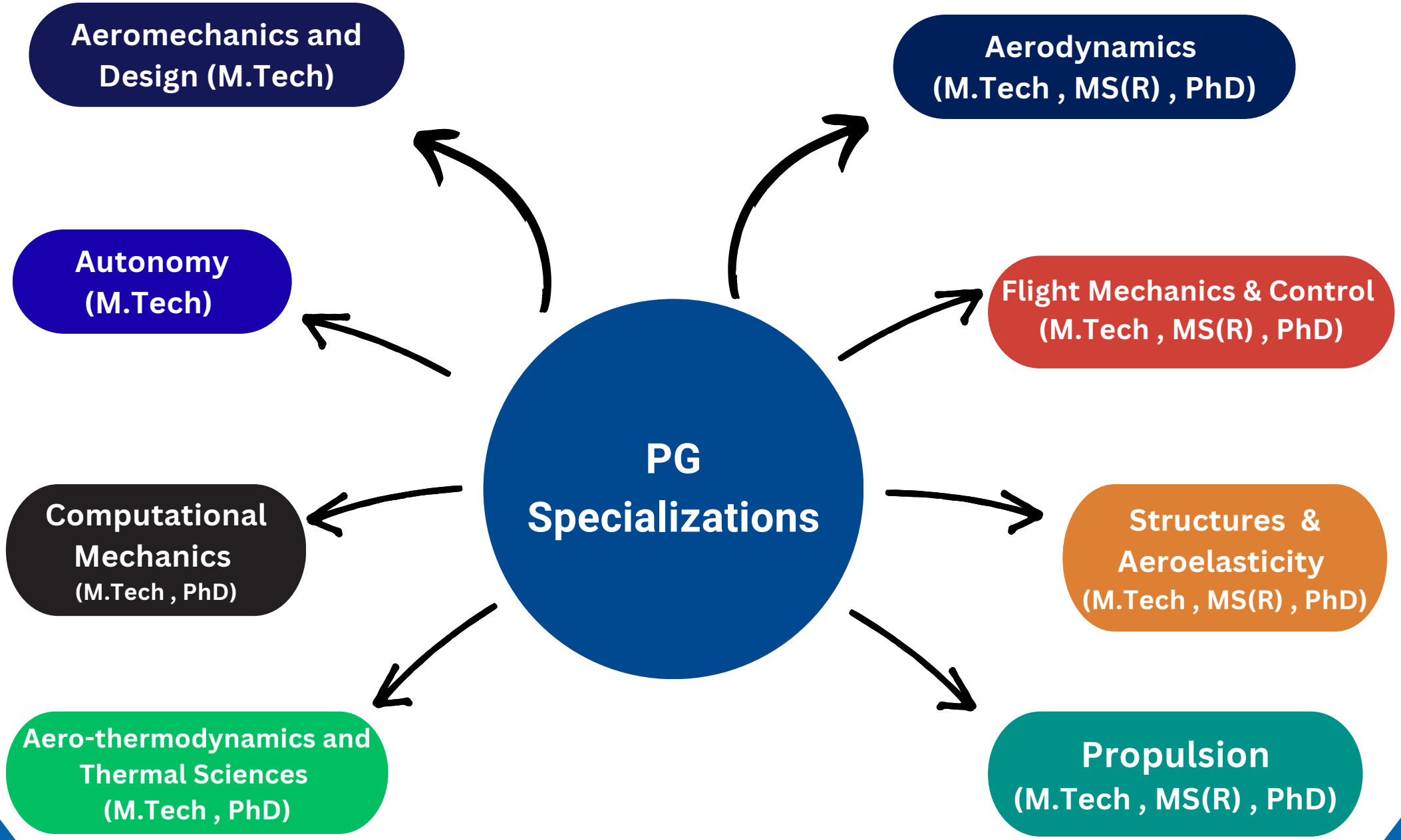
Similar to M.Tech, with more emphasis on research. Involves fewer course credits and more research/thesis credits. Besides fundamental research, students work on many challenging industry oriented projects.

COURSES OFFERED

- Aerodynamics
- Aeromechanics of Unmanned Aerial Systems
- Aerospace Structures
- Aircraft Design
- Applied Compressible Flows
- Composite Materials
- Continuum Mechanics
- Computational Fluid Dynamics
- Dynamics & Vibration
- Flight Stability & Control
- Finite Element Methods
- Fundamentals of Combustion
- Helicopter Theory : Dynamics & Aeroelasticity
- Heat Transfer in Aerospace Applications
- Introduction to Aerospace Engineering
- Satellite Attitude Dynamics and Control
- Scientific Machine Learning for Fluid Mechanics
- Signal Processing & Communications for UAV

For More Information Visit Here

PG SPECIALIZATIONS



DEPARTMENT FACILITY– FLIGHT LAB

Facilities

- Avionics Shop
- Quality Control Cell
- Battery Shop
- Bonded and Quarantine Store

Research Areas

- Parameter Identification
- Design and Control
- Space Dynamics
- Missile Guidance and Control
- Flight testing
- Unmanned and Autonomous Air Vehicles (UAV)
- Development and validation of aerodynamic parameter estimation techniques using flight data
- High angle of attack aerodynamics
- Estimation of concentration of trace gases and pollutants
- Validation and calibration of IMU's
- GPS Receiver Testing, GPS/INS Navigation

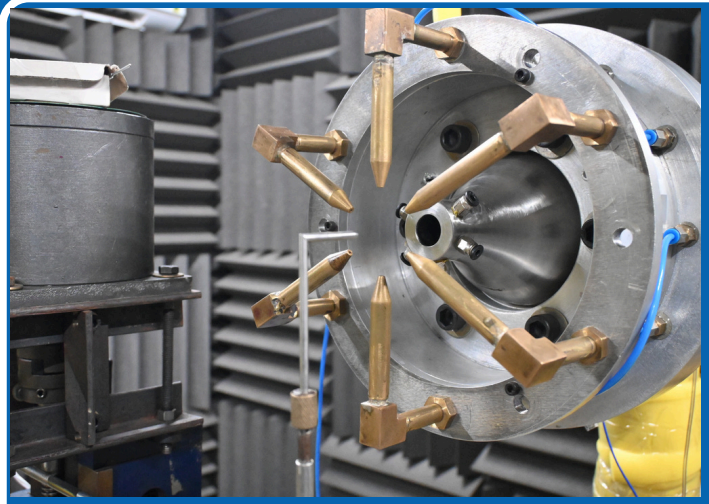
DEPARTMENT FACILITY – HIGH SPEED AERODYNAMICS LAB

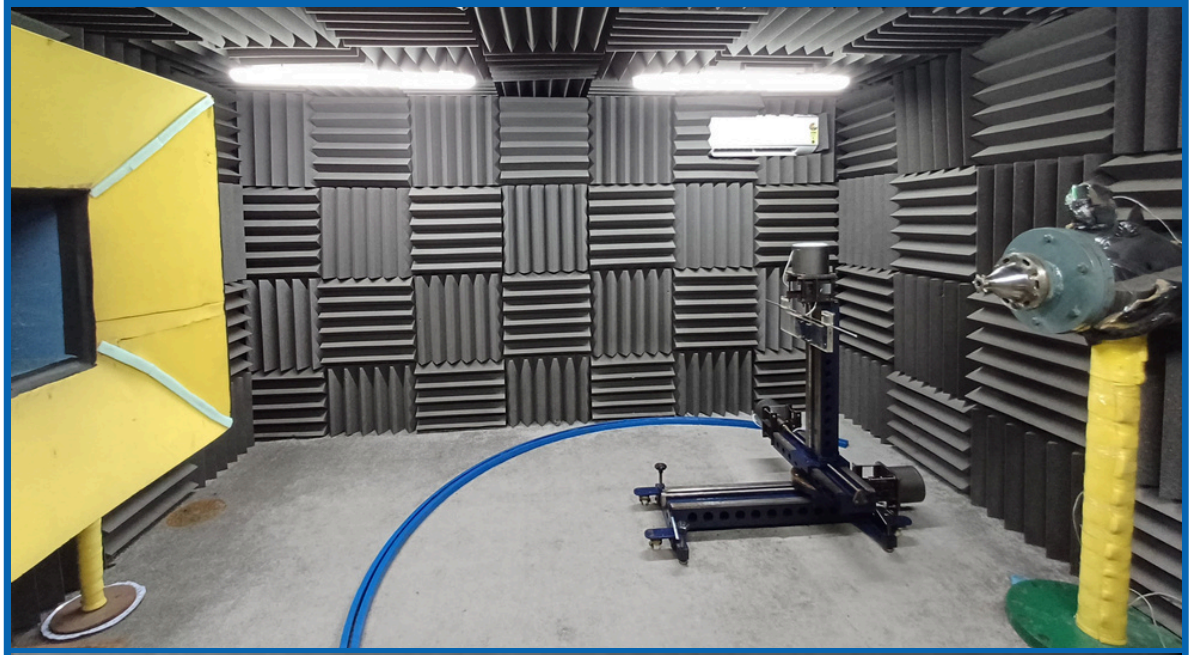
Facilities

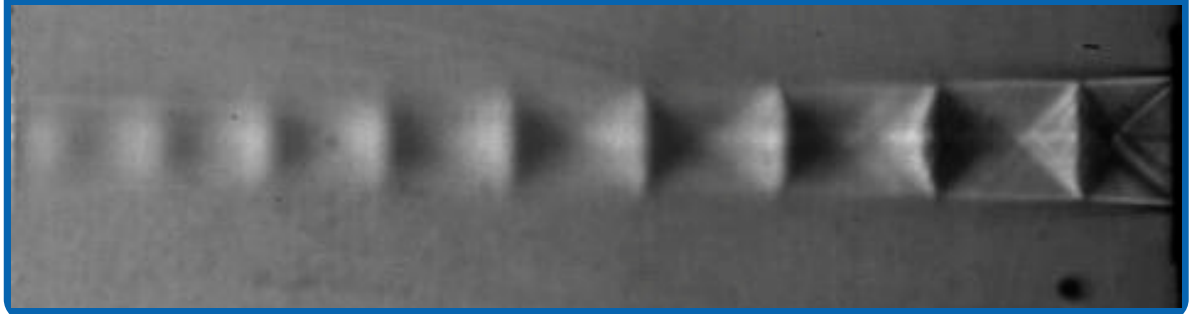
- Supersonic blow-down wind tunnel (225mm x 175mm)
- High Speed Jet Test Facility
- Indigenously built Jet Acoustic Chamber
- High-pressure compressor which can deliver compressed air at 2000 psi.

Research Areas

- Gas Dynamics – experimental and theoretical investigation Rarefied flows
- Applied Gas Dynamics and High speed jets
- Aeroacoustics
- Active and passive control of jets and base flows
- Supersonic, Transonic and subsonic Aerodynamics







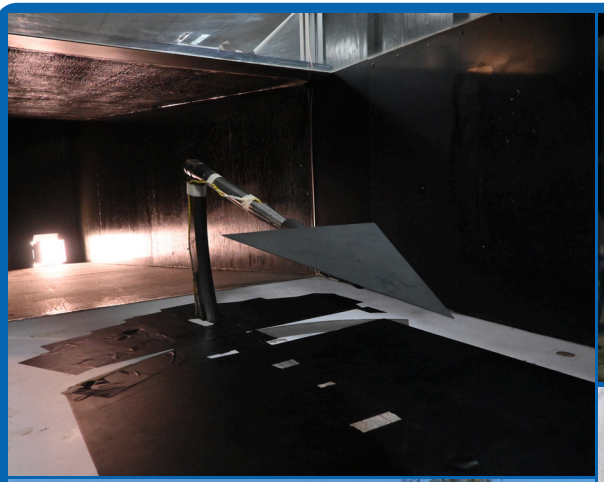
DEPARTMENT FACILITY – LOW SPEED AERODYNAMICS LAB

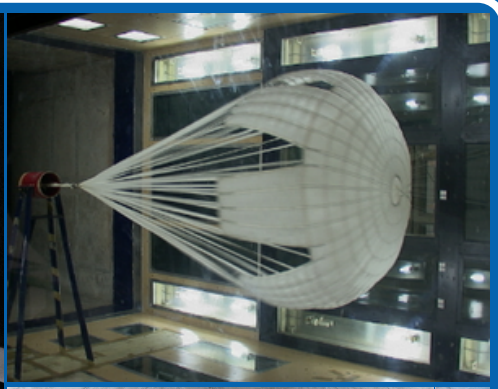
Facilities

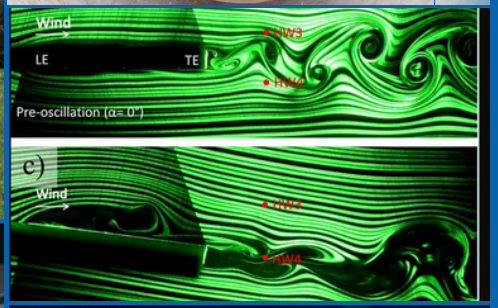
- Low Turbulence Tunnel
- Boundary Layer Tunnel
- Twin Air or 5-D Tunnel

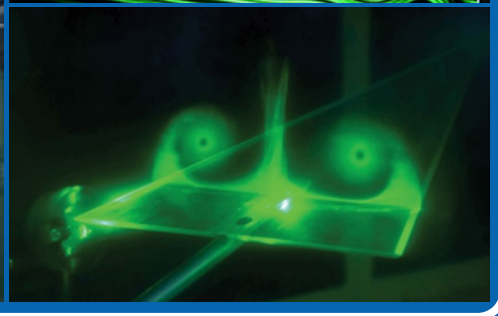
Research Areas

- Unsteady aerodynamics
- High – AOA aerodynamics
- Flow control on airfoils, wings and other bodies
- Bluff body flows
- Wind engineering
- Decelerator aerodynamics
- Transition









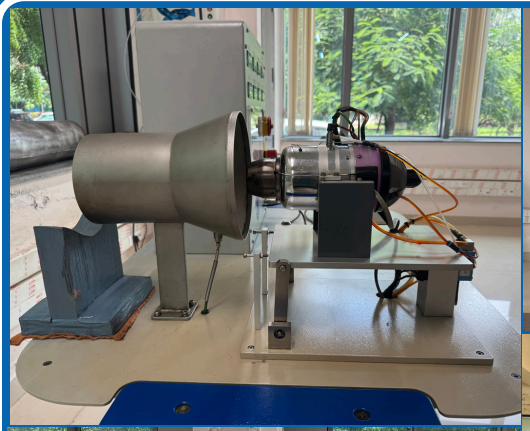
DEPARTMENT FACILITY – PROPULSION LAB

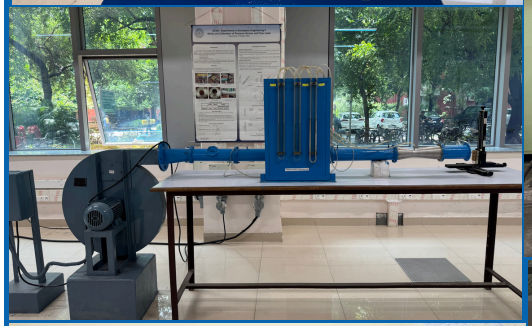
Facilities

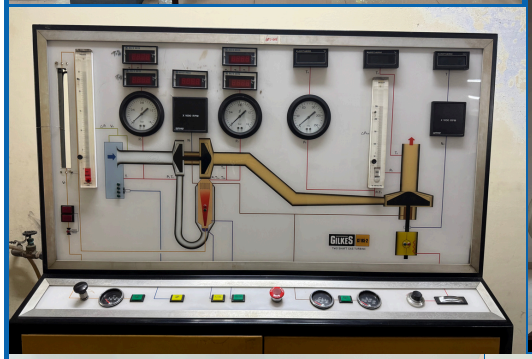
- Low Speed Cascade Wind Tunnel
- 2-Shaft Gas Turbine
- Continuous Combustion Unit
- Tunnel (7cm x 7cm) for LDA Facility
- Gaseous Fuel Combustion Test Rig
- Combustor With Optical Windows
- Test Bench For Characterization of Fuel Atomizers

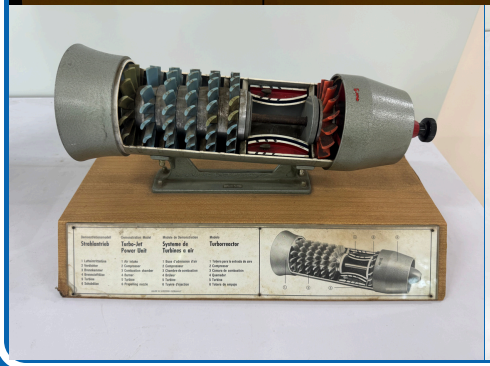
Research Areas

- Internal Flow Control (Active & Passive) (S-Ducts, Serpentine Ducts, Cascades)
  - Secondary Flow
  - Separation
- Flow Diagnostics
  - Combustors
  - Pipe flow
- Turbo-machinery
  - Compressors (surge and rotating stall)
  - Secondary Flow
  - Flutter
- Thrust Vectoring Combustion
  - Thrust Vectoring Combustion
  - Instability
  - Emissions
- Liquid Atomization and Spray Combustion
  - Air-assisted, air-blast, effervescent, electrostatic, piezo-electric
- Electric Propulsion
  - Pulsed Plasma Thruster









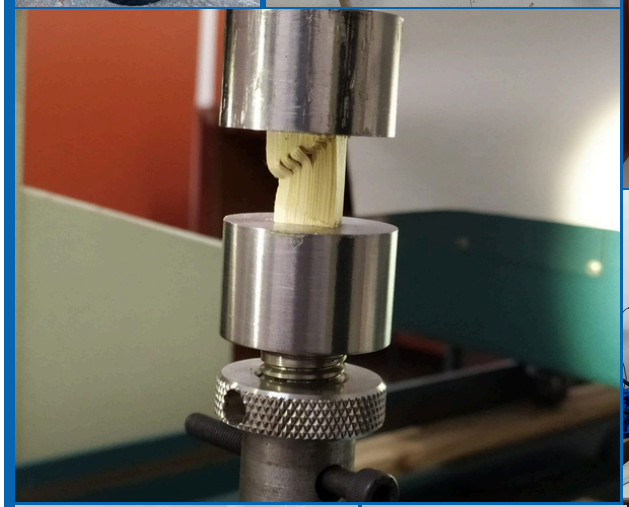
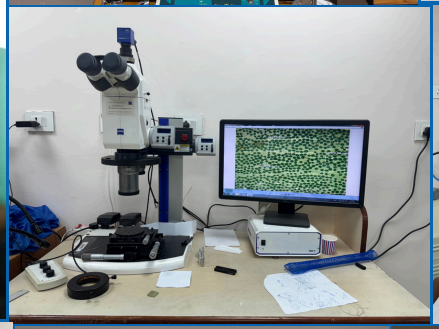
DEPARTMENT FACILITY – STRUCTURES & MATERIAL CHARACTERIZATION LAB

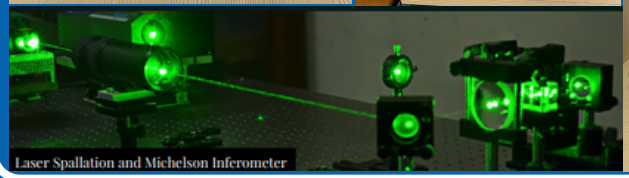
Facilities

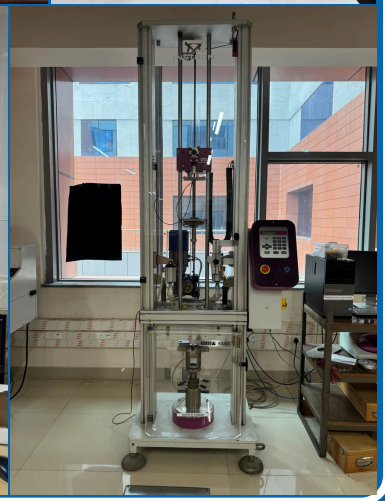
- Laser Interferometry
- Digital Image Correlation (DIC) Setup
- Universal Testing Machines
- Dynamic Mechanical Analyzer
- DSC (Differential Scanning Calorimetry) & TGA (Thermogravimetric Analysis)
- Thermal Mechanical Analyzer
- Drop Weight Impactor
- Thin Film Deposition & Policing Machines
- Composite Manufacturing Facilities
- Autoclave & Prepreg

Research Areas

- Material Characterization
- Composite Materials and Smart Structures
- Structural Dynamics and Stochastic Modeling
- Aeroelasticity
- Structural Design & Optimization
- Damage Modeling
- Design & Dynamics of Autonomous Micro & Mini Air Vehicles

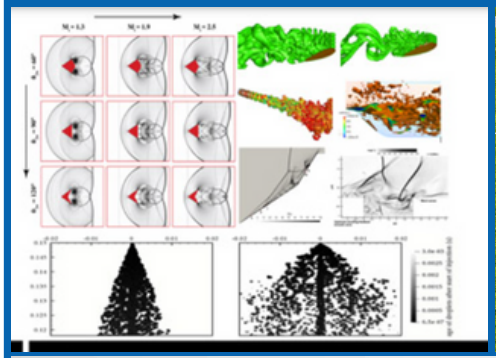




Laser Spallation and Michelson Inferometer



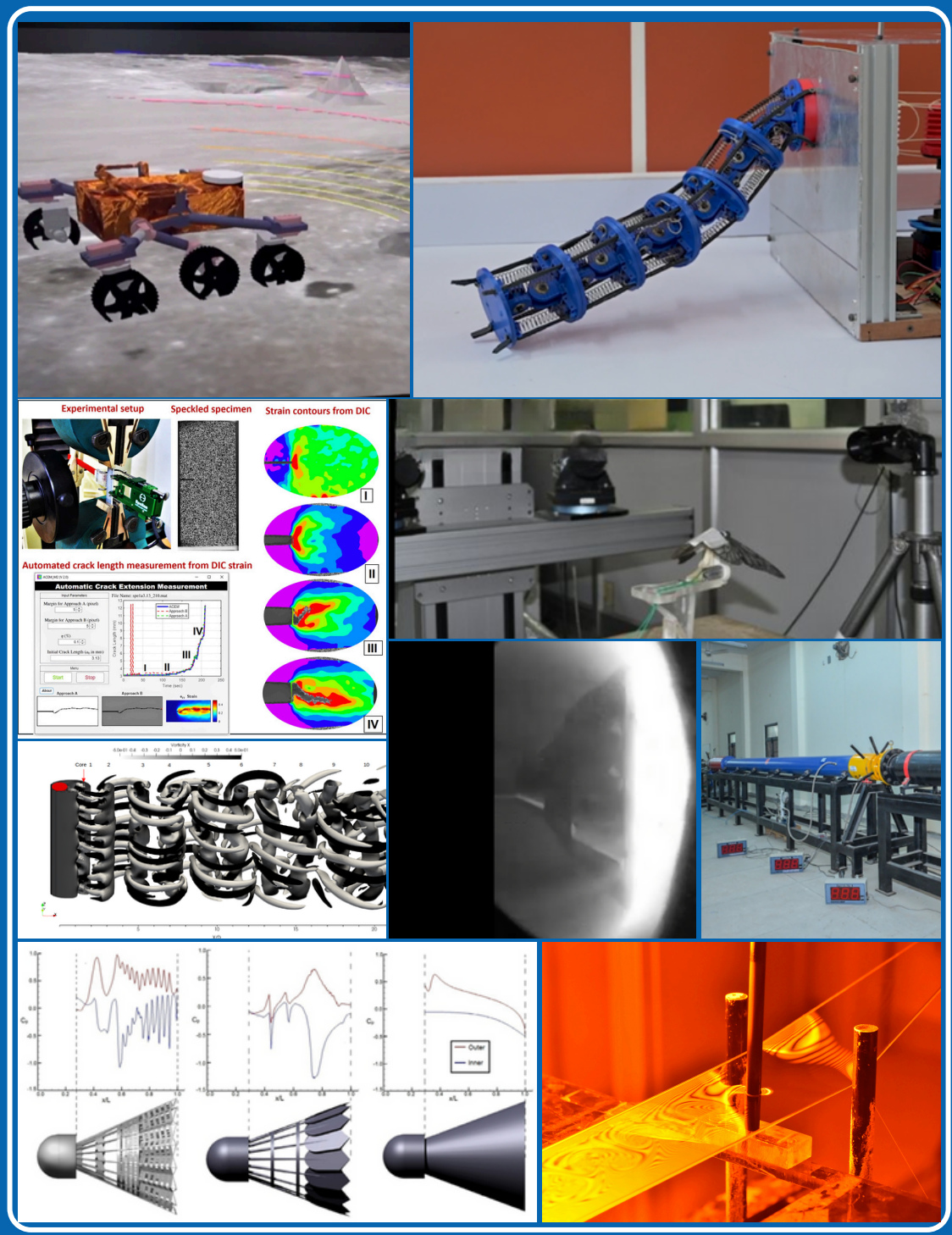
RESEARCH LABS

- Advanced Combustion and Acoustics Laboratory
- Advanced Propulsion Laboratory
- Aeroscience Computation and Analysis Lab
- Combustion and Propulsion Laboratory
- Computational Fluid Dynamics Laboratory
- Computational Propulsion Laboratory
- Drive Systems Recharge Lab
- Helicopter and VTOL Laboratory
- UAV Laboratory



RESEARCH LABS

- Composite Fabrication Laboratory
- Hypersonic Experimental Aerodynamics Laboratory (HEAL)
- Laboratory for Simulations of Flows using numerics (Lab SoFun)
- Non-equilibrium Flow Simulation Laboratory (NFSL)
- Space Dynamics and Flight Control Laboratory
- Structural Analysis Laboratory
- Unsteady Aerodynamics Laboratory



SOFTWARE & PROGRAMMING SKILLS

SOFTWARES

- SIMULIA ABAQUS
- Ansys
- CATIA
- COMSOL MULTIPHYSICS
- Fusion 360
- FLIGHTSTREAM
- GAZEBO
- ALTAIR HYPERMESH
- Ansys LS - DYNA
- OpenFOAM
- openMDAO
- OpenVSP
- SOLIDWORKS
- tecplot
- Wolfram Mathematica

PROGRAM UTILITIES

- C++
- F
- MATLAB
- NVIDIA
- ParaView
- Python
- PyTorch
- TensorFlow

EXTRA CURRICULAR ACTIVITIES

The **Aeromodeling Lab** is a creative course that has, as its main objective, the design, building, and flying of model airplanes or helicopters. These models can be scale copies of real airplanes or helicopters, or specially constructed aircraft models designed to take advantage of certain flying characteristics, such as speed or flight duration. In the Aeromodeling Lab, students design, fabricate, and fly these models. It not only provides a primary introduction to the world of aerodynamics, design, electronics, engine technology, wood crafting, and the technology of new materials, but also offers hands-on experience essential for developing practical skills and aptitude.

The **Society of Aerospace Engineers (SAE)** is the official body of the Department of Aerospace Engineering IITK. It is a community of students, Faculty, and staff members which primarily aims at increasing the level of interaction among the members. Academic activities like organizing industrial trips, workshops, and seminars are an integral part of the society's functioning .

The **IITK Rocketry and Space Exploration Team (RaSET)** is a student-led organization at IIT Kanpur dedicated to fostering interest and innovation in space technology. They focus on building experimental rockets and payloads, participating in international competitions, and conducting research to advance the field. Their activities include designing and building rocket propulsion systems, aerodynamics and structures, avionics, and recovery systems, as well as payload development .

PAST RECRUITERS

AIRBUS
AGNIKUL
Collins Aerospace
CAT
EATON
GE
GKN AEROSPACE
ideaForge Create. Inspire
Infosys
JAGUAR
L&T
LAND ROVER
MathWorks
MRF
NewSpace RESEARCH & TECHNOLOGIES
OLA
ROLLS ROYCE
TATA ADVANCED SYSTEMS
TATA CONSULTANCY SERVICES
YPG RIDE CONTROLS PVT. LTD.
AMERICAN EXPRESS
citi
CREDIT SUISSE
Deutsche Bank
EXXON
EY Building a better working world
HSBC
JPMorganChase
pwc
Standard Chartered
SOCIETE GENERALE

FACULTY MEMBERS AND EXPERTISE

Abhijit Kushari

Research Interests: Rocket and Gas Turbine Propulsion, Instrumentation in Combustion and Fluid Mechanics, Liquid Atomization and Liquid Combustion, Active Flow Control, Combustion Instability, Experimental Fluid Mechanics, High Speed Flows

Abhishek

Research Interests: Rotary Wing Aeromechanics, Hover Capable Unmanned Air Vehicles (UAV), System Identification, Multibody Dynamics, Inverse Flight Dynamics Simulation for Helicopters, VTOL, Helicopter Design

Ajay Vikram Singh

Research Interests: Combustion and Reacting Flows, Combustion Generated Functional Nanoparticles, Soot Formation and Oxidation, Detonations, Boundary Layer Combustion, Gas Turbine Combustion, Fire Dynamics, Flame Spread, Material Flammability, Renewable Energy Conversion

Alakesh Chandra Mandal

Research Interests: Experimental aerodynamics, Flow instability and transition, Turbulent shear flows

Arnab Samanta

Research Interests: Fluid mechanics, aeroacoustics, hydrodynamic stability, wave mechanics, flow control

Arun Kumar Perumal

Research Interests: Experimental aerodynamics, High speed flows, Subsonic and supersonic jets, Jets in cross flow, Impinging jets, Drag reduction on automotive vehicles.

Ashish Tewari

Research Interests: Flight Mechanics, Control, Aeroservoelasticity, Unsteady Aerodynamics, Space Dynamics

Ashoke De

Research Interests: CFD, High Speed Flows, Flow-Acoustics Coupling, Fluid-Structure Interaction, Turbulence Modeling, Multiphase flows and Combustion, Energy Harvesting

C.S. Upadhyay

Research Interests: Solid Mechanics, Adaptive Finite Element Methods, Structural Optimization.

D. Chaitanya Kumar Rao

Research Interests: Evaporation and combustion of fuel droplets, Laser-induced evaporation and atomization of droplets, Pulse laser-induced atomization of droplets, Femtosecond laser-induced bubble dynamics

D.P. Mishra

Research Interests: Combustion, CFD of Chemically Reacting Flows, Propulsion, Heat Transfer

Debopam Das

Research Interests: Theoretical and Experimental Fluid Dynamics, Aeroacoustics, Instability & transition, Vortex Dynamics. Unsteady Aerodynamics, Bird's and Insect's Flight

FACULTY MEMBERS AND EXPERTISE

Dipak Kumar Giri

Research Interests: Linear and nonlinear controls for aerospace systems (flight vehicle), Satellite Attitude Dynamics and Control.

G.M.Kamath

Research Interests: Structural Health Monitoring, Composite Materials and Structures, Structural Dynamics, Condition Monitoring, Machine Learning, Aeroelasticity.

Kamal Poddar

Research Interests: Aerodynamics, Turbulence, Low and High Speed Flows

Mohammed Ibrahim Sugarno

Research Interests: Experimental Hypersonic Aerothermodynamics, High Enthalpy Test Facilities, Shock Waves

Navrose

Research Interests: Fluid Mechanics, Aerodynamics, Fluid-Structure Interaction, Optimization, Computational Fluid Dynamics.

P.M. Mohite

Research Interests: Damage Mechanics of Laminated Composites, Composites, Finite Element Analysis , Inflatable structures, Load bearing RADAR absorbing structures

Pradeep Moise

Research Interests: Computational fluid dynamics, swirling flows, transonic flows, hydrodynamic stability, modal decomposition

Pritam Chakraborty

Research Interests: Mesoscale mechanics for plasticity, fatigue, creep and fracture; FEM; Multi-scale methods

Raghavendra P Kukillaya

Research Interests: Aircraft and Airship dynamics and control, Systems modeling, simulation and design, Optimal control, Biomechanics

Rajesh Kitay

Research Interests: Solid Mechanics, Fracture Mechanics, Experimental Stress Analysis, Optical Metrology, Mechanics of Thin Films, Composite Materials, Finite Element and Boundary Element Methods

Rajesh Ranjan

Research Interests: Turbomachinery Flows, Applied Aerodynamics, Stability & Flow Control, Machine Learning , High Performance Computing

Rakesh Kumar

Research Interests: Hypersonics, Rarefied Gas Dynamics, Microfluidics, Molecular Dynamics, Heat Transfer & Thermal Design

FACULTY MEMBERS AND EXPERTISE

Sanjay Kumar

Research Interests: Fluid Mechanics - bluff body wakes, shock-accelerated flows, shock waves, shock tubes

Sanjay Mittal

Research Interests: Aerodynamics, CFD, FEM , Fluid Structure Interaction , Sports Aerodynamics

Sathesh Mariappan

Research Interests: Fundamentals of thermoacoustic interactions, Application of dynamical systems' theory to thermo fluid systems, Optical flow diagnostics, Acoustic measurements

Subrahmanyam Saderla

Research Interests: Real Time Aircraft Parameter Estimation, Aerodynamic Characteristics of UAVs using flight testing methods, Aircraft Instrumentation and Control, Aircraft/UAV Simulations and Simulator development, Unmanned Aerial Vehicle Design, Experimental Flight Dynamics, Drone Design and Development, AI based controller design for UAVs, Controller reconfiguration of UAVs using online system identification

Tanmay Dutt Mathur

Research Interests: Rotorcraft and aeroengine gearboxes, rotordynamics of turbomachinery, design of rotating mechanical systems, tribology and lubrication.

Tufan Kumar Guha

Research Interests: Experimental Aerodynamics and Fluid Mechanics, Active and Passive Flow Control

Vaibhav Arghode

Research Interests: Combustion, Heat Transfer, Fluid Mechanics, Experimental Methods, Computational Fluid Dynamics

PLACEMENT PROCESS

1 Register

Register as a recruiter by Signing Up on the Recruitment Automation System Portal (RAS) by clicking here

2 Fill Form

Complete the Job Announcement Form (JAF) / Internship Proforma (IP) on the aforementioned RAS portal.

3 Shortlisted for Interview

After reviewing resumes & portfolios , the company submits the list of shortlisted students for the interview process.

4 Selected Students

Companies provide the list of selected and waitlisted students at the end of their interview slot.

5 Receive Acceptance

Placement office notifies the companies regarding the acceptance of selected students.

6 Offer Letter

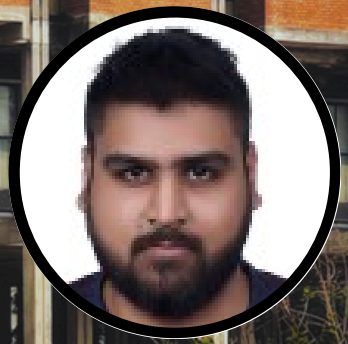
The company sends the offer letter to the selected candidates consistent with JAF or IP.

For Further more details click here

CONTACT US

Student Placement Office
109, Outreach Building , IIT Kanpur
Phone : +91-5122594433/34
Email : spo@iitk.ac.in

Dr. Tanmay Mathur
Assistant Professor
Faculty Placement Coordinator
Email ID : mathur@iitk.ac.in



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Girish Varma C
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