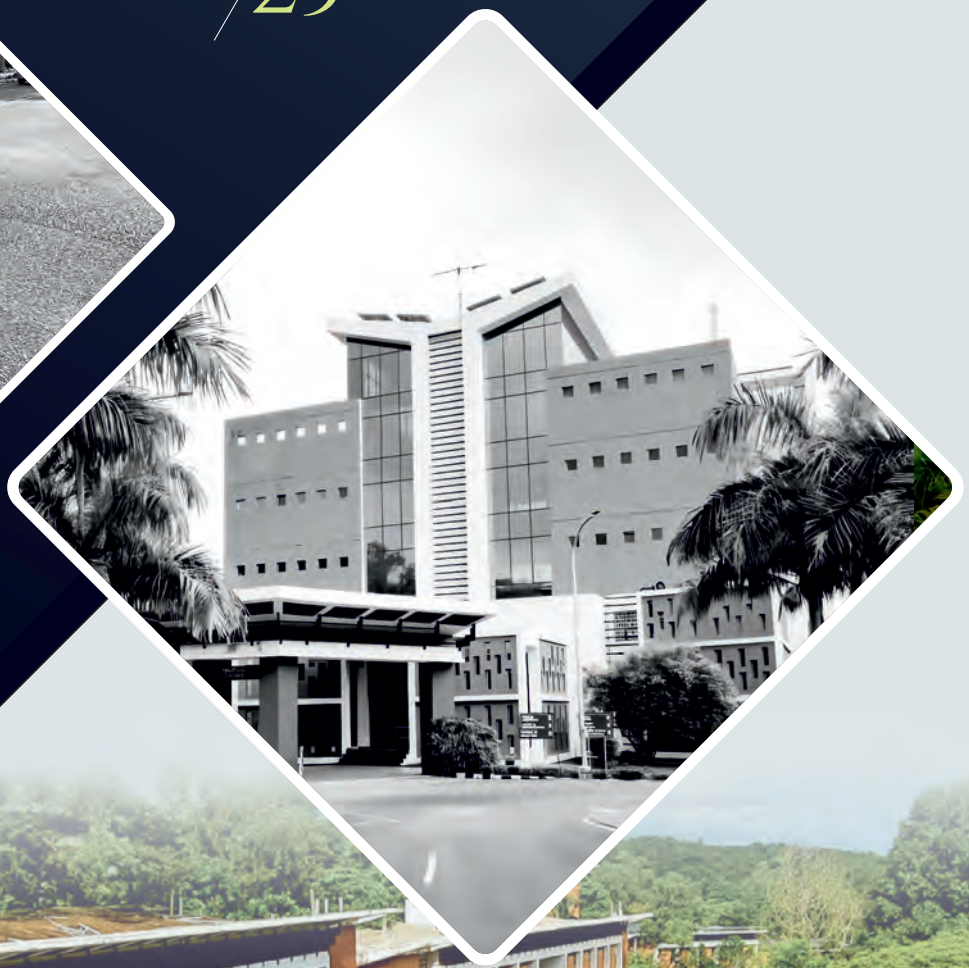
Indian Institute of Space Science and Technology
Thiruvananthapuram

Annual Report

2024/25

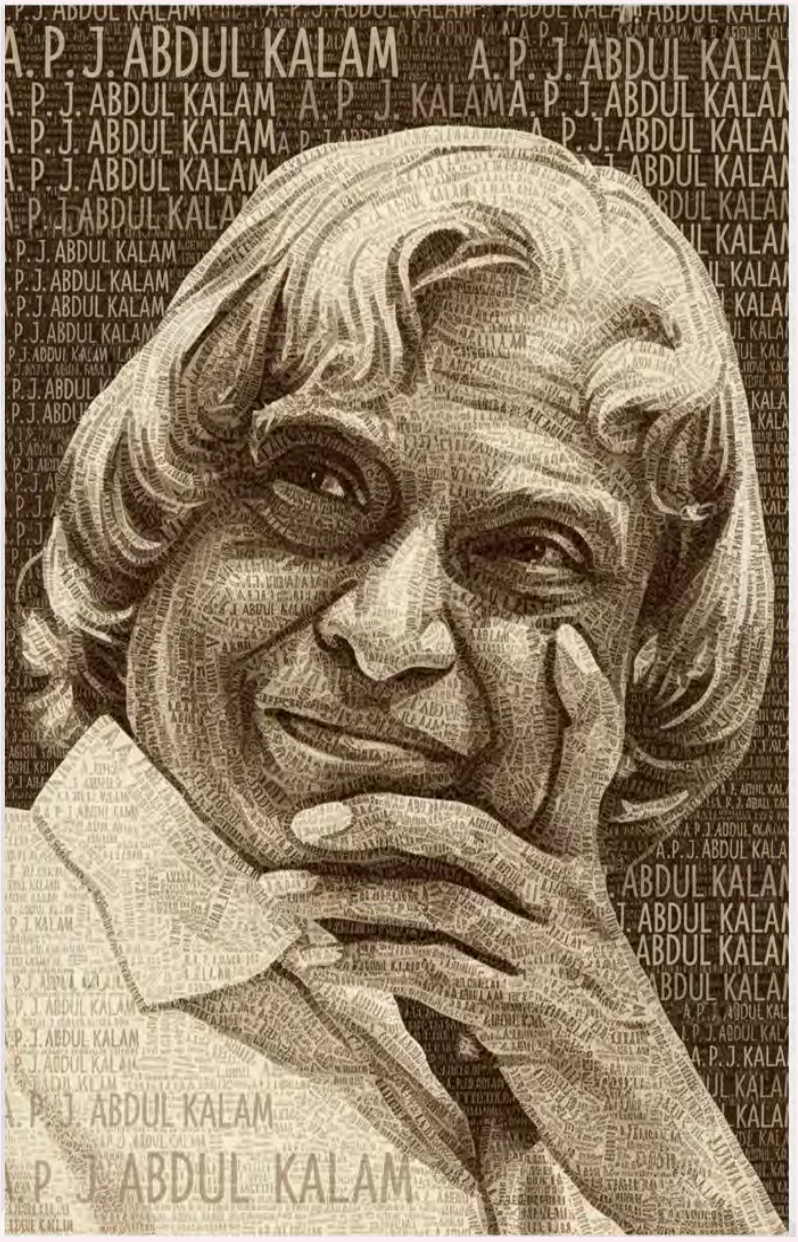


Annual Report 2024-25

Indian Institute of Space Science and Technology

(Declared as Deemed to be University under Sec.3 of UGC Act, 1956)
An autonomous institute under Department of Space, Govt. of India
Valiamala, Thiruvananthapuram - 695 547, Kerala

Our Inspiration



Dr. A.P. J. Abdul Kalam

Founder Chancellor, IIST

(2008 - 2015)

Vision

To be a world class educational and research institution contributing significantly to the space endeavours.

Mission

- **Create a unique learning environment enriched by the challenges of the space programme.**
- **Nurture the spirit of innovation and creativity.**
- **Establish centers of excellence in niche areas.**
- **Provide ethical and value based education.**
- **Promote activities to address societal needs.**
- **Network with national and international institutions of repute.**

Key Functionaries

Chancellor

Dr. B. N. Suresh

President, Governing Body, IIST, / Secretary DoS

Dr. S. Somanath
(Till 14.01.2025)

Dr. V. Narayanan
(From 14.01.2025)

Director, IIST, Chairman, Board of Management

Dr. Unnikrishnan Nair S.
(Till 14.10.2024)

Dr. Dipankar Banerjee
(From 14.10.2024)

Registrar

Dr. Kuruvilla Joseph

Deans

Dr. Kuruvilla Joseph
Academics

Dr. A. Chandrasekar
Research & Development

Dr. Raju K. George
Student Activities, Student Welfare & Outreach

Dr. C. S. Narayanamurthy
IPR, Continuing Education & International Relations

Contents

From Director's Desk

At the Indian Institute of Space Science and Technology, we stand at the confluence of science and imagination, where equations meet wonder, and technology converses with innovative zest. This year marked a change of leadership, as Dr. Unnikrishnan Nair S., after two years of exemplary service as Director-in-Charge, handed over the reins to me. I place on record my sincere appreciation for his invaluable contributions in elevating the academic and research profile of the Institute. As an astrophysicist, I see the universe not merely as data and laws of physics, but as an unfolding story written in light and time. It is this sense of wonder and inquiry that shapes my vision for IIST — to nurture a generation of explorers who are scientifically rigorous, creatively alive, and socially conscious; thinkers who design satellites with precision and dream of space missions that serve humanity.

As we step into our nineteenth year, I take this opportunity to reflect on our collective achievements and to look ahead with renewed purpose and conviction toward the goals we have set for the years to come. The year 2024 has been a remarkable one for IIST, with commendable progress across all fronts. I take this opportunity to acknowledge the dedicated efforts of our faculty, staff, and students whose collective commitment continues to drive the Institute forward. I am delighted to share that IIST has been re-accredited by NAAC with an A+ grade. The Institute has submitted an appeal, confident that our performance merits an even higher score. In the NIRF 2024 rankings, IIST was placed 51st in the Engineering category. The implementation of the National Education Policy (NEP 2020) commenced in the academic year 2024–25, beginning with the B.Tech. and Dual Degree programmes. After a year of adoption, the framework was comprehensively reviewed, incorporating valuable feedback from both faculty and students to refine and strengthen its execution.

During the 2024-25 academic year, the strength of the faculty members at IIST stands at 97. The 12th Convocation of IIST was graced by the august presence of Shri Jagdeep Dhankhar, Honourable Vice President of India, whose inspiring address to the graduating students filled the event with pride and purpose. Degrees were awarded to 295 students, which included 142 B.Tech., 115 M.Tech., and 38 Ph.D. scholars across seven departments. A large number of the BTech students directly serve the country as engineers/scientists in different ISRO/DoS centres/ units. To date, 1434 IIST graduates have joined ISRO, with 101 graduates joining in 2024, contributing significantly to flagship missions such as Chandrayaan-3, Aditya-L1, and Gaganyaan. The impact of our alums extends far beyond ISRO. Many serve the nation through civil services, while others contribute to leading industries; some pursue higher studies at premier institutions, and others create their own ventures. Their success and integrity embody the spirit of IIST and stand as a testimony to the Institute's growing legacy.

In a span of less than 2 decades, IIST has emerged as a hub of innovation and self-reliance, where space science,

technology, and applications converge seamlessly. Six of our payloads have been successfully flown aboard PSLV missions. Recent among these was the GRACE (PILOT-G2), developed by SSPACE and launched on the PSLV C60–SpaDex mission. The Integrated Diagnostics Module (IDM), developed under the EPS TDS-01 mission, is also nearing launch, showcasing our growing engineering and systems capability. Many of these ventures are unique in the way they elicit student collaboration. The Hybrid Rocket Experiments (IHRX), a student-driven program mentored by the faculty members from the Institute and scientists from ISRO/DoS centers, is one among them. CROP SEEDS on ISS, a pioneering space biology payload from IIST, has been selected for the Axiom-4 mission to the International Space Station. Demonstrating India's spirit of Atmanirbhar Bharat, all our payloads have been indigenously designed and developed by IIST's faculty and students, with the help of scientists from ISRO/DoS.

Research and innovation continue to define the academic spirit of IIST. At present, the faculty members of IIST are actively engaged in 42 externally funded research projects, of which five projects were approved during the reporting period. The total research funding received in 2024-25 amounts to ₹ 4.5 crore. To consolidate and streamline advanced research activities with ISRO/DoS centres/units, the Advanced Space Research Group (ASRG) has been constituted. As of March 2025, 28 projects have been approved and MoUs signed with ISRO and other DoS centres, marking a new phase of integrated collaboration within India's space ecosystem.

IIST's research landscape continues to expand in scale and depth. The Institute maintains active collaborations with over 25 leading national and international universities, institutes, and R&D organizations, with 11 signed in 2024-25. During the reporting period, one patent was granted to IIST, while our faculty members have published 283 research papers in reputed journals, have contributed 17 book chapters in edited volumes, and have authored three books, a reflection of the Institute's strong and evolving research culture.

In tune with the National Space Policy 2023 and the opening up of the space sector to private enterprise, IIST has established the Space Technology Innovation and Incubation Centre (STIIC). Currently, 14 start-ups, ranging from deep-tech hardware ventures to geospatial analytics and science communication platforms, are actively incubated under STIIC, with several more in the pipeline.

To further strengthen the research ecosystem, concerted efforts are being made to extend IIST's research beyond its campus through deeper collaborations with ISRO/ DoS centres/units. The ISRO IIST Research Enhancement Committee, constituted by the Secretary, DoS, has submitted its recommendations, paving the way for a revised MoU with the UGC in 2024. In line with this vision, IIST has submitted a proposal to the UGC to bring the Indian Institute of Remote Sensing (IIRS), Dehradun, under its ambit as an off-campus centre. Similar initiatives are being planned to integrate other ISRO/DoS centres/units with IIST, expanding the Institute's academic and research reach across the national space ecosystem.

Beyond academics, outreach, sports, and cultural engagement formed an integral part of life at IIST. The academic year 2024–25 witnessed vibrant student activities, celebrations, and outreach initiatives, with IIST students and faculty members actively engaging in community development and scientific outreach programmes. Many eminent personalities of international repute visited our Institute during this period to engage with students and faculty members on various scientific discussions and for knowledge sharing.

At the heart of every great institution are its people, the true architects of its spirit and strength. It is their dedication, integrity, and shared purpose that define what IIST is today. I extend my heartfelt appreciation to the Registrar, Deans, faculty members, and staff of IIST for their steadfast commitment to the Institute's vision and values. We remain deeply grateful to Dr. B. N. Suresh, Chancellor, IIST, for his constant encouragement and wisdom; to Dr. V. Narayanan, Secretary, DoS and President, Governing Body, IIST, for his unwavering support and visionary leadership; and to Shri M. Mohan, Director, LPSC for his continued patronage and collegial cooperation as our valued neighbour and partner in progress.

As we look to the future, IIST stands poised to soar higher, guided by the vision of our founders, strengthened by the dedication of our faculty members and staff, and inspired by the boundless curiosity of our students. With science as our compass and service as our purpose, we remain committed to shaping minds that will not only explore space but also illuminate life on Earth.

Dipankar Banerjee
Director, IIST

The Institute

1. The Institute

Established in 2007 under the aegis of the Department of Space, Government of India, the Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram, stands as Asia's first Space University and a trailblazer in space science and technology education. Conceived as a Deemed-to-be University under Section 3 of the UGC Act, 1956, IIST was founded with a singular vision — to advance the frontiers of knowledge and nurture a generation of scientists and engineers equipped to lead India's space missions and innovations.

In just over a decade and a half, IIST has transformed into a vibrant, multidisciplinary institution of excellence, encompassing diverse domains such as Aerospace, Avionics, Physics, Chemistry, Mathematics, Earth and Space Sciences, and Humanities and Social Sciences. The NAAC Peer Team visited IIST and conducted a comprehensive evaluation under seven criteria. Following the assessment, the Institute was awarded an 'A+' grade. However, IIST, confident in the depth and quality of its academic and research ecosystem, has opted to appeal the decision, firmly believing that its performance and achievements merit the highest level of accreditation.

IIST offers undergraduate programs in three core engineering branches and postgraduate programs across fifteen specialized disciplines in Science, Technology, and Engineering, all deeply rooted in Space Science and Technology applications. Through its rigorous and holistic curriculum which seamlessly integrates education, research, and innovation, the Institute emphasizes experiential learning, hands-on research, and societal relevance — cultivating a spirit of inquiry and creativity and preparing students to solve real-world challenges through innovation and collaboration. With the introduction of National Education Policy (NEP), the curriculum has further been modified to embrace a multidisciplinary approach to learning with an interplay between science, engineering, humanities, management, and the social sciences.

Its doctoral and post-doctoral research programs invite aspiring scholars to pursue transformative, interdisciplinary research, addressing the critical challenges of science, space science and technology and society and thus shaping the future of our country.

As a national hub for advanced research and innovation, IIST engages with pressing local and global issues, contributing meaningfully to technological progress and social transformation. Its achievements are reflected in high-impact research publications, patents, funded projects, industry partnerships, and technology start-ups that have emerged from its ecosystem. The Institute maintains a robust network of

national and international collaborations, promoting the free exchange of ideas and fostering an atmosphere conducive to scientific excellence.

Functioning in synergistic partnership with the Indian Space Research Organisation (ISRO), IIST acts as a strategic think-and-do centre, translating cutting-edge research into technologies that empower India's space missions. Students benefit from exclusive opportunities for internships, projects, and placements across ISRO centres, forming an essential talent pipeline that fuels the country's space aspirations. With state-of-the-art infrastructure and a culture that celebrates interdisciplinary engagement, IIST continues to nurture thinkers, innovators, and leaders in the service of national progress.

The Small-Spacecraft Systems and Payload Centre (SSPACE) at IIST continues to strengthen India's capabilities in the design and realization of indigenous space payloads. The Centre is currently leading the development of several advanced payloads, including the Space Biology Payload, InspireSat-3, LISAT, AHAN, and XNAV, each marking significant progress toward self-reliance in small-satellite technology.

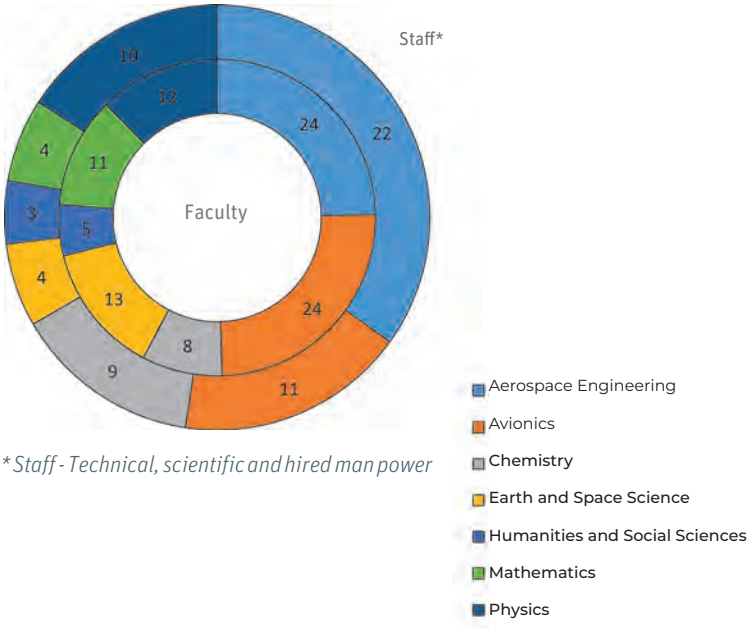
Further expanding its role in India's space missions, IIST is also developing the Integrated Diagnostics Module (IDM) — a cutting-edge payload for an upcoming electric propulsion satellite, scheduled for launch aboard the PSLV later this year.

The reporting period has witnessed a series of path-breaking technological advancements and research breakthroughs across the Institute. These include ISRO-relevant experimental studies at the APLD Laboratory, pioneering work on Scramjet Injector design, APEP Nozzle Spray Characterization, Hybrid Rocket Injector Spray Studies, Combustion Instability Investigations, and the indigenous development of a commercial-grade Atomic Layer Deposition (ALD) System, significantly reducing dependence on imported technologies. Through visionary leadership, strategic foresight, and decisive action, IIST is steadily transforming into a global epicentre for research, education, and innovation in space science and engineering, contributing meaningfully to India's growing stature in the international space community.

1.1 IIST at a Glance 2024-25

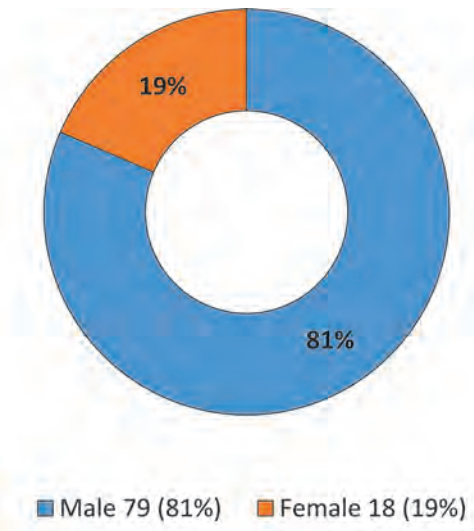
1.1.1 Departments and its strength

Faculty & staff strength in various department



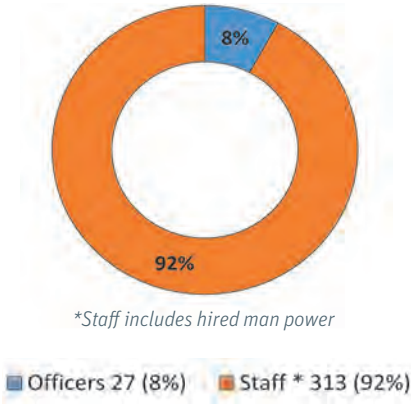
** Staff - Technical, scientific and hired man power*

Gender wise distribution of faculty various departments

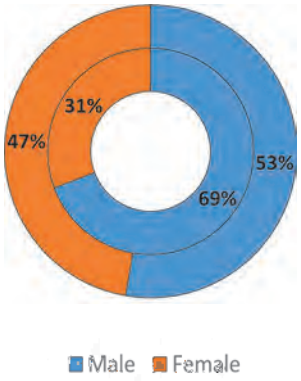


1.1.2 Administration and other Essential Services

Administrative Strength



Gender Statistics - Administrative and other Essential Services



1.1.3 Students Strength (as on 31-03-2025)	
B.Tech. students enrolled in 2024	145
B.Tech. students in campus	593
Dual Degree students enrolled in 2024	19
Dual Degree students in campus	40
M.Tech students enrolled in 2024	158
M.Tech students in campus	283
Doctoral students enrolled in 2024	102
Doctoral students in campus	413

1.1.4 Projects and Collaborations	
ASRG Projects approved	26
ASRG Projects under review	13
Externally funded / Extramural Research Projects	42
MoUs signed (till date)	36

1.1.5 Research Outcome	
Book / Book chapters	20
Journal Papers	283
Conference Proceedings	181
PhD Thesis Defended	35
Patents Granted (till date)	11
Patent application submitted (till date)	18

1.1.6 Centres of Excellence	
Centres of Excellence	4

1.1.7 Awards and Achievements	
Awards and Recognitions	38

1.1.8 Research Resources	
New Books/ E-books/ Reports added in the library	3483

1.1.9 Startups	
Incubated	14
Pre-incubated	3
Admission offered	3

1.1.10 Placements	
Placement (B.Tech./ Dual Degree- ISRO)	101
Placement (B.Tech./ Dual Degree- Placement cell)	15
Placement (M.Tech. - Placement cell)	27

1.1.11 RTI Status

From April, 2024 to March, 2025 (Decentralised the processing of applications under RTI and CPIO, IIST has been disseminating the information directly to the applicants).

Application Received	Information given	Appeal Received	Appeal Settled	CIC Hearing
48	48	09	08	Nil

1.1.12 Vigilance Status	
Number of Vigilance Cases	Nil

1.2 Statutory Bodies

1.2.1 IIST Governing Body	
S. Somanath (Till 14.01.2025) **V. Narayanan** (From 14.01.2025)	Secretary, DoS/ Chairman, ISRO - President, GB
Sandhya Venugopal Sharma	Additional Secretary & FA, DoS
Shantanu Bhatawdekar (Till 03.03.2025) **M. Ganesh Pillai (From 03.03.2025)**	Scientific Secretary, ISRO Headquarters
Unnikrishnan Nair S.	Director, VSSC
V. Narayanan (Till 26.01.2025) **M. Mohan** (From 27.01.2025)	Director, LPSC
Nilesh M. Desai	Director, SAC
Prakash Chauhan	Director, NRSC
Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)	Director, IIST - Secretary

1.2.2 IIST Governing Council	
S. Somanath (Till 14.01.2025) **V. Narayanan** (From 14.01.2025)	Secretary, DoS/ Chairman, ISRO - Chairperson, GC
Sandhya Venugopal Sharma	Additional Secretary & FA, DoS

G. Jayanthi	Joint Secretary (Finance), DoS
Shantanu Bhatawdekar (Till 03.03.2025) **M. Ganesh Pillai (From 03.03.2025)**	Scientific Secretary, ISRO Headquarters
V. Narayanan (Till 26.01.2025) **M. Mohan** (From 27.01.2025)	Director, LPSC
Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)	Director, IIST - Secretary

1.2.3 IIST Board of Management

Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)	Director, IIST - Secretary
Sandhya Venugopal Sharma	Additional Secretary & FA, DoS
Shantanu Bhatawdekar (Till 03.03.2025) **M. Ganesh Pillai (From 03.03.2025)**	Scientific Secretary, ISRO Headquarters
Unnikrishnan Nair S.	Director, VSSC
V. Narayanan (Till 26.01.2025) **M. Mohan** (From 27.01.2025)	Director, LPSC
Nilesh M. Desai	Director, SAC
Prakash Chauhan	Director, NRSC
Virendra Kumar Tewari	Director, IIT Kharagpur
V. Kamakoti	Director, IIT Madras
A. Ajayaghosh	Director, NIIST
Anil Bharadwaj	Director, PRL
A. Chandrasekar	Dean, Research & Development
Raju K. George	Dean, Student Activities, Student Welfare & Outreach
Kuruvilla Joseph	Dean, Academics & Registrar
C. S. Narayanamurthy	Dean, IPR, Continuing Education & International Relations
N. Sabu	Professor, Department of Mathematics
Vanidevi M.	Associate Professor, Department of Avionics

1.2.4 IIST Finance Committee

Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)	Director, IIST - Chairman
Sandhya Venugopal Sharma	Additional Secretary & FA, DoS
Bijay Kumar Behera	Director, BEA ISRO Headquarters
A. Chandrasekar	Dean, Research & Development
Raju K. George	Dean, Student Activities, Student Welfare & Outreach
Kuruvilla Joseph	Dean, Academics & Registrar
Manju M.	Sr. Head Accounts/ IFA LPSC, Valiamala
R. Hari Prasad	Finance Officer - Secretary

1.2.5 IIST Academic Council (Office order No.788 Dtd 19.6.2024)	
Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)	Director, IIST - Chairman
A. Chandrasekar	Dean, Research & Development
Raju K. George	Dean, Student Activities, Student Welfare & Outreach
Kuruvilla Joseph	Dean, Academics & Registrar
C. S. Narayanamurthy	Dean, IPR, Continuing Education & International Relations
K. Rajeev	Director, SPL, VSSC
V. Ashok, Associate Director	VSSC
Pallam Raju	Dean, PRL
Prathap Haridoss	Dean, Academics, IIT, Madras
P. S. Anilkumar	Dean, IISc, Bangalore
Devendra Jalihal	IIT, Madras
Aravind V.	Professor, Department of Aerospace Engineering
Deepu M.	Professor and Head, Department of Aerospace Engineering
Anup S.	Professor, Department of Aerospace Engineering
Deepak Mishra	Professor, Department of Avionics
N. Selvaganesan	Professor and Head, Department of Avionics
Gomathi N.	Professor and Head, Department of Chemistry
K. Prabhakaran	Professor, Department of Chemistry
Anandmayee Tej	Senior Professor, Department of Earth and Space Sciences
Anand N.	Professor and Head, Department of Earth and Space Sciences
V. Ravi	Professor and Head, Department of Humanities and Social Sciences

Lekshmi V. Nair	Professor, Department of Humanities and Social Sciences
N. Sabu	Professor, Department of Mathematics
Deepak T. G.	Professor and Head, Department of Mathematics
Jinesh K. B.	Professor and Head, Department of Physics
Sheeba Rani J.	Professor, Department of Avionics
L. Gnanappazham	Professor, Department of Earth and Space Sciences
Sooraj V. S.	Associate Professor, Department of Aerospace Engineering
Harsha Simha	Associate Professor, Department of Avionics
Govindan Kutty M.	Associate Professor, Department of Earth and Space Sciences
Kaushik Mukherjee	Associate Professor, Department of Mathematics
Ashok Kumar	Associate Professor, Department of Physics
Sam Noble	Assistant Professor, Department of Aerospace Engineering
Sourav Bhowmick	Assistant Professor, Department of Avionics
Kuruvilla Joseph	Registrar, IIST - Secretary

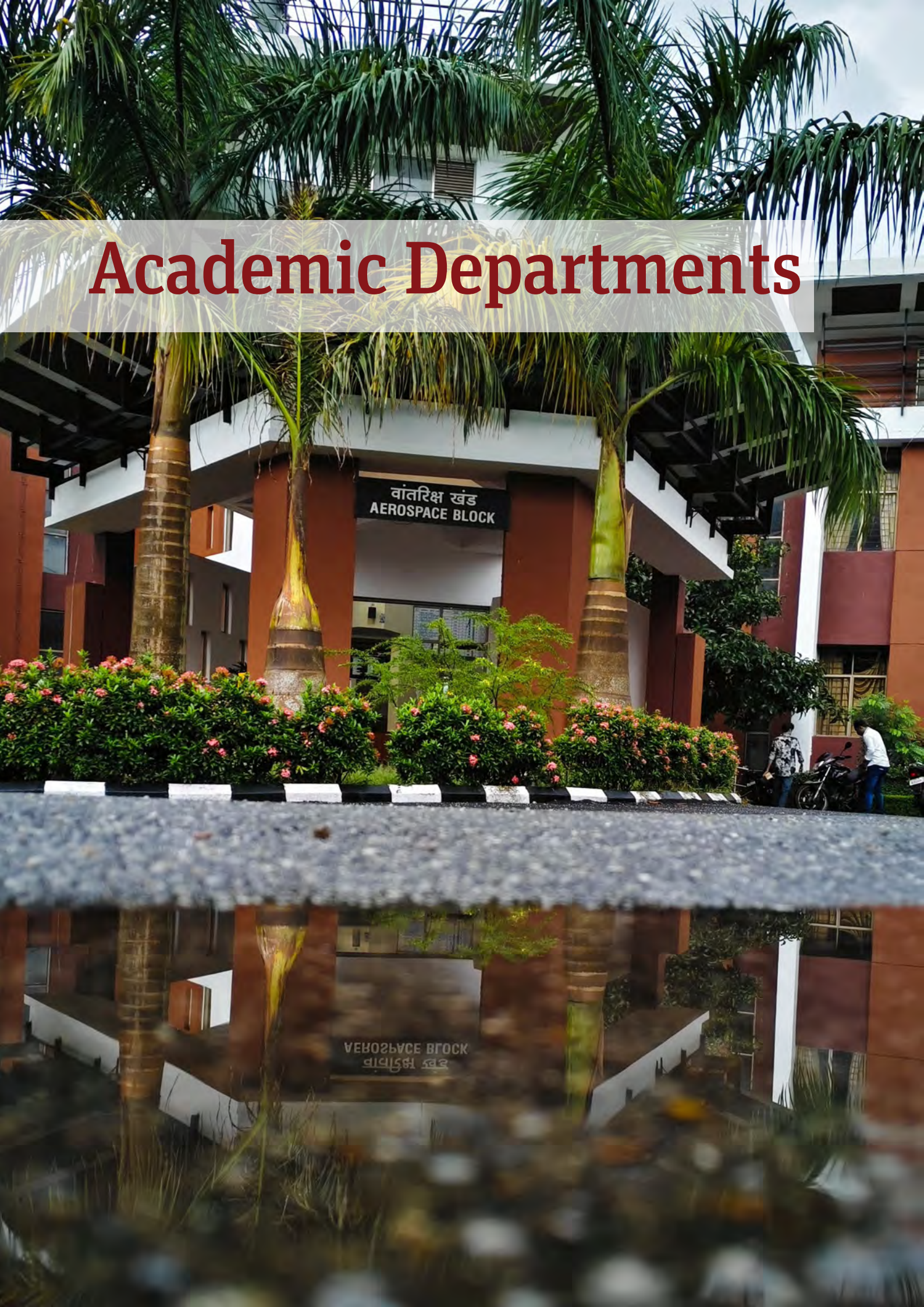
1.3 Functionaries in Academics, Administration and Other Units

Director		
Unnikrishnan Nair S. (Till 14.10.2024) **Dipankar Banerjee** (From 14.10.2024)		
Registrar		
Kuruvilla Joseph	Outstanding Professor	
Deans		
A. Chandrasekar	Dean, Research & Development	
Raju K. George	Dean, Student Activities, Student Welfare & Outreach	
Kuruvilla Joseph	Dean, Academics	
C. S. Narayanamurthy	Dean, IPR, Continuing Education & International Relations	
Associate Deans		
N. Sabu	Academics	
K. S. S. Moosath	Ranking, Accreditations & NEP	
Prathap C.	Industrial Research/ ASRG/ Start-ups/ Collaborations	
Nirmala Rachel James	Doctoral Programs & Projects	
Lekshmi V. Nair	Student Activities & Outreach	
Rajeevan P. P.	Student Welfare	
Umesh R. Kadhane	Programme Planning & Implementation and Infra-structure Development	
Anandmayee Tej	Continuing Education & International Relations	
Manoj B. S.	Campus Communication, Data Networks, Website	
Department Heads		
Deepu M.	Professor	Aerospace Engineering
N. Selvaganesan	Professor	Avionics
Gomathi N.	Professor	Chemistry
Anand N.	Professor	Earth and Space Sciences
Ravi V.	Professor	Humanities and Social Sciences

Deepak T. G.	Professor	Mathematics
Jinesh K. B.	Professor	Physics

Officers	
S. N. Chandrasekaran (Till 31.07.2024) **A. Ashokan** (From 30.10.2024)	Head, Construction and Maintenance Division
Sennaraj V.	Deputy Registrar, Grade II (Academics)
R. Hari Prasad	Deputy Registrar, Grade II (Finance)
Mohan Sukumar	Group Head (Communications and IT allied Services)
Bindya K. R.	Deputy Registrar, Grade II (General Administration, Student Activities and Welfare)
Ramanathan S.	Deputy Registrar, Grade I (Recruitment and Review)
Subash Chandran M. B. **Rakesh R. Menon**	Deputy Registrar, Grade II (Purchase) Deputy Registrar, Grade I (Stores)
Abdunnasar A.	Library Officer-E
Vinod Kaimal K. P.	Head - Canteen Services
Rajeena Beegam S. **Reny Thomas**	Deputy Registrar, Grade I (Finance)
Pradeep Kumar K. R.	Senior Administrative Officer & PRO (Establishment and Transport)
Cimy Asaf	Assistant Director (Official Language)

Academic Departments



Department of Aerospace Engineering

2.1 Department of Aerospace Engineering

Vision

To be a centre for learning and innovation in Aerospace Engineering, igniting in students the spark to explore the unknown and contributing at national and global level.

Mission

- Provide excellent teaching and research environment for undergraduate, postgraduate and doctoral students conducive for critical thinking in the areas of aerospace engineering.
- Equip the students with the capacity to acquire integrated systems engineering approach, leading to innovative thinking for smart solutions in the areas of aerospace technology.
- Strive to create a longstanding synergy between the society, industry and other peer institutions to collectively address the nation's technological needs.
- Instill a deep sense of commitment to accept and overcome technological challenges, thereby nurturing future leaders of tomorrow.

Core research focus areas
Aerodynamics and Flight Mechanics
Thermal and Propulsion
Structures and Design
Materials, Manufacturing and Industrial Engineering

Fact File	
Number of faculty	23
Technical Staff	06
Tutors /Technicians	13*
Non-teaching staff	3*
Research Scholars	88
Number of PhDs conferred	5

**(hired Manpower)*

Laboratory / Research Facilities

Department of Aerospace Engineering, IIST owns the following 27 instructional/ research labs

- Advanced Propulsion and Laser Diagnostics (APLD) facility
- Aerodynamics Lab
- Aerostructures Lab
- CADD Lab
- Computational Heat Transfer Lab
- Computational Lab
- Cryogenic Lab
- Engineering Drawing Hall
- Engineering Workshop
- Experimental Composite Micro-mechanical lab and Raman Spectroscopy Facility
- Flame Diagnostics Lab
- Flight Mechanics Lab
- Fluid Mechanics Lab
- Heat Transfer Lab
- Heat Treatment and Metallography Lab
- High Speed Flow Lab
- Laser Absorption Spectroscopy Lab
- Manufacturing Processes Lab
- Mechanisms and Machine Elements Lab
- Metallography and Heat Treatment Lab
- Metrology and Computer Aided Inspection Lab
- Micro-PIV Lab
- Robotics and Dynamics Lab
- Strength of Materials Lab
- Structural Dynamics and Vibration Lab
- Structural Health Monitoring (SHM) Lab
- Thermal Engineering and Propulsion Lab
- Thermal and Fluid Engineering Calibration Facility

Research and Development

- Faculty members from department have been contributing actively to Advanced Space Research Group (ASRG) activities. Typical areas of research include
    - Cold Flow Characterization of a Dual Throat Nozzle for Tri-Propellant Propulsion System
    - Investigations on Laser Based - Powder Feed Type- Directed Energy Deposition (LAM-DED) Process for Additive Manufacturing of Components in Space Applications
    - Design and Realization of bi-pedal humanoid robot with human like walking ability
    - Implicit Large Eddy Simulation of Jets
    - Experimental and Numerical Investigation of Direct Contact Condensation of GCO2/ Steam in LN2
    - Development of Mathematical Human Thermal Behaviour Model for a Reference Indian Subject
    - Analysis of Thruster Plume Behavior in Vacuum using DSMC Method
- Department has initiated MoUs with various Educational institutes/ Industries / R&D organizations including IIT Palakkad, NIT Calicut, College of Engineering, Trivandrum, Larson & Tubro, Sree Chitra Tirunal Institute of Medical Sciences and Technology (SCIMST), Technion - Israel institute of technology, Isae-Supaero Toulouse, France.
- Faculty members from Department holds various externally funded projects, funded by DRDO, DST-DAAD, KSCSTE.
- Various awards have been received by faculty and students, which include Award for innovative research contribution, B.Tech project award, best poster award, and Best paper awards in various conferences.

Research outcomes -Fact File	
International Journal	49
Conferences	69
Book chapters	3

- Reviewer appreciation award was also received by our faculty members.
- Faculty members are Associate editors of ASME, Elsevier journals, reviewers of many international journals in ASME, Springer, Elsevier, IEEE, ASCE, AIAA, SAGE, etc.
- New initiatives / upgradation of academic/ research labs like Friction stir welding machine, Flow Blurring Injector Test Facility, Stagnation Point Reverse Flow Combustor (SPRF) Test Facility, Digital Manufacturing lab.

Contributions to Institute Level Space Missions

- Department is actively contributing to various space missions undertaken by Institute under SSPACE.
- Faculty members involved in the development of PILOT G2- GRACE Payload in PSLV C60 SpaDex Mission, and future missions like Integrated Diagnostic Module (IDM) for EPS-TDS01 Mission, SSAPCE -Astro Biology Payload, and AHAN Student Satellite Project.
- Faculty members are review members for various PSLV, SSLV missions, and member in the ISRO Design Review Team of Development Projects.
- Conducted the 'Drop test to estimate dynamic parameters of Crew Module', by VSSC scientists and drone experts.
- Development of Hybrid Propulsion Experimental Rocket - Demonstrator (HyPER-D) has been initiated,

in which the proposed experiments include a series of sub-orbital flights with innovations related to reusable launch vehicle technologies.

- Faculty from the department are fully involved in IIST Ground Station Development.

Outreach Activities

- Faculty members delivered 7 Invited lectures/ Keynote/ Seminar presentations
- Faculty members organised one Conference/ Workshop/ Seminar/ Invited lectures/ Training programmes in IIST.
- Participated in 5 Conferences/ Workshop/Seminars.
- Indian National Society for Aerospace and Related Mechanisms (INSARM) Student Cell opened at IIST.
- Reviews /Technical discussions at ISRO /other organizations/Institutes.
- Organised visits for our students to various ISRO centres like VSSC, LPSC, IISU, and CMSE.
- Contributed to various outreach activities for school/college students initiated by Student Activity Board at IIST.

Startup activities

- Currently following Start-ups are mentored by faculty members of the department
    - M/s Vashishtha Research Pvt. Ltd., focusing on robotic systems/ robotic measurements etc.
    - M/s InterCosmos Space Exploration Technologies Pvt. Ltd., focusing on the development of a proof-of-concept for HyperX (satellite propulsion) with 10 N bi-propellant thruster with a hypergolic, storable and highly throttleable fuel.
    - M/s Specrule Scientific Pvt. Ltd., is an R&D startup conceived to develop indigenous, laser-based, optical and spectroscopic systems for various research institutes and private industries in India. The company aims to reduce dependency on foreign systems and to develop self-reliance in this area of research, aligning with “Make in India” policy.
    - M/s. Hathor Rockets Pvt. Ltd., is pioneering aerospace technology aimed at transforming the space economy with state-of-the-art rocket propulsion systems. Currently, the company is advancing through the phases of design, development, and manufacturing of reusable, throttleable, semi-cryogenic rocket engines.

Faculty Profile

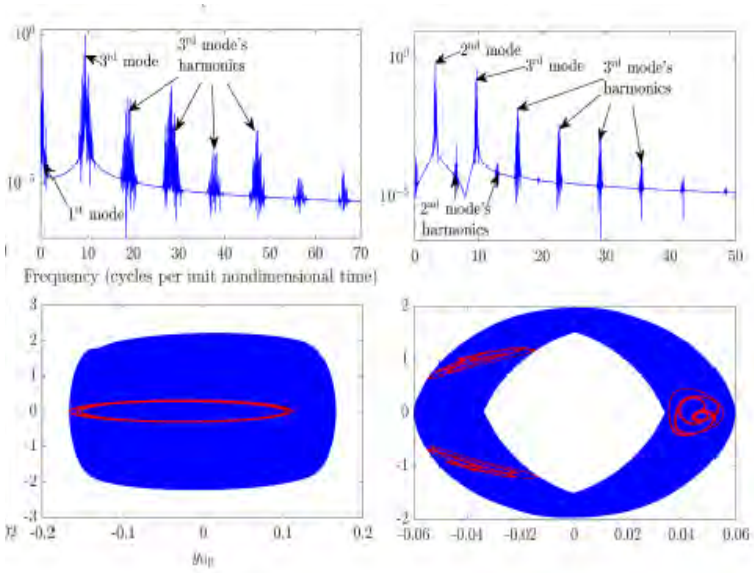
Anish Kumar, Assistant Professor

Research Interests:

- Nonlinear Dynamics and Vibrations
- Structural Dynamics
- Theory of Plates and Shells
- Approximate Mathematical Methods
- Bi-linear Oscillators
- Fluid Structure Interaction
- Friction Induced Vibrations
- Modelling and Simulation of MEMS & NEMS

Research Highlights:

- Static and dynamic behavior of thin-walled structures/composite structures
- Bilinear Oscillators
- MEMS & NEMS
- Friction induced vibrations
- Approximate mathematical methods



3:1 internal resonance between 2nd and 3rd modes

Reference: https://www.iist.ac.in/people-faculty-profile/anish-kumar

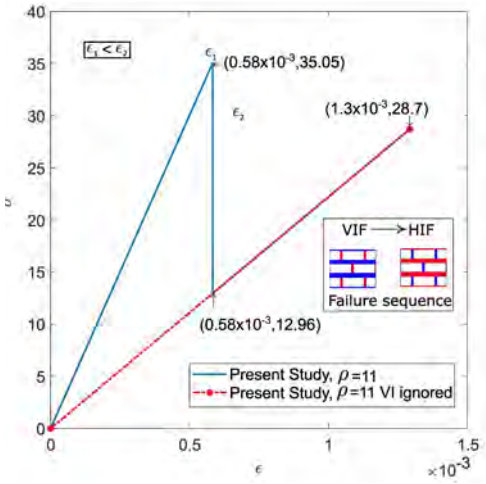
Anup S., Professor

Research Interests:

- Mechanics of Bio-inspired composites
- Molecular Dynamics
- Micromechanics
- Buckling

Research Highlights:

- For development of composites, based on biomimetics, the significance of the contribution of toughness from the failure of the matrix at the vertical interface between platelets is established.
- It is found that the contribution to the toughness from this failure is proportional to the platelet aspect ratio.



Stress–strain plots for stairwise staggered model with for an aspect ratio 11, and its failure sequence.

Reference: https://www.iist.ac.in/people-faculty-profile/s-anup

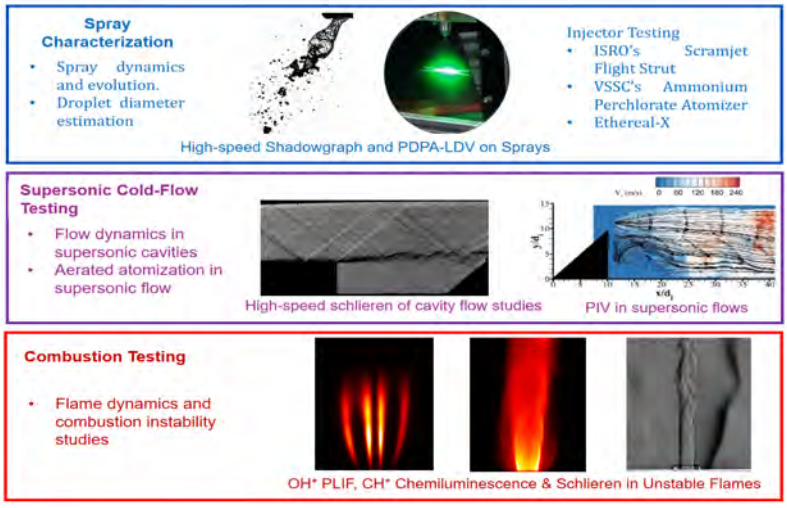
Aravind V., Professor

Research Interests:

- RBCC based Hypersonic Propulsion
- Supersonic combustion
- Supersonic Cavity oscillation and mixing in high speed flows
- Vacuum Ejector Flows
- High pressure Methane-O_2 and H_2-O_2 combustion
- Combustion Instabilty in Liquid Rocket Engines

Research Highlights:

- Scramjet effervescent strut injector characterisation
  - Investigated the spray morphology under steady and transient conditions, which is critical to the initial mixing, atomisation, ignition and flame holding of the aerated kerosene jet.
  - The oscillatory nature of the two-phase flow inside the strut mixing chamber is currently being investigated and its influence on the nature of atomisation and flame dynamics is being evaluated.
- Injector characterisation for Ammonium Perchlorate (AP) spray crystallisation
  - Coaxial Swirl nozzles are evaluated for their spray characteristics and efficiency, which directly affects the droplet size distribution that is primarily responsible for the production of ultra-fine AP crystals required for Gaganyaan-like human missions.
- Methane-Oxygen Combustion Instability
  - Temporal and spectral modes associated with the combustion instability in methane-oxygen systems were identified, and the thermo-acoustic driving mechanism responsible for the transverse modes was determined.



Reference: https://www.iist.ac.in/people-faculty-profile/v-aravind

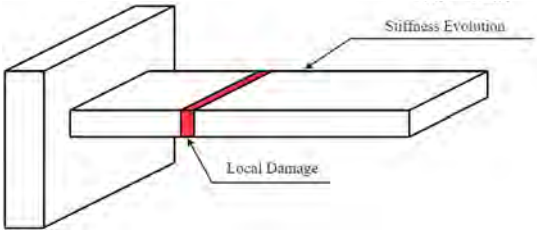
Bijudas C. R., Associate Professor

Research Interests:

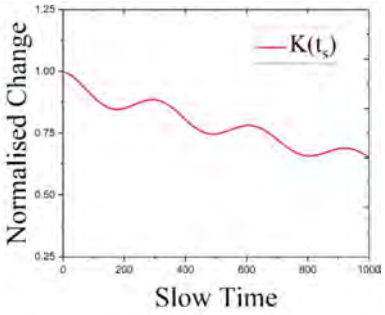
- Structural Health Monitoring
- Lamb waves
- Energy harvesting
- Smart Structures
- Modeling of Composite Materials

Research Highlights:

- Digital Twin for Structural Health Monitoring
- Integrity detection of structures using Machine learning techniques and wave propagation
- Wrinkling of thin membranes
- Liquid level measurement using guided waves in shells



Cantilever damage with stiffness evolution



Reference: https://www.iist.ac.in/people-faculty-profile/c-r-bijudas

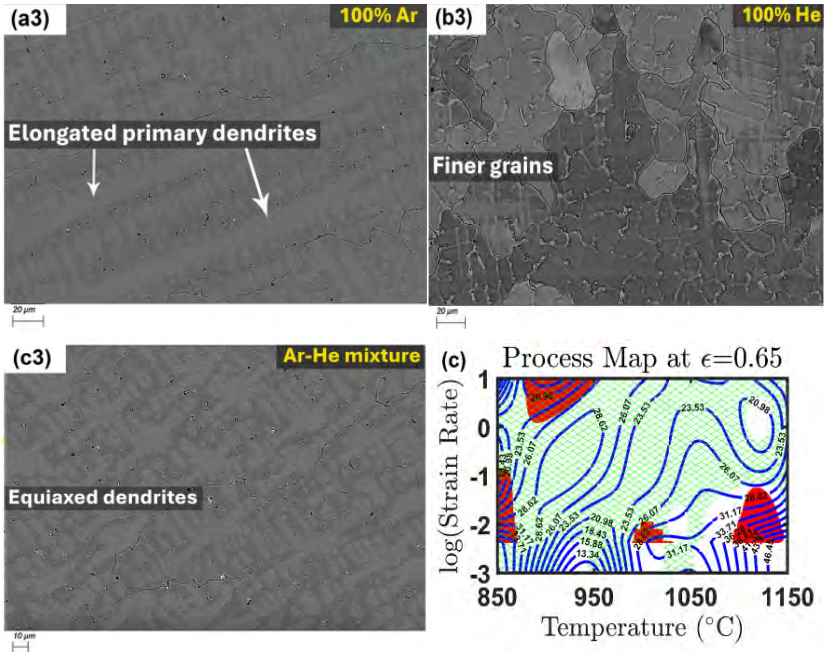
Chakravarthy P., Professor

Research Interests:

- Hot working of aluminum alloys and other non-ferrous materials
- Additive manufacturing of superalloys

Research Highlights:

- The effect of shielding gas on the microstructural evolution and mechanical properties of wire arc additively manufactured Haynes 230 is established.
- Processing maps were developed for AA2219 and Monel k 500 in the as-cast condition and Monel.



The microstructures of Haynes 230 alloy printed using wire arc additive manufacturing using shielding gas (a) argon (b) Helium (c) Argon –Helium mixture and (d) the processing map of Monel K 500 alloy

Reference: https://www.iist.ac.in/people-faculty-profile/chakravarthy-p

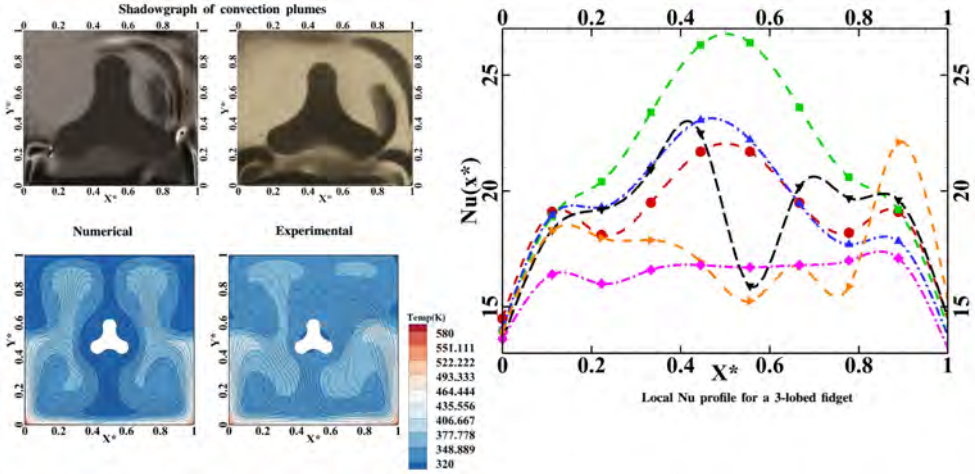
Deepu M., Professor and Head of the Department

Research Interests:

- Rayleigh–Bénard convection
- Heat transfer in phase changing medium
- Heat transfer in supercritical fluids
- Compressible turbulent flows

Research Highlights:

- Experimental visualizations and numerical simulations of convection in presence of bluff bodies
- Estimation of heat transfer for convection in presence of bluff bodies
- Development of heat transfer correlations for convection



Rayleigh–Bénard convection in a square enclosure in presence of fidget shaped bodies

Reference: https://www.iist.ac.in/people-faculty-profile/m-deepu

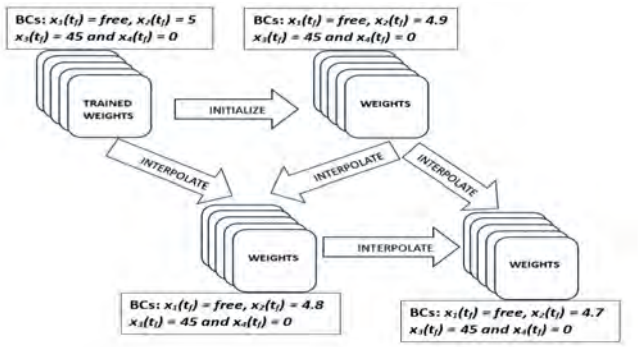
Devendra Prakash Ghate, Assistant Professor

Research Interests:

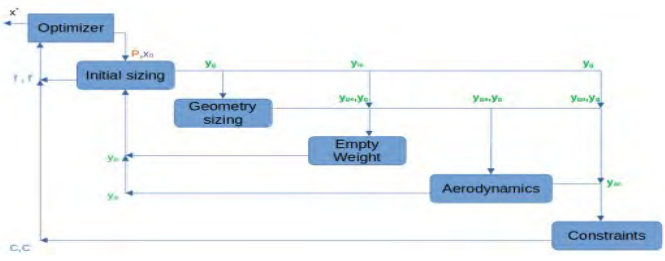
- Trajectory Optimisation
- Scientific Machine Learning
- Aerodynamic Shape Optimisation

Research Highlights:

- Development of method based on Automatic Differentiation for Collision Probability calculation of space Debris.
- Machine learning based optimal control policy generation.
- Development of C library for Adjoint gradient assisted conceptual design of UAV.



Interpolation based warm start method for trajectory optimisation



MDO Framework for UAV design

Reference: https://www.iist.ac.in/people-faculty-profile/devendra-prakash-ghate

Dhayalan R., Assistant Professor

Research Interests:

- Design, fabrication and flight testing of Unmanned Aerial Vehicles
- System identification and parameter estimation using neural networks for aerial vehicles
- Control and guidance design for UAVs

Research Highlights:

- Development of Hardware-in-loop simulation test facility for guidance test of a Quad-rotor UAV.
- A guidance algorithm combing Dubins path and Snap algorithm to find an optimum trajectory for aerial surveying multi-rotor UAV has been developed (Fig.1).
- Parametric study of Non-linear dynamical systems using Sparse Identification method.
- The nosecone structure has been attached to a rod about which the structure is free to rotate. This setup has been used inside the wind tunnel to estimate the aerodynamic damping of the nosecone for various initial angles (Fig.2).
- A modified Physics Informed Neural Network (PINN) architecture has been devised and tested to estimate longitudinal aerodynamic parameters of a fixed wing aircraft.
- This architecture can be used for sparse flight data, which is a case for many telemetry based data acquisition systems.

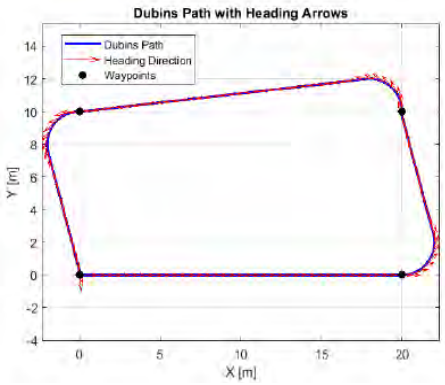


Fig. 1 Guidance of Quad-rotor UAV using Dubins path

Fig.2 Parametric Study of Nosecone structure using PySINDY

Reference: https://www.iist.ac.in/people-faculty-profile/dhayalan-r

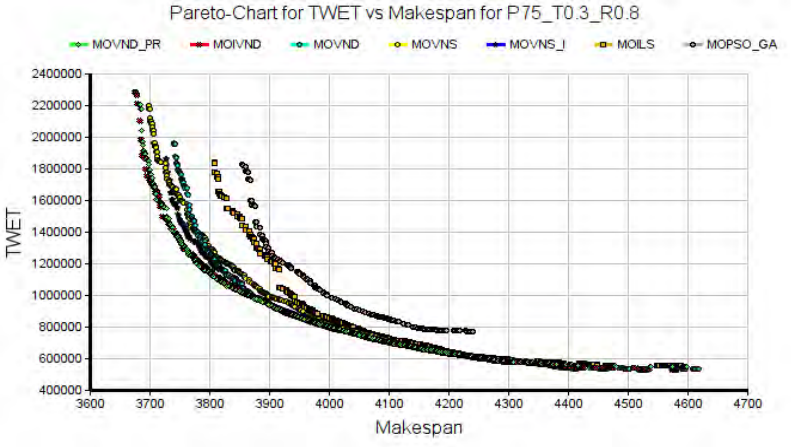
Girish B. S., Associate Professor

Research Interests:

- Sequencing and Scheduling in Manufacturing Systems
- Modelling and optimisation for Air traffic management

Research Highlights:

- Developed methodologies for the bi-objective Pareto-based optimization in JIT single and parallel machine scheduling problems



Reference: https://www.iist.ac.in/people-faculty-profile/b-s-girish

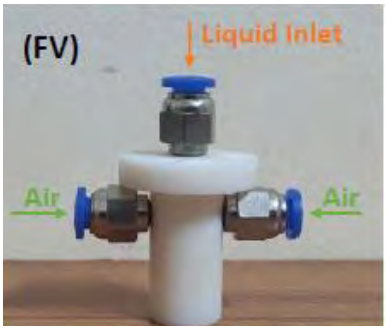
Mahesh S., Associate Professor

Research Interests:

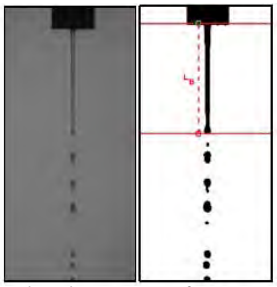
- Jet Flame Dynamics
- Clean Combustion
- Flame Spread Studies
- Microgravity Combustion
- Liquid Jet Atomization

Research Highlights:

- Designed and developed a lab scale Stagnation point Reverse Flow (SPRF) Combustor to investigate Nonpremixed/Partially Premixed Jet Flame Configurations.
- The primary atomization characteristics of liquid jet at low flow rates was investigated experimentally in a flow blurring injector. The role of exit cross sectional geometry on the liquid jet breakup length, primary droplet diameter, cone angle etc. was demonstrated.



FB Injector



Breakup length estimation of water jet at low flow rate in Flow Blurring (FB) injector

Reference: https://www.iist.ac.in/people-faculty-profile/mahesh-s

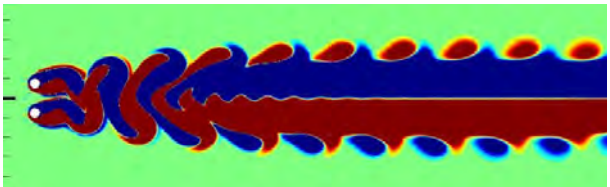
Manoj T. Nair, Professor

Research Interests:

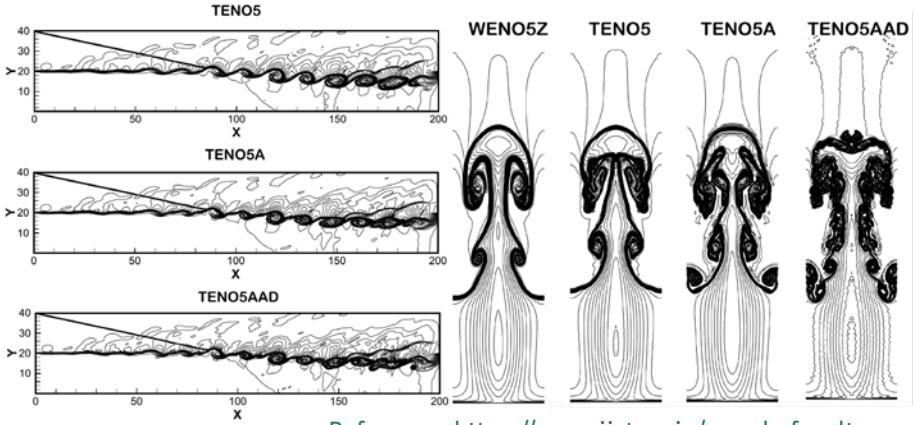
- Computational Fluid Dynamics
- Fluid Dynamics
- Aerodynamic Optimization
- Unsteady Flows

Research Highlights:

- Development of a novel high-resolution TENO scheme with adaptive artificial anti-diffusion.
- Study of low Reynolds number compressible flows.
- Study of axisymmetric cavities.
- Investigation on effect of bleed on scramjet inlet.



Vorticity contours for in-phase vortex shedding, Re=100, M=0.3, cylinder-gap/dia=3



Reference: https://www.iist.ac.in/people-faculty-profile/manoj-t-nair

Manu K. V., Associate Professor

Research Interests:

- Fluid Dynamics
- Heat transfer

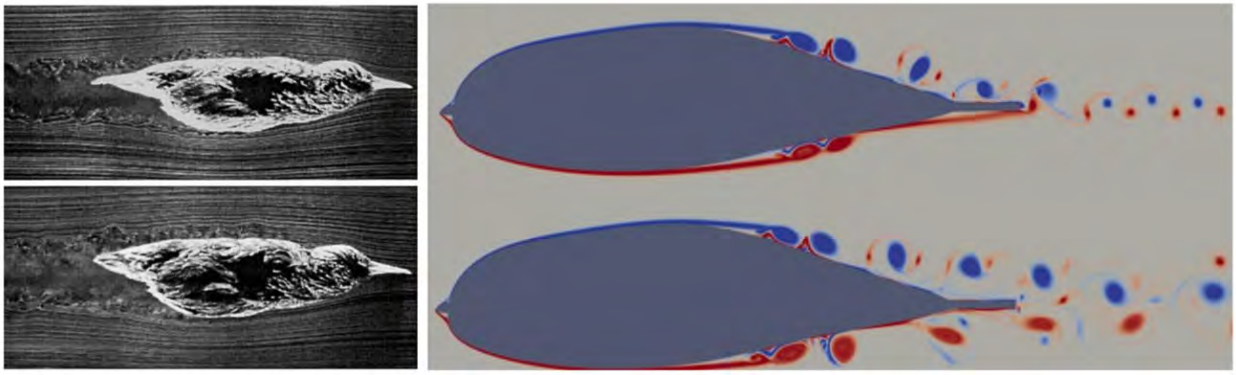
Research Highlights:

Ablation in Thermal Protection Systems

- Developed advanced numerical models for simulating ablation in atmospheric re-entry vehicle thermal protection systems (TPS).
- Objective: Predict material response and surface recession under extreme heat flux, incorporating coupled heat transfer, pyrolysis, and surface chemistry.
- Built and validated an in-house multi physics ablation solver against benchmark cases.

Bird Aerodynamics and Bio-Inspired Design

- Bridged the gap between natural bird morphology and engineered flight using CFD simulations validated by physical measurements.
- Identified morphological features that enhance flight efficiency and maneuverability in birds.
- Advanced understanding of bird flight evolution, guiding bio-inspired aerial vehicle designs.



Reference: https://www.iist.ac.in/people-faculty-profile/manu-k-v

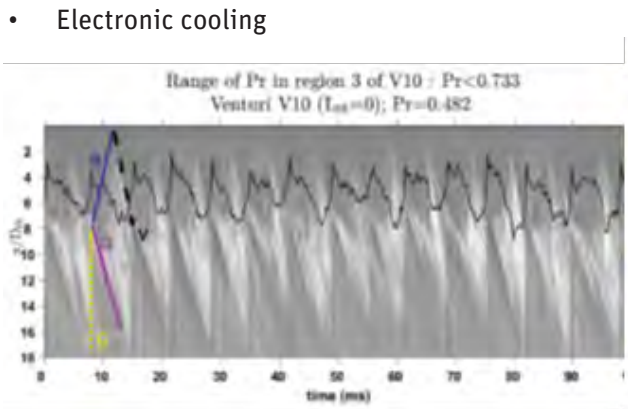
Pradeep Kumar P., Associate Professor

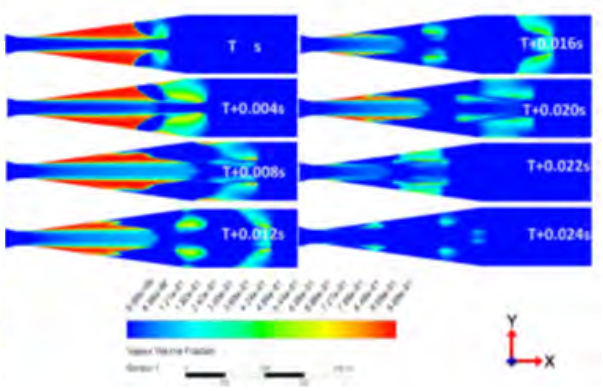
Research Interests:

- Two-phase flow and Heat transfer
- Radiative heat transfer
- Electronic cooling

Research Highlights:

- Experimental and numerical studies in cavitating venturis
- Sloshing in cryogenic tanks [Jointly with Prof.A.Salih, IIST]





Reference: https://www.iist.ac.in/people-faculty-profile/pradeep-kumar-p

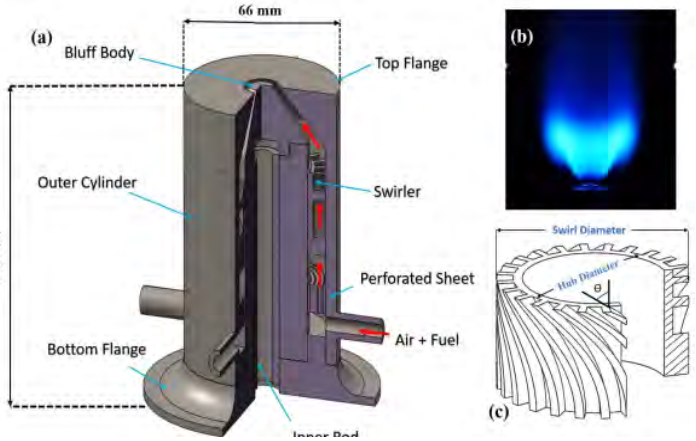
Prathap C., Professor

Research Interests:

- Flame speed, Satellite Thrusters, Low calorific value fuels, reaction mechanisms, Swirl flames, catalytic combustion, IC engines, microgravity combustion, laser ignition, hybrid rocket propulsion, Direct Contact Condensation

Research Highlights:

- DDES simulation performed better. Inclusion of conjugate heat transfer is essential to have better match with experiments.
- Contoured bluff bodies should be avoided as it impacts the exit swirl number. Exit velocity should be kept constant in unconfined flames to have same air entrainment while scaling the burner exit area.



(a) 3D CAD model of Swirl burner, (b) Swirl Flame, (c) axial swirl generator(S=1.5)

Reference: https://www.iist.ac.in/people-faculty-profile/prathap-c

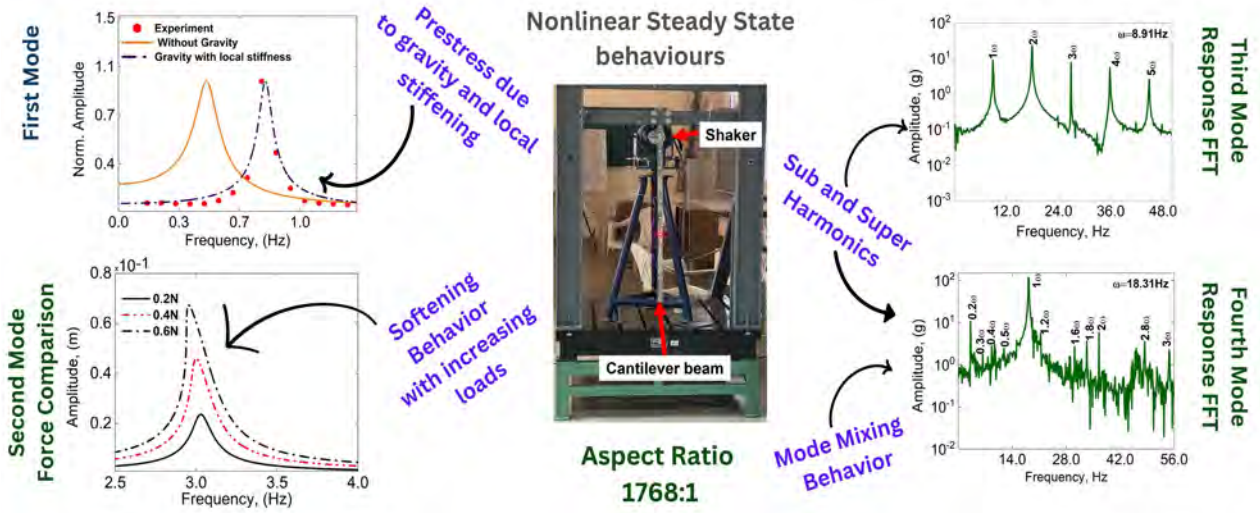
Praveen Krishna I. R., Associate Professor

Research Interests:

- Analytical, Numerical, and Experimental study of linear and nonlinear dynamics of mechanical and aerospace systems
- Acoustics and Noise Control
- Fluid-Structure Interaction
- Nonlocal Elasticity

Research Highlights:

- Dynamics of a thin highly flexible cantilever beam of aspect ratio (L/T) 1768:1.
- Nonlinear steady-state solutions using gradient-deficient ANCF coupled with TVM.
- Gravity causes a prestressing effect on the harmonic responses.
- Softening behaviour was observed for higher modes.
- Mode mixing behaviour was observed near fourth mode.



Reference: https://www.iist.ac.in/people-faculty-profile/praveen-krishna-i-r

Rajesh S., Associate Professor

Research Interests:

- Combustion instability
- Clean combustion
- Development of laser-based sensors

Research Highlights:

Hydrogen-Enriched Methane/Air and Ammonia/Air Combustion in Non-Premixed, Swirl-Stabilized Flames

- Alternative fuels are crucial for the transition from hydrocarbons to carbon-free combustion, with hydrogen enrichment offering improved flame stability and lower NO_{x3}, while addressing the low reactivity of ammonia.

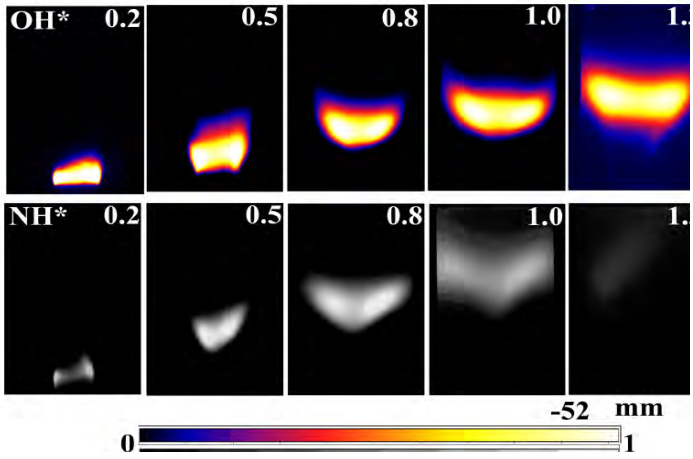


Fig : Time averaged chemiluminescence images of Type – CH (OH) and Type – AH (NH*) flames with varying ϕ_g.*

- To fill the existing knowledge gap for practical gas-turbine-relevant configurations, IIST is conducting a comparative investigation of H_2-enriched CH_4 and NH_3 flames in a swirl–bluff-body burner, focusing on flame structure, stabilization, and emissions.
- Experiments using a non-premixed swirl–bluff-body burner reveal that CH_4–H_2 flames are compact with concentrated heat release, whereas NH_3–H_2 flames are longer and more volumetric due to NH_3's lower reactivity, complicating direct substitution in combustors designed for CH_4.
- Despite these differences, both blends can achieve low-NO_{x3} operation in the same burner, with CH_4–H_2 reaching ultra-low NO_{x3} levels and NH_3–H_2 maintaining low emissions under lean and rich conditions.

Reference: https://www.iist.ac.in/people-faculty-profile/rajesh-s

Raveendranath P., Emeritus Professor

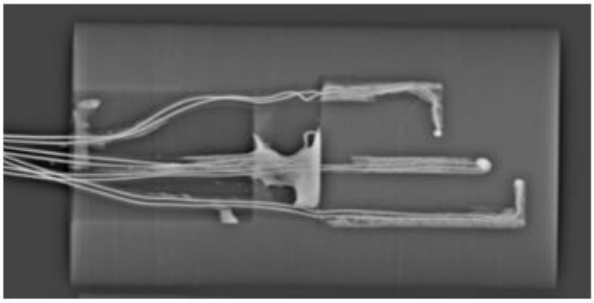
Research Interests:

- Advanced Finite Element techniques
- Modeling of mechanics of nano-structures
- Coupled numerical simulation of Ablative composites

Research Highlights:

- Arc jet tests conducted on Carbon-Phenolic material prepared at different ply orientations.
- Developed semi-analytical solutions for bending of nanobeams within the framework of Eringen's nonlocal elasticity theory.

Arc-jet tested specimen



X-ray of instrumented specimen

Reference: https://www.iist.ac.in/people-faculty-profile/p-raveendranath

Salih A., Professor

Research Interests:

- Multi-phase flow simulation
- Geysering phenomena
- Cryogenic sloshing

Research Highlights:

Environmental Catalysis

- "Selective catalytic reduction of NO over hierarchical Cu ZSM-5 coated on an alumina foam support." – Demonstrates innovative catalysts for reducing harmful nitrogen oxide emissions.

Fluid Transient and Water-hammer Analysis

- "The Adaptive Damping Technique: Improving the Simulation Accuracy of Hydraulic Transients."
- "Development of a benchmark solution in compressible liquid flows: analytical solution to the water shock tube problem." – These works refine computational methods for shock waves in liquids-important in pipelines and high-speed fluid systems.

Numerical Methods in Reactive Mixing

- "Numerical analysis of mixing chamber non-uniformities and feed conditions for optimal performance of urea SCR." – Investigates how chamber design affects urea-based emission control systems.

Riemann-Solver Comparisons

- "A comparative performance analysis of HLLC and AUSM+-up Riemann Solvers." – Offers insights into choosing the right solver for compressible fluid flow problems.

Reference: https://www.iist.ac.in/people-faculty-profile/salih

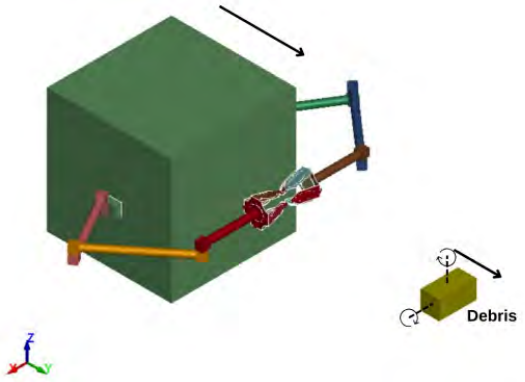
Sam Noble, Assistant Professor

Research Interests:

- Design and synthesis of mechanisms
- Robotics/assistive mechanisms
- Optimal design

Research Highlights:

- Mechanism and Control design for quadruped and biped robots for ground and space application.
- Design and Analysis of a Novel End Effector for Capturing Tumbling Objects.

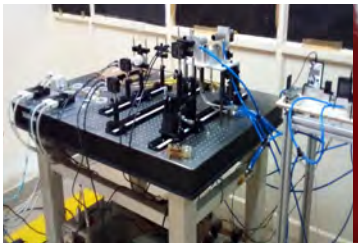


Reference: https://www.iist.ac.in/people-faculty-profile/sam-noble

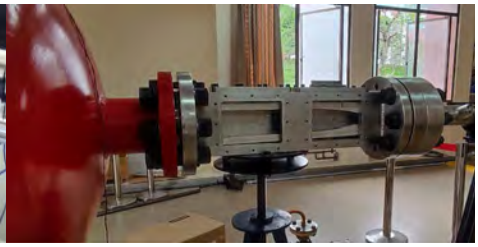
Satheesh K., Associate Professor

Research Interests:

- Quantitative laser diagnostics
- Shock tunnels
- High enthalpy flows

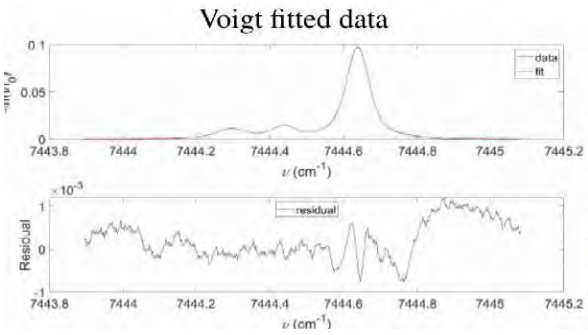


TDLAS test set-up

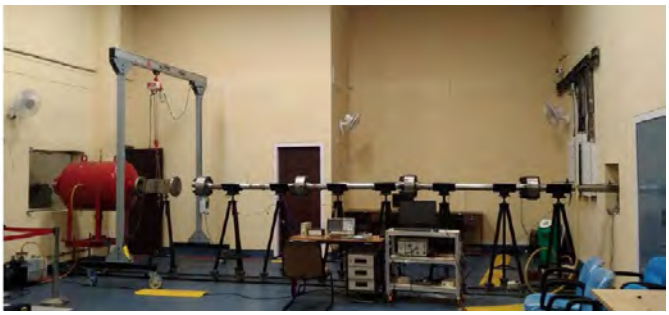


Supersonic nozzle with test section

Research Highlights:



Experimental absorption spectra



Shock tube set-up

Reference: https://www.iist.ac.in/people-faculty-profile/satheesh-k

Shine S. R., Professor

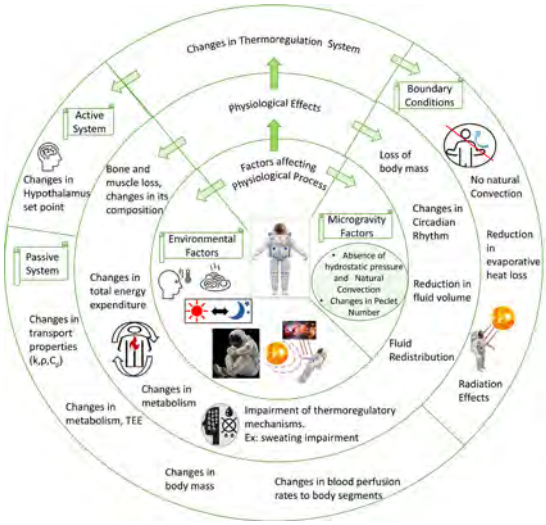
Research Interests:

- Heat transfer in space applications
- Bio-fluid mechanics
- Bio-heat transfer

Research Highlights:

Human Thermoregulation in Microgravity

- Blood redistribution from the lower limbs to the upper body alters the body's temperature distribution.
- The CBT is higher than the pre flight conditions for all microgravity exposures.
- The overall body temperature is increasing at a higher rate during exercise in microgravity as compared to pre flight conditions.



Reference: https://www.iist.ac.in/people-faculty-profile/ s-r-shine

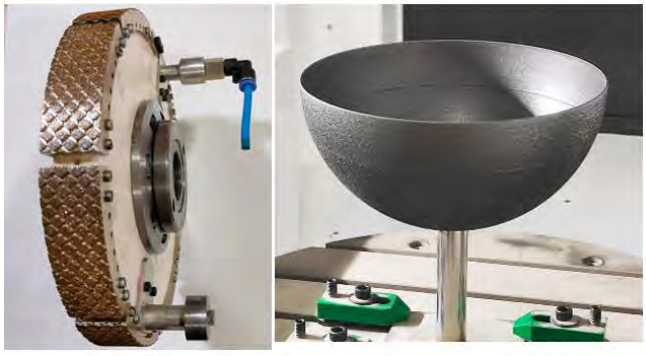
Sooraj V. S., Associate Professor

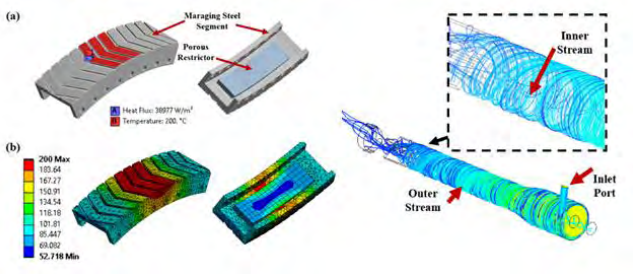
Research Interests:

- Subtractive and Additive Manufacturing
- Manufacturing for Space /Aerospace Applications
- Digital Manufacturing
- 3D Printing for Bio-Medical Applications
- Manufacturing under Microgravity

Research Highlights:

- Development of a Sweating Type- Self Cooling Grinding Wheel for Machining of Difficult-to- cut, thermally challenging Aerospace Materials.
- Development of Eccentric Sleeve Grinding for FRP composites.





- Studies on Generative Design and Lattice Based 3D printing, aiming futuristic applications in launch vehicles and Space Robotics.
- Investigations on multi-axis metal 3D printing (LAM DED etc.) for Intricate space components, aiming futuristic space missions (Gaganyaan, BAS etc.,).
- 3D printing for bio-medical applications.

Reference: https://www.iist.ac.in/people-faculty-profile/sooraj-v-s

U. A. Subramanian, Professor of Practice

Research Interests:

- Design and Development of Aerospace Mechanisms for SSPACE
- Deployable Antennas for CubeSats (AHAN)
- Dispenser Systems for various CubeSats 3U, 6U, 12U (AHAN)
- Low Shock Separation System for Small Satellites (INSPIRESat-3)
- Solar Panel Deployment Mechanisms (INSPIRESat-3)
- Mechanical Systems and Mechanisms for IHRX

Reference: https://www.iist.ac.in/people-faculty-profile/u-subramanian

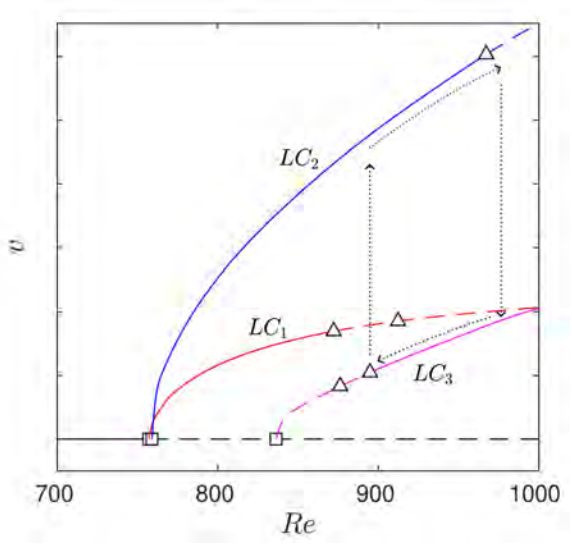
Vinoth B. R., Associate Professor

Research Interests:

- Stability of fluid flows
- Aerodynamics and Aeroacoustics
- Unsteady flows

Research Highlights:

- Hysteresis and frequency jumps in confined cavity flows using Floquet stability analysis
- Stability of heated bluff body flows
- Stability and sensitivity analysis of compressible bluff body flows
- Forced synchrozination of low-density jet flows



Reference: https://www.iist.ac.in/people-faculty-profile/vinoth-b-r

Department of Avionics

2.2 Department of Avionics

Vision

To be globally recognized for being at the forefront of innovation in higher education and research for empowering students in Avionics and allied areas to contribute significantly to the benefit of the society at large and Indian space science and technology.

Mission

- Inspire and educate our undergraduate, postgraduate and doctoral students and impart deep understanding of Electrical, Electronics and Communication, Computing and related areas.
- Nurture the spirit of innovation and creativity among students and contribute to the growth of the nation through excellence in teaching, research and development following ethical practices.
- Develop skills in design and building of systems that impact society and space technology.
- Continue to collaborate and establish a peer-to-peer network with institutions and industries of national and international repute.

Core research focus areas
Computer vision
Control systems
Communication Systems
Digital Signal Processing
Intelligent Robotics
Machine Learning and applications
Microwave and RF design
Power electronics
VLSI and Microsystems

Fact File	
Number of faculty	24
Technical Staff	12
Non-teaching staff	2
Research Scholars	112

Laboratory / Research Facilities

Department of Avionics, IIST has 14 instructional labs and 16 research labs;

- Analog Electronics Lab
- Basic Electrical Lab
- Basic Electronics Lab
- Computer Networks Lab
- Control System Lab
- Digital Communication Lab
- Digital Electronics Lab
- Digital Signal Processing Lab
- ECAD Lab
- Instrumentation and Measurement Lab
- Microprocessor and Microcontroller Lab
- Navigation Systems and Sensor Lab
- Power Electronics Lab (UG)
- RF and Microwave Lab (UG)
- SSPACE Satellite ground station
- Small Spacecraft Systems & Payload Centre (Electronics Fabrication & Research Lab)
- Advanced Antenna Fabrication and Characterization Lab
- Advanced Microwave Lab
- Advanced Wireless Communication Research Lab

- VLSI & Microsystems Lab
- Micro/ Nanosystem characterization Lab
- MEMS and Nano FAB Phase-1
- NEM Sensor Systems Lab
- Chemi Sens Lab (Gas Sensor and Bio Sensor Lab)
- Internet of Things (IoT) Lab
- Virtual Reality Lab
- Image Processing/Computer Vision Lab
- Communication Networks Lab
- Power Electronics in Electrical Distribution System Laboratory
- Power Electronics PG/Research Laboratory

Research and Development

- Research and development facilities that were developed or augmented in the Department of Avionics during the reporting period: Real-time computer for Power Electronic Systems Simulation, Conference Hall, D3 (Avionics Block), and the seminar hall was augmented for 80 pax capacity.
- Optical experimental setup for Optoelectronics and Photonics lab with tunable lasers and optical xyz positioners was completed.
- ASIC Characterization Lab was upgraded with Vector Signal Generator & 6 GHz Digital Storage Oscilloscope, ESD-safe workbenches.
- 5G use case laboratory was set up by a faculty team in coordination with the Department of Telecom.
- Faculty from Avionics department is also involved in multiple ASRG projects such as: Integrated diagnostics module for TDS-01, A scientific payload for hall effect thruster diagnostics (with LPSC), Design of a multi-channel temperature monitoring ASIC - with VSSC, High performance SAR ADC with auto calibration and auto correction for sensor closed loop applications, Interference mitigation and co-existence between NGSO and GSO satellite systems, and Design and realization of bipedal humanoid robot with human like walking ability.
- Department has initiated MoUs with various industries / R&D organizations including:
  - IIT Kanpur
  - Kerala Police Cyber Operations, Govt. of Kerala
  - IISc, Bangalore (MeiTY-INUP Idea 2 Innovation (INUP-i2i))
  - Indian Institute of Information Technology (IIIT) Kottayam, Kerala
- There is ongoing collaborative research and development activity as part of MoUs and collaborations with national and international research institutions and universities such as:
  - TU-Delft, Netherlands
  - University of California, San Diego
  - University of California, Irvine
  - IEEE, New Jersey
  - Iowa State University, Ames, IA, USA
  - Indian Institute of Science, Bangalore
  - CDAC, Trivandrum
  - Regional Cancer Center, Trivandrum
  - National Institute For Interdisciplinary Science and Technology (NIIST), TVM
  - Rajiv Gandhi Centre for Biotechnology (RGCB), Trivandrum
- Faculty members from the Department hold various externally funded projects, funded by AR&DB/ DRDO, TTDF (DoT), KSCSTE, DST-SERB, IIT-Palakkad IPTIF, DBT, DRDO, SERB-SRG, TCOE, INUP, C3iHUB IITK, DST SPARC. IIST also has a 5G Use Cases Laboratory. [https://www.iist.ac.in/research-projects]

- Dr. Sudharshan Kaarthick was awarded Outstanding Researcher Award from IEEE IA/IE/PELS Jt. Chapter, Kerala Section, 2024.
- Dr. Selvanganesan received ITS award from SERB for attending IEEE Conference on Decision and Control (CDC), 2025.
- Dr. B. S. Manoj was elected as IEEE Kerala Section Chair, 2025.
- Dr. Anoop C. S. and Thomaskutty Mathew, received Best Paper Award - Instrumentation and Smart Systems track at the IEEE SPICES conference, September, 2024.
- Dr. Sooraj R. and Krishnanunni received IEEE Antennas and Propagation Society Research Award 2024.
- Dr. Chinmoy Saha received Outstanding Researcher Award from IEEE Kerala Section, 2024.
- Dr. Seena V Received INUP Idea to Innovation Hackathon Award, August, 2024.
- Dr. M. Vanidevi received Women in Communication Engineering Award, March 2025.

Research outcomes -Fact File	
International Journal	55
Conferences	54
Book chapters	1
Patents	1 (Granted), 3 (Filed)

- Dr. B. S. Manoj, Ankit Srivastava, Neeraj Badal received best paper award at IEEE SPACE conference, July 2024.

Contributions to Institute Level Space Missions

- Department of Avionics is actively involved in Small Satellite and Payload development (SSPACE) activities at IIST, with core focus on Onboard Computer System, Communication System and other Payload activities.
- Faculty members from the department were involved in the design and development of an UHF Communication board - fully designed internally at IIST was flown as part of POEM mission on PSLV C60 flight. The payload was called “GRACE - GMC, Reprogramming and Communication Experiment”. The UHF board was successfully tested in the Low-Earth Orbit (LEO) with a receiver capability going down to almost -100 dBm. Faculty were also involved in Development of indigenous complete UHF transceiver & S-band transceiver for nanosatellite applications
- Faculty from department are also involved in IIST Ground Station Development, Integrated Diagnostic Module for TDS-01, and development of Retarding Potential Analyser for the observation of Venusian Atmosphere, and Wireless Networked System Research and performance evaluation for Crew Modules for Indian Human Space Missions. As part of SSPACE activities faculty members developed a payload for Space based hosting for Space missions.

Outreach Activities

- The Avionics department played a major role in organizing the 3rd National workshop on Electric Aircraft and Allied technologies as well as 9th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics at IIST. The department also organized FDPs on Intelligent signal processing techniques as well as Control Systems Theory and Applications.
- Faculty members participated in 78 conferences/workshops/seminars/FDPs.
- Faculty members from the department of Avionics organized a total of 6 workshops/institute lectures/ talks/ student visits.

- Faculty members have contributed to Reviews/Technical discussions at ISRO /other organizations/ Institutes.
- Contributed to various outreach activities for school/college students initiated by Student Activity Board at IIST.
- Prof. Juzer Vasi delivered a talk on "Recent Developments in Photovoltaics Deployment and Manufacturing in India", October 2024.
- A Workshop on Technical Writing by Dr. Jithin S. was conducted in October 2024.
- Faculty members have served on the editorial board for journals such as:
    - IEEE Transactions on Transportation Electrification
    - Frontiers in Future Transportation
    - IEEE Transportation Electrification Community Newsletter
    - IEEE Transactions on Instrumentation and Measurement
    - IEEE Microwave Magazine
    - European Physical Journal Applied Metamaterials
    - IEEE Access
    - Springer Nature Computer Science
    - Frontiers in Mechanical Engineering
- Faculty members have also actively contributed to reviewing for journals such as IEEE Transactions on Industrial Electronics and Power Electronics, IEEE Control Systems Letter, IEEE Access, IET Control Theory & Applications, IEEE Transactions on Aerospace and Electronic Systems, IEEE Sensors, IEEE Sensors Letters, Elsevier Measurement, IEEE Transaction on Automation Science and Engineering, IEEE Journal of Automatica Sinica, Optics Express, Applied Physics Letters, Photonics Research, IEEE Transactions on Industrial Electronics, IEEE Transactions on Power Electronics, IEEE Transactions on Industry Applications, Micro-and Nanoelectromechanical Systems, Nature Electronics, Applied Physics Letters (AIP), IEEE Sensors Journals, Springer Microsystem Technologies, IEEE/ASME Journal Microelectromechanical Systems, IOP journal of Micromechanics and Microengineering, IEEE Journal of Circuits and Systems Regular I, IEEE Journal of VLSI.

Startup activities

- Dr. B. S. Manoj is an advisory board member and mentor for the non-profit startup Zeroing In Association.
- Dr. Priyadarshnam is an advisory board member and mentor for LT defense, Coimbatore for jointly developing LISAT satellite.

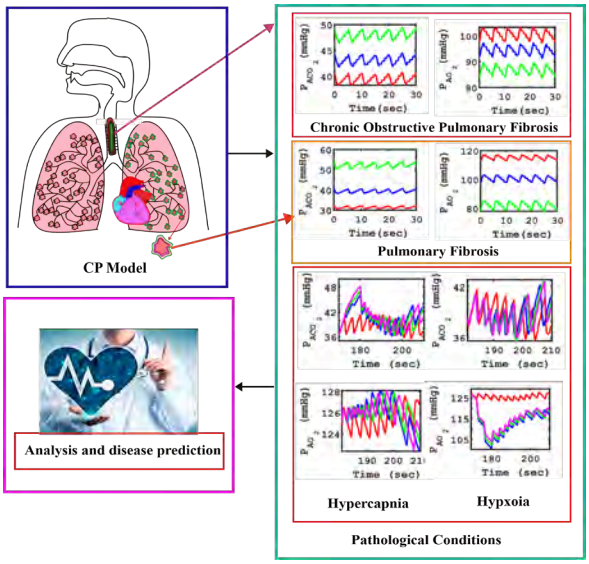
Faculty Profile

N. Selvaganesan, Professor and Head of the Department

Research Interests:

- Physiological Modelling
- Disease Detection and Diagnosis
- Adaptive Control
- Fractional Order Modelling and Control

Research Highlights:



- Personalized strategies depend on precise modeling of cardiopulmonary dynamics.
- A comprehensive cardiopulmonary model was developed, integrating gas exchange, lung mechanics, and cardiovascular interactions.
- The model can be modified with fundamental physiological parameters to simulate pathological conditions like hypoxia, hypercapnia, COPD, and pulmonary fibrosis.
- The results offer quantitative insights into illness progression (e.g., changes in ventilatory responsiveness and blood flow), which aids practitioners in early diagnosis.

Reference: https://www.iist.ac.in/people-faculty-profile/n-selvaganesan

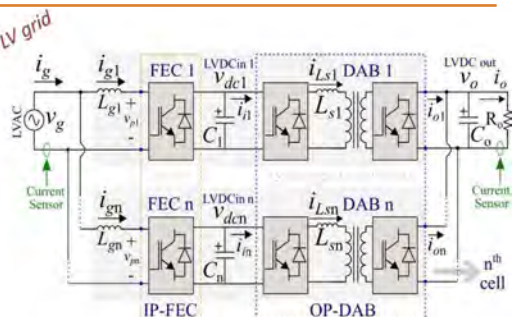
Anindya Dasgupta, Associate Professor

Research Interests:

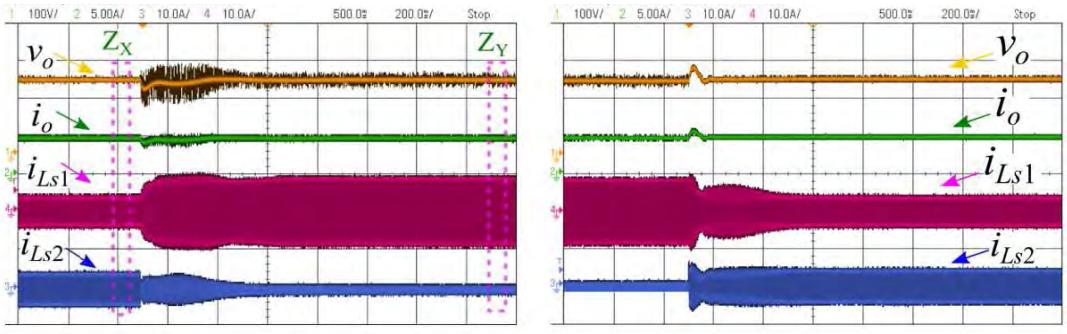
- Modular power conversion architecture for terrestrial, aerospace and space applications

Research Highlights:

Published a high frequency current-sensorless control scheme for grid connected modular solid state transformers in Input Parallel Output Parallel (IPOP) configuration.



Grid connected SST configured in IPOP mode



Experimental result: Hot-swapping – 2nd cell without shutting down the entire operation

Reference: https://www.iist.ac.in/people-faculty-profile/anindya-dasgupta

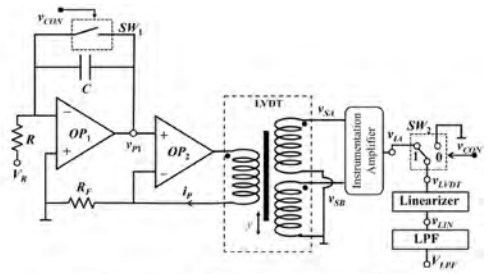
Anoop C. S., Associate Professor

Research Interests:

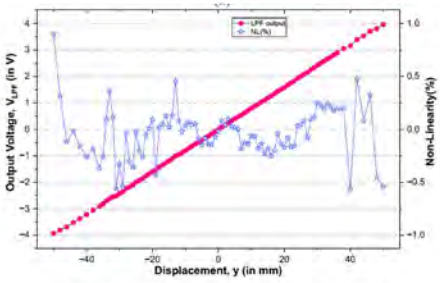
- Measurements and Instrumentation
- Interface Electronics
- Direct-Digitizers
- Analog Signal Processing

Research Highlights:

- Designed and developed digitizing interface, based on charge-discharge concept and evolutionary optimization, for non-linear sensors.
- Developed an efficient electronic digitizer for linearizing with lead-wire compensation feature for remotely-located thermistors.
- Designed and evaluated linearizing demodulator for transformer-based transducers.



Proposed linearizing demodulator circuit for LVDT.



Experimental results obtained with the developed LVDT hardware.

Reference: https://www.iist.ac.in/people-faculty-profile/anoop-c-s

Basudeb Ghosh, Professor

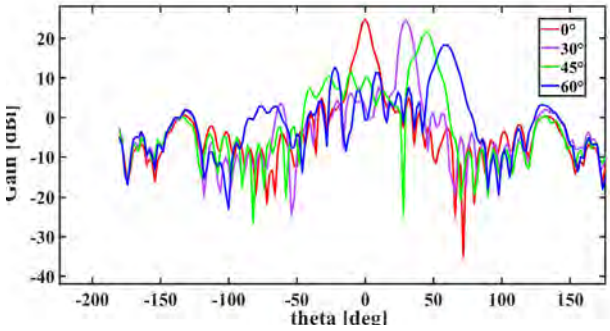
Research Interests:

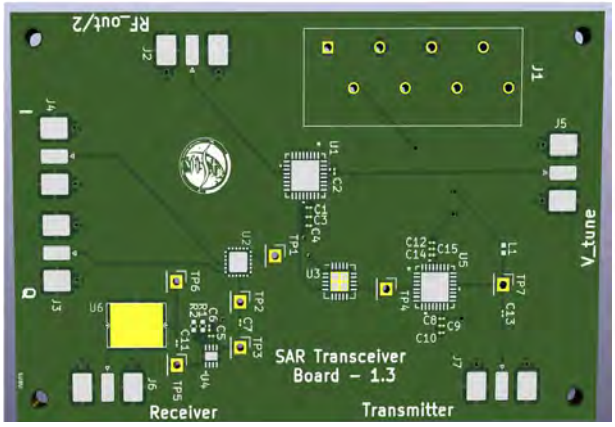
- Metasurface antennas
- Synthetic aperture radar
- Microwave imaging

Research Highlights:

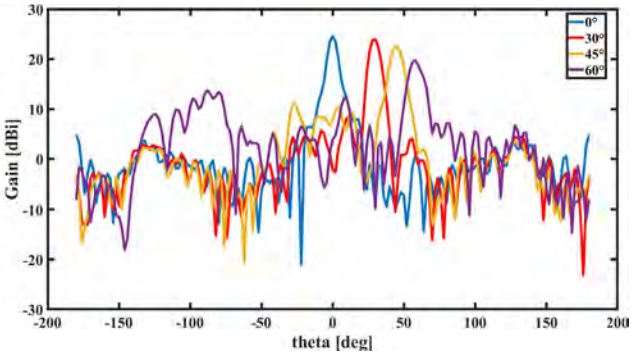
- Developed Transceiver for Synthetic Aperture Radar.

Reconfigurable Metasurface reflect array





Transceiver for Synthetic Aperture Radar

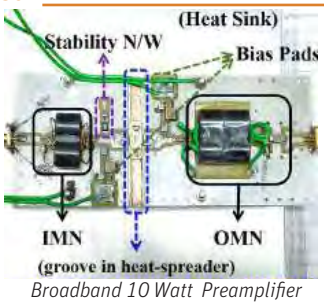


Reference: https://www.iist.ac.in/people-faculty-profile/basudeb-ghosh

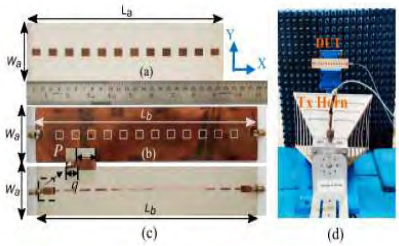
Basudev Majumder, Associate Professor

Research Interests:

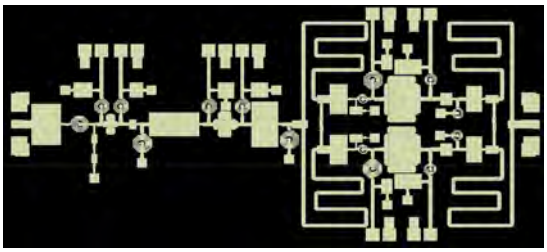
- Application of Periodic structures in RF and Microwave active and passive system design
- Design of Artificially Engineered (Reconfigurable) Surface like Transmit array and Reflect array for different wireless applications.
- RF and Microwave product design cater to space applications.



Broadband 10 Watt Preamplifier (Fig. 1)



Multi Functional Phase shifter Less Leaky Wave Antenna (Fig. 2)



X-Band PA MMIC for SSPACE Applications (Fig. 3)

Research Highlights:

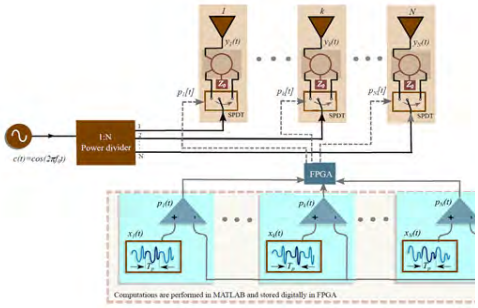
- Developed a broadband 3-30 MHz 10-watt pre amplifier board. Work carried out at IIST, measured and fabricated at IIT Kanpur. Work accepted at EuRad 2025, and won prestigious travel grant award (Fig. 1).
- Work on C band and L band multifunctional leaky wave antenna accepted at IEEE Access Journal (Fig. 2).
- Developed X Band MMIC (on HEMT) based 14 watt PA for small satellite applications (Fig. 3).

Reference: https://www.iist.ac.in/people-faculty-profile/basudevmajumder

Chinmoy Saha, Professor

Research Interests:

- Antenna Design for space, ground and versatile applications
- Metamaterial and metasurface based antennas
- Microwave wireless power transfer and energy harvesting
- 6G and THz Technology



Research Highlights:

- A novel Time Modulated Antenna Array (TMA) for enabling versatile, multi-user heterogeneous wireless power transfer is developed.
- The architecture offers precise control of the number of radiated harmonics, independent steering of individual beams and radiated beam power levels.

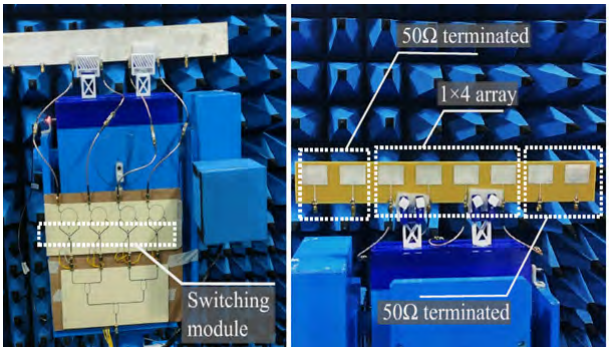


Fig. (a) Block diagram of a new concept of Pulse Width Modulation (PWM) Based Time Modulated Antenna Array (TMA), (b) TMA system installed in an anechoic chamber with a 1×4 patch antenna as the radiator, is connected to the designed switching module

Reference: https://www.iist.ac.in/people-faculty-profile/chinmoy-saha

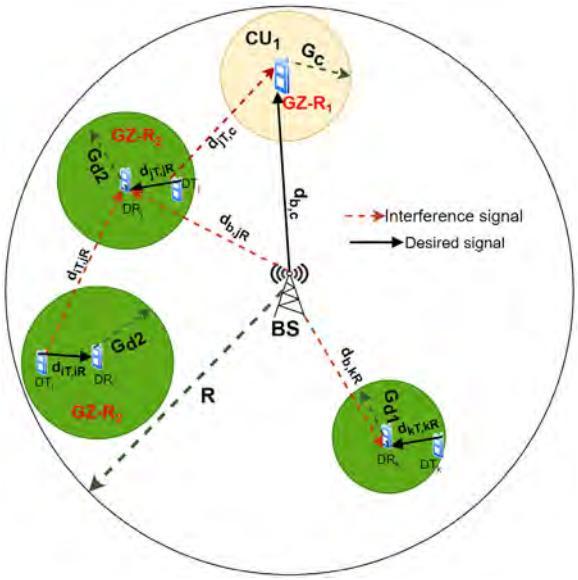
Chris Prema S., Associate Professor

Research Interests:

- Cognitive Radio, 5G, B5G Communications
- Automatic Modulation and Classification, D2D communication, NOMA, RSMA
- Spectrum Prediction/Sharing, Spectrum Mapping and Localization

Research Highlights:

- Developed a low complex modulation classification weight maximization algorithm in NOMA Systems.
- Analysed interference management and coverage probability in D2D downlink underlay systems.



Reference: https://www.iist.ac.in/people-faculty-profile/chris-prema-s

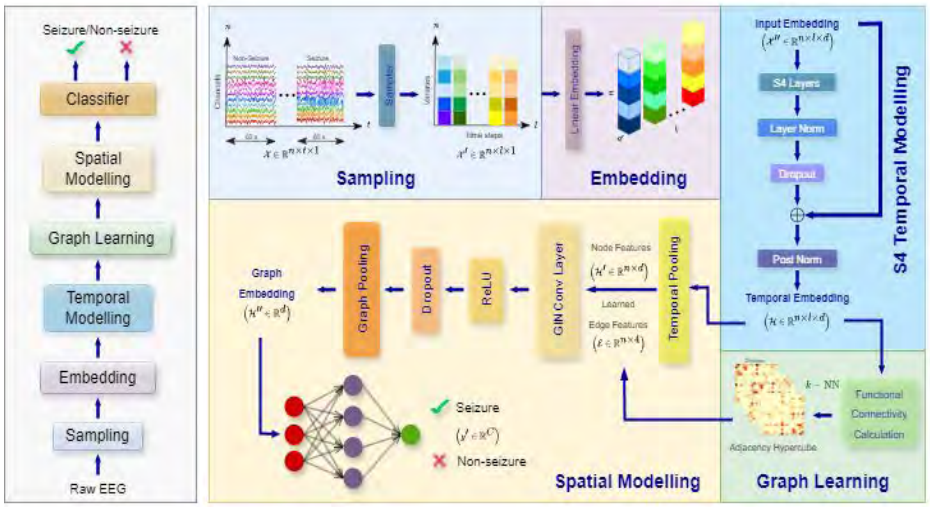
Deepak Mishra, Professor

Research Interests:

- Computer vision, Signal & Image Processing
- Medical Image Analysis
- Remote Sensing & Geospatial AI
- Representation Learning & D L Models
- AI for Space Applications & Human Space Program

Research Highlights:

- Person Re-Identification using Optimal Transport Theory.
- Geometric Deep Learning for Epileptic Seizure Detection from multivariate EEG.
- Detection of Convective Storms From PPI Images of Polarimetric Doppler Weather Radar Using Deep Learning.
- Automatic Road Extraction Using High-Resolution Satellite Imagery.
- Data association with Feedback region proposals and Re-identification Siamese CNN for MOT.



Geometric Deep Learning for Epileptic Seizure Detection from multivariate EEG

Reference: https://www.iist.ac.in/people-faculty-profile/deepak-mishra

Harish C. S., Professor of Practice

Research Interests:

- Impact of Space Research on Indian Industry
- Cost benefit analysis of Indian Space Program
- Human space flight - Need and benefits
- Configuring Crew Escape System for Human space flight.
- Methodology of human rating of launch vehicles
- System engineering of aerospace systems
- Soft skills for effective management

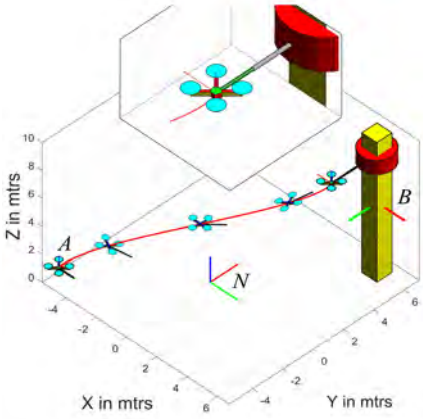
Harsha Simha M. S., Associate Professor

Research Interests:

- Quadcopter guidance and control
- Complex Systems and agent based modelling
- Spacecraft Attitude Dynamics and Cooperative control

Research Highlights:

- Modeling, Guidance, and Control of Quadrotor UAVs on SE (3) in Application to Autonomous Docking.
- Optimal Energy Guidance for Quadcopter Docking System.
- Cooperative control of a rigid body pose using multiple agents.



Optimal energy docking of quadcopter and Autonomous Docking of two quadcopters

Reference: https://www.iist.ac.in/people-faculty-profile/harsha-simha-m-s

Immanuel Raja, Associate Professor

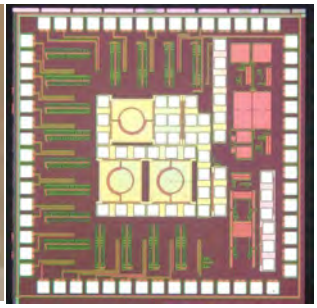
Research Interests:

- Analog, mixed-signal & RF Integrated Circuits
- Payload design (Electronics)

Research Highlights:

- UHF receiver board as part of the Pilot – G2 GRACE payload in the POEM platform of PSLV C60 mission.

1 Electronics board of IDM payload



2 Chip Micrograph of 16-channel temperature monitoring ASIC

- A complete chip tapeout of a multi-channel temperature monitoring ASIC The IC is capable of interfacing to different types of temperature and pressure sensors.
- Developed a millimeter-wave CMOS power amplifier with integrated envelope detector in 65nm process.
- Developed Integrated Diagnostics Payload (Hardware & Software) for TDS-01 mission.

Reference: https://www.iist.ac.in/people-faculty-profile/immanuel-raja

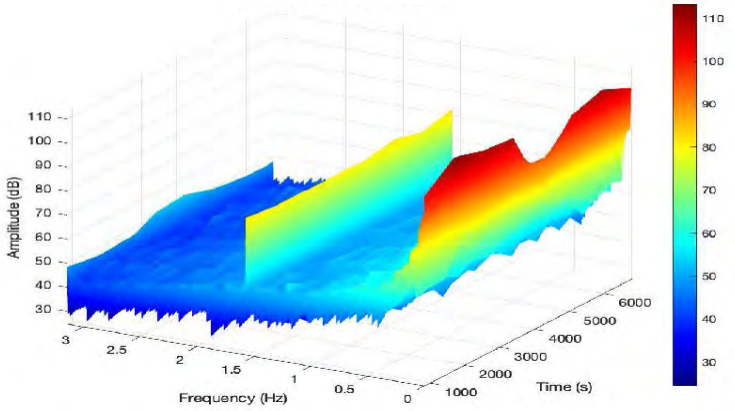
Lakshminarayanan R., Associate Professor

Research Interests:

- Statistical Signal Processing
- Machine Learning
- Digital and Wireless Communication

Research Highlights:

- Developed reduced Complexity Compressed Sensing techniques for acquisition of Sparse Frequency Domain Signals, exploiting the temporal correlation between the Frequency domain components.
- Obtained results on the error sensitivity analysis of the Kalman filter vis-a-vis the linear H∞ estimator for miss-specified noise covariance matrices.



Spectrogram of EEG Signal

Reference: https://www.iist.ac.in/people-faculty-profile/r-lakshmi-narayanan

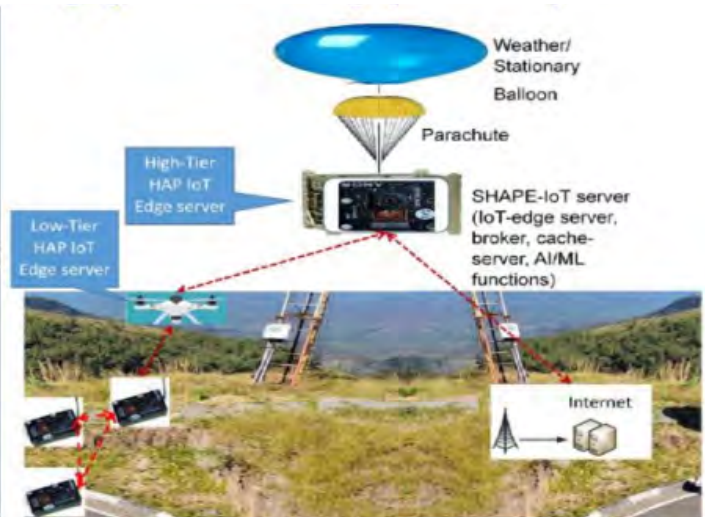
Manoj B. S., Professor

Research Interests:

- Artificial Intelligence, Advanced Satellite Networks, 6G Networks, Cyber security
- Research-oriented Teaching and Learning
- Quantum Big Data Analytics
- Software Defined Wireless Networks
- Complex Networks, Computer Networks

Research Highlights:

- Developed Space-based hosting technique for low latency web services over satellites.
- Developed 5G Use case laboratory for applications and use cases development.
- Created Indian language BCI datasets for earth and space applications.
- Developed technology solutions for 6G networks.



Reference: https://www.iist.ac.in/people-faculty-profile/b-s-manoj

Palash Kumar Basu, Professor

Research Interests:

- Bio Sensor and Gas sensors
- Biotechnology

Research Highlights:

- Designed and developed NDIR-based CO2 and CH4 sensors
- Exploring the sensors for the Breath Analyser.
- Field Trials will start from September 2025 by measuring NO, CO at KIMS hospital

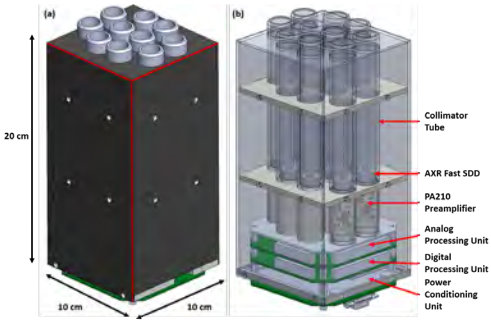
The Exhale Breath Analyzer, developed by KIMS and IIST for monitoring respiratory and cardiovascular diseases, was showcased on 23 August 2024 in New Delhi, where ISRO Chairman Dr. S. Somanath presented it to the Honorable President of India.

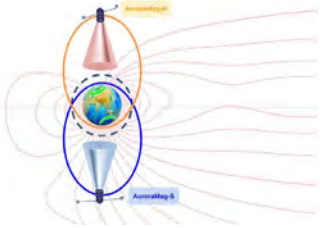
Reference: https://www.iist.ac.in/people-faculty-profile/palash-kumar-basu

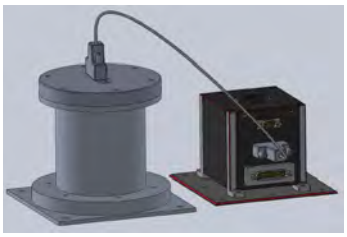
Priyadarshnam, Professor

Research Interests:

- Satellite Mission design
- Subsystems development
- On board Computers
- Systems Engineering
- Space Biology experiments
- Control Systems
- Attitude determination and Control Systems
- Navigation and Guidance







Research Highlights:

- Twin explorer of asymmetry in aurora and solar wind-magnetosphere coupling
- Deep space Navigation mission design
- 3U CUBESAT mission for In-Situ radiation dosimetry
- SSPACE Astrobiology Payload development
- GMC Reprogramming And Communication Experiments (GRACE) POEM Payload

Reference: https://www.iist.ac.in/people-faculty-profile/priyadarshnam

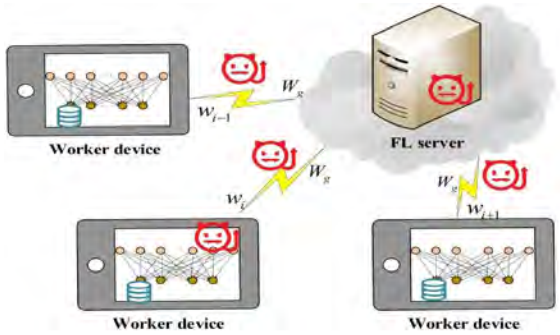
Sourav Bhowmick, Assistant Professor

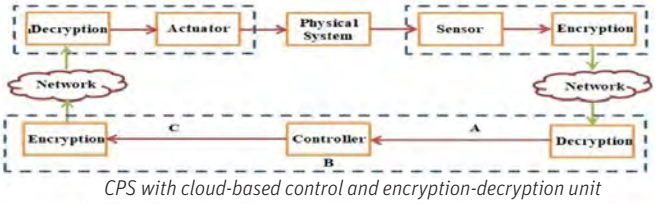
Research Interests:

- Control algorithm design for network systems and swarm robotics
- Trajectory optimization through convex programming
- Propagation dynamics over networks

Research Highlights:

- Control of network systems, cyber-physical systems, and swarm robotics: for civilian, military, and futuristic space missions.
- Differential Privacy (DP): Federated learning with DP
- Trajectory optimization for space vehicles
- Convex programming
- Propagation dynamics over networks (virus, disease, fake news, fire spreading, etc.)





CPS with cloud-based control and encryption-decryption unit

CPS with encrypted control

Reference: https://www.iist.ac.in/people-faculty-profile/sourav-bhowmick

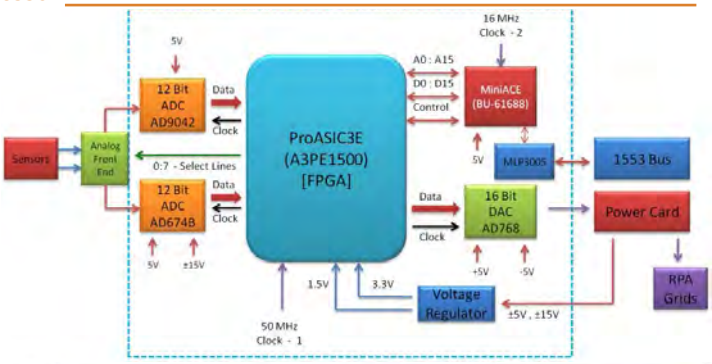
R. Sudharshan Kaarthik, Associate Professor

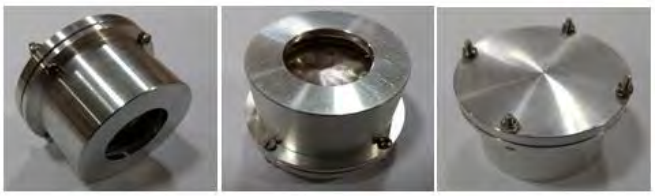
Research Interests:

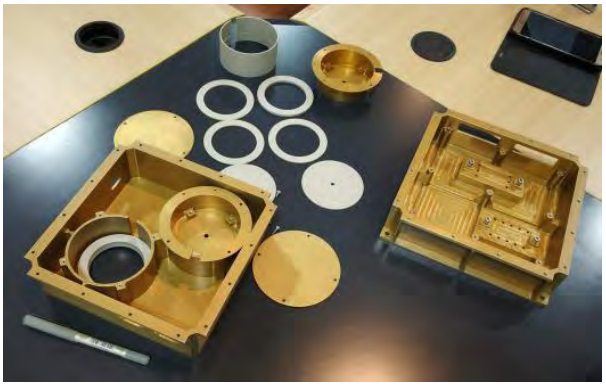
- Power Electronics
- Motor Drives

Research Highlights:

- Model Predictive Control Scheme for a Single-Phase Integrated Battery Charger with Active Power Decoupling for EVs.
- Speed-range Extension Scheme for a Split-phase machine under open-circuit fault condition
- Torque ripple minimization by using multi-sequence PWM Scheme for a split-phase induction machine.
- Integrated Battery Chargers for Electric Vehicle with Retrofit Capability.
- Plasma payloads for Space Weather.
- ARIS - PSLV C45 & PSLV C55, IDM upcoming Venus mission.
- Electric Powertrain for All-Electric HANSA-NG.







Reference: https://www.iist.ac.in/people-faculty-profile/r-sudharshan-kaarthik

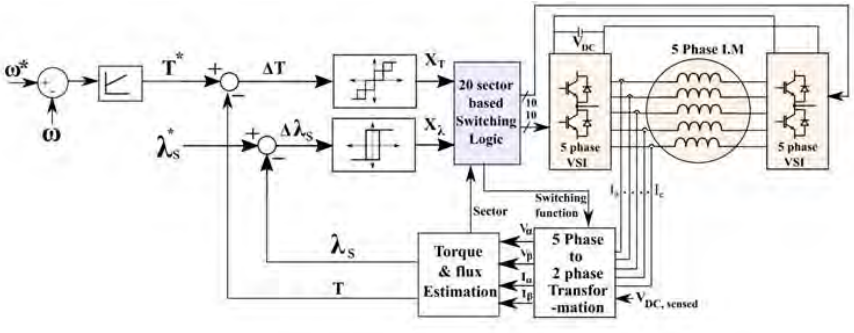
Rajeevan P.P., Professor

Research Interests:

- Power Electronics
- Control of Electric Drives
- Microgrids

Research Highlights:

- The primary research focus is on developing control schemes for a dual inverter-fed five-phase induction motor with open-end stator windings.
- A novel PWM scheme was developed to feed both inverters from a single DC source, significantly reducing the required DC voltage compared to standard drives.
- A speed range extension scheme based on virtual winding reconfiguration was created, which also eliminates auxiliary plane harmonic voltages to reduce losses.
- Direct Torque Control (DTC) schemes were developed, including multi-level and multi-sector variants (like the high-resolution 20-sector, 5-level scheme), which allow for the application of higher motor voltages for a given DC link voltage.



Reference: https://www.iist.ac.in/people-faculty-profile/rajeevan-p-p

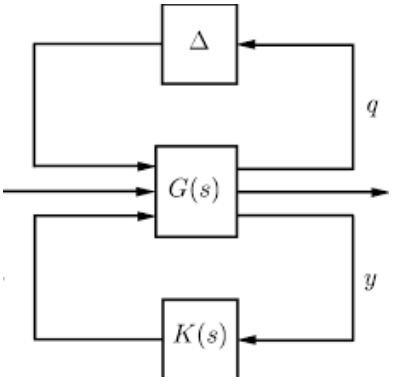
Rajesh Joseph Abraham, Associate Professor

Research Interests:

- Robust Control
- UAV Control
- Power System Control

Research Highlights:

- Designed a complex lead-lag compensator for an Aerospace Vehicle.
- An approach for power sharing in micro grids is being developed.



Reference: https://www.iist.ac.in/people-faculty-profile/rajesh-joseph-abraham

Sam K. Zachariah, Adjunct Professor

Research Interests:

- Mechanism and Control design for quadruped and biped robots for ground and space application

Research Highlights:

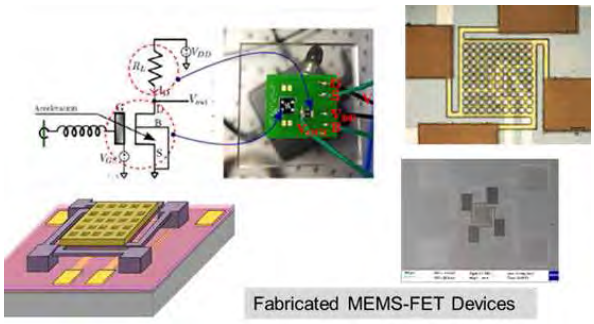
- Mathematical modelling and Control design for Unitree Humanoid Robot on simulation platform.
- Mathematical modelling and Controller design for biped and quadruped robots being developed in DRDO as a part of STAR project.

Reference: https://www.iist.ac.in/people-faculty-profile/sam-k-zachariah

Seena V., Professor

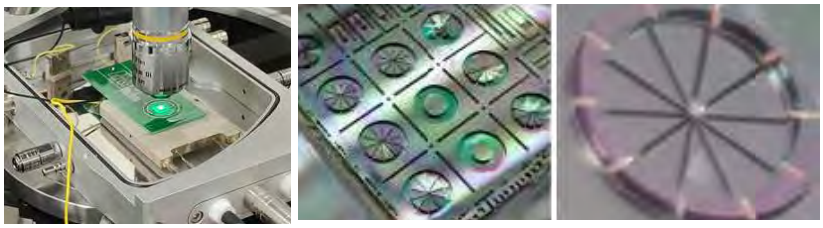
Research Interests:

- MEMS/NEMS Sensors
- MEMS Energy Harvesters
- 2D Material FETs and MEMS integration
- CMOS-MEMS with VLSI & Microsystems Integration



Research Highlights:

- MEMS accelerometer sensor, Nanoforce sensors and gas sensors with MEMS with CMOS-MEMS intergration.
- Polymer MEMS on Field Effect Transistor as accelerometer, device design and fabrication.
- 2-D MoS2 FET based nN Force Sensor.



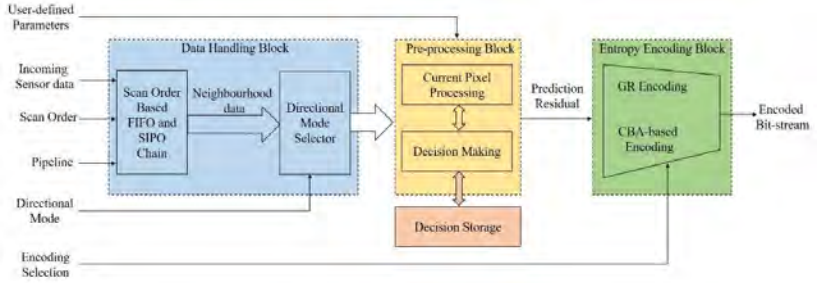
- Thermo Nanomechanical Membrane flexure (NMF) sensor development for IR based sensing.

Reference: https://www.iist.ac.in/people-faculty-profile/seena-v

Sheeba Rani J., Professor

Research Interests:

- Hardware acceleration for Onboard processing of space applications.
- Light weight VLSI architectures for cryptography
- Deep Neural Network inference models for resource constraint environment



Research Highlights:

- Developed a simple lossless On-Board Satellite Multispectral and Hyperspectral Compressor (MHyC) algorithm and hardware architecture.
- Developed a lightweight ASCON architecture for resource constrained devices.
- Design of Robust S-Boxes using multi objective optimization techniques for encryption purposes.

Reference: https://www.iist.ac.in/people-faculty-profile/j-sheeba-rani

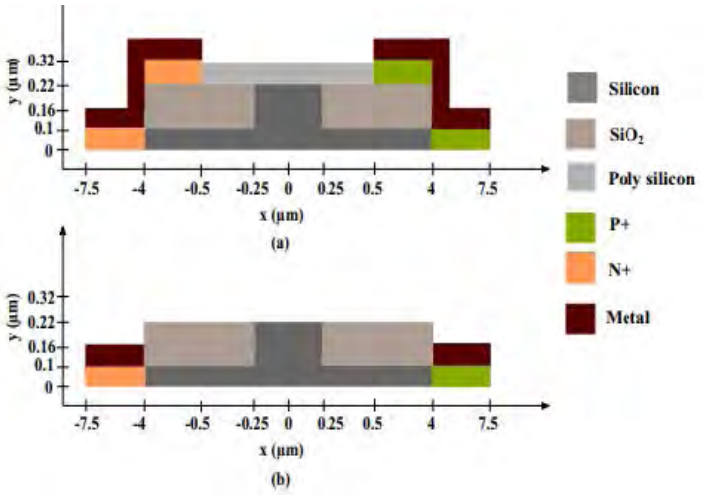
Sooraj R., Associate Professor

Research Interests:

- Semiconductor Optoelectronics and Photonics
- Semiconductor nano-structures
- Optical beam steering
- Free space optical communication
- Photonic integrated circuits
- Photovoltaics

Research Highlights:

- Theoretically demonstrated a meta-lens that can be fabricated on a single mode optical fiber that can collimate optical beams with high transmittance.
- Designed and demonstrated a compact and energy efficient high-speed silicon optical modulator.



Cross-sectional schematic of (a) proposed silicon high-speed optical modulator that is compact and energy efficient (b) cross-sectional schematic of a conventional silicon modulator

Reference: https://www.iist.ac.in/people-faculty-profile/sooraj-ravindran

Vanidevi M., Associate Professor

Research Interests:

- OTFS Modulation
- MIMO Systems
- Integrated Sensing and Communications
- Near field THz channel estimation for XL-MIMO using deep learning
- Reconfigurable Intelligent Surfaces aided communication
- Hybrid beamforming

Research Highlights:

- Wireless channel matrix model to capture practical delay-Doppler parameters.
- Devise a two-stage orthogonal matching pursuit with fractional refinement (OMPFR) algorithm.
- Non-requirement of massive dictionary matrix and hence of low complexity.

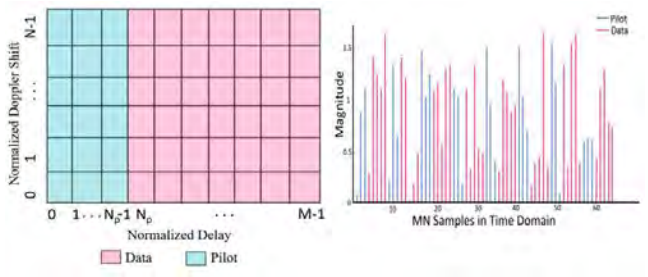


Fig.1: Proposed Pilot-Data Structure in (a) Delay Doppler and (b) Time domain

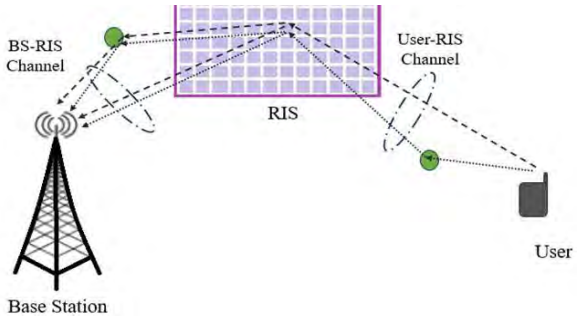


Fig.2 RIS-aided uplink communication in mmwave

Reference: https://www.iist.ac.in/people-faculty-profile/m-vanidevi

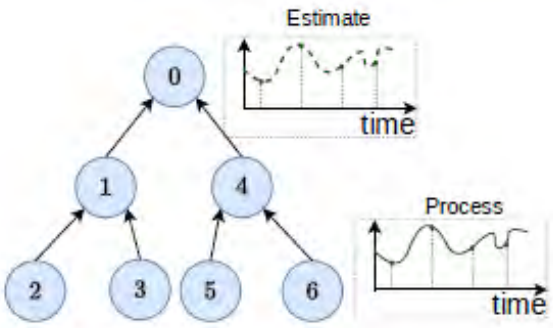
Vineeth B. S., Associate Professor

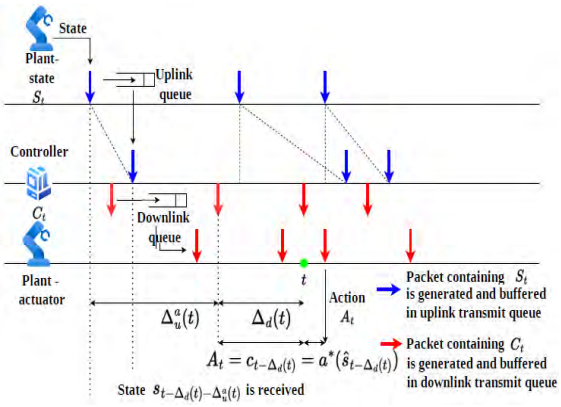
Research Interests:

- Sequential decision making under uncertainty
- Performance analysis and Optimization
- Markov decision processes
- Reinforcement learning
- Communication Networks

Research Highlights:

- Multihop network design for information freshness: We developed a network design methodology for planned multihop wireless networks using deterministic scheduling, targeting industrial applications such as remote estimation and control.
- Modern multiple access communication: We considered the theoretical and simulation-based performance analysis of modern multiple access protocols based on successive interference cancellation - Coded slotted ALOHA – Irregular repetition slotted ALOHA (IRSA), Frameless ALOHA, Frame-asynchronous coded slotted ALOHA. We considered protocol optimization and design for information freshness, measured using age-metrics such as Age of Information (AoI) and Age of Incorrect Information (AoII). Demonstration of performance improvement over conventional protocols using simulation and theoretical tools.
- Networks and remote control: We considered the theoretical and simulation-based cost characterization and resource allocation using semantic metrics Age-of-Information (AoI) and Age-of-Loop (AoL) in a wireless network control scenario.





An example multihop tree network with 6 nodes and 2 top-subtrees. For node 6 the monitored process of interest and its the remote estimate at 0 are shown. Packets containing samples of X s are transmitted to 0 over the network, We obtain scheduling algorithms to minimize the average age of information.

Reference: https://www.iist.ac.in/people-faculty-profile/vineeth-b-s

Department of Chemistry

2.3 Department of Chemistry

Vision

To be a center of symbiosis of different branches of science, ultimately leading to novel material development, their testing and applications in diverse areas of Materials Science and Technology including future space programs of the nation.

Mission

- To provide excellent teaching and research environment for undergraduate, postgraduate and doctoral students in diverse areas of Material Science & Technology
- To facilitate the design and development of novel materials and processes to meet future technological challenges
- To achieve the goal of contributing to India's future space missions including the Human in Space Program

Core research focus areas
Composite Materials
Chemical/ Electrochemical Sensors
Electrochemical Energy Storage
Organic Functional Materials
Materials for Sustainable Applications
High Temperature Materials
Biology Payload for Human Space Program

Fact File	
Number of faculty	9*
Technical Staff	4
Tutors /Technicians	1
Non-teaching staff	2
Research Scholars	51
Number of PhDs conferred	5

*including one DBT faculty

Laboratory / Research Facilities

The department of chemistry has one BTech/MTech instructional lab and following 11 research labs:

- Materials characterization lab
- Nanoscience lab
- Inorganic lab
- Organic lab
- Polymer processing lab
- High Temperature Materials Processing Lab
- Physical chemistry lab
- OLED Lab
- Battery fabrication lab
- Space Biology Lab
- X Ray Diffractometer Lab
- Scanning Electron Microscopy Lab

Research and Development

Faculty Achievements

- Prof. Kuruvilla Joseph has been listed in Stanford/Elsevier's Top 2% Scientists for five consecutive years (2020–2025).
- Faculty members are actively contributing to the Advanced Space Research Group (ASRG) activities with four ongoing projects under the ASRG scheme.
- Faculty members also hold several externally funded projects, supported by agencies including DRDO, DBT, HSFC-Gaganyaan, and ISRO.

Student Achievements and Recognitions

International Travel Support (ITS) Awards

- Ms. Bhasha Sathyan (SC20D007) received the ITS Scheme from Anusandhan National Research Foundation (ANRF), India to participate in the 8th International Conference on Multifunctional, Hybrid and Nanomaterials held in France (3–6 March 2025). Award Number: ITS/2024/005874.
- Ms. Raji S (SC21D020) received the ITS Scheme from ANRF, India to participate in the same conference. Award Number: ITS/2024/005874.

Best Thesis Award

- Dr. Govind Kumar Sharma (Ph.D. Student, SC19D032) received the Prof. Sabu Thomas Best Ph.D. Thesis Award (2025) in the field of Polymer Science, instituted by Prof. Sabu Thomas Golden Group Alumni of Mahatma Gandhi University, Kottayam, Kerala.

Paper and Poster Awards

- Best Paper Award: Krishnendu KS and Mary Gladis J. for the paper "Boosting Li-S Battery Efficiency with Novel Separator and Cathode Additives" presented at the International Conference on Science, Technology and Applications of Rare Earths (ICSTAR-2024), jointly organized by the Rare Earth Association of India and The Indian Institute of Metals, Trivandrum Chapter (August 21–23, 2024).
- Best Poster Presentation Award: Dhrishya V. for "Boron Nitride Nanosheets Modified with Molybdenum Disulfide Nanoflowers for the Electrochemical Detection of Azo Dye (Sunset Yellow) from Soft Drinks" at the DAE-BRNS Conference on Electrochemistry for Industry, Health, and Environment (EIHE 2025) organized by BARC, Anushaktinagar, Mumbai. Sponsored by Elsevier and the Chemical Engineering Journal.
- First Prize – Poster Presentation: Dhrishya V. for "One-pot Synthesis of Hybrid Boron Nitride-Nitrogen Doped Graphene Quantum Dots for the Electrochemical Sensing of Pb(II) Ions" at the National Conference on Energy Materials and Environment (EME 2024), organized by Catholicate College, Pathanamthitta and co-sponsored by KSCSTE.
- Best Oral Presentation Award: Praveena Ragavan and Gomathi N. for their work "Medium Entropy Oxides based Wearable Biosensor" at the Research Scholar Symposium on Metals, Materials and Manufacturing, organized by the Department of Aerospace, IIST (March 8, 2025).
- Best Poster Award: Akhil Madhavan and K.G. Sreejalekshmi. "Customised Hardware for Fruit Fly Experiments onboard Gaganyaan Flights", 14th Asian Microgravity Symposium, IIT-Madras, Dec 1-6, 2024.

Contributions to Institute-Level Space Missions

- The Department contributes to ISRO programs through research in polymers and composites, corrosion protection and coatings, electrochemical energy systems, nanomaterials, catalysis, and life-support materials.

- The space biology lab investigates how microgravity and space-related stressors influence biological systems, focusing on model organisms like Drosophila melanogaster, and plants. The lab integrates molecular biology, imaging, behavioral studies, and disease research to explore stress responses, organismal behavior, and health impacts in space environments. A key goal is to develop biological payloads that advance therapeutic strategies, enhance understanding of human health in extreme conditions, and support sustainable life-support systems for long-term space exploration.
- Faculty members of the department undertake interdisciplinary research projects funded by IIST, as well as collaborative projects with ISRO in areas of high relevance to the space program.

Outreach Activities

- More than 25 conferences/ workshops/ seminars, participated by faculty members
- Reviews/Technical discussions at ISRO/other organizations/ Institutes
- Contributed to various outreach activities for school/ college students initiated by the Student Activity Board at IIST

Research outcomes -Fact File	
International Journal	42
Conference publications	13
Book	1
Book chapters	9
Conference	24
Patents	2 (Filed)

Startup activities

Startup mentoring: SPACETIME 4D Printing Solutions LLP is developing customised 3D printers for Materials Research. Currently Spacetime is developing MAREP300, a 3D Printer dedicated to material research and composite development through direct extrusion additive manufacturing technology.

New labs/facilities established

Field Emission Scanning Electron Microscope Facility (FE-SEM)

A Field Emission Scanning Electron Microscope (FESEM) is established under the Department of Chemistry to facilitate research in the field of materials science and technology. The instrument provides high-resolution images with excellent surface detail, enabling the observation of nanostructures and fine morphological features. It is widely used in materials science, nanotechnology, and biological studies for detailed surface analysis.

Model: Carl Zeiss Sigma 360 HV

Equipped with Oxford make Energy Dispersive Spectroscopy (EDS)

X-Ray Diffractometer (XRD)

An X-Ray Diffractometer (XRD) was installed in September 2024. The facility enables precise phase identification, crystal structure determination, and characterization of materials, making it an essential tool for advanced materials research and development.

Thermogravimetric Analyser (TGA)

A Thermogravimetric Analyser has been installed to strengthen materials characterization. It allows precise measurement of weight changes in a material as a function of temperature or time, making it highly useful for thermal stability studies, compositional analysis, and degradation behavior of materials.

Multichannel Electrochemical Workstation

A Multichannel Electrochemical Workstation has been established to facilitate advanced studies in

electrochemistry, energy storage devices, corrosion analysis, and electrocatalysis. This facility provides high accuracy and flexibility for carrying out simultaneous electrochemical measurements across multiple channels.

Software Facilities installed

- **Gaussian 16** to support advanced computational chemistry research. It enables quantum chemical calculations, molecular modeling, and simulations of chemical systems, thereby facilitating studies in reaction mechanisms, spectroscopy, and materials design.
- **ChemDraw Professional** to provide a robust platform for creating high-quality chemical structures, reaction schemes, and scientific illustrations. It is widely used for preparing publications, reports, and teaching materials in chemistry and related fields.
- **Vector Network Analyser** Material measurement software suit (Keysight Technologies) was installed in Vector network analyser (Agilent technologies, N5224A) which is available in Department of Avionics IIST. The software is capable of providing parameters such as relative complex permittivity, magnetic permeability, loss factor (tan delta) and Q-factor of materials used for EMI shielding and other applications.

Faculty Profile

Gomathi N., Professor and Head of the Department

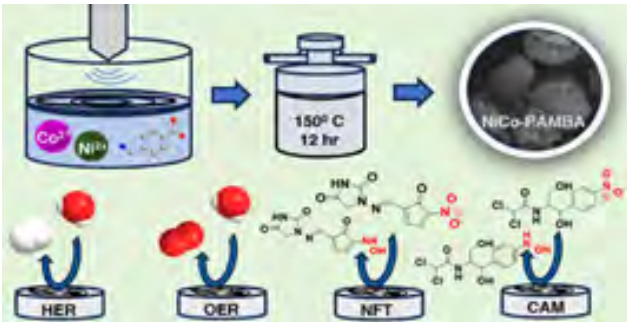
Research Interests:

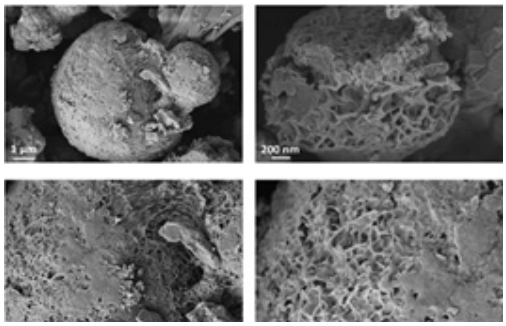
Metal organic framework based materials for

- Electrochemical Sensing
- Electrocatalysis for OER and HER
- CO2 adsorption
- Removal of emerging contaminants from water
- Fluorescence sensing

Research Highlights:

- Developed a highly efficient bimetallic metal–organic framework (BMOF) that displayed excellent electrocatalytic activity for both the cathodic hydrogen evolution reaction anodic oxygen evolution reaction during water splitting and simultaneous detection of two key antibiotic pollutants, nitrofurantoin and chloramphenicol.
- Developed a fluorescence-based sensor for the selective detection of tetracycline (TC) in aqueous media using Ce-DHTA fluorescent MOF.



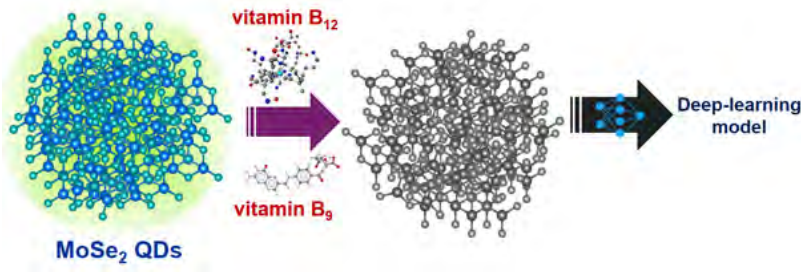


Reference: https://www.iist.ac.in/people-faculty-profile/ gomathi-n

Jobin Cyriac, Professor

Research Interests:

- Chemical sensors
- 2D materials, Carbon quantum dots
- Raman spectroscopy
- Mass spectrometry



Research Highlights:

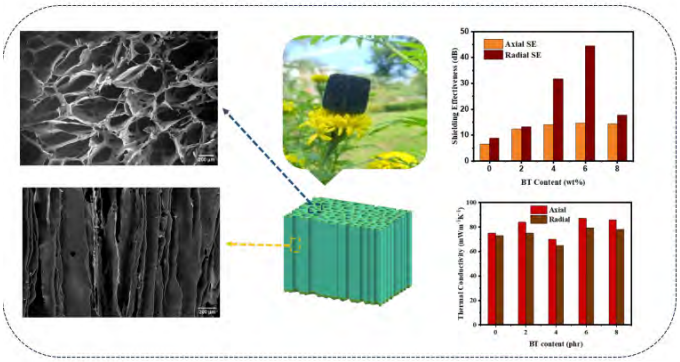
- Developed a deep learning- assisted discriminative detection of vitamin B12 and vitamin B9 by fluorescent MoSe2 quantum dots.
- A new and effective approach is developed for synthesising a few-layer MoS2 nanosheets by a corona discharge set-up at atmospheric pressure and room temperature.
- A fluorescence-based lead(II) (Pb2+) sensor using luminescent MoS2 nanosheets is demonstrated.

Reference: https://www.iist.ac.in/people-faculty-profile/jobin-cyriac

Kuruvilla Joseph, Outstanding Professor, Dean (Academics) & Registrar

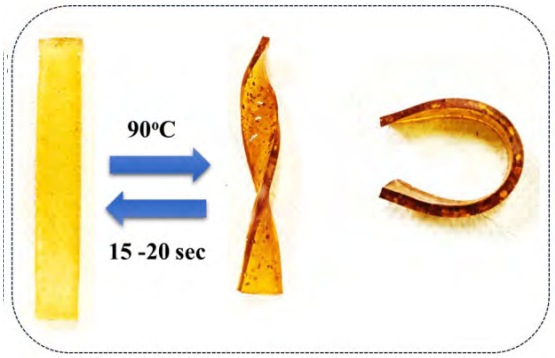
Research Interests:

- Nanomaterials and nanocomposites
- Polymer blends and composites
- Synthesis of polymers from natural resources
- Green materials and bio-composites Ageing and degradation
- Biosensors Emi shielding Materials



Research Highlights:

- Polymer-composites for EMI shielding: Developing EMI shielding materials (electrospun carbon fibers, composite aerogels and films) with dielectric, magnetic and carbon based fillers.
- Polymer Blends and Bio-composites: Focused on creating advanced polymer systems, including natural fiber (sisal, banana) and epoxy-based composites.



- Green Materials: Emphasis on sustainability—using lignin derivatives and cellulose-derived polymers for smart applications.
- Biosensor Development: Exploring polymer-based sensors for detecting biological/chemical signals.
- Polymer composites for Energy applications: Conducting polymers for electrodes and electrolyte fabrication.

Reference: https://www.iist.ac.in/people-faculty-profile/kuruvilla-joseph

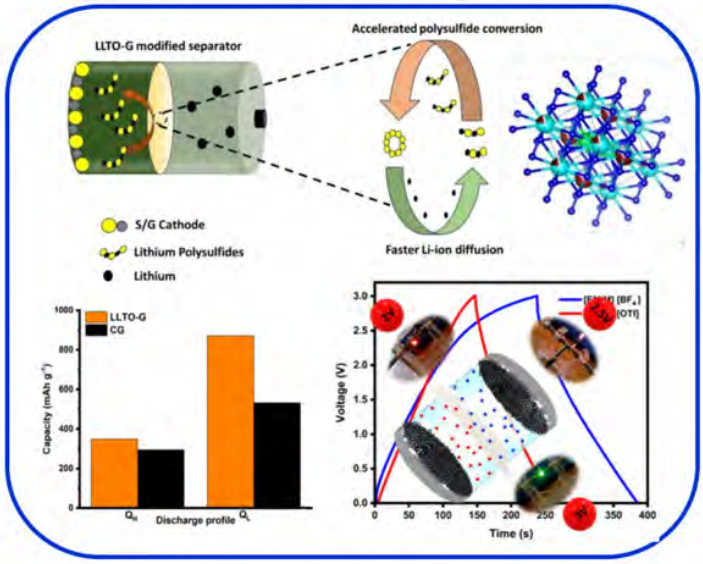
J. Mary Gladis, Professor

Research Interests:

- Li-ion/ Metal-sulphur batteries-materials for electrode & electrolytes
- Cell fabrication& Evaluation Supercapacitors- materials for electrode & electrolytes
- Corrosion & coatings Synthesis and evaluation of nano/ inorganic functional materials Solid phase

Research Highlights:

- Engineered Functionalized separators using Porous activated carbon integrated with carbon nitride nanosheets, and Carbon nanotube–binary metal sulfide nanocomposites to effectively trap polysulfides in Li–S batteries.
- Developed an eco-friendly, high-performance binder system to enhance the mechanical stability and cycle life of silicon–graphite composite anodes for next-generation lithium-ion batteries.
- Achieved improved capacitance and broader voltage window electric double-layer capacitors (EDLCs) by optimizing electrolytes in conjunction with hierarchically porous carbon electrodes.



Reference: https://www.iist.ac.in/people-faculty-profile/j-mary-gladis

Nirmala Rachel James, Professor

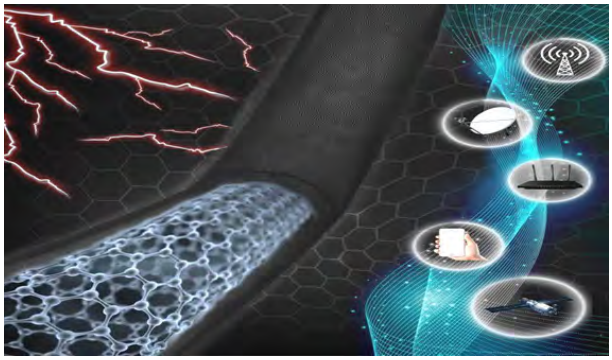
Research Interests:

- Composite materials for EMI shielding applications
- Fluoropolymers based coatings for thermal control applications
- Hydrogels for radiation therapy

Research Highlights:

- Developed light weight and flexible conducting materials which show strong electromagnetic interference(EMI) shielding capabilities to lessen the effects of rising electromagnetic pollution.
- Fabricated a light weight and flexible Titanium Nitride nanoparticles (TiNNPs) incorporated CNF and their polydimethylsiloxane (PDMS) composite having a thickness less than 200nm and superior EMI shielding performance and mechanical properties. This work provides the realization of a light weight and flexible material which shows excellent shielding effectiveness and increased conductivity in a wide range of bandwidth(8-27GHz).

- Developed EMI shielding materials based on graphene nanoplatelets and carbon black.
- Developed hydrogel materials based on gum Arabic and gelatin to be used as phantom gels in radiation therapy.



Reference: https://www.iist.ac.in/people-faculty-profile/nirmala-r-james

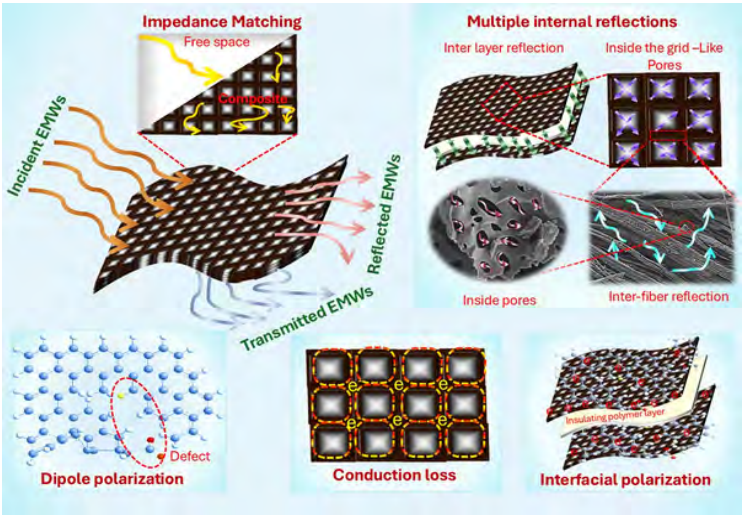
Prabhakaran K., Professor

Research Interests:

- Advanced ceramic powder processing
- Porous Ceramics and Ceramic forms
- Processing of carbon form Materials for environmental remediation

Research Highlights:

- Developed a thin flexible composite from jute fabric derived carbon textile and natural rubber latex.
- The composite exhibit a high shielding effectives of 79 dB at a low thickness of 2.38 mm.
- The composite retains >95% of the shielding effectiveness even after 1000 bending and twisting actions.



Flexible carbon textile-rubber composites from castoff jute bag and natural rubber latex

Reference: https://www.iist.ac.in/people-faculty-profile/k-prabhakaran

K. Y. Sandhya, Professor

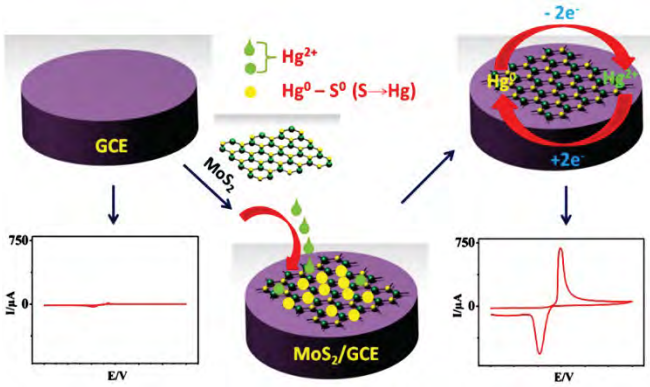
Research Interests:

- Electrochemical (EC) Sensors
- Energy Storage Devices
- Materials for environmental applications
- Adsorbents
- 2D Nanomaterials
- Photocatalysis
- Sustainable materials

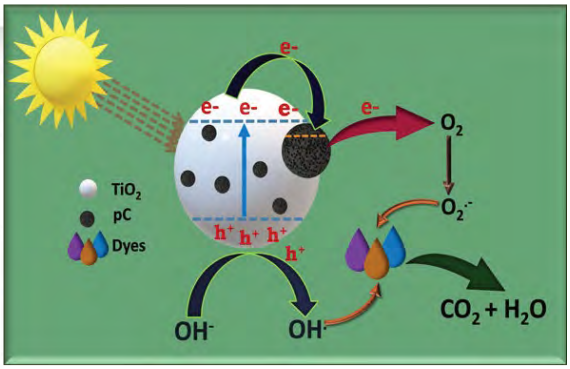
Research Highlights:

- EC sensors for the detection of toxic heavy metal ions (HMIs), phenolic compounds, pesticides, antibiotics in water and biomolecules like dopamine, serotonin in bodily fluids.

- Adsorbent for ultrafast removal of toxic pollutants and HMIs from water.
- Photocatalyst for degradation of toxic dyes and pollutants in water.



Enhanced EC sensing of Hg (II) by exfoliated MoS2



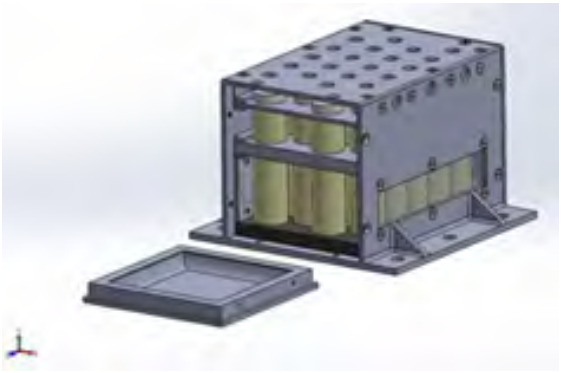
Photocatalysis

Reference: https://www.iist.ac.in/people-faculty-profile/k-y-sandhya

K. G. Sreejalekshmi, Professor

Research Interests:

- Molecular materials
- Smart materials
- Microgravity research
- Space Biology & Bioastronautics



Research Highlights:

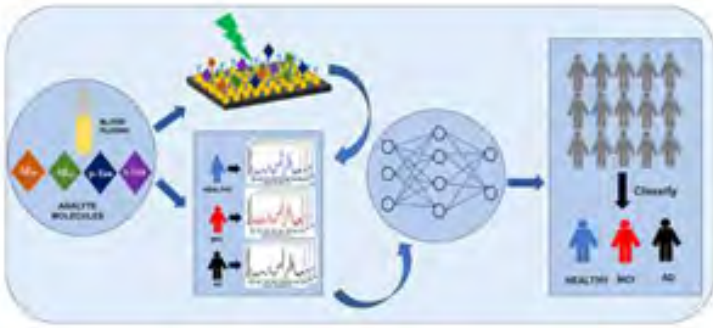
- Development and Testing of Customised Indigenous Hardware for Fruit Fly Experiments onboard Gaganyaan Flights.
- Study of impact of seed exposure to simulated microgravity on growth and development in tomato (Solanum Lycopersicon L).
- Studying the influence of simulated microgravity on the courtship and negative geotaxis behaviour of Drosophila Melanogaster.

Reference: https://www.iist.ac.in/people-faculty-profile/k-g-sreejalekshmi

Shaiju Nazeer, DBT Ramalingaswami Faculty Fellow

Research Interests:

- Bio Spectroscopy
- Biomedical Optics
- Spectral diagnosis
- Drug delivery



Research Highlights:

- Established a SERS-based analytical method to detect early pathological changes associated with Alzheimer's disease from blood samples.
- Designed and developed a portable system for fluorescence spectroscopic mapping.

Department of Earth and Space Sciences

2.4 Department of Earth and Space Sciences

Vision

To contribute towards the advancement of knowledge and innovation in the fields of Astronomy & Astrophysics, Atmospheric sciences, Geology, and Remote Sensing along with supporting national space research, addressing regional and global scientific challenges related to the Earth and space.

Mission

- To offer postgraduate and doctoral programs in inter-disciplinary and emerging areas associated with Earth and space sciences.
- To provide innovative and sustainable solutions for space missions through cutting-edge research.
- To be an intellectual ecosystem by establishing collaboration between academia and industry.

Core research focus areas
Astronomy and Astrophysics
Atmospheric and Ocean Sciences
Remote Sensing
Planetary Geosciences

Fact File	
Number of faculty members	14
Tutors /Technicians	3
Non-teaching staff	1
Research Scholars	49
Number of PhDs conferred	10

Laboratory / Research Facilities

Department owns 4 instructional labs and 8 research labs which include;

- Astronomy Lab
- Atmospheric and Ocean Sciences Lab
- Remote Sensing Lab
- Geology/Planetary Geosciences Lab
- National facility for Hyperspectral
- Regional Centre for Geodesy
- Multispectral Drone
- Climate Observatory, Ponmudi
- Aerosol Research
- IIST Balloon Launch Facility
- Automatic Weather Station
- Planetary Analogue Research Facility

Research and Development

The research activities in the department are of an interdisciplinary in nature, they aim to bridge the gap between technological advancement and its application to fundamental research areas in Earth and Space sciences. The research activities focus on diverse fields of Earth System Science, Astronomy & Astrophysics and Geoinformatics.

- Faculty members of the department have actively involved in the Advanced Space Research Group (ASRG) activities. Three projects have been approved till date under the ASRG scheme.
- The Ponmudi Climate Observatory has facilities for high-end research on aerosol-cloud interactions studies. A Regional centre for Geodesy is established in IIST with funding from DST. Aerial LiDAR data and an orthophoto of the city of Thiruvananthapuram were obtained by Aerial Lidar Survey with funding from DST.
- Department has initiated MoUs with various R&D organizations and national and international universities including IIT Kharagpur, IIT Kanpur, Mangrove Foundation Maharashtra, Niigata University, Japan.

- Faculty members from the Department holds various externally funded projects. The funding agencies include DRDO, DST-SERB, MoES, DBT, Mangrove Foundation Maharashtra, and Max-Planck Society, Germany.

Contributions to Institute-Level Space Missions

- Faculty members of the department are contributing to the Small Satellite Payload development (SSPACE) activities, Balloon launch facility for the measurement of vertical profile of ozone with meteorological parameters, Student Satellite Program (SSP), ExoWorld and so on.
- Faculty members are involved in payload development, science formulation, and data processing of ISRO missions to Moon, Mars, Venus and Sun.

Research outcomes -Fact File	
International Journal:	83
Conferences	31
Patents	1 (Filed)

Outreach Activities

- Conduct various outreach/training programmes to school and college students such as Geoconnect, Astronomy School, STORM etc. Also contribute actively to various outreach activities for school/college students initiated by Student Activity Board of IIST.
- Students and faculty members of the department actively participate various conferences, workshops, seminars, FDPs and so on.
- Reviews/Technical discussions at ISRO and research organizations/Institutes.

Startup activities

- Bhuh Pramaan is a Bengaluru based start-up company being incubated under the Space Technology Innovation and Incubation Centre, IIST. Being mentored by the Remote Sensing Faculties of the Department of Earth and Space Sciences, Bhuhpramaan is dedicated to developing innovative solutions in satellite image and geo-spatial data processing.
- Kapih Deep Tech Pvt. Ltd (https://www.kapih.in/), a startup recently incubated in IIST under the mentorship of the Department of Earth and Spaces, is a deep-tech company developing products and services of AI-powered Digital Twins with Internet of Things (IoT), Hyperspectral Technology, and Extended Reality (XR). The emphasis of Kapih is to harness these technologies to deliver indigenous, scalable, and high-impact platforms across verticals such as water management, defense, aerospace, and smart infrastructure—advancing the goals of Atmanirbhar Bharat and Make in India.

Faculty Profile

A. Chandrasekar, Outstanding Professor, Dean (Research & Development)

Research Interests:

- Numerical modeling of the atmosphere
- Data assimilation
- Mesoscale modelling
- Land-atmosphere interaction

Research Highlights:

- Two Weather Research Forecasting simulations were conducted, with the control and experimental runs differing solely in the following aspect: the initial cyclonic vortex corresponding to the first TC at the initial time was removed in the experimental run, whereas it was retained in the control run. Both simulations were analyzed to reveal the "Brown Ocean Effect" role.

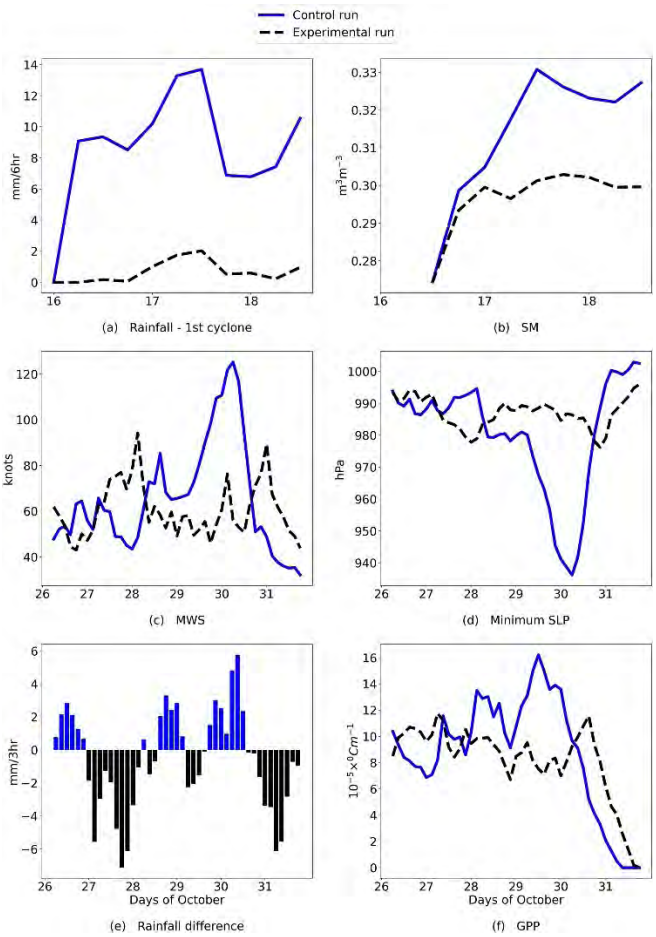


Figure: Time series of quantities within 500 km boxes at the TC center for both runs: (a) and (b) are averaged rainfall and SM, respectively, at the first TC center, (c) and (d) are MWS and minimum SLP at the second TC center, (e) the difference in rainfall between CTRL and EXP runs around the second TC center, (f) GPP at the second TC cente

Reference: https://www.iist.ac.in/people-faculty-profile/chandrasekar

Anandmayee Tej, Senior Professor

Research Interests:

- High-mass star formation
- Exoplanets
- Planetary atmospheres from stellar occultation

Research Highlights:

- Leading the Indian side of an international campaign to probe the choatic ring system and atmosphere of Uranus during stellar occultation events. On 12 November 2024, a stellar occultation event was successfully observed from the Devasthal Optical Telescope (India's largest optical telescope) and the Himalayan Chandra Telescope. Excellent observations have been obtained in the infrared, where there is first detection of the Epsilon ring since 2006. Another event was observed on 16 December 2024 with both these telescopes. The analysis is in progress.
- Using data from the Atacama Large Millimeter/submillimeter Array Three-millimeter Observations of Massive Star-forming Regions (ATOMS) survey, we presented the first direct observational evidence of multi-epoch massive star formation in the star-forming complex, G24.47+0.49. This result got published in the Astrophysical Journal Letters.

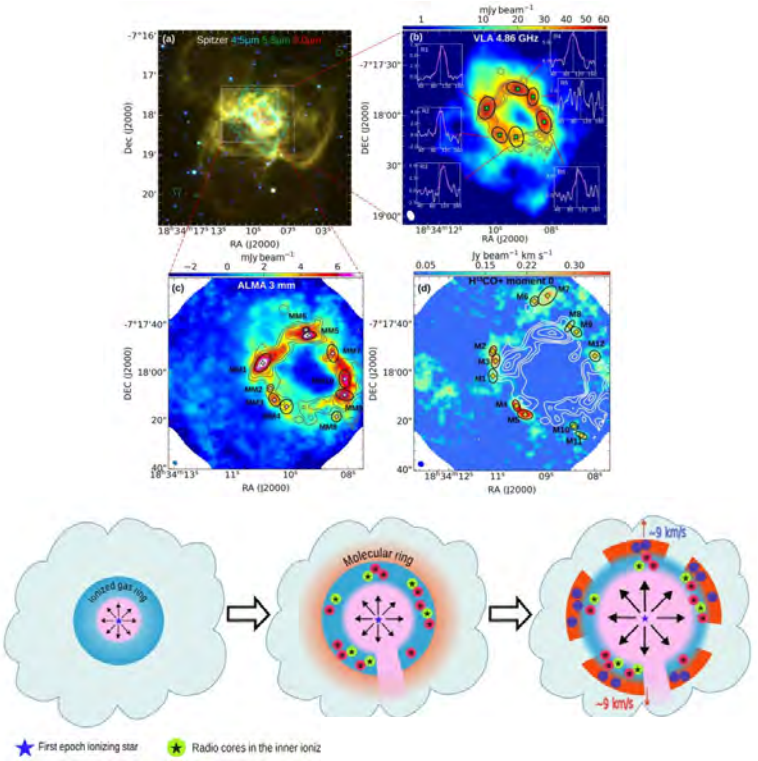


Figure: Top: Morphology of the star forming complex G24.47+0.49 in mid-infrared, radio continuum, radio line, and molecular line emission. Bottom: Schematic illustrating the hierarchical triggering of multi-epoch massive star formation. Saha et al., 2024, ApJ Letters, 970, L40.

Reference: https://www.iist.ac.in/people-faculty-profile/anandmayee-tej

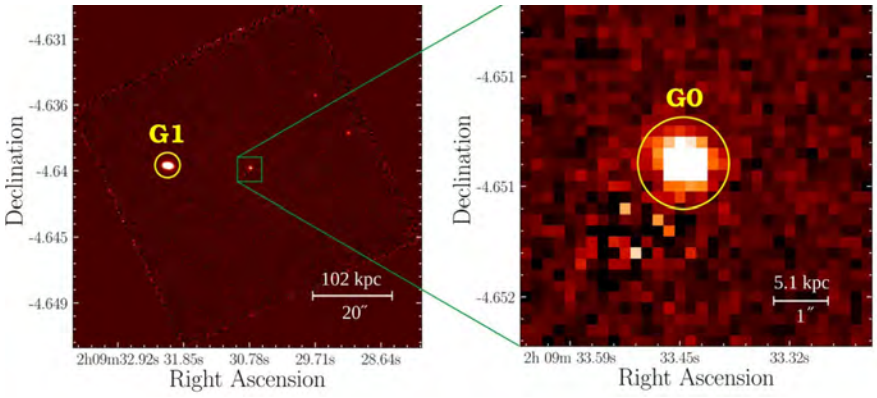
Anand Narayanan, Professor and Head of the Department

Research Interests:

- Circumgalactic & Intergalactic Medium
- Galaxy Evolution
- Galaxy Large Scale Clustering

Research Highlights:

- Using cutting-edge observational techniques across multiple wavelengths, carried out studies, led by students, on the properties and origins of gas surrounding galaxies and their influence on how galaxies grow and evolve.
- Using radio interferometry data, carried out studies, led by students, on the distribution of atomic hydrogen gas in interacting galaxy systems.



Reference: https://www.iist.ac.in/people-faculty-profile/anand-narayanan

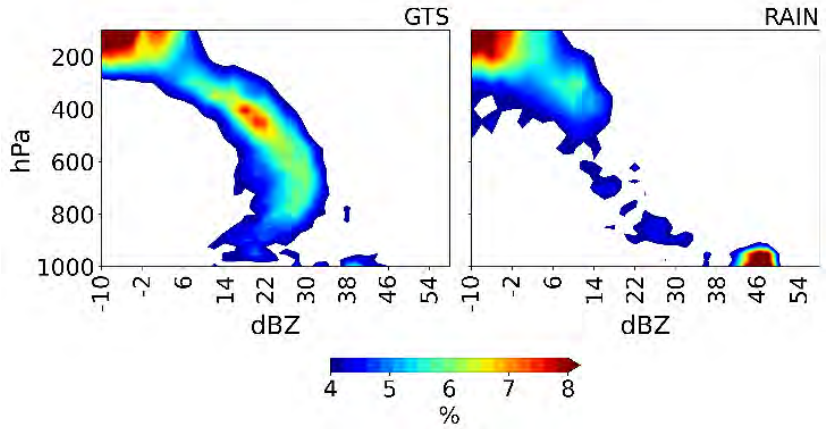
Govindan Kutty M., Professor

Research Interests:

- Atmospheric Modelling
- Data Assimilation
- Predictability of Weather

Research Highlights:

- A new criterion has been developed to address the "zero rain" issue associated with precipitation assimilation.
- Developed a probabilistic method to identify regions of Initial Condition uncertainty in NWP models.



Contoured frequency by altitude diagram for GTS and RAIN experiments

Reference: https://www.iist.ac.in/people-faculty-profile/govindan-kutty-m

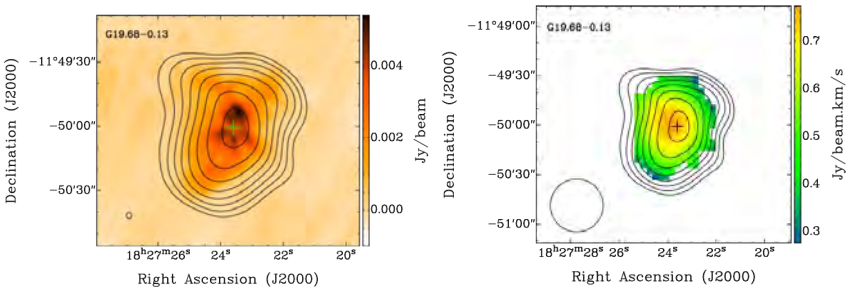
Jagadheep D. Pandian, Professor

Research Interests:

- High-mass star formation
- Astrophysical Masers
- Galactic Structure

Research Highlights:

- A study of the extended emission around ultracompact HII regions, leading to insights on the cause of discrepancy between radio and infrared studies. An example source is highlighted in the figure.



The figure shows the radio continuum (left panel) and the integrated intensity of radio recombination lines (right panel) of the ultracompact HII region G19.68–0.13. The inset circle in the bottom left shows the resolution of each map.

- Release of the full radio continuum source catalog from the GLOSTAR survey in the D-configuration. The catalog has a total of 11,211 radio sources including 769 HII regions, of which 359 are new.
- Release of the radio recombination line source catalog from the GLOSTAR survey comprising of 244 individual Galactic HII regions.
- An overview of the the status of research in India on the area of interstellar medium and star formation in the Milky Way has been published.

Reference: https://www.iist.ac.in/people-faculty-profile/d-jagadheep

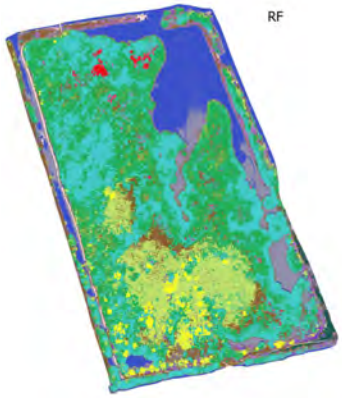
L. Gnanappazham, Professor

Research Interests:

- Multi source RS techniques for Biomass estimation
- Nation wide Mangrove Species mapping
- Understanding the coastal ecosystem using RS techniques

Research Highlights:

- Enhancing and upscaling the mangrove Biomass estimation using multisource remote sensing techniques integrating Optical, Microwave and LiDAR techniques.
- Statistical and Exploratory data analyses of time series satellite data to understand the overall health of mangroves, its ecosystem and species composition.
- Field observation and measurements to understand the sedimentation pattern and thereby studying the characteristics of various mangrove species.



Mapping the Azheekkal mangrove species using Drone multispectral image

Microtopography of estuarine bed

Reference: https://www.iist.ac.in/people-faculty-profile/l-gnanappazham

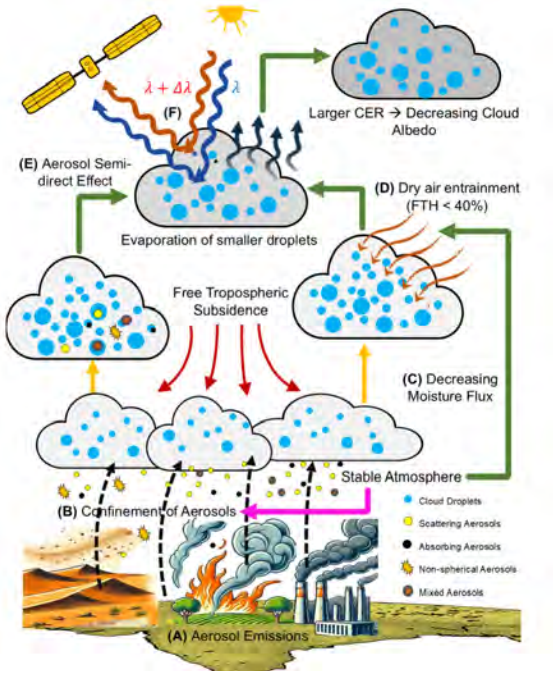
P. R. Sinha, Associate Professor

Research Interests:

- Develop instrumentation for aerosol measurement
- Aerosol mixing state
- Aerosol-Cloud interaction
- Aerosol-Cloud-Radiation interaction

Research Highlights:

- A positive correlation between aerosol optical depth (AOD) and cloud effective radius (CER) was established over the Western Indo-Gangetic Plain (WIGP), Eastern IndoGangetic Plain (EIGP), and Central India (CI) during winter, irrespective of variations in aerosol types (composition and morphology) and meteorological conditions.
- The observed reversed positive correlation between AOD and CER is likely driven bysemi-direct effects and entrainment-induced evaporation.



Conceptual Schematic diagram illustrating the potential governing processes for aerosolcloud interaction

- This reversed relationship between AOD and CER offers valuable insights for improving the representation of aerosol–cloud interactions in global climate model simulations.

Reference: https://www.iist.ac.in/people-faculty-profile/pr-sinha

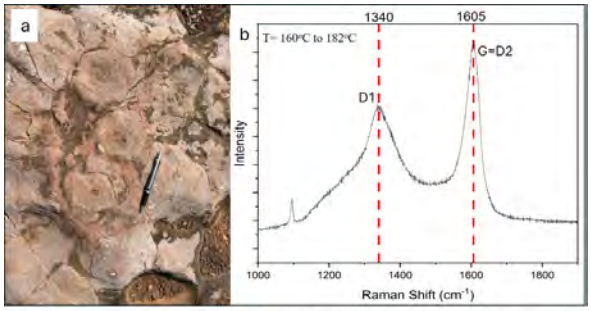
Rajesh V. J., Professor

Research Interests:

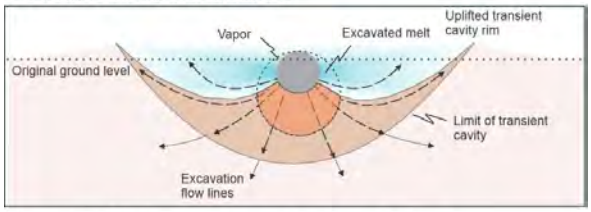
- Planetary Geology
- Terrestrial Analogue Research
- Astrobiology

Research Highlights:

- Mineralogical and geotechnical studies to simulate Martian and Lunar environments through analogue research.
- Exploring evaporite minerals, hydrous sulphates and extreme conditions for biosignatures in extraterrestrial environments.
- Studying BIFs, chert, and stromatolites for ancient climate insights.



(a) Stromatolites from Chattisgarh Basin. (b) Temperature calculations of Carbonaceous material from stromatolites



Excavation and displaced zones during meteoritic impact on Moon.

- Volcanism, mineralogy, and surface processes of the Moon and Mars.
- Understanding of crater evolution in highland terrains on the Moon.
- Identification of Potential Landing and Sample Return Sites in the Lunar Polar Areas.
- Developing modular construction block by investigating the geotechnical properties of analogue materials.

Reference: https://www.iist.ac.in/people-faculty-profile/v-j-rajesh

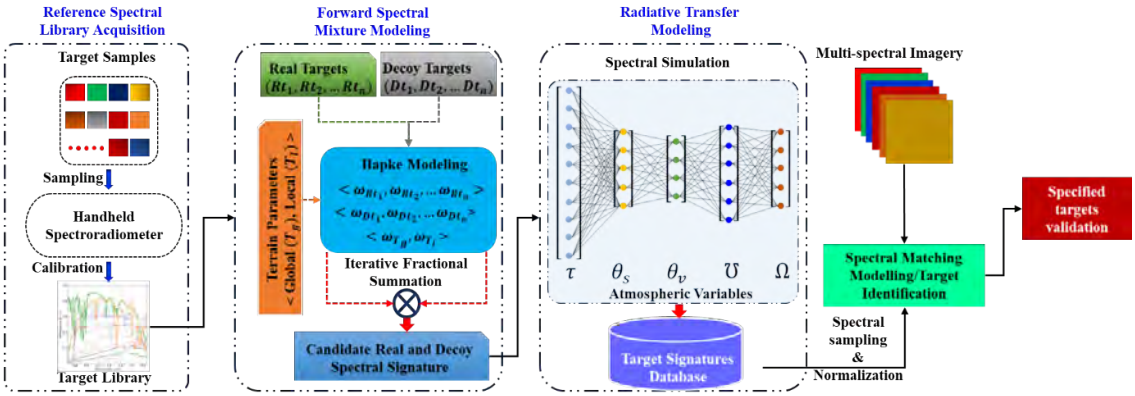
Rama Rao Nidamanuri, Professor

Research Interests:

- Modelling and analyses of remote sensing data for various applications

Research Highlights:

- Radiative transfer theory-based scene and sensor simulation has a lot of applications, both in civilian and strategic domains. Building upon the studies and developments on atmospheric correction models for various types of multispectral and hyperspectral sensors, a long-term perspective plan and multi-application centre for modelling and simulation of a host of remote sensing imagery for various applications has been initiated.



τ: Aerosol optical thickness; θ_s: Solar Zenith angle; θ_v: View Zenith Angle; $\mho$: Atmospheric profiles; Ω: Aerosol profiles

Example application: military target detection by integrated spectral design

Reference: https://www.iist.ac.in/people-faculty-profile/rama-rao-nidamanuri

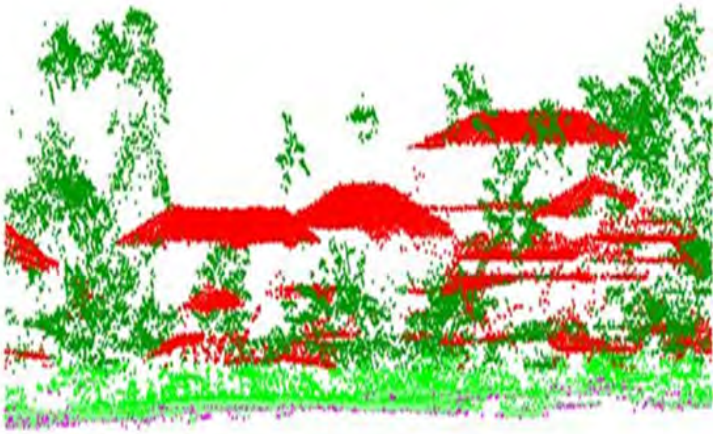
Ramiya A. M., Associate Professor

Research Interests:

- LiDAR Point Cloud Processing
- Hyperspectral/Multispectral/Microwave Remote sensing
- Geospatial analysis

Research Highlights:

- Introduced Land cover Diversity Index (LDI) to quantify the complexity of landcover in 3D by measuring the degree of class heterogeneity and the frequency of class variation in the dataset.
- Developed classification strategies for labelling LiDAR point cloud dataset with high LDI.
- Developed Economic Health Score (EHS) as an indicator to assess the agro-economic health of Indian villages combining intelligence from satellite images along with environmental and socio-economic factors.



Sectional view of TALD dataset

Reference: https://www.iist.ac.in/people-faculty-profile/ramiya-m

Resmi L., Associate Professor

Research Interests:

- Gamma-Ray Bursts
- Electromagnetic counterparts to gravitational wave sources
- Fast Radio Bursts
- Transient astronomy

Research Highlights:

- Found that the burst can move from short to long duration w.r.t the boundary of the two classes for GBM (2 s). (from Chakyar et al., 2025.) In the case presented here, the on-axis duration is 0.4 s.

Reference: https://www.iist.ac.in/people-faculty-profile/resmi-l

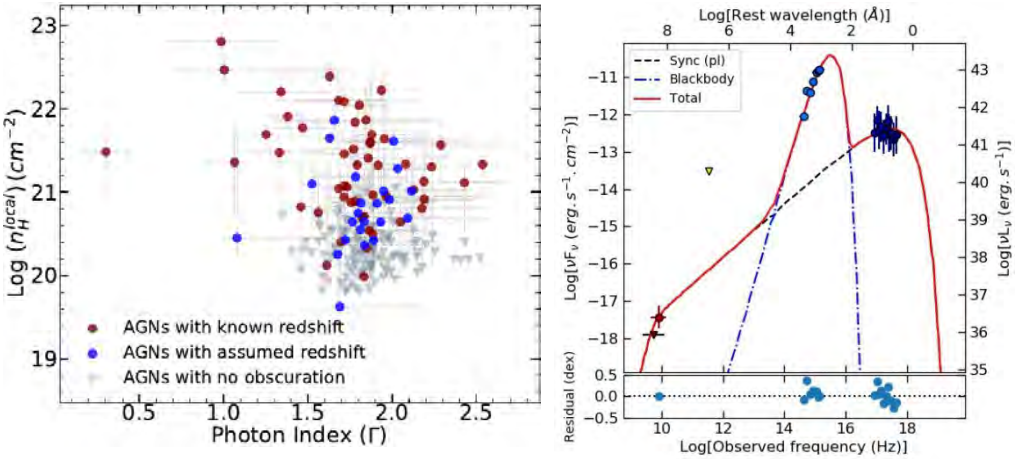
Samir Mandal, Professor

Research Interests:

- Accretion physics of compact X-ray binaries Particle acceleration and non-thermal processes Radiation hydrodynamics
- Physics of astrophysical jets; Study of AGNs and TDEs
- Classification and properties of cosmic sources using machine learning methods
- Simulation of detector characteristics in X-ray domain

Research Highlights:

Our multi-wavelength observations (X-ray, ultraviolet, optical, and radio) indicate that AT2020ohl is linked to the active center of NGC 6297. It is believed that this event may have been triggered either by a sudden inflow of matter onto the galaxy's central supermassive black hole, which is about 12 million times the mass of our Sun, or by a brief burst of activity in an existing disk of matter around the black hole. This could have been caused by a dramatic interaction between two supermassive black holes brought together during a galactic merger.



The figure shows the broad-band spectral energy distribution of AT2020ohl with theoretical model due to synchrotron (radio and X-ray) and black body (optical-UV) processes.

Reference: https://www.iist.ac.in/people-faculty-profile/samir-mandal

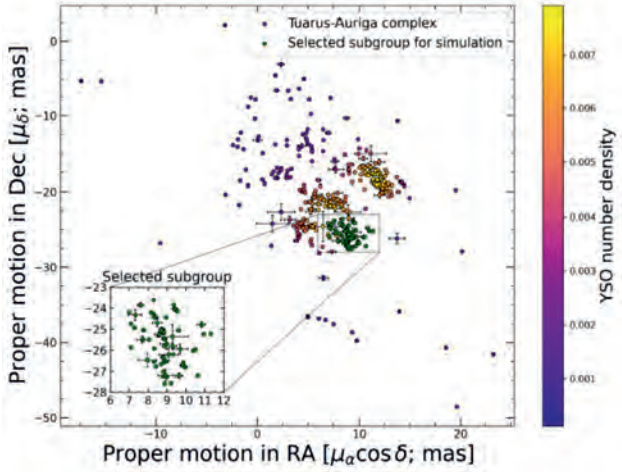
Sarita Vig, Professor

Research Interests:

- Early phases in Massive Star Formation
- Embedded Galactic clusters
- Globular clusters
- Galactic structure

Research Highlights:

- Developed new algorithms using multi-dimensional simulation for identification of star clusters.
- Observed helical magnetic field from protostellar jets for the first time.



Proper motion vector plot for YSOs in the Taurus-Auriga complex. Red points represent 349 Young Stellar Objects (YSOs) with Gaia counterparts. The colorbar indicates the YSO number density, while the inset highlights 58 YSOs (green circles) selected to extrapolate proper motions for simulating cluster members.

Reference: https://www.iist.ac.in/people-faculty-profile/sarita-vig

Department of Humanities & Social Sciences

2.5 Department of Humanities & Social Sciences

Vision

To attain excellence in Research, Teaching, and Learning with Social Sensitivity.

Mission

- To mould scientists and engineers with humanitarian concern, management skills, and sensitivity towards the socio-economic reality of society.
- To support the vision of the institute in providing a holistic education including ethical education, soft skills, entrepreneurial ability, and the spirit of innovation.
- To bridge the gap between space technology and the socio-economic, cultural & managerial development of the country.

Core research focus areas
Space Economics
Technology Diffusion and Economic Development
Cultural studies
Gender Studies
Visual Histories
Supply chain Management
Reverse Logistics
Science, Technology and Society
Study of the Marginalized Communities
Science Fiction
Food and Cultural Studies

Fact File	
Number of faculty	5
Technical Staff	1
Tutors /Technicians	1
Non-teaching staff	1
Research Associate	1
Research Scholars	29
Number of PhDs conferred	2
Post-Doctoral students	1

Laboratory / Research Facilities

The Department Houses one instructional lab **(Language Lab)** and one research lab **(Audio Visual Lab)**

- **Language Lab**

  The Language Lab provides students with an interactive platform to enhance their communication skills through technology-assisted learning. Practical sessions are also conducted on presentation skills, role-playing, mock interviews and group discussions. It incorporates specialized sessions focused on enhancing listening and speaking abilities through the Language lab software *Orell*.

- **Audio Visual Lab**

  The Audio Visual Lab supports in-house activities by creating high-quality content, including graphics, animations, and videos, as well as recording interviews, dignitary talks, expert lectures, and other significant events. Additionally, it handles documentation and archival of all key activities at IIST to ensure comprehensive preservation and accessibility.

Research outcomes/ publications

The department's robust PhD program forms the cornerstone of its dynamic research activities. Faculty members lead an impressive portfolio of extramural and ASRG projects, including ICSSR-sponsored project, Exploring the Socio-Cultural Framework of the Kattunaykan Tribal Community through its Indigenous Art

Forms, The Impact of Telemedicine on Rural Areas of India (ICSSR-sponsored), an analysis of the space economy within the Indian Space Programme, the Muziris Heritage Project, research on tribal cuisines, and a study on supply chain management. This year, the department secured a new a project titled *Role of Traditional Knowledge and Local Socio-Economic Structures in Adapting to Climate Change* which has been approved by NICES, NRSC . The department has established MoUs with the Centre for Development Studies (CDS), VSSC, and the US Consulate, along with an MoA with JNU, New Delhi, fostering collaborative research and innovation.

The Faculty members of the Department are reviewers of journals like Quarterly Review of Film and Video, Taylor and Francis; Nature Scientific Report; Visual Anthropology, T and F; Visual Anthropology Review;

South Asia: Journal of South Asian Studies; DIALOGS in Health, Elsavier; Indian Economic Review.

Prof Ravi is the Chief Guest Editor for the MDPI journal 'Sustainability' for the Special Issue titled "Managing Sustainable Development: Technology, Modelling & Applications."

Dr Shaijumon is the Editorial Board Member of Journal of Agricultural Economics, Extension and Rural Development, Springer International International Journal for Research in Social Sciences and Multidisciplinary Research Academy. He is also a Member of Joint Working Group (JWG) of the Estimation of Space Economy of India, ISRO.

Research outcomes -Fact File	
Journal Papers published	6
Publications in Conference Proceedings	4
Visits organized	1
Colloquium organized	1
Plenary Sessions	20
Book chapters	2
Book	1

Faculty Profile

Babitha Justin, Associate Professor

Research Interests:

- Gender Studies
- Cultural Studies
- Digital Humanities

Research Highlights:

- Contributed significantly to interdisciplinary scholarship through both academic publications and creative outputs.
- Highlights include articles and chapters in internationally reputed journals and edited volumes, as well as authored and co-edited books that bridge critical theory and creative practice.
- Led innovative projects such as the Ramyakhand scrap-installation initiative, which transforms aerospace scrap into educational art, and the IIST Corridor Art project, which integrates visual storytelling into institutional spaces.

- Research on Dalit cultural production, women's art practices, and transnational travel writing has opened up new critical pathways in cultural and postcolonial studies.

Reference: https://www.iist.ac.in/people-faculty-profile/babitha-justin

Gigy J. Alex, Associate Professor

Research Interests:

- Food and Cultural Studies
- Science Fiction Studies
- Communication Skills

Research Highlights:

- Cultural mapping of tribal cuisines in Kerala involves documenting the traditional culinary practices, ingredients, and recipes of indigenous communities in Kerala, emphasizing sustainable use of local resources like wild tubers, honey, mushrooms, and scented Gandhakasala rice to preserve cultural heritage and promote food security.
- Preparation of an indigenous cook book by mapping tribal recipes along with cultural contexts, enabling the celebration of Kerala's diverse tribal flavors while supporting initiatives for food sufficiency and culinary tourism.

Reference: https://www.iist.ac.in/people-faculty-profile/gigy-j-alex

Lekshmi V. Nair, Professor

Research Interests:

- Science, Technology and Society
- Study of Marginalized Communities
- Urban Sociology

Research Highlights:

Indian Space Program and its Impact on the Industrial sector of India

- Exploring the evolution and impact of ISRO's collaboration with Indian industries, particularly through VSSC.
- Traces the historical timeline and types of engagements.
- Highlights both tangible and intangible benefits, including the positive effects on small-scale industries, families, and communities.
- Role of Traditional Knowledge and Local Socio-Economic Structure in Adapting to Climate Change To analyse how traditional knowledge and local socio-economic structures contribute to communities' adaptation strategies is crucial.

Reference: https://www.iist.ac.in/people-faculty-profile/lekshmi-v-nair

Ravi V., Professor and Head of the Department

Research Interests:

- Reverse logistics
- Supply chain Mangement
- Digital Supplychain
- Sustainable Supply chain
- Industry 4.0, Smart Manufacturing

Research Highlights:

- A multi-criteria decision-making combining plithogeny and the VIKOR methodologies has been used to assess a pool of potential airlines and determine the optimal alternative that satisfies customer wants and expectations while ensuring airline sustainability.
- According to the study's findings, strict mask enforcement, the provision of PPE kits, the availability of flexible cancellation and travel voucher plans, the cleaning of the aircraft after each flight, and advanced boarding procedures combined with middle seat blocking were the four most crucial factors in evaluating airline service in the Indian context.

Reference: https://www.iist.ac.in/people-faculty-profile/v-ravi

C. S. Shaijumon, Associate Professor

Research Interests:

- Space Economics and Policy
- Neuro Economics
- Indian Economics
- Development Economics

Research Highlights:

- **Space Economy of India and its impact on the rest of the economy of the country**

While the absolute size of India's space economy remains modest in terms of GDP share (approximately 0.2 % in 2020–21), its sectoral reach and developmental significance are profound. The structured analysis demonstrates that the space sector in India has been a catalyst for high-skilled employment generation, revenue creation, efficiency gains, cost savings, social inclusion, improved cyclone forecasting, increased yield in agriculture and technological spillovers.

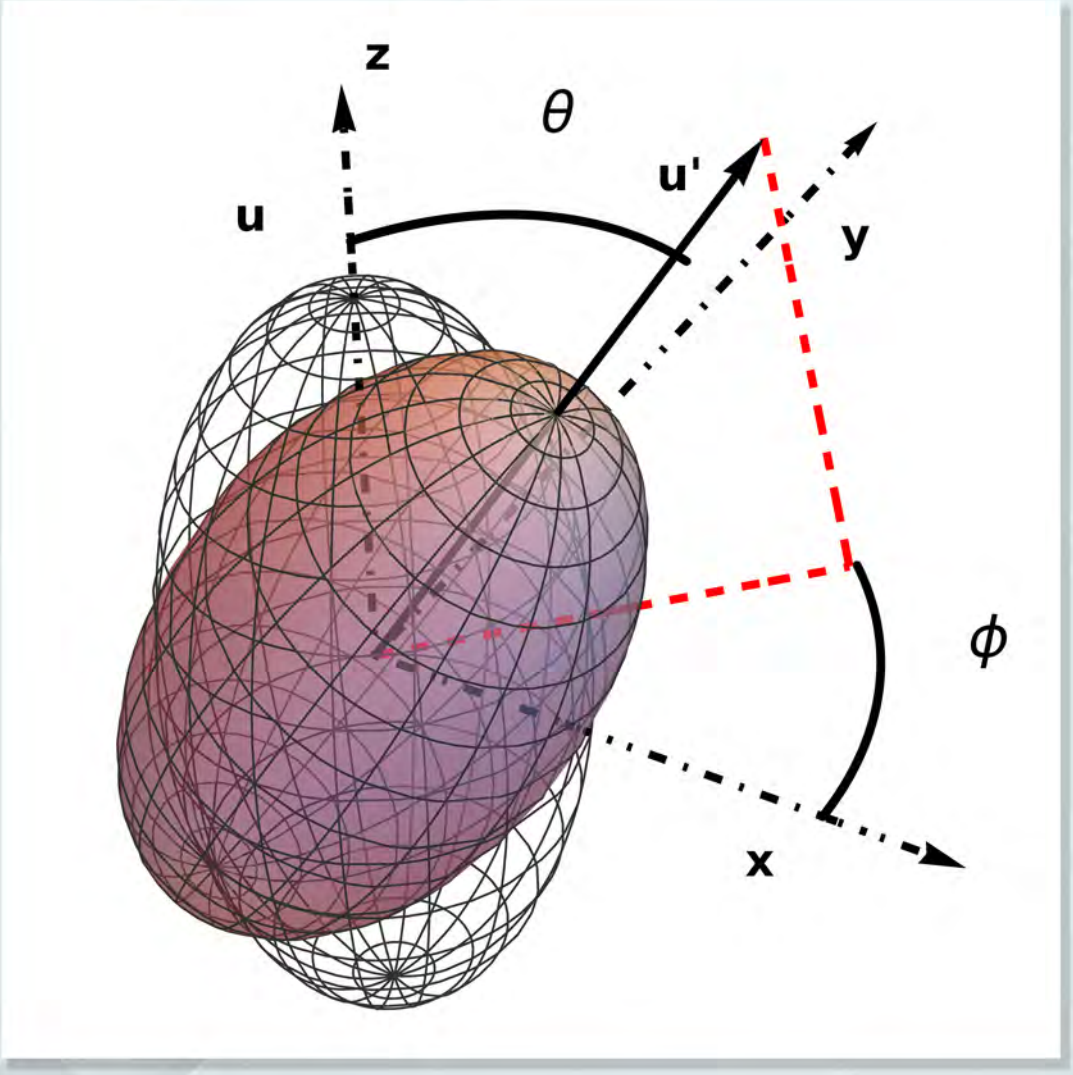
Sunil Mani, V.K. Dadhwal, Shaijumon C S (2025), "Space Economy of India, Its Impact on the Rest of the Economy", Space Policy https://doi.org/10.1016/j.spacepol.2025.101692

- **Positive impact of Neuroeconomics on mission outcomes, astronaut resilience, and overall mission sustainability**

This study proposes a neuroeconomic framework to enhance decision-making, social interaction, and adaptability in space. Neuroeconomics, as an interdisciplinary combination of neuroscience, behavioral economics, computer science, and economics, offers powerful tools to investigate and improve human behavior under stress. Drawing on an extensive review of cross-disciplinary literature, key neural correlates of cognition and social behavior in hostile environments are identify, and integrative strategies to optimize crew dynamics, cognitive resilience, and mission-critical decision processes are prosed. Through the integration of neuroimaging techniques, computational models, and economic game theory, this research demonstrates how neuroeconomics can significantly improve mission outcomes, astronaut resilience, and overall mission sustainability, thereby establishing a novel standard for human adaptability beyond low Earth orbit (LEO).

Kavya Murali Parthasarathy, Shaijumon C. S & Vaishnav Prakash (2025), "Neuroeconomics for Astronaut Well-being: Enhancing Decision-Making and Social Interactions in Microgravity" Conference publication, Global Space Exploration Conference, GLEX-2025,5,1,1,x92046, https://iafastro.directory/iac/paper/id/92046/summary/

Reference: https://www.iist.ac.in/people-faculty-profile/c-s-shaijumon



Department of Mathematics

2.6 Department of Mathematics

Vision

To be a distinguished centre for research and education in Mathematics and its applications, recognised nationally and internationally for its high-quality research and teaching.

Mission

- Provide an excellent teaching and research environment for undergraduate, postgraduate, and doctoral students for critical and innovative thinking in different areas of Mathematics and its societal applications.
- Foster research collaborations at the national and international levels to cultivate a dynamic and active research ecosystem.
- Establish IIST as a prominent national-level knowledge center for a wide spectrum of mathematical activities.

Core research focus areas
Control Theory
Numerical Analysis
Mathematical Elasticity, Homogenization, Partial Differential Equations
Commutative Algebra
Machine Learning
Differential Geometry
Stochastic Modelling & Analysis
Queuing Theory and Time Series Analysis
Suspension Rheology
Industrial Mathematics and Soft computing

Fact File	
Number of faculty	11
Tutors /Technicians	3
Non-teaching staff	*1
Research Scholars	31
Number of PhDs conferred	2

Research outcomes -Fact File	
International Journal	18
Conferences	5
Book	1
Book chapters	2
Projects	6

Laboratory / Research Facilities

Department of Mathematics, IIST owns

- Programming lab
- M.Tech Machine Learning instructional lab
- Mathematics Research/Conference lab
- Mini Research lab

Seminar/Conference/workshop arranged

- May 27, 2024 to June 8, 2024 Young Talent Nurture
- June 17, 2024 to July 13, 2024 Annual Foundation School –III (AFS-III)
- August 9, 2024, Dr. A K Nandakumaran, Department of Mathematics, IISc Bangalore, “PDEs with Source term, Renormalized solutions and Applications to Homogenization”.
- November 23, 2024, Dr. Jyotsna Sivaraman, Department of Mathematics, IISER , Trivandrum, “Number Theory”.
- Mathematics Club talks:
    1. 17-04-2024, Aswani Thomas., An Introduction to Random Matrices

2. 22-07-2024, Tanvi, p-adic Numbers
3. 03-09-2024, Aswini N.K., FEM Implementation

Post-graduate course(s)

The department offers an M.Tech in Machine Learning and Computing.

Research and Developments

Faculty members collaborate actively with various national and international institutions and are having three externally funded projects from funding agencies like DST-SERB, NBHM etc.

Faculty Profile

Anilkumar C. V., Professor

Research Interests:

- Investigated the effects of particle and fluid inertia on prolate spheroids at low Reynolds numbers under periodic external forcing.
- Studied the dynamics of prolate spheroids in time-dependent flow fields with periodic external forces and low Reynolds numbers.
- Investigated how chaotic dynamics could characterise the fluids with adjustable rheological properties.
- Investigated the chaotic dynamics of the time series of Total Electron Content (TEC).

Research Highlights:

Orientations dynamics of forced spheroid in shear flows

- Derives governing equation of orientation dynamics for a driven spheroid suspended in a shear flow without Brownian and inertial forces. (Figure 1 shows the schematic diagram of the problem.)
- Identifies and characterizes the equilibrium orientation states of the suspended spheroid.
- Identifies a novel center bifurcation(two static nonlinear centers merge and persists as a center), and a center-node bifurcation(two static nonlinear centers merge and persists as an unstable node).

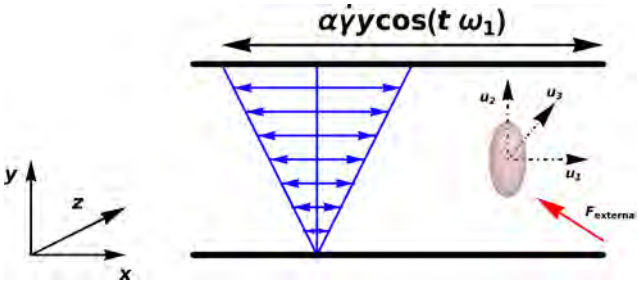
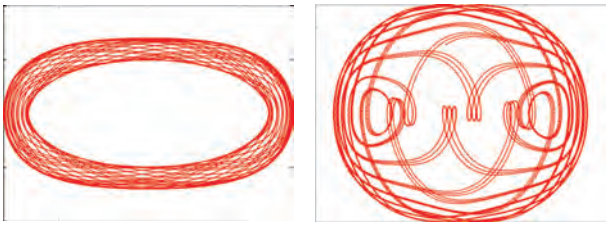


Figure 1: A Schematic representation of a spheroid in an oscillating shear flow under the action of external force.



(a) An oblate spheroid *(b) A prolate spheroid*

Figure 2: Phase space diagram for spheroid in a simple shear flow.

- Establishes the non-robustness of classical Jeffery's orbit to externally induced torque, and further showed that flow oscillations enhance these drifts from the Jeffery's orbit.
- Analyses the chaotic and regular behavior of spheroid in nearly quiescent, simple shear and weak/ strong oscillating shear flow.
- Observes that slow flow oscillation reduces the complexity of dynamics compared to simple shear flow.
- Proposes a mechanism to improve shape based particle separation technique incorporating simple and oscillating shear flow.

Reference: https://www.iist.ac.in/people-faculty-profile/c-v-anil-kumar

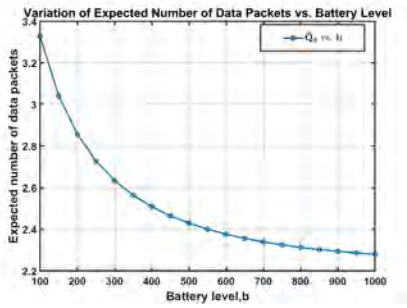
Deepak T. G., Professor and Head of the Department

Research Interests:

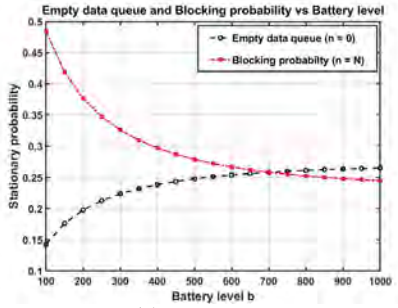
- Analysis of energy enabled queueing models to learn the dynamics of queueing systems requiring energy for the service
- Modeling and analysis of battery energy storage systems
- Retrial queueing models to study VANET dynamics

Research Highlights:

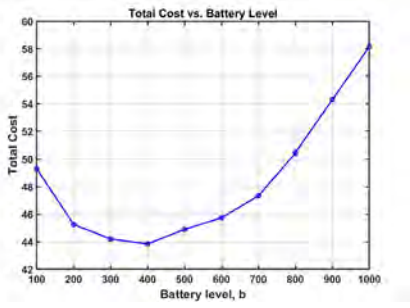
- Carried out performance analysis of an M/M/1/N queueing system where the server consumes energy from a battery during the service of customers
- The steady-state vector density of the fluid level, its Laplace transform, and the mean fluid level are derived together with the probability mass function of the queue size.
- A special case of the model with phase-type (PH)-distributed vacation time is also analyzed.



(a) Mean datapacket



(b) Packet blocking



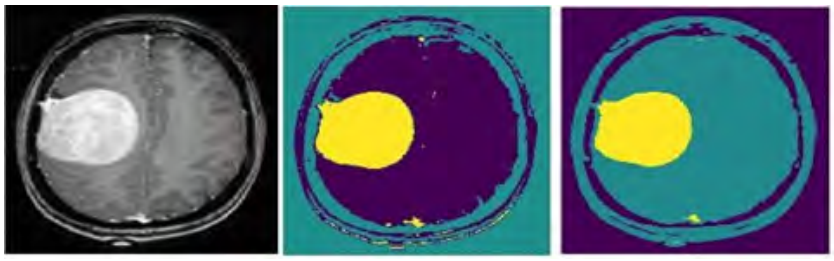
(c) Cost

Reference: https://www.iist.ac.in/people-faculty-profile/t-g-deepak

K. S. Subrahamanian Moosath, Senior Professor

Research Interests:

- Differential Geometry and Applications
- Information Geometry
- Shape analysis, Comparison of Audio Patterns and image



Segmentation results for a brain MRI image. (a) Original image, (b) K-means clustering with Euclidean distance (K=3), (c) Proposed method using statistical manifolds and Fisher distance.

Research Highlights:

Brain MRI Classification and Segmentation Using Information Geometric Tools

- This is a novel method for classifying and segmenting brain MRI images using information geometric techniques. We present (1) a feature-based method using Gray Level Co-occurrence Matrix and embedding space of univariate Gaussian distribution into Symmetric Positive Definite matrices for classification, and (2) a pixel-wise approach constructing a statistical manifold of univariate normal distributions, where each pixel is represented as a point on this manifold and segmentation is done using the Fisher distance. Evaluating our methods on 178 brain MRI images, we achieve promising results in tumor classification and region segmentation, with the LogFrobenius distance metric showing the highest classification accuracy of 82.86%.

Reference: https://www.iist.ac.in/people-faculty-profile/k-s-s-moosath

Kaushik Mukherjee, Professor

Research Interests:

- (FDM/FEM) for singularly perturbed PDEs/ODEs
- Computational methods for PDEs with non-smooth data
- Computational methods for Delay Differential Equations
- Numerical Analysis of nonlinear singular perturbation problems

Research Highlights:

- Developed and analyzed higher-order uniformly convergent fractional-step fitted mesh methods (FMMs) for multi-dimensional singularly perturbed PDEs with time-dependent boundary data, effectively capturing boundary layer phenomena in convection-dominated problems with applications to biological and medical models.
- Proposed efficient numerical approximations for coupled singularly perturbed convection–diffusion systems with multiple diffusion parameters using generalized adaptive meshes to accurately capture overlapping boundary layers.
- Investigated robust numerical methods for approximating the scaled first-order solution derivative (diffusive flux) in coupled SPDEs, enabling efficient resolution of steep gradients within boundary layer regions for small diffusion parameters.

Reference: https://www.iist.ac.in/people-faculty-profile/kaushik-mukherjee

N. Sabu, Senior Professor

Research Interests:

- Homogenization
- Partial Differential Equations

Research Highlights:

- Piezoelectric bodies like plates, shells, rods etc are three dimensional bodies. However, when one of their dimensions, say the “thickness”, is “small” compared to the others, lower dimensional theories has been proposed as approximations of the usual three dimensional theory. The main reasons for preferring lower dimensional models is that their simpler mathematical structure produces richer variety of results and their amenability to numerical computations.
- Lower dimensional theories proposed by as approximations to three dimensional models rely on a priori assumptions of mechanical geometrical nature. Further it is not clear which is the lower dimensional model most suited for a particular three dimensional model in hand. Thus one is lead to the question of mathematically deriving (or justifying) a lower dimensional model starting from the three dimensional model.
- Currently looking at the dynamic problem for thin piezoelectric plates and and shells and study the limiting behaviour of the solution as the thickness goes to zero.

Reference: https://www.iist.ac.in/people-faculty-profile/n-sabu

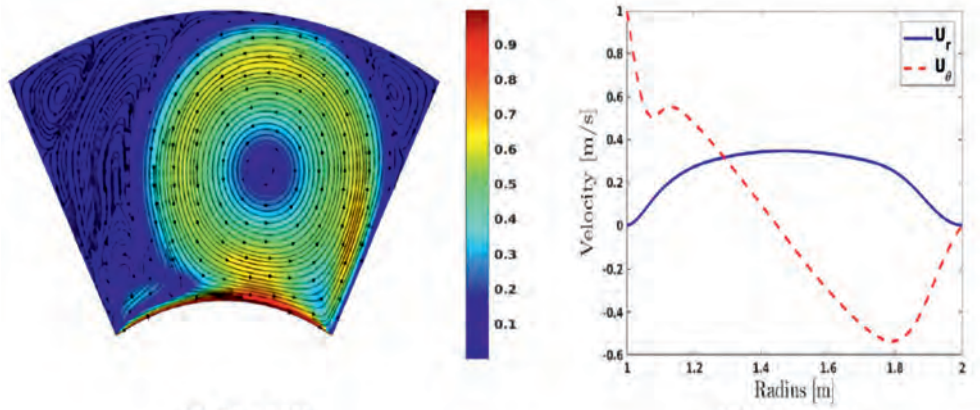
Natarajan E., Professor

Research Interests:

- Stabilized method for the convection-diffusion
- Oseen and Navier-Stokes problems over polygonal/polyhedral meshes

Research Highlights:

- Investigated the stabilization technique for the Navier–Stokes equations for incompressible fluid flow using equal-order virtual element pairs on general polygonal meshes.
- Proposed a residual-based SUPG-like stabilization term to address the violation of the discrete inf-sup condition, which leads to pressure instability, and to mitigate the effects of the convection-dominated regime.
- Employed a grad-div stabilization term to address the violation of divergence-free constraints.
- Extended the concept of nonlinear stability derived in (López-Marcos and Sanz-Serna, IMA J. Numer. Anal. 8(1), 71–84, 1998) to a stabilized virtual element framework.
- Following the results of Lopez-Marcos & Sanz-Serna, the well-posedness and optimal convergence estimates in the energy norm using the branches of non-singular solutions was established.
- Performed several numerical experiments to validate the theoretical findings.



(a) $Re = 8000$. (b) $Re = 8000$.

Reference: https://www.iist.ac.in/people-faculty-profile/e-natarajan

Prosenjit Das, Professor

Research Interests:

- Affine forms
- Affine fibrations
- Epimorphism problems
- Cancellation problems
- Derivations
- Locally Nilpotent Derivations
- Projective Algebras and allied areas

Research Highlights:

- Discovered a characterization of locally nilpotent derivations on A^2-fibrations having kernels isomorphic to A^1-fibrations over Noetherian normal domains containing Q.

Journal of Pure and Applied Algebra 229 (2025) 107772

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Locally nilpotent derivations on $\mathbb{A}^2$-fibrations with $\mathbb{A}^1$-fibration kernels

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Kernel
Grade
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ABSTRACT

In this paper, we give a characterization of locally nilpotent derivations on A^2-fibrations having kernels isomorphic to A^1-fibrations over Noetherian normal domains containing Q.

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Reference: https://www.iist.ac.in/people-faculty-profile/prosenjit-das

Raju K. George, Outstanding Professor, Dean (Student Activities, Student Welfare & Outreach)

Research Interests:

- Mathematical Theory of Control
- Machine Learning
- Mathematical Modelling and Space Debris Dynamics

Research Highlights:

- Established a time-efficient controllability condition for a certain class of networked systems
- Established an observability condition for networked systems, that is independent of the network topology

Reference: https://www.iist.ac.in/people-faculty-profile/raju-k-george

S. Sumitra, Professor

Research Interests:

- Machine Learning
- Graph Neural Networks
- Federated Learning
- Topological Data Analysis Brain-Computer Interfaces (BCI)

Research Highlights:

- Sensor Data Reconstruction in Launch Vehicles: Developed ST-HopGNN, a Spatio-Temporal Hop-based Graph Neural Network to predict and reconstruct faulty or missing sensor data during engine hot tests and flight in launch vehicles. The model effectively handles data degradation and loss using graph-based spatio-temporal dependencies.
- Brain-Computer Interface (BCI) Systems: Designed a non-invasive BCI pipeline for decoding motor imagery signals using EEG data. The system integrates signal denoising, feature extraction using Common Spatial Patterns, and classification using Support Vector Machines and CNNs. Demonstrated promising accuracy on standard datasets, contributing toward intuitive assistive technology for individuals with motor impairments.

Reference: https://www.iist.ac.in/people-faculty-profile/sumitra-s

Sakthivel K., Associate Professor

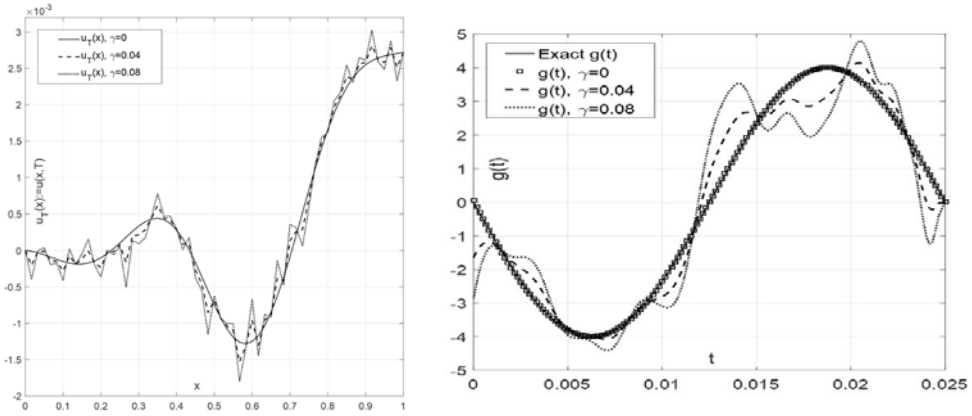
Research Interests:

- Control and inverse problems of partial differential equations
- Analysis of partial differential equations
- Stochastic control of partial differential equations

Research Highlights:

- Studied the optimal feedback control synthesis of two dimensional stochastic Navier-Stokes equations perturbed by Levy noise. This problem is solved using the dynamic programming approach for the mild form of the associated infinite dimensional Hamilton-Jacobi-Bellman (HJB) equation.
- Recovered the dissipative parameter in a coupled system formed by a bilaplacian operator to a heat equation from final time measured output data by employing an optimization method based on weak solution theory for PDEs.

- Determined an unknown shear force acting on the inaccessible tip of the micro cantilever, which is a key component of transverse dynamic force microscopy (TDFM), by invoking the inverse problem approach.



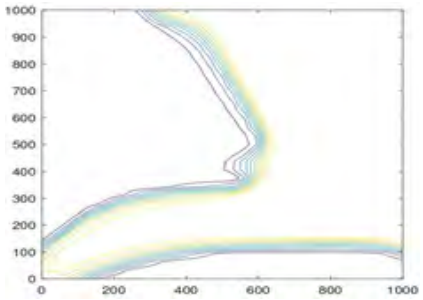
Synthetic noise free and noisy output data (left) and reconstruction of shear force (right)

Reference: https://www.iist.ac.in/people-faculty-profile/dr-sakthivel-kumarasamy

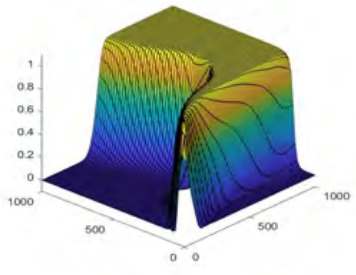
Sarvesh Kumar, Professor

Research Interests:

- Numerical analysis of partial differential equations
- Finite element methods
- Finite volume methods
- Virtual element methods
- Discontinuous Galarkin methods
- Fluid flow problems



Contour plot at t=10 years

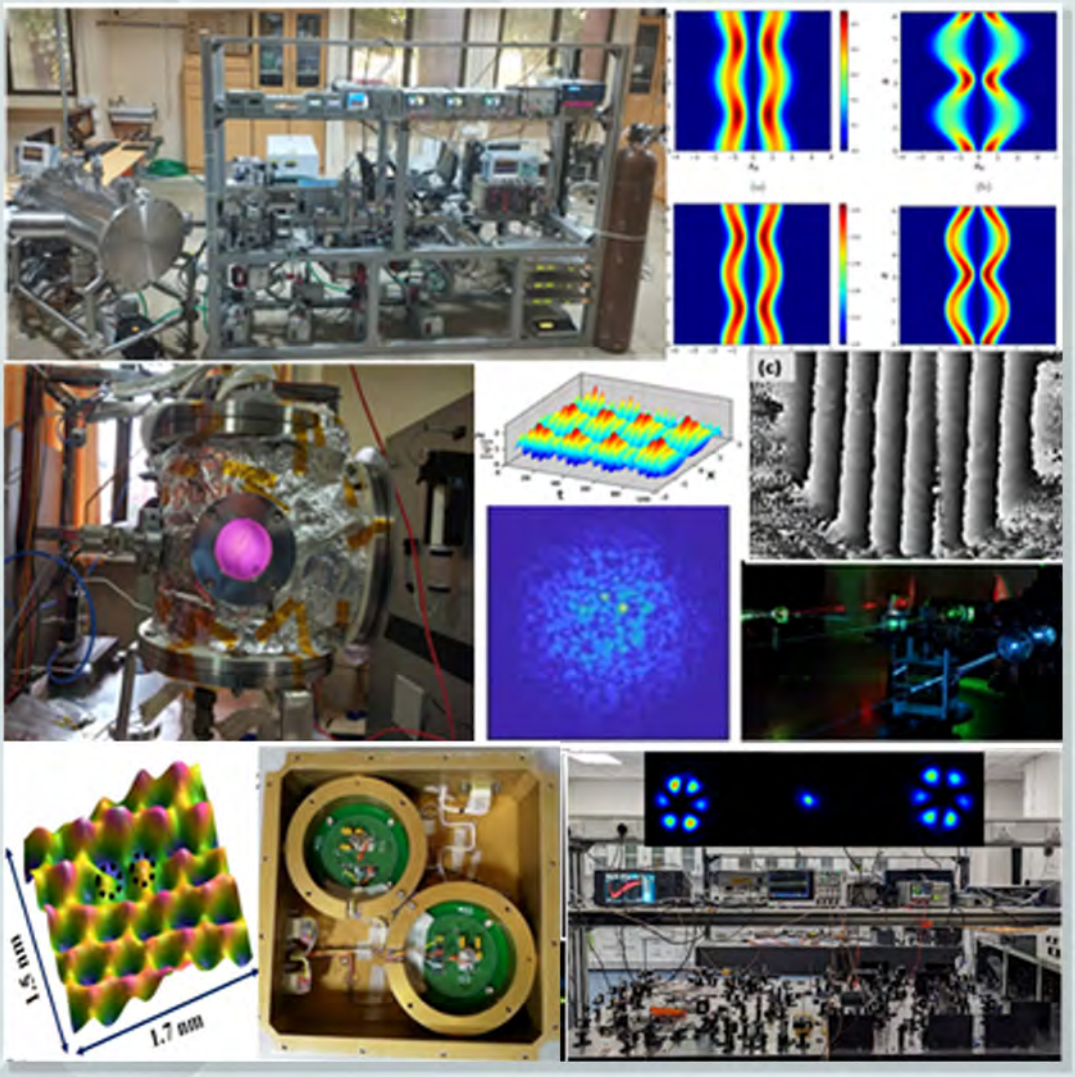


Surface plot at t=10 years

Research Highlights:

- Developed a nonconforming virtual element method (VEM) for the incompressible miscible displacement problem in porous media.
- Used H(div)-conforming VEM for accurate velocity approximation and nonconforming VEM for concentration.
- Applied piecewise discontinuous polynomials for pressure discretization and backward Euler method for time integration.
- Established optimal a priori error estimates for concentration, pressure, and velocity, demonstrating the method's accuracy and reliability.

Reference: https://www.iist.ac.in/people-faculty-profile/sarvesh-kumar



Department of Physics

2.7 Department of Physics

Vision

To be a vibrant centre for research and learning in pure and applied physics.

Mission

- To pursue excellence in our current subjects of expertise, and to diversify further into newer areas of research.
- To prepare students to be at the forefront of research in contemporary and emerging technologies, and for a leadership role as technology entrepreneurs in the near future, by laying a strong foundation in core areas of physics and engineering.
- To enable students to apply their knowledge to tackle foundational challenges in basic sciences.
- To engage with the community at large, emphasizing the importance of scientific pursuit and its relevance to society, while encouraging a scientific mindset.

Core research focus areas
Applied and Adaptive Optics, Quantum Technologies, Quantum Optics and Quantum Information
Atomic and Molecular Physics
Solid State Physics (Device Physics, Nuclear Magnetic Resonance, Scanning Tunneling Microscope), Theoretical Condensed Matter Physics
Statistical Physics, Integrable systems, Nonlinear Dynamics

Research outcomes -Fact File	
International Journal	30
Conferences	5
Projects	6

Fact File	
Number of faculty	12
Scientific officer C	1
Tutors /Technicians/Technical Assist	7
Non-teaching staff	2
Research Scholars	53
IIST funded	24
External (UGC/DST/etc.)	14
DoS sponsored	12
NARL/ISTRAC	62
Number of PhDs conferred	5
Ramanujan fellow	1
DST- WISE PDF	1
Post doctoral fellows	1
Research Associate	4

Laboratory / Research Facilities

Department of Physics, IIST owns following instructional labs, which include

- General Physics Laboratory
- Computational Physics Laboratory
- Optics Laboratory (UG)
- Applied and Adaptive Optics Laboratory (PG)
- Modern Physics Laboratory
- Solid State Physics Laboratory
- Quantum Technology Laboratory

In addition, there are the following dedicated research laboratories.

- Atomic and Molecular Physics Laboratory
- Applied and Adaptive Optics Laboratory
- Electronic Materials and Devices (EMERALD) Laboratory
- Space Technology Innovations and Characterizations (STIC) Laboratory
- Electric Propulsion Laboratory
- Sensor and Payload Laboratory
- Quantum Optical Technology Laboratory

Research and Developments

- Faculty members from the department have been contributing actively to the development of space science and technology by actively being involved in research projects in collaboration with other ISRO and DOS centers through Advanced Space Research Group (ASRG) activities.
- Active collaboration for achieving larger scientific goals with other national and international research groups, such as
    - Physical Research Laboratory, Ahmedabad, India
    - Space Applications Center, Ahmedabad, India
    - SRM University, Andhra Pradesh, India
    - School of Physics, University of Hyderabad, India
    - Weizmann Institute of Science – Israel
    - Center for Quantum Research and Technology, University of Oklahoma, USA
    - Texas A & M University, USA
    - University of Electro-Communications, Tokyo– Japan
    - Technical University of Denmark – Denmark
- Faculty members from Department hold various externally funded projects funded by DST-SERB, UGC-DAE-CSR, etc.

Contributions to Institute Level Space Missions

- Department of Physics is actively involved in Small Satellite and Payload development (SSPACE) activities at IIST, with a core focus on sensors and payload design and development.
- Faculty from the department undertake consultancy projects (ISRO) on emerging technologies such as Diagnostics for Stationary Plasma Thrusters.
- Department is involved in ISRO collaborative missions, including Advanced Retarding Potential Analyzer for Venus Mission (ARIS-Venus), Integrated Diagnostic Module for Electric Propulsion Technology Demonstration Satellite (TDS-01), etc.
- Faculty from the department is involved in the Quantum Technology initiative of the Government of India, currently working towards the realization of quantum communication and quantum sensing for space applications.

Symposium/Outreach Activities

- About 25 conferences/ workshops/ seminars/ FDPs, participated by faculty members.
- Reviews /Technical discussions at ISRO /other organizations/ Institutes.
- Contributed to various outreach activities for school/college students initiated by student chapters of SPIE, the International Society for Optics and Photonics as well as of Optica, the optical society.

Awards and recognitions

- Priyanka Kannath, PhD student of Dr. Ashok Kumar, OPTICA Best Oral Presentation Award on paper "Distributed Quantum Sensing using Optical Gyroscopes", in Photonics-2024 at IIT Kharagpur, December 12 - 16, 2024.
- Chirang R Patel, Jerin A Thachil, and Priyanka Kannath, PhD students of Dr. Ashok Kumar, Springer Best Poster Presentation Award for the poster, "Generation of bright two-mode squeezed states of light", in Photonics-2024 at IIT Kharagpur, December 12 - 16, 2024.
- Dr. Solomon Ivan has received IOP trusted reviewer status from IOP Science.

Major Research Laboratories/Facilities of the Physics Department

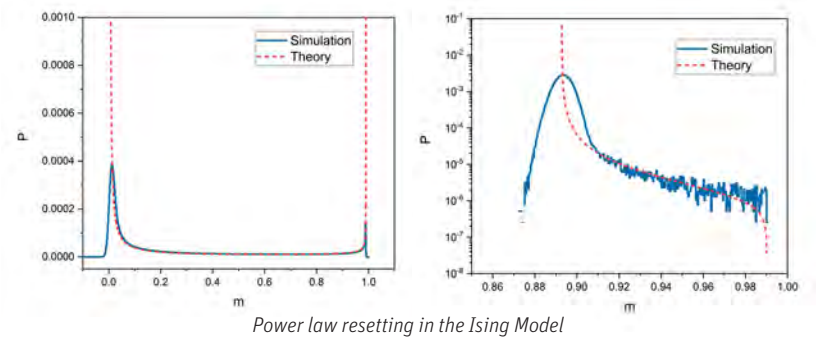
Faculty Profile

Apoorva Nagar, Associate Professor

Research Interests:

- Resetting in non-equilibrium systems
- Steady states and phase transitions in Nonequilibrium lattice models
- Biological Physics

Research Highlights:



Power law resetting in the Ising Model

Exclusion process with opposing local and non-local hops

Reference: https://www.iist.ac.in/people-faculty-profile/apoorva-nagar

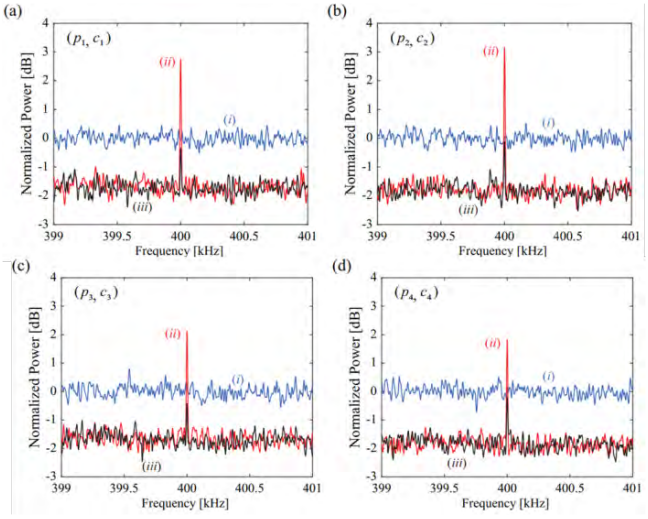
Ashok Kumar, Associate Professor

Research Interests:

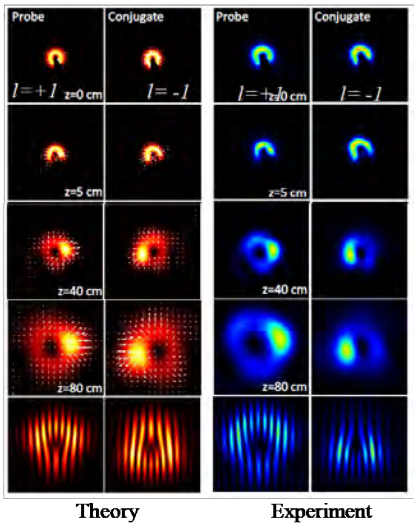
- Quantum Optical Technologies
- Bright Entangled/Squeezed Light Generation and its Applications
- Quantum Sensing and Quantum Communication

Research Highlights:

- Self-healing of orbital angular momentum in bright twin beams of light are studied
- Parallel quantum enhanced sensors are realized, where four plasmonic sensors are probe by the twin beams and each sensor is shown to operate beyond the classical limit



Sensitivity beyond (red, black traces) the classical limit (blue traces) for four parallel plasmonic sensors.



Self-healing of the orbital angular momentum in twin-beams with ±1 topological charge on propagation.

Reference: https://www.iist.ac.in/people-faculty-profile/ashok-kumar

Biswajit Pathak, Ramanujan Fellow

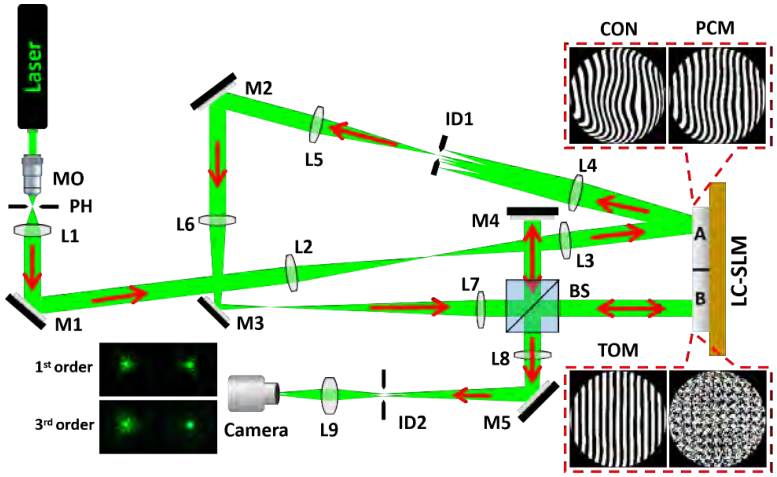
Research Interests:

- Design and Implementation of a Sensor-less Adaptive Optics System
- Development of a Programmable Quadri-wave Interferometric Wavefront Sensor

Research Highlights:

- The advanced sensorless-adaptive optics (sAO) system provides reduced crosstalk and enhanced sensitivity for accurate and robust wavefront estimation by introducing a partial correction method, where the incident wavefront is compensated by a fraction of the estimated wavefront to improve modal orthogonality and suppress inter-modal crosstalk. This is the first ever report of such an adavanced programmable sAO system.

- The proposed programmable quadriwave lateral shearing interferometry (pQWLSI) provides high resolution wavefront sensing using a specialized multiplexed grating pattern (MGP) that provides precise control on the shear, intensity, unwanted orders and sensitivity. These advancements result in highly resolved wavefront profiles and improved estimation of both low and higher-order aberrations.



Schematic diagram of the experimental arrangement demonstrating the implementation of proposed sAO system.

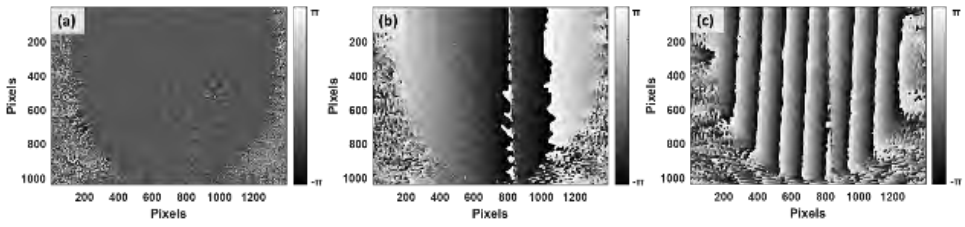
Reference: https://www.iist.ac.in/people-faculty-profile/biswajit-pathak

Dinesh N. Naik, Associate Professor

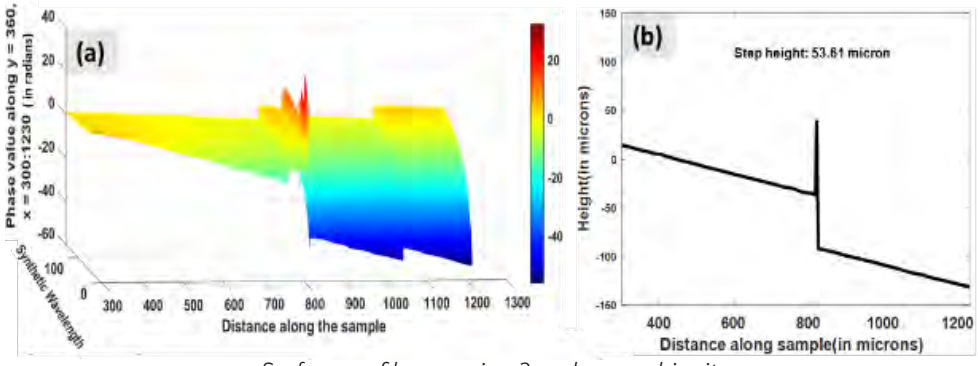
Research Interests:

- Optical metrology
- Correlation optics

Research Highlights:



Phase maps by varying synthetic wavelength



Surface profile removing 2π- phase ambiguity

Reference: https://www.iist.ac.in/people-faculty-profile/dinesh-n-naik

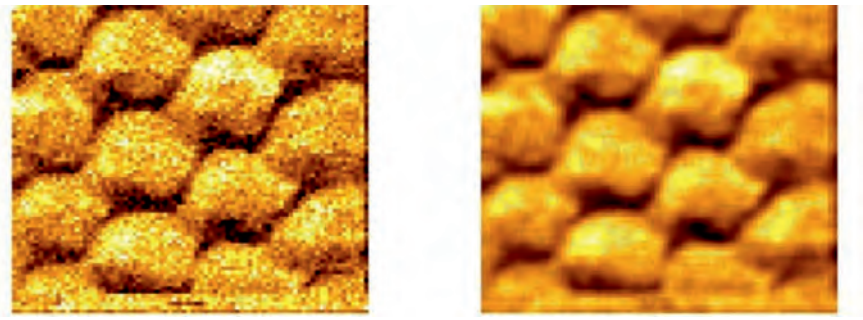
K. B. Jinesh, Professor, and Head of the Department

Research Interests:

- Semiconductor physics, Memory technology: Neuromorphic devices for Artificial Intelligence hardware.
- Quantum sensing: ultimate molecular sensing using quantum inelastic tunneling process.
- Innovations in space technology: functional thin films for various applications - Atomic Layer Deposition technique.

Research Highlights:

- A commercial Atomic Layer Deposition system was developed, which is ready for the market (TRL-9) together with an industrial partner.
- Developed Quantum sensors using inelastic electron tunneling spectroscopy (IETS) of single molecules for the detection of cancer.
- Artificial neurons for future AI applications: pattern recognition and noise reduction In images



(Left) noisy Scanning Tunneling Microscope image of Carbon atoms; (right) denoised using MoxOy – based artificial synapse.

Reference: https://www.iist.ac.in/people-faculty-profile/jinesh-k-b

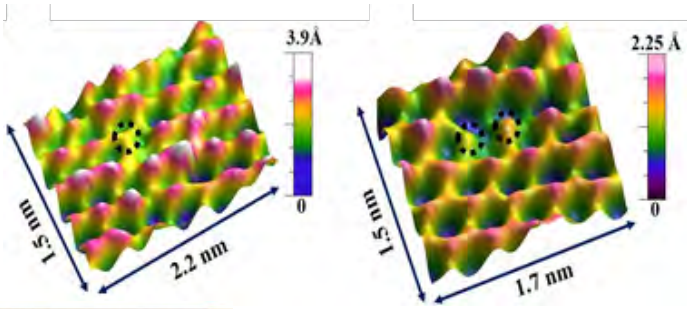
Kuntala Bhattacharjee, Associate Professor

Research Interests:

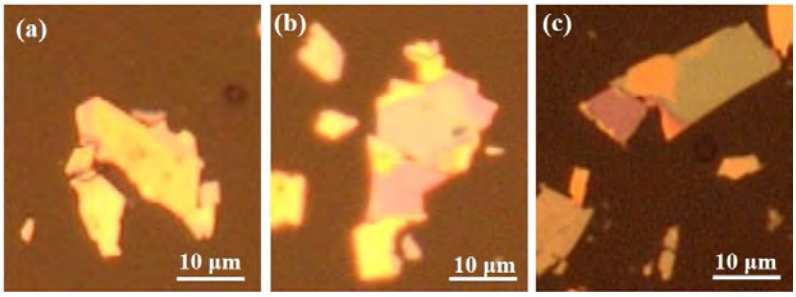
- Quantum and 2D materials
- van der Waal's (vdW's) Heterostructure
- Band Engineering
- Carbon Nanotube Based coatings for Stray Light Control Space Applications
- Investigation of electronic structures
- CNT based thin films for space applications

Research Highlights:

- Investigation of electronic structures
- CNT based thin films for space applications



Janus SnWS structure



Van der waal's heterostructure of MoS2/WS2

Reference: https://www.iist.ac.in/people-faculty-profile/kuntala-bhattacharjee

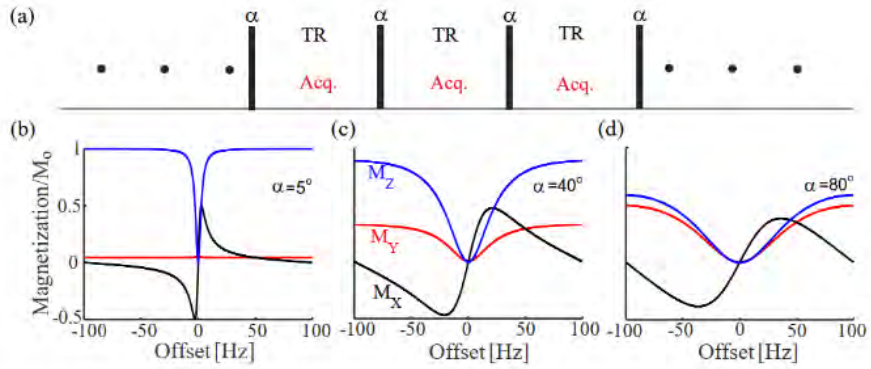
S. Jayanthi, Associate Professor

Research Interests:

- Nuclear Magnetic Resonance (NMR): Development of new sensitivity enhancement experiments, investigation of spin dynamics under Steady-State Free Precession (SSFP) in solid state under MAS and liquid state in the presence of various interactions and interferences.

Research Highlights:

- Calculation of steady-state solutions in Liouville space, numerical simulations of SSFP on J-coupled C–H systems, in spin system with quadrupolar interaction and under Magic Angle Spinning (MAS), and their dependence on relaxation rates, heteronuclear decoupling etc.



Reference: https://www.iist.ac.in/people-faculty-profile/jayanthi-s

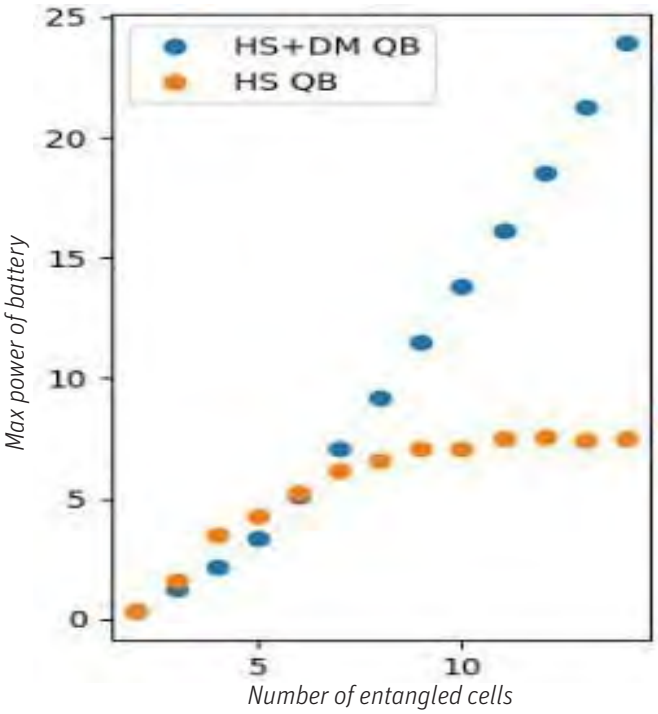
S. Murugesh, Professor

Research Interests:

- Nonliear Dynamics
- Solitons and Geometry
- Quantum Thermal Machines

Research Highlights:

- **Impurity Localisation in BEC** — We have shown that, in a 2-D system of Bose condensate with impurities, a distinct localization of impurity happens, and that they can travel with uniform speed without change in shape (With Dileep K)
- **Quantum Batteries** — Using entanglement among the cells that form the battery we have shown that a system of spins with exchange and DM interaction can show higher charging rates, closer to the theoretical limit for quantum batteries. (With Sanah Rahman k)



Reference: https://www.iist.ac.in/people-faculty-profile/s-murugesh

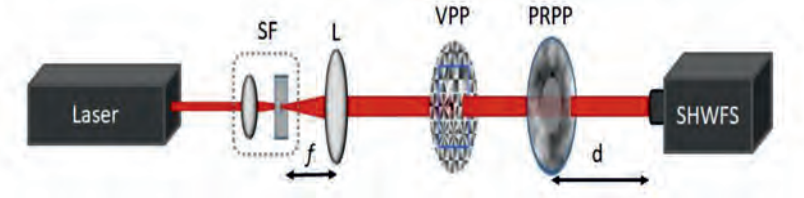
C. S. Narayanamurthy, Outstanding Professor, Dean (IPR, CE & IR)

Research Interests:

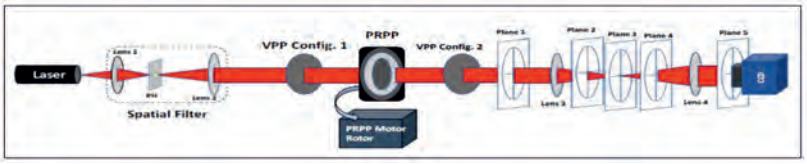
- Applied and Adaptive Optics
- Non-Linear photorefractive Optics
- Optical Coherence

Research Highlights:

- Engineered Functionalized separators using Porous activated carbon integrated with carbon nitride nanosheets, and Carbon nanotube–binary metal sulfide nanocomposites to effectively trap polysulfides in Li–S batteries.



Experimental set-up to study dynamic turbulence impact on Laguerre Gaussian beams of different topological charges



Experimental setup showing laser beam propagation through spatial filter, VPPs, PRPP, lenses, and detection planes.

- Developed an eco-friendly, high-performance binder system to enhance the mechanical stability and cycle life of silicon–graphite composite anodes for next-generation lithium-ion batteries.
- Achieved improved capacitance and broader voltage window electric double-layer capacitors (EDLCs) by optimizing electrolytes in conjunction with hierarchically porous carbon electrodes.

Reference: https://www.iist.ac.in/people-faculty-profile/c-s-narayanamurthy

Naveen Surendran, Associate Professor

Research Interests:

- Applied and Adaptive Optics
- Non-Linear photorefractive Optics
- Optical Coherence

Research Highlights:

- Certain quantum many-particle systems, when driven periodically, get frozen in their initial state for particular combinations of the driving amplitude and frequency. We explored the topological origins of this phenomenon, known as dynamical freezing, in the Su-Schrieffer-Heeger model.

Reference: https://www.iist.ac.in/people-faculty-profile/naveen-surendran

Solomon Ivan, Professor

Research Interests:

- Optics and Quantum Information.

Research Highlights:

- Demonstrated the retrieval of object phase using only inline intensity measurements with no requirement for interferometry.

Reference: https://www.iist.ac.in/people-faculty-profile/j-solomon-ivan

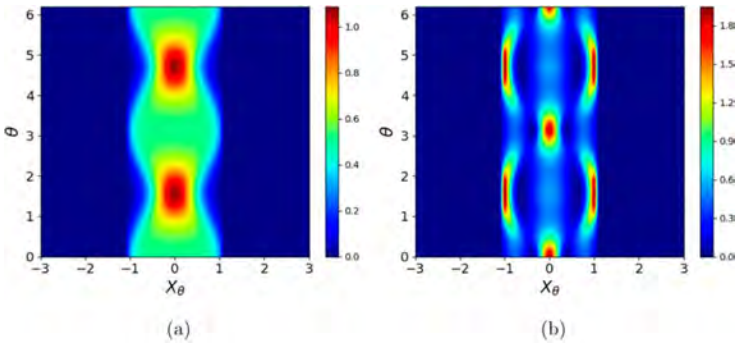
Sudheesh Chethil, Professor

Research Interests:

- Quantum Information and Quantum Computing
- Nonlinear Dynamics and Quantum Chaos
- Quantum Optics

Research Highlights:

- Janus-faced nature of q-deformed states are reflected in the optical tomogram.
- Derived a method to extract the quadrature moments from the optical tomogram of the deformed states.
- The decay of nonclassical propertied of the deformed state due to decoherence is manifested in the instantaneous optical tomograms.
- The climatology of cirrus cloud properties and long-term trends were examined using 25 years of NARL lidar measurements from a tropical location, Gadanki.
- Adiabatic Guage potential detects quantum chaos in man-body systems which are restricted because identifying all the eigenvalues are difficult to obtain.
- Von Neumann entanglement entropy is used as a diagnostic tool to understand the shift in ergodicity.



Optical tomogram of (a) q-deformed even cat state and (b) q-deformed squeezed vacuum state

Reference: https://www.iist.ac.in/people-faculty-profile/sudheesh-chethil

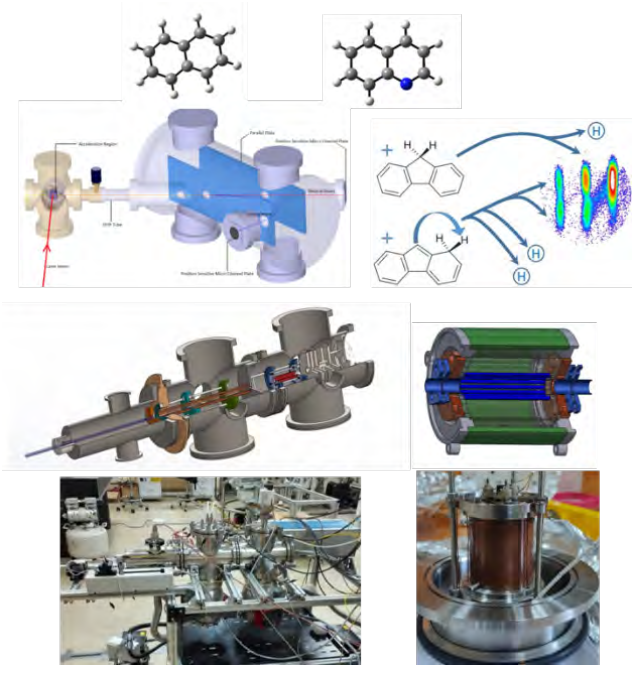
Umesh R. Kadhane, Professor

Research Interests:

- Atomic and Molecular Physics
- Plasma Physics
- Origin of prebiotic molecules in space
- Organics in space
- High energy radiation interaction with organic molecule

Research Highlights:

- Development of energy correlated time of flight mass spectrometer
- EUV radiation interaction with PANH molecules
- Planetary ionosphere plasma simulation facility
- Electrospray ion source with 14 pole ion trap facility is under implementation



Reference: https://www.iist.ac.in/people-faculty-profile/umesh-r-kadhane

Academic Programmes

3. Academic Programmes

The Indian Institute of Space Science and Technology (IIST) offers undergraduate, postgraduate, dual-degree, and doctoral programmes in Science, Engineering, and Humanities, leading to B.Tech., M.Tech., M.S., and Ph.D. degrees. In addition, the Institute conducts short-term and certificate courses to promote continuing education and skill enhancement.

The teaching methodology at IIST emphasizes an interdisciplinary approach, drawing upon both fundamental and applied domains to address complex scientific and technological challenges. Learning takes place through a blend of traditional lectures, virtual classrooms, and interactive methods, complemented by internships, projects, field observations, presentations, and seminars. Students are also encouraged to develop strong industry linkages and research collaborations.

To ensure the delivery of high-quality, holistic education that keeps pace with scientific, technological, and socioeconomic developments, IIST revises the curriculum of all programmes every three years. The Institute has also begun implementing India's National Education Policy (NEP 2020) from the academic year 2024–25, with the vision of evolving into a comprehensive, multidisciplinary education and research university. In line with the NEP, new elective and interdisciplinary courses have been introduced, and plans are underway to offer minor streams, skill-enhancement courses, and value-added programs.

3.1 Highlight of the Year: NAAC Accreditation

A major highlight of the year was the National Assessment and Accreditation Council (NAAC) accreditation process. IIST was awarded an A+ grade with a CGPA of 3.47 out of 4, recognizing its academic excellence, research culture, and institutional governance.

The Internal Quality Assurance Cell (IQAC) played a central role in achieving this milestone through systematic planning, documentation, coordination, and continuous monitoring of all accreditation-related activities.

Institutional Preparedness and Pre-Visit Activities

In preparation for the accreditation process, the Institute constituted several subcommittees to compile and refine the Self-Study Report (SSR) and the Annual Quality Assurance Report (AQAR) and also to assist in NAAC preparedness. IQAC also organized a structured sequence of SSR reviews, pre-evaluation sessions, and mock visits to ensure readiness for the peer-team assessment. To ensure consistent and confident engagement during the peer-team visit, IQAC also organized orientation and mock sessions for Deans, heads of departments, faculty members, administrative staff, and support teams.

NAAC Peer-Team Visit (February 5-7, 2025)

The NAAC Peer Team visited IIST from February 5 to 7, 2025 to assess the institution's performance across the seven NAAC criteria - Curricular Aspects, Teaching-Learning and Evaluation, Research and Innovations, Infrastructure and Learning Resources, Student Support, Governance and Leadership, and Institutional Values and Best Practices.

The visit began with a comprehensive presentation by the Director, providing an overview of IIST's vision, mission, and key achievements. This was followed by detailed presentations by the IQAC Coordinator, Heads of Departments and statutory bodies highlighting the Institute's academic strength, research initiatives, and vibrant student activities. The peer team also interacted with student clubs and associations, appreciating their contributions to campus life and community engagement. The team also had interaction with alumni

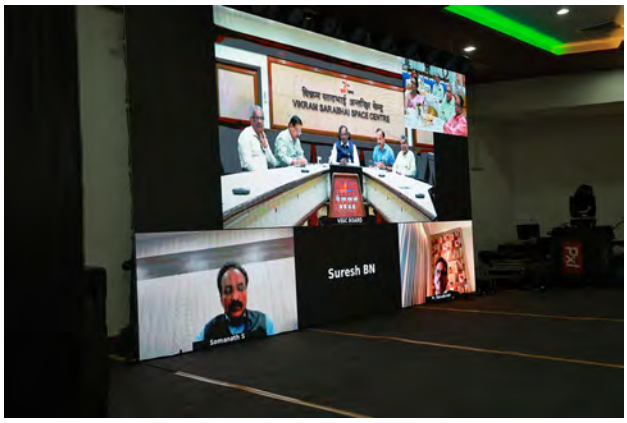
and parents.

A cultural programme by the students showcased the diversity, creativity, and spirit of IIST. As part of the visit, the team toured various facilities including academic blocks, laboratories, the Ponmudi Space Science Labs, hostels, and other campus infrastructure.

Exit Report

The peer team commended IIST for its academic rigor, research environment, effective governance, student-centered initiatives, and institutional culture of quality enhancement.

Following the announcement of results, IIST decided to file an appeal, as the Institute strongly believed that its overall performance and quality indicators merited the highest possible grade. This entire process, culminating in an A+ accreditation with a CGPA of 3.47, reflects IIST's commitment to excellence and its continuous pursuit of institutional growth and global recognition.



3.2 Undergraduate Programmes

In the academic year 2024-25, 164 students were enrolled in B.Tech. programmes in Aerospace Engineering and in Electronics and Communication Engineering (Avionics), each with sanctioned strength of 72 (+3 PMSS seats) seats and a dual degree programme with B.Tech. in Engineering Physics with 24 seats. Students of the Dual degree programme will spend an additional fifth year to pursue either a Master of Technology degree in Optical Engineering or Earth System Sciences or a Master of Sciences in Astronomy and Astrophysics or Solid State Physics.

The undergraduate programme enrollment for the academic year 2024-25:

UG Programme	Gen	OBC	SC	ST	PD Gen*	PD OBC*	WGEN**	WOBC**	WSC**	WST**	EWS***	PMSSS****	Total
Aerospace Engineering	29	16	8	5	1	-	3	2	-	1	6	2	73
ECE (Avionics)	29	15	8	5	1	1	3	2	1	-	6	1	72
Dual Degree	8	3	3	1	1	-	1	-	-	-	2	-	19
Total	66	34	19	11	3	1	7	4	1	1	14	3	164

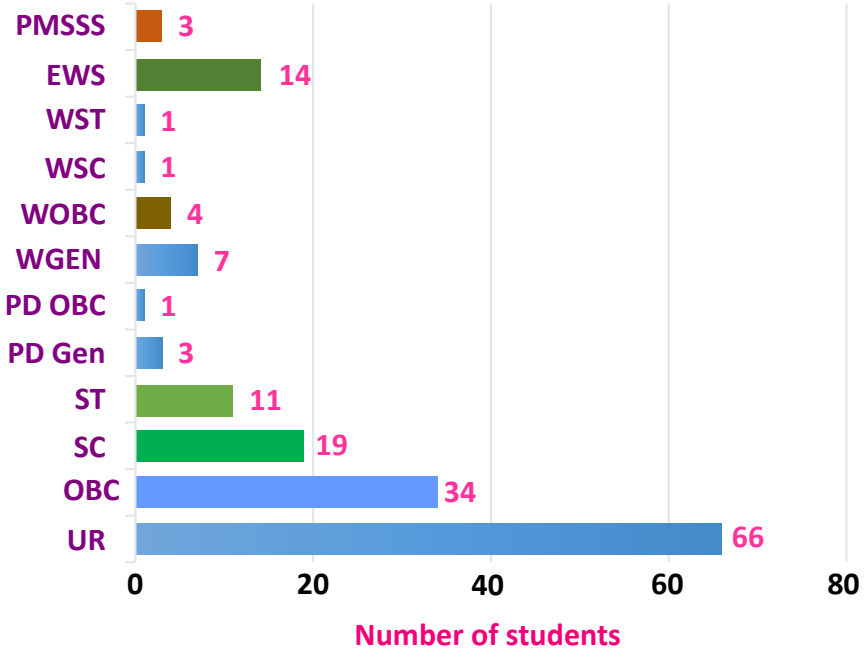
*Persons with disabilities (PD)

**Women General, **Women OBC, **Women SC, **Women ST

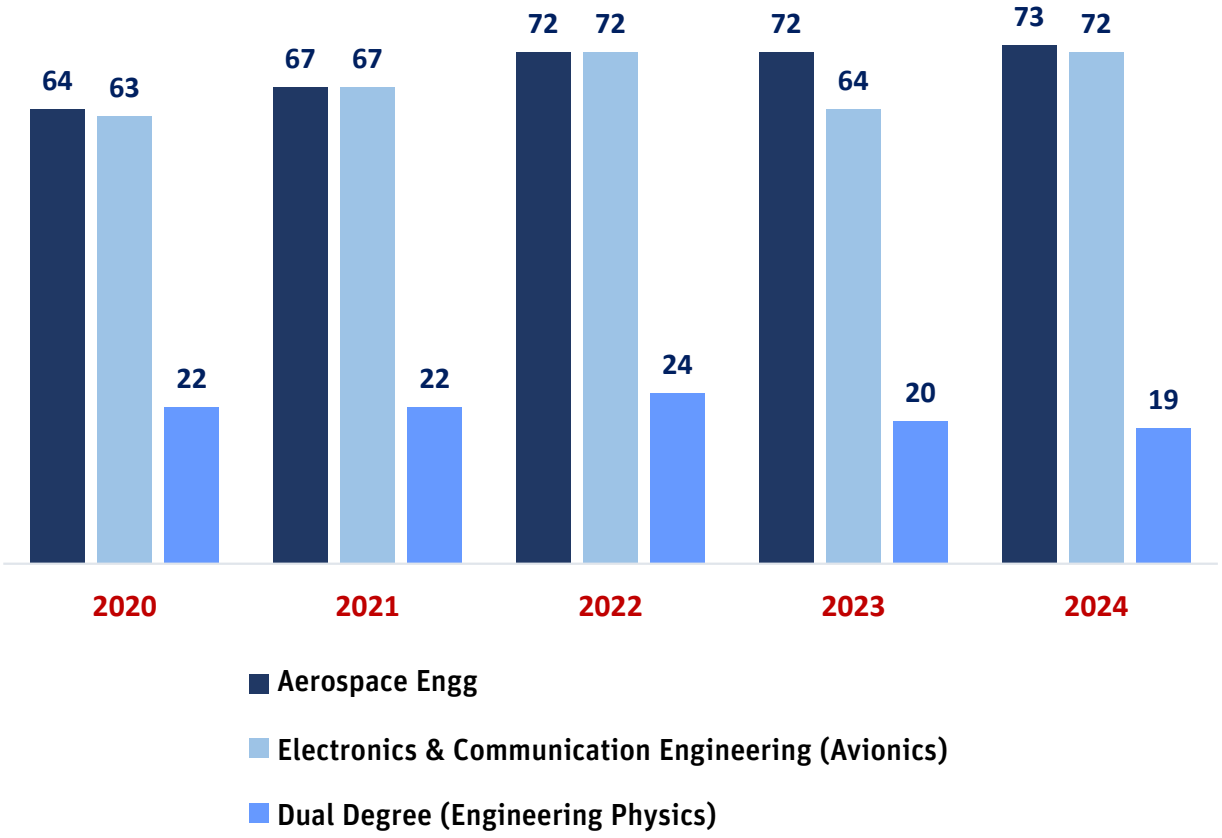
***Economically weaker sections (EWS). As per government directive, the reservation for the EWS has been started from the academic year 2019-2020

**** Prime Minister's Special Scholarship Scheme (PMSSS)

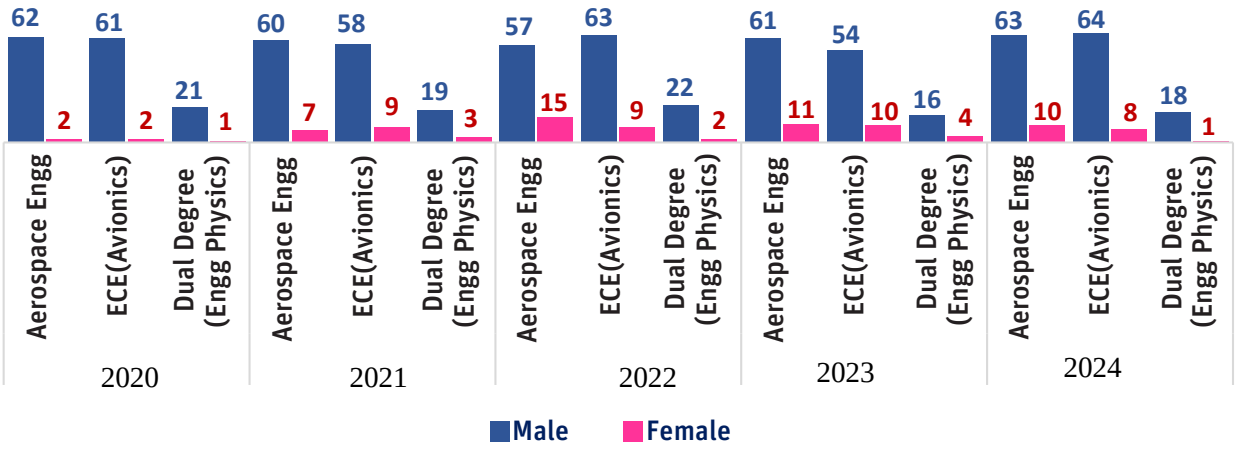
Distribution of B.Tech. & Dual Degree students enrolled in different categories (2024 admission)



Students enrolled in B.Tech. & Dual Degree programme (Year wise)



Gender statistics of students enrolled in B.Tech. & Dual Degree Programme (Year wise)



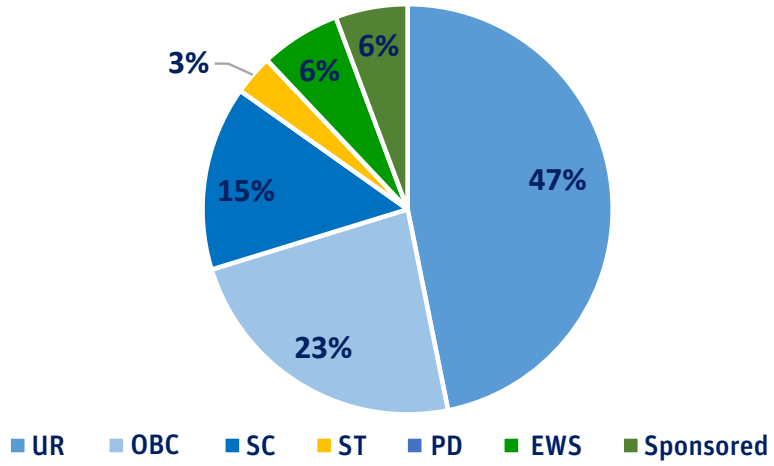
3.3 Postgraduate programmes

During the 2024–25 academic year, the institute offered 15 Master of Technology and Master of Science programmes. Admission to these programmes was based on national examinations such as GATE or JEST, followed by an interview. The following sections present details of category-wise student admissions for the reporting period.

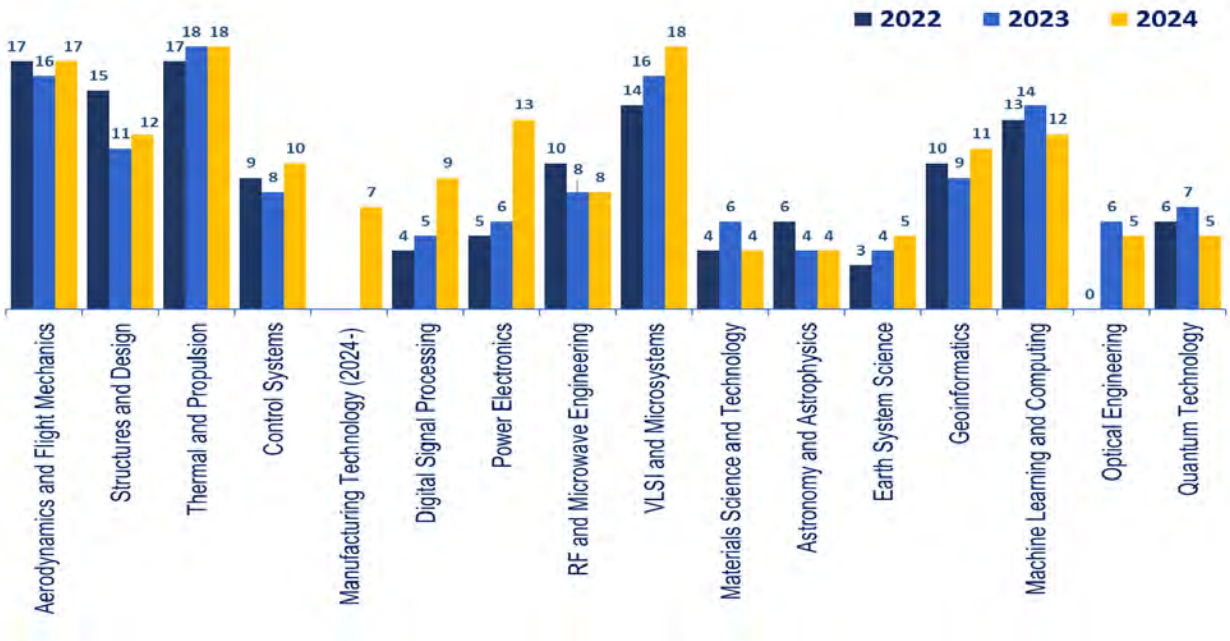
Branch	2024 Enrolled							Total
	UR	OBC	SC	ST	PD*	EWS**	Sponsored	
Aerodynamics and Flight Mechanics	7	4	3	1	0	1	1	17
Structures and Design	6	3	1	0	0	2	0	12
Thermal and Propulsion	6	3	1	1	0	2	5	18
Manufacturing Technology	3	3	1	0	0	0	0	7
Control Systems	6	2	2	0	0	0	0	10
Digital Signal Processing	6	1	2	0	0	0	0	9
Power Electronics	6	3	2	0	0	1	1	13
RF and Microwave Engineering	4	2	1	1	0	0	0	8
VLSI and Microsystems	8	5	3	0	0	2	0	18
Materials Science and Technology	2	0	2	0	0	0	0	4
Astronomy and Astrophysics	3	0	0	1	0	0	0	4
Earth System Science	1	2	2	0	0	0	0	5
Geoinformatics	4	3	1	0	0	1	2	11
Machine Learning and Computing	7	3	0	1	0	1	0	12
Optical Engineering	3	1	1	0	0	0	0	5
Quantum Technology	2	2	1	0	0	0	0	5
Total	74	37	23	5	0	10	9	158

*Persons with disabilities (PD)
**Economically weaker sections (EWS).

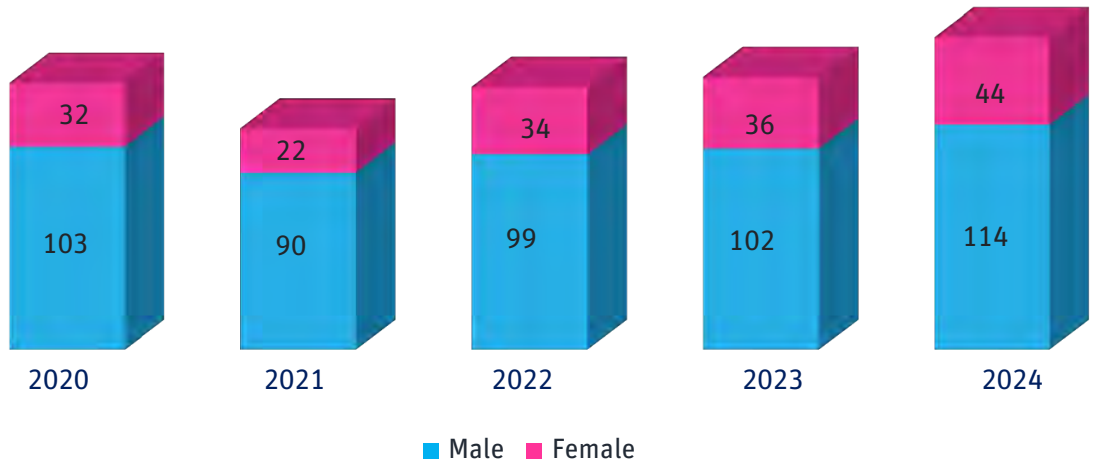
Distribution of M.Tech/ M.S. students in different categories (2024 admission)



M.Tech / M.S. Programme Enrollment (Year Wise)



Gender statistics of students enrolled in M.Tech/M.S. programme (Year wise)



3.4 Doctoral Programmes:

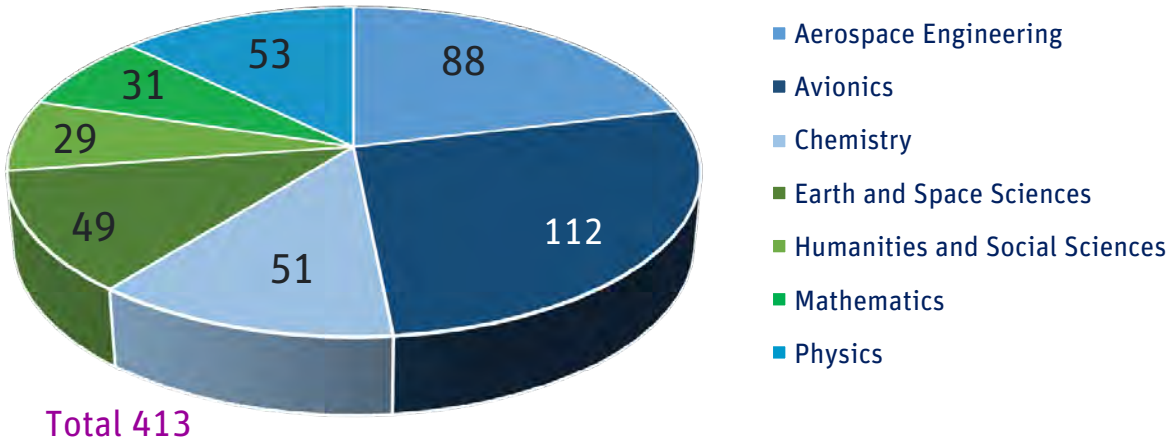
IIST is recognized for the excellence and diversity of its research, fostering scholarly inquiry through Ph.D. programmes offered by all seven departments. Faculty members from engineering, science, humanities and Social Sciences actively pursue research in cutting-edge domains, including space-related areas, contributing through publications in reputed international and national journals as well as patents. Faculty and students also participate actively in international and national conferences.

In the academic year 2024–25, IIST offered Ph.D. programmes across all seven departments. Admissions were conducted in July 2024 and January 2025, with eligibility based on GATE, UGC/CSIR NET-JRF, JEST, or equivalent examinations. During the reporting period, 102 students enrolled in Ph.D. programmes, with the category-wise details provided below.

PhD Enrollment April 2024 to March 2025

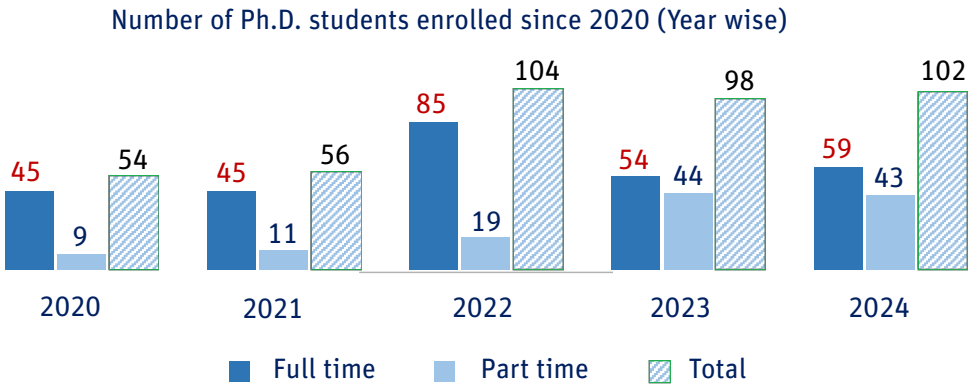
Department	July 2024		January 2025		Total
	Full Time	Part Time	Full Time	Part Time	
Aerospace Engineering	8	3	4	6	21
Avionics	7	10	4	4	25
Chemistry	3	3	4	3	13
Earth and Space Sciences	7	5	1	3	16
Humanities and Social Sciences	3	0	1	3	7
Mathematics	3	1	2	0	6
Physics	5	1	7	1	14
Total	36	23	23	20	102

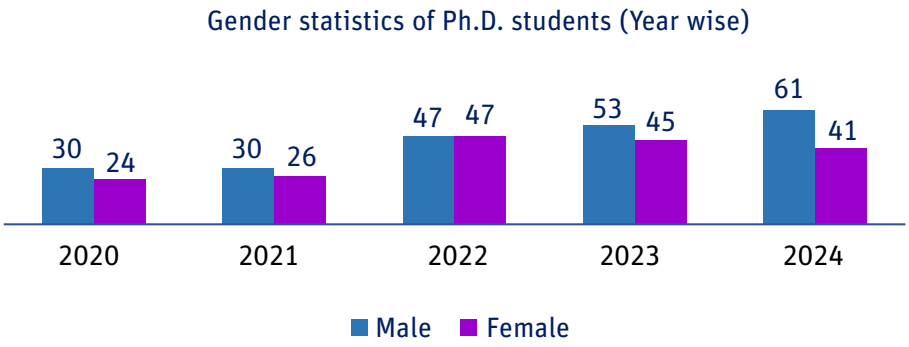
Number of students doing Ph.D. (as of March 31, 2025)



Total 413

Department	Number of students doing Ph.D. (as of March 31, 2025)
Aerospace Engineering	88
Avionics	112
Chemistry	51
Earth and Space Sciences	49
Humanities and Social Sciences	29
Mathematics	31
Physics	53
Total	413





3.5 Convocation

The 12th Convocation ceremony of the Indian Institute of Space Science and Technology was conducted in a befitting function graced by the presence of Honourable Vice President of India Shri Jagdeep Dhankhar, at Pearl Jubilee Auditorium of Liquid Propulsion Systems Centre (LPSC), Valiamala, Thiruvananthapuram on July 6, 2024. Two hundred ninety students of the B.Tech, M.Tech. and Ph.D. courses received their degrees, witnessed by around 600 of their proud parents/guardians.

Prof. Kuruvilla Joseph, Registrar IIST, as master of ceremony, initiated the proceedings by inviting the Honourable Chancellor IIST. The function commenced with the Chancellor of IIST, Dr. B. N. Suresh, announcing the 12th Convocation of IIST open. Dr. Unnikrishnan Nair S., Director IIST and VSSC, did the welcome address and presentation of a report on IIST. In his address, Dr. Unnikrishnan Nair S. welcomed all

the dignitaries and expressed the deep-felt gratitude of the IIST fraternity to the honourable Vice President of India, Shri Jagdeep Dhankhar, and his wife, Dr. (Smt) Sudesh Dhankhar, who found time and chose it fit to join the convocation ceremony. He presented the IIST report highlighting the significant achievements of the institution since the last convocation. The institute has profound growth in all seven departments by way of fundamental research and contributions leading to impactful publications. National ranking of the institute has improved. Students and faculty are in many collaborative programs with ISRO Centers.

Over 1,300 IIST graduates are serving as scientists/engineers in ISRO, contributing to major missions like Chandrayaan 3 and Gaganyaan. Alumni are excelling in diverse fields and enhancing the institute's reputation.

This was followed by address by Dr B. N. Suresh, Hon. Chancellor, IIST. He exhorted the students that graduation is just the beginning; the learning should never stop. Everyone should continue to evolve and excel. Alumni should be in touch with the institute and contribute towards its betterment. He requested the graduates that they stay engaged with the alma mater and its future.

In his address, Dr. S. Somanath dwelled on the need for the young generation to be more creative and enthusiastic, especially in the current scenario of the opening up of the space sector. He stressed the need for IIST to connect with industry and the new space ecosystem that is emerging in the country. More entrepreneurial attempts are to be undertaken on the path of breaking innovative ideas. Startups and industries have to thrive with the enthusiasm of the new generation. IIST alumni make up nearly 15% of ISRO staff, underscoring the importance of staying connected and contributing to the institute's growth. Awarding of degrees was done after the addresses.

After awarding degrees and commemorative medals, Honourable Vice President of India, Shri Jagdeep Dhankhar, delivered the convocation address. In his address, he emphasised the relevance of continuous skill development through the lifelong learning process. The future belongs to the young. ISRO has contributed to India's diplomatic soft power and has enhanced the quality of life of millions. India is on the rise like never before, and the century belongs to Bharath. The coming decades will witness an unprecedented surge in space exploration. India, with its robust space programme and pool of skilled professionals, is well-positioned to be a key player in this exciting journey. When we dream about a Vikasit Bharath 2047 or earlier, the new generation, like those who are graduating today, will be the driving force leading the developments. He also re-iterated that alumni are a vital think tank, with the potential to form a global confederation of prestigious institutions.

The 12th Convocation of IIST was attended by other dignitaries including Dr. V. Narayanan (Director, LPSC), Shri. Padmakumar E. S. (Director IISU), Prof. Chandrabhas Narayana (Director, RGCB) and Prof. Jarugu Narasimha Moorthy (Director, IISER). The convocation concluded at 15:30 hrs. It was a proud function for the students, parents/guardians and faculty/staff of IIST who were privileged to be part of the convocation.

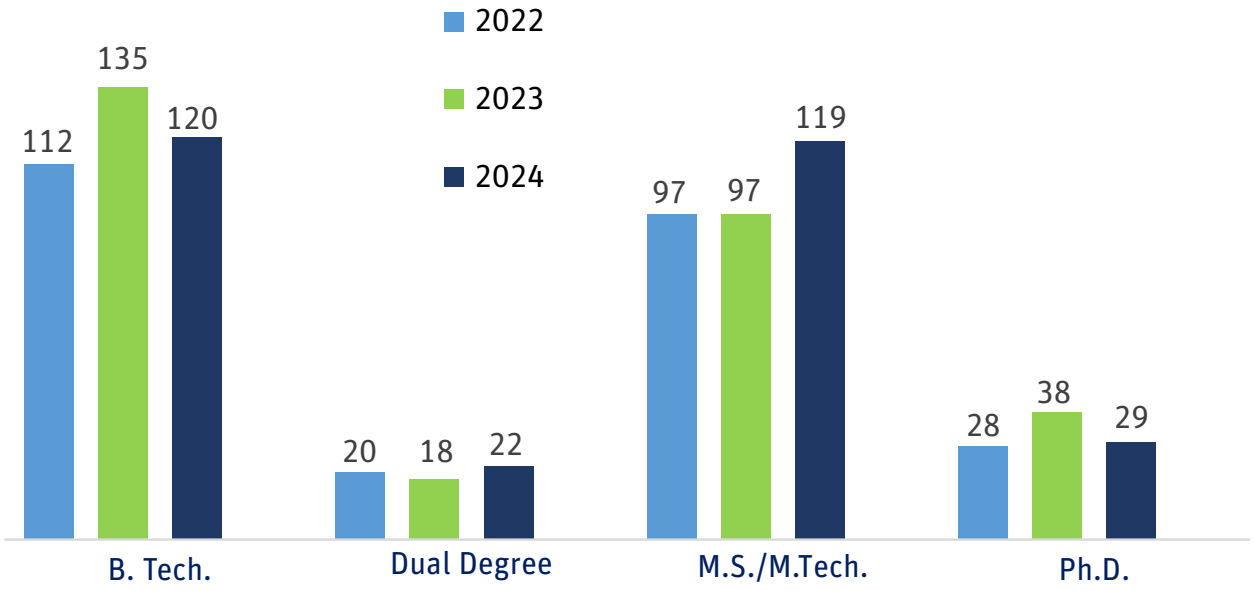
3.6 Degrees Conferred

In the 12th convocation of IIST, B.Tech.degrees were conferred on 142 students, 60 students graduating in Aerospace Engineering and 60 in Electronics and Communication Engineering. 22 Students of the Dual Degree programme received their B.Tech. degree in Engineering Physics and M.Tech. /MS in their specialization - Optical Engineering, Solid State Physics, Earth Systems Science and Astronomy & Astrophysics. The M. Tech degree was conferred on 115 students and Master of Science degree was received by 4 students from the Department of Earth and Space Science. PhD degrees were awarded to 38 students across all the seven departments. After degree were conferred in the 12th convocation, the total degrees awarded by the institute will be 1746 B.Tech., 126 Dual Degree, 903 M.Tech. and 191 Ph.D. degrees.

Degree Awarded – 12th Convocation (July 6, 2024)

Degree	Discipline	No. of Students Passed out
Bachelor of Technology	Aerospace Engineering	60
	Electronics & Communication Engineering (Avionics)	60
Dual Degree	B.Tech. in Engineering Physics + M.Tech. in Earth System Science	4
	B.Tech. in Engineering Physics + Master of Science in Astronomy & Astrophysics	7
	B.Tech. in Engineering Physics + M.Tech. in Optical Engineering	4
	B.Tech. in Engineering Physics + Master of Science in Solid State Physics	7
Master of Technology	Aerodynamics and Flight Mechanics	16
	Structures and Design	15
	Thermal and Propulsion	16
	Control Systems	8
	Digital Signal Processing	4
	Power Electronics	4
	RF and Microwave Engineering	9
	VLSI and Microsystems	13
	Materials Science and Technology	3
	Earth System Science	2
	Geoinformatics	9
	Machine Learning and Computing	10
	Optical Engineering	0
	Quantum Technology	6
Master of Science	Astronomy and Astrophysics	4
Doctor of Philosophy (PhD) Degree		29
Total		290

Students graduated in the last three years



3.7 Ph.D. Thesis - Degree Awarded

Thirty-five students had successfully defended their Ph.D. theses from April 2024 to March 2025. The following list is given in the order: Student name, Thesis title, Guide(s) name, Department, and Date of defence.

1. Ms. Soumya Asokan (SC18D037) - Some aspects of entanglement in paraxial light fields - Prof. Solomon Ivan J / Physics / April 17, 2024.
2. Smt. Anjitha R G (SC18D050) - Design and Development of Chemiresistive Sensor for the Selective Detection of CH4 and CO - Prof. Palash Kumar Basu / Avionics /April 24, 2024.
3. Ms. Sonia Saini (SC16D023)- Carbon nanotube based composite thin film coatings for stray light control space applications - Dr Kuntala Bhattacharjee / Physics / May 22, 2024.
4. Ms. Sreekala K (SC18D039) - Novel Nanostructured Multi-Functional Materials for High-Energy Lithium-Sulfur Batteries - Prof. Mary Gladis J / Chemistry /June 7, 2024.
5. Shri. Govind Kumar Sharma (SC19D032)- Flexible, Electrospun Polyacrylonitrile Based Carbon Nanofiber Composites for Electromagnetic Interference Shielding - Prof. Nirmala R James / Chemistry / June 14, 2024.
6. Shri. Vibin Jose (SC18D033) - Modelling and observational studies of soil moisture over the Indian region - Prof. A Chandrasekar / Earth and Space Sciences /June 18, 2024.
7. Smt. Sandhya G Nair (SC19D015)- Investigation on Preceramic Polymers for Mullite Matrix Composites and Ceramic Foams for Thermal Protection Applications - Prof. K Prabhakaran and Dr Sreejith K J / Chemistry / June 28, 2024.
8. Ms. Ann Mary Tomy (SC18D031) - Nickel Based Nanomaterials For Electrochemical - Prof. Jobin Cyriac / Chemistry / June 28, 2024.

9. Shri. Manohar Kumar C V S S (SC16D052) - Benchmark Studies on Spectral Un-mixing of Multi-Sensor Hyperspectral Imagery - Prof. Ramarao Nidamanuri / Earth and Space Sciences /July 2, 2024.
10. Shri. Anil Painuly (SC17D023)- Studies on the Processing of SiBOC Foams from Methylvinylborosiloxane - Prof. K Prabhakaran and Dr Benny K George / Chemistry / July 22, 2024.
11. Shri. Abhijith Ajayakumar (SC19D010) - Controllability and Observability of Networked Systems- Prof. Raju K George / Mathematics / August 9, 2024.
12. Shri. Dayal G (SC17D020)- Pattern Recognition using Pulsed Laser Deposited BiFeO3 Neuromorphic Devices for Advanced Artificial Intelligence- Prof. Jinesh K B / Physics / September 4, 2024.
13. Shri. Sandip Paul (SC16D007)- Low Complexity Networks and Edge Enhancement for Monocular Depth Estimation- Prof. Deepak Mishra & Dr M Senthil Kumar / Avionics / September 10, 2024.
14. Shri. Asif Iqbal Kakkassery (SC17D027) - Exploring the surficial process on low-mid latitudinal Mars using planetary datasets and terrestrial analogues - Prof. Rajesh V J / Earth and Space Sciences / September 17, 2024.
15. Ms. Reetambhara Dutta (SC20D011)- Investigation of the lower atmospheric wave forcing on the Mesosphere Thermosphere Ionosphere (MTI) system- Dr. P R Sinha and Dr S Sreedharan / Earth and Space Sciences / September 19, 2024.
16. Ms. Sonali Maurya (SC20D045) - Observational Studies on Turbulence in Atmospheric Surface Layer - Prof. A Chandrasekar and Dr K V S Namboodiri / Earth and Space Sciences / October 14, 2024.
17. Shri. Manu Mohan (SC16D053)- Local electronic states of Atomic tin (Sn) grown on tungsten disulfide (WS2) surface- Dr. Kuntala Bhattacharjee / Physics / October 28, 2024.
18. Shri. B Vishweshwar Rao (SC15D017) - Specific Investigations on Freeform optics for Space Applications - Prof. C S Narayanamurthy and Dr K V Sriram / Physics / November 14, 2024.
19. Ms. Sindhu S (SC20D036)- Role of Volatile Organic Compounds and Trace Gases in the Chemistry of Rural Atmosphere - Dr. P R Sinha and Dr. Chaithanya D. Jain / Earth and Space Sciences / November 14, 2024.
20. Shri. Suraj Reddy Rodda (SC19D041) - Reducing Tropical Forest Biomass Mapping Uncertainty – Integrating Field plot data with 3D forest structure from LiDAR - Prof. Rama Rao Nidamanuri, Dr. Chandra Shekar Jha and Dr.Vinay Kumar Dadhwal / Earth and Space Sciences / November 21, 2024.
21. Shri. Debojit Sarkar (SC18D015) - Role of collision-coalescence mechanisms in the occurrence of cloudburst event - Prof. A Chandrasekar and Dr.Amit Kesarkar / Earth and Space Sciences /November 29, 2024.
22. Shri. Venkatesh N (SC11D009) - Influence of feedline configuration and its thermal mass distribution on cryogenic chilldown performance- Prof. A Salih and Dr.S Sunil Kumar / Aerospace Engineering / December 24, 2024.
23. Shri. Prasoon Chandran Mavila (SC17D003) - Virtual Voltage Vector based Control Schemes for Five-phase Induction Motor Drive - Prof. Rajeevan P P / Avionics /December 27, 2024.
24. Shri. Sonu Bose (SC18D008) - Efficient Uniformly Accurate Approach to Numerical Solution and Scaled Derivatives for System of Singularly Perturbed Differential Equations - Dr Kaushik Mukherjee / Mathematics / December 30, 2024.

25. Shri. R S Mohan Kumar (SC14D008) - Robust Fractional Order LQI Controller Design for Quadruple Tank Process and its Feasibility Study in Bond Graph Domain - An Optimisation Approach - Prof. N Selvaganesan and Dr M Jayakumar / Avionics /January 6, 2025.
26. Shri. Ritwik Sankar A (SC19D008) - Daughters of Tradition and Negotiation: A Culture-Gender Critique of Devakooth - Dr. Babitha Justin / Humanities and Social Sciences /January 6, 2025.
27. Shri. Syamprasad (SC19D033) - Mapping Spaces, Journeys and Subjectivities: A Geocritical Exploration of Benyamin's Novels - Dr. Gigy J Alex / Humanities and Social Sciences / January 15, 2025.
28. Shri. Saurabh Chatterjee (SC14D016) - Augmentation of Camera based Non-Destructive Testing using Robotics and Motion Tracking - Prof. Kurien Issac / Aerospace Engineering / January 22, 2025.
29. Shri. Anbarasan S (SC20D001) - Supersonic Mixing and Combustion of Gaseous and Liquid Hydrocarbon Fuels using Curved Pylons - Prof. Aravind V / Aerospace Engineering / January 27, 2025.
30. Shri. Anindya Saha (SC19D031) - Massive Stars: Formation and Feedback - Prof. Anandmayee Tej and Prof. Michael De Becker / Earth and Space Sciences /January 29, 2025.
31. Shri. Jyotirmoy Dey (SC18D051) - Investigating the role of extended emission in Galactic compact and ultracompact H II regions - Prof. Jagadheep D / Earth and Space Sciences / February 12, 2025.
32. Shri. Gaurab Kumar Khanra (SC17D016) - Analytical and semi-analytical solutions of elastostatic problems in nonlocal beam bending theory - Dr Praveen Krishna I R and Prof. Raveendranath P / Aerospace Engineering / February 20, 2025.
33. Ms. Rani Radhakrishnan (SC13D017) - Adaptive Integrated Guidance and Control for Air-breathing Phase of Reusable Launch Vehicle - Prof. Priyadarshnam and Dr K Sivan / Avionics /February 24, 2025.
34. Shri. Renjith A R (SC19D012) - Experimental and Numerical Investigations on the Dynamics of Highly Flexible Cantilever Beams - Dr Praveen Krishna I R / Aerospace Engineering / March 17, 2025.
35. Shri. Sreehari B Nair (SC20D016) - Investigations on Digitizing Front-Ends for Wide-Span, Low-Magnitude Current-Output Sensor Probes in Space Plasma Diagnostics - Dr Anoop C S and Dr Sudharshan Kaarthik / Avionics / March 18, 2025.

3.8 Academic Honours

Shri. Manvendra Sharma of B. Tech. in Electronics and Communication Engineering (Avionics) was honoured with the prestigious Gold Medal for being the best academic performer across all undergraduate programmes and Shri. Manas Vashishtha, Master of Technology in Aerodynamics and Flight Mechanics, was awarded the Gold Medal for attaining the highest score among all postgraduate programs. The excellence certificate and cash award for the student who has secured the best academic score in Aerospace Engineering was received by Shri. Y Rahul Kumar. Shri. Siddharth Sanjeev Kandhway, B.Tech. in Aerospace Engineering, was selected as the all-rounder of the UG programmes. A special award for the best all-rounder in B.Tech. (female), sponsored by the IIST Alumni Association, was presented to Ms. Reetika, B.Tech. in Electronics and Communication Engineering (Avionics).

The toppers of Aerospace Engineering and Electronics and Communication Engineering branches are now undertaking a sponsored Masters programme at California Institute of Technology (Caltech), USA, before joining ISRO. The 9-month program is financially supported under the Professor Satish Dhawan Endowment Fellowship established between Caltech and the Department of Space (DoS).

Gold medal for the topper of all B.Tech. Branches

Manvendra Sharma
B. Tech. in Electronics and Communication Engineering (Avionics)

Gold medal for the topper of all PG specialisations

Manas Vashishtha
Master of Technology in Aerodynamics and Flight Mechanics

Best academic score in Aerospace Engineering

Y. Rahul Kumar
B.Tech. in Aerospace Engineering

Best all-rounder and the best outgoing student

Siddharth Sanjeev Kandhway
B.Tech. in Aerospace Engineering

IIST Alumni Association special award

Reetika
B.Tech. in Electronics and Communication Engineering (Avionics)

Masters Programme at California Institute of Technology (Caltech), USA

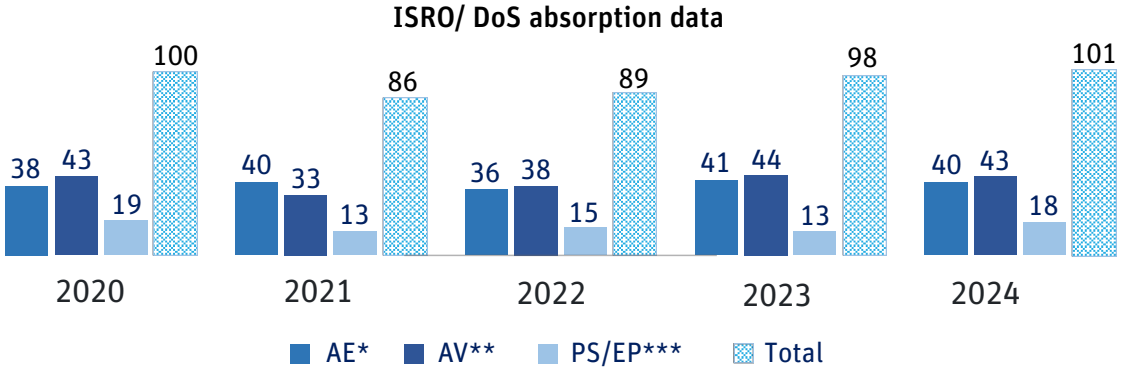
Y Rahul Kumar
B.Tech. in Aerospace Engineering

Manvendra Sharma
B.Tech. in Electronics and Communication Engineering (Avionics)

3.9 Placement

3.9.1 ISRO Placement for B.Tech. Students

In 2024–25, the ISRO absorption process for IIST graduates was held on 14th August 2024, with allotments made to various DoS centres based on the notified vacancies. Thirteen ISRO/DoS centres participated in the process. B.Tech. and Dual Degree graduates with a CGPA of 7.5 and above were absorbed into different ISRO/DoS centres. In 2024, 101 students received placement offers across ten ISRO/DoS establishments. Till March 2025, a total of 1,430 graduates from the institute have joined ISRO.



*AE: B.Tech. Aerospace Engineering
**AV: B.Tech. Avionics or B.Tech. Electronics and Communication Engg.(Avionics)
***PS/EP: B.Tech. Physical Science, later changed to Dual degree curse with B.Tech. in Engineering physics and Masters in Tech./ Master of Science.

3.9.2 Centre for Career Guidance and Placements (CCGP)

The Centre for Career Guidance and Placements (CCGP) aims to train students and assist them in securing internships and placements in industries and R&D organisations. The CCGP steering committee is constituted with 9 members from various academic programmes. The CCGP steering committee was formed to train students and facilitate students in internships and placements in industries and R&D organizations. In view of the new space reforms and to further enhance the skill development programmes and placements, the scope and objective of the CCGP shall be augmented to encompass wider areas of student training and career guidance and ensure placement in top-rated companies.

The CCGP fosters regular interactions with industry, R&D organisations, and management institutions to provide Training, Career Guidance, Internship/ Project and Campus Placements to our postgraduate and undergraduate students. The CCGP functions in accordance with the Institute's standards, attempting to connect students' interests with relevant career profiles. It is constantly working to protect the interests of students and strives to be a part of their safe and secure future.

The CCGP steering committee is regularly meeting to discuss the following activities:

1. Training students on computer coding skills, soft skills, communication skills and conducting related workshops.
2. Increasing student participation in training activities.
3. Creating awareness about IIST to the top recruiting companies and expanding the number of companies visiting IIST for placements.
4. Improve the infrastructure of the CCGP.

During the reporting period, 51 companies visited IIST for campus placement of M.Tech. students which included Robert Bosch, TCS, Delta Electronics, Altair, STMicroelectronics, Unistring Solutions, Digantara Research, Textron India, Tata Advanced, Mahindra & Mahindra, Skyroot Aerospace, GE Vernova, C-DAC Bengaluru, Dhruvaspace, Stardour, DTICI, CoreEL Technologies, KaleidEO, Newspace Research, Manastu, and EtherealX. The maximum package offered was ₹ 15 LPA, with a median CTC of ₹ 11.5 LPA. In addition, 52 students received internship offers from various government and private organisations.

For B.Tech. students, the Indian Space Research Organisation (ISRO) recruited all candidates with a CGPA of 7.5/10 and above. Apart from ISRO, 16 companies visited the campus, including Agnikul Cosmos, BEL, Skyroot Aerospace, Accenture, Unistring Tech Solutions, DeltaX, Delta Electronics, Tata Technologies, Texas Instruments, Stardour, and Ananth Technologies. The maximum package offered through ISRO was ₹ 13 LPA, while private companies offered up to ₹ 38.5 LPA.

3.9.3 Placement Details

B. Tech 2020-2024 Batch and M. Tech 2022-2024 Batch

SL. NO	NAME	COURSE	COMPANY
B. Tech.			
1	Karthikeyan	Aerospace	M/s Agnikul Cosmos
2	Pagare Jay Chandrashekhar	Aerospace	M/s Agnikul Cosmos
3	Anjali Sachin Mali	Aerospace	M/s Stardour
4	Ashish Shinde	Aerospace	M/s Stardour
5	Malavika R S	Aerospace	M/s TATA Technologies
6	K Dhivakar	Avionics	M/s Agnikul Cosmos

SL. NO	NAME	COURSE	COMPANY
7	Deepak Raj	Avionics	M/s Texas Instruments
8	Gadekar Rushikesh Sharad	Avionics	M/s Texas Instruments
9	Mohammed Aban A	Avionics	M/s Texas Instruments
10	Ravinder	Avionics	M/sTexas Instruments
11	Tushar Kant	Avionics	M/s Texas Instruments
12	Kadam Sachin	Avionics	M/s Stardour
13	K B Sheetal	Avionics	M/s Stardour
14	Vikas Kumar Saha	Avionics	M/s Stardour
15	Divyam Gupta	Avionics	M/s Accenture
M. Tech.			
16	Vignesh Viswanath	Structures and Design	M/s Stardour
17	Shritu Badoniya	Earth System science	M/s Agnikul Cosmos
18	Ramesh M	Thermal and propulsion	M/s Agnikul Cosmos
19	G Lalitha Maheswari	Thermal and Propulsion	M/s Agnikul Cosmos
20	K Ishmael	Aerodynamics and Flight Mechanics	M/s Stardour
21	Ramakrishnan P V	Thermal and Propulsion	M/s GE Vernova
22	Reshma Sett	Structures and Design	M/s Agnikul Cosmos
23	Navya Sree Kamana	Aerodynamics and Flight Mechanics	M/s Stardour
24	Tadepalli Subha Chandrika	Structures and Design	M/s Agnikul Cosmos
25	Gaurav Maurya	Thermal and Propulsion	M/s Stardour

SL. NO	NAME	COURSE	COMPANY
26	Amrithavarshini	Aerodynamics and Flight Mechanics	M/s Stardour
27	Subhadip Maji	Machine Learning and Computing	M/s Robert Bosch
28	Sonu Maruti Harijan	Thermal and Propulsion	M/s Stardour
29	Anushri P	Control Systems	M/s Nibe Space
30	Anushri P	Control Systems	M/s L&T
31	Anushri P	Control Systems	M/s Agnikul Cosmos
32	Potta Sai Tarani	Control Systems	M/s L&T
33	Sirana Saneer	Control Systems	M/s L&T
34	Karthikeyan B	Digital Signal Processing	M/s Nibe Space
35	Abirami M	RF and Microwave Engineering	M/s CoreELTechnolo-gies
36	Vishnu S Varma	RF and Microwave Engineering	M/s Agnikul Cosmos
37	Saurav Kumar	Power Electronics	M/s Daimler Truck In-novation Center India
38	Adheena C K	Optical Engineering	M/s Bharat Electronics Limited
39	Adheena C K	Optical Engineering	M/s. KaleidEO Space Systems Pvt. Ltd
40	Narmadha S	VLSI and Microsystems	M/s C-DAC, Banglore
41	Bhargav Mulka	Thermal and Propulsion	M/s L&T
42	Malligari Vineeth	Aerodynamics and Flight Mechanics	M/s Tata Technologies

Research and Development

Lunar eclipse - Photograph captured by IIST students

4. Research and Development

The Indian Institute of Space Science and Technology (IIST), functioning under the Department of Space, Government of India, embodies a vision of excellence in education and research in the fields of space science and technology. Beyond its mission to cultivate highly skilled professionals for the Indian Space Research Organisation (ISRO) and allied industries, IIST provides a dedicated environment for cutting-edge research and innovation. What sets IIST apart is its unique platform that fosters boundary less collaboration with various ISRO centres under the governance of Department of Space, enabling active participation in space research and development.

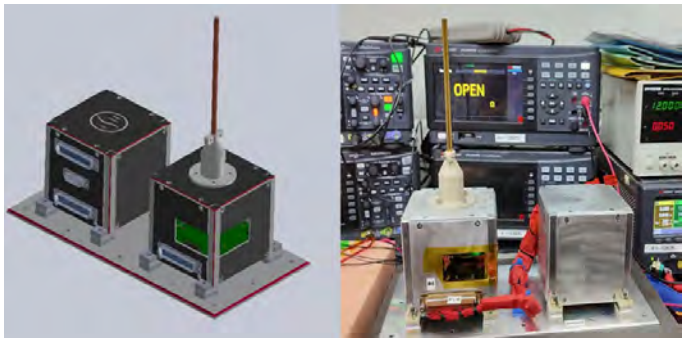
4.1 Contribution in Space Missions

The collaborative research between IIST faculty and ISRO scientists has created unique opportunities for students to actively participate in real space missions. Notable examples include microgravity experiments conducted using the PSLV-PS4-POEM platform, Student Satellite Mission InspireSAT, Astrobiology experiments, etc., which highlight IIST's distinctive contributions to the Indian Space Programme.

4.1.1 Successful launch of PILOT-G2 (GRACE) Payload in POEM-4-PSLV C60-SpaDex Mission

Designation of Payload: PS4 In-Orbital OBC, TTC & GMC (PILOT-G2) & GRACE: GMC Reprograming and Communication Experiment

The student and faculty team of Small-Spacecraft Systems and Payload Centre (SSPACE), IIST has designed, developed, qualified and successfully launched the payload PILOT-G2 (GRACE) in the PS4-POEM platform of PSLV C60 SpaDex mission on December 30, 2024.



Objectives of the payload

- To space qualify in-house developed CubeSat UHF Board for receiving commands from Ground Station.
- To space qualify in-house developed Geiger–Müller Counter (GMC) payload for measuring high energy radiations.
- To demonstrate In-Orbit Reprogramming of On-Board Computer.
- To qualify the improved/faster data interface, Tele commanding in between POEM and PiLOT Packages.
- To educate the students on spacecraft systems development and systems engineering on live missions.

Status and Outcome

After launch, PILOT-G2 (GRACE) was switched on in the 3rd orbit of POEM-4. IIST has received telemetry and science data from the payload. The parameters are being calibrated and evaluated. The payload is in healthy state and all the objectives were fully accomplished.

4.1.2 Preparation of Space-Biology Experiment for Axiom Mission

During the reporting period, IIST was involved in a Space Biology experiment, "CROP SEEDS on ISS', wherein a host of food crop seeds, integrated as a biology payload is getting ready for Axiom-4 mission. IIST has identified College of Agriculture, Vellayani, Kerala Agricultural University to collaborate on this project and to support with the seed samples and post-flight field studies. The payload comprises seeds of self-pollinating crops – cereals, pulse, vegetables and oil seeds, released by Kerala Agricultural University. The hardware will be integrated and handed over to Kennedy Space Centre (KSC), NASA, to carry the same to International Space Station (ISS) through Group Captain Shri. Subhanshu Shukla. Once the seeds return from space, they will be grown out in the fields for multiple generations to assess the unique effects of microgravity on various growth and yield parameters of these crop seeds. The experiment can bring vital clues on exploring microgravity as an environmental stress or that can bring useful traits in plants that can advance agriculture on Earth and in Space.

4.1.3 The legacy: Past Space Missions from IIST

Payload/Satellite	Description	ISRO Mission and Launch Date
ARIS-201F	Advanced Retarding Potential Analyser for Ionospheric Studies; a Payload for Low Earth Orbit (LEO) Ionospheric studies	PSLV C55 in April 2024
PILOT	PSLV In-Orbital OBC and Thermals; a payload with indigenously developed sub-systems at IIST, such as the On-Board Computer (OBC), intended for future missions & upcoming IIST student satellites.	PSLV C55 in April 2024
INSPIRESat1	A student satellite in collaboration with the University of Colorado Boulder (USA), NTU Singapore, and NCU Taiwan, under the Small-Spacecraft Systems and Payload Centre (SSPACE), IIST	PSLV C52 in February 2022
ARIS-101F	Advanced Retarding Potential Analyser for Ionospheric Studies101F.	PSLV C55 in April 2019
VYOM	The first student built sounding rocket	Sounding Rocket, May 2012

4.1.4 Small-Spacecraft Systems and Payload Centre (SSPACE)

Small-Spacecraft Systems and Payload Centre (SSPACE) established at IIST is a central facility established for small satellite and payload projects, with active involvement from IIST faculty and ISRO centres. SSPACE promotes interdisciplinary collaboration, subsystem specialization, and hands-on training with a system engineering perspective. Students of IIST are highly benefited from this unique platform of comprehensive experiential learning that include unique opportunity of participation in ISRO space missions, which cater to the comprehensive development of Industry-ready skills in System Engineering, Space Science and Technology. SSPACE could establish official technical collaborations with many academic institutions, Start-ups, R&D organizations and Industries for collaborative moves in space research.

4.1.5 Satellite Ground Station at IIST

An indigenously developed ground station at IIST is first of its kind in academic community across the country. The objective of IIST Satellite ground station is to carry out tracking, telemetry and commanding (TT&C) operations of student satellite missions. It also provides tracking and telemetry support for the stratospheric balloon borne payloads (Radiosonde experiments) launched periodically from Ponmudi Climate Observatory of IIST. The ground station facilitates learning and hands-on experience for students in the fields of radio communication, satellite tracking, antenna positioning/control systems along with telemetry data visualization/processing, real-time commanding and mission operations. A standalone VHF/UHF SDR Ground Station unit is also designed with the latest state of the art technologies like wideband SDR (Software Defined Radio) based MODEM and fully integrated network-based architecture. Presently, the ground station is capable of providing TTC support to any Low-Earth Orbit (LEO) satellite mission operating in VHF band: 144-146 MHz, UHF band: 434-438 MHz and S band: 2.2-2.4 GHz (on receive mode) of frequencies. The mission control room of the ground station, located in the top floor of the Aerospace Engineering block, accommodates SDR-based Receivers, RF power amplifiers, Transmitters, Antenna controllers, Operator Consoles, Data storage, large display systems for real-time data visualization and RF subsystem test beds.

4.1.6 Past Successful Missions and Outcomes

Year	Mission	Type and Lauch Vehicle	Objective	Remarks
2019	ARIS-1 [2.8 kg] [Apr 1, 2019]	PS4, PSLV C45	Ionosphere studies with RPA	First IIST space mission accomplished
2020	INSPIRESAT2 [4 KG]	Spacecraft, SPACEX	OBC and EPS; Partial Ground Support	International Collaboration, NCU mission
2022	INSPIRESAT1 [8.2 KG] [Feb 14, 2022]	Spacecraft, PSLV C52	Mission design, OBC, EPS; Ground Support	NTU, LASP, NCU, IIST international collaboration

Year	Mission	Type and Lauch Vehicle	Objective	Remarks
2022	Ground Support POEM [Aug 15, 2022]	NA	Ground Station receiving station for POEM	Successful
2023	PILOT [1.2 KG] [Apr 22, 2023]	POEM Payload, PSLV C55	OBC, 3D printed structure qualification; Thermals	TDP of OBC & additively manufactured structure
2023	ARIS-II [2.4 kg] [Apr 22, 2023]	POEM Payload, PSLV C55	In House designed mesh	Ionosphere studies
2024	Ground Support POEM [Dec 28, 2023- Jan 12, 2024]	LEAPTD PSLV C59	Ground station TX/RX	First time support to industry
2024	GRACE/PILOTG2 [2.4 KG] [Dec. 30, 2024]	POEM payload PSLV-C60	GMC, in-orbit reprogramming, Communications	Successful Demonstration of all objectives [Ongoing]

4.1.7 Ongoing Missions and Proposed Projects from SSPACE

Payload	Type and Launch Vehicle	Objective
IDM	Payload	Diagnostics for Electric propulsion
AHAN	Spacecraft	OBC, EPS, full mission with passive ADCS, [V3.0]
SAP3	POEM payload	Growth of bacteria in the microgravity
LISAT	Spacecraft	Indigeneous satellite
INSPIRESAT3	Spacecraft	Satellite Bus
RPAV	Venus payload	Venus ionosphere studies
XNAV	Spacecraft	TDP navigation using pulsar

4.1.8 IIST Climate Observatory at Ponmudi

The Ponmudi Climate Observatory (IIST-PCO), is located at the confluence point of the Arabian Sea, Indian Ocean, and Bay of Bengal atop the southern end of Western Ghats (8.76Â°N, 77.12Â°E, 1.0 km, AMSL). The IIST Climate observatory is primarily beneath the cloud layer influenced by the south-west and north-east monsoonal flows, serves as a natural laboratory for conducting high quality measurements of aerosol and cloud for an improved representation of aerosol-cloud interaction in climate models. A range of field instruments has been commissioned to measure aerosol and cloud microphysics, along with meteorological variables. Following rigorous quality checks, the data collected from these instruments can be disseminated to collaborating institutions, as well as national and international users, for climate studies. The observatory is also equipped with balloon launch facility for research in space science and technological demonstration.

4.1.9 Electric Propulsion

In view of ISRO's future requirement of high thrust and high efficiency electric propulsion systems, an initiative was undertaken at IIST to establish necessary research infrastructure for future high thrust electric propulsion systems at LPSC, Valiamala.

For this, the "High Thrust Electric Propulsion" project, was formed as an inter-centre project with LPSC as the lead centre. IIST is collaborating in this project for the design, development, testing and implementation of the diagnostic tools necessary for the proper characterization of the Stationary Plasma Thruster (SPT) being developed by LPSC under this project

Two sources were developed in-house for testing and development purposes: (a) Back diffusion plasma source and (b) Ion beam source. An electric thruster is known to produce both charge exchange ion clouds and ion beams, thus sources were developed to produce both the environments created by the thruster. An ion beam deflector was also built to maneuver the ion beam as required for calibration of the probes being developed. The sources also require various gas lines to bring the gas wherever necessary. The plasma source can also be tuned to produce plasma conditions similar to that of lower earth Ionospheric conditions, hence making the facility as India's only Ionospheric plasma simulator. All the payloads that are to be taken to the lower earth atmosphere can hence be tested in this facility.

4.1.10 Rocket Development

Following the successful launches of the past editions of IIST student rocket 'VYOM', the student- faculty team of IIST has initiated another research on hybrid-rockets. The objectives are: (a) Hybrid Rocket Propulsion Characterization, (b) Recovery of the vehicle with deep throttling of the thrust, (c) Rocket structures using composites and 3D printed components, (d) Restartability & Recovery with Landing Legs, and (e) Retro-Propulsion. The above activity is initiated with the support of ISRO centres, especially VSSC, LPSC, IISU and CMSE.

4.1.11 Astronomy and Astrophysics

The Astronomy & Astrophysics group in IIST is engaged in both observational and theoretical research work. Current research programs include infrared and radio observations of Galactic massive star forming regions, the ISM, physics of Accretion around compact objects, astrophysical masers, multi-wavelength observations of pulsating variable stars, and UV spectroscopic observations of the intergalactic medium and galaxy halos.

In addition to the individual thrust areas such as (a) star formation, (b) intergalactic medium, and (c) compact objects, the Astronomy group plans to join national and international projects like the Thirty Meter Telescope (TMT), and the South African Large Telescope (SALT). The group is already involved with the ASTROSAT project. The faculty members also plan to make full use of new/upgraded telescope facilities such as the Expanded Very Large Array (EVLA) and the Atacama Large Millimetre Array (ALMA).

4.2 STIIC- The Innovation Hub of IIST

Space Technology Innovation and Incubation Centre (STIIC) is the innovation hub of IIST which acts as an umbrella for advancement of entrepreneurship and innovations. STIIC's business incubator provides systematized scientific guidance and infrastructure support to young entrepreneurs within IIST campus. The startup companies are provided with exclusive office space, laboratory facilities and mentorship by IIST faculty in addition to need-based unique liasoning with ISRO experts and facilities.

During the report period, 14 startup companies at various stages of their business journey are being supported by STIIC. The companies and their focus areas are listed:

1. ***Vashishtha Research Pvt. Ltd:***
    - Robotics and Machine Development
    - Engineering software and 3D viewers
2. ***SPACETIME 4D printing solutions LLP :***
    - Developing 3D printers for 3D printing materials research
    - Direct printing from raw materials – customized printers
3. ***Bhuh Pramaan Pvt. Ltd.:***
    - Developing innovative solutions in satellite images & Maps; Geo-spatial data processing
4. ***InterCosmos Space Exploration Technologies Pvt. Ltd.:***
    - Develop a proof-of-concept on their product on satellite propulsion.
5. ***SPECRULE Scientific Pvt Ltd.:***
    - In-house development of laser-based optical sensor systems for aerospace and combustion research

6. ***Spacecurve Technologies India Pvt Ltd.:***
    - Build customized and off-the-shelf components/ systems of launch vehicles and satellites
7. ***Zeroing in Association:***
    - Science podcast
8. ***FluxxEV Electric Pvt. Ltd.:***
    - Electric bikes
9. ***Hathor Rockets Pvt Ltd.:***
    - Semi-cryogenic and Cryogenic Liquid Propellant Engines
    - Propulsion Modules and Subsystems
    - Reusable launch vehicles
10. ***CloudOne AI Robotics Lab:***
    - Drone technology
11. ***CLUPAV Scientific Pvt. Ltd.:***
    - SMART FFT FAM transceiver communication
12. ***Andura Expeditions Pvt. Ltd.:***
    - multi-mode green propulsion system
    - Hosted Payload Services (HPS)
13. ***CI Metrics:***
    - Data Ontology
    - Building Risk Indices at the intersection of Satellite Imagery and AI
14. ***BLACKANT Tech.:***
    - Robotics and Machine Development
    - Engineering software and 3D viewers

4.3 National Start-up Day- UDYAMOTSAV 2025

STIIC-IIST celebrated the National Start-up Day UDYAMOTSAV 2025 @ IIST on January 16, 2025. The meeting was presided over by Director Dr. Dipankar Banerjee and selected start-ups shared their exciting journey with the audience.

4.4 MoUs and Collaborations

Sl. No.	Organization/ Institute	Date of Execution	Duration	Scope of MoU
1	MoU with Birla Institute of Technology, Mesra	03.02.2025	5 Years	Joint Academic Programmes
2	MoU with National Centre for Medium Range Weather Forecating, Noida	22.10.2024	5 Years	Earth System Modelling, Space Weather Events, Weather prediction etc.,

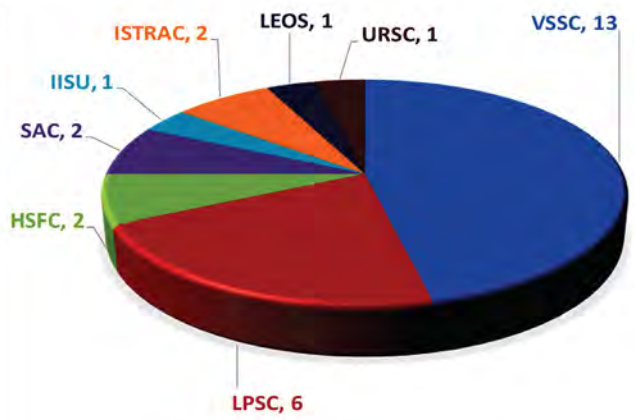
Sl. No.	Organization/ Institute	Date of Execution	Duration	Scope of MoU
3	MoA with TCoE	10.12.2024	3 Years	Development and prototyping wideband spectrum sensing and sharing systems for efficient spectrum utilization
4	MoA with TCoE	10.12.2024	3 Years	Reflective Intelligent surface (RIS) Aided Joint localization and Communication system
5	MoU with Defence Space Agency	09.12.2024	5 Years	Academic and Research Collaboration
6	IIT Roorkee	20.08.2024	3 Years	Academic and research collaboration in the areas of mutual interest and joint supervision of M.Tech / PhD projects, conducting conferences, seminars and workshops jointly
7	IIT Palakkad	19.08.2024	3 Years	Academic and research collaboration in the areas of mutual interest and joint supervision of M.Tech / PhD projects, conducting conferences, seminars and workshops jointly
8	Sree Chitra Tirunal Institute of Medical Sciences (SCTIMST), Thiruvananthapuram	06.11.2024	3 Years	Development of Mathematical Human Thermal Behavior Model for a reference Indian subject
9	TCIL	28.05.2024	5 Years	Setting up of 5G Use Case Labs

Sl. No.	Organization/ Institute	Date of Execution	Duration	Scope of MoU
10	MoU with Indian Institute of Information Technology, Kottayam (IIIT-K)	04.10.2024	5 Years	Research and Academic Collaboration
11	MoA with IISc Bangalore	17.01.2024	Completion of Program	Develop Academic and Educational cooperation, between the Parties and to cooperate in their mutual interest for a range of higher educational and research activities in the area/ field of nanoelectronics/ semiconductor ecosystem in furtherance to the Programme.

4.5 ASRG Projects

An Advanced Space Research Group (ASRG) has been established for all collaborative research activities of IIST with all R&D centres of ISRO. ASRG will ensure smooth coordination and oversee effective implementation of ISRO-IIST joint research activities. An Empowered Overseeing Committee (EOC) which comprises of members from all research centres of ISRO is the apex body to ASRG. EOC will review and decide on all actions related to the activities of ASRG to ensure smooth functioning of the joint research activities. IIST Link Unit at ISRO Centres is also established to have effective coordination of the joint research programmes. The link unit at each Centre is headed by the member representing that Centre in EOC and is supported by a committee identified by the Centre Director. This unit functions as a single window agency for all joint research programmes with IIST for providing the necessary inputs and also for ensuring the smooth coordination. Currently Dr. Kuruvilla Joseph, Outstanding Professor, Registrar, and Dean Academics, IIST is the Chairman of EOC and Shri Harish C.S., is the Professor of Practice, IIST & Chairman of ASRG.

4.6 Distribution of ASRG projects across the ISRO centers



4.6.1 ASRG Projects : IIST and VSSC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
1	IIST/VSSC/03/2021/03	Nano structured high performance anode materials for high power, higher safety and fast charging Li-ion battery.	11.64
2	llST/VSSC/03/2021/04	High-Q dielectric thin films with tunablity in Microwave frequencies for Space applications.	40.64
3	IIST/VSSC/03/2021/05	Development of Yttrium Iron Garnet (YIG) thin films for space applications and Dielectric Test setup for ceramics at high Electric field and temperatures.	9.64
4	IIST/VSSC/03/2021/07	Large Eddy Simulation of Jets	13.52
5	IIST/VSSC/03/2021/08	Supersonic combustion of isrosene behind two strut configuration	22
6	IIST/VSSC/03/2021/09	Development of Graphene based anticorrosion coating for stainless steel bipolar plates of PEM fuel cells	14.64
7	IIST/VSSC/03/2021/10	Improved Silicon- graphene based composite as anode materials for lithium battery cells and exploring the possibility of other battery technologies	31.64
8	IIST/VSSC/11/2022/31	Investigations on Laser Based -Powder Feed Type-Direct Energy Deposition (LAM-DED) for Additive Manufacturing of Components in Space Applications	29.85
9	IIST/VSSC/11/2021/25	Design of Multi-Channel Temperature Monitoring ASIC	23.60
10	IIST/VSSC/11/2022/32	Indian Space Program and its Impact on the Industrial sector of India	7.64
11	IIST/VSSC/06/2024/33	Design and realization of bipedal humanoid robot with human-like walking ability	Nil

Note: Two projects were completed

4.6.2 ASRG Projects : IIST and LPSC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
1	IIST/LPSC/03/2021/13	Near and far field diagnostics for HET	32.28
2	IIST/LPSC/03/2021/15	Life time prediction of HET liner using simulations	4.32
3	IIST/LPSC/03/2021/16	Experimental and Numerical Investigation of Direct Contact Condensation of GCO2/ steam in LN2	48.52
4	IIST/LPSC/03/2021/ 18	Analysis of thruster Plume behaviour in Vaccum using DSMC (Direct simulation Monte Carlo) method	38.52
5	IIST/LPSC/11/2021/24	Cold Flow Characterization of a Dual Throat Nozzle (DTN) based Tri-Propellant Engine Propulsion System.	61.52
6	IIST/LPSC/11/2024/35	Performance and Instability Analysis of Methane- Oxygen Combustion using multi-element Swirl coaxial injector	12

4.6.3 ASRG Projects : IIST and SAC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
1	IIST/SAC/11/2021/23	Interference analysis and co-existence studies between GSO and NGSO satellite systems.	11.64
2	IIST/SAC/11/2021/22	Machine learning driven Augmented Reality based Campus walkthrough.	21.22

4.6.4 ASRG Projects : IIST and ISTRAC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
1	IIST/ISTRAC/06/2025/36	Advanced Reconfigurable Beam-Shaping Antenna System for Wide-Angle Scanning with Polarization Diversity in Radar Applications	80.22
2	IIST/ISTRAC/11/2021/29	Tracking & Nowcasting of severe convective storms using deep learning (DL)/machine learning (ML)techniques	50.60

4.6.5 ASRG Projects : IIST and IISU Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
01	IIST/IISU/03/2021/12	High Performance SAR ADC with auto calibration and correction for sensor closed loop application.	67.42

4.6.6 ASRG Projects : IIST and LEOS Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
01	IIST/LEOS/05/2022/30	Design and construction of MEMS-based portable Seismocardiogram for on-board Cardiac health monitoring of Astronauts.	11.22

4.6.7 ASRG Projects : IIST and HSFC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
1	IIST/HSFC/03/2021/ 20	Development of science payload for unmanned mission of Indian Human Space Programme with the objective of studying Spaceflight - Induced changes in Kidney Stone formation in Drosophila Melanogaster.	72
2	IIST/HSFC/11/2021/21	Development of Mathematical Human Thermal Behavior Model for a Reference Indian Subject linked to Human space flight program of HSFC. (Gaganyaan Projects)	36.52

4.6.8 ASRG Projects : IIST and URSC Collaborations

Sl No.	Project Identification Number	Title of the Project	MoU Budget (Lakhs)
01	IIST/URSC/06/2025/37	Design, Realisation and Implementation of RPA-V Payload For Venus Orbiter Mission	NIL (Mou signed as a part of approved ARIS-VENUS mission)

4.6.9 ASRG PROJECTS: Newly Initiated Proposals

Sl. No.	Name of the Project	Funding Agency/Source
1	Feasibility studies on fabricating nozzles from tailored blanks of C103 through friction stir welding and assessing its formability	LPSC
2	Development of polymer derived self-healing matrices for TPS applications	VSSC

Sl. No.	Name of the Project	Funding Agency/Source
3	Investigation on atomization characteristics of a two-phase swirl nozzle for spray crystallization of Ammonium-perchlorate	APEP Aluva (VSSC)
4	Measurement of free stream conditions in VSSC plasma tunnel using Tunable Diode Laser Absorption Spectroscopy(TDLAS)	VSSC
5	Scrap Installations and Fun Learning through Creative Reuse	SAC
6	Defect Engineering of MOF-based Materials as Adsorbents for Carbon Capture	VSSC/ HSFC
7	Debris Avoidance for Bharathiya Antariksh Space Station	VSSC
8	Brain-Computer Interface for Space Applications	IISU/ HSFC
9	Wearable Sensors for Stress Analysis and Management in Space Missions	VSSC/IISU
10	Identification and study of Hub-filament systems across the Galactic plane	SAC
11	Cloud physical properties under Polluted and Unpolluted conditions for Climate Studies	NRSC
12	Automatic labelling methods using machine learning for horticulture plantation inventory	NRSC
13	Coupled Solver for Ablation in Pyrolyzing Materials for Thermal Protection Systems	VSSC

4.7 Technology Developments & Intellectual Property Rights

As a continuation of IIST's efforts towards technology development and intellectual property rights, one patent was granted (Table 1) and six patents were filed (Table 2) during 2024-2025.

Table 1 - Patent Granted

Title of Invention	Application No.	Date of filing	Inventors	Status	Patent No.	Granted Date
Digitizing Interface Circuit Topology and A Measurement Strategy for Grounded Rc-Based Impedance Sensor	202441007644	02.05.2024	Dr. Anoop C. S. Dr. Elangovan K	Granted	550477	18.09.2024

Table 2 - Patents Filed

Title of Invention	Application No:	Date of Filing	Inventors
A Circuit System for Liniarization and Demodulation of Transformer based Displacement Transducers	2024410094085	30.11.2024	Dr. Anoop C. S Bhavesh RajSingh N. Manvendra Sharma
Universal Linearization Method And Circuit Framework For Various Non-Liner Resistive-Sensor Bridge Topologies	202441081401	25.10.2024	Dr. Anoop C. S Dr. Vineeth B. S Thomaskutty Mathew Nani Simhadri
Geosemantic Point Cloud Enrichment (Gpce) For Spatio-Empirical Decision-Making	202441081400	25.10.2024	Dr. A. M. Ramiya Jayati Vijaywargiya
Feedback Based Adaptive Power Distribution	202441081039	18.10.2024	Dr. Chinmoy Saha Gopika R Rutuj Gharate
Atmospheric Pressure Nitrogen Plasma Surface Modification Of Metal-Organic Frameworks For Enhanced Carbon Dioxide Capture.	202441081038	18.10.2024	Dr. Gomathi N Shashank Rao
Fluorescence Mapping System for Optical Pathology	202441038410	16.05.2024	Jaysree R. S. Shaiju Nazeer S. Jeena R. S. Sanil K. Daniel et.al.

4.8 Externally Funded / Extramural Projects

Sl. No.	Title of the Project	Budget in Lakhs	Funding Agency/ Source
1	Development and prototyping wideband spectrum sensing and sharing systems for efficient spectrum utilization	108.24	Department of Telecommunication (DoT) under TTDF Scheme
2	Role of Traditional Knowledge and Local Socio-Economic Structure in Adapting to Climate Change	19.92	NRSC
3	Wireless Networked System Research and performance evaluation for Crew Modules for Indian Human Space Missions	51	DoS/IIST
4	Determination of geodetic parameters based on SLR observations	03	DST through National Centre for Geodesy, IIT Kanpur
5	Electric Powertrain for All Electric Aircraft HANSA NG Technology Demonstration	661	AR&DB/ DRDO
6	Novel Integrated Battery Chargers for Electric Vehicles and e-bikes	27	KSCSTE

Sl. No.	Title of the Project	Budget in Lakhs	Funding Agency/ Source
7	Applications of Fractional Order Calculus to Biomedical Signal Processing	31.24	SERB/DST
8	Development of Fractional Chaotic Observer for Secure Communication	20.34	IIT Palakkad Technology Ihub foundation (IPTIF)
9	Implementation of Ensemble Forecast Sensitivity Approach to Estimate the Impact of Observations in IMD GFS forecast	58	MoES
10	Improving the Prediction of Thunderstorms using Dual Resolution Hybrid Ensemble Variational Data Assimilation System in WRF model	75	MoES
11	Instrumentation and Signal Processing for Remote Monitoring of Bio-Parameters Based on Magneto-Plethysmographs	18.8	KSCSTE (ETP)
12	GMR Based Eddy Current Probes and Linearized Digitizing Electronic Systems for Non-Destructive Evaluation of Metallic Specimens	29.7	KSCSTE (YSA)
13	Secure Control Algorithms Design for Distributed Formation and Containment Control Problems Subjected to Cyber Attacks	12.87	DST/SERB
14	Reflective Intelligent Surface Aided Joint localization and Communication system	282.7	TCOE
15	Exploring the socio-cultural framework of the Kattunaykan Tribal Community through its indigenous art forms	9.45	ICSSR
16	Lifeline for Remote India: A Study on Telemedicine Units in India	13.97	ICSSR
17	Parameter Identification for Diffuse Interface Models Describing Multiphase Fluids	16.19	DAE/NBHM
18	Structure of relativistic jets	6	MATRICS/ANRF
19	What makes radio bright GRBs special	28	CRG/ANRF
20	Studies on affine spaces and related objects through algebraic group actions and locally nilpotent derivations	68.2	DST/RFS
21	R-forms of R[X]	6.6	MATRICS/ANRF

Sl. No.	Title of the Project	Budget in Lakhs	Funding Agency/ Source
22	Development of a mathematical model for dynamic stress and transmission error prediction of high-speed spur gear mesh	62.44	DRDO/GTRE
23	Development of sustainable and bio-derived high surface area silica gel for Industrial Applications	11.8	ZF Commercial Vehicle Control Systems India Limited, Chennai
24	An automated machine learning based pipeline for generation of 3D digital twin city models and topographic digital database from Airborne LiDAR dataset: Case study of Thiruvananthapuram city	20	KSCSTE-KSYSA
25	Development of novel numerical techniques for miscible displacement problems in porous media	19.4	SERB/DST
26	Assessment of stability limits and NOx emissions of non-premixed Ammonia-Hydrogen-Air flames	9.3	DST-DAAD
27	Development of a fast response TDALS temperature sensor	33.06	AR&DB/ DRDO
28	Design and Technology Development for Polymer MEMS Integrated FET Single Axis Accelerometer Platforms	28.8	Kerala State Young Scientist award-Research grant
29	Design and Fabrication of Compact MEMS Broadband Piezoelectric Vibration Energy Harvester Array for Powering Low-Power Wireless Sensor Node	NA	Idea to Innovation (INUP-i2i) supported by Ministry of Electronics and Information Technology (MeitY),
30	Polymer MEMS Ring-Flexure-Membrane movable gate FET array: A Multi-Gas Sensor Platform	NA	Meity Nanotech Hackathon
31	UAV-enabled ultra-reliable low-latency communication for energy efficiency and latency reduction in 6G networks	47.52	DST-SPARC
32	Machine Learning Framework for Analysis of Social Media Text using Graph Network Data Modelling and Natural Language Modelling Techniques	18.3	SERB-TARE
33	Mathematical modelling and Control design for Quadruped and biped robots	49.16	DRDO
34	HSI Sensor: Hyperspectral imaging system development for precision remote sensing applications	35.84	DST

Sl. No.	Title of the Project	Budget in Lakhs	Funding Agency/ Source
35	Ecophysiological functioning of Indian mangroves under climate change conditions: current performance and future predictions	0.495	DST-SERB
36	A Multi-Layer Approach for Secure UAV Networks	39.34	C3iHUB IITK
37	5G Use Cases Laboratory	100	DoT & DoS
38	Architectures and Protocols for Integrated 6G-Satellite Networks	93	DST-SERB
39	Development of an Atomic Layer Deposition System	120	DST

4.9 Research Labs/ Facilities established

- The Quantum Optical Technology Lab (QOTL) to perform the experimental research activities in several forefront areas of quantum optical technologies. Currently, QOTL is involved in the Generation and Characterization of Quantum Squeezed/Entangled Light beams, Quantum Sensing, Quantum Metrology and Quantum Imaging, and Engineering Spatial Quantum Correlations for Quantum Cryptography and Quantum Communication
- Quantum Technology Lab (Demonstrated quantum non locality and entanglement)
- The multidisciplinary computing center has installed a new supercomputer with 82.43 teraflops computing power
- Upgraded the ASIC Characterization Lab with Vector Signal Generator & 6 GHz Digital Storage Oscilloscope, and ESD-safe workbenches.
- Regional Center for Geodesy of the National Center for Geodesy funded by DST
- GNSS receivers for DGPS Survey, CORS instrument one unit, and TBC software.
- Established the CORE geo-positioning infrastructure and has been receiving the data successfully at NCG
- The space biology lab investigates how microgravity and space-related stressors influence biological systems
- Flow Blurring Injector Test Facility
- Real-time computer for Power Electronic Systems Simulation
- Flow Blurring Injector Test Facility
- Stagnation Point Reverse Flow Combustor (SPRF) Test Facility
- Optical experimental setup for Optoelectronics and Photonics lab (Tunable lasers, optical xyz

positioners)

- Augmentation of Audio-Visual Lab
- Friction stir welding facility
- Field Emission Scanning Electron Microscope Facility (FE-SEM)
- X-Ray Diffractometer
- Conductivity meter
- Planetary Ball Mill
- CDI unit for water desalination
- Material measurement software suit (Keysight Technologies) was installed in Vector network analyser
- Thermogravimetric Analyser
- Multichannel Electrochemical workstation
- Gaussian 16 and Chemdraw Professional Softwares
- Digital Manufacturing Lab (Phase 1: Virtual Processing & Manufacturing Simulation)
- STATA statistical Analysis software
- Enhancement of computer instructional lab with 30 more workstations having the following high-end specifications.
- Interactive Panels
- High resolution optical microscope for Space Technology Innovations and Characterizations lab

4.10 IIST in National Missions

4.10.1 National Quantum Mission

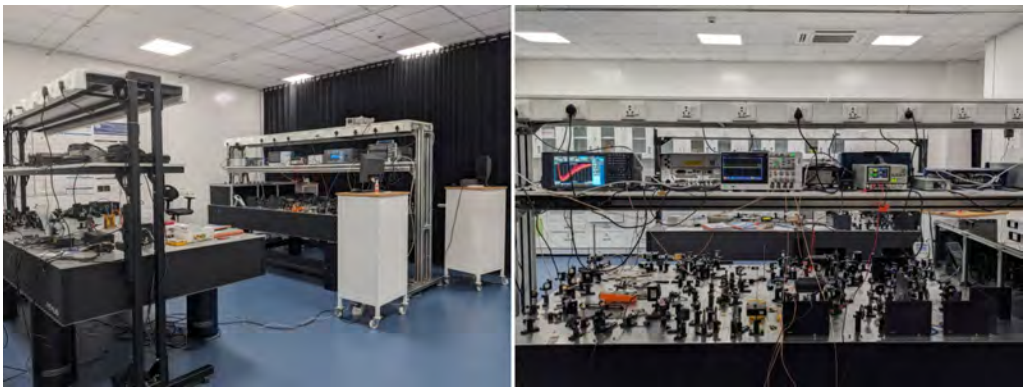
In October 2024, Indian Institute of Space Science and Technology (IIST) was formally listed among the 43 member institutions selected by DST/NQM to help building India's quantum ecosystem, in particular, in quantum communication areas.

To advance research and development in quantum technologies, IIST has established a dedicated quantum research facility named the Quantum Optical Technology Lab (QOTL). The lab is focused on cutting-edge experimental investigations in several forefront areas of quantum optical technologies. Current research activities at QOTL include:

- Generation and characterization of quantum squeezed and entangled light beams
- Engineering spatial quantum correlations for quantum cryptography and quantum communication
- Quantum sensing, quantum metrology, and quantum imaging

The laboratory is equipped with state-of-the-art instruments, including a high-power continuous-wave titanium–sapphire laser, a tunable diode laser, spectrum analyzers, a spatial light modulator, an EMCCD camera, and a range of photodetectors, including single-photon counting modules.

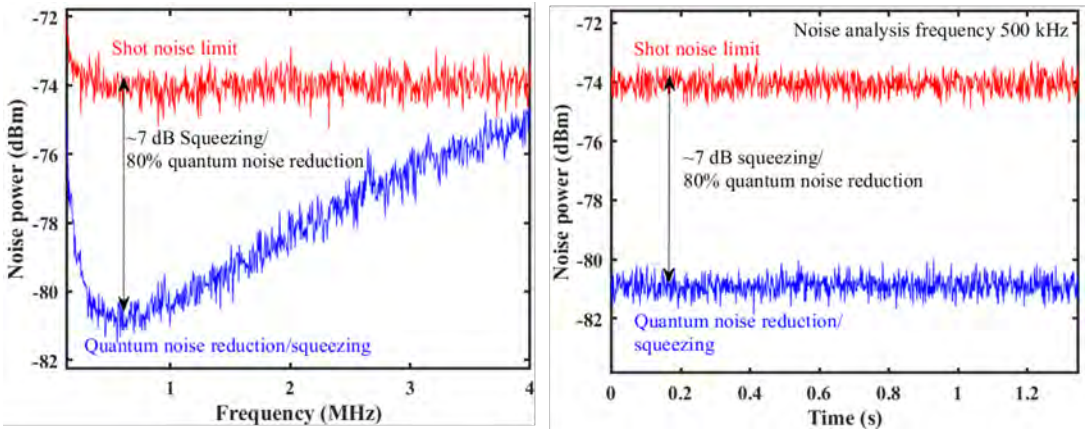
Some updates from the QOT Lab till March 31, 2025, that are aligned towards the NQM are:



Images of Quantum Optical Technology Lab established in IIST

- **Quantum Correlations and Squeezing Measurements**

One of the fundamental resources in quantum technology is quantum correlation, which provides correlation surpassing those achievable with classical systems. These correlations give rise to key quantum phenomena such as squeezing and entanglement. The figure shows the intensity-difference squeezing results of bright two-mode squeezed states obtained in QOT Lab of IIST. It depicts the intensity-difference noise power as a function of noise analysis frequency, where the red trace represents the shot-noise limit (best achievable with the classical resources) and the blue trace corresponds to the balanced two-mode noise. The plot reveals squeezing up to analysis frequencies exceeding 4 MHz, with a maximum squeezing of approximately 7 dB around 500 kHz. It presents the intensity-difference noise power at 500 kHz as a function of time. The traces consistently show about 7 dB of intensity-difference squeezing between the two modes, corresponding to roughly 80% quantum noise reduction relative to the shot-noise limit.



(a) Intensity difference noise power vs noise analysis frequency.
(b) Intensity difference noise power vs time at noise analysis frequency of 700 kHz.

- **Self-healing of orbital angular momentum in bright twin beam**

The orthogonal modes of structured light that carry orbital angular momentum (OAM) are promising candidates for both classical and quantum optical communication. In particular, their self-healing properties make them ideal for free-space and long-distance communication. At the QOT Lab, IIST, both theoretical and experimental investigations have been carried out on the self-healing behaviour of twin Laguerre–Gaussian (LG) beams generated through a four-wave mixing process, using a truncated input pump or probe with LG profiles. The results demonstrate that, along with the amplified probe, the newly generated conjugate beam also inherits the truncated profile and exhibits self-healing during

propagation. The transverse spatial intensity and the OAM associated with the topological charge of the beams are both reconstructed in the far field. These results hold promise for practical implementations in quantum communication and information transfer using OAM modes, particularly in addressing challenges such as losses due to obstructions.

The results of this study were published in Physical Review A 110 (5) 053520 (2024).

4.10.2 IIST 5G Use Case Laboratory

- **Overview**

  The 5G Use Case Laboratory at the Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram, was established to explore and demonstrate next-generation wireless communication technologies and their integration with space-based and terrestrial systems. The lab serves as a hub for research, innovation, entrepreneurship, and experiential learning in emerging areas such as 5G, 6G, Software Defined Networking (SDN), Network Function Virtualization (NFV), Edge Computing, AI-driven networking, and Internet of Things (IoT). The laboratory aligns with IIST's vision to contribute to self-reliant communication infrastructure and to support India's strategic initiatives in space communication, satellite-enabled connectivity, and advanced telecommunication systems.

- **Objectives**

  - To provide a hands-on experimental environment for developing and validating 5G and beyond-5G use cases relevant to aerospace and terrestrial communication.
  - To develop technology solutions for developing 6G Key Performance Indicators (KPIs).
  - To integrate LEO satellite links, UAV platforms, and terrestrial 5G networks for future 6G testbed demonstrations.
  - To facilitate faculty–student research collaborations with industry and national R&D agencies such as DoT, ISRO, BSNL, and TEC.
  - To develop open-source 5G prototypes, focusing on real-time teleoperation, IoT data aggregation, and AI-assisted edge intelligence.

- **Major activities**

  1. Infrastructure Development:

  The lab has been equipped with a 5G Core Testbed, Software Defined Radio (SDR) units, OpenAirInterface (OAI) and srsRAN-based setups, and a dedicated Edge Server Cluster to enable multi-access edge computing (MEC) applications. A test network integrating gNodeB, EPC, and UE have been deployed for in-house experimentation.

  2. Research Projects Initiated:

  6G KPI accomplishment; Federated Learning for Edge-Enabled 6G Systems; LEO–Terrestrial Integration for Real-Time Teleoperations; 5G Network Slicing for IoT-Based Space Missions; and AI-Based Channel Estimation and Resource Allocation in mmWave Bands.

  3. Collaborations and Industry Engagement:

  The laboratory has initiated academic–industry partnerships with leading telecom operators and startups for joint demonstrations. The laboratory wants to incorporate Preliminary discussions are underway with BSNL and ISRO's relevant divisions to explore satellite-5G interoperability.

4. Student and Faculty Involvement:

Multiple M.Tech and B.Tech projects were conducted under the 5G Use Case Lab umbrella. Students were trained on SDR programming, network emulation, and open-source RAN architectures. A student innovation team also participated in national-level hackathons on 5G and IoT applications.

5. Startup ecosystem in 5G/6G research

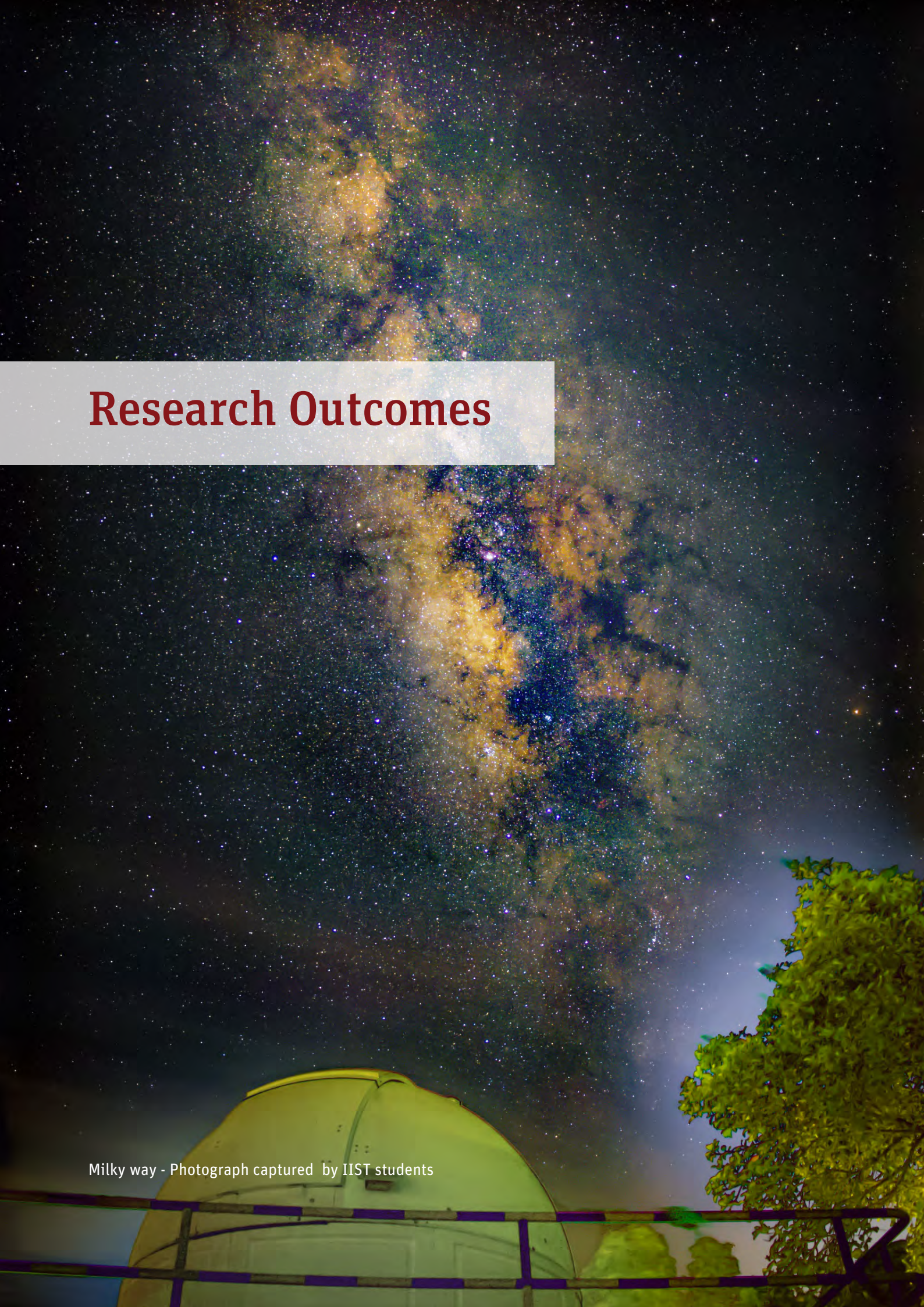
IIST's 5G Use case lab is also supporting entrepreneurship of startups of students and faculty members. As of now one company is co-located within the lab.

- **Outcomes and Achievements**
  - Establishment of a fully functional 5G experimental testbed capable of end-to-end connectivity demonstration.
  - Development of a custom 5G IoT prototype for environmental monitoring using edge analytics.
  - Publication of three research papers in IEEE conferences and journals based on work from the lab.
  - Training of over 50 students in advanced wireless network technologies.
  - Contribution to a forthcoming proposal on 'Federated LEO–Terrestrial 6G Testbed for Real-Time Applications' under national research funding programs.
  - Supporting one startup company co-located in the lab.
- **Future Plans**

The laboratory aims to expand its capabilities towards a 6G Research Testbed by integrating satellite payload simulators, RIS modules, and AI-driven network orchestration platforms. Collaborative efforts will continue to focus on:

- Building a LEO-based 5G test link for remote operations and telemedicine.
- Developing low-latency control frameworks for space robotics and UAV networks.
- Hosting national-level workshops and training programs on 5G/6G system design.

Research Outcomes



Milky way - Photograph captured by IIST students

5. Research Outcomes

IIST places strong emphasis on creating a vibrant research ecosystem that addresses national priorities and global scientific challenges. Faculty and students engage in cutting-edge research projects in collaboration with various ISRO centres, academic institutions, and industries. These initiatives not only enhance the technological capabilities of the country's space programme but also contribute to expanding the frontiers of knowledge in emerging fields.

This chapter highlights the major research outcomes of IIST during the reporting period. The period witnessed notable progress across diverse research areas, spanning fundamental science, engineering applications, and interdisciplinary areas. These achievements, driven by the collective efforts of faculty, research scholars, and students, have led to impactful publications, patents, prototypes, and technological innovations, underscoring IIST's continued pursuit of excellence and responsiveness to evolving challenges in the space and allied sectors. During this time, faculty members were also invited to deliver talks and keynote lectures at prominent national and international forums, reflecting the growing recognition and influence of IIST's research community within the global scientific and technological landscape.

5.1 Publications in Journals

5.1.1 Aerospace Engineering

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5.1.7 Physics

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5.2 Publications in Conference Proceedings

5.2.1 Aerospace Engineering

1. Chandran, C. S., & **Anup, S.** (2024, November 13–15). Investigation on the effect of ductile damage on the mechanical response of Bio-inspired composites. International Conference on Next Generation Technologies: Design and Manufacturing (ICNGT 2024), IIT Madras.
2. Raveendran, R., & **Anup, S.** (2024, November 13–15). Impact of discrete interface geometry on mechanical behaviour of nacre-like composites. International Conference on Next Generation Technologies: Design and Manufacturing (ICNGT 2024), IIT Madras.
3. Resmy, J. D., & **Anup, S.** (2024, June 20–21). Stress distribution and failure pattern of stair wise staggered composites. International Conference on Composites: Design, Processing, Manufacturing and Health Monitoring (CDPMHM 2024), IIT Mandi.
4. Resmy, J. D., & **Anup, S.** (2024, November 13–15). Effect of random aspect ratio on Mechanical properties of Stair wise staggered composites. International Conference on Next Generation Technologies: Design and Manufacturing (ICNGT 2024), IIT Madras.
5. Goutham, K.B., Mohan, Mayuresh, & **Bijudas, C. R.** (2024, June 10–13). Guided wave based SHM for loosening detection in bolted lap joints with the application of Neural networks. 11th European **Workshop on Structural Health Monitoring, The German Society for Non- Destructive Testing (DGZfP).**
6. **Harikumar, Vishnu, & Bijudas, C. R. (2025, March 17–20). Digital twin framework for a plate bonded** with transducer for structural health monitoring using guided waves. SPIE Smart Structures + Nondestructive Evaluation, Vancouver, Canada, SPIE.
7. Aswathy, R. V., Tharakan, John T., & **Deepu, M.** (2024, April 4–6). Experimental Studies on Spray Characteristics of an Effervescent Injector. IAES 2024-604, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.
8. Dinesh, D., Sivadas, Akhil, & **Deepu, M.** (2024, April 4–6). Experimental and numerical study on jet impingement cooling on a rotating disc with localised heating. IAES 2024-525, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.
9. Nallathambi, Prince K., Osman, Mulani Feroz, & **Deepu, M.** (2024, April 4–6). Numerical Investigation of Melting Dynamics of PCM in a Square Cavity with Various Sequential Arrangements of Hot and Cold Surfaces. IAES 2024-410, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.
10. Narayan, Abhilash, Sivadas, Akhil, Bijukumar, K. S., & **Deepu, M.** (2024, April 4–6). Numerical Investigation on Shear Layer Development in a Dual-Fuel Model Rocket Nozzle. IAES 2024- 171, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.
11. Navaroj, K. M., Sivadas, Akhil, & **Deepu, M.** (2024, April 4–6). Analysis on the Effect of Heat Release on Supersonic Shear Layer. IAES 2024-582, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.
12. Ramesh, M., Navaroj, K. M., & **Deepu, M.** (2024, April 4–6). Numerical Investigation of Effect of Obstruction Geometry on Oscillating Flow Across Rectangular Channel. IAES 2024-673, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram.

13. Rijin, K. V., Bijukumar, K. S., & **Deepu, M.** (2024, April 4–6). Aspect Ratio and Curvature Effects of Regenerative Channels on Heat Transfer in Supercritical Methane. IAES 2024-253, International Conference on Advances in Aerospace and Energy Systems (IAES-2024), LPSC Thiruvananthapuram. (Won the best paper award for the oral presentation)

14. Dhongadi, Prasad Shridhar, & **Krishna, I. P.,**(2024, December 18–20). Solution of Modified Reynolds Equation over Hydrodynamic Conical Bearings using Pseudospectral Method. National Symposium on Rotor Dynamics (NSRD), SRM Institute of Science and Technology in collaboration with IIT-Guwahati, Chennai, India.

15. Akhil, S. L., **Krishna, I. P.,** & Khanra, Gaurab Kumar (2024, December 11–13). Element Free Galerkin Method (EFGM) for static analysis of nonlocal elastic solids using differential and integral strain-driven models. Fourth International Conference on Mechanics of Advanced Materials and Structures (ICMAMS), Ramaiah Institute of Technology, Bengaluru, Karnataka, India.

16. Aswathy, M., **Krishna, I. P.,** & Arun, C. O. (2024, September 9–11). Stochastic meshless methods for free vibration analysis of thin beams and frames with random material density and Young's modulus. 31st International Conference on Noise and Vibration Engineering & 10th International Conference on Uncertainty in Structural Dynamics (ISMA2024-USD2024), K U Leuven, Belgium.

17. Khanra, Gaurab Kumar, **Krishna, I. P.,** & Raveendranath, P. (2024, December 11–13). Re-analysis of Euler-Bernoulli microbeam bending problems modeled after Eringen's strain- driven nonlocal theory, Strain gradient theory & the Stress-driven theory: A comparative study. Fourth International Conference on Mechanics of Advanced Materials and Structures (ICMAMS), Ramaiah Institute of Technology, Bengaluru, Karnataka, India.

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19. Gireesh, Goutham, & **Manu, K. V.** (2024). Numerical Investigation of Transport Phenomena in Pyrolysing Ablators: A Finite Element Perspective for High-Temperature Applications. IAES 2024.

20. Anuja Vijayan, & **Kumar, P. P.** (2024, August 22–24). Effect of geometrical configuration on cavity dynamics in planar cavitating Venturis. Proceedings of 11th International Heat Transfer and Fluid Flow Conference, Barcelona, Spain.

21. Sajid Momin, **Kumar, P. P., & A. Salih** (2024, August 22–24). Numerical Simulation of cryogenic fluid sloshing in propellant tank and the influence of damping with ring baffles under forced excitations. Proceedings of 11th International Heat Transfer and Fluid Flow Conference, Barcelona, Spain.

22. Kathavarayana, E., Kishore, V. R., & **Prathap, C.** (2025, May 18–22). A numerical investigation of primary air entrainment in a self-aspirated LPG burner. 15th Asia-Pacific Conference on Combustion, Singapore.

23. Radhakrishnan, A., Pandi, P., Velamati, R. K., & **Prathap, C.** (2024, April 4–6). A Study on the Computational Accuracy of Different Weighted Sum of Gray Gas Models. IAES-2024-478, Proceedings of the International Conference on Advances in Aerospace and Energy Systems, LPSC, Thiruvananthapuram, Kerala, India.

24. Raj, Vishnu, Kishore, V. R., & **Prathap, C.** (2025, May 18–22). Effect of burner geometry on the flow field structure of an unconfined premixed bluff body stabilized swirl burner. 15th Asia- Pacific Conference on Combustion, Singapore.

25. Sethuraman, V. R., & **Prathap, C.** (2024, April 4–6). Mathematical Modelling of a Steady State Combustion Chamber. IAES-2024-484, Proceedings of the International Conference on Advances in Aerospace and Energy Systems, LPSC, Thiruvananthapuram, Kerala, India.

26. Saria, Harsh, Sojitra, Darshil, & **Sadanandan, Rajesh** (2024, August 21-23). Effect of Multi Element Spray Interactions on the Spray Characteristics of a Pressure Atomizer. Asian Congress on Gas Turbine, IIT Kanpur, Kanpur, India.

27. Sojitra, Darshil, Saria, Harsh, & **Sadanandan, Rajesh** (2024, August 21-23). Injector Exit Geometry Variations on the Spray Characteristics of an Effervescent Injector. Asian Congress on Gas Turbine, IIT Kanpur, Kanpur, India.

28. Krishnan, Gokul K.G., **Sadanandan, Rajesh, & Satheesh, K.** (2025, January 20-22). Temperature Measurement of a Swirl Burner Operating at Bi-stable Conditions Using TDLAS. National Aerospace Propulsion Conference, IIT Madras.

29. Karmarkar, Sourabh, Agarwal, Deepak Kumar, Tomar, Gaurav, & **Salih, A.** (2024, April 4–6). Mathematical model for simulating the effect of Interface motion on ullage pressure in a cryogenic propellant tank. International Conference on Advances in Aerospace and Energy Systems, Paper No. IAES-2024-354, Liquid Propulsion Systems Centre (ISRO).

30. Raj, Deep Kant, Singhal, Anant, Peter, Jophy, **Salih, A.**, & Agrawal, Deepak K. (2024, November 26–29). Investigation of flow features in a vertical cryogenic feedline during non-flow conditions. 29th National Conference on Cryogenics and Superconductivity (NCCS-29), New Delhi.

31. Shinde, Ashish, Singh, Amit, & **Salih, A.** (2024, December 12–14). CFD Analysis of Supersonic Combustion of Hydrogen Flow in Scramjet Combustor with Strut Injector. 10th Symposium on Applied Aerodynamics and Design of Aerospace Vehicles & SPICES Workshop - SAROD 2024, Thiruvananthapuram.

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5.2.2 Avionics

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51. Sudarsanan, A. K., Mubarak, M., Makkar, H. S., **Vineeth, B. S.,** & Murthy, C. R. (2025, March 6–9). Design of Scheduling Policies for Information Freshness in IRSA with Minimal Feedback. 2025 National Conference on Communications (NCC), New Delhi, India, pp. 1–6.
52. Arun, P. R., Mubarak, M., & **Vineeth, B. S.** (2025, March 6–9). On Resource Allocation for Remote Control of MDPs Over Queues using Age of Loop. 2025 National Conference on Communications (NCC), New Delhi, India, pp. 1–6.
53. Zacharia, O., & **Vanidevi. M.** (2024, April 14–19). Super-Resolution Sensing of User Equipment Using Delay-Doppler Pilot-Data Structure in RIS-Aided OTFS Systems. IEEE ICASSP Workshops (ICASSPW 2024).
54. Chakraborty, P., **Vineeth, B. S., Manoj, B. S.,** & Rao, R. R. (2024, June 9–13). On Identifying Optimal Shortcut Edge Locations in a Linear Small World Wireless Sensor Network. IEEE International Conference on Communications (ICC 2024), Denver, CO, USA, pp. 5383–5388.

5.2.3 Chemistry

1. Sathyan, B., & **Cyriac, Jobin.** (2025, March 3–6). N-doped Nb_2C QDs as a fluorescent platform for visual and quantitative detection of tetracycline. 8th International Conference on Multifunctional, Hybrid and Nanomaterials, Montpellier, France. Elsevier Materials Science Team.
2. Krishnendu, K. S., & **Gladis, Mary J.** (2024, September 18–20). Two-dimensional transition metal chalcogenide–carbon nanotube composite as an anode for sodium-ion batteries. 3rd International Conference on Electrochemical Science and Technology (ICONEST-2024), The Electrochemical Society of India (ECSI) & CSIR-NPL, New Delhi, India.
3. Ashmi, A., & **Gladis, Mary J.** (2024, September 18–20). Rare earth doped lithium titanate–carbon composite for stable cycling and high-performance batteries.3rd International Conference on Electrochemical Science and Technology (ICONEST-2024), The Electrochemical Society of India (ECSI) & CSIR-NPL, New Delhi, India.
4. Ashmi, A., Krishnendu, K. S., **Gladis, Mary J.,** & Jalaja, K. (2024, August 21–23). Lanthanum (III) doped lithium titanate as high-performance anode material for lithium-ion batteries . International Conference on Science, Technology and Application of Rare Earths (ICSTAR 2024), Rare Earth Association of India (REAI) & Indian Institute of Metals (Trivandrum Chapter), Thiruvananthapuram, India.
5. Krishnendu, K. S., Joseph, J., & **Gladis, Mary J.** (2024, August 21–23). Boosting Li–S battery efficiency with novel separator and cathode additives. International Conference on Science, Technology and Application of Rare Earths (ICSTAR 2024), Rare Earth Association of India (REAI) & Indian Institute of Metals (Trivandrum Chapter), Thiruvananthapuram, India.
6. Joseph, J., & **Gladis, Mary J.** (2024, January 4–5). Effect of transition metal salt electrolyte additives for high-performance Zn-ion batteries. 23rd National Convention of Electrochemists (NCE-2023), Society for Advancement of Electrochemical Science & Technology (SAEST) & SRM Institute for Science and Technology, Chennai, India.
7. Joseph, J., Sreekala, K., Krishnendu, K. S., & **Gladis, Mary J.** (2025, January 8–10). Unravelling the charge storage potency of porous activated carbon in energy dense EDLCs and aqueous Zn-ion hybrid capacitors. 13th International Symposium on Advances in Electrochemical Science and Technology (iSAEST-13), SAEST, CSIR-CECRI & CSIR-NIIST, Uday Samudra Hotel, Kovalam, Kerala, India.
8. Ashmi, A., **Joseph, Kuruvilla, & Gladis, Mary J.** (2024, September 18–20). Rare earth doped lithium titanate–carbon composites for stable cycling and high-performance batteries. CSIR– National Physical Laboratory, New Delhi, India.
9. Raji, S., & **Prabhakaran, K.** (2024, June 25–27). Thermal insulating robust carbon composite foam panels with a periodic array of pores from used cloth for efficient EMI shielding. National Conference on Recent Trends in Material Science and Technology (NCMST-2024).
10. Raji, S., & **Prabhakaran, K.** (2025, March 3–6). Thin flexible Fe_3O_4–carbon–PDMS composites from used jute fabrics for green electromagnetic interference shielding. 8th International Conference on Multifunctional, Hybrid and Nanomaterials, Montpellier, France. Elsevier Materials Science Team.
11. Jalal, J., & **Sreejalekshmi, K.G.** (2024, December 1–6). Influence of simulated microgravity on the courtship and negative geotaxis behavior of Drosophila melanogaster. 14th Asian Microgravity Symposium, IIT-Madras.

12. Jalal, J., & **Sreejalekshmi, K.G.** (2025). Investigating reproductive fitness of Drosophila melanogaster under simulated microgravity conditions. GLEX-2025, 5(1), 8, x93104.

13. Madhavan, A., & **Sreejalekshmi, K.G.** (2024, December 1–6). Customised hardware for fruit fly experiments onboard Gaganyaan flights. 14th Asian Microgravity Symposium, IIT-Madras. (Best Poster Award)

5.2.4 Earth and Space Sciences

1. **Gnanappazham, L.,** & Sanam, Humaira (2024, November 7–9). Kandalvan ke liye Bahu-strot Sudur Sanvedan – Hindi Technical Seminar. SAC, ISRO, Ahmedabad, India.

2. Reshma, A. V., & **Gnanappazham, L.** (2025, February 26–28). Mapping the spatio-temporal dynamics of shoreline and the changing mangrove over different hydrodynamic settings. The 3rd International Conference in South East Asia on the Future of Maritime Technology & Use of the Sea 2025 (SEA the Future 2025), Faculty of International Maritime Studies, Kasetsart University, Sriracha campus, Thailand.

3. Sanam, Humaira, & **Gnanappazham, L.** (2024, September 23–25). Modelling AGB of Bhitarkanika using ALOS PALSAR-2 data. 8th NAGI International Conference 2023, Kazi Nazrul University, West Bengal, India.

4. Sanam, Humaira, & **Gnanappazham, L.** (2025, February 26–28). Investigating the efficacy of ALOS-2 PALSAR-2 in blue carbon quantification. The 3rd International Conference in South East Asia on the Future of Maritime Technology & Use of the Sea 2025 (SEA the Future 2025), Faculty of International Maritime Studies, Kasetsart University, Sriracha campus, Thailand.

5. Lalaji, K., Mishra, D., Mishra, S., & **Kutty, G.** (2024, August 7–9). Detection of convective storms from PPI images of polarimetric Doppler weather radar using deep learning. InGARSS 2024, IEEE India Geoscience and Remote Sensing Symposium, Goa, India.

6. Munsi, A., Kesarkar, J., Bhate, G., **Kutty, G.,** & VPM, R. (2024, July 13–21). Helicity evolution during the life cycle of tropical cyclones formed over the north Indian Ocean. 45th COSPAR Scientific Assembly, vol. 45, p. 50.

7. Greeshma, K. V., Sarma, A. S., & **Nidamanuri, R. R.** (2024, December 02–05). Forward spectral mixture modelling for mineral mapping applications. IGARSS 2024, IEEE Xplore.

8. Gujrati, A., Chander, S., **Nidamanuri, R. R.,** Singh, R. P., & Gupta, P. K. (2024, July 07–12). Towards operational retrieval of chlorophyll-a in inland waters using optical water types. IGARSS 2024, IEEE Xplore.

9. Thomas, J. K., Pankaj, D. S., Chandra, H., & **Nidamanuri, R. R.** (2024, July 07–12). Classification of crops at different nitrogen levels using drone-based hyperspectral imaging: A machine learning approach. IGARSS 2024, IEEE Xplore.

10. Preeti, K., Satish-Kumar, M., & **Rajesh, V. J.** (2025, March 5). Decoding Earth's early biosphere: Insights from the Proterozoic stromatolites and their implications for astrobiology. International Conference on Space for Sustainability: Science, Technology, Education and Policy (S2: STEP2025) & 6th Indian Planetary Science Conference (IPSC-2025), IIT Roorkee, India.

11. Preeti, K., Satish-Kumar, M., & **Rajesh, V. J.** (2025, February 16–18). Geochemical and isotopic insights into the Proterozoic stromatolites: Implications for early Earth environments and astrobiology. National Conference on Magmatism, Metamorphism, and Metallogeny (M3), National Centre for Earth Science Studies, Thiruvananthapuram, Kerala, India.

12. Adarsh, R., & **Rajesh, V. J.** (2025, March 5). Developing modular construction blocks for lunar and Martian habitats using 3D printing through analogue studies. International Conference on Space for Sustainability: Science, Technology, Education and Policy (S2: STEP2025) & 6th Indian Planetary Science Conference (IPSC-2025), IIT Roorkee, India.
13. Deepchand, V., Amal Dev, J. V., **Rajesh, V. J.**, & Tomson, J. K. (2025, February 16–18). Petrogenesis and U-Pb zircon/apatite geochronology of mafic granulites from Coorg massif, western Dharwar Craton: Tracing signatures of progressive metamorphism and Neoarchean oblique convergence. Magmatism, Metamorphism and Metallogeny (M3), National Centre for Earth Science Studies, India.
14. Deepchand, V., Amal Dev, J. V., **Rajesh, V. J.**, & Tomson, J. K. (2025, February 5–7). Dharwar lineage ultramafics in Coorg massif, southern India: A new petrochronological perspective. Frontiers in Geosciences Research Conference (FGRC), Physical Research Laboratory, Ahmedabad, India.
15. Adarsh, R., **Rajesh, V. J.**, Thirukumaran, V., Vijayan, S., Balamurugan, S., & Muhammed Siddik, A. (2024, November 22). Developing modular construction blocks for lunar and Martian habitats using 3D printing through analogue studies. International Conference on Meteoroid, Meteor, Meteorites: Messenger from Space (MetMeSS 2024), Physical Research Laboratory, Ahmedabad, India.
16. **Rajesh, V. J.**, & Adarsh, R. (2024, October 18). Strategies to build a self-sufficient Martian habitat: A review. Hindi Technical Seminar on Advanced Technology for Interplanetary Missions and Challenges, LPSC, Thiruvananthapuram, India.
17. Krishnaveni, K. B., **Rajesh, V. J.**, Sumitra, S., & Sajinkumar, K. S. (2024, September 27). Machine learning-based soil piping susceptibility mapping in the Kerala segment of Western Ghats, India. 5th International Congress on Natural Sciences with Sisterhood Universities (ICNS2024), Niigata, Japan.
18. Krishnaveni, K. B., **Rajesh, V. J.**, Sumitra, S., Sajinkumar, K. S., & Watanabe, N. (2025, February 17). Understanding soil piping mechanisms in the Kerala segment of the Western Ghats, India: Insights from a tropical environment. Hokuriku Branch of the Japan Society of Engineering Geology Conference (JSEG), Niigata, Japan.
19. Varghese, L. M., **Rajesh, V. J.**, & Sajinkumar, K. S. (2024, September 1–2). Preliminary insights from the acid sulfate soils of Kuttanad, western India: Geochemical processes and spectroscopic characterization. Conference of Integrated Earth (CITE-2024), IISER Pune, India.
20. Kumari, P., Satish-Kumar, M., & **Rajesh, V. J.** (2024, September 28). Paleoenvironmental reconstruction at micro-mesoscale: Investigation from stromatolites of Proterozoic basins of India. 5th International Congress on Natural Sciences with Sisterhood Universities (ICNS2024), Niigata University, Japan.
21. Haritha, A., **Rajesh, V. J.**, & Satishkumar, M. (2024, August 25–31). Ultramafic-hosted magnesite deposits in southern peninsular India: Spectral and stable isotopic insights. 37th International Geological Congress, Busan, South Korea.
22. Haritha, A., Satish-Kumar, M., & **Rajesh, V. J.** (2025, February 5–7). Petrogenesis of carbonated ultramafic lenses from Thennilai, southern India. Third Frontiers in Geosciences Research Conference (FGRC-2025), Physical Research Laboratory, Ahmedabad, India.
23. Haritha, A., Satishkumar, M., & **Rajesh, V. J.** (2024, September 28). Petrogenesis, serpentinization, and carbonation of mafic-ultramafic rocks in Salem, southern India. 5th International Congress on Natural Sciences with Sisterhood Universities (ICNS2024), Niigata University, Japan.
24. Chauhan, Siddharth Singh, Jayakumar, T. V., Mishra, Deepak, & **Ramiya, A. M.** (2024, July 7–12 /

October 22–25). Localization in MR-based indoor navigation system using point cloud registration. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.

25. Jayakumar, T. V., Mishra, Deepak, **Ramiya, A. M.,** Bhargav, Parulekar, & Singla, Jai G. (2024, December). Evaluation of UNet architecture variants for road network extraction from high resolution geospatial dataset. IGARSS 2024.
26. Katkar, Rushikesh, Vijaywargiya, Jayati, & **Ramiya, A. M.** (2024, December). Assessing changing landslide risks in Wayanad, Kerala through temporal susceptibility mapping. IGARSS 2024.
27. Vijaywargiya, J., & **Ramiya, A. M.** (2024, July 7–12). 3D spatio-semantic micro- morphology for empirical decision-making. IGARSS 2024 – 2024 IEEE International Geoscience and Remote Sensing Symposium, Athens, Greece, published by IEEE.
28. Kumar, Aakash, **Sinha, P. R.,** & Nair, Vijayakumar S. (2024, December 17–20). Absorbing aerosols and entrainment mixing in reversing the first aerosol indirect effect: Winter insights from the Indo-Gangetic Plain. IASTA National Conference, Doon University, India, organized by IASTA and ARIES.
29. Kumar, Aakash, **Sinha, P. R.,** & Nair, Vijayakumar S. (2025, February 24–26). Comprehensive analysis of winter aerosols indirect effects in South Asia. International Symposium on UltraFine Aerosol Processes and Numerical Modeling of Urban Climate – Extremes (NANO- Extremes), IIT Madras, India.
30. Pasupuleti, Shanmukha S., Kondo, Yutaka, Aggarwal, Shankar G., & **Sinha, P. R.** (2025, February). Derivation of mass absorption cross section of black carbon using Aethalometer measurement in New Delhi. Frontiers in Geosciences Research Conference (FGRC), Ahmedabad, organized by Physical Research Laboratory.
31. Srinivas, C., Kumar, Aakash, & **Sinha, P. R.** (2025, February). Aerosol-cloud interactions: Impact of aerosol variability on water cloud properties. Frontiers in Geosciences Research Conference (FGRC), Ahmedabad, organized by Physical Research Laboratory.

5.2.5 Humanities and Social Sciences

1. Aravindan, P., & **Ravi, V.** (2024, August 21–23). A Study on the Impact of CSR and ESG for Sustainable Businesses. ICSSR-IMK Three-day National Seminar on Navigating ESG Integration for Climate and Sustainable Development, Institute of Management in Kerala, Trivandrum.
2. Kandarkar, P.C., & **Ravi, V.** (2024, August 21–23). Impacts of Circular Supply Chains and Industry 4.0 technologies in achieving sustainable development. ICSSR-IMK Three-day National Seminar on Navigating ESG Integration for Climate and Sustainable Development, Institute of Management in Kerala, Trivandrum.
3. Karim, A.B., & **Ravi, V.** (2024, August 21–23). Integration of ESG Factors in Green Supply Chains: Towards Sustainable Development. ICSSR-IMK Three-day National Seminar on Navigating ESG Integration for Climate and Sustainable Development, Institute of Management in Kerala, Trivandrum.
4. Parthasarathy, Kavya Murali, Prakash, Vaishnav, & **Shaijumon, C.S.** (2024, October 14–18). Oxytocin's role in space team dynamics and cognition: a neuroeconomic perspective. 75th International Astronautical Congress.

5.2.6 Mathematics

1. Balamurugan, C., Beena, G. P., Peter, Jesto, & **George, R. K.** (2024, February 26–March 1). Sunspots Prediction Using Multivariate Machine Learning Techniques. National Space Science Symposium (NSSS 2024), India.

2. Vishwakarma, K.S., & **Moosath, K.S.S.** (2024, August 9–11). MRI Image Classification and Segmentation Using Information Geometric Tools. Research and Innovation Conference (RIC 2024), IIT Guwahati. To appear in Current Progress in Biochemical, Biomedical, and Physical Sciences, Select Papers of RIC 2024, Volume 2, Springer Nature Singapore, 2025.
3. Likhitha, Chittaloori, Parvathy, S. S., Sunil, Nancy, Tayade, Shubham, **Sumitra, S.,** & Manoj, B.S. (2024, September 27–29). Classification of EEG Signals for Telugu Vowels. IEEE Region 10 Symposium (TENSYMP 2024), New Delhi, India.
4. Tayade, Shubham, Likhitha, Chittaloori, **Sumitra, S.,** & Manoj, B.S. (2024, September 27–29). Machine Learning-Based Classification of Marathi Words for Brain-Computer Interface Applications. IEEE Region 10 Symposium (TENSYMP 2024), New Delhi, India, pp. 1–6.
5. Thirumalai, K. G., Prakash, K. Sakthi, Abirami, A. M., Ramanujam, E., & **Sumitra, S.** (2024, March 15–16). XAI-based Feature Selection for SMS Spam Classification in Dravidian Languages. IEEE 5th International Conference on Innovative Trends in Information Technology (ICITIIT 2024), IIIT Kottayam, pp. 1–6.

5.2.7 Physics

1. Sachidanand, P. S., Mohan, Manu, Reshmi, S., Viswan, Gauthami, & **Bhattacharjee, Kuntala** (2023, September 21–23). Electrical nature and surface enhanced Raman spectroscopy of Ag nanoparticles decorated graphene sheet. ICPN 2023, Mangalore University, Mangalore. IOP Conference Series: Materials Science and Engineering, 1300 (2024), 012008.
2. Saini, Sonia, **Bhattacharjee, Kuntala,** & Gouda, Girish M. (2023, September 21–23). Switching behavior of the composite low dimensional structural hybrids of carbon after UV exposure. ICPN 2023, Mangalore University, Mangalore. IOP Conference Series: Materials Science and Engineering, 1300 (2024), 012029.
3. Haneen, V. N., & **Naik, D.** (2024, January 2–3). Introducing phase variations in spatial coherence using dynamics of spatially incoherent source. Women in Optics and Photonics in India 2023, 13108, 1310811, SPIE.
4. Jaduvanshi, D. K., Pathak, B., & **Narayanamurthy, C. S.** (2024, March). Accurate phase reconstruction in digital holography microscopy using Fresnel biprism. Quantitative Phase Imaging X, 12852, 131–137.
5. Pathak, B., Singh, J., **Narayanamurthy, C. S.,** & Ganesan, A. R. (2024). Implementation of reference-less wavefront sensing in a grating array-based wavefront sensor. Unconventional Imaging, Sensing, and Adaptive Optics 2024, 13149, 225–229.

5.3 Books Published

5.3.1 Chemistry

1. **Gomathi, N.,** Varsha, M. V., Rajasekaran, A. K. & Rao, M. S. (2024). Metal–Organic Framework Derived Materials: Design Strategies and Applications. CRC Press., ISBN 9781032485768.

5.3.2 Humanities and Social Sciences

1. **Justin, Babitha** (Illustrator and Translator). Solomon, Somy. Kichangani. New Delhi, NBT, 2025.

5.3.3 Mathematics

1. **George, Raju K.,** Ajayakumar, Abhijith, A Course in Linear Algebra, Springer, https://doi.org/10.1007/978-981-99-8680-4.

5.4 Book Chapters in edited volumes

5.4.1 Aerospace Engineering

1. Chandran, J., Raju, R., **Salih, A.,** & Arumugam, S. K. (2024). Accurate compressible flow modelling of liquid shock tube problems. In K. M. Singh et al. (Eds.), Fluid mechanics and fluid power: Volume 2: Select proceedings of FMFP 2022 (Lecture Notes in Mechanical Engineering). Springer.
2. Sukesan, M. K., Kumar, A., & **Shine, S. R.** (2024). Effect of divergence angle, carrier gas, and back pressure on species separation using convergent divergent micro-nozzle. In K. M. Singh, S. Dutta, S. Subudhi & N. K. Singh (Eds.), Fluid mechanics and fluid power: Volume 1: FMFP 2022 (Lecture Notes in Mechanical Engineering). Springer. https://doi.org/10.1007/978-981-99-7827-4_64
3. **Sooraj, V. S.,** & Handa, D. (2025). Eccentric sleeve grinding: Progressive-intermittent machining strategy for fibre-reinforced polymer matrix composites. In M. Rout & K. Debnath (Eds.), Forming and machining of polymers, ceramics and composites (Chapter 7, Advanced Materials Processing and Manufacturing Series). CRC Press, Taylor & Francis Group. https://doi.org/10.1201/9781032665375

5.4.2 Avionics

1. Martha, P., Kadayinti, N., & **Seena, V.** (2025). CMOS-MEMS sensors with FET-based transduction: A paradigm shift. In Micro- and nano-systems in 21st-century (Springer Tracts in Electrical and Electronics Engineering). Springer

5.4.3 Chemistry

1. Mishra, R. K., **Joseph Kuruvilla,** Chianella, I., Nezhad, H. Y., & Goel, S. (2025). Smart materials for flexible devices: 3D and 4D printing with electromagnetic stimuli-responsive capabilities. In Advances in 3D and 4D printing of medical robots and devices (pp. 75–117). Academic Press.
2. Chellan, S., Dheeraj, B. D. S., Paul, R., Saritha, A., & **Joseph Kuruvilla.** (2025). Chemical, mechanical, thermal, and rheological properties of cellulose-based hydrogels. In Cellulose-based hydrogels (pp. 65–87). Elsevier.
3. Chellan, S., Mondal, M. I. H., & **Joseph Kuruvilla.** (2024). Basalt fibres and their applications in the automotive industry. In Technical organic and inorganic fibres from natural resources (pp. 599–623). Woodhead Publishing.
4. Sreekala, K., Joseph, J., Krishnendu, K. S., & **Gladis, Mary J.** (2024). Carbon-based interlayers. In A. B. Gueye & S. Thomas (Eds.), Nanostructured materials for lithium/sulfur batteries (pp. 467–492). Springer Nature Switzerland AG.
5. Joseph, J., Sreekala, K., & **Gladis, Mary J.** (2024). Recent developments in electrodes and separators for high-performance lithium–sulfur batteries. In S. C. Pillai, D. M. Mulvihill, & A. Babu (Eds.), Recent advances in materials for energy harvesting and storage (Chapter 5). IOP Publishing.
6. Krishnendu, K. S., Dutta, T., & **Gladis, Mary J.** (2024). Recent trends in materials for sodium-ion batteries. In S. C. Pillai, D. M. Mulvihill, & A. Babu (Eds.), Recent advances in materials for energy harvesting and storage. IOP Publishing.
7. Haritha, H., Sreekala, K., Joseph, J., & **Gladis, Mary J.** (2024). Polymer blend separators. In A. B. Gueye & S. S. Thomas (Eds.), Nanostructured materials for lithium/sulfur batteries (pp. 563–582). Springer Nature Switzerland AG.

8. Joseph, J., Krishnendu, K. S., Asmi, A. M., & **Gladis, Mary J.** (2024). Titanium-based oxides as anode material for lithium-ion batteries. In S. Thomas, O. Savadogo, A. B. Gueye, & H. J. Maria (Eds.), Nanostructured lithium-ion battery materials (pp. 373–391). Elsevier.
9. **Sreejalekshmi, K. G.** (2024). Space biosciences: Translational research for space, benefitting life on Earth. In K. Parthasarathy & R. Manikkam (Eds.), Translational research in biomedical sciences: Recent progress and future prospects (pp. 31–43). Springer Nature Singapore.

5.4.5 Humanities and Social Sciences

1. **Gigy, J. A**. (2025). Intersecting dreams of a nation and its food spaces: Culinary readings of select short stories. In J. Birkenstein & R. Hauhart (Eds.), Consuming the American dream (pp. 393–415). University of Tennessee Press.
2. KM, M. S., & **Lakshmi, V. N.** (2024). Beyond the screen. In Routledge handbook of gender, culture, and development in India. Routledge.

5.4.6 Mathematics

1. **George, R. K.,** & Ajayakumar, A. (2025). Eigenvalues and eigenvectors in controllability analysis. In B. Carpentieri (Ed.), Bridging eigenvalue theory and practice: Applications in modern engineering (pp. 1–22). IntechOpen. https://doi.org/10.5772/intechopen.1007802
2. Anjuna, D., & **Sakthivel, K**. (2025). Inverse source problems of damped vibrating beam and plate models. In A. HasanovHasanoğlu, R. Novikov, & K. Van Bockstal (Eds.), Inverse problems: Modelling and simulation (Chapter 12). Birkhäuser. https://doi.org/10.1007/978-3-031-87213-6_12

5.5 Patents

5.5.1 Avionics

1. Title: *Universal linearization method and circuit framework for various non-linear resistive-sensor bridge topologies*
   Name of the inventors: **Anoop, C. S, Vineeth, B. S.,** Mathew, Thomaskutty, & Nani, S.

   Status: Filed

2. Title: *A circuit system for linearization and demodulation of transformer-based displacement transducers*
   Name of the inventors: **Anoop, C. S,** Nehra, Bhavesh Raj Singh, & Sharma, Manvendra

   Status: Filed

3. Title: *Feedback Enabled Adaptive Power Distributed WPT Receiver*
   Name of the inventors: Rutuz, G, Gopika, & **Saha, Chinmoy**

   Status: Filed

5.5.2 Chemistry

1. Title: *Atmospheric pressure nitrogen plasma treated metal-organic frame work for carbon dioxide capture*
   Name of the inventors: **Gomathi, N.** & Rao, & Shashank M.

   Status: Filed

2. Title: *Fluorescence mapping system for optical pathology*
   Name of the inventors: Jayasree, Ramapurath S., & **Nazeer, Shaiju S.**

   Status: Filed

5.5.3 Earth and Space Sciences

1. Title: *Geospatial Point Cloud Enrichment (GPCE) for Spatio- Empirical Decision making*
   Name of the inventors: **Ramiya, A. M.,** & Vijaywargiya, Jayati
   Status: Filed

5.6 Awards and Achievements

5.6.1 Aerospace Engineering

1. **Sooraj, V. S.** received the ISAMPE Award for Smart Materials and Systems Technology Development in 2024 from the Indian Society for Advancements of Materials and Process Engineering (ISAMPE). The award recognizes his innovative research contributions towards the development of eccentric sleeve grinding, a novel methodology for minimum damage machining of FRPS, and a reconfigurable grinding wheel with self-adaptable lubrication (like sweating) and a smart cooling system (using in-situ self-generated cold air) developed via additive manufacturing.
2. **Sooraj, V. S.** received the Best Project Award in aerospace manufacturing from the Society of Aerospace Manufacturing Engineers (SAME) for B. Tech project guided on generative design and topology optimization studies on aerospace components for additive manufacturing. The project was conducted in collaboration with V Anil kumar, ReDAMS Centre for Additive Manufacturing, RFF, VSSC, in 2024.
3. Akhil, A. I., **Sooraj, V. S.**, Anil, Kumar V., Pradeep, P. I., & Roy, A. received the Best Paper Award for their work on the development of process parameters and toolpath strategies for laser powder directed energy deposition of axisymmetric components, presented under Innovative Applications of Additive Manufacturing at the International Conference on Precision Meso Micro Nano Engineering (COPEN), December 2024. This was a collaborative effort with VSSC under ASRG.
4. Akhil, A. I., **Sooraj, V. S.**, Anil, Kumar V., Pradeep, P. I., & Roy, A. received the Best Paper Award for their research titled “Five-Axis Directed Energy Deposition for 3D Printing of Hollow Structures: Some Observations, Challenges and Strategies,” presented at the IIM Symposium 2025, in collaboration with VSSC.
5. **Sooraj, V. S.**, Babu, S., & Sudrendran, T. received the Best Paper Award for “Innovative grinding solutions via additive manufacturing,” presented at the Aerospace Symposium on Technological Research Advancements (ASTRA), 2024.
6. **Sooraj, V. S.**, as a team member, received an Appreciation Certificate for the poster presented at URSC on the topic “SSAPCE Astro Biology Payload,” as part of Satellite Technology Day 2025 at URSC.
7. **Sooraj, V. S.**, received a Reviewer Appreciation Certificate from Elsevier.

5.6.2 Avionics

1. **Anoop, C. S.,** & Mathew, Thomas Kutty received the Best Paper Award for their work titled “A Nasal-Thermistor Based Study for Continuous Monitoring of Breathing Rate and Apnea Detection” under the Instrumentation and Smart Systems track at the IEEE SPICES Conference, held in September 2024.
2. **Devi, Vani M.** received the Women in Communication Engineering Award from the IEEE ComSoc Kerala Chapter, in recognition of her contributions to 5G/6G research and development.
3. Upadhyay, Siddhartha received the Best M.Tech Project National Award from the Society of Aerospace Manufacturing Engineers (SAME). The project was guided by **Majumder, Basudev.**

4. **Manoj, B. S.,** Srivastava, Ankit, & Badal, Neeraj received the Best Paper Award for their paper titled "SADDLE: Spacecraft Anomaly Detection Using Deep Learning," presented at the IEEE SPACE 2024 Conference, held from July 22–23, 2024.
5. **Saha, Chinmoy** received the Outstanding Researcher Award from the IEEE Kerala Section for the year 2024 (awarded in December 2024).
6. **Seena, V.** & Nisnath won the INUP Idea to Innovation (i2i) Hackathon Award for their project titled "Design and Fabrication of Compact MEMS Broadband Piezoelectric Vibration Energy Harvester Array for Powering Low-Power Wireless Sensor Nodes." The award was presented during the MeitY INUP i2i Users Meet, held at IIT Bombay in August 2024.
7. **Selvaganesan, N.** received the ITS Award from SERB to attend the IEEE Conference on Decision and Control (CDC) held at MiCo, Milano, Italy, from December 16–19, 2024.
8. **Sooraj, R.** & Krishnanunni, R. received the IEEE Antennas and Propagation Society Research Award (APS-F 2024), which carries a cash prize of USD 5,000.
9. **Sudharshan, K.** received the Outstanding Researcher Award from the IEEE IA/IE/PELS Joint Chapter, Kerala Section, in 2024.

5.6.3 Chemistry

1. **Cyriac, J.,** & Sathyan, B. were awarded the International Travel Support (ITS) Scheme by the Anusandhan National Research Foundation (ANRF), India, to participate in the 8th International Conference on Multifunctional, Hybrid and Nanomaterials, held in France during March 3–6, 2025 (Award Number: ITS/2024/005874).
2. **Gladis, Mary J.,** & Krishnendu, K. S. received the Best Paper Award for their paper titled "Boosting Li-S Battery Efficiency with Novel Separator and Cathode Additives" at the International Conference on Science, Technology and Applications of Rare Earths (ICSTAR-2024), jointly organized by the Rare Earth Association of India and The Indian Institute of Metals, Trivandrum Chapter, held from August 21–23, 2024, Trivandrum.
3. **Gomathi, N.,** & Ragavan, P. received the Best Oral Presentation Award for their work titled "Medium Entropy Oxides Based Wearable Biosensor" at the Research Scholar Symposium on Metals, Materials and Manufacturing, Department of Aerospace, IIST, held on March 8, 2025.
4. **James, N. R.,** & Sharma, G. K. received the Prof. Sabu Thomas Best Ph.D. Thesis Award (2025) in Polymer Science, instituted by the Prof. Sabu Thomas Golden Group Alumni of Mahatma Gandhi University, Kottayam, Kerala.
5. **Joseph, Kuruvilla.** was listed in Stanford Elsevier's Top 2% Scientists for five consecutive years (2020–2025).
6. **Sandhya, K. Y.,** & Dhrishya, V. received the Best Poster Presentation Award for their work titled "Boron Nitride Nanosheets Modified with Molybdenum Disulphide Nanoflowers for the Electrochemical Detection of Azo Dye Sunset Yellow from Soft Drinks." The award was sponsored by Elsevier and the Chemical Engineering Journal, and presented during the poster competition at the DAE-BRNS Conference on Electrochemistry for Industry, Health, and Environment (EIHE Month 2025), organized by BARC, Anushaktinagar, Mumbai.
7. **Sandhya, K. Y.,** & Dhrishya, V. won First Prize for their poster titled "One-Pot Synthesis of Hybrid Boron Nitride-Nitrogen Doped Graphene Quantum Dots for the Electrochemical Sensing of Pb (II) Ions" at the

National Conference on Energy Materials and Environment (EME Month 2024), conducted by Catholicate College, Pathanamthitta, and co-sponsored by the Kerala State Council for Science, Technology and Environment (KSCSTE).

8. **Sreejalekshmi, K. G.,** & Madhavan, A. received the Best Poster Award for their presentation titled "Customised Hardware for Fruit Fly Experiments Onboard Gaganyaan Flights" at the 14th Asian Microgravity Symposium, held at IIT Madras from December 1–6, 2024.

5.6.4 Earth and Space Sciences

1. **Chandrasekar, A.,** & Badoniya, S. received the Best Poster Award for their work titled "Investigating the Possibility of Brown Ocean Effect Signature in Tropical Cyclones Formed over the Bay of Bengal During the Pre-Monsoon Season" at TROPMET 2024, held at NIT Rourkela from December 9–12, 2024.
2. **Gnanappazham, L.,** & Sanam, H. received the Best Paper Award for their work titled "Modelling Aboveground Biomass (AGB) for Bhitarkanika Using ALOS PALSAR-2 Data" at the 8th NAGI International Conference held at Kazi Nazrul University, West Bengal, from September 23–25, 2024
3. **Ramiya, A. M.,** & Vijaywargiya, J. were awarded a travel grant of USD 1500 for attending the IGARSS 2024 Conference held in Greece.
4. **Sinha, P. R.** was awarded the Scientific High-Level Visiting Fellowship (SSHN-2024) by the French Institute in India (IFI), Embassy of France in India.
5. Haritha, A.,research scholar under the guidance of **Rajesh, V. J.** Selected for sponsorship through the GeoHost Program of the International Geological Congress (IGC) based on outstanding research achievements in geosciences. Attended the 37th International Geological Congress (IGC), Busan, Republic of Korea, August 25–30, 2024.
6. Krishnaveni, K. B., M.Tech, under the guidance of **Rajesh, V. J.** Awarded the Monbukagakusho (MEXT) Scholarship by the Japanese government to pursue a PhD at Niigata University, Japan, September 2024.
7. Kumar, P., Krishnaveni, K. B., & **Rajesh, V. J.** (2024). Received Best Oral Presentation Awards at the 5th International Congress on Natural Sciences with Sisterhood Universities (ICNS2024), Ikarashi Campus, Niigata University, September 26–28, 2024.

5.6.5 Humanities and Social Sciences

1. Parvati, S. Ph.D. Scholar, recipient of PM Yuvapuraskar award. The Ph.D Supervisor is **Justin, Babitha.**

5.6.6 Mathematics

1. **Sakthivel, K.** received partial travel support from the Eurasian Association on Inverse Problems (EAIP) to deliver a talk at the International Conference on Inverse Problems Modelling and Simulation, held in Malta from May 26 to June 1, 2024.
2. Sreekanth, D. (M.Tech. ML & C) received the India AI Fellowship for the project titled "Domain-Adaptive Intelligent Search System Using Large Language Models (LLM),". The project was guided by **Sumitra, S.**
3. Manish, K. (M.Tech. ML & C) received the India AI Fellowship for the project titled "Optimizing Brain-Computer Interface Data Analysis for Neural Insights," which was selected for the India AI Fellowship. The project was guided for **Sumitra, S.**

5.6.7 Physics

1. **Ivan, J. S.** received the IOP Trusted Reviewer Certificate from IOP Science.

2. **Kumar, A.,** & Kannath, P. received the OPTICA Best Oral Presentation Award for their paper titled "Distributed Quantum Sensing Using Optical Gyroscopes," presented at Photonics-2024, held at IIT Kharagpur from December 12–16, 2024.

3. **Kumar, A.,** Patel, C. R., Thachil, J. A., & Kannath, P. (Ph.D. students) received the Springer Best Poster Presentation Award for their poster titled "Generation of Bright Two-Mode Squeezed States of Light," presented at Photonics-2024, held at IIT Kharagpur from December 12–16, 2024.

5.7 Conference / Workshop/FDP/Seminars/Training programmes by faculty members/staff- (as resource person) outside IIST

5.7.1 Aerospace Engineering

1. **Prathap, C.** – Attended and chaired a session at the International Conference on Advances in Aerospace and Energy Systems, LPSC, Thiruvananthapuram, April 6, 2024.

2. **Prathap, C.** – Invited lecture at the Advanced FDP on Sustainability through Green Mobility on Hydrogen from Renewables as a Viable Source of Energy, Sri Venkateswara College of Engineering, Chennai, September 24, 2024.

3. **Shine, S. R.** – Invited talk on Significance of Individual Adaptations and Morphology in Human Space Exploration at PEX.2, 45th Scientific Assembly of the Committee on Space Research (COSPAR), Busan, Republic of Korea, July 13–21, 2024.

4. **Shine, S. R.** – Co-Chair, International Conference on Advances in Aerospace and Energy Systems-24 (IAES-24), Liquid Propulsion Systems Centre (ISRO), Thiruvananthapuram, April 4–6, 2024.

5. **Shine, S. R.** – Paper presented on Understanding and Mitigating Risks to Human Thermoregulation in Lunar Environments: Insights from a Computational Model at the 45th Scientific Assembly of the Committee on Space Research (COSPAR), Busan, Republic of Korea, July 13–21, 2024.

6. **Sooraj, V. S.** – Award lecture on Innovations for Green and Sustainable Abrasive Machining (Grinding) of Difficult-to-Cut Aerospace Materials, Indian Society for Advancement of Materials and Process Engineering (ISAMPE), HAL, Bangalore, India, November 2024.

7. **Subramanian, U. A.** – Invited lecture at the One-Day Workshop on Brainstorming on Materials & Mechanisms for Avionics: Current & Future Trends on Recent Developments in Launch Vehicle Mechanisms, Research Centre Imarat (RCI), Hyderabad, March 1, 2025.

5.7.2 Avionics

1. **Anoop, C. S.** – Curriculum Development Workshop for M.Tech Embedded System Technologies, APJ Abdul Kalam Technological University, Trivandrum, August 16–17, 2024.

2. **Bhowmick, Sourav**– Invited lecture on Dynamics and Control of Network Systems, SERB-sponsored High-End Workshop on Artificial Intelligence for Modelling and Control of Robotic Systems, Departments of Electrical and Mechanical Engineering, NIT Calicut, July 16, 2024.

3. **Bhowmick, Sourav** – Expert talk on Multi-Agent Systems over Signed Networks, under VFS Scheme, College of Engineering, Trivandrum, November 5, 2024.

4. **Bhowmick, Sourav** – Invited lecture on Distributed Optimization of Cyber-Physical Systems, STTP/FDP on Advances in Control, Estimation, and Optimization for Cyber-Physical Systems (ACEOCPS), NIT Rourkela, January 7, 2025.

5. **Chris, Prema S.** – Invited lecture on Cooperative Spectrum Sensing and Automatic Classification Using Hybrid Machine Learning Techniques for Cognitive Radio, ATAL FDP, St. Xavier's Catholic College of Engineering, Tamil Nadu, December 2, 2024.
6. **Chris, Prema S.** – Invited lecture on Intelligent Spectrum Utilization in 5G and Beyond, ATAL FDP, Mar Baselios College of Engineering and Technology, Nalanchira, Kerala, December 3, 2024.
7. **Chris, Prema S.** – Invited lecture on Application of RFID for Designing AR/VR, ATAL FDP, Rohini College of Engineering and Technology, Tamil Nadu, January 6, 2025.
8. **Kaarthik, Sudharsan R.** – Invited lecture on Integrated Battery Charging and Power Train Schemes for All-Wheel Drive Electric Vehicles, ATAL FDP, TKM College of Engineering, December 4, 2024.
9. **Kaarthik, Sudharsan R.** – Invited lecture at Technical Workshop on Paper Writing, IEEE Kerala Section, August 28, 2024.
10. **Manoj, B. S.** – Inaugural address, Airob Hackathon, College of Engineering, Karunagappally, Kerala, March 25, 2025.
11. **Manoj, B. S.** – Invited address on Advanced Satellite Networking, IEEE Keysight Day 2025, Trivandrum, March 20, 2025.
12. **Manoj, B. S.** – Keynote address on AI-Driven Networking, St. Thomas College of Engineering, Pathanamthitta, February 11, 2025.
13. **Manoj, B. S.** – Inaugural address, 3rd Edition of the Flagship Event of the IEEE Signal Processing Society (SPS) Kerala Chapter – Signal 3.0, January 24, 2025.
14. **Manoj, B. S.** – Address at the Annual General Meeting of IEEE and Inaugural Address at the 3rd Edition of the Flagship Event of the IEEE Kerala Section, Kozhikode, January 11, 2025.
15. **Manoj, B. S.** – Keynote talk on AI for Accelerated Space Technology Development, ISRO Ascend 2025, VSSC, Trivandrum, January 10, 2025.
16. **Manoj, B. S.** – Invited talk at IEEE 2024 International Conference on Brain-Computer Interface & Healthcare Technologies, IEEE Kerala Section and C-DAC Trivandrum, December 20–21, 2024.
17. **Manoj, B. S.** – Invited talk at IEEE Globecom 2024, Women in Communication Engineering/Young Professionals Joint Mentoring Program, Cape Town, South Africa, December 8, 2024.
18. **Manoj, B. S.** – Keynote on Research Solution Design Methods, FDP, Mar Baselios College of Engineering, Trivandrum, December 2, 2024.
19. **Manoj, B. S.** – Inaugural keynote talk at FDP on High Impact Research Directions, TKM College of Engineering, November 18, 2024.
20. **Manoj, B. S.** – Panel discussion talk, IEEE Future Networks World Forum 2024, Dubai, UAE, October 16, 2024.
21. **Manoj, B. S.** – Inaugural lecture, DST-SERB AI for 6G Networks Workshop co-located with NCVPRIPG 2024, IIST, Trivandrum, July 19, 2024.
22. **Manoj, B. S.** – Keynote speaker, ICETSE 2024, Tumkur, June 26, 2024.
23. **Manoj, B. S.** – Invited talk at Amity University, June 24, 2024.
24. **Manoj, B. S.** – Keynote speaker, 3rd International Conference on Advanced Information Science and Computer Systems, Christ Nagar, Trivandrum, May 25, 2024.

25. **Manoj, B. S.** – National Telecom Day lecture, BSNL Connect, BSNL, Trivandrum, May 17, 2024.
26. **Manoj, B. S.** – National Telecom Day lecture, Institution of Engineers (India), Trivandrum State Centre, May 15, 2024.
27. **Mishra, Deepak** – Lecture on Basics of Artificial Intelligence, Kollam, September 20, 2024.
28. **Mishra, Deepak** – Keynote lecture on Generative Artificial Intelligence Applications: A Comprehensive View, CDAC Trivandrum, April 9, 2024.
29. **Mishra, Deepak** – Tutorial on Computer Vision for Intelligent Robotics: Opportunities and Challenges, April 12, 2024.
30. **Mishra, Deepak** – Lecture on Basics of CNNs and Its Variants for Image Analysis (CNN, RNN, LSTM), Inter-University Accelerator Centre (IUAC), Delhi, October 10, 2024.
31. **Mishra, Deepak** – Lecture on Recent Advances and Challenges in AI & Autonomous Robotics Workshop, April 24, 2024.
32. **Priyadarshanam, H.** – Invited talk on Basics of Small Satellite Technology and Small Satellite Development at IIST, Prodyogiki Diwas Vyakhyan, Inter-University Accelerator Centre (IUAC), New Delhi, May 10–11, 2024.
33. **Priyadarshanam, H.** – Invited talk on Satellite Systems Activities at IIST, Central University of Jammu, September 23–24, 2024.
34. **Priyadarshanam, H.** – Invited talk on The Benefits of Space Technology: Exploring How Space Innovations Improve Life on Earth, National Space Day, Sathyabama Institute of Science and Technology, August 23, 2024.
35. **Priyadarshanam, H.** – Invited talk on Familiarization with Inertial Accelerometers and Gyroscopes, CSSTEAP, SAC, Ahmedabad, January 15, 2025.
36. **Rajeevan, P. P.** – Invited lecture on Motor Drives for Electric Vehicles, FDP on Electric Vehicle Technology: Current and Future Prospects, Department of Electrical Engineering, TKM College of Engineering, December 2024.
37. **Rajeevan, P. P.** – Invited lecture on Motor Drives for Transportation Electrification, FDP on Electric Vehicles, HRDC, APJ Abdul Kalam Technological University, May 2024.
38. **Saha, Chinmoy** – Invited lecture on Advanced Antennas for Ground and Satellite Applications: An Overview and Recent Developments, JIIT MTT-S Workshop, Noida, Delhi, March 4, 2025.
39. **Saha, Chinmoy** – Invited lecture on Near and Far-Field Wireless Power Transfer: Trends, Technologies, and Recent Applications, IIT RAM, Ahmedabad, March 3, 2025.
40. **Saha, Chinmoy** – Invited lecture on Near and Far-Field Wireless Power Transfer: Trends, Technologies, and Recent Applications, LRDE, Bangalore, January 10–12, 2025.
41. **Saha, Chinmoy** – Invited lecture on Microwave Wireless Power Transfer and Energy Harvesting: Trends, Techniques, Challenges and New Ideas, IEEE AP-MTT Workshop, Kolkata, December 16, 2024.
42. **Saha, Chinmoy** – Invited lecture on Highlights of Research Activities in Advanced Microwave Lab @ IIST, IEEE MTT-S Workshop, University of Engineering and Management, Kolkata, December 16, 2024.
43. **Saha, Chinmoy** – Invited lecture on Research Opportunities for Undergraduate Students @ IIST, KIIT, Bhubaneswar, December 14, 2024.

44. **Saha, Chinmoy** – Invited lecture on Advanced Antennas for Satellite and Ground Station Applications: An Overview and Recent Designs in IIST, AICTE ATAL Workshop, Kalaignar Karunanidhi Institute of Technology, Coimbatore, December 2, 2024.

45. **Saha, Chinmoy** – Invited lecture on Research Expansion and Application to System Engineering, Kalaignar Karunanidhi Institute of Technology, Coimbatore, December 2, 2024.

46. **Saha, Chinmoy** – Invited lecture on Antenna Designs for Ground Station Applications: An Overview and Practical Designs, IEEE AESS Kerala Chapter, Kerala, December 1, 2024.

47. **Saha, Chinmoy** – Invited lecture on Metamaterial and Metasurface Inspired Antennas: A Journey of Two Decades, IEEE Applied Electromagnetics, Signal Processing, and Communication (Keynote Talk), KIIT, Bhubaneswar, November 29, 2024.

48. **Saha, Chinmoy** – Invited lecture on Metamaterial and Metasurface Based Antenna Research: A Journey of Two Decades in IIST, Sorbonne University, Paris, France, September 25, 2024.

49. **Saha, Chinmoy** – Invited lecture on Spectrum of Opportunities for Young Students: Academic, Research and Leadership Perspective, IEEE MTT-S, Jaypee Institute of Information Technology, Noida, August 26, 2024.

50. **Saha, Chinmoy** – Invited lecture on Advanced Antennas for Ground and Satellite Applications: An Overview and Recent Developments, IEEE INDISCON, Chandigarh, August 24, 2024.

51. **Saha, Chinmoy** – Invited lecture on Microwave Wireless Power Transfer: Trends, Techniques and Recent Activities, IIST IEEE Hyderabad Section MTT-S Student Conclave, MECS, Hyderabad, June 28, 2024.

52. **Saha, Chinmoy** – Invited lecture on Advanced Antennas for Satellite and Ground Station Applications, Graphic Era University, Dehradun, May 29, 2024.

53. **Saha, Chinmoy** – Invited lecture on Spectrum of Research Opportunities, IEEE MTT-S, IIIT Delhi, May 31, 2024.

54. **Saha, Chinmoy** – Invited lecture on Advanced Antennas for Satellite and Ground Station Applications: An Overview and Recent Designs in IIST, IIT Delhi, May 30, 2024.

55. **Saha, Chinmoy** – Invited lecture on Challenges, Design and Realization of Multifunctional Antennas, Photoconductive Antennas and Associated System Components for Microwave to Terahertz Applications, IIT Roorkee, May 24, 2024.

56. **Seena, V.** – Invited talk on CMOS-MEMS Sensors with FET-Based Transduction – A Paradigm Shift, ISRO IISU Academic Day, January 17, 2025.

57. **Seena, V.** – Invited lecture on Silicon and Polymer Micromachines as Gas Sensors, Symposium on Emerging Nanotechnologies for Sensors-Systems, International Inter-University Centre for Sensing and Imaging (IIUCSI), University of Kerala, November 2024.

58. **Seena, V.** – Invited research talk on Micromachines with Nanomechanical MEMS Flexures and Membranes, National Webinar on COMSOL Multiphysics, Indian Nanoelectronics Users Program – National User Summit, MeitY, October 2024.

59. **Seena, V.** – Invited lecture on Micromachines with Silicon CMOS-MEMS and Polymer MEMS, ISRO-Industry-Academia Functional Materials: A Roadmap Towards Self-Reliance, April 18, 2024.

60. **Seena, V.** – Invited lecture on MEMS Nanomechanical Flexures and Membranes: Sensor Platforms for Environmental Sensing, MEMS and Sensors Workshop, IIT Madras, April 2024.

61. **Seena, V.** – Invited seminar on MEMS Nanomechanical Beam-Membrane Sensors with Passive & FET-Based Active Transduction Schemes, Centre for Nanoscience and Engineering (CeNSE), IISc Bangalore, January 23, 2025.
62. **Selvaganesan, N.** – Invited talk on Limit Cycle Predictions for Systems with Nonlinearity, ATAL FDP on Design for Manufacturing & Advanced Automation for Industry 4.0, Puducherry Technological University, January 1, 2025.
63. **Sheeba, Rani J.** – Invited talk on Fault Models for AI/ML SoC, ATAL FDP on Design for Test (DFT) Strategies in AI and Machine Learning SoCs, DMI Engineering College, Aralvoimozhi, Tamil Nadu, January 27–31, 2025.
64. **Sheeba, Rani J.** – Invited talk on Role of ICT in Smart Systems, Faculty Development Programme, Noorul Islam Centre for Higher Education, Tamil Nadu, February 10, 2025.
65. **Sheeba, Rani J.** – Invited talk on Predictive Analytics for Cybersecurity, FDP on Cyber Security Threat Detection Incorporating Digital Technologies, Vel Tech Institute of Science and Technology, Chennai, December 3, 2024.
66. **Simha, Harsha**– Invited lecture on Geometry in Temple Architecture, IKS Discipline-Specific Faculty Training Program, IIT Indore, Madhya Pradesh, July 4–5, 2024.
67. **Simha, Harsha** – Invited talk on Indian Knowledge Systems, Bharat Bodh Conclave, Guwahati University, Assam, February 9, 2025.
68. **Simha, Harsha**– Invited lecture on Indian Knowledge Systems and Heritage Awareness for Engineers, NITK Surathkal, Karnataka, April 11, 2025.
69. **Simha, Harsha**– Invited lecture on Awareness Session on Indian Knowledge Systems, Chinmaya International Foundation, Ernakulam, Kerala, April 24, 2025.
70. **Simha, Harsha**– Invited lecture on Indian Knowledge Systems, National Workshop SIKER 2025: School on Interdisciplinary Knowledge Systems and Engineering Research, IIIT Kottayam, Kerala, May 27, 2025.
71. **Simha, Harsha**– Invited talk on Fractal Geometry in Temple Architecture, National Youth Conference on Indian Knowledge Systems, Chinmaya Vishwavidyapeeth, Ernakulam, Kerala, May 17, 2024.
72. **Sooraj, R.** – Invited lecture on Semiconductor Microring Resonators and Their Applications, National Photonics Symposium, International School of Photonics, Cochin University of Science and Technology, February 27–28, 2025.
73. **Vineeth, B. S.** – Invited lecture on Modern Random Access for mMTC, ATAL FDP, Mar Baselios College of Engineering and Technology, Kerala, December 2024.
74. **Vineeth, B. S.** – Invited lecture on Introduction to Reinforcement Learning, College of Engineering, Trivandrum, October 2024.
75. **Vineeth, B. S.** – Invited lecture on Information Theory: Entropy and Source Coding, CSSTEAP SATCOM 14 Lecture (online), October 2024.
76. **Vineeth, B. S.** – Invited lecture on Probability and Bayesian Modelling: Data Assimilation in Weather and Climate Models, International Centre for Theoretical Sciences (ICTS), May 2024.

5.7.3 Chemistry

1. **Gladis, Mary J.** – Invited lecture on Sustainability Challenges in Large-Scale Battery Manufacturing at the Seminar on Green Energy and Clean Energy for New India, IEI Kerala State Centre, September 10–11, 2024.
2. **Gladis, Mary J.** – Invited lecture on Sustainable Materials for High-Performance Capacitive Storage at the 3rd International Conference on Electrochemical Science and Technology (ICONEST-2024), The Electrochemical Society of India (ECSI) & CSIR-National Physical Laboratory (NPL), New Delhi, September 18–20, 2024.
3. **Gladis, Mary J.** – Invited lecture on Futuristic Energy storage devices-Trends and challenges Two-Day National Conference on Energy Materials and Environment (EME 2024), Catholicate College, Pathanamthitta, June 13–14, 2024.
4. **Gladis, Mary J.** – Invited lecture on Sustainable Materials for Futuristic Energy Storage Devices at the International Congress on Management of Energy, Earth, Environment, and their Resources (ICME3R25), NMC College, Marthandam, February 13–15, 2025.
5. **Gomathi, N.** – Invited lecture on Metal-Organic Frameworks: Advances in Corrosion-Resistant Coatings at the Workshop on Corrosion Prevention and Remediation Strategies, Indian Institute of Petroleum and Energy, Visakhapatnam, December 11–13, 2024.
6. **Gomathi, N.** – Invited talk on "Advancing Materials Science: A Journey of Research and Inspiration," Series of Conversations with Women Role Models in STEM, Pune Knowledge Cluster, March 12, 2025.
7. **Joseph, Kuruvilla** – Keynote speaker at the National Conference on Recent Trends in Material Science for Electronics and Engineering Application (RTMSEE-24), Kristu Jayanti College, Bengaluru, April 15, 2024.
8. **Joseph, Kuruvilla** – Invited speaker on Generation Materials for Energy Storage at the SERB-Sponsored Karyashala, IIT Jammu, May 8, 2024.
9. **Joseph, Kuruvilla** – Keynote speaker at the International Conference on Advanced Nano Science and Nanotechnology (ICAN-2024), Mar Athanasius College, Kothamangalam, June 5, 2024.
10. **Joseph, Kuruvilla** – Chief speaker at the National Seminar on Recent Trends in High Energy Materials, HEMSI Chapter, SDSC SHAR, September 6, 2024.
11. **Joseph, Kuruvilla** – Speaker at the Workshop on Academic and Research Opportunities in Space Sector, Kerala Space Park and ASAP Kerala, College of Engineering, August 31, 2024.
12. **Joseph, Kuruvilla** – Invited talk at the National Seminar on Recent Trends in Science and Technology, St. Thomas College, Pala, September 30, 2024.
13. **Joseph, Kuruvilla** – Plenary talk at the National Conference on Current Trends in Polymer Science, CUSAT, October 28, 2024.
14. **Joseph, Kuruvilla** – Keynote lecture at the National Seminar on Neoteric Advances in Chemical Science (NACS-2024), University of Kerala, November 7, 2024.
15. **Joseph, Kuruvilla** – Keynote speaker at the International Conference on Recent Advances in Polymer Science: Synthesis, Processing and Applications, School of Polymer Science and Technology, MG University & Rubber Technology Centre, IIT Kharagpur, December 2, 2024.

16. **Joseph, Kuruvilla** – Plenary lecture at the International Conference on Advanced Materials and Start-up Ecosystem, Trivandrum Engineering Science and Technology (TrEST) Research Park, CET, Trivandrum, December 13, 2024.
17. **Joseph, Kuruvilla** – Invited talk at the International Conference on Material Science (MATZONE 2024), Providence College of Engineering, Chengannur, December 17, 2024.
18. **Joseph, Kuruvilla** – Plenary speaker at the Third International Conference on Science and Technology of Advanced Materials (STAM 25), Mar Athanasius College (Autonomous), Kerala, January 8, 2025.
19. **Joseph, Kuruvilla** – Chief guest at the International Conference on Eco-Cultural Futures (ICECF), St. Stephen's College, Uzhavoor, February 13, 2025.
20. **Joseph, Kuruvilla** – Keynote speaker at the National Seminar on Trends in Material Science and Technology, St. Berchmans College in association with the Materials Research Society of India, February 14, 2025.
21. **Joseph, Kuruvilla** – Invited speaker at the International Conference on Space for Sustainability: Science, Technology, Education and Policy (S2:STEP 2025), Centre for Space Science and Technology (CSST), IIT Roorkee, March 4, 2025.
22. **Joseph, Kuruvilla** – Guest speaker at the UKIERI (UK–India Education and Research Initiative) / SPARC (Scheme for Promotion of Academic and Research Collaboration) Symposium, University of Nottingham, UK, March 14, 2025.
23. **Sandhya, K.Y.** – Invited talk on H_2 Economy: Research and Methods for H_2 Production and Conversion at the National Webinar on Hydrogen: The Future Fuel, sponsored by the Centre for Sustainable Development, College of Engineering, Trivandrum, October 8, 2024.
24. **Sandhya, K.Y.** – Hands-on training workshop on Characterization of Electrified Interfaces in Batteries and Super Capacitors, VIT, Vellore, November 13–15, 2024.

5.7.4 Earth and Space Science

1. **Chandrasekar, A.** – Invited talk on Numerical Weather Prediction Methods at the International Conference on Data Assimilation in Weather and Climate Models at the International Centre for Theoretical Sciences (ICTS), Tata Institute of Fundamental Research, Bangalore, May 6–17, 2024
2. **Chandrasekar, A.** – Invited talk on Modelling of Land Surface over the Indian Region at International Conference MARICON 2024, Cochin University of Science and Technology, Cochin, April 8, 2024.
3. **Chandrasekar, A.** – Co-author (with Devvrat Sahai) of Impact of Assimilating High Resolution Satellite-Derived Soil Moisture Data on the Soil Moisture Data Obtained from Land Surface Models, presented at TROPMET 2024, NIT Rourkela, December 19–21, 2024.
4. **Chandrasekar, A.** – Co-author (with Shritu Badoniya) of Investigating the Possibility of Brown Ocean Effect Signature in Tropical Cyclones Formed over the Bay of Bengal during the Pre-Monsoon Season, presented at TROPMET 2024, NIT Rourkela, December 2024.
5. **Chandrasekar, A.** – Invited talk on a Study on the Possible Brown Ocean Effect: Impacts of an Antecedent Tropical Cyclone on the Rapid Intensification of the 1999 Odisha Supercyclone at TROPMET 2024, NIT Rourkela, December 19–21, 2024.
6. **Gnanappazham, L.** – Invited talk on Remote Sensing and Societal Applications at Earth Observation Technology for Sustainable Coastal Ecosystem, Kumari Ariviyal Peravai, CUTN (Online), April 24, 2024.

7. **Kutty, G.** – Invited talk on From Dynamics to Predictability: Leveraging Ensembles for Improved Weather Forecasts at the International Conference on Climate Adaptation and Resilience (CARE), CUSAT, Cochin, March 25, 2015.
8. **Kutty, G.** – Lecture series on The Role of Weather Prediction in Disaster Preparedness at the Tata Institute of Social Sciences, Mumbai, March 2025.
9. **Mandal, Samir** – Invited talk on X-ray Properties of Newly Discovered AGNs in the Chandra Catalogue at the Conference on Blazars and Restless AGN (COBRA): A High-Energy View, Presidency University, Kolkata, July 22–26, 2024.
10. **Mandal, Samir** – Public talk on X-rays as Probes in Astronomy organized by Indian National Young Academy of Science (INYAS) and IISER Thiruvananthapuram, Planetarium Hall, Trivandrum, January 25, 2025.
11. **Rajesh, V.J.** – Invited talk at the 5th International Congress on Natural Sciences with Sisterhood Universities (ICNS2024), Ikarashi Campus, Niigata University, September 26–28, 2024.
12. **Rajesh, V.J.** – Invited lecture at Vikram Discussion II on Astrochemistry and Astrobiology, Physical Research Laboratory (PRL), Ahmedabad, January 2, 2025.
13. **Rajesh, V.J.** – Keynote Speaker at EMERGE 2025, International Conference on Knowledge - Innovation, Creation, & Connection, EMEA College of Arts and Science, Kondotty, Kerala, January 14, 2025.
14. **Rajesh, V.J.** – Lead Talk at STEPS-2025 and Indian Planetary Science Conference (IPSC)-2025, IIT Roorkee, March 4–7, 2025.
15. **Rajesh, V.J.** – Invited talk at the International Virtual Field Science Symposium – S-Earth Program, Niigata University, Japan, March 25–29, 2025.
16. **Ramiya, A. M.** – Invited talk on Geospatial Artificial Intelligence: Revolutionizing Spatial Data Analysis at GEOID, GIS Day Celebration, College of Engineering, Trivandrum, November 27, 2024.
17. **Ramiya, A. M.** – Invited talk on Augmenting IoT for Precision Agriculture: Enhancing Sustainability in Farming at the GeoInnovation Challenge Orientation Program, College of Engineering, Guindy, DST-NGP, May 20, 2024.
18. **Sinha, P. R** – Invited talk on Winter Aerosol–Moisture–Cloud Interactions over Indo-Gangetic Plain during Winter, IITM Pune, March 6, 2025.
19. **Sinha, P. R**. – Invited talk on Vertical Measurements of Aerosols using Balloon-Borne Campaigns, IIT Madras, February 2, 2025.
20. **Tej, A.** – Visiting Professor at the University of Liège, Belgium under the aegis of the Erasmus+ International Credit Mobility Program, May 8–18, 2024.
21. **Tej, A.** – Invited talk on Forming High-Mass Stars: A Multi-Scale Accretion Process at the Indo-Thai Symposium on Astrophysics and Technology Development (ITSAT 2024), August 26, 2024 (Online).
22. **Tej, A.** – Special colloquium on Probing Planetary Atmospheres, NISER, Bhubaneswar, December 27, 2024.
23. **Tej, A.** – Invited talk on Probing Planetary Atmospheres at the Frontier Symposium in Physics (FS-PHY 2025), IISER Thiruvananthapuram, January 18, 2025.
24. **Vig, S.** – Career development lecture on Research Career in Physics: Opportunities and Challenges at Vigyan Vidushi Physics 2024, TIFR, Mumbai, May 27, 2024.

25. **Vig, S.** – Invited lecture and tutorial at the Orientation-cum-Selection Camp for Astronomy Olympiad, HBCSE-TIFR, Mumbai, May 2–4, 2024.
26. **Vig, S.** – Invited lecture at the National Initiative of Undergraduate Studies (NIUS), HBCSE-TIFR, Mumbai, July 4, 2024.
27. **Vig, S.** – Online lecture Lunar Odyssey for secondary school students, Sky Explorers, July 18, 2024.
28. **Vig, S.** – Invited talk Lunar Odyssey, Christ College, Trivandrum, July 26, 2024.
29. **Vig, S.** – Oral presentation Saur Pranali Ki Khoj – Kyon? at the Hindi Technical Seminar, LPSC-ISRO, Trivandrum, October 18, 2025.
30. **Vig, S.** – Invited talk on Dynamic Teaching of Science with Interactive Demonstrations at the Teachers Workshop, All India Science Conference by Breakthrough Science Society, Tagore Theatre, Trivandrum, February 8, 2025.
31. **Vig, S.** – Invited talk on Why Do Seasons Occur? at NIT Rourkela, February 18, 2025.

5.7.5 Humanities and Social Sciences

1. **Gigy J. A.** – Presentation on Latent Histories in the Kitchen Recipes: A Study on Select Cuisines from the Littorals in Kerala, Tenth Annual Conference of Oral History Association of India, Kerala Museum, Kochi, January 24–26, 2025.
2. **Gigy J. A.** – Talk on Food and Culture, Department of English, HHMSPB NSS College for Women, Neeramankara, Thiruvananthapuram, January 21, 2025.
3. **Gigy J. A.** – Talk on Food and Cultural Studies: Contemporary Trends and Interdisciplinarity, Nallamuthu Gounder Mahalingam College, Pollachi, Tamil Nadu, Lecture Series on Decoding the Aesthetics of Literary Theory, October 26, 2024.
4. **Gigy J. A.** – Talk on Effective Communication Skills in Day-to-Day Life at the One-Day National Conference on Communicative Competence in English: Percept to Practice, Thiruvalluvar College, Papanasam, April 23, 2024.
5. **Gigy J. A.** – Online lecture on Decoding Research Papers: Essential Skills for Reading and Writing, VIT, Vellore, April 10, 2024.
6. **Justin, Babitha,** – Resource person on Gender Sensitization and Inclusive Education, Continuous Professional Development Programme for Teachers of KV, PM Shri Kendriya Vidyalaya, SAP, Peroorkkada, Thiruvananthapuram, March 18, 2025.
7. **Justin, Babitha,** – Resource person at Mosaic: Literary and Cultural Meet, Banaras Hindu University, Varanasi, February 27, 2025.
8. **Justin, Babitha,** – Participant at the Literature Festival, Arts and Science College, Kozhikode, February 15, 2025.
9. **Justin, Babitha,** – Host and participant, Kerala Literature Festival, DC Books, Calicut, January 2025.
10. **Justin, Babitha,** – Exhibition on Women in Muziris, Muziris Heritage Centre, Kodungallur, Kerala, November 23, 2024.
11. **Justin, Babitha,** – Resource person at Starting Your Doctoral Research Project: A Practical Workshop, Vallaths Education Private Limited, October 9, 2024.

12. **Justin, Babitha,** – Resource person on Training Interns, Asianet Communications Ltd., Trivandrum, May 19, 2024.
13. **Justin, Babitha,** – Resource person at FDP on Gender and Performance, Amity University, Patna, August 29, 2024.
14. **Justin, Babitha,** – Resource person at Reading Day Celebrations, Bhavens Manvila, Thiruvananthapuram, June 9, 2024.
15. **Justin, Babitha,** – Co-presenter on Shakespeare and Performing Bodies in Everyday Life: The Spectrum of Dis/Ability in Performance at the 46th Comparative Drama Conference, Orlando, Florida, April 5, 2024.
16. **Lekshmi V. N.** – Invited talk on Quantitative & Qualitative Methods of Social Science Research at the Higher Secondary School Teachers Transformation Programme, Department of Sociology, Sree Sankaracharya University of Sanskrit, Kalady, February 16–25, 2025.
17. **Lekshmi V. N.** – Invited talk on Social Impact Assessment: Role of Participatory Rural Appraisal at the Short-Term Workshop on Environmental and Social Impact Assessment, Lovely Professional University, Punjab, April 23–29, 2024.
18. **Shaijumon, C. S.** – Panel discussion on Role of Indian Space Economy in Shaping National Growth at Fueling the Space Economy: Fiscal Strategies and Investment Landscapes, Indian Space Conclave 2024, Indian Space Association, New Delhi, November 5, 2024.
19. **Shaijumon, C. S.** – Invited talk on The Power of Multidisciplinary Approaches in Addressing Real-World Challenges: Insights from Space Economics and Neuroeconomics, Teresian Centenary International Multidisciplinary Conclave (TCIMC-2024), St. Teresa's College, Ernakulam, December 16, 2024.
20. **Shaijumon, C. S.** – Invited lecture on National Budget 2025–26: Stimulating Balanced Growth, TKM Institute of Management, March 28, 2025.
21. **Shaijumon, C. S.** – Special lecture on Bridging Disciplines for Innovation: Lessons from Space Economics and Neuroeconomics at the National Seminar on Navigating New Frontiers: Trends & Insights in Interdisciplinary Research, HHMSPB NSS College for Women, February 17, 2025.
22. **Shaijumon, C. S.** – Invited talk on Space Economics, Trade, Fiscal Policy and Global Dynamics: Analysis and Development at the In-Space Short-Term Skill Development Course on Space Law, Policy, Economics and Benefits, Bengaluru, February 13, 2025.
23. **Shaijumon, C. S.** – Invited talk on Exploring Various Methodologies for the Estimation of Indian Space Economy, IN-SPACE, ISRO, November 25, 2024.
24. **Shaijumon, C. S.** – Panel discussion on Role of Indian Space Economy in Shaping National Growth at Fueling the Space Economy: Fiscal Strategies and Investment Landscapes, Indian Space Conclave 2024, Indian Space Association, New Delhi, November 5, 2024.
25. **Shaijumon, C. S.** – Invited lecture on Capital Infusion as Amrit Kaal Development Philosophy: Union Budget 2024–25 at the National Symposium on Union Budget 2024–25, Fatima Mata National College, Kollam, August 5, 2024.
26. **Shaijumon, C. S.** – Invited lecture on World of Economics at the Induction Program of University of Kerala, July 9, 2024.

5.7.6 Mathematics

1. **Das, Prosenjit** – Invited lecture on Translates of a Line at the Indian-Russian Conference on Polynomial Rings and Group Actions, Leonard Euler International Mathematical Institute, St. Petersburg University, Russia, May 27 – June 1, 2024.
2. **Das, Prosenjit** – Invited lecture on An Epimorphism Problem of Sathaye at RMS 2024 Conference, Christ University, Bengaluru, December 27–29, 2024.
3. **Deepak, T. G.** – Invited lecture on Queues with Energy-Enabled Service at the International Conference on Advances in Applied Probability, Statistics and Stochastic Processes, NIT Calicut, January 30 – February 1, 2025.
4. **George, Raju K.** – Invited talk on Controllability and Observability of Networked Systems at Recent Advances in Applied Mathematics, University of Colombo, March 4–6, 2025.
5. **George, Raju K.** – Invited talk on Application of Mathematics in Real Life System Modelling, St. Thomas School, Mukkola, Trivandrum, December 18, 2024.
6. **George, Raju K.** – Invited talk on Intelligence: Pros and Cons, JMM Study Centre, Bishop House Mannanthala, Trivandrum, August 10, 2024.
7. **Kumar, Anil C.V.** – Invited talk (online) on Behavior of Steady-State Solutions of 2D/3D ODEs at International FDP on Advances in Non-Linear Dynamics: Methods and Applications (ANDMA-2024), School of Advanced Sciences (SAS), VIT-AP University, India, June 11–15, 2024.
8. **Kumar, Sarvesh** – Lectures on Numerical Integration and Its Applications, Doon University, Dehradun, March 24–27, 2025.
9. **Kumar, Sarvesh** – Invited lecture on Numerical Treatment of Initial and Boundary Value Problems, Gurukul Kangri University, March 23, 2025.
10. **Moosath, K. S. S.** – Lectures at the Topology Workshop, Kerala Government and IISER, IISER Trivandrum, May 26, 2024.
11. **Moosath, K. S. S.** – Bridge course on Real Analysis, Department of Mathematics, University of Calicut, August 30, 2024.
12. **Moosath, K. S. S.** – Induction program on Several Variable Calculi, Department of Mathematics, University of Kerala, August 14, 2024.
13. **Moosath, K. S. S.** – Invited talk on Geometry of Our Living Space, Mar Ivanios College, Trivandrum, November 8, 2024.
14. **Moosath, K. S. S.** – Invited lecture on Differential Geometry at the National Workshop on Precision Mapping: Geodesy, DGPS and Drones for Surveying and Mapping, Department of ESS, IIST, October 23, 2024.
15. **Moosath, K. S. S.** – Distinguished Alumni Lecture on Information Geometry, University of Hyderabad, February 2, 2025.
16. **Moosath, K. S. S.** – Invited lecture on Information Geometric Framework for Point Cloud Comparison at the Third National Seminar on Glimpses of Analysis and Geometry, University of Calicut, March 14, 2025.
17. **Mukherjee, Kaushik** – Invited talk on Application of Engineering Mathematics, Department of Science and Humanities, R.M.K. Engineering College, Thiruvallur, September 2, 2024.

18. **Sakthivel, K.** – Invited lecture on Inverse Source Problems for the Damped Euler–Bernoulli Beam at Annual Inverse Meet–2025, IIT Gandhinagar, February 13–15, 2025.
19. **Sakthivel, K.** – Oral presentation on Regularizing Effect of the Kelvin-Voigt Damping in the Determination of Shear Force of the Euler-Bernoulli Beam at the 11th International Conference on Inverse Problems: Modeling and Simulation, Malta, May 26–June 1, 2024.
20. **Sakthivel, K.** – Oral presentation on Identification of Shear Force in TDFM from Measured Final Time Data at the National Conference on Mathematical Biology, PSG Arts and Science College, Coimbatore, December 9, 2024.
21. **Sakthivel, K.** – Oral presentation on Inverse Problem of Damped Kirchhoff-Love Plate Equation at the International Conference on Nonlinear Dynamics: Modeling and Computation, Bharathiar University, February 2, 2025.
22. **Sumitra, S.** – Talk on Bridging Functional Analysis and ML: The Riesz-Kernel Paradigm at the International Conference on Mathematics and Its Applications in Technology, Department of Mathematics & Department of Computer Science, Srinivasa Ramanujan Centre, Kumbakonam, March 29, 2025.
23. **Sumitra, S.** – Invited talk on Introductory Concepts of Machine Learning at National Pi Day Celebrations, Department of Mathematics and Statistics, HHMSPB NSS College for Women, Neeramankara, Thiruvananthapuram, March 17, 2025.
24. **Sumitra, S.** – Invited talk on Machine Learning Algorithms for Cybersecurity at the DRDO-Sponsored Two-Day Workshop on Explainable AI for Cybersecurity and Resilience, Thiagarajar College of Engineering, Madurai, December 16, 2024.
25. **Sumitra, S.** – Keynote speech on Exploring Multi-Task Learning and Multi-View Learning: Strategies for Enhanced Model Performance at the 7th International Conference on Recent Trends in Advanced Computing (ICRTAC-24), School of Computer Science and Engineering, VIT Chennai, November 15, 2024.
26. **Sumitra, S.** – Invited talk on Opportunities in Machine Learning in India: Insights into Deep Learning and Kernel Methods at ACM Research Opportunities in Computer Science (ROCS), Amrita Vishwa Vidyapeetham, Amritapuri Campus, October 18, 2024.
27. **Sumitra, S.** – Invited talk on Machine Learning Algorithms with Gradient-Based Optimization Techniques at the International Workshop: Mastering Optimization – Machine Learning Models and Real-World Applications on Data, VIT Bhopal University, October 11, 2024.
28. **Sumitra, S.** – Invited talk on Regression and Classification Models: Their Optimization Frameworks and Solutions at FDP on Scientific Computing and Machine Learning, VIT Vellore, August 26, 2024.
29. **Sumitra, S.** – Invited talk on Learning with Data at the IEEE CIS Summer School on Computational Intelligence Techniques for Engineering Applications, Thiagarajar College of Engineering, June 16, 2024.
30. **Sumitra, S.** – Invited talk on Probabilistic Models at FDP on Theoretical Machine Learning, IIIT Kottayam, May 29, 2024.

5.7.7 Physics

1. **Ashok, K.** – Invited talk on Squeezed Light: From EPR Paradox to Real-World Applications, Physics Department Colloquium, IIT Bombay, March 18, 2025.

2. **Ashok, K.** – Keynote talk on The Quantum Optical Technologies in Macroscopic Regime at the International Conference on Emerging Trends in Optical Technologies, SRM Andhra Pradesh, Amravati, January 4, 2025.
3. **Ashok, K.** – Invited talk on Tailoring Spatial Quantum Properties of Bright Entangled Beams for Enhanced Information Processing at Photonics 2024, 16th International Conference on Fiber Optics and Photonics, IIT Kharagpur, December 13, 2024.
4. **Ashok, K.** – Invited talk on From Quantum Mechanics to Quantum Technologies at the Workshop on Quantum Mechanics, Mar Ivanios College, Trivandrum, November 2, 2024.
5. **Ashok, K.** – Invited talk on Quantum-Enhanced Sensing with Squeezed Light at XLVII OSI Symposium and International Conference on Optics and Photonics Instrumentation (OPTOIn-2024), CSIR-CSIO Chandigarh, October 23–25, 2024.
6. **Ashok, K.** – Invited talk on Quantum Optical Technologies with Squeezed Light at the Workshop of CAMRIE, Quantum Materials and Devices 2024 (QMD 2024), IISER Thiruvananthapuram, August 9, 2024.
7. **Bhattacharjee, Kuntala** – Invited talk on Growth and Local Electronic Structure of Sn on WS_2 Surface: A Case of Substitutional Doping at IUMRS-ICA-2024, Devi Ahilya Vishwavidyalaya, Indore, December 03–06, 2024.
8. **Bhattacharjee, Kuntala** – Discussion panel member on Recent Advances in the Study of Electronic Structure at NCES 2024, SRM University-AP, November 21–23, 2024.
9. **Khadane, U. R.** – Invited lecture on Ion-Molecules and Ion-Cluster Collisions: Reasons to Revisit Proton Collisions with PAH/PANHs at NSRTACP-2024, Ramakrishna Mission Residential College, Narendrapur, December 20–21, 2024.
10. **Khadane, U. R.** – Plenary talk on Energetic Proton Collisions with Nitrogenated Aromatics: Effects of Plasmon Resonance at ECAAMP 2025, TIFR Mumbai.
11. **Murugesh, S.** – Invited lecture on Some Applications of Spin Systems: Magnetic Memory and Quantum Batteries, Loyola College (Chennai) (online), February 27, 2025.
12. **Murugesh, S.** – Lectures on General Relativity and Cosmology at the Science Academies Refresher Course in Theoretical Physics, SSRNM College, Sattur, Tamil Nadu, March 27–30, 2025.
13. **Narayanamurthy, C. S.** – Plenary talk on Turbulence Impacted Wave Front Corrections Without Conventional Adaptive Optics at AOP 2024, Aveiro, Portugal, July 16–19, 2024.
14. **Narayanamurthy, C. S.** – Invited talk at XLVII Optical Society of India (OSI) Symposium on International Conference on Advances in Optics and Photonics Instrumentation, October 23–25, 2024.
15. **Sudheesh, C.** – Resource person on Basics of Quantum Computation, Mar Ivanios College, Thiruvananthapuram, November 2, 2024.

5.8 Conference / Workshop/ training programmes participated by faculty members (not as a resource person) outside IIST

1. **Gladis, Mary J.** – participated in Management Development Program on Public Procurement (Basic) at Arun Jaitley National Institute of Financial Management (AJNIFM), Faridabad, May 13-18, 2024.
2. **Gnanappazham, L.** – Participated in Plant Spectral Measurements & Remote Sensing at the Plant Eco-Physiology Workshop, IISER Trivandrum, December 10–11, 2024.

3. **Gnanappazham, L.** – Plenary Member at the India Mangrove Conclave 2024, NCCR, Chennai, December 16–17, 2024.
4. **Sandhya, K. Y.** – Participated in the Two-Day National Conference on Energy Materials and Environment (EME 2024), Catholicate College, Pathanamthitta, June 13–14, 2024.
5. **Sandhya, K. Y.** – Participated in the Five-Day International Workshop on Sophisticated Instrument Techniques, VIT-AP, March 17–21, 2025.
6. **Sooraj, V. S**. –Participated the ARDB Pre-Conference Workshop in COPEN 2024, NIT Calicut, December 12, 2024.
7. **Sooraj, V. S.** –Participated the Post-Conference Workshop of COPEN 13 on Additive Manufacturing, NIT Calicut, December 16, 2024.
8. **Sooraj, V. S.** –Participated the International Conference on Advances in Aerospace and Energy Systems (IAES 2024), LPSC, Thiruvananthapuram, April 4–6, 2024.
9. **Sooraj, V. S.** –Participated the ISAMPE Colloquium and Exhibition on Composites (ICEC 2024), November 22–23, 2024.
10. **Sooraj, V. S.** –Participated the SAME Technical Seminar on Space Infrastructure and Programme Management, Thiruvananthapuram, September 7, 2024.

5.9 Institute Conferences/Short term course/workshop/Seminar/FDP/ Symposium organized in IIST

During the academic year, IIST actively organized a range of academic events, including conferences, short-term courses, workshops, seminars, faculty development programs (FDPs), and symposiums. These events were aimed at fostering interdisciplinary collaboration, knowledge sharing, and capacity building among students, researchers, and faculty.

Sl.No.	Event Title	Department / Organizer	Date(s)
1	IN-SPACe Skill Development Program for NGE and Academia – Short-term course on Mission Design and Avionics for Launch Vehicle	Avionics	May 19–27, 2024
2	Four-day workshop on heliophysics, space weather, and the role of India's Aditya space solar observatory	IIST, SPL (VSSC), Aditya L1 Outreach Team	June 3–6, 2024
3	11th National Conference on Recent Trends in Materials Science and Technology (NCMST-2024)	Chemistry	June 25–27, 2024
4	3rd National Workshop on Electric Aircraft and Allied Technologies	Avionics	July 11–13, 2024
5	9th National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics	Avionics	July 18–20, 2024

Sl.No.	Event Title	Department / Organizer	Date(s)
6	ASTRA-2024: Aerospace Symposium on Technological Research Advancements	Aerospace Engineering	August 30, 2024
7	National Workshop on Precision Mapping: Geodesy, DGPS, and Drones for Surveying and Mapping	Earth & Space Sciences	October 22–24, 2024
8	Seminar on Mathematical and Astronomical Contributions in 14th Century Kerala	Mathematics & IQAC, IIST	October 30, 2024
9	ATAL FDP on Intelligent Signal Processing Techniques	Avionics	December 9–14, 2024
10	ISRO Academia Day – 2024	IIST	December 10, 2024
11	FDP on Control Systems Theory and Applications	Avionics	December 16–20, 2024
12	Workshop on Engineering Village	IIST Library & IQAC	January 20, 2025
13	Sound Sculptures: Therapeutic Clay Modelling Workshop for Visual Communication Students (Agasthya Park)	Humanities & Social Sciences	February 16, 2025
14	Recent Developments of Advanced Antennas and Microwave Circuits at IIST: Advanced Microwave Lab of IIST, KeySIGHT, IIST Workshop	Avionics	March 20, 2025

5.10 Special Lectures in IIST

IIST organized a series of special lectures during the academic year, featuring eminent scientists, academicians, and industry experts from India and abroad. These lectures covered a wide range of cutting-edge topics such as planetary exploration, quantum communication, aerospace materials, and space science missions. The sessions provided valuable insights and exposure to recent developments in science, technology, and innovation. These lectures greatly enriched the academic environment and encouraged active engagement among students and faculty.

Sl.No.	Title	Speaker(s)	Date(s)
1	Illuminating the Dark through the Migdal Effect	Dr. Gaurav Tomar, IIT Patna	April 24, 2024
2	Building Inner Resilience for High Performance (Yoga Day)	Dr. Beela G. K., Kerala Agricultural University	June 21, 2024

Sl.No.	Title	Speaker(s)	Date(s)
3	9th Dr. APJ Abdul Kalam Memorial Lecture – "APJ Abdul Kalam: A Votary of Indian Spiritual and Cultural Heritage"	Shri Arif Mohammad Khan, Honourable Governor, Govt. of Kerala	July 29, 2024
4	Waste to Wealth: Sustainable Recovery of Rare Earth Elements by Recycling of E-waste	Dr. V. Balaram, CSIR-National Geophysical Institute, Hyderabad	August 22, 2024
5	Towards Satellite-Based Quantum Communication	Dr. Chithrabhanu Perumangatt, Toshiba Cambridge Research Lab	August 19, 2024
6	Challenges in Sustained Human Space Flight Programme	Dr. Unnikrishnan Nair S, Director, IIST	September 10, 2024
7	UAV Enabled Ultra-Reliable and Low Latency Communication	Dr. Oluwakayode Samson Onireti, University of Glasgow, UK	October 10, 2024
8	Lecture on IPR Management	Shri Jayaprakash R., Indian Patent Agent & Section Head, IP Management, VSSC	November 6, 2024
9	Polarization Measurement and Amplification Techniques: From Astronomy to Clinical Biology	Dr. Athira B. S., University of Washington, USA	November 13, 2024
10	A Journey to L1 with ADITYA L1 Observatory	Prof. Dipankar Banerjee, Director, IIST	November 19, 2024
11	Online Talk: "Evolution of Rights and Duties under the Indian Constitution – The Way Forward"	Dr. Sheeba Pillai, Professor, School of Indian Legal Thought, MG University, Kottayam	November 26, 2024
12	Microwave Spectroscopic, Shock Wave Processing and Computational Studies	Prof. E. Arunana, IISc Bengaluru	January 15, 2025
13	Mastering Emotional Baggage for an Authentic Life	Shri U. A. Subramanian, Professor of Practice, IIST	January 15, 2025

Sl.No.	Title	Speaker(s)	Date(s)
14	Multifunctional Materials and Composites for Space and Aerospace Applications	Dr. Nisa Salim, Swinburne University of Technology, Australia	January 16, 2025
15	The Search for a New Planet in Our Solar System	Prof. Surhud More, IUCAA	January 17, 2025
16	NASA Europa Clipper Mission: Investigating Habitability of Jupiter's Second Moon Europa	Prof. Devendra Ojha, TIFR, Mumbai	January 29, 2025
17	Challenges in Space Science Missions	Dr. Seetha, Emeritus Professor, RRI, Bangalore	March 7, 2025
18	Tracing the Sun's Past: How a Solar Feature Reveals Its Hidden Magnetic History	Ms. Divya Kirti Mishra, ARIES, Nainital	March 19, 2025
19	"Human Rating" – Organized by Student Cell of INSARM @ IIST	Shri Harish C. S., Professor of Practice, IIST	March 25, 2025
20	Lecture on Power Sector Reforms	Prof. Hrushikesh Mallick, BHU, Varanasi	March 27, 2025

5.11 IIST Colloquium

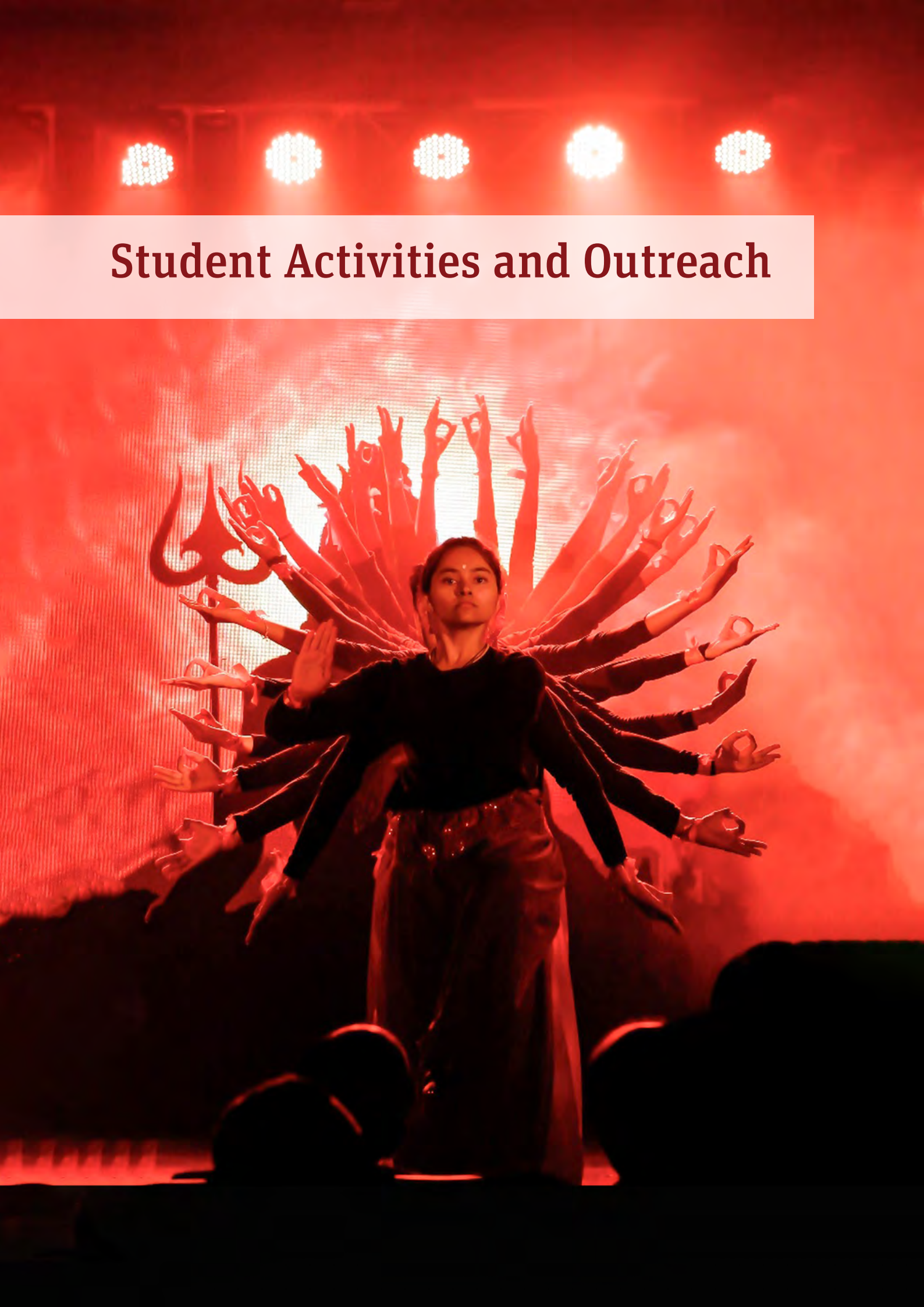
The Institute has proudly launched its Colloquium Lecture Series this year, marking a bold and transformative step towards cultivating a more dynamic and intellectually vibrant academic culture. This strategic initiative is designed to embed world-class external perspectives directly into campus life, creating a unique platform for faculty and students to engage meaningfully with distinguished personalities from a wide spectrum of fields—researchers, academicians, engineers, entrepreneurs, artists, authors, and social activists alike.

Unlike conventional departmental seminars, the colloquium series aspires to be a unifying forum that fosters interdisciplinary dialogue, sparks innovative thinking, and broadens intellectual horizons across the institute. By hosting high-impact talks on frontier topics, IIST is embedding deeper scientific conversations into its academic fabric - an essential element for the growth and excellence of any research-oriented institution.

This initiative reflects IIST's ambitious vision to evolve from a traditional academic calendar into a dynamic hub of ideas and collaboration, empowering its community to connect groundbreaking knowledge with real-world challenges and creative inspiration. In an era marked by rapid innovation and global challenges, such colloquium series are not merely beneficial but indispensable for academic institutions striving to nurture the next generation of thinkers and leaders.

Sl.No.	Title	Speaker(s)	Date(s)
1	The Future of Our Universe	Prof. Ashoke Sen, ICTS-TIFR, Bengaluru	March 7, 2025
2	Evolution of Ice and Organics in the Universe: From Interstellar Ice Grains to Cometary Nuclei	Dr. Murthy S. Gudipati, JPL – Caltech, Prof. Satish Dhawan IoE Chair, IISc	March 28, 2025

Student Activities and Outreach



6. Student Activities and Outreach

Student activities and outreach programs play a pivotal role in fostering a vibrant, inclusive, and holistic learning environment at IIST. The Institute actively encourages students to engage in a wide range of extracurricular and co-curricular pursuits that complement their academic learning and contribute to their overall personal and professional growth.

From vibrant festivals and student clubs to competitions and community engagement initiatives, IIST provides multiple platforms for students to explore their interests and talents beyond the classroom. These activities enable students to apply theoretical concepts in practical contexts while promoting collaboration, innovation, and leadership. They also instill in students a deep sense of social responsibility and teamwork, essential for their growth as well-rounded individuals.

IIST's outreach programs further extend the Institute's vision beyond its campus boundaries. Through these initiatives, the Institute aims to inspire and nurture the next generation of scientists, technologists, and engineers, spreading scientific awareness and curiosity among young minds across the country.

The Student Activity Board (SAB), chaired by the Dean (Student Activities and Student Welfare), oversees and coordinates all student-related activities and initiatives at IIST. The Board comprises the Registrar, Heads of Departments, and Chairpersons of various institutional committees such as Sports, Technical, Cultural, Hostel, and Canteen Committees, along with student representatives. Each of these committees is led by a senior faculty member and includes both faculty and student members to ensure effective participation and representation.

Student representatives on the SAB play a crucial role in conveying student perspectives, offering feedback, and making constructive suggestions on issues related to academic life, welfare, and campus activities. The Board convenes on a monthly basis, or as required, to deliberate on matters concerning student welfare and to coordinate key institutional events.

SAB assumes responsibility for the planning, organization, and successful conduct of major student events such as Dhanak, the intercollegiate cultural festival; Conscientia, the intercollegiate technical festival; the Annual Sports Day; and other student-led initiatives. In addition to these flagship events, SAB also oversees the functioning of various student clubs and the mentoring system at IIST, ensuring that every student receives opportunities for personal enrichment and community engagement.

Committees under the Student Activity Board

1. Sports Committee
2. Technical Committee
3. Cultural Committee
4. Hostel and Canteen Committee

6.1 Events & Activities under SAB

6.1.1 Dhanak – Fivefold Symphony

The 14th edition of Dhanak, IIST's annual cultural festival, was held from March 14–17, 2025, under the theme Fivefold Symphony.

Dhanak 2025, was inaugurated by Shri. K. Jayakumar, former Chief Secretary, Government of Kerala Founding Vice-Chancellor, Malayalam University, a renowned poet, lyricist, translator, and writer. Prof. Dipankar Banerjee, Director, IIST presided over the function. The inauguration on March 14 set the tone for a packed

schedule of competitions and performances blending creativity, passion, and technical flair. Highlights included Inferno Moves (Group Dance), Dhwanika (Battle of Bands) where IIST's Swarnova secured third place, Elemental Glamster (Fashion Show), Art Alchemy (Painting), Unspoken Chronicles (Story Writing), Melodic Alchemy (Instrumentals), Inkspire (Poetry), Valorant (Esports), among others.

The vibrant four-day celebration saw exceptional participation and memorable performances across genres—folk, classical, contemporary, and digital—reflecting the diverse artistic spirit of the youth. Dhanak 2K25 reaffirmed its place as a premier cultural fest, offering a dynamic platform for expression, connection, and celebration. As it concluded on a high note, the anticipation for Dhanak 2K26 had already begun.

6.1.2 IIST Annual Sports Meet

The Annual Sports Meet for the academic year 2024–25 was held on January 31, 2025, with students competing in a variety of events under the banners of five houses: Akashganga, Devyani, Kritika, Saptarshi, and Sharmista.

The meet was inaugurated by Mr. Shahansha M S, IPS, Commandant, Special Armed Police, who received the salute from the impressive march-past of the house contingents. He ceremonially raised the IIST flag and handed the torch to the the house captains to officially commence the meet.

Prof. Dipankar Banerjee, Director, IIST presided over the function. The gathering was welcomed by Prof. Kuruvilla Joseph, Registrar and Dean, Academics. Following the inaugural ceremony, the finals of various track and field events were conducted with great enthusiasm and sportsmanship. The event concluded with a vote of thanks by Prof. J. Sheeba Rani, Chairperson, IIST Sports Committee.

6.1.3 Conscientia

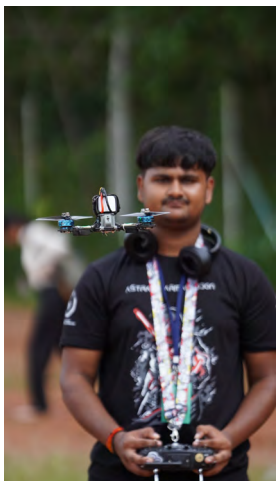
Conscientia, the annual technical festival of the Indian Institute of Space Science and Technology, made a dynamic comeback in 2024 with renewed energy and creativity. Marking its 15th edition, the fest embraced the theme “Astral Armageddon”, celebrating science, technology, and space exploration. Held from October 3 to 7, 2024, it drew a lively gathering of students, educators, and science enthusiasts from across the country.

With a footfall of over 2,500 participants representing more than 45 colleges and schools, Conscientia 2024 became a vibrant hub of ideas, innovation, and experiential learning. The festival hosted 33 technical events spanning Aerospace, Electronics, Robotics, Astronomy, Coding, Gaming, and Quizzing, challenging participants to stretch their creativity and technical skills.

Adding to its academic richness were seven hands-on workshops on topics such as Model Rocketry, Ethical

Hacking, PCB Designing, Android App Development, Astronomy, and Satellite Systems. A major highlight was an inspiring guest lecture by Shri S. S. Vinod, Project Director of the Gaganyaan human spaceflight mission, who shared remarkable insights into India's ambitious crewed space program.

Conscientia 2024 upheld IIST's legacy of fostering scientific curiosity and collaboration, offering a platform for young innovators to engage, experiment, and inspire one another.



6.1.4 IIST Model United Nations (MUN)

IIST MUN is a three-day national-level programme that provides participants with a unique and immersive experience, mirroring the operations of the United Nations. Shri. T.P. Sreenivasan IFS (Retd.), Former Ambassador, inaugurated the 12th edition of MUN. The event was graced by the presence of Prof. Dipankar Banerjee, Director, IIST, who delivered the special address. Prof. Kuruvilla Joseph. Dean, Academics & Registrar, felicitated the event MUN

This edition of the conference featured three dynamic committees: United Nations Human Rights Council (UNHRC), United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), National Youth Parliament (NYP)

Key topics of discussion included the impact of conflict zones on children and youth, the preservation of dark and quiet skies for scientific progress, and the contemporary status of freedom of speech in India.

6.1.5 Konchords

On the evening of October 28, 2024, IIST came alive with Konchords, the institute's vibrant intra-collegiate cultural fest. The event featured an exciting line-up of performances, including dance, music, skits, and stand-up comedy, showcasing the creativity and talent of the students. The fest provided a lively platform for cultural expression and camaraderie, making it a memorable evening for the IIST community.

6.2 Outreach

6.2.1 Beach Cleaning Drive

To mark International Beach Day and Gandhi Jayanti, the IIST Swachh Bharat Committee and NIRMAAN Club, in collaboration with the World Wildlife Fund for Nature (WWF), organized a beach cleaning drive at Veli Beach, Trivandrum, on October 2, 2024. The initiative witnessed enthusiastic participation from 125 volunteers, including 70 students, 6 faculty members, and 12 staff members from IIST, along with 37 WWF volunteers, contributing to the cause of environmental conservation and community service.

6.2.2 Summer Internship Programme – 2024

The Summer Internship Programme – 2025 at IIST saw enthusiastic participation from external students across premier institutions in India. The programme provided them with valuable exposure to cutting-edge research and the vibrant academic environment at IIST.

6.2.3 Young Talent Nurture Programme

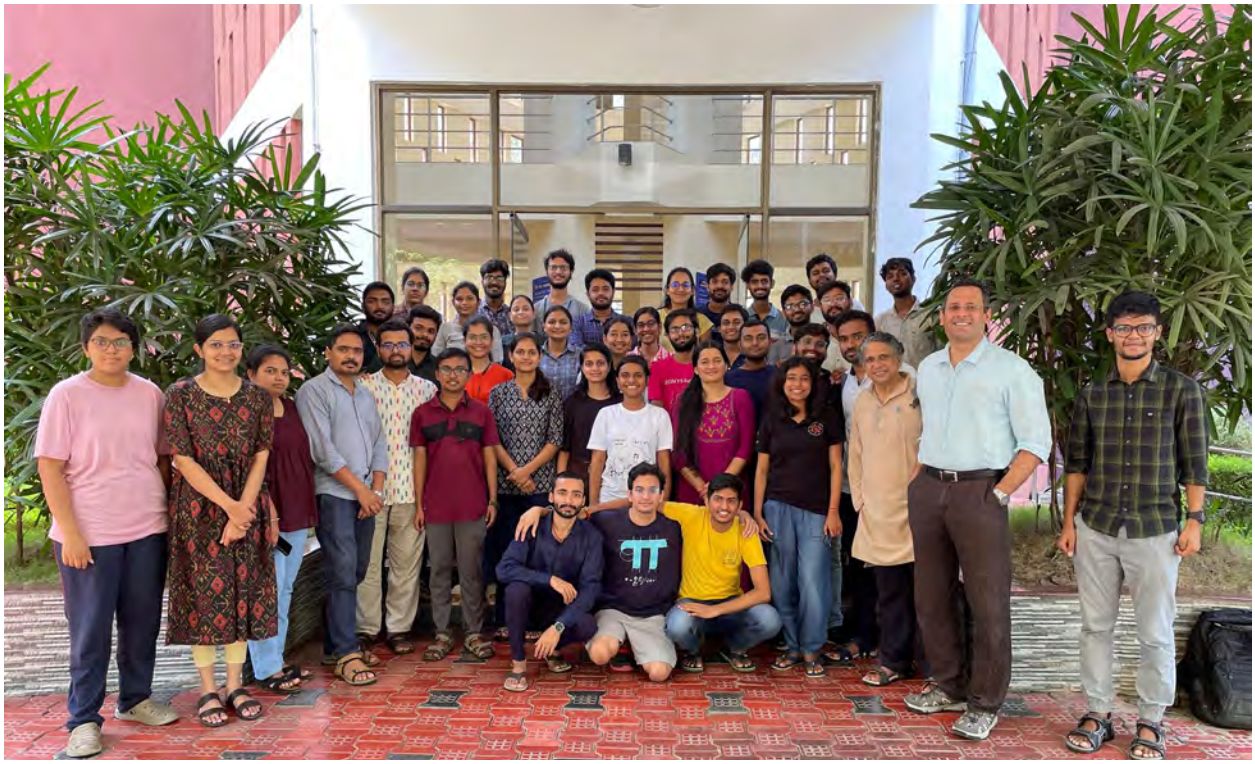
Since 2013, the Department of Mathematics at the Indian Institute of Space Science and Technology has spearheaded its premier initiative, "Young Talent Nurture" (YTN). YTN aims to cultivate budding mathematical minds and enhance their logical reasoning, analytical capabilities, and problem-solving prowess. It also aims to prepare participants to tackle significant challenges in advanced mathematics and its various application fields. The duration of the program was two weeks and was conducted from May 27, 2024.

6.2.4 Annual Foundation School (AFS-III)

IIST hosted the third level of the Annual Foundation School (AFS-III) from June 7 to July 13, 2024. AFS is a series of training schools in mathematics (ATM) designed for PhD scholars and advanced MSc students. It is fully organized by the National Center for Mathematics (NCM), a center for mathematics established jointly by the Indian Institute of Technology Bombay (IIT Bombay) and the Tata Institute of Fundamental Research (TIFR). The NCM provides financial support to the program through the National Board of Higher Mathematics (NBHM), the Department of Atomic Energy (DAE), and the Government of India.

AFS programs are annually hosted by various academic institutions across the country. The program at IIST was fully funded by NCM and had three organizers: local organizers Dr. Prosenjit Das and Dr. Anilkumar CV, and the NCM organizer Dr. Viji Z. Thomas from IISER Thiruvananthapuram.

Except for local students, 41 students from different parts of India participated in the program. They were trained by various professors selected across the country, including Prof. Jayadep Sarkar from ISI Bangalore, Prof. K N Raghavan from KREA University, Prof. Samya Kumar Ray from IISER Thiruvananthapuram, Prof. A J Parameswaran from TIFR Bombay, Prof. Soumen Sarkar from IIT Madras, Prof. Ramiz Reza from IISER Thiruvananthapuram, Prof. Viji Z Thomas from IISER Thiruvananthapuram, Prof. Tejas Kalelkar from IISER Pune, Prof. Ambili A A from CUSAT, Cochin, Prof. Sakthivel K from IIST Thiruvananthapuram, and Prof. Prosenjit Das from IIST, Thiruvananthapuram.



6.2.5 SPARK – Outreach Programme at North Eastern Space Applications Centre (NESAC)

IIST conducted an educational outreach program for Class 8 and 9 students of Meghalaya at the North Eastern Space Applications Centre (NESAC) in Umiam from March 21 to 24, 2025. The initiative, led by Prof. Dipankar Banerjee, Director, IIST aimed at promoting science education, is part of IIST's vision to engage students across the country to explore the world of science and technology. The sessions, which were entirely activity-based, gave students hands-on experience in physics, astronomy, optics, and remote sensing concepts and exposed them to the numerous higher education opportunities available after school. Experts from IIST led the sessions.

6.2.6 Science and Technology Exposure Visits

As part of the Science and Technology Exposure Visit under the academic enrichment program, different groups of students visit IIST to gain practical insights into the institute's diverse fields of study and research. The visit begin with an introduction to IIST by members of the top management, followed by an interactive session that familiarised the students with the institute's vision, academic programs, and research achievements.

A guided tour of the campus is then organised, covering specialised laboratories, research facilities, and the central library. During the tour, students have the opportunity to interact with faculty members and research scholars, gaining firsthand exposure to the cutting-edge work being carried out in various disciplines. The visit provided a meaningful and inspiring experience, bridging classroom learning with real-world applications of science and technology. IIST hosted the following teams during the reporting period

1. Students from the Mar Athanasius College, Kothamangalam, visited IIST on January 28, 2025 along with their faculty members. Prof. Dipankar Banerjee, Director, IIST, greeted and welcomed the students. Students interacted with the Director and Prof. Kuruvilla Joseph, Registrar & Dean, Academics.

2. A group of NCC cadets led by Col. Jaishankar Chowdhari, the Commanding Officer, visited IIST on September 10, 2024. Prof. Kuruvilla Joseph, Registrar & Dean Academics addressed the cadets.



3. A group of students and teachers from the The School of Good Shepherd, Thiruvananthapuram, visited IIST on August 27, 2024.


4. Vidhya Bharathi Modern Senior Secondary School, Rasipuram, Namakkal, visited IIST on August 20, 2024 as part of their Science Exposure visit.


6.2.7 Voluntary Blood Donation

IIST has been recognized by the All Kerala Blood Donors Society (KEBS) for its dedication to voluntary blood donation during the 2024-25 session. This honor was awarded at KEBS' 22nd Annual Celebration Ceremony on March 15, 2025 in Trivandrum and was received on behalf of IIST by volunteers from Nirmaan Club, the institute's social outreach club.

6.2.8 Sky-watching Sessions

IIST's student astronomy club, Celestia, hosted captivating sky-watching events at Technopark, Trivandrum, on Saturday, January 25, 2025 and on December 29, 2024 at the Napier Museum in Thiruvananthapuram. This unique opportunity allowed techies and their families to witness a rare planetary parade featuring Mars, Jupiter, Venus, and Saturn. Over 1000 people were treated to breathtaking views of these celestial bodies through IIST's outreach telescope.

On December 29, 2024, the IIST student astronomy club, Celestia, conducted a public sky-watching session at the Napier Museum in Thiruvananthapuram. Members of the public visiting the museum grounds had the chance to see through telescope Jupiter and its Galilean moons.

6.2.9 Social Outreach Activities – NIRMAAN

As part of its ongoing commitment to community engagement, the Social Outreach Club of IIST, NIRMAAN, organized a series of meaningful activities at the Model Residential School, Njaraneeli. The initiatives focused on inspiring and supporting the students through interactive sessions, career awareness programs, and creative learning workshops. Volunteers from IIST engaged with the schoolchildren through hands-on science demonstrations, art-based activities, and motivational talks, creating a vibrant and encouraging learning environment. These outreach efforts not only aimed at educational enrichment but also fostered a spirit of empathy and social responsibility among IIST students.

6.3 Clubs

6.3.1 Aero Club

1. Technical Workshops and Knowledge Building XFLR5 Workshop

A workshop was organized to introduce participants to the XFLR5 software platform, a powerful tool for aerodynamic analysis and stability assessment of aircraft configurations. The session provided an overview of the software's capabilities, including airfoil analysis using XFoil, wing and aircraft design, and the evaluation of aerodynamic performance across different flight regimes.

2. Weather Balloon Session

A dedicated session was conducted to familiarize participants with the design and fabrication process of weather balloons. The session covered key aspects such as structural design considerations, material selection, and the step-by-step methodology involved in balloon construction. Participants were introduced to the practical challenges of high-altitude operations, including endurance in low temperatures, pressure variations, and payload integration.

3. Workshop on UAV design

In the workshop on UAV Design, students were introduced to the fundamentals of UAV (Unmanned Aerial Vehicle) design, starting with the basics of aerodynamics. The session began by explaining key aerodynamic principles such as lift, drag, thrust, and weight, which govern the flight of any aerial vehicle. These forces were discussed in the context of how they work together to achieve and maintain steady flight.

- UAV Demonstration: A live demonstration of a UAV was conducted, allowing students to observe the key concepts in action. The demonstration included take-off, controlled flight maneuvers, and landing, showing the students how theoretical principles are applied in real-world UAV operations.
- ***Hands-on Activity – Glider Design:***

The students were then guided through the process of designing and building their own gliders. Using Depron sheets they applied aerodynamic principles in a practical setting. Each student experimented with different design elements, such as wing shape, body balance, and overall structure, to create stable flying gliders.

After constructing their gliders, the students tested their designs by flying them, observing how the different configurations affected flight performance. This activity helped solidify their understanding of how aerodynamic principles influence flight and encouraged creativity and problem-solving.
By combining theoretical knowledge with practical application, the workshop provided an engaging and educational experience, fostering a deeper understanding of UAV design and aerodynamics.

4. Summer project

Aeroclub is conducting summer projects for students, continuing a tradition from the past three years. Previous projects have included the design of a delta wing aircraft with a ducted engine and the fabrication of a hexacopter capable of carrying a 2 kg payload. This year, the focus is on creating a Dynam–Aerobatic Racer, VTOL aircraft (ongoing) and Ūrdhvam: The Reusable High Altitude Ballooning Project (Ongoing).

The project integrates multiple aerospace domains, including aerodynamics, aircraft design, propulsion, and structures, offering students hands-on experience in making domain-specific design decisions. These decisions must also align with the overall goals of the project, helping mold students into well-rounded aerospace engineers capable of tackling complex, interdisciplinary challenges.

This year, the club entered the exciting build phase of our high-performance aerobatic RC aircraft initiative known as Dynam–Aerobatic Racer. Unlike a conventional model, this project has been engineered to deliver exceptional power and precision. A key design highlight is the inclusion of oversized control surfaces on the wings, tail, and rudder. These enhanced surfaces are critical in enabling extreme maneuverability, allowing the aircraft to execute advanced aerobatic maneuvers—such as loops, rolls, and tumbles—with remarkable accuracy and control.

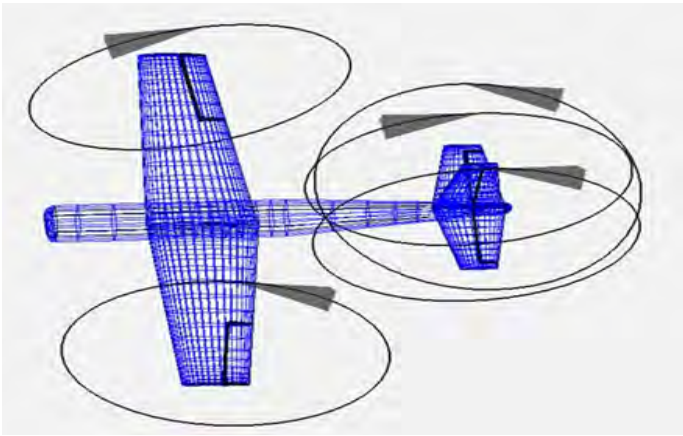
VTOL platforms can take off, hover, and land vertically, making them ideal for urban, rescue, and military applications. And also the deployment of a high-altitude weather balloon. These lighter than-air platforms

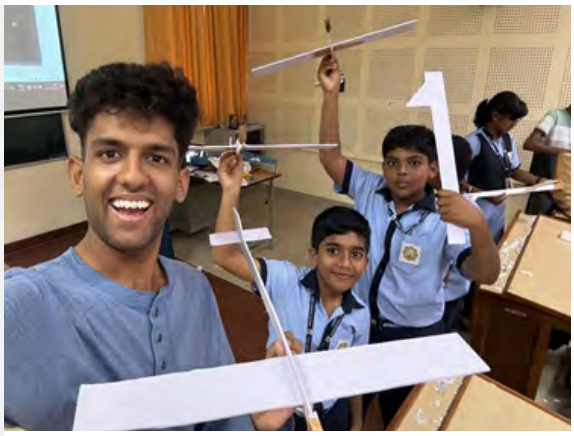


can reach altitudes of 30–40 km and are primarily used to collect atmospheric data such as temperature, humidity, pressure, ozone concentration, and particulate matter. The primary objective of this initiative was to establish a complete recovery capability for high-altitude balloons, thereby reducing the costs associated with manufacturing each unit. The first project in the series, Ūrdhvam-1: The Reusable High Altitude Ballooning Project, successfully served as a proof of concept for vent valve technology. This system demonstrated the ability to control helium release, allowing the balloon's ascent to be safely arrested without bursting. In addition, research was carried out to identify and test suitable materials capable of withstanding extremely low stratospheric temperatures while retaining structural integrity.

5. National Space Day- Open House

As part of Open House organized as part of National Space Day, a brief session was conducted to introduce participants to aerospace models and related exhibits. The initiative aimed to spark curiosity and provide an accessible overview of fundamental aerospace concepts for attendees.





6.3.2 Quantum Technology Club

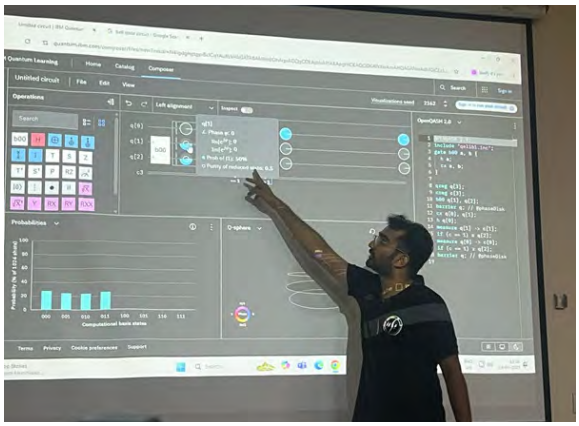
The Quantum Technology Club at IIST, established under the motto "Think Beyond Binary", is a newly launched student initiative aimed at cultivating interest, research, and innovation in quantum science and technology. Founded by students of the Engineering Physics program, the club envisions IIST as an active hub in the emerging global quantum ecosystem. With a strong focus on quantum computing, communication, cryptography, sensing, and applications in space research, the club actively promotes interdisciplinary collaboration across physics, electronics, computer science, and space science.

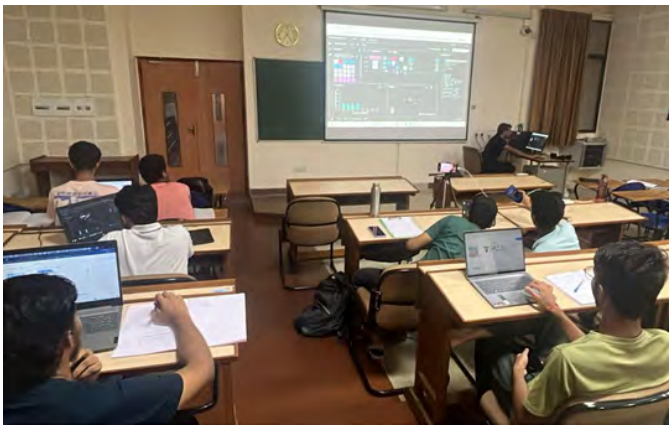
In its inaugural year, the club organized its first major initiative, a foundational course titled "Quantum Computing 0→1", designed to introduce students to the principles of quantum algorithms, qubit operations, and circuit design using leading platforms such as PennyLane and Qiskit. The course successfully balanced theory with application, allowing participants to gain hands-on experience while strengthening their conceptual understanding. Complementing these sessions, the club also facilitated lab visits, offering students exposure to real-world experimental setups and ongoing quantum-related research, bridging the gap between classroom learning and practical applications.

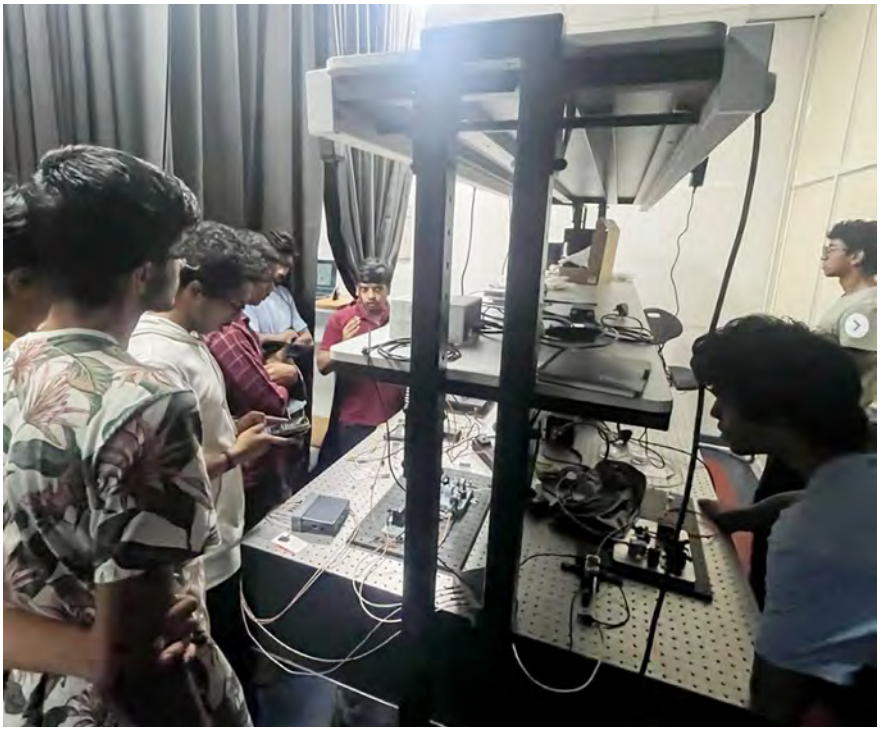
Beyond technical training, the Quantum Technology Club has positioned itself as a vibrant part of IIST's academic culture. The club represented its vision and activities during the NAAC peer review process, highlighting its contribution to strengthening IIST's academic mission. Looking forward, the club aspires to expand its outreach and establish collaborations with premier institutions such as ISRO, DRDO, and QuEST, as well as national and international quantum research groups. Plans are underway to initiate project-

based learning modules, facilitate research internships.

Through these efforts, the Quantum Technology Club has taken confident strides toward creating a quantum-aware academic environment at IIST, inspiring students to engage with one of the most transformative scientific frontiers of the 21st century.







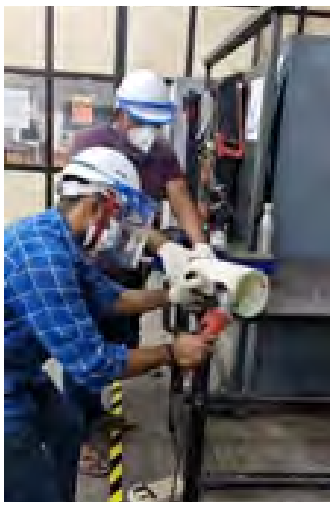
6.3.3 Vihaan - Rocketry Club

Vihaan, the rocketry club of the Indian Institute of Space Science and Technology, has had a remarkable year of growth, innovation, and outreach. The team successfully cleared both the Preliminary Design Review (PDR) and the Critical Design Review (CDR) of the IN-SPACe Model Rocketry and CanSat competitions, marking important milestones in our journey. Alongside design work, we demonstrated the manufacture and testing of long fiberglass rocket body tubes and showcased a full-scale fiberglass body tube as well as a resin 3D-printed isogrid-based CanSat structure at multiple events.

This was in addition to numerous rounds of testing, including electronic component-level checks, avionics board design validation, telemetry trials, parachute deployment experiments, and mechanism reliability tests, ensuring the robustness of our systems.

This year, Vihaan also earned international recognition by becoming one of only three teams from India to qualify in the preliminary round of Türkiye's International Rocketry Competition.

Beyond technical achievements, Vihaan has been equally committed to outreach. We conducted two engaging sessions for school children, where we demonstrated water rockets and black-powder-based rockets while introducing them to the fundamentals of rocketry. Through these activities, we aim not only to advance our technical expertise but also to inspire the next generation of space enthusiasts.



6.3.4 Maths Club

The Maths Club aims to foster a deep appreciation for mathematics as a critical tool across various fields, including space science, engineering, economics, and beyond. Through workshops, seminars, and collaborative problem-solving, the club connects mathematical concepts to real-world applications like satellite communication, data analysis, optimization, and algorithm design.

Members are encouraged to engage in research, develop analytical skills, and explore interdisciplinary approaches, promoting innovation across diverse domains. The club also supports career development by providing insights into professions where mathematics plays a pivotal role, such as astrophysics, aerospace engineering, data science, and financial analysis. By creating a vibrant community of math enthusiasts, the club seeks to inspire creativity and critical thinking in all things mathematical. The club organized 3 talks during the reporting period

Date	Speaker	Title of the Talk
April 24, 2024	Aswani Thomas	An Introduction to Random Matrices
July 22, 2024	Tanvi	p-adic Numbers
September 3, 2024	Aswini N.K.	FEM Implementation

6.3.5 Physics Club

Physics Club is intended to be a club for people who would like to go much deeper into the topics that they have already learnt, have discussions on topics that they are interested in. It is an open gateway for people interested in general topics and physics and even mathematics.

The activities of the club during the reporting period include

***Lecture series on the Basics of Quantum Mechanics*:** This was organized for interested people from all the streams to have a basic knowledge on the fundamentals, postulates, and the formalism of Quantum Mechanics. There was a session every week for 5 weeks. Approximately 25 students attended the sessions.

Introduction to Linux: The session included discussions which threw light on the existing 'Open-source, open-source Operating system, Security, Kernel, Shell. The sessions conducted on April 4, 2024 was attended by roughly 10 people.

Angry Ballz event and associated workshop: As part of the Technical Fest 'Consciencia', Physics Club organized an event called 'Angry Ballz', The event was a competition between teams, which involved the teams analysing the physics behind their projectile made using few rubber bands, so that they can destroy the target. The workshop was attended by 10 students and the event had 15 participants, each leaving completely satisfied as they had a wonderful opportunity to test their prowess. The workshop and the event together were held from October 1 to 5, 2024.

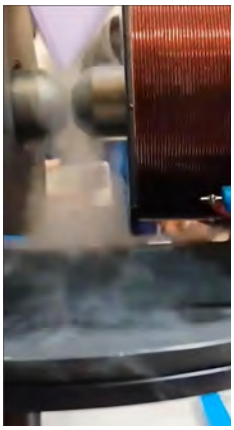
Alpha particle detection and Oxygen Levitation: A hands-on session on building an Alpha particle detector using liquid nitrogen under the guidance of Dr. Umesh of Physics Department, was organized on October 25, 2024 with approximately 20 people.

Interaction Session: Physics Club had its first interaction session with some of the IIST students who are working as project fellows abroad, organized by. The students shared their personal experiences and the criteria they followed to get projects on topics of their interest. The session was conducted online on October 27, 2024 with approximately 40 Participants.

Photos of activities under taken

Contestants participating in the Angry Ballz event

Liquid Nitrogen (left) Session on Alpha particle detector (right)



Oxygen Levitation

Interactive Session at OAT Passage

6.3.6 Celestials – The Astronomy Club

The following programmes were organized during the reporting period.

- Monthly Lecture Sessions on various aspects of astronomy and popular science.
- Occasional Stargazing Nights featuring guided telescope viewing of planets, nebulae, and galaxies.
- Workshops on telescope usage, sunspot observation using spectrographs, and solar viewing with safe filters.
- Conscientia Participation: The club actively organizes astronomy-based events, exhibits and demonstrations during IIST's annual tech fest.
- Comet Watch Party: Organised a comet watching session in mid-October during Comet Tsuchinshan-ATLAS's close approach to our solar system.

Outreach Programs

Celestials works in collaboration with NIRMAAN, IIST's social outreach club, to bring astronomy to schools and communities beyond campus. Despite a compact volunteer team, the club consistently delivers impactful programs:

- April 18, 2024 – Night sky watch at Christu Jyothi School, Nedumangad, engaging 90 students.
- September 14, 2024 – National Space Day telescope session for 70 students from DPS Haridwar using the 14-inch reflector.
- September 16, 2024 – Observatory tour for VSSC Central School students.
- November 20, 2024 – Telescope demo for 70 students of KV Akkulam.
- December 29, 2024 – Universe in the Park at Napier Museum, public sky watching featuring Jupiter and its moons.

- December 30, 2024 – Skywatching at Dr. Ambedkar Vidya Niketan, for tribal school students in Palode.
- January 25, 2025 – Planet Parade at Technopark, attended by 1000+ visitors, organized in collaboration with the Breakthrough Science Society.

Through these endeavours, Celestials continues to ignite a love for astronomy across diverse age groups and communities, building a strong bridge between academic learning and cosmic exploration.

1. Glimpses of outreach programs at various local schools and Colleges

2.Observatory tour for VSSC Central School students

3. Glimpses from Comet Watch Party

4. Telescope demo for 70 students of KV Akkulam

5. Universe in the Park at Napier Museum, Thiruvananthapuram

6. Some Astrophotography samples from club members

6.3.7 Ananta - The Yoga Club

The yoga club of IIST aims to nurture holistic well-being, balance, and mindfulness among students, faculty, and staff. The year 2024-25 witnessed enthusiastic participation in a variety of yoga, meditation, and wellness-based initiatives. The club's activities resonated with the vision of cultivating healthy lifestyles while aligning with India's ancient wisdom traditions.

Major Activities Conducted

1. YES+ Program (Youth Empowerment & Skills Plus)

The YES program, a flagship initiative of Ananta conducted in collaboration with The Art of Living, is globally recognized as a leading intervention for stress management among college students. During the academic year 2024–25, two cohorts of the program were organized, in August 2024 and February 2025, with a total participation of 80 students. The sessions were led by Shri Anand Narayan, renowned singer and television anchor, and Shri Sankalp Hongal, alumnus of IIST and scientist at ISRO, both of whom are certified instructors in yoga and meditation.

Through this program, participants were introduced to the Sudarshan Kriya, a scientifically validated breathing technique, and reported significant improvements in mental health, particularly in alleviating stress and anxiety. In addition, the program contributed to the holistic development of students by enhancing focus, interpersonal relationships, and communication skills, thereby equipping them with essential tools to lead more balanced, resilient, and productive lives.

- Conducted in collaboration with trained instructors.
- Focused on stress management, leadership, and self-development.
- Over 120+ participants (students, research scholars, staffs, and faculty) were benefitted.
- Feedback highlighted enhanced confidence, clarity, and improved interpersonal skills.

2. Induction Program for Freshers - "Happiness Quotient"

Every year, more than 150 young minds become part of the IIST family, embarking on their journey to explore outer space. In parallel, Ananta supports them in exploring their inner space through programs designed for personal growth and well-being. As part of this initiative, Ananta organized the three-day Happiness Quotient Program for the B. Tech batch of 2024. The program featured a blend of engaging games and interactive sessions that served as effective ice-breakers for the new students, while the yoga and meditation practices introduced them to stress-management techniques and self-awareness tools. These experiences helped students prepare themselves mentally and emotionally for the new academic and personal journey ahead.

3. International Day of Yoga

Like every year, International Yoga Day was celebrated on June 21, 2024 with great fervour and enthusiasm. The event commenced with a rejuvenating yoga session led by Dr. Priyanka, Ayurveda Physician, followed by an insightful talk on "Building Inner Resilience for High Performance" delivered by Dr. Bela G. K., Professor of Community Science at Kerala Agricultural University. The celebration witnessed active participation from students, faculty members, and CISF staff. In the days leading up to the event, a series of engaging activities, including online yoga pose competitions and pre-Yoga Day challenges, were conducted, further enriching the experience and spreading the spirit of yoga across the campus.

4. 108 Surya Namaskar Challenge

The 108 Surya Namaskar Challenge was one of the key highlights of Ananta's activities this year. Conducted for 21 days, the program was led by certified yoga trainers Shri Sankalp Hongal, Shri Anand Narayan, and Ms. Rajalekshmi S. Participants were systematically trained to gradually build strength and stamina, culminating in the completion of 108 rounds of Surya Namaskar on November 21, 2024. A total of 40 students successfully achieved this milestone and were congratulated by the event's guest, Shri Kumar Rahul, Deputy Commandant of the CISF unit. It is not just about the numbers - it is a journey of improving physical fitness, boosting mental clarity, and feeling absolutely amazing by the end.

- A unique fitness and endurance-based initiative.
- Unexpectedly a total of 40 students successfully completed the challenge.
- Promoted physical vitality while emphasizing discipline, focus, and resilience.


5. Full Moon Meditation Series

In addition, the Yoga Club conducted around six Full Moon Meditation sessions, held almost every two months, where students gathered to meditate under the calming light of the full moon. Many participants shared refreshing and rejuvenating experiences, describing the sessions as deeply peaceful and a unique opportunity to connect with nature and themselves.

- Conducted in open natural settings (OAT) on campus.
- Created a powerful group meditation experience under the full moon's serene energy.
- Participants reported higher focus, inner calm, and improved sleep cycles.


6. Yoga nritya performance at the Cultural Show

In the cultural program held during the visit by NAAC evaluation team as well as the pre-Diwali cultural program, members of the yoga club performed yoga nritya. A blend of yoga asanas and dance to showcase the beauty and balance that can be achieved through yoga. The entire yoga nritya sequence was planned and performed solely by students and was received well by the audience.

7. Nature Walk & Mindfulness Retreats

The yoga club had also organized a silent nature walk and meditation session where students had a chance to go away from their phones and be in the nature with complete network silence, bathing in the peaceful energy of the forests near the Magudagiri ground.

- Guided nature walks were held in and around the green campus.
- Combined with light yoga stretches and reflective silence to deepen awareness.
- Helped students reconnect with nature and take a break from rigorous academic schedules.

8. Advanced Meditation Program

The active members of the club also participated in the Advanced Meditation Program organized by the Art of Living Foundation. A group of students attended the program at the Bangalore Ashram in July 2024, while another group participated at the Kalady Ashram in March 2025. This intensive program involves three days of silence, during which participants engage in deep meditation practices and various forms of pranayama under the guidance of trained instructors. In total, 25 students took part in the program. Sharing their experiences, participants highlighted how the practice facilitated a form of dopamine detox, leading to reduced screen time, improved concentration, and a significant reduction in stress levels.

9.Sunday follow-ups and daily group practices

Each day during morning and evening, students practice various yoga techniques such as asanas and meditation together in the Yoga room with the aim to create a supportive and healthy community. Every Sunday after the completion of the first YES+ program, a trainer conducts follow-up session, guiding the students in their practices. These sessions allow for the students to get professional feedback on their techniques, learn new techniques, and re-energize for the upcoming week.

10. AICTE recognition of SKY Technique

- The club actively practiced and promoted the Sudarshan Kriya Yoga (SKY) technique.
- SKY's recognition by AICTE student wellbeing parameters reaffirmed the scientific and educational relevance of yoga practices conducted at IIST.

11. Miscellaneous

In addition to the aforementioned initiatives, Ananta has actively participated in a variety of other impactful activities. These include conducting fun yoga sessions in schools in collaboration with the Nirmaan Club, organizing exam stress-buster workshops, engaging in beach clean-up drives, visiting yoga centres and ashrams, as well as taking part in M.A.D (Make A Difference) activities.

6.3.8 Astoun, the dance club of IIST

The Astoun, the official dance club of IIST, continued its journey of rhythm, creativity, and expression in the academic year 2024–25. With a mission to provide students a platform to explore diverse dance forms, express themselves, and learn from one another, the club organized and participated in several events throughout the year. Each event reflected the club's vision of blending talent, hard work, and passion while fostering a sense of community within the institute.

The Astoun is a vibrant space for dancers and enthusiasts alike. The club brings together students from various batches who share the love for dance and performance. Apart from regular practices, the club focused this year on fitness, creativity through reels, and professional exposure through choreographer-led workshops. With active participation from students across disciplines, the club has grown into one of the most sought-after cultural communities in the campus.

Activities of 2024–25

The year was marked by a variety of performances, workshops, and creative initiatives. Below are the key activities conducted by Astoun:

1. Talent Show Performance – The year began with a colorful performance during the institute's talent show, organized as a part of the induction program for the freshers, which gave new members a glimpse of the club's energy and style.
2. Induction – A formal induction was organized to welcome freshers into the club. It introduced them to the club's functioning, practice sessions, and opportunities.
3. Auditions and Workshop – To scout new talent and encourage participation, auditions were conducted, followed by a workshop where students were trained in fundamental dance techniques.
4. Flashmob in Collaboration with VSSC – One of the most memorable events of the year was the flashmob, Aug 2024, organized in collaboration with VSSC to celebrate and promote National Space Day and World Space Week. Astoun members performed at prominent public locations such as Kanakakunnu Palace, Shangumugham Beach, and the Mall of Travancore, drawing large crowds and spreading awareness about India's achievements in space exploration.
5. Blockbuster Reel Shoot – The club experimented with short-form content and released a blockbuster reel that created buzz among students and boosted social media engagement. The reels has been able to attract more 15k audience to the clubs social media platform.
6. Weekend Workshop Sessions – The club arranged regular weekend sessions where members learned different dance styles, fitness-oriented dance routines, and popular reel choreographies.
7. Garba Workshop and Reel Competition – Celebrating tradition with fun, a Garba workshop was conducted during the Navratri season of 2024, along with a reel-making competition that saw enthusiastic participation.
8. Konchords – As part of the collaborative cultural event Konchords, held in November 2024, the club delivered energetic performances, adding vibrancy to the program. It included all froms of dance styles, from classical to hip hop.
9. NAAC – The club also represented IIST during NAAC Peer team visit, in February 2025, performing with zeal and showcasing the cultural strength of the institute in the Cultural program. Folk dances from places all over India were performed by the students , reflecting the all India representing of students at IIST. Students performed Garba, Bihu, Kathak, Thiruvathira, bhangra, Bharatnatyam and kuthu.

10. Dhanak Performance – The highlight of the year was the spectacular performance during Dhanak, the Annual Cultural Fest of IIST, where Astoun dancers lit up the stage with creativity and synchronization.
11. 21 Days Workout Challenge – A unique fitness initiative was organized, encouraging members to take up a 21-day dance-based workout challenge, boosting stamina and discipline.
12. Reel Shoots – Regular dance reels were created and shared on social media platforms, helping the club maintain visibility and connect with a larger audience.

6.3.9 Shutterspace, the official Media Club

Shutterspace, the official Media Club of the Indian Institute of Space Science and Technology (IIST), is a vibrant community dedicated to nurturing creativity and visual storytelling. Members engage in photography, short film production, and content creation, actively contributing to the cultural and technical documentation of the institute. With institutional support, including access to college-provided equipment, we ensure both skill development and high-quality project execution.

1. Photo Walks

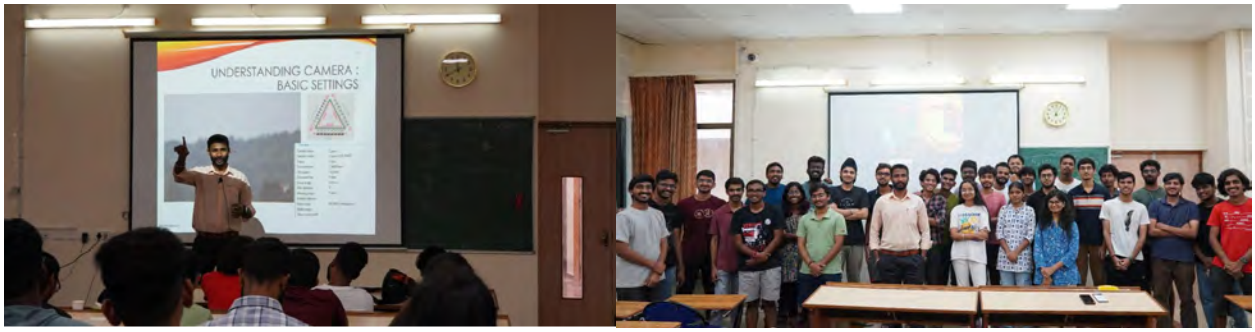
Shutterspace regularly organized themed photo walks that encouraged members to explore their surroundings through a creative lens. These walks not only sharpened observational skills but also fostered collaboration and spontaneous creativity in real-world settings. By documenting diverse environments and perspectives, the photo walks helped members build stronger portfolios while strengthening the sense of community within the club.

Photo Walk Session held by Shutterspace near a Birding place PUNCHAKKARI.

Regular Photo Walks held inside and outside the campus.

2. Workshops

Our workshops covered a wide range of topics, from mobile photography and editing to advanced videography techniques. Led by experienced mentors and guest creators, these sessions provided hands-on learning and fostered creative growth for participants of all skill levels.



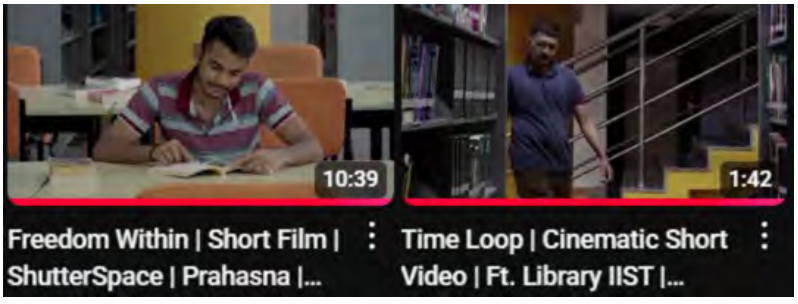
A Photography Workshop conducted by the club led by Mohammed Rafi teaching the basics of photography.

3. Fests

Shutterspace played a pivotal role in covering the college fests and cultural celebrations. The team successfully captured the energy and emotion of each moment, delivering professional photo and video content that significantly supported event promotion and contributed to preserving lasting memories.

4. Short Film Production

With a collaborative approach, the club developed original short films—from concept to final cut. Members gained practical experience in direction, cinematography, acting, sound design, and editing while bringing compelling stories to life.

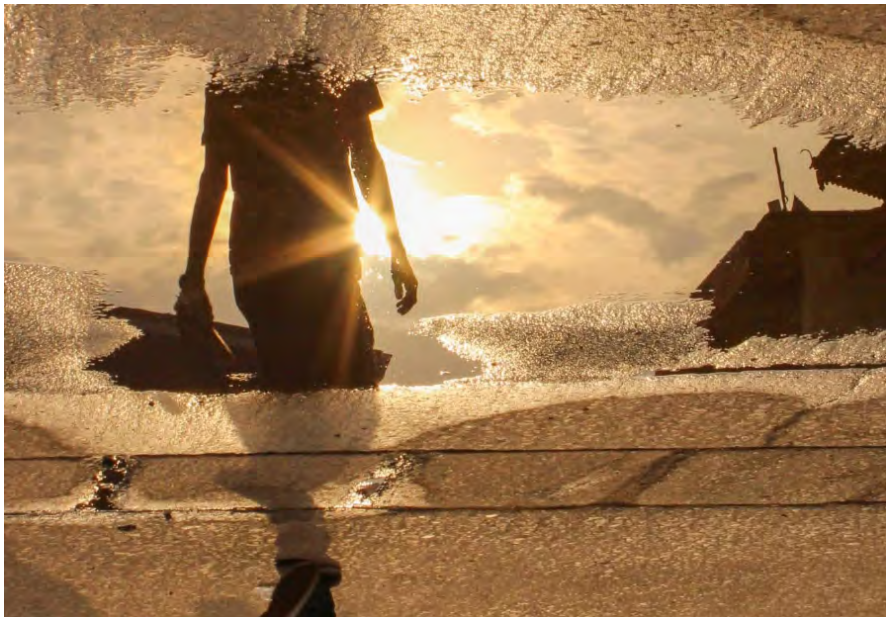


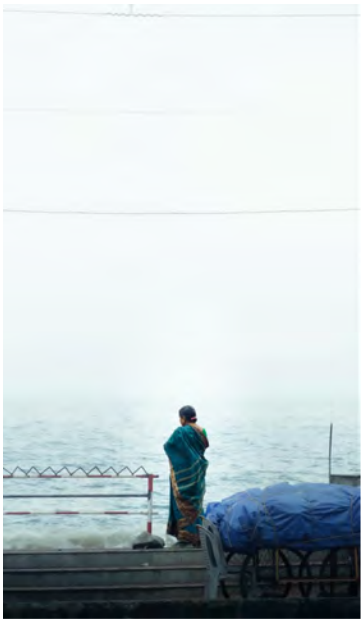
5. Events

The club provided full media coverage for various college events such as seminars, exhibitions, festivals, and performances. Ensuring high-quality documentation that supported event archiving and contributed to institutional branding through the annual reports.

6. Photo Competitions

Shutterspace hosted engaging photo competitions that challenged participants to think creatively and refine their visual storytelling while staying engaged in day-to-day activities. These events encouraged healthy competition, peer feedback, and recognition of talent within and beyond the campus.





Some best photos from the Photography Competitions held over the year.

6.3.10 SAMVAAD – The Debate Club

Over the academic year, the Debate and MUN Club of IIST organized a wide spectrum of activities that combined intellectual rigor with skill development, providing students with a platform to engage in meaningful discourse on issues of national and global importance.

The debate sessions featured both formal and informal formats, covering critical themes such as capitalism versus communism, nuclear strategy, censorship in media, electoral reforms, and the voting age. Students were encouraged to take on dual roles as debaters and judges, thereby sharpening their analytical reasoning, evaluative skills, and appreciation of structured argumentation. Creative formats such as the Scenario Jar session and the Devil's Advocate debate further enhanced spontaneity, quick thinking, and collaborative engagement.

To expand the international outlook of members, the club conducted Model United Nations workshops led by experienced alumni and senior members, familiarizing participants with procedures, evaluation methods, and research techniques, followed by simulations on agendas like the Middle East peace process and the militarization and privatization of space resources and an AIPPM session addressing pressing domestic issues. Additionally, debate topics were drawn from UNGA, UNCOPUOS, and AIPPM agendas, including cybersecurity, space sustainability, pandemic preparedness, and global economic recovery, ensuring relevance to contemporary challenges.

The highlight of the year was the successful organization of MUN 2025, which provided a large-scale platform for participants to deliberate on contemporary global challenges in a highly structured and professional setting.

Collaborative initiatives, such as the Vikshit Bharat 2047 debate competition with the IKS Club, further enriched the year's activities. Collectively, these events not only broadened members' understanding of complex socio-political issues but also cultivated critical thinking, public speaking, and leadership skills in a structured yet dynamic learning environment.

6.3.11 Ruchi - the Culinary Club

The Culinary Club at IIST has actively promoted cultural appreciation, culinary skills, and community bonding through a series of successful events during the academic year 2024–2025. The following summary highlights the major club activities during

1. Curtain Raiser

The club organized a Curtain Raiser event on October 23, 2024, serving as an initial gathering and platform for future activities. Coconut laddus and Jalebis were distributed. It was a very interactive event where non club members also participated in the preparation.

2. Induction Event

On February 12, 2025 the club welcomed the new members through the preparation of onion fritters, providing an accessible introduction to club operations and culinary techniques.

3. Dhanak Food Fest

The club participated in the Dhanak Food Fest on February 19, 2025, introducing hot and tangy Tomato Soup and showcasing culinary expertise. Experience gained in pricing and managing large-scale food preparation contributed to practical learning for future initiatives.

4. Eid-ul-Fitr Biryani Preparation

To celebrate Eid-ul-Fitr, the club prepared authentic Hyderabadi Biryani on March 3, 2025 for approximately 150 participants, fostering unity and cultural diversity

6.3.12 Chess Club

The chess club is a student-led community at IIST which promotes chess. It provides a platform for players of all skill levels, from beginners to experienced players, to learn and practice. It is an extra-curricular club which aims for holistic development.

In addition to the Training, Strategy Sessions and in house events, the IIST chess team participated in BITS SPREE 2025 securing 5th place in the classical tournament (out of 10 teams). All the players secured positions between 14th and 30th in the blitz tournament (out of 60 players). The team also participated in a FIDE rated tournament in Nagercoil and in an unrated rapid and blitz tournament at Russian House, Trivandrum.

6.3.13 Neptunes – Music Club

The Neptunes Music Club had a vibrant year, hosting numerous events and performances that highlighted the talent and dedication of its members. Upholding its tradition of musical excellence, the club organized internal programs, participated in intercollegiate competitions, and fostered a strong sense of community among music enthusiasts. These initiatives promoted creativity, teamwork, and personal growth while enriching the cultural life of the institution and reinforcing the club's role as a key driver of artistic engagement on campus.

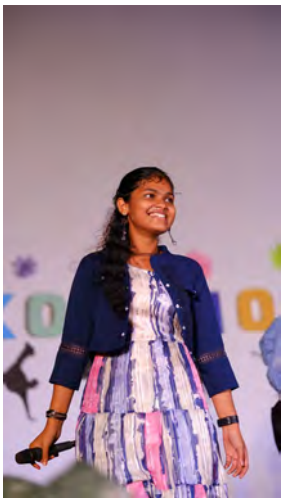
1. Induction Programme

Induction Programme for Freshers: The Music Club was a key part of the Juniors' Induction Program, with great performances that welcomed new students and introduced them to the club's culture, encouraging their musical interests. With the advent of NEP from the 2024 B.Tech batch onwards, the music club of IIST included the addition of several new,enthusiastic members. Pre-existing members of the music club engaged with the newer members by holding interactive music theory sessions as well as practical sessions for vocals, guitar, keyboard, etc. These sessions were conducted with the intention to introduce and revise basic concepts useful for solo playing and/or collaborative efforts.

2. Konchords

The Konchords Cultural Nights was a popular event in the even-semester, organized by IIST's cultural clubs, especially the music club. It showcased various performances from B. Tech, M. Tech, and PhD students. The event saw strong participation and audience engagement, setting a good tone for the rest of the semester.






3. SPIC MACAY

An enthralling Qawwali concert was held with SPICMACAY which saw a large and enthusiastic audience from the institute. Shri Mohammad Ahmad Khan Warsi, the son of great Ustad Shakur Khan, graced the occasion with his presence and performance. The classic tradition of Sufi music met a young audience to create a fresh musical energy which would resonate for a long time in the hearts of students.


4. NAAC Cultural Programme

Neptunes performed in the cultural programme held during the NAAC peer team's visit to IIST. The enchanting band performance made an impact for the show to start, at the same time showcasing the musical talent of IIST students.

5. Crescendo Instrumental Competition

The Crescendo Instrumental Competition that took place in Dhanak 2025 was a stage for musicians from various musical backgrounds to showcase their talents. The competition saw vivid performances including different instruments like violin, mridangam, keyboard and tabla. This saw the exploration of music in a variety of genres including Hindustani Music, Carnatic Music, Western Pop, Western Classical etc. The participants included students from other colleges including Indian Institute of Science and Technology who displayed a great magnitude of musical talent and versatility.

6. Solo Singing Competition

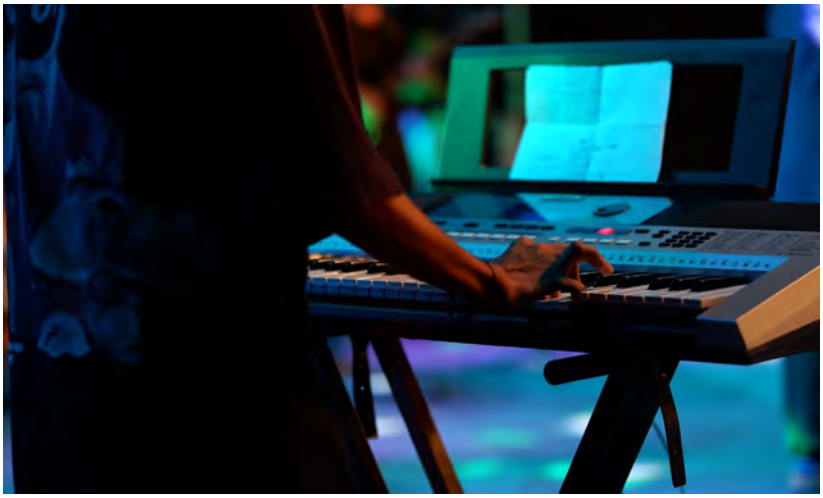
Along with instrumental completions, Dhanak 2025 paved the way for hosting a solo singing competition - an event through which one can explore the complexities and nuances the human voice has to offer to music without the worry of coordination with instrumental music. People of ages from various parts of India took part in this competition with showcasing a variety of singing styles and genres.



7. Dhanak Battle of Bands:

As the flagship event of IIST's cultural fest, Dhanak attracted a large and enthusiastic audience. A total of eight bands delivered outstanding performances, making the evening a memorable celebration of music. The competition featured fully self-sufficient bands that sought to replicate the quality of professional performances with remarkable precision. Several participants also presented original compositions, showcasing their creativity and providing a platform for the expression of fresh musical ideas. Highlights included IIST's own Rockstorm (Western band), Rhydhun (fusion band), and Swaranova (Eastern fusion band), as well as IISc's Rhythimica, which captivated the crowd with a unique metal interpretation of Vivaldi.



8. Jamming Sessions and more:

Beyond the formal events, music enthusiasts in the institute frequently meet in the music room, SAC amphitheater or the central fountain for informal jamming sessions. These sessions are a space for music lovers to come together, create melodious music, and enjoy the art of making music for pure enjoyment.

6.3.13 Money Minds Club

The Money Minds Club, the Financial Literacy Club of IIST, actively promoted financial literacy and awareness throughout the academic year 2024–2025. The club organized a range of workshops, sessions, guest lectures, and competitions for students across B.Tech, M.Tech, and Ph.D. programs, building practical financial skills and fostering informed decision-making.

During the induction session, the club members introduced over 50 students to financial planning, investing, debt management, and cryptocurrency. The club conducted 15 comprehensive sessions, engaging more than 100 students. The curriculum began with foundational concepts like personal finance, inflation, and the power of compounding, before moving on to practical skills in fundamental analysis and using financial tools like Screener and Trading View for stock selection. It also hosted interactive activities on portfolio management, stock analysis, sector-wise stock selection, debt management, and financial planning. The club invited distinguished speakers, including IIST alumnus previous president, Shri. Akshay B. Panicker, now at CDAC, who shared insights on career opportunities, financial management, and real-world applications of finance.

In partnership with the NSE, the conducted an Investor Awareness Program titled “A Wise Investor’s Handbook and organized the Stock Odyssey and Stock Grow competitions during the IIST Tech fest, Conscientia.

Throughout the year, the club successfully enhanced financial literacy, promoted responsible money management, and created an engaging platform for discussion and learning, strengthening the IIST community’s awareness of practical finance and investment principles.

6.3.14 ArtIIST- Art Club

ArtIIST is a newly formed club at IIST that brings together students who share a love for art and creativity. The club aims to create a friendly and inclusive space where students can try out new ideas, learn from each other, and grow their artistic skills. It’s not just about one form of art—whether it’s painting, sketching, doodling, crafting or digital art, everyone is welcome. ArtIIST gives students a chance to showcase their talent, collaborate on projects, and simply enjoy creating together. The goal is to build a community where creativity is celebrated and encouraged in every form.

ArtIIST started its journey with a warm and lively club induction, where students participated enthusiastically

in fun activities like Pictionary and a mini drawing event. We also hosted a special live oil painting session with the renowned artist Shri Rajasekharan Parameswaram, which spanned over five days and gave students a chance to learn directly from his expertise.

Even before becoming an official club, ArtIIST members actively contributed to the campus culture by working on decorations and creative setups for events like Conscientia, Dhanak, and other festivals celebrated at the institute.

6.3.15 Nirmaan – The outreach club

Nirmaan, the social outreach club of the Institute, has been actively engaged in a wide range of activities this year, from inspiring students across multiple schools and assisting them academically, to extending support to the community through blood donation drives and caring for our surroundings with several cleaning initiatives. Nirmaan has strived to be an organisation that not only cares for and contributes to society but also nurtures its volunteers. To accomplish this, we have focused on helping our members upskill and manage stress through outing sessions, regular meet-ups, and participation in a workshop hosted by the Government of Kerala on public speaking, effective communication, teaching, and other essential life skills.

Summary of Events and Activities

This year, Nirmaan has successfully organised 15 school sessions across 3 schools. Some of these sessions were conducted in collaboration with various clubs of IIST to introduce concepts of rocketry, flight, and

astronomy to students. In addition, 3 cleaning drives were organized both inside and outside the college campus, hosted thousands of school students at IIST in over 5 events, and held 2 blood donation drives on campus. Volunteers also had the opportunity to attend two fun outings in the beautiful mountains and forests of Kerala, along with regular meet-ups.

Nirmaan also played an important role in the THRIVE program organised by the Government of Kerala, which aims to give children from residential tribal schools exposure beyond their classrooms—introducing them to future challenges, technologies, career paths, and opportunities—while also assisting them academically through demonstrations, experiments, doubt-solving sessions, and even activities to encourage them to take up STEM, pursue engineering, and particularly explore space as a career. As part of this program, Model Residential School MRS Njaraneeli was allocated to IIST, and Nirmaan has conducted 9 sessions in this school this year.

Some photos capturing this years Nirmaan activities have been presented here.

1. Schools@IIST

2. IIST@Schools

3. Other events

210kg of waste collected in Vettucaud beach clean-up

TIMES NEWS NETWORK

Kochi: A beach clean-up drive at Vettucaud beach on Wednesday collected a total of 210kg of waste, including 33.5kg of plastic wrappers, 23kg of glass bottles, 10.7kg of paper waste, 10.5kg of clothes, and 9.35kg of plastic carry bags.

The event was organized as part of the Swachhata Campaign 2024 by the Indian Institute of Space Science and Technology and WWF-India

The event was organized as part of the Swachhata Campaign 2024 by the Indian Institute of Space Science and Technology (IIST) and WWF-India.

A total of 125 volunteers participated, working in 12 teams for two hours. The collected waste was audited by type and weight, with the majority being plastic-related. Special plastic waste collectors, known as plastic fishers, were engaged to properly dispose of the waste.

The volunteers collected 1.4kg of single-use plastic spoons (approximately 460 pieces) and 3.35kg of plastic water bottles and lids (around 116 pieces) were recovered, raising concerns about plastic pollution. Other collected items included 5.5kg of abandoned fishing gear, 4.75kg of diapers and masks, 1.05kg of toys, and 40.25kg of miscellaneous waste.

The volunteers expressed serious concern over the growing plastic pollution on the beach, which ultimately makes its way to the ocean, echoing the prediction that by 2050, the ocean will contain more plastic than fish.

The event kicked off with a cycling rally organized by the Indus Cycling Embassy, with participants gathering at Manaveeyam Veedhi at 6:15am before riding to Vettucaud.

Events and Celebrations

7. Events and Celebrations

Events and celebrations at IIST form an integral part of campus life, reflecting the institute's vibrant culture, academic spirit, and sense of community. These gatherings provide opportunities for students, faculty members and staff to engage with eminent personalities, celebrate milestones, and create lasting memories. Each occasion—whether academic, scientific, cultural, or social—serves as a platform to inspire creativity, foster collaboration, and strengthen bonds among students, faculty, staff, and alumni.

7.1 Major Events

7.1.1 New Director assumes Office

Dr. Unnikrishnan Nair S. officially laid down the post of IIST Director, concluding a remarkable chapter in IIST's journey. IIST wishes to place on record its sincere love and gratitude to him for steering the institute in the past two years, achieving greater heights of glory, inviting accolades and recognition from everywhere.

Prof. Dipankar Banerjee, Senior Professor, Indian Institute of Astrophysics (IIA), Bengaluru, who was serving as the Director, Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital assumed charge of Director, IIST, on October 14, 2024.

7.1.2 18th IIST Foundation Day Celebration

IIST celebrated its 18th Foundation Day on October 6, 2024, with Justice Shri Devan Ramachandran, Hon'ble Judge of the High Court of Kerala, as the chief guest. He inaugurated the event and delivered the Conscientia Distinguished Lecture, focusing on the critical role of the Constitution in everyday life. Emphasizing that excellence is not merely a choice but an obligation, he urged students to recognize their potential, remain committed, and strive continuously to improve themselves. He also highlighted the equal importance of fundamental duties alongside fundamental rights and encouraged budding scientists to add value to their lives through dedication and self-awareness.

Dr. Unnikrishnan Nair S., Director, IIST/VSSC, formally welcomed the chief guest and the gathering, while Prof. Kuruvilla Joseph, Registrar and Dean (Academics), proposed the vote of thanks. Justice Ramachandran also visited select laboratories on campus and planted a tree sapling to commemorate the occasion.

7.1.3 9th Dr. APJ Abdul Kalam Memorial Lecture

The Honourable Governor of Kerala, Shri Arif Mohammad Khan, delivered the 9th Dr. APJ Abdul Kalam Memorial Lecture on July 29, 2024, at the Multipurpose Hall, SAC, IIST, on the theme "APJ Abdul Kalam: A Votary of Indian Spiritual and Cultural Heritage". Instituted in memory of our beloved former President and legendary visionary, Dr. Kalam, this lecture series is among the most cherished traditions of IIST. The event was graced by the presence of Dr. Unnikrishnan Nair S., Director, VSSC/IIST, Prof. Kuruvilla Joseph, Registrar and Dean (Academics), Dr. V. Narayanan, Director, LPSC, Shri Padma Kumar E.S., Director, IISU, along with the Deans, Associate Deans, Heads of Departments, faculty members, officers, staff, and students of the institute.

7.1.4 Visit of Dr. V. Narayanan, Secretary, DOS / Chairman, ISRO and President, GB, IIST

On February 21, 2025, Dr. V. Narayanan, Secretary, DOS; Chairman, ISRO; and President, GB, IIST, visited the IIST campus and delivered an inspiring address to the IIST community. Reflecting on IIST's humble beginnings and the visionary contributions of leaders like Dr. A.P.J. Abdul Kalam, Shri G. Madhavan Nair, Dr. K. Radhakrishnan, and Dr. B.N. Suresh, he urged students to aim high and serve as brand ambassadors of the institute. Emphasising the importance of intellectual and value-based education, he also shared insights into ISRO's recent technological successes and future space programmes.

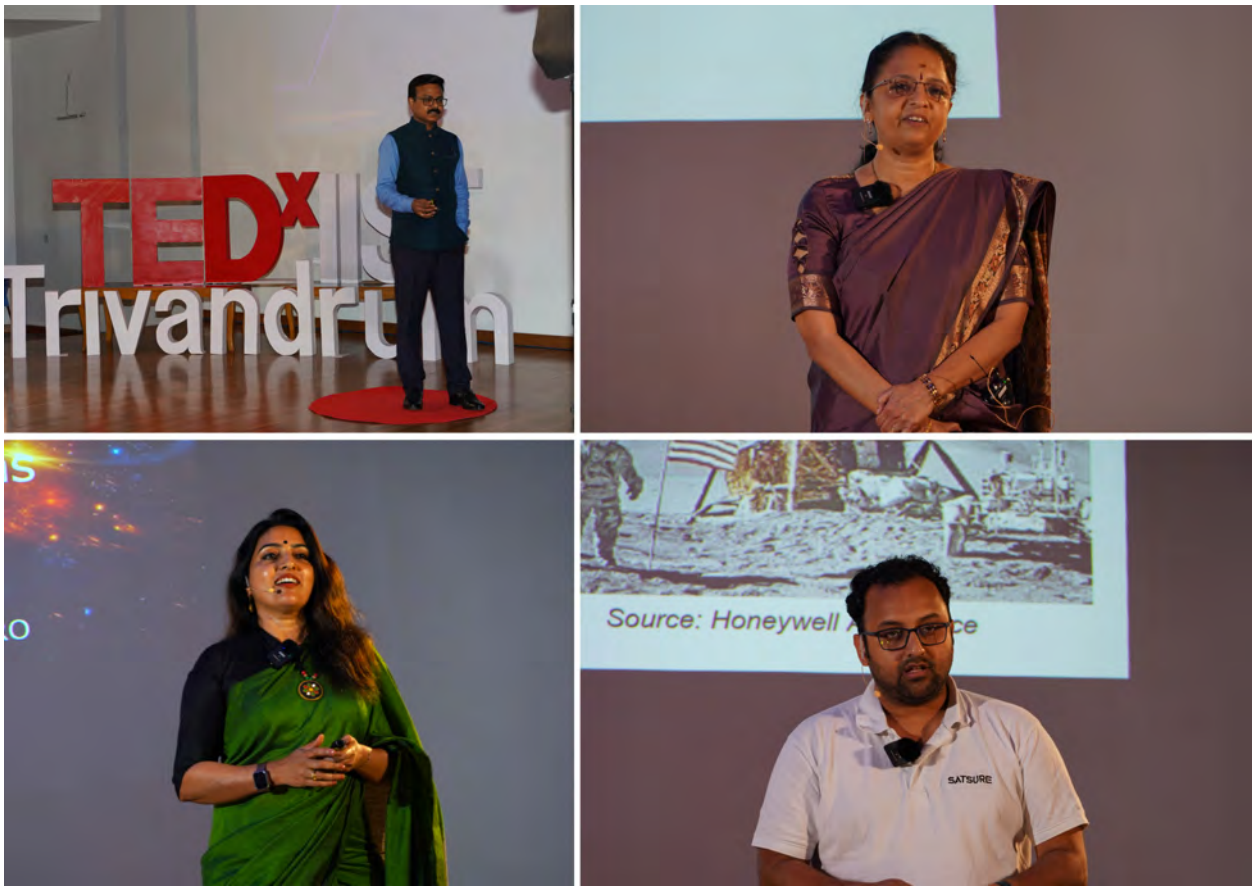
The event began with a welcome address and introduction by Prof. Dipankar Banerjee, Director, IIST. Dr. Unnikrishnan Nair S. , Director, VSSC, and Shri Padmakumar, Director, IISU, graced the occasion with their presence. The programme concluded with a vote of thanks proposed by Prof. Kuruvilla Joseph, Dean and Registrar, IIST.

7.1.5 Visit of Lt. Gen. Vinod G. Khandare, Principal Advisor, Defence, Govt. of India

The Institute had the honour of hosting Lt. Gen. Vinod G. Khandare, Principal Advisor, Ministry of Defence, Government of India, as a distinguished guest during Conscientia. Delivering the Conscientia talk titled "Insights from Pioneers", he inspired the audience with his perspectives, bringing an air of excitement and motivation to the fest. His presence not only enhanced the profile of the event but also offered valuable lessons to students and participants. The session was attended by Prof. Kuruvilla Joseph, Registrar and Dean (Academics), Prof. Raju K. George, Dean (Student Activities), along with faculty and students.

7.1.6 TEDex @ IIST

IIST hosted its first-ever TEDx@IIST on April 20, 2024, featuring four distinguished speakers from diverse fields who shared their inspiring journeys and insights. Dr. C. Anandharamakrishnan, Director of CSIR-NIIST and an expert in chemical engineering and food processing, spoke about his work and vision for food technology and innovation. Dr. Manju S. Nair, Project Director at LPSC-ISRO, highlighted her pioneering contributions to high-thrust electric propulsion systems. Entrepreneur Shri Prateep Basu, co-founder and CEO of SatSure, discussed how deep-tech startup harnesses satellite data and analytics to address global challenges in agriculture, finance, infrastructure, and climate action. Finally, Smt Sheena Rani R, a senior scientist at DRDO and program director of India's Agni-5 missile with MIRV technology, shared her experiences in leading one of India's most advanced strategic programs.



7.1.7 ISRO- Academia Day

IIST hosted ISRO Academia Day 2024 on December 10, 2024. A key highlight of the occasion was the formal unveiling of Respond Basket by Dr. S. Somanath, Secretary, Department of Space and Chairman, ISRO, who also inaugurated the event virtually.

The inaugural session was graced by the distinguished presence of Dr. Unnikrishnan Nair S (Director, VSSC), Dr. Shanthanu Bhatawdekar (Scientific Secretary, ISRO), Dr. Dipankar Banerjee (Director, IIST), Shri Harikrishnan (Director, CBPO), and Prof. Kuruvilla Joseph (Registrar and Dean, Academics, IIST).

The one-day program was designed to strengthen the partnership between ISRO and academia, fostering innovation, excellence, and impactful contributions to space research and technology development. The event also featured presentations and discussions on RESPOND project topics from various ISRO centers, enabling insightful exchanges and exploration of cutting-edge research opportunities.

7.1.8 Inspection of IIST by the Second Sub-Committee of Parliament on Official Language

Inspection of IIST by the Second Sub-Committee of Parliament on Official Language was held on January 9, 2025. IIST has been selected as one of the organisations for inspection by Parliamentary Committee on Official Language along with 25 other Government organizations in Kerala.

Dr. Dipankar Banerjee, Director, IIST, Prof. Kuruvilla Joseph, Registrar, IIST, Prof. Raju K. George, Dean (SA, SW& OR), Smt. Bindya K. R., Deputy Registrar (Grade - II), GAD, SA & SW, Smt. Cimy Asaf, Assistant Director

(OL), from IIST and Shri. MG Som Shekharan Nair, Joint Director (OL), Shri. Imtiaz Ali Khan, Director, DSRQ as department representative from DOS attended the inspection.

7.1.9 Controller, Human Space Flight Centre (HSFC) at IIST

Shri Govindaraju, IAS, Controller, Human Space Flight Centre (HSFC), Bangalore, visited the IIST campus on October 7, 2024 as part of the Annual Official Language Inspection for the year 2023–24. He was welcomed by Prof. Kuruvilla Joseph, Registrar and Dean (Academics). Smt. Cimy Asaf, Assistant Director (Official Language), provided a detailed briefing on the implementation of Hindi at IIST.

7.1.10 Swachhta Pakhwada -2025

IIST observed Swachhta Pakhwada -2025 during February 1-15, 2025. Swachh Bharat Abhiyan Implementation Committee (SBAIC) at IIST organised various events during this 15 days campaign.

7.1.11 The Gift of Wisdom - Book Exhibition

The IIST Library organized an exclusive book exhibition, "The Gift of Wisdom", on December 16, 2024, featuring a rich collection of books generously donated by Dr. B. N. Suresh, Honourable Chancellor of IIST. The exhibition was inaugurated by Shri A. S. Kiran Kumar, Former Chairman of ISRO, in the presence of Dr. B. N. Suresh (Honourable Chancellor, IIST), Dr. V. N. Narayanan (Director, LPSC), Prof. Dipankar Banerjee (Director, IIST), Prof. Kuruvilla Joseph (Registrar, IIST) along with faculty, students, and staff of IIST. The collection on display covered a diverse spectrum of subjects, including science, literature, philosophy, management, rocketry, and more.

7.1.12 Distinguished lectures

On September 10, 2024, Dr. Unnikrishnan Nair S., Director, VSSC/IIST, delivered an insightful talk on "Challenges in Sustained Human Space Flight Programme" at the Multi-Purpose Hall, SAC, IIST. Prof. Kuruvilla Joseph, Registrar and Dean (Academics), welcomed the gathering and highlighted the significant progress achieved by IIST under the dynamic leadership of Dr. Nair. The Director's lecture offered a comprehensive overview of the complexities and opportunities in human spaceflight, followed by an engaging interactive session with students. This interaction provided a unique platform for students to seek guidance and deepen their understanding of the future of India's space programme.

- Prof. Dipankar Banerjee, Director of IIST, delivered a talk on "A Journey to L1 with Aditya-L1 Observatory" on November 19, 2024. Aditya-L1, India's first dedicated solar observatory mission launched by ISRO, aims to study the Sun's outermost layer — the corona — and to enhance our understanding of solar activities that influence space weather. The talk was highly appreciated by faculty members, students, and staff of IIST.
- On November 12, 2024, IIST organized a talk titled "Mastering Rocket Science: The Indian Experience", delivered by Dr. B. N. Suresh, Chancellor of IIST at the Multipurpose Hall, SAC. The event offered an insightful perspective on India's remarkable journey in mastering rocket technology. Dr. Suresh also, shared his experiences and reflections on the challenges and triumphs of indigenous rocket development, inspiring the audience of students, faculty, and staff.

7.1.13 IIST Colloquium

1. Dr. Murthy S Gudipati, Senior Research Scientist, Jet Propulsion Laboratory, California Institute of Technology, Prof. Satish Dhawan IoE Visiting Chair Professor, Indian Institute of Science, Bengaluru - Evolution of Ice and Organics in the Universe: From Interstellar Ice Grains to Cometary Nuclei on March 28, 2025.

2. Prof. Ashoke Sen, ICTS-TIFR, Bengaluru - gave a talk on Cosmology - The Future of Our Universe on March 7, 2025

7.2 Days of Importance

7.2.1 Independence Day celebration - 2024

The Independence Day celebration at IIST was a grand and heartwarming event. The campus was adorned with tri-colored flags, creating an inspiring atmosphere. Students, faculty, and staff gathered on the ground near the Student Activity Centre. In the absence of the Director, who had to be at SHAR for a launch, the National Flag was unfurled by Prof. Kuruvilla Joseph, Registrar and Dean (Academics) of IIST. He also delivered the Independence Day address and inspected the guard of honor. The CISF unit showcased various skills, impressing the students, faculty, and staff. Following this, the Registrar presented prizes

to the winners of competitions organized by the CISF and the Hindi Section. The event concluded with students rendering patriotic songs and the distribution of sweets.

7.2.2 76th Republic Day Celebration - 2025

The 76th Republic Day was celebrated at IIST with great pride bringing together students, faculty, and staff to honour the spirit of our Constitution.

Dr. Anil Saharabudhe, Chairman, NAAC was the guest of honour. The event featured the hoisting of National Flag, address by Director, IIST, and cultural performances.

7.2.3 National Space Day - 2024

As part of the National Space Day programmes conducted by ISRO, IIST organized an Open House on August 7, 2024, which was attended by 405 students from 17 schools and 2 colleges. The visitors were given a guided tour of the institute's laboratories, research facilities, and library, offering them valuable exposure to the frontiers of space science and technology.

To further spread the message of National Space Day, IIST also organized flash mob performances at three prominent locations in Thiruvananthapuram—Mall of Travancore and Shankumugham Beach on August 15, 2024 and Kanakakkunnu Palace on August 18, 2024. These vibrant performances not only entertained the audience but also served as an innovative platform to create awareness among the public about space technology and the remarkable achievements of India under the leadership of ISRO.

7.2.4 World Space Week Celebrations -2025

As part of the World Space Week Celebrations, school teachers from across Kerala visited IIST on an educational tour. The teachers were taken around various laboratories, where they gained insights into the institute's facilities and ongoing work. Prof. Kuruvilla Joseph, Registrar and Dean (Academics), addressed the group and provided an overview of IIST's academic programs and research activities. The visit offered the teachers a valuable opportunity to engage with the vibrant scientific environment at IIST.

7.2.5 Constitution Day (Samvidhan Divas) Celebration

IIST organized an online talk on "Evolution of Rights and Duties under the Indian Constitution – The Way Forward" by Dr. Sheeba Pillai, Professor at the School of Legal Thought, Mahatma Gandhi University, Kottayam, on November 27, 2024. She highlighted the Indian Constitution as a monumental and living document, making it both resilient and sustainable. Among its many features, the fundamental rights provide citizens with strong safeguards against arbitrary power, while the duties remind us of our obligations to the State and the nation. It is this balance of rights and duties that empowers us to endure challenges and uphold the spirit of our democracy.

The session was addressed by Prof. Dipankar Banerjee (Director, IIST), Prof. Kuruvilla Joseph (Registrar, IIST), and Prof. Raju K. George (Dean, Student Affairs, Student Welfare & Outreach Programs).

7.2.6 Vigilance Awareness Week 2024

As part of Vigilance Awareness Week 2024, an Integrity Pledge was administered at IIST on October 28, 2024, by Prof. Dipankar Banerjee, Director of the institute. Faculty members, staff, and students participated in the pledge, reaffirming their commitment to honesty, transparency, and ethical conduct.

7.2.7 International Day of Yoga - 2024

International Day of Yoga was celebrated in IIST on June 21, 2024. The day commenced with an early morning Yoga Session by Dr. Priyanka, an Ayurveda Physician and Yoga Practitioner associated with the CVN Kalari. The session took the participants through various yoga asanas and breathing techniques.The yoga session was followed later that day by a talk on “Building Inner Resilience for High Performance” by Dr. Beela G. K. from the Department of Community Sciences at Kerala Agricultural University and former Director of the Centre for Disability Studies. She shared valuable insights into the need to focus on emotional quotient and presented a few practical ways to develop inner resilience through practices that are aligned with yoga. The event successfully highlighted the importance of integrating yoga and mindfulness into daily life.

7.2.8 World Environment Day- 2024

World Environment Day serves as a poignant reminder of our responsibility towards the earth. It is a day to reflect on the impact of human actions on the environment and to take concrete steps towards its preservation and restoration. As part of the Environment Day Celebration, Eco Club, Swachh Bharath Abhiyam Implementation Committee and CMD, IIST, organised a "Tree Plantation Drive" on June 6, 2024. Dr. S. Unnikrishnan Nair S., Director, IIST/VSSC, and Prof. Kuruvilla Joseph, Registrar/Dean (Academics), led the programme, in which other dignitaries, students, faculty and staff enthusiastically participated. The drive started with planting a sapling of a banyan tree by the Director and the Registrar. One hundred saplings of fruit-bearing and other trees were planted in the campus, as part of this event.

7.2.9 Ambedkar Jayanti Celebration

IIST commemorated the birth anniversary of Dr. B. R. Ambedkar on April 30, 2024. Dr. M. R. Biju, Chairman, KPSC, graced the occasion as the chief guest and delivered an inspiring address. His talk highlighted the remarkable life and contributions of Dr. Ambedkar, with a special emphasis on the rights and upliftment of SC/ST communities. The event saw enthusiastic participation from students, faculty, and staff of IIST, as well as scientific and technical personnel from the neighbouring ISRO centres.

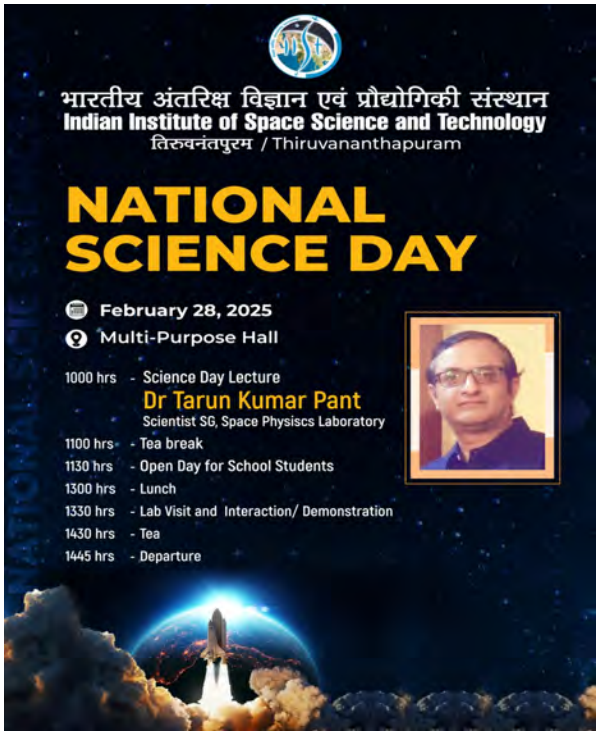
7.2.10 International Women's Day 2025

IIST celebrated International Women's Day on March 7, 2025 with a thought-provoking program. The Chief Guest, Dr. S. Seetha, Emeritus Professor, Raman Research Institute, Bengaluru, delivered an insightful talk on "Challenges in Space Missions". She highlighted how India's space missions open up exciting opportunities, while also presenting unique constraints—whether in scientist-driven or agency-driven experiments—and shared examples of how such challenges are addressed in practice. The event began with a welcome address by Dr. Sarita, Chairperson, Gender Sensitisation Committee, followed by the presidential address by Dr. Dipankar Banerjee, Director, IIST, and remarks by Dr. Kuruvilla Joseph, Registrar and Dean (Academics).

A short video titled "Women in IIST", created by Shri Vaibhav Rikhari and Shri Sanath Jain, which won first prize in the short video competition, was screened during the function. Dr. Seetha felicitated the winners of the competition. The program concluded with a Vote of Thanks by Dr. Gomathi, Chairperson, Internal Complaints Committee. As part of the celebrations, an exhibition-cum-sale of handicrafts made by staff members was also organised, adding a vibrant touch to the occasion.

7.2.11 National Science Day

IIST celebrated National Science Day on February 28, 2025, at the Multi-Purpose Hall with a day-long program highlighting the importance of science and innovation. The Science Day lecture was delivered by Dr. Tarun Kumar Pant, Scientist SG, Space Physics Laboratory, who shared insights into contemporary scientific challenges and advancements. The celebrations included an open day for school students, offering them an opportunity to explore the campus, participate in interactive demonstrations, and engage with IIST's research activities. The program also featured lab visits, cultural interaction, and lively discussions, inspiring young minds and reinforcing the institute's commitment to fostering scientific temper and curiosity.



7.3 Inaugurations

7.3.1 XRD Lab, 5G Use Case Lab, renovated Cafeteria and the E management system

On August 30, 2024, Dr. Unnikrishnan Nair S., Director, IIST, inaugurated three major facilities on the campus - **XRD Lab, 5G Use Case Lab, renovated Cafeteria and the E management system**

The **XRD Laboratory** was inaugurated to strengthen research in material characterization. The facility is expected to provide state-of-the-art analytical support for academic and research activities across multiple disciplines.

The **5G Use Case Laboratory** was also inaugurated on the same day. This lab has been established to facilitate cutting-edge research and development in next-generation communication technologies, enabling faculty and students to explore innovative applications and practical implementations of 5G.

As part of campus development, the renovated **Cafeteria** was inaugurated to offer improved infrastructure and a vibrant space for students, faculty, and staff. The upgraded facility provides a modern dining experience and contributes to enhancing the quality of campus life.

On the occasion, the Director also launched the **IIST Mobile App, Ph.D. Portal, Parents Portal, Hostel Portal, Library Portal, and Library Due Management System.** Prof. Kuruvilla Joseph, Registrar and Dean (Academics), presented a briefing on the newly introduced platforms, which were developed by the Software Systems Group (SSG) at IIST.

7.3.2 Anantha - Multipurpose gallery

"On October 4, 2024, Dr. Unnikrishnan Nair S., Director, IIST, inaugurated the multipurpose gallery "Anantha" at IIST. Prof. Kuruvilla Joseph, Registrar and Dean (Academics), welcomed the gathering. Derived from the Sanskrit word for "infinity," Anantha symbolizes limitless possibilities and creativity, envisioned as a vibrant space where art, ideas, and experiences can seamlessly converge. The gallery aspires to offer visitors new insights and inspiring connections with every visit.

7.3.3 Art Gallery and Space Museum

The Art Gallery and Space Museum, housed in the Interdisciplinary Block, was inaugurated on February 11, 2025 by Prof. Dipankar Banerjee, Director, IIST, in the presence of Prof. Kuruvilla Joseph, Dean, Academics and Registrar, IIST. The Space Museum features 23 meticulously crafted miniature spacecraft models, showcasing India's journey from Aryabhata to the Crew Module. The Art Gallery highlights innovative upcycled scrap installations alongside paintings by renowned artists such as Shri Marthandom Rajashekharan and Shri Kannan Chitralaya, celebrating creativity and sustainability.

7.4 Festivals

7.4.1 Onam

On September 13, 2024, IIST celebrated Onam with great enthusiasm and cultural vibrancy. Dr. Unnikrishnan Nair S., Director, IIST, graced the event as the Chief Guest, and Prof. Kuruvilla Joseph, Registrar and Dean (Academics), formally welcomed the gathering. The campus came alive with the spirit of tradition as students showcased their talents through cultural performances, while the beautifully designed athappookkalam competition added colour and festivity to the occasion. The highlight of the celebration was the grand Onam Sadhya, arranged by the Institute canteen. The festival brought together the IIST community in a spirit of togetherness.

7.4.2 Ganesh Chaturthi

Ganesh Chaturthi was celebrated at IIST with devotion and joy by the students. The festivities began with a traditional pooja invoking the blessings of Lord Ganesha. Prasad was distributed to all, symbolizing prosperity and harmony within the community. During the visarjan, students gathered in large numbers, carrying the idol with great reverence. The event concluded with the energetic beats of the dhol, adding to the festive spirit.

7.4.3 Deepavali

Deepavali, the festival of lights, was observed with great enthusiasm on campus. Students decorated the surroundings with lamps and rangolis and lit fire works, creating a vibrant atmosphere. A cultural programme showcased the significance of the festival through performances and songs. Sweets were distributed, spreading the joy of the occasion. The celebration highlighted the triumph of light over darkness and good over evil.

7.4.4 Holi

Holi, the festival of colours, was celebrated with immense excitement by the students of IIST. Participants gathered in the multipurpose stadium to smear each other with bright hues, symbolizing unity and joy. Music and dance further added to the festive mood. The celebration fostered camaraderie and created a sense of togetherness among students. It was a memorable occasion filled with laughter, colours, and festive cheer.

7.4.5 Vishu / Tamil Puthandu

Students at IIST celebrated Vishu and Tamil Puthandu, marking the traditional New Year of Kerala and Tamil Nadu. The festivities included rituals and offerings symbolizing prosperity and new beginnings. Students decorated the campus with flowers and traditional motifs. A festive meal was shared, bringing the community together. The celebration reflected cultural diversity and unity within the Institute.

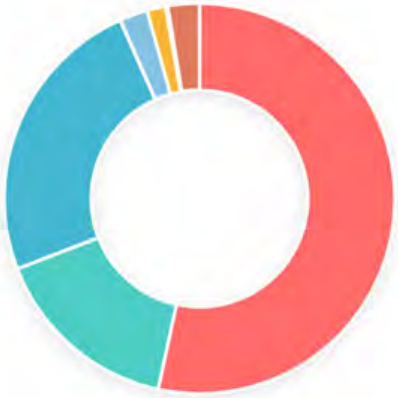
Institute Facilities, Infrastructure and Other Units

8. Institute Facilities, Infrastructure and Other Units of IIST

8.1 Institute Library

The library serves as the central resource centre supporting the institute's academic and research requirements. Maintaining a balanced collection of print and digital resources, the library continues to provide user centric services in the dynamic academic landscape of the institute. The year was marked by significant progress in enhancing resource access, improving our physical and digital collections, and expanding services to meet the diverse needs of the user community. Most notably, the institute's e-collection made a remarkable shift through its inclusion in the Government of India's One Nation One Subscription (ONOS) programme, which secured comprehensive access to a vast collection of international e-journals and scholarly resources.

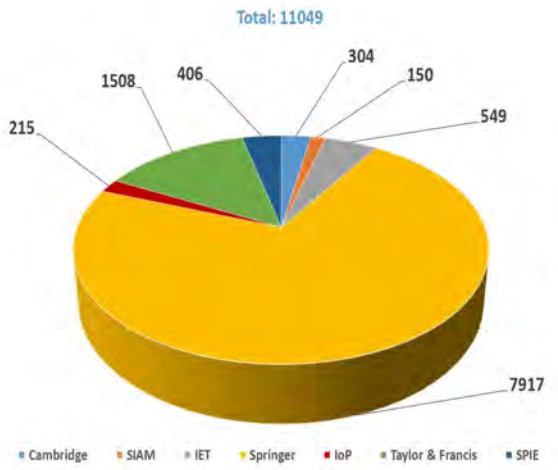
Library Collection



Books	37,513
E-Books	11,049
Online Full-Text Journal Collection	17,000
Online Single Journals	3
Online Databases	4
Online Tools	6
Bound Volumes	1,629
CD/DVD	1,080
Maps	131

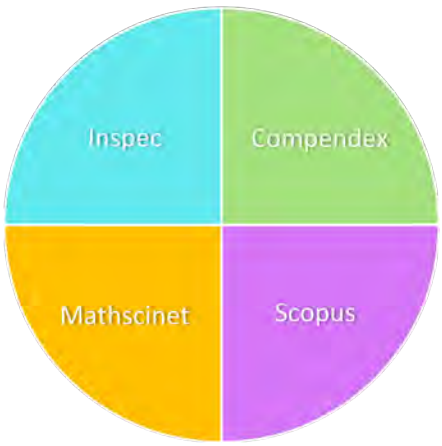
E-Journal Collection

E-Books



Online Tool

Online Databases



Sl No	Library & Information Services
1	**Front Desk Service** The Circulation Desk served as the primary user service point, facilitating all front desk interactions, membership registration, and transactions. In total, 12,599 books were issued to patrons during the reporting period.
2	**Research Assistance** To enhance the quality and efficiency of research works, library offered access and dedicated assistance for utilising a suite of essential research tools. This support included the subscription and assistance for Grammarly and QuillBot for language refinement, Turnitin and Drillbit for academic integrity and plagiarism checking, Reference Management Software for citation organization, and Overleaf for collaborative LaTeX-based document preparation.
3	**IIST Virtual Library (IVL)** The IVL significantly extended the reach of the library's collection by enabling 24x7 access to all subscribed e-resources. This vital feature allows users to conveniently access the entire range of digital resources off-campus at any time, ensuring continuous support for research and academic work regardless of their physical location.

Sl No	Library & Information Services
4	**Online Public Access Catalogue (OPAC)** OPAC facilitated comprehensive searches of the entire collection by title, author, subject, and keyword, allowing patrons to quickly check the availability and other relevant details of a particular book. Furthermore, the OPAC allow users perform self-renewal of issued books and submit suggestions for purchase of new books.
5	**Similarity Checking Service** Library provided similarity checking service by using the 'Turnitin' tool. Campus wide access was enabled for users to check their articles/reports and avoid plagiarism in their publications. Library generated 716 similarity reports for users based on requests. Users generated similarity report for 660 documents, making the total report generated 1376 during the reporting period. In February 2025, access to 'DrillBit' plagiarism detection software was also enabled through INFLIBNET to support similarity checking of PhD theses and related publications.
6	**Current Awareness Service** To ensure that patrons remained current with the latest additions, the library provided alert services. Users were promptly notified via email whenever new books and journal issues were acquired. Hyperlinks to the full text or table of contents were provided along with these alerts for immediate access. Library actively showcased the scholarly achievements of the institution by displaying details of new books, chapters, and articles published by faculty and students with QR codes that provided direct, instant access to the full-text content.
7	**Books on Call Service** This personalised service allow faculty to inform the library of their book requirements. Staff will retrieve book for faculty and make it available at the circulation desk for immediate pickup upon their arrival.
8	**Resource Awareness Programmes (REAP)** Library successfully conducted four REAPs during the reporting period. These focused sessions were essential for familiarising patrons with the various subscribed tools and providing practical instruction on how to effectively utilise the comprehensive range of library services.
9	**Documentation Service** Library acts as the central documentation facility of the IIST. Important documents are numbered and stored in this section.
10	**Resource Sharing** The Antariksh Gyaan Consortium facilitate resource sharing among the member libraries. Being a member of the consortium library has an inter-library loan arrangement with all ISRO/DoS libraries.
11	**Auto E-mail Alert Services** The automated e-mail system promptly notifies users about books issued, due date, and also alerts patrons about the arrival of suggested books.
12	**Library Orientation** Library orientation programmes were organised for each batch of B.Tech/M.Tech/PhD students at the beginning of the academic session to make them familiar with the library resources, tools, services, and library procedures.

Sl No	Library & Information Services
13	**IIST-IRINS** Library manages the IIST-IRINS portal developed with the support of INFLIBNET – https://iist.irins.org/. The content is regularly curated to make it up-to-date.
14	**Institutional Membership** Institutional membership in other libraries help users to visit and use collection of other libraries.
15	**Reference Service** The library provides reference service on demand to the user community.
16	**Library Portal** The Library Portal served as the digital platform to efficiently showcase the full spectrum of the library's subscribed electronic resources while providing essential, up-to-date information regarding the library's services and procedures.
17	**Shodhganga Co-ordination** Acting as the nodal agency, library managed the institutional contribution to the national Shodhganga repository, maintained by the INFLIBNET. During the reporting period, 48 theses were successfully uploaded, bringing the total number of IIST theses available in the Shodhganga repository to 212. https://shodhganga.inflibnet.ac.in/handle/10603/187485
18	**National Digital Library** Library added students to the National Digital Library. Total 1355 members from IIST are registered in the National Digital Library.
19	**Text Book Bank** The book bank facility ensures the availability of basic textbooks for B.Tech students. Textbooks for the entire semester were issued at the beginning of the academic session. 139 titles and 5757 volumes were issued to students during the reporting period.
20	**Book Grant Service** The Book Grant for B.Tech students (up to the 2020 batch) was processed through the BGMS portal. This system streamlines the entire workflow, from the submission of bills to verification and final approval. Using this service, students purchased a total of 238 books during the reporting period. The grant was utilised for purchase of technical books amounting to ₹ 85,720.00 and general books ₹ 51,218.00.
21	**Library Online Payment System** Library implemented a new online payment system to enhance user convenience. This system allows patrons to easily and securely make library related payments in online mode.
22	**Digital Archiving Service** Library collects and archives photographs of important events organised in the institute.
23	**Social Media Management** Library regularly updates the news, events,and achievements of the institute on the institute's social media pages, and IIST website. 4.6 K followers 9.76 K followers 1777 followers 21417 followers 6529 followers

Facilities in the Library

1	**Reading Halls** Library provides ample study space across its reading halls, offering a total seating capacity of 230. The reading hall located in the lower basement ensures continuous access to a dedicated study environment by operating on a 24×7 basis.
2	**Multimedia Library** Students utilise this facility to access online resources, online lectures, and participate in Massive Open Online Courses (MOOCs). Beyond content consumption, this facility provides workstations pre-installed with essential academic software, enabling students to execute their academic and research work.
3	**Mini Conference Hall** The Mini Conference Hall with 50-seat capacity, is utilised for hosting important institutional meetings, library-specific training programmes, and other institute-level events.
4	**Graphic Design Facility** This facility is operated to meet the institute's graphic design requirements. It is responsible for the design and production of a wide range of institutional publications and promotional materials, including Annual Reports, Newsletters, magazines, posters and brochures for institute events.
5	**Photocopy / Printing Facility** This facility meets the photocopying and bulk printing needs of the institute. Magazines, posters, ID cards for events, workshop materials, lab manuals, tutorials etc. are printed using this facility. During the period, 6 lakh copies were taken, ₹ 4.68 lakh was collected for providing the service for personal purposes, and ₹ 74117.00 for official purposes. In addition, ₹ 15.11 lakh worth printing works done for institute programmes.
6	**Binding Facility** This central facility offers different types of bindings. This facility is being used to make the institute's annual report, magazines, calendars, bound volumes, notepads for events, project reports, theses etc. During the period 7015 documents bounded, ₹ 66580/- was collected for providing the service for personal purposes and ₹ 22580.00 for official purposes. In addition, ₹ 1.03 lakh worth binding works done for institute programmes. The Graphic Design Facility, Printing Facility, and Binding Facility make the library as the publishing house of the institute.
7	**Scanning Facility** A flat-bed scanner is provided for users to scan documents. The library staff meet the bulk scanning requirements of users using the heavy-duty machine at the printing facility.
8	**Book Exhibition Facility** Book exhibitions were organised in this facility to help users to go through the content of the books and recommend suitable books for the library. During the period, two book fests were conducted, and 386 books were added to the collection. In addition, theme-based book displays were also arranged in connection with the seminars, conferences, and important day celebrations.

Programmes / Events Organised by the Library

Library organised the following programmes as part of the Library Week Celebration in November 2024:

- Book Donation Programme: The books collected through the "Read and Share Programme" (622 books) were donated to College of Engineering, Thiruvananthapuram.
- Paper Craft Workshop
- Online Workshop on 'QuillBot' and 'Turnitin'
- Author Workshop on "How to Write a Quality Journal Article"
- Exhibition on books of Dr APJ Abdul Kalam

8.2 Multidisciplinary Computing Centre

The Multidisciplinary Computing Centre of the Institute was established to provide various computer solutions for research problems and to facilitate and support the institute's essential teaching and academic goals. The Center aims to become a center of excellence in computational techniques and computer simulations for science and engineering and provide expertise in Big Data Analysis, Climate Modelling, Computational Fluid Dynamics, Computational Structural Mechanics, Computation-Assisted Materials Science, Computer Vision, and Virtual Reality, Machine Learning, Network Science and Engineering, Nonlinear Dynamics, Optimization, Geoinformatics, Monte Carlo Simulations. Three parallel computing clusters run in the Center with a total computational power of 220 teraflops, with parallel file systems. The center has 40 high-end Xeon workstations/servers with multiple configurations. Most workstations have over 128 GB of RAM, sixteen cores, and dedicated GPU cards. The Center has three high-end GPU Servers, three license servers, and storage servers. Faculty members, students, and project staff can get access to these systems by applying online.

8.3 Computer Infrastructure and Software Development Group(CISDG)

The Computer Infrastructure and Software Development Group plays a vital role in managing and maintaining the digital backbone of IIST. This group ensures seamless operation, security, and development of technology systems that support the institute's academic, research, administrative and operational activities. Its core areas of responsibility include:

- **Network Infrastructure and Internet Services**

The Network Infrastructure and Internet Services team oversees the planning, implementation, and maintenance of network infrastructure, ensuring high-speed, secure, and reliable internet, intranet, and spacenet connectivity across the organization. This includes managing routers, switches, firewalls, wireless access points, and VPN services, providing essential support for internal communication and access to external digital resources.

Key Highlights and Initiatives

Campus Network Infrastructure: The campus network is designed with dual redundant connectivity, each providing 1 Gbps uplink, ensuring uninterrupted internet access. Both redundant links are terminated at the Network Operations Center (NOC) and connected to Centralized Core and Distribution switches across buildings through a multi-path Optical Fiber Cable (OFC) backbone, enabling reliable and high-availability campus-wide connectivity.

a. Augmentation of Internet Connectivity

As part of the infrastructure upgrade, one of the existing internet links has been enhanced from 100 Mbps to 1 Gbps. This redundancy ensures seamless internet access without interruptions, supporting academic, research, and administrative requirements across the campus.

b. Wired Network Infrastructure

A dedicated 1 Gbps wired network has been implemented in academic blocks for research scholars to support high-speed data transfer and research-related applications. This ensures reliable, low-latency connectivity for advanced academic and scientific work.

c. Wi-Fi Network Infrastructure

The campus Wi-Fi network comprises 290+ dual-band access points (2.4 GHz and 5 GHz) deployed across various buildings and open areas. Recently, a dedicated Wi-Fi network for PhD scholars with multiple devices has been implemented to ensure hassle-free, secure, and uninterrupted access for their academic and research needs.

d. CCTV Surveillance System

The campus has a robust CCTV surveillance system consisting of 190+ cameras installed at strategic locations, including entrances, corridors, staircases, elevators, indoor facilities, and outdoor areas of significant buildings. In addition, 24x7 operational laboratories are monitored to ensure safety, security, and round-the-clock surveillance coverage.

- **Computer Infrastructure and Web Services**

Focused on the backbone of IT operations, the Computer Infrastructure and Web Service team handles the setup, deployment, and support of servers, workstations, storage systems, and operating environments. It also ensures the availability and performance of web hosting platforms and enterprise-level web applications that are critical for internal and external stakeholders.

The Institute's servers and storage solutions are hosted and maintained in the IIST Server Room in the Aerospace Block. This year, CISDG added a new Virtual Server Infrastructure comprising three servers and dedicated storage to support growing demands.

a. Web Server Cluster with Storage Solution

To meet the increasing demand for hosting web and email services, CISDG designed and deployed a high-availability web server cluster, which includes:

- Three high-end servers configured for redundancy and load balancing
- A centralized 32TB storage solution integrated with the cluster for scalability and data resilience

This infrastructure now supports critical services such as institutional websites and other applications, ensuring improved uptime, enhanced performance, and easier management.

b. Microsoft Campus Agreement

The Institute renewed the Microsoft Campus Agreement to comply with productivity and operating system software licensing requirements. Under this agreement, CISDG facilitates licensed usage of Microsoft Operating Systems, Microsoft Office Suite, SQL Server, and other Microsoft applications for educational purposes.

c. Computers

Out of 1,200 computers currently operational at the Institute, 768 are maintained under an Annual Maintenance Contract (AMC). Four service engineers are deployed onsite to carry out AMC activities and ensure smooth computer operations.

d. Future Plans

Implementation of New Mail Server

CISDG has initiated the procurement process for implementing of a new email system with 2,000 user licenses, accommodating the requirements of all faculty, officers, administrative offices, staff, and students. As part of this initiative, all existing mailboxes will be migrated to the new mail server to ensure continuity, enhanced functionality, and improved user experience. This upgrade aims to provide a more reliable, secure, and scalable communication platform for the entire institution.

- **Information Security Infrastructure and Web Services**

The Information Security Infrastructure and Web Services team protects the organization's digital assets. It oversees cybersecurity protocols, monitors vulnerabilities, and enforces data protection policies. Key web services include secure access management, SSL certificate management, firewall configuration, intrusion detection systems, and compliance with information security standards. It also manages web, mail, application servers, SANs, AMCs, backup, storage, and condemnation.

a. Information Security Management

Unified Threat Management (UTM) systems are maintained in High Availability (HA) mode to secure the network perimeter. Mobile token-based Two-Factor Authentication (2FA) is utilized to enhance network access security.

b. Information Security Management

BACS employs facial recognition and fingerprint scanning in classrooms for attendance marking. Procurement of 50 additional face readers is underway to implement face-based attendance marking across all classrooms.

- **Software Development and Support Services**

The Software Development and Support Services (SDSS) team, led by experienced IT professionals, provides reliable web application solutions and technical support to enhance the Institute's operations. The team is responsible for designing, developing, testing, and maintaining customized software to meet the specific needs of departments such as Academics, Administration, Transport, Canteen, Purchase, Stores, Accounts, and Placement. SDSS has successfully developed and updated numerous applications efficiently and accurately. The team plays a crucial role in delivering timely software solutions, ensuring smooth system performance, prompt issue resolution, and a positive user experience throughout the Institute.

Core Functions:

- Web Application Development: Designing and building scalable, user-friendly applications tailored to institutional needs.
- Support and Maintenance: Ensuring system reliability, prompt issue resolution, and overall user satisfaction.

Activities – A quick walkthrough:

a. New Developments: Successfully designed, developed and launched the following applications:

- IIST Mobile App - To provide quick access to the key institutional services like academic calendar, booking meals, applying for leave, accessing the employee directory, etc.
- Aditya – IIST Intranet - This application serves as a centralized platform that enables users to stay informed about institutional updates and securely log in to essential services within the Institute.
- Post-Doctoral Programme – A dedicated web application designed to manage applications for various post-doctoral positions.
- Online Recruitment Application Portal - A system to manage applications for permanent posts, incorporating seat reservations, eligibility checks, and payment processing in line with institutional rules.
- Hostel Management System - A web application designed to efficiently manage hostel operations, including room allocation, occupancy tracking, and asset management.
- Student Leave Management System - A web portal developed to streamline the submission, approval, and monitoring of student leave requests.
- Overdue and Fine Management System - A software solution to track overdue library books and automate fine calculation and management.
- Form Management Portal - A digital platform for organizing, managing, and accessing various forms used within the library and other departments.
- Parent Portal - A web application that allows parents to view real-time updates on their child's academic performance, attendance, and other important information.
- Biometric Attendance Integration - A solution to process and map classroom biometric access data of faculty and students to course-wise attendance, with integration into iCampus (faculty view) and Academic Portal (student view).
- Alumni Feedback and Data Collection Portal - A portal developed to collect current alumni profiles and curriculum-related feedback for use in accreditation and institutional review processes.
- Conference websites with online registration and payment were enabled for various conferences in IIST.

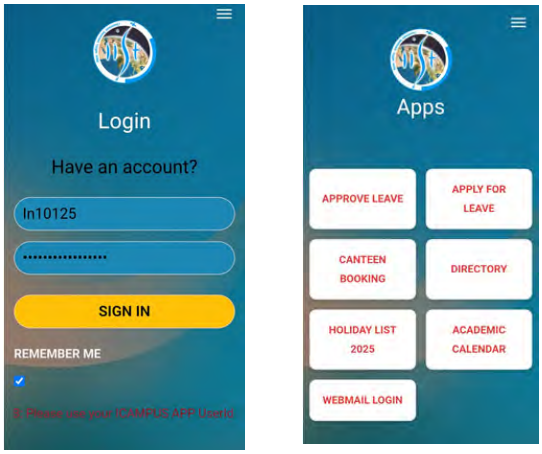


Fig 1. IIST Mobile App

Fig 2. Aditya – IIST Intranet

Fig 3. Post Doctoral Programme

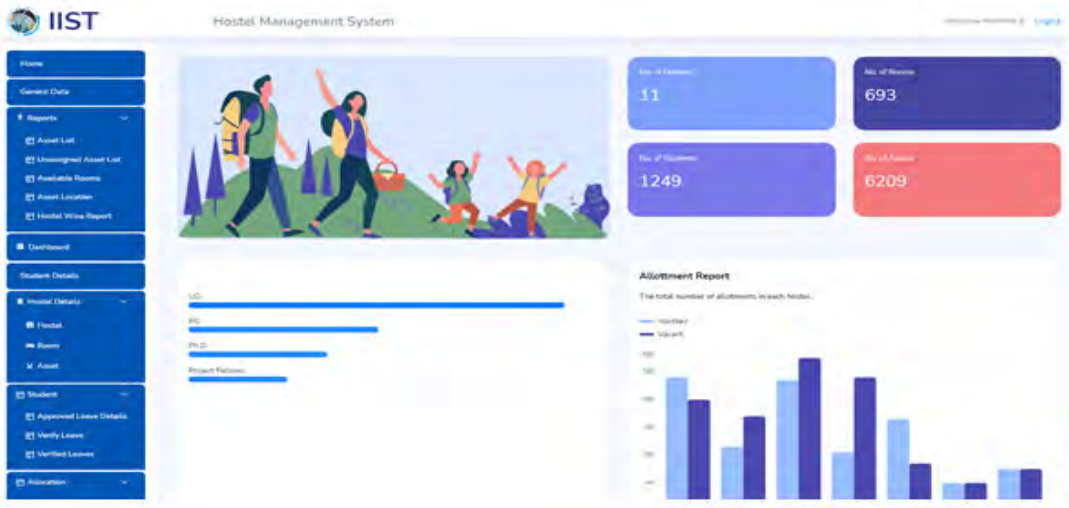


Fig 4. Hostel Management System

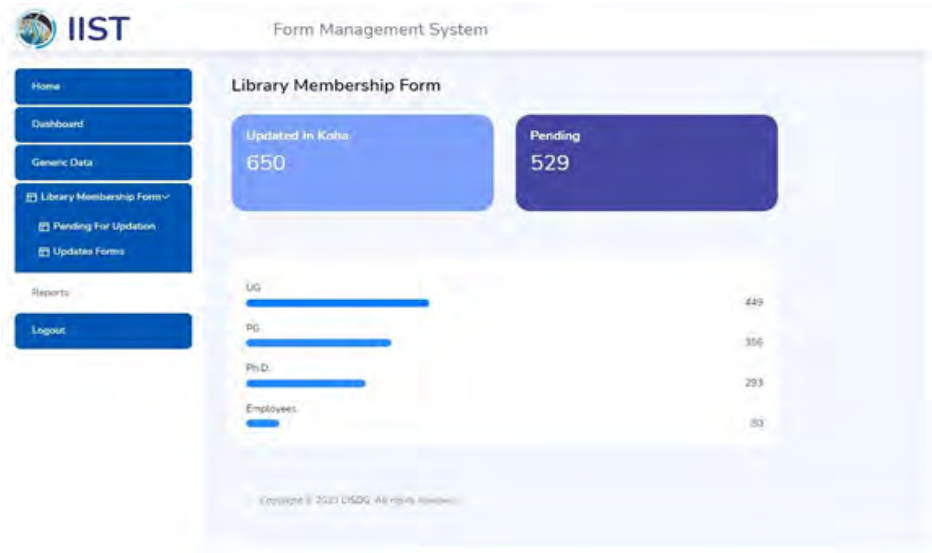


Fig 5. Form Management Portal

Fig 6. Parent Portal

b. Application Enhancements

Improved performance and implemented new features for the existing software(s). This include analysis, design, coding, implementation, maintenance and enhancement of the following applications:

Academic and Research Applications

- iCampus – Manages academic functions in the IIST campus.
- Academic Portal – Student portal for viewing their academic records.
- PhD Admission Requirement Collection – Captures and consolidates the upcoming PhD requirement.
- UG, PG and PhD Admission Portal – Automated the entire admission process.

- Online Counselling Software – For U.G. and P.G. admissions.
- Student/Staff Directory – Information system of students and staff.
- Thesis Submission and Evaluation Portal – To submit thesis files for review and evaluation.
- Online Student Feedback System – To record course feedback from students.
- Student Activity Board – Best performer evaluation system.
- Convocation Portal – For registration and posting convocation-related information.
- ISRO Absorption Counselling Software – For ISRO placement.
- Internship Portal – To invite summer internship applications with selection process.

Administration, Canteen, Library

- Digital Data Portal - To collect and preserve data pertaining to Institute activities for document preparations like Annual Report, NAAC, NIRF etc.
- Attendance Management System- Automated the attendance processing of manpower contract personnel using biometric data to ease salary computation.
- Leave Management System – Manages employee leave requests.
- Card Generation System – Printing identity cards for students and employees.
- CHSS Card Printing System – For generating CHSS cards.
- Article Processing Charge Management System – To submit and process the article processing charge request for the faculty and scholars.
- Book Grant Management System - Automated the book grant submission and approval process.
- Canteen Booking System – Allows online booking and cancellation of breakfast/lunch/dinner services with an online payment mechanism.

Accounts, Purchase and Stores

- Material Management System – For Stores, Construction and Maintenance Division.
- GTE - PLR Data Management System – Role-based portal for GTE-PLR submission and approval.
- Payment Information System – For tracking budget details.

Other Applications

- Online Application Submission for Project Recruitment- Apply online to various positions.
- Access Control System – For tracking biometric access details.

c. Customized Applications

Support provided for the following customized software applications:

- COWAA IIST MIS
- Canteen Akshayapatra – Stock Management
- Canteen Credit Bill Software
- TOMD (Transport Operation & Maintenance Division) for Transport

- Personal Information System

d. Support Activities

Provided technical and user support for the following customized software applications, ensuring smooth functionality, timely issue resolution, and user satisfaction

- IIST Website
- COINS and e-Procurement Software
- COWAA database support, backup and troubleshooting

e. Software Development in Progress

- IIST New Website
- Ph.D. Thesis Portal
- PDF Post Processing

F. Future Plans:

- Visitor Pass Management System
- Faculty recruitment portal
- Travel Request Automation
- iCampus – Revamping
- Conference Management System

8.4 Civil and Maintenance Division (CMD)

The capital works completed by CMD, IIST during the period were:

Providing security patrolling pathway along the compound wall at IIST		
» Completion Cost	:	Rs. 30.65 Lakh
» Completed on	:	05.08.2024

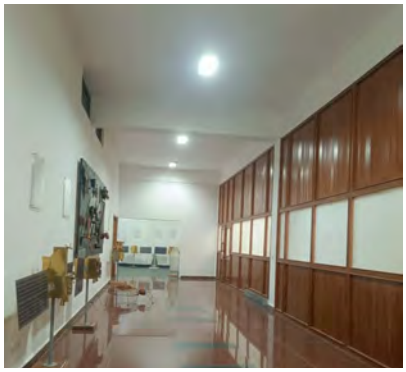
Construction of Watch Tower at various locations of IIST		
» Completion Cost	:	₹ 55.89 Lakh
» Completed on	:	26.11.2024

The minor works completed by CMD, IIST during the period were:

Interdisciplinary Block

Minor works for establishing 5G use case lab (L-308)

- Completion Cost : ₹ 11.41 Lakh
- Completed on : 10.07.2024



Providing Rubwood partition for art gallery

- Completion Cost : ₹ 3.69 Lakh
- Completed on : 04.02.2025

Avionics Block

Providing foundation for 3-axis AMS machine in L-002

- Completion Cost : ₹ 8.85 Lakh
- Completed on : 25.07.2024

Hostel areas

Providing Safety grills to windows

- Completion Cost : ₹ 16.58 Lakh
- Completed on : 26.04.2024

Minor civil works for new laundry shed near Aswini Hostel

- Completion Cost : ₹ 6.49 Lakh
- Completed on : 24.08.2024

Minor works for new laundry shed near Arundhati Hostel

- Completion Cost : ₹ 15.56 Lakh
- Completed on : 27.01.2025

Minor civil works for providing canopy for Tripti canteen		
» Completion Cost	:	₹ 6.62 Lakh
» Completed on	:	26.12.2024

Minor works for the modification of cafeteria near hostel gate		
» Completion Cost	:	₹ 14.70 Lakh
» Completed on	:	25.09.2024

Providing and fixing of precast concrete aerobic composting bins		
» Completion Cost	:	₹ 1.38 Lakh
» Completed on	:	23.12.2024

Modification works for office space for CISF		
» Completion Cost	:	₹ 3.01 Lakh
» Completed on	:	27.07.2024

Transport area

Minor civil works in TOMD at IIST		
» Completion Cost	:	₹ 4.55 Lakh
» Completed on	:	20.04.2024

Providing safety grills to windows of Academic block-Phase-1		
» Completion Cost	:	₹ 8.82 Lakh
» Completed on	:	13.03.2024

Providing safety grills to windows of Academic block-Phase-1		
» Completion Cost	:	₹ 5.90 Lakh
» Completed on	:	30.08.2024

8.5 Halls of Residence

The hostels or Halls of Residence at IIST provide a nurturing environment that truly serves as a home away from home for its residents. These spaces are where new ideas are born, cherished memories are made, and lifelong friendships take root. As a fully residential campus, IIST hosts 11 well-designed hostels named after mythological star constellations (Nakshatras), offering students comfortable and convenient accommodation. Currently, around 800 students reside in the hostels.

Out of the 11 hostels, three are designated for girl students and eight for boys. Accommodation is provided

in single, double, and triple occupancy depending on the program. Hostel allotments are made at the beginning of each academic semester and are rotated annually to promote inclusivity and diversity.
In addition, the Dhanishta hostel includes 27 guest rooms equipped with attached washrooms and air conditioning, which cater to limited, urgent accommodation requirements for guests.
Boys' Hostels: Dhruva, Chitra, Revati, Rohini, Visaka, Ashwini, Ardra, Phalguni
Girls' Hostels: Dhanishta (Left Wing), Anuradha, Arundathi
Guest Rooms: Dhanishta (Right Wing)

- **Amenities**

Each hostel is equipped with reading rooms, national newspapers, LCD televisions with satellite connection, safe drinking water (both hot and cold), and uninterrupted 24-hour power supply with generator backup. The cleanliness and maintenance of individual rooms are the responsibility of the residents. All hostels are Wi-Fi enabled, providing seamless access to the internet, the digital library, and other online learning resources. Four laundry huts are also available near the hostels for student use, including space for installing personal washing machines.

- **Administration**

The hostel system is administered under the guidance of the Registrar and the Dean (Student Activities, Student Welfare and Outreach). A Resident Faculty Warden, a faculty member resides in campus. Deputy Registrar (Student Activities & Welfare) oversees day-to-day operations with support from five Assistant Hostel Managers, two Hostel Supervisors, and Hostel Attendants. To further personalize student support, a Council of Wardens has been established, assigning two faculty members to each hostel. This system fosters a strong sense of community and well-being, while also ensuring timely coordination with units such as the Civil Maintenance Division, Networking division etc. for attending to student complaints.
The Council of Wardens play a crucial role in addressing student concerns, maintaining discipline, and upholding the Institute's code of conduct within the hostels, contributing significantly to the holistic development and welfare of students during their stay at IIST.

8.6 Canteen Services

Being a residential institute, canteen services in IIST has to cater to the majority of catering requirements of the students as well as faculty members and staff. 800 students as well as research scholars reside inside the campus and 200 officials which include faculty members, officers, staff make use of the canteen facility every day.

Annapurna	Students mess, SAC building, located near institute main gate and easily accessible from academic buildings and hostels. Common mess for B Tech, M Tech, PhD students with a seating capacity of 420.
Tripthi	For faculties, officers and staffs serving breakfast and lunch on all working days with a maximum seating capacity of 70 located in the Aditi building.
Subhiksha	Mess for special meal arrangements with Buffet service facility with a capacity of 50 located in the Aditi building.
Sampurna	VIP dining for special occasions with a seating capacity of 25 located in the administrative building.

All programs organized in the Institute including workshops, conferences, meetings, students' cultural as well as technical festivals were supported by Canteen Services.

Canteen services in IIST is monitored by

- Students Canteen Management Committee (SCMC)
- Canteen Management Committee
- Canteen Procurement Committee

Online meal booking is mandatory for faculty members, officers, staff and students. Booking can be done 14 days in advance. Payment is regulated through Wallet recharge.

8.7 Cafeteria

A private run cafeteria with two outlets viz. Lazeez (in the hostel area) and Lake side cafeteria (near Sciences block) provide variety of vegetarian as well non vegetarian food to students and staff. A juice outlet is also available. They function not only as a food joint but a meeting place for students and faculty members of different departments. All necessary requirements of stationery and other toiletries are met by the stationery counter operational along with the cafeteria.

8.8 Student Activity Centre (SAC)

◊ Indoor sports (badminton court, squash court) and fitness (Gymnasium) and recreation facilities (pool table, Table tennis, carrom, Chess)

◊ Amphi-theatre with seating capacity of 820

◊ Kitchen and Mess hall having seating capacity of 450

◊ Multi purpose hall with seating capacity of 450

8.9 Sports & Fitness

A healthy, physically active student is more likely to be academically motivated, alert, and successful. It also helps in building self-discipline and confidence of the student and promotes teamwork and sportsman spirit. To ensure overall healthy development, IIST encourages the students to actively participate in various sports activities. IIST has a regular program for students to train in various sports and fitness activities by well qualified physical education instructors.

Key highlights

- Sports facilities are open from 5:30 AM to 9:00 PM on all days to ensure accessibility to students, faculty
- Sports Council with members from faculty and students are responsible for the sports activities in the institute.
- IIST provides well developed sports Infrastructure for both indoor activities and outdoor activities which are housed around IIST campus and Magudagiri campus.
- Annual Sports Meet is organized in various track and field events and house events for games. League matches are also conducted every semester for cricket, badminton, volleyball etc.
- Specialized Trainings are organized for students based on need.
- Friendly matches are encouraged between nearby institutes to improve their talents
- Students are encouraged to participate in inter university events with financial support (as per the institute guidelines).

▸ **Sports Council**

IIST promotes sports activities for both students and employees.

Two Sports councils are there in place to coordinate and promote sports activities among students, faculty and staff.

Student Sports Council

- To facilitate the sports activities in the Institute and encourage greater participation of students in various sports and games;
- To plan and conduct various sports events of the Institute;
- To recommend the procurement and oversee the upkeep of sports equipment for the Institute;
- To discuss and recommend participation of students in sports events held outside the Institute;
- To review the development and maintenance of sporting infrastructure including gymnasium and suggest improvements.

Faculty and Staff Sports Council

- To promote sports among faculty members and staff
- To organize inter centre sports meet between VSSC/LPSC
- To arrange Annual sports events for faculty and staff
- To select participants for Inter-Centre sports meets organized by DoS from time to time.

► **Student Houses**

Students at IIST are teamed as Houses to organize intramural activities and conduct events periodically. There are 5 houses named after star constellations

AKASHGANGA, DEVYANI, SHARMISTHA, KRITIKA, SAPTARISHI

► **Infrastructure**

The institute has the following indoor and outdoor sports facilities:

- Flood-lit volleyball and basketball courts
- Five basketball posts for goal practice
- Cricket-nets
- Badminton courts (two wooden and four cemented)
- Squash court (85 sq. m.)
- Table Tennis tables (all academic blocks and hostels)
- Recreation hall (315 sq. m.) featuring chess, billiards, and carrom
- 3 gymnasiums (One outdoor and two indoor)
- Open multi-purpose ground
- Multipurpose hall/ seminar hall for Yoga sessions
- Football cum cricket field with a dimension of 110x110m
- Mini-football ground
- 200-meter track for field events

► **Extra curricular activities as per NEP guidelines**

- League matches are conducted every semester for Badminton, Basket Ball, Cricket, Volley Ball and Football, chess through institute support.

8.10 IIST Health Services

IIST Medical Facility functions 24x7 in a dedicated building with ample area for consultation and doing minor procedures with an emergency ward, male and female wards, nurse station, triage area, sterilization unit, storage, etc.

Three doctors and four nurses are on round the clock duty. A fully equipped Ambulance is available to meet emergency situations. External isolation facility is maintained at Dhanishta hostel. All emergency medicines are in stock for the benefit of students and staff.

All students are covered under Group Medi Claim Insurance Policy. For specialized treatment, lab examinations etc., students were referred to outside hospitals recognized under the insurance scheme.

In addition, all permanent staff are covered under Contributory Health Service Scheme (CHSS) of Department of Space.

8.11 Counselling Services - Sameeksha

IIST is equipped with facility for scientific counseling that involves face-to-face consultation, and 24x7 telecounseling. This helps to prevent development of stress, vulnerability, and nourishes a healthy academic life along with personality development. Apart from developing technically proficient individuals, their grooming as good human beings with impeccable integrity and social consciousness is given emphasis.

Activities include:

- Counseling, career plan development, educating on psychological skills (psychoeducation), and development of customized healing (treatment) plan based on the nature of life experiences, personality predisposition, and unique situation of the individual. Individuals referred by respective mentors are assessed & understood prior to counseling and/or therapy.
- Alumni students are also supported to cope with their challenges and family situations, over telephone, whatsapp and Google meet.
- Researcher scholars having time overrun or those who have difficulty in maintaining a positive working relationship with guide, emotional problems, and difficulties in career planning have been provided psychological help to resolve these issues.
- As part of helping students who underperform during exams, the students are identified and their personal study habits examined, and the presence of other distractions addressed.
- Counseling help is done telephonically (emergency calls outside the consultation hours) and also through online/google meet (outside the consultation hours) also.
- Support for students who underwent psychiatric consultation, support to students staying outside with parent due to psychiatric treatment, consultation with parents, and maintaining records of all counseling sessions and consultations are some of the extended activities done by counseling services at IIST.
- Counseling of students who underwent disciplinary processes and guidance to their parents were

also done by counseling services.

- Creating awareness of the importance of psychological well-being and mental health among new students done during the induction programme for newcomers.
- Meetings with students belonging to minority or socioeconomically backward strata of society is organized to improve their belongingness, adjustment, thriving in academic performance.
- Talks are also delivered on Personality Development, Ego defense mechanisms and Stress management to students.
- IIST provides Counseling Services to its students, research scholars, staff members, and alumni members too.

This psychological support is given through face to face consultation, telecounseling that is available 24x7, psychosocial education in classroom environments, and Whatsapp groups. Psychological Counseling and Psychotherapy are used to address various challenges that individuals undergo in their personal, social, emotional, relationship, adjustment, academic, and mental health domains. Whenever mental health challenges arose, we in close coordination with medical service, parents/guardian of the student, and with Psychiatrists outside, as a team, have been able to address the issues without compromising the academics of the individual. While we have been able to heal all such challenges in the past, we give emphasis on preventing mental health challenges from arising within our campus. This has been made possible by ensuring availability of psychological support through consultation and telecounseling. Psychosocial education during orientation programme as well as in classrooms have helped to reduce stigma in taking help which is otherwise prevalent in Indian society. We have been extremely sensitive to the social context in which our campus is located and takes all precautions to prevent various forms of addictions elsewhere from affecting our campus life. Students and scholars are being made aware of the social engineering happening due to the significant increase in consumption of social media and efforts to detox are ongoing among those who have developed dependence on social media apps. In the last one year, from April 2024 to March 2025, 850 counseling sessions were held for students and scholars within the campus. IIST is strongly committed to the psychological health and psychological well-being of students and scholars.

8.12 Purchase and Stores Division

IIST Purchase and Stores Division is working based on General Financial Rules (GFR) of Government of India, DOS Purchase Manual, guidelines of Central Vigilance Commission, Government e-Market place(GeM) and Public Procurement Policy. The Government e-Market Place (GeM) is extensively utilized for institute procurements to encourage Small and Medium Industries, Start-ups and Indian Manufacturers.

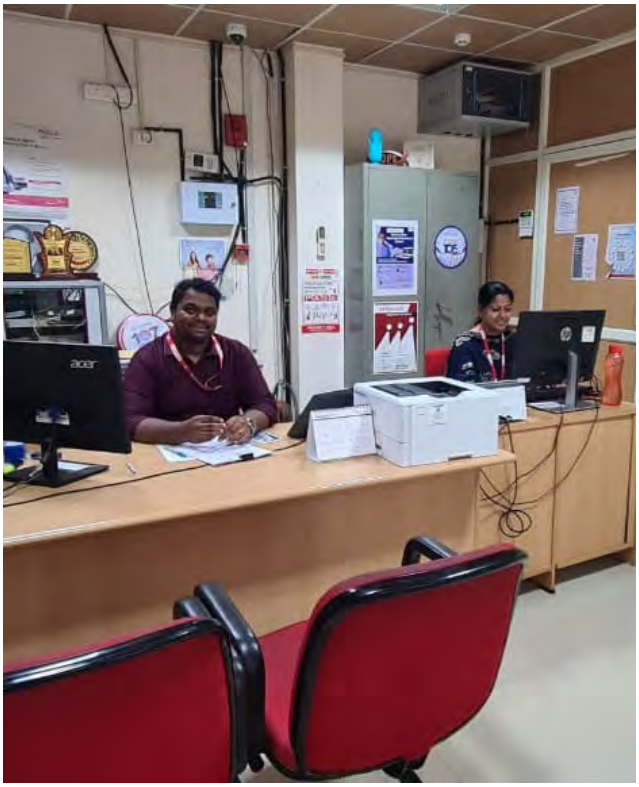
During the year 2024-25, IIST procured equipment, machinery and other items required for different Academic Department through 1897 Purchase orders worth Rs. 48.02 crores including 839 GeM Purchase Orders worth Rs. 17.08 crores. The major equipment procured during this period are High Performance Computer Cluster worth Rs. 4.23 crores and Workstation worth Rs. 2.16 crores. Stores Section timely followed the POs and executed maximum orders on time.

8.13 Transport Operations and Maintenance Division (TOMD)

Transport Operations and Maintenance Division (TOMD) in IIST manages a fleet of 37 vehicles, comprising of Light and Heavy Vehicles, Two-Wheelers and Ambulance. The primary aim of Transport Operations and Maintenance Division is to provide daily conveyance to Faculty members, Officers and Staff. 11 light vehicles and 5 route buses are used for such official transportation. Apart from that, TOMD plays a major role in facilitating internal transportation, supporting procurement activities of various stakeholders, addressing the transportation requirements of students for both academic and non-academic pursuits, providing support to Medical Services, CISF, Canteen, offering conveyance for Official guests and facilitating activities at SPROC facility at Ponmudi Hills. During this period, one 49 seater bus and three 17 seater tempo travellers were added to the fleet to enhance the transportation capabilities of IIST.

8.14 Bank /Financial Services

An exclusive branch of Union Bank of India along with its ATM, caters to the banking needs of students and staff.



8.15 Security Services

Campus security is entrusted to CISF personnel, Janitorial staffs cater to the security of all academic blocks, administrative block, library and hostels.

8.16 Other Units

8.16.1 Internal Quality Assurance Cell (IQAC)

The Internal Quality Assurance Cell (IQAC) of IIST plays a central role in embedding a culture of quality across academics, research, and administration. In line with NAAC and UGC norms, IQAC coordinated all institutional processes related to quality assurance, self-assessment, and external accreditation. Its major achievement during 2024–25 was leading IIST's successful NAAC accreditation, which resulted in an A+ grade with a score of 3.47/4. IQAC oversaw the preparation of the Self-Study Report (SSR), DVV clarifications, and pre-evaluation exercises, including mock visits and expert reviews. The cell also managed logistics and documentation during the NAAC Peer Team visit (5–7 February 2025) and facilitated institutional-level coordination that ensured transparency, efficiency, and readiness.

Beyond accreditation, IQAC organized seminars, lectures, and workshops to strengthen academic quality and research exposure—such as sessions on the Engineering Village database, Human Rating of Launch Vehicles, and Power Sector Reforms. It standardized data templates, enhanced documentation practices, and maintained meeting minutes, AQARs, and reports on the IQAC portal for transparency. With 18 meetings held during the year and multiple quality-enhancement initiatives completed, IQAC has reinforced IIST's framework for continuous improvement. Its efforts not only secured top-tier accreditation but also strengthened IIST's position as a leading national institution in space science and technology.

8.16.2 Hindi Section and Official Language Implementation

IIST has a Hindi Section which not only caters to the Constitutional and Statutory requirements regarding the Official Language, Hindi, but also creates a conducive environment for the officials of the Institute to learn Hindi and work in Hindi. During the year, efforts were made for implementing the provisions of Official Languages Act, Rules made there under and orders/ instructions issued by the Department of Official Language from time to time regarding progressive use of Hindi.

Major Activities related to Policy Implementation

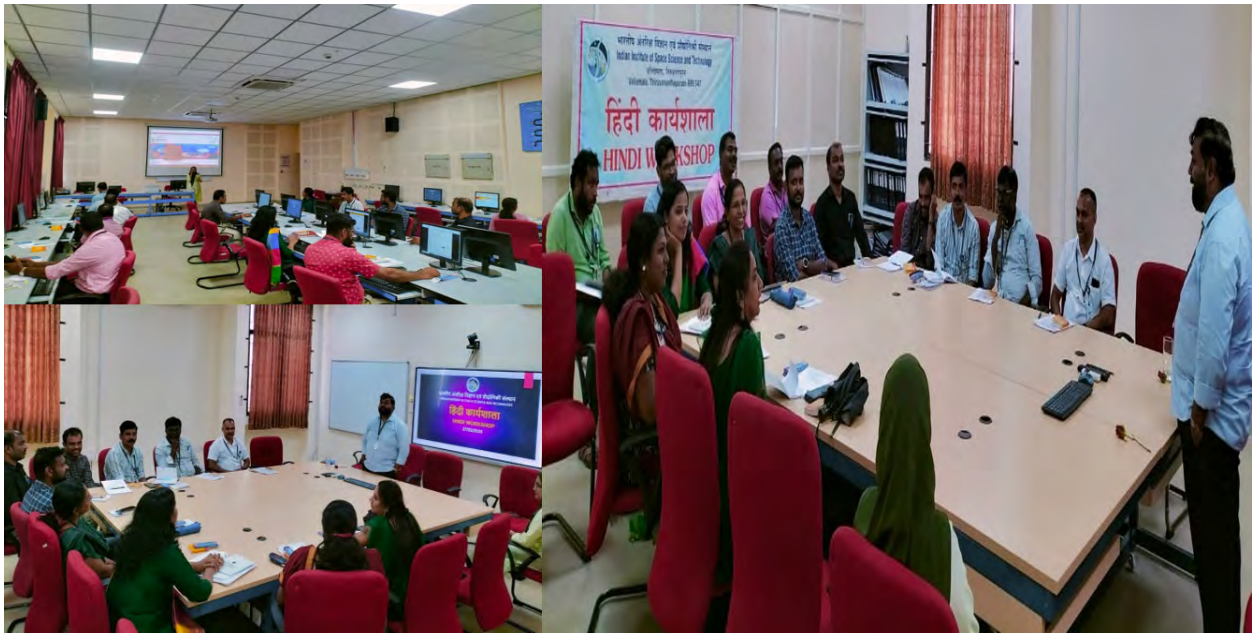
- Four Hindi Workshops were conducted on June 26, 2024 for the Executives, on September 11, 2024 for the faculty members, on December 20, 2024 for the Employees of Administrative areas and on February 27, 2025 for the Employees and officers of Technical areas.

Hindi workshop for the by Dr. P.R Hareendra Sharma


Hindi workshop by Smt. K.R. Ranjini for faculty members of the institute on September 11, 2024


Hindi workshop by Dr. Herman and Smt. Cimy Asaf for the administrative employees


Hindi workshop by Dr. Herman and Smt. Cimy Asaf for the officers and employees of technical areas



Apart from these, Hindi software training programs were organized for the employees of the institute on September 18, 2024 and September 24, 2024.

- **Meetings of the Official Language Implementation Committee**

Four Quarterly meetings of the OLIC were conducted on (June 25, 2024, September 27, 2024, December 12, 2024 & March 19, 2025) in order to review the progress in the implementation of OL Policy and four Quarterly Progress Reports regarding progressive use of Hindi in the Institute were sent to the Department of Official Language and Department of Space.

- **Conduct of the Personal contact program for the 67th session of the Hindi Word Processing / Hindi Typing Training Course**

A personal contact program for the 67th session of the Hindi Word Processing / Hindi Typing Training Course, conducted through correspondence by Department of Official Language was organized in IIST from May 01 to 03, 2024. Thirty trainees from various Central Government offices located in Thiruvananthapuram, including LPSC, CPWD, Directorate of Census Operations and the Indian Air Force participated in the program. The examination of Hindi Word Processing / Hindi Typing of the 67th session (Correspondence Course) was held at IIST on July 08, 2024 in which twenty-two employees/officers appeared.

- **Independence Day Celebrations – 2024**

As part of the Independence Day celebrations 2024, Hindi Essay Writing and Hindi Versification competitions were organized for the students of the institute on August 8 and 9, 2024. During the Independence Day ceremony held on August 15, 2024, the winners of the Hindi competitions were awarded certificates by the Registrar of IIST. Certificate was also awarded to Dr. Natarajan, Professor, Dept. of Maths who passed the Hindi Praveen Examination of Hindi Teaching Scheme.

Hindi Fortnight Celebrations – 2024

Every year in the month of September, Hindi programs are organized to promote official language Hindi. Hindi Diwas for the year 2024 was inaugurated in New Delhi, on 14 September 2024 under the chairmanship of Hon'ble Minister of Home Affairs & Co-operation along with the fourth All India Official

Language Conference during 14-15 September 2024. Dr. Anish Kumar, Assistant Professor, Department of Aerospace Engineering and Member of the Official Language Committee, participated on behalf of the institute. The institute celebrated Hindi Fortnight from September 17 to September 30, 2024. Each day, a quote from a prominent personality related to the Hindi language was displayed via webmail. On the occasion of Hindi Fortnight Celebrations – 2024 Hindi competitions were organized for staff members on September 19 and 20, 2024 and for students on September 17, 18, and 20, 2024. Certificates to the prize winners were awarded by the Director, IIST during the prize distribution function held on November 27, 2024. Software Training Programme were also conducted for the Employees of Administrative areas and Officers / Assistants of Technical areas. Four faculty members who successfully completed the Praveen and Prabodh Courses were also awarded certificates.

▸ Hindi Outreach Programme

To promote understanding of space science and technology and to familiarize school and college students as well as the general public with the activities of IIST, a half-day outreach program in Hindi was organized by IIST on September 26, 2024 at Government College, Nedumangad, as part of the Hindi Fortnight Celebrations – 2024. Sixty students participated in this program. Certificates were awarded to the participants at the end of the programme.

▸ In-service Hindi Language Training

Under the Central Hindi Training Institute, Department of Official Language, New Delhi, six faculty members - Dr. Anoop C. S., Dr. Vineeth B. S., Dr. R. Sudarshan Kaarthik, Dr. Immanuel Raja from Dept. of Avionics, Dr. Kuntala Bhattacharjee from Dept. of Physics and Dr. Kaushik Mukherjee from Dept. of Maths were nominated for the 35th session of the Praveen Hindi Language Training Course conducted through correspondence.

▸ Annual Inspection

As per the inspection schedule for the year 2023-2024, Controller, HSFC inspected IIST on October 7, 2024. Registrar IIST inspected Branch Secretariat, New Delhi on November 04, 2024.

- **Internal Official Language Inspection**

Since IIST is a notified office three sections of the Institute viz. General Administration, Establishment and Review have been notified for doing entire work in Hindi/Bilingual. As per the Annual Hindi Inspection Program of the Institute – 2024, the inspecting officers of the Internal Official Language Inspection Committee of the Institute inspected 13 sections of IIST on March 6, 2025.

- **The 164 th DoS Official Language Implementation Committee (DOLIC)**

The Registrar, IIST along with the Assistant Director (OL) attended the DOLIC meeting on March 27, 2025 at ISRO HQs Bangalore.

- **World Hindi Day or Vishwa Hindi Diwas**

Observed annually on January 10. It is celebrated with the objective of raising awareness about Hindi as an International Language and to promote its use across the world. In this connection various Hindi competitions were organized for the employees of IIST on January 17, and 20, 2025 and for the students on January 16, 17, 20 and 21, 2025. A prize distribution ceremony was organized on the occasion of Republic Day celebrations on January 26, 2025 in which certificates were distributed to the winners of the competitions.

Prize distribution function

Students and staff receiving Rolling trophies from the Chief Guest Prof. Anil Sahasrabudhe, Chairman NAAC, Prof. Dipankar Banerjee, Director, IIST and Prof. Kuruvilla Joseph, Registar, IIST

▸ OL Inspection by the Committee of the Parliament on Official Language

The Official Language Inspection of the Institute was carried out by the Second Sub-Committee of the Parliament on Official Language on January 09, 2025 at Thiruvananthapuram. Actions were taken on the assurances given to CPOL.

▸ Conduct of Spoken Hindi Classes for the Drivers on Contract

As part of Official Language Implementation activities in the Institute Spoken Hind Classes are being conducted for the 24 Drivers working (on contract) during the fourth week of every month for two batches comprising of 12 Drivers each. Classes shall be organized for a period of one year commencing from February 2025 onwards.

- **Hindi House Journal of IIST 'Antarish Dhaaraayen' – Release of seventh issue**

The seventh issue of IIST Hindi In House Magazine 'Antariksh Dhaaraayein' was released on 14.03.2025 during the cultural festival of IIST Dhanak 2025. The magazine contains articles, poems, and creative works of students and Staff of IIST as well as the technical articles in Hindi sent by the employees and students of IIST.

- **IIST News Letter**

The institute's half-yearly newsletter is partially bilingual. The official language related activities of the institute are published in Hindi.

- **Participation in Hindi Technical Seminar and Inter Centre Hindi Technical Seminar**

Ten papers from IIST were presented in a one day Hindi Technical Seminar on 'Advanced Technologies and Challenges for Interplanetary Missions' organized under the aegis of LPSC for Centres/Units of Pool C of Department of Space on October 18, 2024.

Two officials from IIST participated in the Inter Centre Hindi Technical Seminar – 2024 organized by SAC Ahmedabad on 13-14 November, 2024 on the topic 'ISRO's indigenous initiative for developed India by 2047'.

- As the percentage of employees possessing working knowledge in Hindi in the institute is above 80, the Institute was notified as an office possessing working knowledge in Hindi as per Rule 10(4) of the OL Act 1976. Individual letters were re issued to six officials who possess proficiency in Hindi to use Hindi in their official works.
- Record of Degrees conferred, Provisional Certificates, Degree Certificates and all other certificates such as certificate of participation/ certificate of merit etc., were prepared and issued in bilingual format (both Hindi and English). Institute Brochure, Telephone Directory, Annual Report 2023-2024 were prepared in Hindi.
- Standard forms used in various Administrative Departments and Academics were bilingualised, visiting cards, name boards and rubber stamps were prepared in bilingual format.
- Name plates containing local name, Hindi, English and Botanical names of major trees were prepared and displayed in IIST campus.
- In order to ensure the compliance of Official Languages Act, 1963, Official Languages Rules, 1976 and relevant orders issued by the Dept. of Official Language time to time, check Points were re-established.
- In order to encourage the progressive use of Hindi the incentive scheme for doing official work in Hindi was continued.
- Assistant Director (OL), IIST provided faculty assistance for the conduct of OL workshop in VSSC, IISU, LPSC and IIST

Participation in TOLIC

▸ **Town Official Language Implementation Committee**

IIST, Valiamala is a member of Town Official Language Implementation Committee (Office-2), Thiruvananthapuram and actively participated in its activities.

▸ **Town Official Language Implementation Committee (TOLIC) RAJBHASHA AWARDS 2022-2023**

IIST, Valiamala won the third prize of the Town Official Language Implementation Committee (Office - 2) TOLIC Rajbhasha award for outstanding performance in the implementation of Official Language Hindi (Category - II) . The Hindi House Journal of IIST 'Antariksh Dhaaraayein' was awarded the third prize for the best Hindi Journals. Awards were received from Shri. S. Sunil Raj, Principal Accountant General (Audit – I), Kerala and Chairman TOLIC, Thiruvananthapuram (Office - 2) on July 02, 2024.

Conference Proceedings

1. Dr. Sarita Vig, 2024, October."सौर प्रणाली की खोज: क्यों?" in Hindi Technical Seminar for DOS Centers / Units of Pool C (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
2. Dr. Rajesh V.J., 2024, October. "अंतरग्रहीय मिशनों और चुनौतियों के लिए उन्नत प्रौद्योगिकी (अंतरिक्ष निवास स्थल)" in Hindi Technical Seminar for DOS Centers / Units of Pool C (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
3. Dr. Anand Narayanan, 2024, October. "अंतरिक्ष के रहस्यों को खोलना: एसस्पेस खगोल जीवविज्ञान नीतभार (एस्ट्रोबायोलॉजी पेलोड) एसएपी-३ (SAP-3) और पायलट- जी२ (PILOT-G2) मिशन" in Hindi Technical Seminar for DOS Centers / Units of Pool C (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.

4. Dr. Chinmoy Saha, 2024, October. "ऊर्जा-बीम नोदन के प्रौद्योगिक विकास हेतु एक नवीन सूक्ष्मतरंग प्लाज़्मा प्रणोदक (माइक्रोवेव प्लाज़्मा थ्रस्टर) का प्रायोगिक अध्ययन " in Hindi Technical Seminar for DOS Centers / Units of Pool C (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
5. Dr. P. R. Sinha, 2024, October."एयरबोर्न मल्टी-वेवलेंथ सनफोटोमीटर का डिजाइन और विकास" in Hindi Technical Seminar for DOS Centers / Units of Pool C (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
6. Dr. K G Sreejalekshmi, 2024, October."ग्लास फाइबर सुदृढीकरण के माध्यम से संगलित निक्षेपण प्रतिरूपण (फ्यूज्ड डिपोजिशन मॉडलिंग) में पॉलीप्रोपाइलीन कंपोजिट की मुद्रण क्षमता और यांत्रिक गुणधर्मों का संवर्धन" in Hindi Technical Seminar for DOS Centers / Units of Pool C. (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
7. Dr. H. Priyadarshnam, 2024, October. "विज्ञान एवं नीतभार" in Hindi Technical Seminar for DOS Centers / Units of Pool C. (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
8. Dr. Sourav Bhowmick, 2024, October."उन्नत नियंत्रण प्रणालियाँ और घटक" in Hindi Technical Seminar for DOS Centers / Units of Pool C. (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
9. Dr. Anish Kumar, 2024, October." औसत विधि द्वारा द्वि रैखिक दोलक पर टुकडा वार रैखिक दुर्नम्यता, अवमंदन एवं प्राचलिक उत्तेजन का अध्ययन" in Hindi Technical Seminar for DOS Centers / Units of Pool C. (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
10. Dr. Umesh R. Kadhane, Sudharshan K., Sooraj V. S., Anoop C. S., Sreeja R., Sreehari S., 2024, October." ARIS (अड्वानस्ड रिटार्डिंग पोटेंशियल ऐनलाईसर फॉर आयनोस्फेरिक स्टडीज़, आयनमंडलीय अध्ययन के लिए उन्नत मंदक स्थितिज विश्लेषक): एक आयन मंडलीय मौसम प्रहरी" in Hindi Technical Seminar for DOS Centers / Units of Pool C. (VSSC, LPSC, IISU, IPRC, APEP & IIST) on "अंतर-ग्रहीय मिशनों के लिए उन्नत प्रौद्योगिकी एवं चुनौतियां" held at LPSC, Valiamala.
11. Dr. Ashok Kumar, Chirang Patel, 2024, November. "वायुमंडल में दो-मोड स्क्वीज्ड अवस्थाओं के साथ निर्धारणात्मक क्वांटम संचार" in Inter – Centre Hindi Technical Seminar on "विकसित भारत 2047 हेतु इसरो की स्वदेशी पहल" held at SAC, Ahmedabad.
12. Dr. Gnanappazham, Humaira Sanam 2024, November "कांदलवन के लिए बहु-स्रोत सुदूर संवेदन" in Inter – Centre Hindi Technical Seminar on "विकसित भारत 2047 हेतु इसरो की स्वदेशी पहल" held at SAC, Ahmedabad.

8.16.3 Gender Sensitization Cell

The Gender Sensitization Cell at IIST serves as a crucial institutional mechanism dedicated to fostering a gender inclusive and equitable environment within the academic community. The Committee aims to bring about a perceptible change and positive shift towards greater empowerment of women in various domains. By conducting educational programs, sensitization workshops and providing support to students and staff, the cell aims to create a safe, respectful and empowering atmosphere where all individuals regardless of gender can thrive, pursue their academic goals and contribute effectively to the scientific and academic endeavors of the institution.

In pursuance of UGC (Prevention, prohibition and redressal of sexual harassment of women employees and students in higher educational institutions) Regulations, 2015 read with Sexual Harassment of women at

Workplace (Prevention, Prohibition and Redressal) Act, 2013, an Internal Complaints Committee (ICC) has been constituted in IIST to deal with the complaints relating to Sexual harassment at work place.

The Gender Sensitization Cell at IIST was reconstituted on February14, 2024. The cell also co-opted members from the Student community ie., a male and a female coordinator from B. Tech, M. Tech and Ph D who actively participates in the activities of the cell. During the reporting period the following programs were conducted by the Cell.

A talk regarding Women in STEM on April 24, 2024: Dr. Mridul Eapen, Honorary Fellow, Centre for Development Studies, Trivandrum was invited as the Speaker who delivered the talk on Gender and STEM Education. She focussed on gender issues and the various ways women are disadvantaged in society, the need for policy to redress all forms of discrimination to create a gender conscious society.

A talk in Malayalam on July 15, 2024 : Dr. Gita Gopal, Former Lead Evaluation Specialist, Independent Evaluation Group, The World Bank was invited as the speaker who delivered a talk on 'Respect and Safety for All in the workplace'. The event was widely attended by the members of Administrative staff, faculty members, house keeping staff and janitors. Dr. Gita interacted with the attendees, made them talk about their perceptions regarding status of women and men in the society.

A talk in English on August 02, 2024: Dr. Gita Gopal was invited to deliver a talk on 'Respect and Safety for All in the workplace' as part of this year's Induction Program. The event was widely attended by the first year B. Tech and Ph.D. students. She also informed the students regarding the different committees such as Internal Committee and Gender Sensitization Cell which adopts suitable programs and measures for providing safety and access to a non – discriminatory or Sexual Harassment free environment around the hostel and campus.

Celebration of International Women's Day on March 7, 2025

The International Women's Day was celebrated in IIST on March 7, 2025. Dr. S. Seetha, Emeritus Professor, Raman Research Institute, Bengaluru was the Chief Guest who delivered a talk on the topic 'Challenges in Space Missions'. Space missions in India are great opportunities to create new avenues. Whether the experiments are scientist-driven or agency driven there are unique requirements and constraints which one has to work within in realising the experiments and during their operation in space. The talk highlighted some of these challenges and how they were dealt with. During the function, the video made by Shri. Vaibhav Rikhari and Shri. Sanath Jain depicting the theme 'Women in IIST', which got the first prize in the short video-making competition, was screened. Dr. Seetha awarded the prizes to the winners of the Short Video Making Competition. As part of the celebration, an exhibition-cum-sale of handicrafts made by the staff was also arranged. The results of the Short video making competition is given below.

Position	Name of the Participant	Team name	Book coupons worth
First	Sanat Jain Vaibhav Rikhari	Soch	₹ 1500/-
Second	Poonam Sachdev Geethika, Komal Murmu	The women of today	₹ 1000/-
Third	Gaurav Gill Shriyam, Palak	The valiant voices	₹ 750/-

Setting up of ladies resting rooms in each block

Ladies Resting Rooms have been identified in Science, Interdisciplinary, Avionics and Aerospace Block which is initiated by the Gender Sensitization Committee. This would be a common room that can be used by all women students, faculty or staff when they're indisposed. Faculty members, as well as permanent and contract staff in each block have been identified as focal points regarding the usage of Ladies Resting Room who shall be responsible for the general upkeep of the room. A Standard Operating Procedure (SOP) prepared by Committee is circulated to all. IIST Hostel Services shall be entrusted with the change of bedding on a weekly basis at the most or after usage.

Participation in e-survey on gender sensitivity conducted by DoS/ ISRO

An e - survey was conducted by Dos/ ISRO in order to assess the progress of women employees in STEM fields/gender sensitivity in DOS/ISRO. 30% of women and 5% of men were already identified from IIST. Out of the identified 36 employees from IIST 34 had filled up the e-survey forms before October 21, 2024. Apart from this, the final questionnaire for Gender Sensitivity survey among the identified female, male and transgender employees of different Centre/Unit/Autonomous Bodies of Dos/ISRO were again circulated.

8.16.4 Internal Committee (IC)

Following are the IC activity during 01.04.2024 to 31.03.2025.

- Dr. Gomathi and Dr. Chris Prema attended "Workshop on Prevention, Prohibition and Redressal of Sexual Harassment of Women at Work Place (POSH-22)" in ISTM, Delhi on November 4, 2024.
- Gender Sensitization Committee and Internal Committee jointly organized a talk by Dr. S. Seetha, Emeritus Professor, Raman Research Institute, Bengaluru on 7th March, 2025 as a part of the International Women's day celebration.

No cases were reported to IC during 01.04.2024 to 31.03.2025.

8.16.5 SC/ST Cell

The Scheduled Caste / Scheduled Tribe Cell is dedicated to promoting a safe, inclusive, and equitable environment for all students and staff belonging to the Scheduled Castes and Scheduled Tribes communities. Aligned with the institute's commitment to social justice and equality, the Cell's primary mandate is to safeguard the interests and address the concerns of the employees and students belonging to the SC/ST categories. It is noteworthy that no grievance was reported during the reporting period.

On April 30, 2024, the Cell has organised the birth anniversary celebration of Dr Baba Saheb Bhimrao Ambedkar, the architect of the Indian Constitution and a tireless advocate for equality, justice, and human

dignity, with great enthusiasm and reverence. Dr. M. R. Biju, Chairman, KPSC delivered an inspiring talk as the chief guest. In addition to the students, faculty, and staff from IIST, scientific and technical staff from the nearby ISRO Centres also attended the event. As part of the programme, lunch was served for the students, faculty, and staff of IIST.

8.16.6 Anti-Ragging Cell

The Anti-Ragging Cell of the Institute serves a critical role in ensuring the safety and well-being of students. The cell actively has promoted a campus environment that is free from any form of ragging, by conducting awareness programs as part of the induction program, a sensitization workshop, and ensured the strict enforcement of anti-ragging policies. It also played a vital role in promptly responding to complaints, providing support to victims, and taking necessary actions against those found guilty of ragging. Through these efforts, the Anti-Ragging Cell ensured that students can pursue their education in a secure and respectful atmosphere, fostering a conductive learning environment at IIST. An anti-ragging squad comprising of faculty members and staff is also formed as per UGC guidelines.

8.16.7 Grievance Redressal Committee

The Students Grievance Redressal Committee received only one grievance during April 1, 2024 to March 31, 2025. Mr. Vignesh J M, PhD student from Department of Aerospace Engineering submitted a grievance on September 10, 2024 regarding his cessation from the institute. The committee had two meetings, one on September 20, 2024 and another on October 1, 2024 to investigate the grievance. The student was called before the committee to present his grievance. The termination of the student is due to his failure to complete the PhD coursework within the period allowed for completing the same. After the verification of the documents and hearing from the faculty who offered the courses, PhD supervisor, Head of the Department of Aerospace Engineering, Academic section of administration and Mr.Vignesh, the committee found that the cessation of Mr. Vignesh is in accordance with the PhD rules and decision of Research Council meeting on June 25, 2024. The investigation report submitted on October 7, 2024 was approved by the Director, IIST.

Ombudsperson

In terms of University Grants Commission (Redressal of Grievances of Students) Regulations, 2023, Prof. Ciza Thomas, former Vice Chancellor, APJ Abdul Kalam Technological University, Thiruvananthapuram was appointed as Ombudsperson for the redressal of grievances of students of the Institute. The period of appointment is for three years from 23 September 2024. The grievances of students not resolved by the Students' Grievance Redressal Committee will be heard and decided by Ombudsperson.

8.16.8 Public Information Cell

RTI Status

The Institute has a Public information Office which disseminates information in a time bound manner. IIST has designated specific officials as Appellate Authority, Transparency Officer, Nodal Officer, Central Public Information Officer (CPIO), Assistant Public information Officer (APIO). Following decentralisation of the processing of applications under RTI, IIST has been disseminating the information directly to the applicants.

From April, 2024 to March, 2025				
Application Received	Information Given	Appeal Received	Appeal Settled	CIC Hearing
48	48	09	08	Nil

Vigilance Status

Vigilance cases pending and disposed off in the year 2024-2025-Nil

8.16.9 Equal Opportunities Cell

As per UGC directives, equal Opportunities Cell has been set up in IIST in 2019 to give more emphasis to the deprived groups for learning and creating space for them in the mainstream. The cell oversees the effective implementation of policies and programmes for disadvantaged groups (SC/ST, Minorities, OBC, Jain and Physically challenged) to provide guidance and counselling with respect to academic, financial, social and other matters and to enhance the diversity in the campus. The cell is chaired by Dean (Student Activities and Welfare) and has Dean (Academics), Chairpersons of Gender Sensitisation Cell, SC/ST Cell and Deputy Registrar (Legal).

8.16.10 Inhouse Publications

Surabhi is a bi-annual art and creative journal of Arts and Literature published by Indian Institute of Space Science and Technology. It publishes creative and literary articles written by students, staff and faculty of IIST as well as employees from various centres of Department of Space. It also publishes interviews of interesting and talented personalities from DOS. The institute published its 19th volume in June 2024.

Antariksh Dharaayen is the in-house Hindi journal of IIST. The journal contains articles, poems, reports of major functions and creative works as well as the technical articles in Hindi sent by the students and personnel of IIST. The seventh issue was published on December 2024.

IIST News Letter brings out the latest developments in the institute. It covers the whole spectrum of activities in the institute.


INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY
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ALUMNI ASSOCIATION

Alumni @ IIST

9. Alumni @IIST

9.1 IIST Alumni Association (IISTAA)

The IIST Alumni Association organized and promoted a vibrant roster of events across its social media channels, strengthening connections within the IIST community. Key highlights included career-building initiatives like IGNITE sessions (e.g., “Life Beyond ISRO”—focusing on varied career journeys in the NewSpace sector), ADVANCE webinars covering resume-building, LinkedIn optimization, MBA guidance, and specialized preparation for ISRO’s ICRB interviews. The association facilitated alumni panels on prestigious global experiences—such as the Lindau Nobel Laureate Meeting—and hosted mentorship programs geared toward PhD and scholarship aspirants. Beyond professional development, we celebrated IIST’s Foundation Day with lectures, hands-on demonstrations, and student engagement activities. Social gatherings thrived through the popular Unconference, chess and badminton tournaments, nature trails, Diwali donation drives, movie club evenings, and alumni reunions. These activities fostered mentoring relationships, built professional networks, and created a strong sense of community among students and alumni alike, underlining IISTAA’s commitment to holistic growth and lifelong engagement for its members. A list of events of with brief description are given in the next few pages

9.2 Ignite

1. Ignite Session-5: Space Rickshaw

IISTAA’s fifth Ignite featured Rifath Shaarook, CEO of Space Rickshaw, sharing the evolution from building cubesats to launching Space Rickshaw—a platform aiming to make in-space infrastructure routine and affordable. The session spotlighted their Techstars selection and pioneering work to democratize space access.

2. Ignite Session-8: Airbus

Ignite session 08 featured Saathvika Kasukurthi, Airbus alumna, who shared valuable insights into Airbus's company culture, hiring process, and expectations. She highlighted the importance of soft skills, career growth, innovation, hybrid work, and training. Attendees also received resume tips and guidance on thriving in Airbus's supportive learning environment.

3. Ignite Special Session by IISTAA Bangalore Chapter

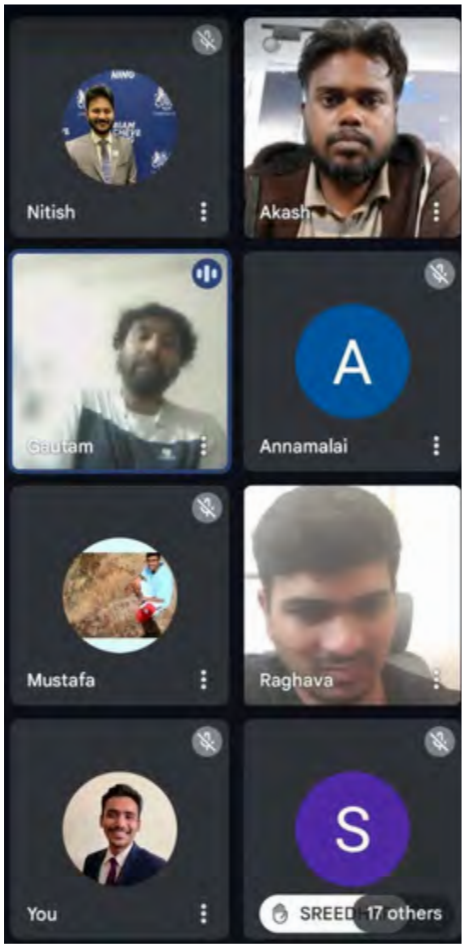
IISTAA Bengaluru Chapter, in partnership with SatSure and KaleidEO, hosted a memorable Ignite session that united alumni across batches for open conversations and networking. Fireside panels explored diverse career paths beyond ISRO—from starting space-tech ventures to leadership roles in deep tech and data science, inspiring honest and candid reflections.

Alumni enjoyed burgers, celebrated successes, played foosball, and formed new mentorships and collaborations. Thanks to panelists Abhinav Goel, Etika Agarwal, Venkata Surya Tej Adimulam, Gautam Aleti, Yudhishtir J, Arpan Sahoo, and moderators Parth Sharma and Pranjal Prateek. SatSure and KaleidEO provided exceptional hospitality, fostering appreciation and future-focused community spirit.

4. Ignite Special Session by IISTAA Bangalore Chapter

The eighth session of Ignite was successfully held on September 21, 2024, hosted by the IIST Alumni Association's Europe and NORAM chapters. Speakers Param Uttarwar and Kumari Pooja, with Prakhar Agarwal and Parth Sharma as moderators, led the session focused on resume and LinkedIn profile building. The session equipped attendees with essential skills to showcase their achievements and potential to future employers and network connections, receiving strong positive feedback and fostering community engagement.

5. Advance Session-09: A Guide to MBA and After - Part 2 (Executive MBA)



An advance Session titled "A Guide to MBA and After - Part 2 (Executive MBA)" featuring over 25 participants was led by distinguished IIST alumni Gautam Aleti and Raghava K. The session focused on leveraging an MBA for career advancement beyond ISRO, including interactive Q&A and engaging discussions. It was coordinated by Priy Devvrat Singh and Akash Ekka from the IISTAA Delhi & Chandigarh Chapter, providing practical career guidance and valuable insights to attendees.

6. Advance Session-10: Navigating MBA & MIM: Insights from an IIST Alum | India vs Abroad

A Session on "MBA & MIM: India vs Abroad" session, organized by the IIST Alumni Association and Ecell IIST, featuring Oxford MBA and IIST alumnus Abhinav Kshitij. He shared practical insights on choosing between MBA and MIM, the importance of 3–5 years of (preferably international) work experience, scholarship and loan options, job-hunting strategies using LinkedIn and networking, and advice for aspiring entrepreneurs regarding funding and accelerators. He highlighted that while MBA offers faster salary growth, the initial financial phase can be demanding. The session, smoothly hosted by ECell leaders, strongly recommended building a robust profile and seeking alumni or mentor guidance for those planning an MBA abroad.

7. Chess Club Events

The IIST vs. IIST Alumni Battle of Generations Chess Tournament was hosted by Swastika Mandal featuring a Team Event on November 17, 2024, and an Individual Arena Event on January 26, 2025. With 43 participants, the event delivered exciting team strategy and individual matchups, fueling a lively rivalry. Its success has inspired plans for future engaging chess tournaments.

8. Diwali Cloth Donation Drive - Ahmedabad Chapter

The IIST Alumni Association Ahmedabad Chapter organized a Cloth Donation Drive, donating to the Blind People Association in Vastrapur on November 18, 2024. Alumni and well-wishers' generosity brightened lives and reinforced community spirit, with heartfelt gratitude from recipients, celebrating the power of collective giving and support.

9. Shuttle Space: LiftOff - IISTAA

The IIST Alumni Association's Trivandrum and Mahendragiri chapters organized "Shuttle Space: LiftOff," their debut badminton tournament. The event brought together alumni for friendly competition, camaraderie, and fun, marking the start of the chapters' sports lineup for 2025 and strengthening alumni connections in a vibrant, engaging environment

10. IISTAA AGM 2024 by Bangalore & Hassan Chapter

The IIST Alumni Association AGM 2024, was organized by the Bangalore & Hassan Chapter, on December 15, 2024 at Mango Mist Resorts. The event was an unforgettable day filled with alumni gathering, enjoyable activities, networking, games, music, and delicious food, fostering camaraderie and nostalgia among alumni.

11. Movieclub! @ Thiruvananthapuram

The IISTAA Thiruvananthapuram and Mahendragiri Chapter hosted their first Movie Club session on December 21, featuring "Silent Night" (2021). Twelve enthusiastic alumni, including two from Mahendragiri, attended. The event offered engaging discussion on the film's dark themes and creative merit, strengthening connections and welcoming suggestions for future movies.

12. Quiz Club - General Quiz

The Quiz Club of the IIST Alumni Association, led by Kapil Kumar, organized a quiz event on February 22, 2025.

Alumni and quiz enthusiasts participated and tested their knowledge across varied topics, engaging in friendly competition that fostered learning, interaction, and fun. Kapil Kumar's initiative helped strengthen community ties and encouraged intellectual curiosity among members.

13. First IISTAA Unconference 2025

The IISTAA Unconference 2025, held by the Thiruvananthapuram and Mahendragiri Chapter, brought together around 50 alumni and their families for a dynamic event. Sessions delved into emerging and frontier technologies, including AI's disruptive impact, human-oriented tech adoption, and quantum computing applications in disaster management and strategic domains. Networking strategies were another focus—alumni discussed ways to strengthen professional ties, the significance of soft skills, and inspiring ISRO collaboration case studies. Career reinvention, entrepreneurship, higher studies, and industry-academia connections were actively debated alongside comparisons of educational opportunities in India and abroad.

Commercial and technological innovations in the space sector dominated the final session, featuring topics from launch business profitability to the challenges of orbital living and space research. Beyond the discussions, sponsor displays like Fluxx Electric's e-bike test rides and event goodies from Rocketeers and PierSight created a lively atmosphere, rounding off the festivities with a sense of camaraderie and inspiration for future alumni gatherings.

14. BAKOR Nature Trail | IISTAA Ahmedabad Chapter

The Ahmedabad Chapter organized a vibrant Bakor Nature Trail on July 5, 2024, where 32 alumni, friends, and family enjoyed hiking, laughter, and fellowship amid greenery and at Kamleshwari Temple. The event rejuvenated old bonds and forged new connections, leaving everyone feeling reunited, recharged, and reconnected as a community

15. Mentorship for final year students Session-1

IIST Alumni Association hosted an orientation for the 2025 graduating batch joining ISRO, attended by over 50 students. Alumni from several chapters shared insights on working and living at ISRO centers, encouraging new recruits to excel and contribute to India's space program and national development

16. Mentorship for final year students Session-2

IIST Alumni Association held an orientation session for all incoming and 3rd-year students on July 16, 2024. Over 35 participants joined the session. Alumni from Ahmedabad and SHAR shared valuable insights to help new students prepare for life and work at ISRO.

17. Canva Subscription

Canva has been the primary tool for creation of documents, flyers and posters for most of the IISTAA activities. Further, the access to Canva has been provided to IIST students during Dhanak and Conscientia for publicity posts and content creation. The subscritption to Canva was renewed on 18 June 2024 for a period of one year.

Audit Report 2024-25

ARSB & ASSOCIATES
Chartered Accountants

INDEPENDENT AUDITOR'S REPORT

To the Governing Body
Indian Institute of Space Science and Technology
(Autonomous Institute under the Department of Space,
Government of India.)
Valiamala P O
Thiruvananthapuram-695022
Kerala

Report on the Audit of the Financial Statements

We have audited the accompanying financial statements of **Indian Institute of Space Science and Technology (IIST)**, which comprise the Balance Sheet as at **31st March 2025**, the Income and Expenditure Statement for the year then ended, and a summary of significant accounting policies and other explanatory information.

Qualified Opinion

In our opinion, and to the best of our information and according to the explanations given to us, except for the effects of the matter described in the "Basis for Qualified Opinion" section of our report, the accompanying financial statements give a true and fair view in conformity with the accounting principles generally accepted in India of the state of affairs of **Indian Institute of Space Science and Technology** as at **31st March 2025**, and its deficit for the year ended on that date.

Basis for Qualified Opinion

We conducted our audit in accordance with the Standards on Auditing ("SA"s) issued by the Institute of Chartered Accountants of India. Our responsibilities under those Standards are further described in the Auditors Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Institute (IIST) in accordance with the Code of Ethics issued by the Institute of Chartered Accountants of India ("ICAI") and we have fulfilled our other ethical responsibilities in accordance with these requirements and the Code of Ethics. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our Opinion.

Add : Balanilayam | Opp. Hindi Prachar Sabha | AIR Road | Vazhuthacaud | Thiruvananthapuram | Kerala | India | 695014
Tel : +91 471 4014014 | 2326855 Email : info@arsb.in Web : www.arsb.in

We draw attention to the following:

1. ***Fixed Assets Register is subject to reconciliation with financial accounts.***
2. ***The balances of Sundry Creditors, Loans, Advances and Other Personal Accounts are subject to confirmation and reconciliation by the respective counterparties.***

These matters were the subject of our qualified opinion.

Other matters

1. The final GST invoice from SPCL [Shapoorji Pallonji & Company Pvt. Ltd.] for the building works has not yet been received. As the value has not yet been ascertained, the value of the building in the possession of the Institute is higher than the value disclosed in the financial statements.
2. The Institute currently operates through multiple standalone IT modules for carrying out its various activities. This fragmented approach has resulted in duplication of work, delays in data consolidation, and inefficiencies in information flow. Considering the volume and variety of transactions, the number of projects handled, and the significant fixed assets owned by the Institute, it is recommended that an integrated **Enterprise Resource Planning (ERP)** system be implemented at the earliest. Adoption of an ERP platform would streamline operations, enhance data accuracy, and improve overall management efficiency.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

The management of the Institute is responsible for the preparation of the financial statements that give a true and fair view of the financial position and financial performance of the Institute in accordance with the accounting principles generally accepted in India including Accounting Standards issued by ICAI. This responsibility includes the design, implementation, and maintenance of internal controls relevant to the preparation and presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Institute's ability to continue as a going concern, disclosing, as applicable, matters related to going concern, and using the going concern basis of accounting unless the management either intends to liquidate the Institute or cease operations.

Those charged with governance are responsible for overseeing the Institute's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but it is not a guarantee that an audit conducted in accordance with Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be

expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SAs, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the standalone financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Society's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Society to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the Financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

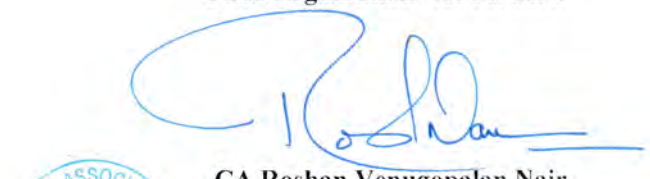
Report on Other Legal and Regulatory Requirements

(a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit.

(b) In our opinion, proper books of account as required by law have been kept by the Institute so far as it appears from our examination of those books.

(c) The Balance Sheet and the Income and Expenditure Account dealt with by this report are in agreement with the relevant books of account.

For ARSB & ASSOCIATES
Chartered Accountants
Firm Registration No: 009803S



CA Roshan Venugopalan Nair
Partner
M.No.228417
UDIN: 25228417BMJOPR4504

Place: Trivandrum
Date: 12/11/2025

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

	Schedule	As at 31.03.2025	As at 31.03.2024
CORPUS/CAPITAL FUND AND LIABILITIES			
Corpus / Capital Fund	1		
Net Grant		5,67,19,40,496	5,37,19,40,496
Add : Surplus / Deficit from I & E		(3,43,72,54,882)	(3,20,82,25,988)
Add : Capital Reserve		2	2
Total		2,23,46,85,616	2,16,37,14,510
Earmarked Funds / Endowment Funds	2	7,34,83,226	9,71,62,955
Long Term Liabilities and Provisions	3	8,25,30,616	7,67,16,899
Current Liabilities and Provisions	4	40,23,73,821	36,55,94,532
TOTAL		**2,79,30,73,279**	**2,70,31,88,896**
ASSETS			
Fixed Assets	5		
Gross Block		4,90,94,31,426	4,60,24,46,933
Less : Depreciation		(3,23,60,28,504)	(2,96,72,95,223)
Net Block		1,67,34,02,922	1,63,51,51,710
Add : Capital Work in Progress		9,60,20,754	9,39,93,282
Total		1,76,94,23,676	1,72,91,44,992
Long Term Assets, Loans, Advances etc	6	14,59,40,500	14,02,94,643
Current Assets, Loans, Advances etc	7	87,77,09,103	83,37,49,261
TOTAL		**2,79,30,73,279**	**2,70,31,88,896**
Significant Accounting Policies, Notes on Accounts & Contingent Liabilities	19		

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. Roshan Venugopalan Nair
(Partner, Mem No. 228417)

Place : Thiruvananthapuram
Date : 12th November, 2025
UDIN : 25228417BMJOPR4504

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Prof. Dipankar Banerjee
Vice Chancellor

R. Hari Prasad
Finance Officer

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

	Schedule	2024-25	2023-24
INCOME			
Grants / Subsidies	8	98,29,25,817	92,42,74,932
Fees / Subscriptions	9	9,51,05,855	8,70,08,671
Interest Income of IIST	10	1,75,53,151	1,72,20,944
Interest Earned on Grant & Retirement Funds	11	2,83,12,247	2,51,62,985
Gross Surplus of Canteen Operations		19,23,551	16,98,527
Other Income	12	85,67,205	45,02,635
TOTAL (A)		**1,13,43,87,826**	**1,05,98,68,694**
EXPENDITURE			
Establishment Expenses - Regular	13	49,39,09,723	46,98,93,152
CISF Salary & Other Expenses	14	9,96,06,923	9,74,78,422
Establishment Expenses - Support Services	15	11,62,28,691	9,30,10,336
Academic & Other Student Expenses	16	18,22,46,511	15,68,37,046
Other Administrative Expenses	17	17,44,31,561	15,72,95,375
Interest Refundable by IIST	18	2,83,12,247	2,51,62,985
Depreciation	5	26,87,01,394	24,64,85,608
TOTAL (B)		**1,36,34,37,050**	**1,24,61,62,925**
Excess of Income over Expenditure (A-B)		(22,90,49,224)	(18,62,94,231)
Less : Prior Period Items		(20,330)	1,62,08,090
Balance being Surplus/(Deficit) carried over to Corpus/Capital Fund		**(22,90,28,894)**	**(20,25,02,321)**
Significant Accounting Policies, Notes on Accounts & Contingent Liabilities	19		

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. Roshan Venugopalan Nair
(Partner, Mem No. 228417)

Place : Thiruvananthapuram
Date : 12th November, 2025
UDIN : 25228417BMJOPR4504

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Prof. Dipankar Banerjee
Vice Chancellor

R. Hari Prasad
Finance Officer

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

	As at 31.03.2025	As at 31.03.2024
Schedule 1 :: CORPUS / CAPITAL FUND		
Total Grant Received - Capital and Revenue (A)		
Opening Balance of Total Grant Received	12,91,38,33,660	11,76,26,66,777
Add : Grant received during the year	1,30,00,00,000	1,20,35,00,000
Less : Capital Grant returned [TSA]	-	4,70,37,604
Less : Revenue Grant returned [TSA]	1,70,74,183	33,25,068
Less : Grant refundable [Sch Commerical Bank]	-	19,70,445
	14,19,67,59,477	12,91,38,33,660
LESS : Total transfer to Revenue Grant (B)		
Opening Balance of amount transferred to Revenue Grant	7,54,18,93,164	6,61,76,86,232
Add : Transfer to Revenue Grant during the year	1,00,00,00,000	92,76,00,000
Less : Revenue Grant returned [TSA]	1,70,74,183	33,25,068
Less : Reversal from Revenue Grant [Prior period]	-	68,000
	8,52,48,18,981	7,54,18,93,164
NET CAPITAL GRANT (C) = (A - B)	**5,67,19,40,496**	**5,37,19,40,496**
ADD : Surplus / Deficit transferred from Income & Expenditure Account (D)		
Opening Balance of net income / (expenditure)	(3,20,82,25,988)	(3,24,07,81,854)
Add : Reversal of Provision for Retirement Benefits Fund	-	23,50,58,187
Add/Deduct : - Current Year Surplus / (Deficit)	(22,90,28,894)	(20,25,02,321)
	(3,43,72,54,882)	(3,20,82,25,988)
ADD : Capital Reserve (E)	2	2
Balance at the year end (C + D + E)	**2,23,46,85,616**	**2,16,37,14,510**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS	1 DOS - Dr. Palash - HSP - Real TIme Gas Sensor	2 DOS - MOM2 - RPA - Dr. Ambili KM	3 DOS-SAC- Dr. Rajesh V J	4 DOS - Dr. Umesh - Planetary Exploration	5 VSSC - Dr. Natarajan E	6 IISU - Dr. Umesh Kadhane - Proj Assistant	7 IPRC - Dr. Palash - 2018 - Hydrogen Sensor
a) Opening balance of the funds	-2,36,88,660	-35,16,376	2,39,168	17,77,563	1,04,676	97,235	-44,820
b) Additions to the Fund							
i) Donation/Grants	0	0	0	0	0	0	0
ii) Income from Investment made on account of Funds	0	0	0	1,12,357	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	-2,36,88,660	-35,16,376	2,39,168	18,89,920	1,04,676	97,235	-44,820
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	79,992	-1,28,840	0	6,667	0	0	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	0	0	0	0	0	0	0
Sub Total	79,992	-1,28,840	0	6,667	0	0	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	79,992	-1,28,840	0	6,667	0	0	0
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**2,39,168**	**18,83,253**	**1,04,676**	**97,235**	**0**
Net Balance receivable as at the year-end (c-a-b)	**2,37,68,652**	**33,87,536**	**0**	**0**	**0**	**0**	**44,820**

Note : Classified under Current Assets under Sch 8

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	8	9	10	11	12	13	14
	ISRO-GBP - ABLN & C Project	ISRO -Dr. K G Sreejalekshmi - Gaganyaan	LPSC - Dr Dinesh N Naik	LPSC - Dr.Jinesh K B - Laser Ignition System	LPSC - Dr. Jinesh K B - SDS	LPSC - Dr. Umesh K - Monte Carlo Model	LPSC - Dr. Umesh Kadhane
a) Opening balance of the funds	7,23,170	8,96,445	-19,34,826	2,27,025	4,62,062	18,084	2,92,830
b) Additions to the Fund							
i) Donation/Grants	0	12,98,900	22,23,076	0	66,000	0	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	7,23,170	21,95,345	2,88,250	2,27,025	5,28,062	18,084	2,92,830
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	24,362	0	0	5,20,493	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	24,362	0	0	5,20,493	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	0	0
- Rent/Consumables	0	63,146	0	0	0	0	0
- Other Administrative Expenses	0	0	2,00,000	0	0	0	0
Sub Total	0	63,146	2,00,000	0	0	0	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	0	87,508	2,00,000	0	5,20,493	0	0
Net Balance payable as at the year-end (a+b-c)	**7,23,170**	**21,07,837**	**88,250**	**2,27,025**	**7,569**	**18,084**	**2,92,830**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7

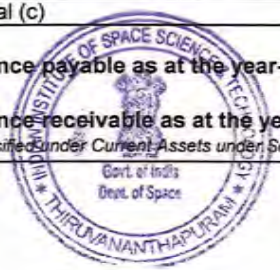
FRN: 009303S

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	15	16	17	18	19	20	21
	LPSC Dr. Umesh K - Plasma Thruster	LPSC - High Thrust EPS - Dr. Umesh K	NRSC - P R Sinha - Balloon Launching	ANRF- Dr. L Gnanappazham - Mangroves -	ANRF - Resmi Lekshmi - Gamma Ray Bursts 2024	DAE - 2022 - Dr. Sakthivel - NBHM Multiphase	DBT - Dr. Palash - 2017- Liquid Biopsy for Cancer
a) Opening balance of the funds	-1,13,754	-1,53,768	-4,291	0	0	39,439	-5,58,074
b) Additions to the Fund							
i) Donation/Grants	0	0	0	49,500	8,98,000	4,43,608	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	8,335	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	-1,13,754	-1,53,768	-4,291	49,500	8,98,000	4,91,382	-5,58,074
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	5,05,044	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	0	0	0	0	0	1,67,816	0
Sub Total	0	0	0	0	0	6,72,860	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	3,147	95,498
Total (c)	0	0	0	0	0	6,76,007	95,498
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**0**	**49,500**	**8,98,000**	**0**	**0**
Net Balance receivable as at the year-end (c-a-b)	**1,13,754**	**1,53,768**	**4,291**	**0**	**0**	**1,84,625**	**6,53,572**

Note : Classified under Current Assets under Sch 7



INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	22 DBT - Dr. Palash - Green House Gases	23 DBT - Dr. Shaiju - Ramalingaswami Fellowship	24 DBT- RamaRao (Rural Urban Interface)	25 DOH - Dr.Gnanappazham L - 2023 - Market	26 DoT - TTDF - Chris Prema - 6G Proposals	27 DoT - TTDF - VANIDEVI M - 6G Proposals	28 DRDO - ARDB - Sudharshan Kaarthik 2023 - Ele HANSA
a) Opening balance of the funds	-8,08,439	18,797	-11,99,478	62,020	0	0	2,91,37,242
b) Additions to the Fund							
i) Donation/Grants	0	0	0	0	16,23,600	42,40,500	0
ii) Income from Investment made on account of Funds	0	5,928	0	0	0	0	12,17,552
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	-8,08,439	24,725	-11,99,478	62,020	16,23,600	42,40,500	3,03,54,794
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	28,821	0	0	31,21,093
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	28,821	0	0	31,21,093
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	17,19,581	8,67,532	0	0	0	10,30,351
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	0	1,00,000	6,988	0	0	0	14,93,804
Sub Total	0	18,19,581	8,74,520	0	0	0	25,24,155
iii) Fund Returned to the Funding Agency	0	5,928	0	0	0	0	9,04,026
Total (c)	0	18,25,509	8,74,520	28,821	0	0	65,49,274
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**0**	**33,199**	**16,23,600**	**42,40,500**	**2,38,05,520**
Net Balance receivable as at the year-end (c-a-b)	**8,08,439**	**18,00,784**	**20,73,998**	**0**	**0**	**0**	**0**

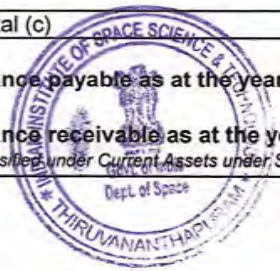
Note : Classified under Current Assets under Sch 7

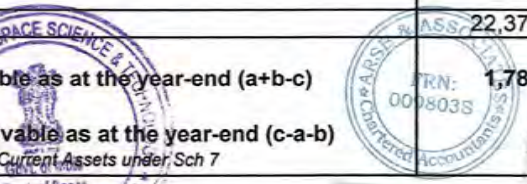
INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	29 DRDO - DR.Praveen Krishna IR-2022- Gas	30 DRDO - Dr. Rajesh S. - 2022 - TDLAS Temp Sensor	31 DRDO - Sam Zachariah - Robots - 2024	32 DRDO - SASE - Dr. Govindankutty M	33 DST - 2023 - Dr. Rajesh S - Indo German - Nox	34 DST - 2023 - Dr. Ramarao - HSI Sensor	35 DST - Dr. Rama Rao N
a) Opening balance of the funds	24,16,516	2,46,173	24,28,525	1,60,490	4,10,000	22,18,277	2,06,172
b) Additions to the Fund							
i) Donation/Grants	0	11,94,508	0	0	0	0	0
ii) Income from Investment made on account of Funds	0	20,127	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	24,16,516	14,60,808	24,28,525	1,60,490	4,10,000	22,18,277	2,06,172
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	13,42,564	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	13,42,564	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	7,05,080	6,68,508	0	0	0	1,33,718
- Rent/Consumables	0	57,820	0	0	0	0	0
- Other Administrative Expenses	8,95,400	52,770	0	0	3,92,425	0	72,454
Sub Total	8,95,400	8,15,670	6,68,508	0	3,92,425	0	2,06,172
iii) Fund Returned to the Funding Agency	0	20,668	0	0	4,10,000	22,18,277	0
Total (c)	22,37,964	8,36,338	6,68,508	0	8,02,425	22,18,277	2,06,172
Net Balance payable as at the year-end (a+b-c)	**1,78,552**	**6,24,470**	**17,60,017**	**1,60,490**	**0**	**0**	**0**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**3,92,425**	**0**	**0**

Note : Classified under Current Assets under Sch 7



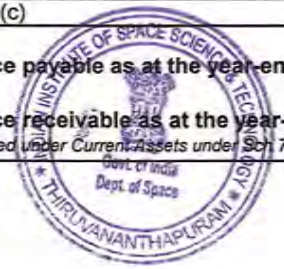


INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	36 DST-Dr Jinesh KB- Atomic Layer Deposition	37 DST - KIRAN - WOS(A) - Pushpa K - Quantum	38 DST - NGP - A.M Ramiya - Smart Cities 3D	39 DST - NRDMS - Dr.Ramarao - 2022 - Geodesy	40 DST - Umesh R Kadhane - Genisis of Organic	41 DST - WISE - PDF - 2024 - Pushpa K _ Quantum	42 ICMR - DHR- Dr.Deepak Mishra - 2023 - 3rd Trimester
a) Opening balance of the funds	-11,83,898	-6,97,384	-1,45,214	12,90,784	42,334	0	22,39,688
b) Additions to the Fund							
i) Donation/Grants	0	8,50,000	0	0	0	17,14,960	26,24,986
ii) Income from Investment made on account of Funds	0	0	0	22,208	0	0	64,885
iii) Other additions	19,85,977	0	0	0	0	0	0
Total (a + b)	8,02,079	1,52,616	-1,45,214	13,12,992	42,334	17,14,960	49,29,559
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	18,71,000	0	0	0	0	0	9,47,436
- Others	0	0	0	0	0	0	0
Sub Total	18,71,000	0	0	0	0	0	9,47,436
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	70,000	0	0	5,94,786	0	0	15,49,048
- Rent/Consumables	0	0	0	0	0	0	10,200
- Other Administrative Expenses	2,26,477	69,638	0	1,13,403	21,700	2,24,428	99,988
Sub Total	2,96,477	69,638	0	7,08,189	21,700	2,24,428	16,59,236
iii) Fund Returned to the Funding Agency	18,71,485	82,978	0	69,044	42,334	14,90,532	64,885
Total (c)	40,38,962	1,52,616	0	7,77,233	64,034	17,14,960	26,71,557
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**0**	**5,35,759**	**0**	**0**	**22,58,002**
Net Balance receivable as at the year-end (c-a-b)	**32,36,883**	**0**	**1,45,214**	**0**	**21,700**	**0**	**0**

Note : Classified under Current Assets under Sch 7



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THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	43 ICSSR - Dr. Shaijumon - 2020 - Tele Medicine Units	44 IITG - Dr.Prathap - 2022 - Hydrogen	45 INAE - Dr. Palash - 2022 - Abdul Kalam Fellowship	46 IPTIF - Dr. N.Selvaganesan - 2024	47 IPTIF - Dr. Vineeth B S - 2024	48 IPTIF - Prof.B.S.Manoj - 2024	49 IPTIF - Prof.Deepak Mishra - 2024
a) Opening balance of the funds	46,629	5,13,176	14,92,394	0	1,41,042	0	1,61,160
b) Additions to the Fund							
i) Donation/Grants	0	4,66,547	10,31,944	9,06,255	5,92,753	9,30,847	7,18,824
ii) Income from Investment made on account of Funds	0	0	36,360	2,427	2,293	2,480	2,665
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	46,629	9,79,723	25,60,698	9,08,682	7,36,088	9,33,327	8,82,649
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	9,14,650	4,20,000	4,20,000	4,52,040	4,87,200
- Rent/Consumables	0	77,278	0	0	0	0	0
- Other Administrative Expenses	0	0	1,21,472	0	0	0	0
Sub Total	0	77,278	10,36,122	4,20,000	4,20,000	4,52,040	4,87,200
iii) Fund Returned to the Funding Agency	0	0	36,360	0	0	0	0
Total (c)	0	77,278	10,72,482	4,20,000	4,20,000	4,52,040	4,87,200
Net Balance payable as at the year-end (a+b-c)	**46,629**	**9,02,445**	**14,88,216**	**4,88,682**	**3,16,088**	**4,81,287**	**3,95,449**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7

INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM * Govt. of India Dept. of Space

ARSB & ASSOCIATES Chartered Accountants FRN: 009803S

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THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	50 KSCSTE - Dr. AM Ramiya - 2025 - 3D Digital Twin	51 KSCSTE - Dr.Anoop C.S - 2022 - Magneto -	52 KSCSTE - Dr. Anoop CS - 2025- Giat-Magneto	53 KSCSTE - Dr. Seena V - 2023 - Polymer	54 KSCSTE -R Sudharshan Kaarthik - Electric Cars-	55 Max-Planck - Dr. Jagadheep - 2017	56 MoES - Dr. Govindankutty - Thunderstorm
a) Opening balance of the funds	0	5,09,489	0	17,83,909	5,44,000	1,18,679	-1,655
b) Additions to the Fund							
i) Donation/Grants	12,39,000	1,25,000	19,09,000	0	0	0	3,97,000
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	12,39,000	6,34,489	19,09,000	17,83,909	5,44,000	1,18,679	3,95,345
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	2,74,263	0	0	0	17,791	3,98,367
- Rent/Consumables	0	58,953	0	10,620	0	0	0
- Other Administrative Expenses	0	0	0	47,403	18,112	17,503	7,809
Sub Total	0	3,33,216	0	58,023	18,112	35,294	4,06,176
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	19,366
Total (c)	0	3,33,216	0	58,023	18,112	35,294	4,25,542
Net Balance payable as at the year-end (a+b-c)	**12,39,000**	**3,01,273**	**19,09,000**	**17,25,886**	**5,25,888**	**83,385**	**0**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**30,197**

Note : Classified under Current Assets under Sch 7

Govt. of India Dept. of Space

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THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	57 MoES - 2023 - Dr Govindankutty - Monsoon	58 SERB - Dr. Ashok - Quantum Communicatio	59 SERB - Dr. C S Narayanamurthy - Wavefront	60 SERB - Dr. Immanuel R - 5G Bands	61 SERB - Dr.Biswajit Pathak - Ramanujan	62 SERB - Dr.Natarajan E - Navier Stokes	63 SERB - Dr.Prosenjit Das - R-Forms of R(X) - 2023
a) Opening balance of the funds	14,64,663	11,592	-6,15,850	-4,95,000	4,31,977	2,20,810	-5,556
b) Additions to the Fund							
i) Donation/Grants	0	0	0	0	19,80,000	0	2,20,000
ii) Income from Investment made on account of Funds	0	0	2,039	0	25,265	5,058	3,053
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	14,64,663	11,592	-6,13,811	-4,95,000	24,37,242	2,25,868	2,17,497
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	7,72,235	0	0	0	0	1,06,689	1,89,921
- Others	0	0	0	0	0	0	0
Sub Total	7,72,235	0	0	0	0	1,06,689	1,89,921
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	4,06,626	0	0	0	16,20,000	0	0
- Rent/Consumables	25,250	0	0	0	2,58,420	35,973	0
- Other Administrative Expenses	20,598	0	0	0	3,72,006	20,000	24,800
Sub Total	4,52,474	0	0	0	22,50,426	55,973	24,800
iii) Fund Returned to the Funding Agency	2,65,204	0	0	0	26,551	810	4,443
Total (c)	14,89,913	0	0	0	22,76,977	1,63,472	2,19,164
Net Balance payable as at the year-end (a+b-c)	**0**	**11,592**	**0**	**0**	**1,60,265**	**62,396**	**0**
Net Balance receivable as at the year-end (c-a-b)	**25,250**	**0**	**6,13,811**	**4,95,000**	**0**	**0**	**1,667**

Note : Classified under Current Assets under Sch 7

Govt. of India Dept. of Space

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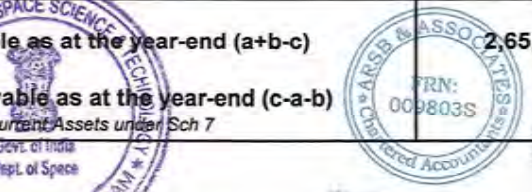
SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	64 SERB - Dr Rajesh S - Variation in Biogas Fuel	65 SERB - Dr Resmi L - Ultra Relativistic	66 SERB - Dr. Sarita Vig - 2019 - Young Massive Stars	67 SERB - Dr Sarvesh K - Novel Numerical	68 SERB- Dr.Sourav Bhowmick - Secure	69 SERB - 2018 - Dr. Umesh K. - PAH	70 SERB - Prof.Manoj B S - 6G Satellite
a) Opening balance of the funds	4,91,814	-21,483	25,480	76,071	5,62,634	63,206	9,17,557
b) Additions to the Fund							
i) Donation/Grants	5,00,000	2,20,000	0	6,00,000	0	0	0
ii) Income from Investment made on account of Funds	16,395	0	0	7,944	3,044	0	16,755
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	10,08,209	1,98,517	25,480	6,84,015	5,65,678	63,206	9,34,312
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	-2,17,929	0	0	0	66,788	0	42,922
- Others	0	0	0	0	0	0	0
Sub Total	-2,17,929	0	0	0	66,788	0	42,922
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	5,88,502	0	19,600	0	2,43,733	0	5,62,727
- Rent/Consumables	23,062	0	0	0	0	0	0
- Other Administrative Expenses	1,55,315	68,746	0	1,70,779	42,090	0	1,40,267
Sub Total	7,66,879	68,746	19,600	1,70,779	2,85,823	0	7,02,994
iii) Fund Returned to the Funding Agency	1,93,500	5,938	0	33,723	0	0	0
Total (c)	7,42,450	74,684	19,600	2,04,502	3,52,611	0	7,45,916
Net Balance payable as at the year-end (a+b-c)	**2,65,759**	**1,23,833**	**5,880**	**4,79,513**	**2,13,067**	**63,206**	**1,88,396**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7



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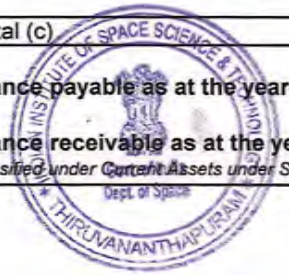
SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	71 SERB - Prof.Selvaganesan N - Biomedical	72 SERB - Dr. Seena V	73 SERB- Umesh Kadhane - Symposium on Genesis	74 SPARC - 2024 - Dr. Manoj BS - 6G Networks	75 TIFR - Gaganyaan-I - Sreejalekshmi K G	76 UGC - DAE - Dr. Kuntala B	77 DST Inspire - Dr. Mahesh S
a) Opening balance of the funds	15,67,131	-8,981	2,08,466	0	10,00,000	49,400	27,059
b) Additions to the Fund							
i) Donation/Grants	0	0	-2,00,000	24,00,000	0	0	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	62,808	0	0	0	0
Total (a + b)	15,67,131	-8,981	71,274	24,00,000	10,00,000	49,400	27,059
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	2,42,676	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	2,42,676	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	4,25,720	0	0	0	0	0	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	21,417	0	0	9,87,248	0	0	0
Sub Total	4,47,137	0	0	9,87,248	0	0	0
iii) Fund Returned to the Funding Agency	0	0	0	14,12,752	0	0	0
Total (c)	6,89,813	0	0	24,00,000	0	0	0
Net Balance payable as at the year-end (a+b-c)	**8,77,318**	**0**	**71,274**	**0**	**10,00,000**	**49,400**	**27,059**
Net Balance receivable as at the year-end (c-a-b)	**0**	**8,981**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7



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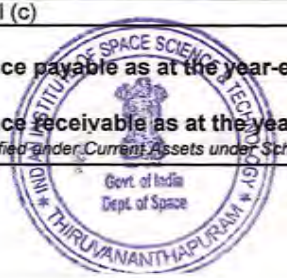
SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	78 DST Inspire - Dr. Basudev M	79 DST - Dr. Vikram Khaire	80 IPRC-Dr. Kuruvilla-Novel N2O4	81 03-2021-03-VSSC- J Mary Gladis - NanoStructure	82 03-2021-04-VSSC-Dr.Jinesh KB-High-Q	83 03-2021-05-VSSC-Dr.Jinesh K B - Yttrium Iron	84 03-2021-08-VSSC-Aravind V--Supersonic Combution
a) Opening balance of the funds	7,00,000	1,21,251	1,965	2,81,137	35,32,000	5,32,000	11,00,000
b) Additions to the Fund							
i) Donation/Grants	0	0	0	0	0	0	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	7,00,000	1,21,251	1,965	2,81,137	35,32,000	5,32,000	11,00,000
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	1,46,072	1,61,419	1,56,774	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	0	1,070	0	0	0	5,399	0
Sub Total	0	1,070	0	1,46,072	1,61,419	1,62,173	0
iii) Fund Returned to the Funding Agency	7,00,000	1,31,096	0	0	0	0	0
Total (c)	7,00,000	1,32,166	0	1,46,072	1,61,419	1,62,173	0
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**1,965**	**1,35,065**	**33,70,581**	**3,69,827**	**11,00,000**
Net Balance receivable as at the year-end (c-a-b)	**0**	**10,915**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7



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SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	85 03-2021-09-VSSC-Sandhya K Y - PEM Fuel	86 03-2021-10-VSSC-Sandhya K Y - Silicon	87 03-2021-11-VSSC-Dr. J Mary Gladis - Graphene	88 03-2021-13-LPSC-Dr.Umesh R Kadhane-	89 03-2021-15 - LPSC-Umesh R Kadhane-Prediction of	90 03-2021-16-LPSC-Dr.Prathap C-Condensation	91 03-2021-18-LPSC-Dr. Shine SR - Thruster
a) Opening balance of the funds	8,41,866	25,15,972	7,72,069	16,73,867	2,46,466	29,12,265	19,11,260
b) Additions to the Fund							
i) Donation/Grants	4,32,000	0	4,32,000	0	0	5,00,000	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	12,73,866	25,15,972	12,04,069	16,73,867	2,46,466	34,12,265	19,11,260
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	5,96,640	0	4,59,374	0	0	6,46,948	10,96,544
- Others	0	0	0	0	0	0	0
Sub Total	5,96,640	0	4,59,374	0	0	6,46,948	10,96,544
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	2,99,374	3,08,733	2,93,538	5,69,621	1,61,234	0	0
- Rent/Consumables	0	49,560	0	0	0	7,63,070	0
- Other Administrative Expenses	0	0	0	4,678	0	0	0
Sub Total	2,99,374	3,58,293	2,93,538	5,74,299	1,61,234	7,63,070	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	8,96,014	3,58,293	7,52,912	5,74,299	1,61,234	14,10,018	10,96,544
Net Balance payable as at the year-end (a+b-c)	**3,77,852**	**21,57,679**	**4,51,157**	**10,99,568**	**85,232**	**20,02,247**	**8,14,716**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY * THIRUVANANTHAPURAM * Govt. of India Dept. of Space

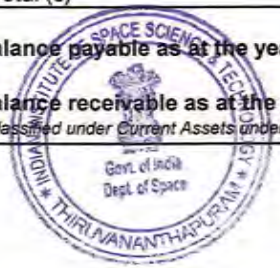
A.R.S.B. & ASSOCIATES Chartered Accountants FRN: 009032S

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	92 05-2022-30-LEOS-Dr. Jinesh KB - Seismocardiog	93 11-2021-23-SAC-Dr.Vani Devi M-Interface	94 11-2021-24 - LPSC-Dr.Deepu M-Dual Throat	95 11-2021-25-VSSC-Immanuel Raja-	96 11/2021-HSFC-Shine S R- Human Thermal	97 11-2022-32 - VSSC-Dr.Lekshmi V Nair -Industrial	98 11-2024-35-LPSC - Dr.Aravind V - Swirl Coaxial
a) Opening balance of the funds	9,12,973	7,70,516	28,68,212	0	0	0	0
b) Additions to the Fund							
i) Donation/Grants	0	0	0	16,60,000	0	6,26,000	12,00,000
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	9,12,973	7,70,516	28,68,212	16,60,000	0	6,26,000	12,00,000
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	5,30,000	0	21,78,637	10,77,906	18,08,730	0	0
- Others	0	0	0	0	0	0	0
Sub Total	5,30,000	0	21,78,637	10,77,906	18,08,730	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	2,34,344	0	0	0	1,00,161	0
- Rent/Consumables	0	0	0	4,80,874	0	0	0
- Other Administrative Expenses	0	0	0	0	0	0	0
Sub Total	0	2,34,344	0	4,80,874	0	1,00,161	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	5,30,000	2,34,344	21,78,637	15,58,780	18,08,730	1,00,161	0
Net Balance payable as at the year-end (a+b-c)	**3,82,973**	**5,36,172**	**6,89,575**	**1,01,220**	**0**	**5,25,839**	**12,00,000**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**18,08,730**	**0**	**0**

Note : Classified under Current Assets under Sch 7

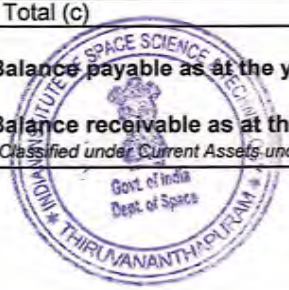


INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	99 IISU-Dr. Immanuel-High Performance	100 AICTE - INAE - Aswathy RV - 2017	101 AICTE - INAE - 2018 Batch	102 AICTE - INAE - 2019 - Nisha	103 GoK - SC Development Dept - Scholarship	104 ICSSR - PDF - Dr. Aswathy VK - 2022	105 KSCSTE - PDF - Dr. Prescilla - 2018
a) Opening balance of the funds	8,80,216	44,677	69,563	9,744	0	17,019	8,191
b) Additions to the Fund							
i) Donation/Grants	0	0	0	0	68,275	0	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	8,80,216	44,677	69,563	9,744	68,275	17,019	8,191
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	0	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	0	0	0	0	27,066	0	0
Sub Total	0	0	0	0	27,066	0	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	0	0	0	0	27,066	0	0
Net Balance payable as at the year-end (a+b-c)	**8,80,216**	**44,677**	**69,563**	**9,744**	**41,209**	**17,019**	**8,191**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7



INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	106 KSCSTE - Phd - Ardra K - 2024	107 KSCSTE - PhD - A.S.Sankeerthana - 2025	108 KSCSTE - PhD - Elizabeth George - 2018	109 KSCSTE - PhD - Haritha A - 2018	110 KSCSTE - PhD - Medha Lal R - 2025	111 KSCSTE - PhD - Sanah Rahman K - 2021	112 SERB - TARE - Dr. Abirami A M - 2023
a) Opening balance of the funds	0	0	0	20,000	0	5,474	1,15,991
b) Additions to the Fund							
i) Donation/Grants	3,92,000	3,92,000	1,35,187	0	4,29,200	4,76,526	0
ii) Income from Investment made on account of Funds	1,998	0	0	0	0	0	2,977
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	3,93,998	3,92,000	1,35,187	20,000	4,29,200	4,82,000	1,18,968
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	3,92,000	0	1,35,187	0	0	4,62,000	0
- Rent/Consumables	0	0	0	0	0	0	11,541
- Other Administrative Expenses	0	0	0	0	0	3,749	25,000
Sub Total	3,92,000	0	1,35,187	0	0	4,65,749	36,541
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	3,92,000	0	1,35,187	0	0	4,65,749	36,541
Net Balance payable as at the year-end (a+b-c)	**1,998**	**3,92,000**	**0**	**20,000**	**4,29,200**	**16,251**	**82,427**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note : Classified under Current Assets under Sch 7

Govt. of India Dept. of Space
INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM *

ARSB & ASSOCIATES Chartered Accountants FRN: 009303S

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	113 Tribal Affairs - Scholarship for ST Students	114 DOS-Umesh Kadhane-Symposium on Genesis	115 AICTE - Dr.S Chris Prema - FDP - 2024	116 ANRF - Dr.Deepak Mishra - NCVPRIPG	117 ANRF - Dr.Govindan Kutty - Workshop	118 DST -NGP -Dr A M Ramiya-Geospatial	119 DST - NGP - RamaRao-Geospatial
a) Opening balance of the funds	0	0	0	0	0	-60,453	-79,955
b) Additions to the Fund							
i) Donation/Grants	1,88,300	2,00,000	2,50,000	3,00,000	2,00,000	60,453	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	1,88,300	2,00,000	2,50,000	3,00,000	2,00,000	0	-79,955
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	0	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	1,19,900	1,09,283	2,59,300	1,45,272	19,012	0	0
Sub Total	1,19,900	1,09,283	2,59,300	1,45,272	19,012	0	0
iii) Fund Returned to the Funding Agency	0	0	0	0	0	60,453	0
Total (c)	1,19,900	1,09,283	2,59,300	1,45,272	19,012	60,453	0
Net Balance payable as at the year-end (a+b-c)	**68,400**	**90,717**	**0**	**1,54,728**	**1,80,988**	**0**	**0**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**9,300**	**0**	**0**	**60,453**	**79,955**

Note : Classified under Current Assets under Sch 7

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	120 KSCSTE - Crystal- 2024	121 NCM AFS - III - Prof. Prosenjit Das - 2024	122 SERB - Narayana Murthy C S - INTOCQ - 24	123 ANRF/SERB - Sarita Vig - Travel Grant	124 ANRF -Travel - Anbarasan Sekar - 2024	125 ANRF-Travel - Anjuna Dileep - 2024	126 ANRF - Travel - Dr. Selvaganesan N - 2025
a) Opening balance of the funds	0	0	0	0	0	0	0
b) Additions to the Fund							
i) Donation/Grants	70,000	10,40,898	3,25,000	1,04,096	1,56,815	1,20,120	0
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0
iii) Other additions	0	0	0	0	0	0	0
Total (a + b)	70,000	10,40,898	3,25,000	1,04,096	1,56,815	1,20,120	0
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	0	0
- Others	0	0	0	0	0	0	0
Sub Total	0	0	0	0	0	0	0
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	0	0
- Rent/Consumables	0	0	0	0	0	0	0
- Other Administrative Expenses	62,290	10,40,898	2,37,672	1,04,096	1,56,815	1,20,120	1,34,630
Sub Total	62,290	10,40,898	2,37,672	1,04,096	1,56,815	1,20,120	1,34,630
iii) Fund Returned to the Funding Agency	0	0	0	0	0	0	0
Total (c)	62,290	10,40,898	2,37,672	1,04,096	1,56,815	1,20,120	1,34,630
Net Balance payable as at the year-end (a+b-c)	**7,710**	**0**	**87,328**	**0**	**0**	**0**	**0**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**0**	**0**	**0**	**0**	**1,34,630**

Note : Classified under Current Assets under Sch 7

INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM * Govt of India Dept. of Space

ARSB & ASSOCIATES FRN: 009803S Chartered Accountants

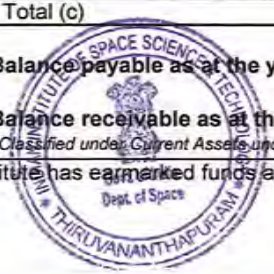
INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

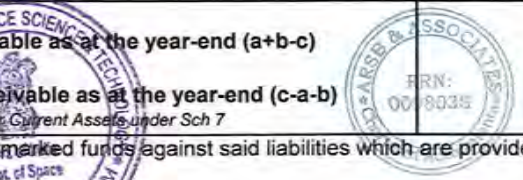
SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS (contd.)	127 ANRF - Travel -Olivia Zacharia (PhD) - 2024	128 ANRF -Travel - Vijay Joshi (PhD) - 2024	129 DST - Travel - Dr.Prosenjit Das - 2024	130 SERB - Travel - Dr. Resmi L - 2022	131 JEST 2024	TOTAL 2024-25 *	TOTAL 2023-24 *
a) Opening balance of the funds	0	0	0	6,00,284	1,55,14,924	6,18,25,041	1,32,94,703
						-	-
b) Additions to the Fund						-	-
i) Donation/Grants	79,524	89,920	3,19,480	0	0	4,15,12,602	7,75,05,803
ii) Income from Investment made on account of Funds	0	0	0	40,626	0	16,22,771	4,68,268
iii) Other additions	0	0	0	0	10,16,874	30,65,659	1,81,23,137
Total (a + b)	79,524	89,920	3,19,480	6,40,910	1,65,31,798	10,80,26,073	10,93,91,910
c) Utilisation/Expenditure towards objective of funds							
i) Capital Expenditure							
- Fixed Assets	0	0	0	0	0	1,74,53,850	1,06,48,921
- Others	0	0	0	0	0	-	18,41,980
Sub Total	0	0	0	0	0	1,74,53,850	1,24,90,901
ii) Revenue Expenditure							
- Salaries, Wages & Allowance	0	0	0	0	0	1,84,73,143	1,62,05,111
- Rent/Consumables	0	0	0	0	0	19,25,767	33,31,638
- Other Administrative Expenses	79,524	89,920	3,24,591	6,20,610	72,40,783	1,73,04,534	98,93,347
Sub Total	79,524	89,920	3,24,591	6,20,610	72,40,783	3,77,03,444	2,94,30,096
iii) Fund Returned to the Funding Agency	0	0	0	0	92,91,015	1,94,60,013	56,45,873
Total (c)	79,524	89,920	3,24,591	6,20,610	1,65,31,798	7,46,17,307	4,75,66,870
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**0**	**20,300**	**0**	**7,34,83,226**	**9,71,62,955**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**5,111**	**0**	**0**	**4,00,74,461**	**3,53,37,915**

Note : Classified under Current Assets under Sch 7

* Institute has earmarked funds against said liabilities which are provided in Schedule 7 [read along with Point No. 11 of Notes to Accounts]





INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

	As at 31.03.2025	As at 31.03.2024
Schedule 3 :: LONG TERM LIABILITIES AND PROVISIONS		
a) Employee Provident Funds and Retirement Benefits *		
- General Provident Fund	6,20,64,134	5,71,78,584
- Contributory Provident Fund	1,32,79,271	1,18,87,104
- New Pension Scheme	-	-
- Retirement Benefits - Provision	-	-
Sub Total (a)	**7,53,43,405**	**6,90,65,688**
b) Caution Deposit		
- Caution Deposit from Students	71,87,211	76,51,211
Sub Total (b)	**71,87,211**	**76,51,211**
TOTAL	**8,25,30,616**	**7,67,16,899**
Schedule 4 :: CURRENT LIABILITIES AND PROVISIONS		
a) Current Liabilities		
1. Sundry Creditors		
- For Goods		
Capital Goods	2,31,69,638	1,21,73,653
Revenue Expenditure	-	-
- For Services	3,11,77,016	2,78,29,168
2. Statutory Liabilities		
- Overdue	-	-
- Others	39,50,115	45,46,507
3. Other Current Liabilities		
- Department of Space [against invoked Bank Guarantee] *	29,14,85,200	27,26,24,760
- Department of Space	2,59,13,013	2,44,17,777
- Income Received in Advance	2,22,14,487	2,01,52,175
- Security Deposits	34,96,791	31,20,883
- Others	9,67,560	7,29,608
Sub Total (a)	**40,23,73,821**	**36,55,94,532**
TOTAL	**40,23,73,821**	**36,55,94,532**

* Institute has earmarked funds against said liabilities which are provided in Schedule 7 [read along with Point No. 4 and 17 of Notes to Accounts]

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

Schedule 5 :: FIXED ASSETS

Particulars	Gross Block (at cost) as at 01.04.2024	Additions		Transfer to Installed from Uninstalled	Deletions	Gross Block (at cost) as at 31.03.2025	Rate of Deprec-iation	Depreciation					Net Block as at 31.03.2025	Net Block as at 31.03.2024
		Installed	Under Installation					As at 01.04.2024	For the year	Prior Period	Deletions	As at 31.03.2025		
Land	3,32,52,002	0	0	0	0	3,32,52,002	0.00%	0	0	0	0	0	3,32,52,002	3,32,52,002
Building	2,32,21,14,742	2,54,79,830	0	0	0	2,34,75,94,572	10.00%	1,39,87,95,461	9,48,79,918	0	0	1,49,36,75,379	85,39,19,193	92,33,19,281
Plant & Machinery	1,47,27,80,427	17,01,94,853	0	0	0	1,64,29,75,280	15.00%	95,85,07,485	10,26,70,172	0	0	1,06,11,77,657	58,17,97,623	51,42,72,942
Furniture & Fittings	20,94,35,802	69,88,512	0	0	0	21,64,24,314	10.00%	13,63,84,208	80,04,011	0	0	14,43,88,219	7,20,36,095	7,30,51,594
Ambulance	8,80,644	0	0	0	0	8,80,644	15.00%	7,55,380	18,790	0	0	7,74,170	1,06,474	1,25,264
Motor Cars & Bikes	2,49,55,455	71,30,810	0	0	0	3,20,86,265	15.00%	1,52,02,340	25,27,805	31,887	0	1,77,62,032	1,43,24,233	97,53,115
Motor Buses & Truck	1,88,86,925	97,26,526	0	0	0	2,86,13,451	15.00%	1,11,45,202	26,20,237	0	0	1,37,65,439	1,48,48,012	77,41,723
Computers	21,92,33,849	5,88,53,834	0	0	0	27,80,87,683	40.00%	18,32,30,440	3,79,42,897	0	0	22,11,73,337	5,69,14,346	3,60,03,409
Software	13,59,79,023	83,84,947	0	0	0	14,43,63,970	40.00%	12,03,29,556	1,05,04,766	0	0	13,08,34,322	1,35,29,648	1,56,49,467
Library Books	7,47,81,290	39,17,806	0	0	0	7,86,99,096	60.00%	7,23,85,796	37,87,980	0	0	7,61,73,776	25,25,320	23,95,494
Campus networking	5,33,78,346	85,95,163	0	0	0	6,19,73,509	40.00%	5,04,73,019	46,00,196	0	0	5,50,73,215	69,00,294	29,05,327
Canteen Equipments	2,61,98,270	4,75,862	0	0	0	2,66,74,132	15.00%	1,90,43,313	11,44,622	0	0	2,01,87,935	64,86,197	71,54,957
Soft Furnishing	10,43,023	0	0	0	0	10,43,023	100.00%	10,43,023	0	0	0	10,43,023	0	0
Uninstalled Assets														
Plant & Machinery	95,27,135	0	72,36,350	0	0	1,67,63,485	0.00%	0	0	0	0	0	1,67,63,485	95,27,135
Vehicles	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0
Computers	0	0	0	0	0	0	0.00%	0	0	0	0	0	0	0
TOTAL	**4,60,24,46,933**	**29,97,48,143**	**72,36,350**	**0**	**0**	**4,90,94,31,426**		**2,96,72,95,223**	**26,87,01,394**	**31,887**	**0**	**3,23,60,28,504**	**1,67,34,02,922**	**1,63,51,51,710**
Previous Year	**4,30,35,43,535**	**30,74,87,858**	**88,42,124**	**0**	**1,74,26,584**	**4,60,24,46,933**		**2,70,46,32,003**	**24,64,85,608**	**1,61,77,611**	**0**	**2,96,72,95,223**	**1,63,51,51,710**	**1,59,89,11,532**
Capital Work in progress	**9,39,93,282**	**0**	**3,32,48,953**	**3,12,21,481**	**0**	**9,60,20,754**		**0**	**0**	**0**	**0**	**0**	**9,60,20,754**	**9,39,93,282**
TOTAL	**4,69,64,40,215**												**1,76,94,23,676**	**1,72,91,44,992**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

	As at 31.03.2025	As at 31.03.2024
Schedule 6 :: LONG TERM ASSETS, LOANS, ADVANCES ETC		
a) Loans		
- Staff	81,60,138	94,10,405
b) Advances and other amounts on capital account recoverable in cash or in kind or for value to be received		
- Interim Advance to SPCL	12,43,00,000	12,43,00,000
- Mobilisation Advance to M/s T. O. Itoop & Associates	40,00,000	-
- Secured Advance to M/s T. O. Itoop & Associates	20,13,764	-
c) Security Deposits	74,66,598	65,84,238
TOTAL	**14,59,40,500**	**14,02,94,643**
Schedule 7 :: CURRENT ASSETS, LOANS, ADVANCES ETC		
a) Current Assets		
1. Inventories		
- Canteen inventories	15,19,399	8,76,062
2. Sundry Debtors		
- Debtors outstanding for a period exceeding six months	-	-
- Others	-	-
3. Cash Balances in hand (including cheques/drafts and imprest)	1,65,196	2,31,893
4. Bank Balances		
a) Earmarked Funds		
- Invoked BG Fund [Shapoorji Pallonji & Company P Ltd]	28,70,07,861	27,00,55,426
- Externally Funded Projects and Others	6,57,35,740	9,47,24,995
- Retirement Funds	7,43,37,598	6,49,53,578
- ISAT Funds	10,69,61,559	10,06,73,575
- Corpus Fund [UGC Prescribed]	5,14,99,982	5,63,48,662
Total	58,55,42,740	58,67,56,236
b) IIST Bank Balances		
- Current Accounts	(2,21,689)	4,14,820
- Savings Accounts	19,26,292	13,94,044
- Deposit Accounts	23,06,30,307	17,58,85,310
	23,23,34,911	17,76,94,174
Sub Total (a)	**81,95,62,246**	**76,55,58,365**
b) Loans, Advances and Other Assets		
1. Advances and other amounts recoverable in cash or in kind or for value to be received		
- Advances towards Externally funded Schemes	4,00,74,461	3,53,37,915
- On Capital Account	8,36,528	16,12,991
- Prepayments	32,78,702	1,96,63,429
- Others	97,55,864	87,22,094

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2025

(Amount in Rs.)

	As at 31.03.2025	As at 31.03.2024
2. Interest Accrued		
- On Bank Deposits	39,72,436	26,63,746
- On Other Deposits	2,28,866	1,90,721
Sub Total (b)	**5,81,46,857**	**6,81,90,896**
TOTAL (a+b)	**87,77,09,103**	**83,37,49,261**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
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SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

	2024-25	2023-24
Schedule 8 :: GRANTS / SUBSIDIES		
(irrevocable Grants & Subsidies Recovered)		
1. Central Government	98,29,25,817	92,42,74,932
TOTAL	**98,29,25,817**	**92,42,74,932**
Schedule 9 :: FEES / SUBSCRIPTIONS		
1. Entrance Fees	54,30,550	56,12,450
2. Annual Fees/Subscriptions	8,84,09,822	8,04,95,725
3. Other Fees	12,65,483	9,00,496
TOTAL	**9,51,05,855**	**8,70,08,671**
Schedule 10 :: INTEREST INCOME OF IIST		
1. On Term Deposit		
a) With Scheduled Banks	1,71,01,859	1,66,56,534
2. On Loans / Advances		
a) Employee/Staff	53,193	2,17,457
3. Others		
a) Interest on IT Refund	1,05,660	1,16,567
b) Interest Received - KSEB Caution Deposit	2,92,439	2,30,386
TOTAL	**1,75,53,151**	**1,72,20,944**
Schedule 11 :: INTEREST EARNED ON GRANT & RETIREMENT FUNDS		
1. On Term Deposit		
a) With Scheduled Banks	2,83,12,247	2,51,62,985
b) Others	-	-
TOTAL	**2,83,12,247**	**2,51,62,985**
Schedule 12 :: OTHER INCOME		
1. Rent Receipts	4,11,563	3,36,771
2. Sale of Tender Forms	-	-
3. Sale of Scrap / Vehicles / Trees	17,13,442	8,64,215
4. Receipts from Externally Funded Schemes	30,15,039	19,07,445
5. Miscellaneous Income	34,27,161	13,94,204
TOTAL	**85,67,205**	**45,02,635**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

	2024-25	2023-24
Schedule 13 :: ESTABLISHMENT EXPENSES - REGULAR		
1. Salaries & Allowances	43,53,50,193	41,89,53,329
2. Contribution to NPS	3,78,55,762	3,41,36,728
3. Contribution to CPF	2,68,920	2,68,920
4. Medical Expense- Staff	56,15,144	35,14,719
5. Expense on Employees Retirement & Terminal Benefits	1,42,79,195	1,21,34,904
6. Interest on PF Contribution	5,23,739	8,50,173
7. Staff Training Expense	16,770	34,379
TOTAL	**49,39,09,723**	**46,98,93,152**
Schedule 14 :: CISF SALARY & OTHER EXPENSES		
1. CISF Expenses	9,96,06,923	9,74,78,422
TOTAL	**9,96,06,923**	**9,74,78,422**
Schedule 15 :: ESTABLISHMENT EXPENSES - SUPPORT SERVICES		
1. Consultancy & Manpower Charges	10,84,75,485	8,80,37,644
2. Remuneration to Contract Employees	77,53,206	49,72,692
TOTAL	**11,62,28,691**	**9,30,10,336**
Schedule 16 :: ACADEMIC & OTHER STUDENT EXPENSES		
1. Admission Expense	74,79,414	50,21,439
2. Assistanceship to Students	82,17,335	1,98,16,864
3. Library Services	1,89,83,841	2,29,44,688
4. Academic Expense	9,14,64,085	7,07,63,487
5. Supplies & Materials	5,41,66,777	3,64,02,710
6. Student Activities Expense	19,35,059	18,87,858
TOTAL	**18,22,46,511**	**15,68,37,046**
Schedule 17 :: OTHER ADMINISTRATIVE EXPENSES		
1. Maintenance & Upkeep		
Campus Maintenance and Upkeep	5,46,55,155	4,84,94,357
Repairs & Maintenance - Labs & Others	2,08,76,879	2,17,73,779
House Keeping Expense	10,24,963	7,54,959
Sub Total (a)	**7,65,56,997**	**7,10,23,095**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

	2024-25	2023-24
2. Professional Charges		
Audit Fees	2,00,600	1,75,400
Legal Expense	28,389	7,26,533
Sub Total (b)	**2,28,989**	**9,01,933**
3. Administrative Expenses - Others		
Vehicle Operating Expense	1,36,74,624	1,25,95,382
Electricity & Water Charges	3,05,00,386	2,84,20,186
Travelling Expense	57,62,927	53,09,495
Research & Development Expense	2,75,57,260	1,91,91,084
Expenditure on Earmarked Funds	1,29,390	40,000
Printing & Stationery	20,85,798	45,47,031
Advertisement & Publicity	2,11,644	9,28,856
Hospitality Expense	35,27,748	25,76,302
Telephone & Internet Expense	43,01,881	32,53,626
Office and other Miscellaneous Expense	70,31,849	59,24,939
Recruitment & Review Expense	8,48,739	11,34,970
CEP & IPR Expenses	7,87,465	88,790
Compensation Paid	11,83,496	13,15,011
Bank Charges	42,368	44,676
Sub Total (c)	**9,76,45,575**	**8,53,70,347**
TOTAL	**17,44,31,561**	**15,72,95,375**
Schedule 18 :: INTEREST REFUNDABLE BY IIST		
Interest on External Funds [Expense]	16,22,771	4,68,268
Interest to CPF Fund [Expense]	7,69,594	6,34,374
Interest to DOS [Expense]	32,90,140	29,46,552
Interest to DOS [Expense] - SPCL BG	1,88,60,440	1,78,33,175
Interest to GPF Fund [Expense]	37,69,302	32,80,616
TOTAL	**2,83,12,247**	**2,51,62,985**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025

A. Significant Accounting Policies

1. Basis of Accounting
   The financial statements have been prepared in accordance with the Generally Accepted Accounting Principles in India (Indian GAAP) and are prepared on accrual basis under the historical cost convention. The accounting policies adopted in the preparation of the financial statements are consistent with those followed in the previous year.

2. Use of estimates
   The preparation of the financial statements in conformity with Indian GAAP requires the Management to make estimates and assumptions considered in the reported amounts of assets and liabilities (including contingent liabilities) and the reported income and expenses during the year. The Management believes that the estimates used in preparation of the financial statements are prudent and reasonable. Future results could differ due to these estimates and the differences between the actual results and the estimates are recognized in the periods in which the results are known / materialize.

3. Inventories
   The inventories represents canteen inventories and is valued at lower of cost or net realizable value as certified by the Canteen Manager.

4. Depreciation
   a. Depreciation has been provided on the written down value method as per the rates prescribed in the Income Tax Act, 1961.
   b. Depreciation on assets acquired in a particular year is provided for the whole year irrespective of date of addition.
   c. Depreciation has not been charged on capital work in progress and on those assets under installation as on 31.03.2025.
   d. Software not having perpetual licenses are written off over the license period.
   e. Ebooks have been depreciated at rates applicable for software

5. Revenue Recognition
   a. Grant in aid received from the Department of Space, is accounted on receipt basis. Grant is received under three major heads – General, Salaries and Capital. Capital Grant forms part of the Corpus Fund and General and Salaries are treated as Revenue Grant for the year. Grant remaining unutilized as on 31st March is returned to Department of Space on 31st March itself and net Grant after refund is recognized as grant for the year.
   b. Tuition fees, fines and other recoveries from underperforming students (as per the policy of the institute) are accounted on cash basis.
   c. Interest income is accounted on accrual basis. Interest on deposits created out of grant received is refundable to Department of Space.

6. Fixed Assets
   a. Land – (i)The present activity of the Institute is in the Valiamala campus which has been handed over by LPSC vide letter no. VSSC/CMG/2010 dated 05.08.2010 and has been measured at 53.43 acres. No value has been separately provided in the books for this land. (ii) 20 acres of Land in Survey No. 4003 in Thennoor Village has been assigned and handed over to ISRO authorities on 31.12.2007 as per letter No. B8-85534/07 dated 01.01.2008 of District Collector, Trivandrum subject to the condition that facilities stated by ISRO in their letter no. ISST-DIR-2007 dt 06.12.2007 should be set up in the property within 18 months. The said land should be used only for scientific and educational purposes. No value has been mentioned in the Land Assignment Order and hence the value of the property is taken at Re. 1/- for each property.

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

b. Building –Construction of buildings has been completed in 2020-21. Capitalization has been done to the extent of accepted bills received from the builder i.e 90%.
c. Plant and Machinery – It mainly constitutes Laboratory Equipment, Office Equipment, Electricals & Electronics and other Machinery.
d. Buildings and other Fixed Assets are carried at cost less accumulated depreciation. Cost comprises the purchase price or acquisition cost, installation charges and any attributable cost of bringing the assets to working condition for its intended use. Exchange differences arising on restatement / settlement of foreign currency payables relating to acquisition of depreciable fixed assets are adjusted to the cost of the respective assets and depreciated over the remaining useful life of such assets.
e. Capital Work-in-Progress pertains to construction in progress at Valiamala.
f. Assets that have been delivered to IIST up to 31.03.2025 have been recognized as assets but depreciation has not been charged on Assets under installation.

7. Foreign currency transactions
Foreign currency monetary items outstanding at the Balance Sheet date are restated at the year-end rates. Non-monetary items are carried at historical cost. The exchange differences arising on restatement / settlement of long-term foreign currency monetary items are capitalised as part of the depreciable fixed assets to which the monetary item relates and depreciated over the remaining useful life of such assets.

8. Earmarked / Endowment Funds
Earmarked / Endowment Funds mainly include external agency funding received for research & development purpose and conduct of seminars & workshops. Value of assets procured out of such funds for the purpose specified have gone to reduce the value of Fund in hand and have not been treated as an asset of the Institute as the ownership of the same vests with the funding agency. Earmarked / Endowment Funds are held in a separate Savings Account linked to Deposits. The interest received in the account has been taken as the Institutes Income. Interest claims in the future, if any, from the disbursing parties of such Earmarked / Endowment Funds will be met at the time of the claim based on the deposit rates prevailing during the period of holding of the particular Fund. Based on Ministry of Finance directive, from 2022-23, funds of DST, DBT and MoES were being transferred to Zero Balance Subsidiary Accounts with banks specified by respective Department.

9. Employee Benefits
Employee benefits include General Provident Fund (GPF), Contributory Provident Fund (CPF), New Pension Scheme (NPS), and Group Insurance Scheme (GIS). The Institute's contribution to CPF and NPS are considered as defined contribution plans and are charged as an expense as they fall due based on the amount of contribution required to be made.
GPF and CPF funds are maintained separately by the Institute in Savings Bank Account and linked Flexi deposits. Annual Interest provision on GPF and CPF balance is made from Interest earned during the year from investment of such funds in flexi deposits. Interest earned over and above the provision made is transferred to an Interest Fluctuation Reserve and in the event of a shortfall in interest earned, the difference is met from such Reserve, and any balance shortfall after adjustment with Reserve is met by IIST.
Retirement Benefits consisting of pension fund, gratuity and leave encashment received from previous employers of employees joining from other Government organizations have been transferred to Department of Space. Funding of yearly requirement of pensionary & retirement benefits will be by Department of Space.

10. Taxes on income
Being a non-profit institution existing solely for education purposes and being wholly financed by the Government of India, the income of the Institute is exempt under section 10[(23C)][iiiab] of the Income Tax Act, 1961.

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

11. Research and Development Expenses
Revenue expenditure pertaining to research is charged to the Income and Expenditure Account. Fixed assets utilized for research and development are capitalized and depreciated in accordance with the policies stated for Fixed Assets.

12. Provisions and Contingencies
A provision is recognised when the Institute has a present obligation as a result of past events and it is probable that an outflow of resources will be required to settle the obligation in respect of which a reliable estimate can be made. Provisions (excluding retirement benefits) are not discounted to their present value and are determined based on the best estimate required to settle the obligation at the Balance Sheet date. These are reviewed at each Balance Sheet date and adjusted to reflect the current best estimates.

B. Notes to the Accounts

1. Depreciation
Assets are depreciated at written down value method as per rates prescribed in the Income Tax Act, 1961 as recommended by the Office of the Principal Director of Audit, Scientific Departments, Bangalore. Software not having perpetual licenses are written off over the license period. Ebooks are depreciated at rates applicable for software.

2. Revenue
   a. As per Ministry of Finance directive, from September 2022 Grant in Aid funds from Department of Space are being received in a Treasury Single Account opened specifically for this purpose. Balance available in this account is returned to Department of Space on 31st March of the respective financial year. Grant balance available in Scheduled Commercial Banks from previous transfers are to be refunded to Department of Space. Grant balance pertaining to the period prior to 01.04.2023 amounting to Rs. 19.70 lakhs is refundable to DOS.
   b. Interest earned (actually received) on funds from grant-in-aid maintained in deposits is refundable to DOS. Interest of Rs. 32,90,140/- (excluding the interest received on the Provident Fund Accounts and Earmarked Funds) has been actually received on deposits during 2024-25 and the same has been shown as refundable to DOS.
   c. Fees received from B.Tech students (performing and non-performing students) who have joined the Institute prior to 2018 was not recognized as income and was shown as a liability payable to Department to Space after adjusting related costs. Based on the Department of Space Letter No. B. 12011/7/2015-Sec.2 dated 21.10.2015, "Fees paid back by students on receipt of Assistanceship package and receipts from non-performing students" was to be remitted back to Government Account. The last batch of students falling under this category passed out in 2023.
   d. With respect to BTech students joining the Institute from 2018 onwards the Fees received is recognized as Income of the Institute based on the decision of the Twelfth Finance Committee, IIST.
   e. Canteen Accounting Committee accounts is maintained separately and the gross deficit / surplus, which is exclusive of administrative cost, is recognised in the Income and Expenditure Account.

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
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Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

3. Fixed Assets
   a. Land – There is a stay by the Honorable High Court of Kerala on carrying out construction activities on a part of land (approximately 80 acres) purchased at Ponmudi in Trivandrum District for setting up the Institute. Over and above this 80 acres, approximately 20 acres of land at Ponmudi and 44.18928 acres at Valiamala has been transferred by the Government of Kerala free of cost in December 2007 and April 2009 respectively. These two properties have been brought into the books of accounts in 2013-14 by assigning a nominal value of Re. 1/- each. The present activity of the Institute is in the Valiamala campus which has been handed over by LPSC vide letter no. VSSC/CMG/2010 dated 05.08.2010 and has been measured at 53.43 acres. No separate lease agreement / transfer of ownership of land was obtained by IIST. No value has been separately provided in the books for this land.
   b. Capital Work-in-Progress includes service tax of Rs. 7,73,61,215/-. Appropriation to fixed assets is on hold as appeal for refund of service tax is pending before the Commissioner of Central Excise [Appeals].
   c. An amount of Rs. 1,67,63,485/- pertaining to assets that have been delivered to IIST before 31.03.2025 but under installation as on 31.03.2025 have been accounted as fixed assets & depreciation has not been charged on the same. This amount includes Office Equipment worth Rs. 6,85,011/- procured from CMS computers which has been uninstalled for 11 years.

4. Employee Benefits
   a. Employer and Employee contribution to New Pension Scheme is being transferred to NSDL.
   b. The Institute has entered into a Group Insurance Scheme (GIS) agreement with Life Insurance Corporation of India from 2011-12 onwards.
   Provision for interest on PF Contribution, at the rates prescribed, have been made and the corresponding expenditure has been adjusted against Interest earned on GPF and CPF funds parked in Savings Accounts (linked to flexi deposits) and the balance interest earned has been retained as Interest Fluctuation Reserve. Provision for Retirement Benefits [Pension, Gratuity & Leave Encashment] has been incorporated based on the actuarial valuation provided by Life Insurance Corporation during 2018-19. Provision till 2022-23 has been made by assuming a 10% hike in previous year service cost. In 2023-24, Provision for Retirement Benefits Rs. 23,50,58,187/- has been reversed. This is based on DOS instructions whereby IIST has been advised to continue to project the funds requirements towards Pension & Retirement Benefits through Grant-in-Aid till common guidelines are issued to Autonomous Bodies. In addition, the retirement benefits from the previous employers for the members governed under the GPF have not been received in all cases. Funds received from previous employers towards their share of retirement benefits contribution has been transferred to Department of Space as advised by them.
   c. An amount of Rs. 10.06 lakhs pertaining to interest shortfall and TDS on interest income is to be transferred from IIST's bank account to Retirement funds bank accounts.

5. Prior Period Item
   Details of prior period items are as given below :-

Details	Prior period expenses
Repairs & Maintenance reversal	6,77,446
Freight	550
Miscellaneous Income	557
Legal Expense	500
Fines & Penalties	150
Total (A)	**6,79,203**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

Details	Prior period income
BTech Fees reversal	3,49,900
Supplies & Materials	1,58,296
Printing & Stationery	156
PhD Expense	1,14,492
Depreciation	31,887
Interest on GPF	4,142
Total (B)	**6,58,873**

Net prior period income (A-B) = Rs. 20,330/-

6. Academic Expenses
Academic Expenses mainly include expenses towards Lectures for students, Project & Internship expenses, stipend / fellowship paid to PhD and M.Tech students and expenses incurred on Seminars, Symposia and Conferences.

7. Admission Expenses
Admission expenses include expenses incurred towards B.Tech, M.Tech and PhD admissions

8. Assistanceship to Students
As per the approval of The Chairman, Board of Management-IIST / Secretary, DOS vide Letter No. PP & PM : IIST : 09-10 dated July 17th, 2009, the B. Tech students of the Institute are entitled for an assistanceship of Rs. 49,000/- [increased to Rs. 51,400/- from Even semester 2014-15] for each semester towards Statutory Semester Fee, Student Amenity Fee, Hostel & Dining, Establishment charges and Medical cover. For the students who have joined the Institute prior to 2018, the assistanceship amount of Rs. 48,400/- (exclusive of book grant) for a semester is disbursed to eligible students based on the performance of the previous semester. The assistanceship amount disbursed is then remitted back by the students to the Institute and expenditure corresponding to the assistanceship so received (under Hostel, Dining & Medical cover) is set off against the assistanceship amount.

From 2018 admission onwards fees is collected from all the students at the beginning of the Semester and the eligible Assistanceship is disbursed based on the performance of the student at the end of the semester. From 2021 admission onwards Assistanceship has been discontinued and Merit Scholarship is disbursed for a certain percentage of students based on performance. During 2024-25, an amount of Rs. 82,17,335/- was disbursed as assistanceship (inclusive of book grant).

9. Supplies and Materials
Supplies and Materials mostly consist of lab consumables.

10. Salary
Salary cost for the month of March 2025 has not been taken into the books of accounts for 2024-25 as March salary for a particular year for central government employees is released in April of that year only. Expenditure for March 2024 to February 2025 has been shown in 2024-25

11. Earmarked / Endowment Funds
    a. An amount of Rs. 77.47 lakhs pertaining to expenditure for Externally Funded projects that are running on a deficit has been met from Externally funded projects bank accounts and is to be transferred from IIST funds to Earmarked Funds bank accounts.
    b. As on 31.03.2025, assets amounting to Rs. 14.52 crores have been purchased from externally funded projects. The same has not been included in the Balance Sheet of the Institute as the ownership of the same vests with the sponsor.

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

12. Format of accounts
The accounts of the Institute are prepared as per proforma suggested by the Office of the Principal Director of Audit, Scientific Departments, Bangalore.

13. Insurance
The Institute being an autonomous body under the Department of Space (DOS), it is governed by the rules and regulations as applicable to DOS. As per the "Book of Financial Powers" prescribed by DOS "No Government property whether movable or immovable shall be insured. No liability shall be incurred in connection with the insurance of such property without the prior approval of the Department of Space in consultation with the Member for Finance." The matter was taken up for consultation with the Department of Space during 2012-13 and it was decided in the Seventh Finance Committee meeting of IIST dated 3rd June, 2014 not to insure the assets of the institute.

14. Inoperative Balances
An amount of Rs. 58.26 lakhs (credit balances) relates to balances that have been outstanding from prior to 01.04.2024.

15. Balances in personal accounts
Balances in personal accounts are subject to confirmation from respective parties.

16. Contingent Liabilities
    a. The unexecuted portion of the contracts entered into by the Institute will form part of the current liability of the Institute. However, the same could not be quantified.
    Interest earned on Earmarked / Endowment Funds held in a separate Current Account linked to Term Deposits has been taken as the Institutes Income. Interest claims in the future, if any, from the disbursing parties of such Earmarked / Endowment Funds will be met at the time of the claim based on the deposit rates prevailing during the period of holding of the respective Fund
    b. In the case of buildings / structures completed by SPCL, only 90% has been paid by IIST. The balance 10% (approximately Rs. 22.01 crores) has been billed but not settled as the contract settlement is subjudice.

17. Building Construction:
The institute entered into a contract with SPCL, Mumbai on 27.08.2008 for Rs. 278.60 crores with a completion period of 18 months for setting up building and infrastructure at its campus in Valiamala on turnkey basis. The work was completed and the building handed over on 06.02.2021. The Institute was holding the following instruments as security with respect to the contract with SPCL.

Department of Space had directed the following recoveries with respect to the SPCL contract.

    a. Liquidated Damages @ 10% of contract value towards compensation for delay – Rs.27.86 crores
    b. Interest on retention of mobilisation advance beyond contractual period of 15 months - Rs.9.82 crores
    c. Labour Welfare Cess – Deduction advised by C&AG – Rs.2.34 crores.

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
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Schedule 19 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH 2025 (contd)

In order to effect the above recoveries, in 2021—22, the Bank guarantees available were submitted to the respective banks for invoking the guarantees. Out of the total amount of Rs.36.71 crores of BG, Rs.24.57 crores was credited to IIST. An amount of Rs.9.82 crores was adjusted against the interest on retention of mobilisation advance beyond 15 months against the amount received and the same is held in a separate account which is payable to DOS. Further, the balance amount received through invocation of BG is held separately with State Bank of India. The amount of Rs. 9.82 crores towards interest on mobilisation advance and the balance of Rs. 14.75 crores of the BG invocation have been shown as transferable to DOS alongwith interest earned on the same till 31.03.2025. An amount of Rs. 44.77 lakhs pertaining to TDS on interest income is to be transferred from IIST's bank account to the deposits held for this purpose.

In between, SPCL has moved High Court of Kerala and honourable High court has put an injunction on invoking the bank guarantee of Rs.12.14 crores submitted as Security Deposit. Now the matter is pending with Honourable High Court for decision. The final GST invoice for the above contract is yet to be submitted by SPCL.

18. Figures for the previous year
Figures for the previous year have been regrouped and/or reclassified wherever considered necessary.

As per our report of even date attached

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. Roshan Venugopalan Nair
(Partner, Mem No. 228417)

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Prof. Dipankar Banerjee
Vice Chancellor

R. Hari Prasad
Finance Officer

Place : Thiruvananthapuram
Date : 12th November, 2025
UDIN : 25228417BMJOPR4504

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
I. Opening Balance			**I. Expenses**		
a.Cash in hand	2,31,893	2,00,835	**a. Establishment Expenses - Regular**		
b.Bank Balances			Salaries & Allowances (admin & faculty)	43,54,45,455	41,82,10,081
a) Earmarked Funds	58,67,56,236	50,57,69,562	Contribution to NPS	3,78,55,762	3,41,36,728
b) Others	17,76,94,174	14,41,84,521	Contribution to CPF	2,68,920	2,68,920
			Medical Expense- Staff	51,31,619	33,77,667
II.Grants Received			Employees Retirement Benefits	1,42,79,195	1,21,34,904
a.From Government of India	1,28,29,25,817	1,15,31,37,328	Interest on PF Contribution	5,27,881	8,50,173
			Staff Training Expenses	16,770	34,379
III. Interest Received					
a. On Bank Deposits	1,57,31,438	1,48,56,874	**b. CISF Salary & Other Expenses**		
b. On Other Deposits	2,92,439	2,30,386	CISF Expenses	9,86,56,089	9,61,94,869
c. Loans, Advances etc	53,193	2,17,457			
d. Others	1,05,660	1,16,567	**c. Establishment Expenses - Support Services**		
			Consultancy & Manpower Charges	10,79,07,441	8,80,95,685
IV. Other Income			Remuneration to Contract Employees	77,61,206	49,73,692
a. Entrance Fees	54,30,550	56,12,450			
b. Annual Fees/Subscriptions	9,01,22,234	8,32,15,106	**d. Academic & Other Student Expenses**		
c. Other Fees	12,65,483	-	Admission Expense	74,79,414	50,21,439
d. Other Income	85,46,814	53,77,885	Assistanceship to Students	82,17,335	1,98,16,864
			Library Services	35,41,733	2,37,10,057
V. Any other receipts			Academic Expense	9,07,99,651	7,08,05,426
a. SAC, Ahmedabad	8,000	-	Supplies & Materials	5,38,13,544	3,68,47,260
b. Security Deposits received	6,66,320	1,29,211	Student Activities Expense	19,32,454	18,87,858
c. Earnest Money Deposits received	79,774	1,87,062			
d. Performance Guarantee received	3,40,679	2,42,342	**e. Other Administrative Expenses**		
e. Advance for Research, Seminars etc	2,68,69,859	9,60,97,208	Repairs & Maintenance	2,04,43,167	2,13,92,159
f. MCF Hassan - ISRO - net	12,936	-	Repairs & Maintenance - CMD	5,49,58,520	4,50,92,625
g. Caution Deposit from Students	29,40,000	28,30,000	House Keeping Expense	10,84,532	7,23,546
h. Bond Amount received [Btech]	56,00,000	10,00,000	Audit Fees	2,00,600	1,75,400
i. Stale cheques	34,723	33,005	Legal Expense	53,333	7,05,557
j. Canteen Accounting Committee	3,19,19,565	2,87,67,576	Vehicle Operating Expense	1,36,60,881	1,26,12,740
k. Interest received and payable to DOS	33,35,697	30,12,565	Electricity & Water Charges	3,04,19,240	2,79,67,043
l. Net addition to Statutory Liabilities(Staff)	62,77,717	12,15,144	Travelling Expense	55,16,880	56,16,122

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
m. Unexplained credits - Banks	-	74,706	Research & Development Expense	2,74,67,442	1,92,82,503
n. Recovery of loans to staff	13,00,267	11,76,664	Printing & Stationery	20,08,382	45,62,031
o. Decrease in Contingency advance	5,397	-	Advertisement & Publicity	6,58,177	4,82,323
p. Increase in TDS, GST & Labour Cess	-	22,32,205	Hospitality Expense	35,36,765	26,75,289
q. TDS/TCS refund from IT Department	42,27,460	29,14,223	Telephone & Internet Expense	33,01,131	41,82,932
r. SPCL-BG Interest transferable to DOS	1,88,38,469	1,75,99,520	Office Expense	70,26,882	59,70,146
s. Sundry Creditors - Others - Net	2,53,756	1,13,090	Recruitment & Review Expense	8,48,739	11,34,970
t. Security Deposit (Asset) received	-	60,000	CEP & IPR Expenses	8,67,805	8,450
u. Sundry Debtors - Others - Net	10,686	-	Compensation Paid	11,83,496	13,15,011
			Bank Charges	42,368	44,676
			GST - Input Tax Credit Utilized		-
			Expenditure on Earmarked Funds	1,29,390	40,000
			II. Payments made against funds for various projects		
			DOS - Dr. Palash - HSP - Real TIme Gas Sensor	1,48,112	4,21,216
			DOS - MOM2 - RPA - Dr. Ambili KM	-	3,63,508
			DOS - Dr. Umesh - Planetary Exploration	6,667	2,30,000
			DOS - Dr. Rajesh V J (Spectral)	-	1,83,528
			ISRO -Dr. K G Sreejalekshmi -Gaganyaan	1,56,384	7,47,765
			LPSC - Dr Dinesh N Naik	2,00,000	-
			LPSC - Dr. Jinesh K B - SDS	5,20,493	-
			ISRO - MOM - Dr. Rajesh VJ	-	6,16,323
			LPSC - Dr.Jinesh K B - Laser Ignition System	3,814	1,46,186
			DAE - 2022 - Dr. Sakthivel - NBHM Multiphase Fluids	6,68,706	3,53,553
			DBT - Dr. Shaiju - Ramalingaswami Fellowship	18,19,581	19,60,535
			DBT-RamaRao (Rural Urban Interface) Phase-II	8,74,520	9,27,686
			DOH - Dr.Gnanappazham L - 2023 - Market Intelligence	28,821	19,91,980
			DRDO - ARDB - Sudharshan Kaarthik 2023 - Ele HANS	56,57,248	16,218
			DRDO - DR.Praveen Krishna IR- 2022- Gas Turbine	22,15,764	9,03,484
			DRDO - Dr. Rajesh S. - 2022 - TDLAS Temp Sensor	8,27,122	21,24,777
			DRDO - Sam Zachariah - Robots - 2024	6,80,868	9,115
			DST - CNRS - Dr. Palash Basu - 2020 - Biomarker	-	10,29,292
			DST - 2023 - Dr. Rajesh S - Indo German - Nox	3,92,425	-
			DST - Dr. Rama Rao N	2,06,172	-

ARSSB & ASSOCIATES Chartered Accountants FRN: 009803S

INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM * Govt. of India Dept. of Space

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
			DST-Dr Jinesh KB- Atomic Layer Deposition System	21,73,662	29,94,824
			DST - KIRAN - WOS(A) - Pushpa K - Quantum Mech	69,638	15,96,905
			DST - NRDMS - Dr.Ramarao - 2022 -Geodesy	7,54,406	7,32,196
			DST - Umesh R Kadhane - Genisis of Organic Molecule	21,700	3,57,666
			DST - WISE - PDF - 2024 - Pushpa K _ Quantum Mech	2,28,773	-
			ICMR - DHR- Dr.Deepak Mishra - 2023 - 3rd Trimester	25,81,630	-
			ICSSR - Dr. Shaijumon - 2020 - Tele Medicine Units	-	1,14,286
			IITG - Dr.Prathap - 2022 - Hydrogen Blending	88,060	5,54,464
			INAE - Dr. Palash - 2022 - Abdul Kalam Fellowship	10,36,122	10,67,744
			IPTIF - Dr. N.Selvaganesan - 2024	4,20,000	-
			IPTIF - Dr. Vineeth B S - 2024	4,20,000	-
			IPTIF - Prof.B.S.Manoj - 2024	4,52,040	-
			IPTIF - Prof.Deepak Mishra - 2024	4,87,200	-
			KSCSTE - Dr.Anoop C.S - 2022 - Magneto - Plethysmog	3,34,527	4,47,800
			KSCSTE - Dr. Seena V - 2023 - Polymer MEMS	58,023	66,091
			KSCSTE -R Sudharshan Kaarthik - Electric Cars- 2023	18,112	-
			Max-Planck - Dr. Jagadheep - 2017	35,294	12,79,228
			MoES - Dr. Govindankutty - Thunderstorms	4,27,197	11,40,619
			MoES - 2023 - Dr Govindankutty - Monsoon MissionIII	12,24,709	2,30,857
			SERB - Dr. Ashok - Quantum Communication	-	1,31,111
			SERB - Dr. C S Narayanamurthy - Wavefront	12,983	11,89,460
			SERB - Dr. Immanuel R - 5G Bands	-	76,645
			SERB - Dr.Biswajit Pathak - Ramanujan Fellowship 23	22,50,984	15,75,796
			SERB - Dr. Chinmoy Saha - 2020 - 5G Antenna	-	14,37,100
			SERB - Dr.Natarajan E - Navier Stokes Equation - 24	1,62,662	-
			SERB - Dr.Prosenjit Das - R-Forms of R(X) - 2023	2,19,720	2,19,915
			SERB - Dr Rajesh S - Variation in Biogas Fuel	28,40,118	10,00,301
			SERB - Dr. Resmi L - 2017 - Gamma Rays	-	6,10,500
			SERB - Dr Resmi L - Ultra Relativistic Jets	72,700	2,44,155
			SERB - Dr. Sarita Vig - 2019 - Young Massive Stars	19,600	3,96,188
			SERB - Dr. Sarvesh - 2020 - Virtual Element Approx.	-	31,542
			SERB - Dr Sarvesh K - Novel Numerical Tech	1,74,338	6,07,389
			SERB- Dr.Sourav Bhowmick - Secure Control - 2022	3,60,629	68,849
			SERB - Prof.Manoj B S - 6G Satellite Networks	7,45,916	8,64,044
			SERB - Prof.Selvaganesan N - Biomedical Signal-2023	6,89,813	3,22,100

INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM * Govt. of India Dept. of Space

S.B. & ASSOCIATES Chartered Accountants FRN: 009803S

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
			SPARC - 2024 - Dr. Manoj BS - 6G Networks	9,87,248	-
			SERB- Umesh Kadhane - Symposium on Genesis	79,272	2,12,262
			DST - Dr. Vikram Khaire	10,915	13,69,859
			03-2021-03- VSSC- J Mary Gladis - NanoStructured	1,46,072	4,50,863
			03-2021-04-VSSC-Dr.Jinesh KB- High-Q Dielectric	1,61,419	-
			03-2021-05-VSSC-Dr.Jinesh K B - Yttrium Iron Garnet	1,62,173	-
			03-2021-09- VSSC- Sandhya K Y - PEM Fuel Cells	8,96,014	1,90,134
			03-2021-10-VSSC- Sandhya K Y - Silicon Graphene	3,58,293	2,16,028
			03-2021-11- VSSC-Dr. J Mary Gladis - Graphene Nano	7,52,912	6,59,931
			03-2021-13-LPSC- Dr.Umesh R Kadhane- Diagnostic H	5,74,299	1,90,133
			03-2021-15 -LPSC-Umesh R Kadhane- Prediction of HE	1,61,234	1,85,534
			03-2021-16-LPSC- Dr.Prathap C- Condensation of GCC	13,78,000	87,735
			03-2021-18-LPSC-Dr. Shine SR - Thruster Plume	10,93,662	5,73,772
			05-2022-30-LEOS-Dr. Jinesh KB - Seismocardiogram	5,30,000	2,09,027
			11-2021-23-SAC-Dr.Vani Devi M-Interface Analysis	2,34,344	93,484
			11-2021-24 - LPSC- Dr.Deepu M-Dual Throat Nozzle	21,82,999	15,92,099
			11-2021-25-VSSC-Immanuel Raja-Monitoring ASIC	15,54,626	-
			11/2021-HSFC-Shine S R- Human Thermal Behaviour	17,61,953	-
			11-2022-32 -VSSC- Dr.Lekshmi V Nair -Industrial Sec	1,00,161	-
			11-2022-31-VSSC-Dr.Sooraj V S - Laser Based Powder	-	4,87,255
			DRDO - ARDB - UG,PG Girl Students	-	6,00,000
			GoK - SC Development Dept - Scholarship	27,066	-
			KSCSTE - Phd - Ardra K - 2024	3,92,000	-
			KSCSTE - PhD - Elizabeth George - 2018	1,35,187	-
			KSCSTE - PhD - Sanah Rahman K - 2021	4,65,749	9,807
			SERB - TARE - Dr. Santhosh B	-	1,24,537
			SERB - TARE - Dr. Abirami A M - 2023	36,541	2,21,377
			Tribal Affairs - Scholarship for ST Students	1,19,900	68,400
			DOS-Umesh Kadhane-Symposium on Genesis	1,09,283	-
			AICTE - Dr.S Chris Prema - FDP - 2024	2,59,300	-
			ANRF - Dr.Deepak Mishra - NCVPRIPG 2024	1,45,272	-
			ANRF - Dr.Govindan Kutty - Workshop Weather 2024	19,012	-
			KSCSTE - Crystal- 2024	62,290	-
			DST - NGP - RamaRao- Geospatial	-	7,13,971
			DAE - NBHM ICIAM - Sarvesh Kumar - Travel - 2023	-	2,75,000

INDIAN INSTITUTE OF SPACE SCIENCE & TECHNOLOGY * THIRUVANANTHAPURAM * Govt. of India Dept. of Space

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INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
			DAE - NBHM ICIAM - Travel - Sakthivel - 2023	-	2,75,000
			KSCSTE - Dr.A.M.Ramiya - Travel - 2023	-	1,64,653
			KSCSTE - Dr.R Sudharshan Kaarthik- Travel - 2024	-	1,19,894
			SERB- Travel - Manohar Kumar - 2024	-	1,95,682
			SERB- Travel - Varsha M V - 2024	-	1,47,153
			IPRC-Dr. Palash Basu	-	7,455
			NCM AFS - III - Prof. Prosenjit Das - 2024	10,40,898	-
			SERB - Narayana Murthy C S - INTOCQ - 24	2,37,672	-
			ANRF/SERB - Sarita Vig - Travel Grant	1,04,096	-
			ANRF -Travel -Anbarasan Sekar - 2024	1,56,815	-
			ANRF-Travel - Anjuna Dileep - 2024	1,20,120	-
			ANRF - Travel - Dr. Selvaganesan N - 2025	1,34,630	-
			ANRF - Travel -Olivia Zacharia (PhD) - 2024	79,524	-
			ANRF -Travel - Vijay Joshi (PhD) - 2024	89,920	-
			DST - Travel - Dr.Prosenjit Das - 2024	3,24,591	-
			SERB - Travel - Dr. Resmi L - 2022	6,00,284	-
			JEST 2024	81,82,874	14,14,203
			III. Expenditure on Fixed Assets & Capital Work-in-Progress		
			a.Purchase of Fixed Assets	27,11,78,155	21,80,29,438
			b.Expenditure on Capital Work-in-progress	2,88,44,282	84,89,538
			IV. Other Payments		
			Security Deposits (Asset) paid	8,82,360	1,54,280
			Security Deposits repaid to Contractors	3,90,539	75,691
			Earnest Money Deposits repaid	1,15,161	1,89,020
			Performance Guarantee repaid	2,05,165	1,41,716
			Loans to staff	50,000	-
			Increase in Contingency Advance	-	25,397
			Canteen Accounting Committee	3,05,85,881	2,66,36,976
			Charges recoverable from banks	-	3,555
			Decrease in TDS, GST & Labour Cess	5,96,392	-
			TDS / TCS [from IIST]	43,89,477	42,30,173
			Btech Fees refunded to DOS	1,45,600	-

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2025

(Amount in Rs.)

Receipts	2024-25	2023-24	Payments	2024-25	2023-24
			Interest refunded to DOS	72,49,304	-
			MCF Hassan - ISRO - net	-	6,53,530
			Caution Deposit repaid to Students	34,04,000	33,87,315
			Sundry Debtors - Others - Net	-	1,847
			Grant refunded to DOS	-	3,13,15,000
			V. Closing Balances		
			a.Cash in hand	1,65,196	2,31,893
			b.Bank Balances		
			a) Earmarked Funds	58,55,42,740	58,67,56,236
			b) Others	23,23,34,911	17,76,94,174
Total	**2,27,18,77,236**	**2,07,06,03,492**	**Total**	**2,27,18,77,236**	**2,07,06,03,492**

Significant Accounting Policies,
Notes on Accounts & Contingent Liabilities 19

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. Roshan Venugopalan Nair
(Partner, Mem No. 228417)

Place : Thiruvananthapuram
Date : 12th November, 2025
UDIN : 25228417BMJOPR4504

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Prof. Dipankar Banerjee
Vice Chancellor

R. Hari Prasad
Finance Officer

IIST-204-IP-E-11-2025

Indian Institute of Space Science and Technology

(Declared as Deemed to be University under Section 3 of the UGC Act, 1956)
An autonomous Institute under Department of Space, Govt. of India
Valiamala P O, Thiruvananthapuram - 695 547, Kerala
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