Indian Institute of Space Science and Technology

(वि. अ. आयोग अधिनियम 1956 की धारा 3 के अधीन मानित विश्वविद्यालय घोषित)

(Declared as a Deemed to be University under Section 3 of UGC Act 1956)

वलियामाला / Valiamala, तिरुवनंतपुरम / Thiruvananthapuram - 695 547, केरल / Kerala

Admission to PG Programmes July 2025

BROCHURE

Admission process: Admission to PG programmes in IIST will be through 2 modes

- M.Tech. in Machine Learning and Computing: Through IIST webportal https://admission.iist.ac.in/
- All other Branches: Through CCMT - 2025. Please visit https://ccmt.admissions.nic.in/ for details

Email ID: admissions@iist.ac.in

Contact us: 0471-2568477/618/418

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 Centres 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.V. Narayanan

**Vice Chancellor
Chairman, Board of Management**

Prof. Dipankar Banerjee

**Registrar &
Dean Academics**

Dr. Kuruvilla Joseph

Deans

Dr. A. Chandrasekar
Research & Development

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

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

Table of Contents

1. ABOUT THE INSTITUTE

Indian Institute of Space Science and Technology (IIST) established in 2007, and situated at Thiruvananthapuram, Kerala, is a Deemed to be University under Section 3 of the UGC Act, 1956. IIST, functions as an autonomous institution under the Department of Space (DoS), Government of India. IIST was conceived with a vision to nurture exceptional manpower for the Indian Space Research Organization (ISRO), one of the world's leading scientific organizations engaged in space research and space applications. The institute is the first of its kind in the country to offer high-quality education at the undergraduate, graduate, doctoral and post-doctoral levels on areas with special focus towards space sciences, space technology and space applications. Equipped with excellent infrastructure and about 100 highly qualified faculty members, IIST has, within a decade of its inception, risen to great heights. It was ranked among the top 51 Engineering institutes of the country according to 2024 NIRF rankings of Ministry of Human Resource Development (MHRD) with a high score of more than 75% in Teaching, Learning and Resources; a score much better than many premier institutes in the country. The institute currently offers four undergraduate and sixteen postgraduate programmes that are listed below.

Postgraduate Programmes
- M.Tech. in Thermal and Propulsion
- M.Tech. in Aerodynamics and Flight Mechanics
- M.Tech. in Structures and Design
- M.Tech in Manufacturing Technology
- M.Tech. in RF and Microwave Engineering
- M.Tech. in Digital Signal Processing
- M.Tech. in Control Systems
- M.Tech. in VLSI and Microsystems
- M.Tech. in Power Electronics
- M.Tech. in Materials Science and Technology
- M.Tech. in Earth System Science
- M.Tech. in Geoinformatics
- Master of Science in Astronomy and Astrophysics
- M.Tech. Machine Learning and Computing
- M.Tech. in Optical Engineering
- M.Tech. in Quantum Technology

Undergraduate Programmes

- B. Tech in Aerospace Engineering
- B. Tech in Electronics and Communication Engineering (Avionics)
- B. Tech in Computer Science and Engineering (Data Sciences)
- Dual Degree (B.Tech in Engineering Physics + Master of Science/ M.Tech in one of the following):
  - Master of Science in Astronomy and Astrophysics
  - Master of Science in Solid State Physics
  - M. Tech in Earth System Science
  - M. Tech in Optical Engineering

In addition, IIST has a vibrant research environment with close to 415 PhD scholars engaged in frontline research areas. The academic programmes have been formulated to strengthen the fundamentals, provide hands on experience through practical work, enhance the understanding and expand the boundaries of knowledge in various areas of interest. IIST focuses on inculcating the culture of innovation in students.

The curriculum labs are meticulously designed and the best experimental-set ups and equipment are provided. IIST has three Centres of Excellence in the areas of (i) Advanced Propulsion and Laser Diagnostics, (ii) Virtual Reality and (iii) Nano science and Technology, where students get to involve themselves in various advanced and sophisticated experiments. The many state of-the-art research laboratories offer a unique learning environment for the students to delve into cutting-edge research. With IIST stepping into the next decade, the decadal plans promise ample opportunities to the young, bright students to get actively involved in space related projects like Exo Worlds - An ISRO Exoplanet Mission, Space Robotics, Space Sensors, etc.

IIST AT A GLANCE - 2024		
Strength of Departments		
Department	**Faculty**	**Scientific/Technical Staff**
Aerospace Engineering	22	19
Avionics	24	12
Chemistry	8	6
Earth and Space Sciences	13	4
Humanities and Social Sciences	5	2
Mathematics	11	3
Physics	12	13

Postgraduate Enrollment (2010 - 2024)	
Department	**Total no. of students enrolled**
Aerospace Engineering	361
Avionics	443
Chemistry	91
Earth and Space Sciences	207
Mathematics	115
Physics	116
Total	1333

Undergraduate Enrollment (2007 - 2024)	
Course	**Total no. of students enrolled**
B.Tech. in Aerospace Engineering	1091
B.Tech. in Electronics & Communication Engineering (Avionics)	1124
B.Tech.* in Engineering Physics (Dual Degree)	454
Total	2669
*Including earlier B.Tech. Physical Sciences)	

PhD Enrolment (2010 – 2025 (Jan))	738 Nos

| Degrees Awarded (2011-2024)			
Postgraduate	**Undergraduate**	**Dual Degree**	**PhD**
903	1746	126	191

2. CAMPUS LIFE AT IIST

IIST promises a vibrant campus life for the young and energetic students amidst the serene greenery close to the foothills of the Sahyadri ranges

There are well-equipped hostels, student canteens, cafeteria, bank and ATM, playgrounds, gyms, etc. Very good medical and counseling facilities are also available on campus. Clubs like the Astronomy Club, Robotics Club, and Mathematics Club are very active in the campus. Conscientia, IIST's Astronomy & Technical Fest is organized every year by the students to trigger innovative ideas. For their holistic growth, IIST encourages students in extra-curricular pursuits like sports and cultural activities. IIST's Annual Cultural Fest, Dhanak is now one of the most popular student festivals in south India, where a large number of students converge on to showcase their talent. Festivals and events are celebrated with enthusiasm by the student community with active participation from the entire IIST fraternity.
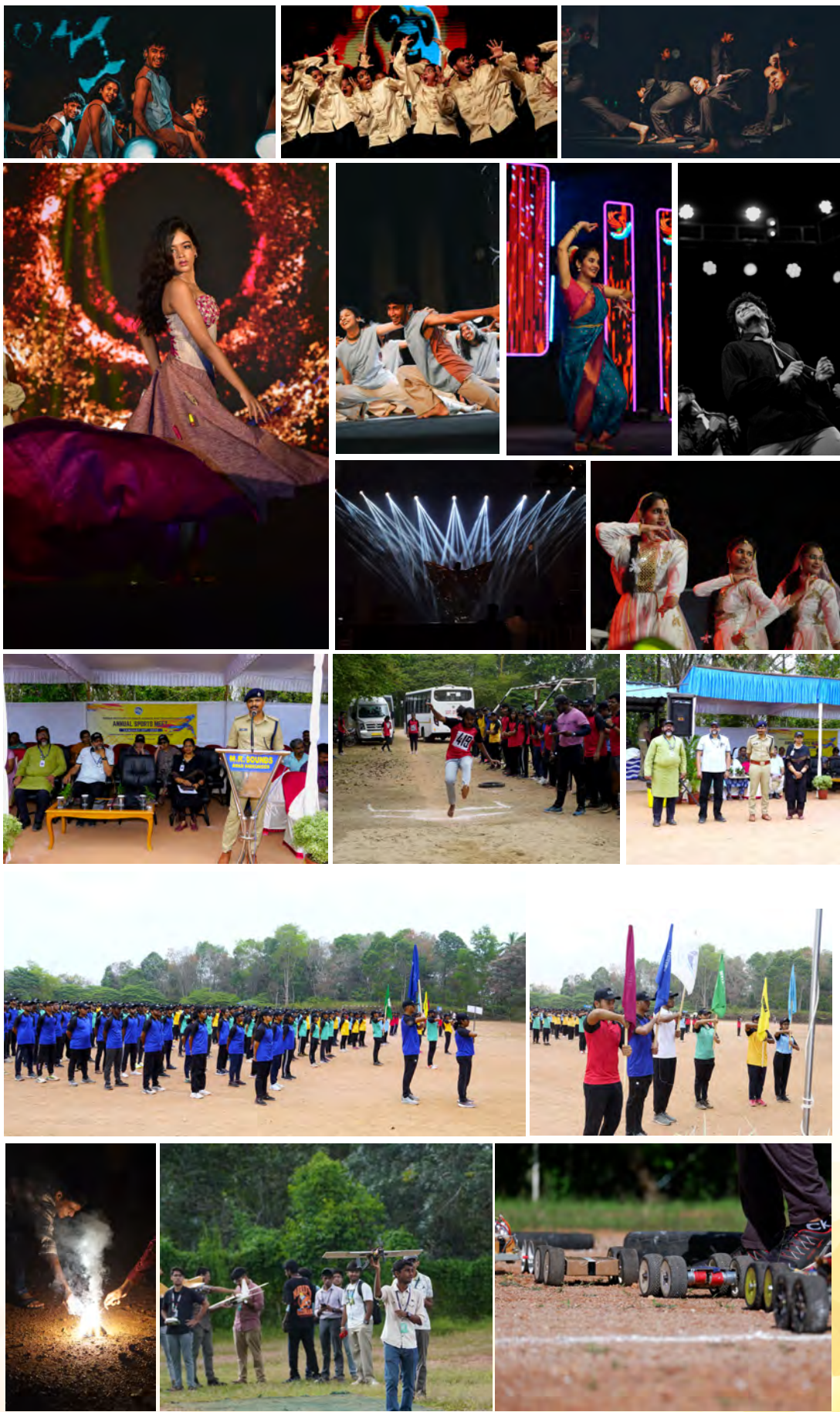
Awards

Mohd Abdullah Khan, M.Tech., Thermal and Propulsion 2020 batch, first position in Thesis-2021, ISHMT Trivandrum Chapter mentored by Dr. Prathap C. & Dr. Manu K.V.

Usurupati Samiyalu , M.Tech., Best Thesis award by IEEE Microwave Theory and Techniques Society (MTT-S) Kerala Chapter 2021, mentored by Dr. Immanuel Raja and Dr. Chinmoy Saha.

Student team (Pragya Yadav & Srikara Reddy (M.Tech. 2020 Power Electronics), Harshith V Reddy, G Sai Pavan & Mokshith SR (M.Tech. 2021 Power Electronics), Vidya V (PhD), and VLN Mallikarjun (B.Tech. 2021 ECE), won the Texas Instruments India Chairman Award for Technical Innovation (1st Prize) in the India Innovation Challenge and Design Competition (IICDC) organized by DST, AICTE, Texas Instruments, IIM Bangalore and mygov.in (mentored by Dr. R. Sudharshan Kaarthik, HST).

Students Activities & Events

Many festivals are celebrated by IIST students such as Holi, Onam, Dussehra, Diwali.

Twelfth Convocation-

The twelfth convocation of IIST was held on 06th July 2024 in the Pearl Jubilee Auditorium of LPSC. From an institution set up for generating skilled space manpower, IIST has all set to become the Centre of space research in by joining hands with ISRO.

Padma Vibhushan Dr. BN Suresh has presided the function and Shri Jagdeep Dhankhar, Honourable Vice President of India was the chief guest and delivered the convocation address. Shri. S Somanath, Chairman ISRO, President IIST Governing Body addressed the gathering and Dr. V Narayanan, Director LPSC was the Guest of Honour. The report on IIST activities was presented by Dr. S Unnikrishnan Nair, Director, and Chairman BOM, IIST

Since inception, a total 2669 students have been enrolled in three B Tech degree programs till July 2024 and 1872 students awarded their respective degrees including the 12th convocation 2024. As of August 2024, through 16 postgraduate programs a total of 903 post graduate degrees have been awarded and 283 students are currently pursuing. The doctoral programs of IIST started. in the year 2008 and till August 2024, a total of 191 doctoral degrees have been awarded and presently 413 are pursuing for their research work

In 2024, 101 students were absorbed in ISRO/DOS. Till date a total of 1422 students were absorbed by ISRO.

Shri. Manvendra Sharma of B.Tech, Electronics and Communication Engineering (Avionics) is honoured with the prestigious Gold Medal for being the best academic performer across all undergraduate programs and Shri. Manas Vashishtha of M.Tech in Aerodynamics and Flight Mechanics is awarded the Gold Medal for attaining the highest rank among all postgraduate programs. The excellence certificate and cash award for the student who has secured Best academic score in Aerospace Engineering goes to Sluri. Y Rahul Kumar and Slri. Siddharth Sanjeev Kandhway of B.Tech, Aerospace Engineering is selected as the all-rounder of the UG Programs. The toppers of Aerospace Engineering and Electronics and Communication Engineering branches will undertake a sponsored Master's Program at California Institute of Technology (Caltech), USA, before joining ISRO. The 9-month program is financially supported under the DoS-Caltech Professor Satish Dhawan Endowment Fellowship.

The Institute also exists as a symbiotic counterpart of ISRO infusing thought and cutting-edge technology in ISRO's fields of action. The third space mission of IIST-PILOT and ARIS-2 payloads were successfully launched on the POEM2 platform of PSLV C55 on April 22, 2023. Both payloads are healthy and transmitting the necessary scientific data to the IIST ground station. IIST Hybrid Rocket Experiments (IHRX) is a student-driven program

which will be mentored by faculty from the institute and various scientist from ISRO. Three Centres of excellence which are multidisciplinary, were established at IIST. They are Advanced Combustion Research Lab, ASIC Design and Characterization Lab, and Advanced Space Robotics & Control Lab.

Start up Activities: STIIC

Contact us:
STIIC, IIST Campus,
Valiamala POST, Thiruvananthapuram 695 547
email us at: stiic@iist.ac.in

Space Technology Innovation and Incubation Centre (STIIC), is the innovation hub of Indian Institute of Space Science and Technology (IIST) Thiruvananthapuram and acts as an umbrella for advancement of entrepreneurship and innovations at IIST. STIIC manages a business incubator which envisages to provide systematized scientific guidance and infrastructure support to young entrepreneurs within its campus. With its current infrastructure spread over 6,000 sq.ft, STIIC can accommodate an average of 15 startups at a time. Through STIIC, IIST yearns to achieve the mission to foster the spirit of innovation and act as a pedestal to assist knowledge driven enterprises to establish and prosper in their chosen domains. The activities of STIIC are formulated, streamlined, guided, supported, and monitored by STIIC Establishment and Operational task team and the IPR and Incubation Cell Monitoring Committee, constituted by Director, IIST.

Currently we have incubated 10 startup companies in STIIC and four companies are in their preincubation stage. The incubated companies include

1. Vashishtha Research Pvt. Ltd.: with focus on Inspection and Measuring Instruments and working towards
   • Robotics and Machine Development

- Electronics and Embedded software
- Engineering software and 3D viewers

2. SPACETIME 4D printing solutions LLP:
   Developing 3D printers for 3D printing of research materials Direct printing from raw materials – customized printers

3. Bhuh Pramaan Pvt. Ltd.:
   Developing innovative solutions in satellite image &amplification; 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
    Advanced UAV technologies
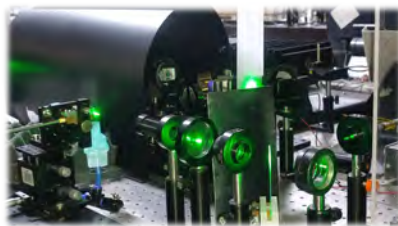
Laser-based flow velocimetry system

Nimbus S: Autonomous Logistics Drone

Orbital Transfer Vehicle (OTV)

Department of Aerospace Engineering (AE)

1. **M.Tech in Aerodynamics and Flight Mechanics**

The M.Tech programmes is intended to impart knowledge in low - and high speed aerodynamics, space and atmospheric flight mechanics, and the control and design of aerospace vehicles such as aircraft, spacecraft, and launch vehicles. The curriculum includes various topics accessible to students with mechanical and aerospace engineering backgrounds. Elective courses provide students with the opportunity to build on the foundations developed in their chosen disciplines.

The academic programmes is supported by well-equipped Aerodynamics and Flight mechanics labs. These labs help provide exposure to use of low speed wind tunnels and instrumentation, design and operation of rotary and fixed wing MAVs, flight controllers and simulators. In addition, state of the art facilities is also available to students for carrying out research as a part of their 1-year Thesis work. Some of the notable research facilities include

- Fully instrumented high pressure shock tube for performing unsteady gas dynamics and high speed flow studies
- Laser absorption spectroscopy lab for development of quantitative laser based sensors for high enthalpy flow applications
- Centralised HPC facility with access to commercial and open source CFD software.

The following laboratory facilities are available to this programme

- A laboratory for aerodynamics featuring two low-speed wind tunnels and a fully instrumented shock tube. These facilities include advanced instrumentation, such as a hot wire anemometer, an unsteady three-component force balance, electronic pressure scanners, a high-speed Schlieren, and high-speed data acquisition systems.
- The flight mechanics laboratory is equipped with a small selection of fixed and rotary wing unmanned aerial vehicles (UAVs) that are routinely used for instructional and research purposes. Additionally, the facility is equipped with flight controllers and simulators to develop and test manned and unmanned vehicle flights.

☐ The centralized high- performance computing facility provides access to various commercial and open-source computational fluid dynamics (CFD) software packages Throughout the M. Tech thesis work, students can utilize these facilities to work on basic or applied research problems, gaining exposure to cutting edge aerodynamics and flight mechanics.

The faculty in this programme has expertise in a variety of fields of research, including the following:

☐ Low and High Speed Flows, Experimental aerodynamics, Computational Fluid Dynamics, Flow instability and transition, Aeroacoustics, Unsteady Aerodynamics, Hypersonic Aerothermodynamics, Quantitative laser diagnostics

☐ Aerodynamic Shape Optimization, Optimization of launch vehicle trajectory, Optimization of aerospace systems on a multidisciplinary level, Machine learning for space applications

☐ Unmanned aerial vehicle design and flight testing; intelligent guidance and control of unmanned aerial vehicles; and development and manufacture of next- generation unmanned aerial vehicles.

Students are taught to use their core knowledge to analyze and research advanced concepts. The project phase introduces the student to addressing contemporary aerodynamics and flight mechanics design and research problems from a fundamental perspective.

Several of our alumni are also placed in various and wide range of government and private industries such as ISRO, GE, Tata Advanced systems, Siemens Digital Factory, Skyroot Aerospace, L&T Technology Services, Mazagon Docks Shipbuilders and a few startup companies. Many of our graduated students have joined doctoral studies at renowned top institutes in India and abroad.

2. M.Tech in Structures and Design

This programme mainly focuses on concepts of design and analysis of advanced structures. The programme covers the fundamentals of static and dynamic analysis and design of various structures. The curriculum covers topics such as Elasticity, Structural Dynamics, Finite element methods, Composite mechanics and a wide variety of electives in the areas of Acoustics, Stochastic Mechanics, Structural Health Monitoring and Wave Propagation, Fracture Mechanics, Robotics, and Advanced Computational Techniques.

Figure: Micro Raman Spectrometer

Students get an opportunity to carry out their lab experiments at various state of the art facilities in house and in the research centers of ISRO. The in-house lab facilities available in the house include Modal testing, Experimental composite micromechanics using micro- Raman spectrometer, Structural health monitoring facility using laser

Doppler velocimetry, Advanced robotics, and wheeled Rovers for NDT. Students have access to Computational mechanics software such as ABAQUS, ANSYS, NASTRAN, FEAST, ADAMS, and various modelling software. An interdisciplinary approach with flexibility in choosing courses enables students to tac-kle real life engineering challenges. Students are exposed to the structural design challenges faced by the Aerospace and allied industries and related research. The dissertation enables students to tackle research and industrial problems with a fundamental outlook.

Out of the graduated students of M.Tech in Structures and Design, about 53% have been placed in different reputed firms such as UTC Aerospace, Indian Space Research organization, Indian Railways, Entuple Technologies, TCS (Engineering and Industrial Services), to name a few.

About 22% of the graduates from Structures and Design are undergoing higher studies in reputed Universities within the country and abroad including IISC Bangalore, India, Indian Institute of Technology, Kanpur, India, Indian Institute of Technology, Hyderabad, India, Pennsylvania State University, USA, University of Groningen, Netherlands, Politecnico di Torino, Italy.

3. M.Tech in Thermal and Propulsion

The Master's degree programme in Thermal and Propulsion provides an opportunity for B.Tech.or equivalent degree holders in Aerospace/Aeronautical/ Mechanical/ Chemical Engineering to specialize in the field of thermal- fluid sciences and propulsion engineering. This postgraduate programme consists of advanced compulsory courses, electives, a laboratory practice course, a credit seminar, and a yearlong project in the second phase. The curriculum and syllabus are framed to lay the foundations for a fundamental understanding of the basic topics related to the field of specialization and to extend the learning in the niche areas offered as electives.

Through the final year project, the programme aims to develop analytical and experimental skills in thermal sciences and propulsion engineering. The individual project will provide ample opportunity for the student to develop insight and exposure in frontier research and developments based on the current technological need of industry and research establishment. The faculty regularly floats project topics in the field of fluid mechanics, compressible flows, heat transfer, combustion, propulsion technology, computational fluid dynamics, and two-phase flows.

The faculty resources and infrastructure available in the department helps to inculcate independent research activities and practical system designs with innovation. The research activities are supported by a Centre of Excellence in Advanced Propulsion and Laser Diagnostics along with other research facilities in combustion and flame diagnostics, heat transfer, two-phase flows, high - speed flows, etc. The students also have access to a computational facility where computational research involving modeling and simulation is promoted using commercial, open-source resources, and indigenously developed computer codes. Figure l(a) shows a typical CFD simulation output obtained by solving the governing equations in fluid dynamics and heat transfer using advanced numerical techniques. The 2D flow field measured experimentally in a swirling flow field using laser diagnostic technique 2D Particle Image Velocimetry (2D PIV) is shown in Figure (b) below.
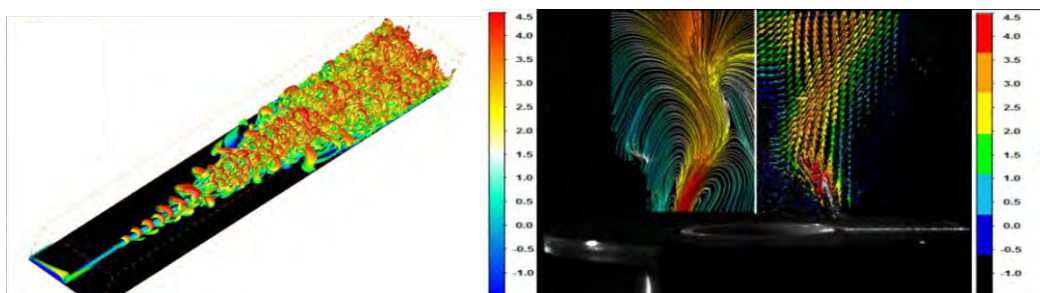

Figure: (a) Direct numerical simulation of laminar- turbulent.flow transition; (b) Streamlines (left) and 2D mean axial velocity (right) distribution under isothermal conditions in a swirl stabilized burner measured using 2D Particle Image Velocimetry (2D-PIV)

Out of the graduated students of M.Tech in Thermal and Propulsion, about 23% of them are undergoing higher studies in reputed Universities within the country and abroad including IISC Bangalore, and IITs. About 57% have been placed in different reputed firms such as CSIR National laboratories, Indian Space Research organization, Air India Engineering Services LTD, Skyroot Aerospace Pvt. Ltd. to name a few.

4. M.Tech in Manufacturing Technology

In line with national initiatives such as "Make in India" and "Atmanirbhar Bharat", manufacturing technology becomes one of the key subject domains that can drive great career prospective. The present master's program in "Manufacturing Technology" initiated by IIST under Department of Aerospace Engineering is oriented towards advanced manufacturing processes for aerospace applications, with specific core courses on Additive Manufacturing and smart practices, Composite Manufacturing Technology, Advanced deformation and joining process, Computer aided subtractive manufacturing, Manufacturing Planning and Control, etc. with hands-on experience on various equipments related to manufacturing, materials testing and characterization.

With a precise focus of developing creative and technologically competent human resources along with innovative research avenues/outcomes, the program is designed to cover both applied as well as advanced technologies of manufacturing to upgrade technical knowledge and skillset. Salient features of M. Tech manufacturing offered at IIST include the possibilities to get connected with ISRO centers, innovative learning experiences through space, specific case studies and practical demonstrations oriented towards aerospace manufacturing, avenues to be the part of space research/discussions, opportunities for Internships and projects at ISRO centers, etc.
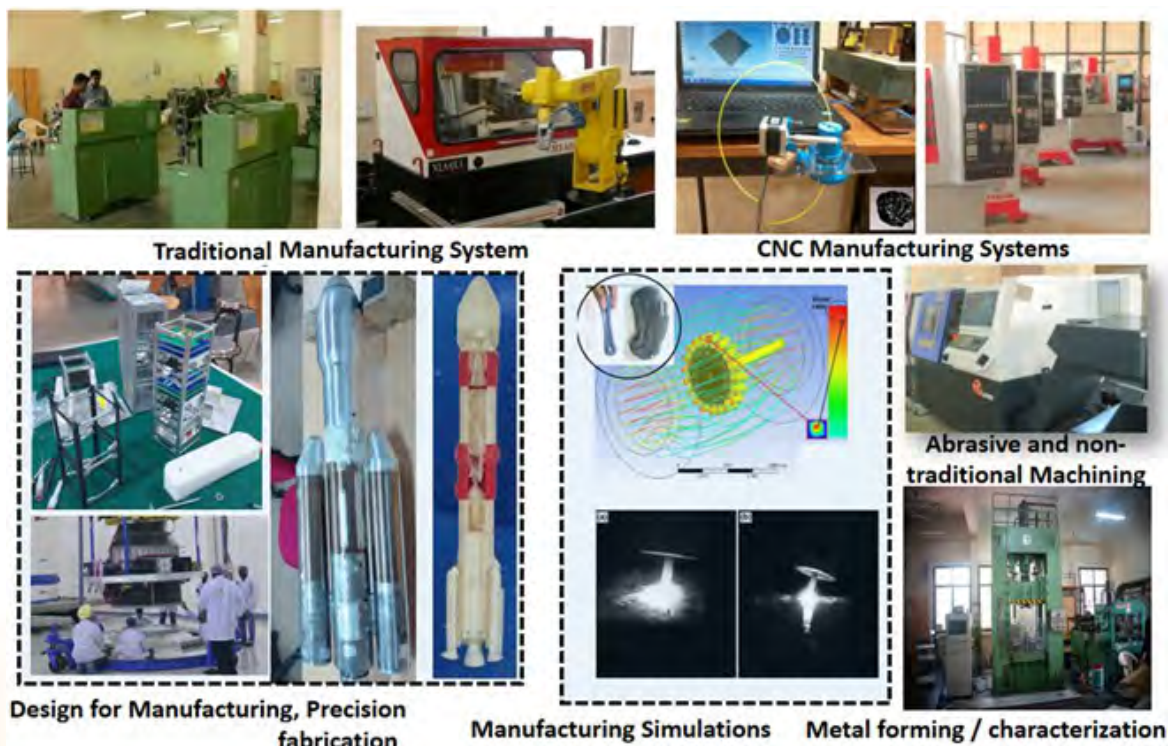
Major Facilities and R&D Initiatives under Manufacturing Stream, Department of Aerospace, IIST

Department of Aerospace Engineering

Aerodynamics and Flight Mechanics:
FACILITIES

SUBSONIC WIND TUNNEL

SHOCK TUBE FACILITY

FLIGHT MECHANICS LAB
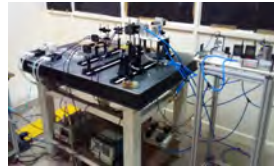
LASER SPECTROSCOPY

Thermal and Propulsion:
FACILITIES
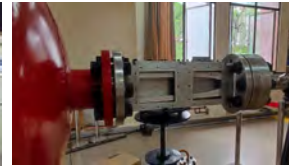
RAMJET TEST RIG

FLUID MECHANICS LAB
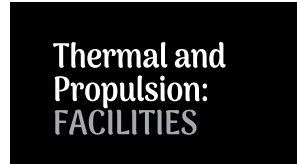
CONVECTION TEST SETUP

SPRAY CHARACTERIZATION

STRUCTURES AND DESIGN:
FACILITIES

STRUCTURES LAB FACILITY

CAD LAB

RAMAN SPECTROSCOPY

UNIVERSAL TESTING MACHINE

CNC MACHINES

MATERIALS, MANUFACTURING AND INDUSTRIAL ENGINEERING:
FACILITIES
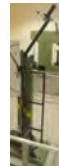
HEAT TREATMENT FACILITY

MANUFACTURING FACILITIES

Department of Avionics (AV)

1. M.Tech in Control Systems

M.Tech in control Systems is a unique- two-year interdisciplinary master's programme designed to provide due weightage for both R&D as well as Industrial sectors. This well-structured and focused M.Tech programme gives a comprehensive exposure to students in a wide area of control systems theory and practice. Senior scientists of ISRO who had been involved in the development of control systems for ISRO launch vehicles and satellites are also serving as adjunct/ guest faculties in the control group.

Courses in this programme range from fundamental topics like classical control design techniques to advanced topics like nonlinear control theory, optimal control design, etc. These courses are backed with design projects in embedded systems and control. Further, students are exposed to the application of control theory in the field of launch vehicles, spacecraft, and robotics as part of their elective courses. As part of their final year project, students get an opportunity to work with cutting edge technologies in the field of robotics, spacecraft attitude control, biomedical engineering, UAVs, etc.

The M. Tech students have ample opportunities to do internships and projects related to the advanced research projects undertaken by the faculties of the control group. The list of a few such projects is given below:

- Control system development for the half humanoid Vyommitra to be launched by ISRO to function on-board the Gaganyaan, a crewed orbital spacecraft
- Configuration design and Control system development for a human mimetic general purpose humanoid, an advanced R&D project initiated by ISRO as a part of Vision-2030
- Attitude determination and Control Systems setup using Quadcopters
- Attitude determination and Control Systems for small satellites (Ahan) developed at SSPACE IIST and to be launched by ISROs launch vehicle.
- Three axis reaction wheel development for attitude control of cubesats.
- Attitude control system using cold gas thrusters for small satellites to be launched by ISR
- Health care assessment in space arena using deep learning based monitoring, diagnosis and prognostics for human health care in space.

Figure:Quadcopters developed at IIST by MTech Control systems students
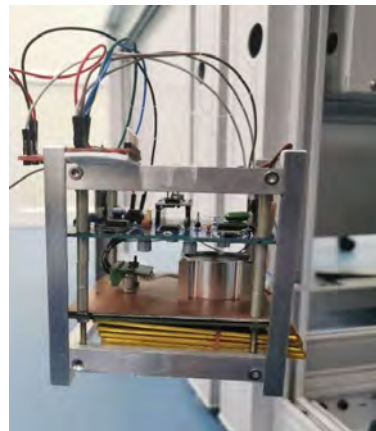
Figure:Magnetotorquesr and Single axis Momentum wheel based ADCS system developed at IIST by M Tech Control Systems students.

Our alumni are currently placed in reputed companies/organization such as:

- Mercedes Benz Research and Development India Pvt.Ltd.
- Agnikul Cosmos
- Skylark Drones
- Continental Automotive Components (India) Pvt. Ltd.
- GE Transportation
- Axiom Research Lab Private Labs
- Delta Electronics
- HCL Technologies
- Team Indus Aerospace
- TCS
- Intel

- Skyroot Aerospace
- Aadhya Aerospace
- Tata Elexsi
- Mahindra

After graduation, many of our students are pursuing higher studies m universities and institutes such as:

- Indian Institute of Science Bangalore
- Indian Institute of Technology Bombay
- Indian Institute of Technology Madras
- Indian Institute of Technology Delhi

2. M.Tech in Digital Signal Processing

The M.Tech in Digital Signal Processing (DSP) programme is a two year course offered to students who are passionate about the field of signal processing and allied fields such as communication systems, image processing, machine learning for signal processing, and computer vision. Students in this course are instructed by experienced faculty in fundamental subjects such as probability and random processes, estimation and detection, linear algebra, advanced signal analysis, pattern recognition, and machine learning. These fundamental subjects enable students to proceed seamlessly to advanced courses in signal processing, communication systems, deep learning, computer vision and Internet of Things which are offered in the programme. The DSP programme also offers elective courses in cutting edge subjects such as Reinforcement Learning and Control and Internet of Things. The M.Tech in DSP programme also offers the students hands -on experience in various subjects through laboratories in digital signal processing, communication systems, machine learning, artificial intelligence, computer networks and systems, and computer vision. Our labs are well equipped with software-defined radios, MIMO evaluation kits, spectrum analyzers, RF signal generators, digital signal processing boards, sensor network motes, and network development kits, to name a few. A few representative pictures of the labs are given below.
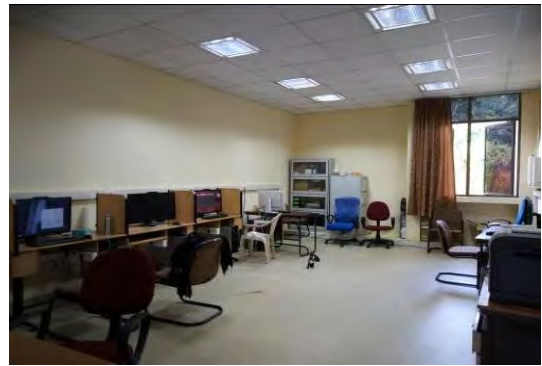
Figure: (clockwise from top left), Digital Signal Processing Laboratory, Communication Systems Laboratory, Virtual Reality Laboratory, Systems and Networks Lab

The rigorous study enables the M.Tech in DSP students to participate competitively in current research activities, development projects, and pursue higher studies. The work done by our M.Tech students have been reported in 6 journal publications and 14 conference publications. The students work on various research projects in association with several centers of ISRO such as URSC, IISU, NRSC, and VSSC. They also get opportunities to work in collaborative projects with other institutes such as IITs. Students from M.Tech in DSP have received the prestigious INAE best project award, and two best paper awards for their work.

The two-year programme also offers ample opportunities for developing industry- specific skills through an innovative design project, summer internship, and final year project. To date, 25% of our students have been ISRO employees who have joined the DSP programme for further training or have been placed in ISRO after their graduation. Of the rest of the students, 58% have been placed or have had internship opportunities in PSUs, industries, and research organizations such as:

- NPOL (DRDO)
- IES (Railways)
- Analog Devices
- Mathworks
- Team Indus
- Mercedes Benz
- Tata Consultancy Services (Research and Development)
- Subex
- Flytxt Mobile Ltd.
- KPIT

After graduation, 24% of students (non ISRO employees) have or are pursuing higher studies in universities and institutes such as:

- Indian Institute of Science, Bangalore
- Indian Institute of Technology, Bhubaneswar
- Indian Institute of Technology, Madras
- Indian Institute of Technology,Kharagpur
- Georgia Institute of Technology, Atlanta

3. M.Tech in RF and Microwave Engineering

The M.Tech. in RF and Microwave Engineering programme under the department of Avionics is a unique Two-year course designed with a specific focus of the state of the art industry requirements, Government R & D Laboratories, and higher education. The course curriculum under the programme is designed in a well-balanced manner to equip the students with fundamental courses along with advanced ones in the niche area of Advanced Electromagnetics, Antenna technology, Microwave and MM-wave circuits and THz Technology. There are ample opportunities for the students to pursue advanced research through integrated components of the curriculum like, course-based mini-projects, Engineering Design, Seminar Presentation on the latest trends as well as extensive projects work running for two full semesters. Thanks to the availability of the well- equipped antenna fabrication facilities and high frequency measuring instruments in the laboratory, students get ample exposure to various practical experiments, hands on experience and associated system aspects through various research projects of Department of Science and Technology, (Government of India), ISRO centres along with IIST projects.
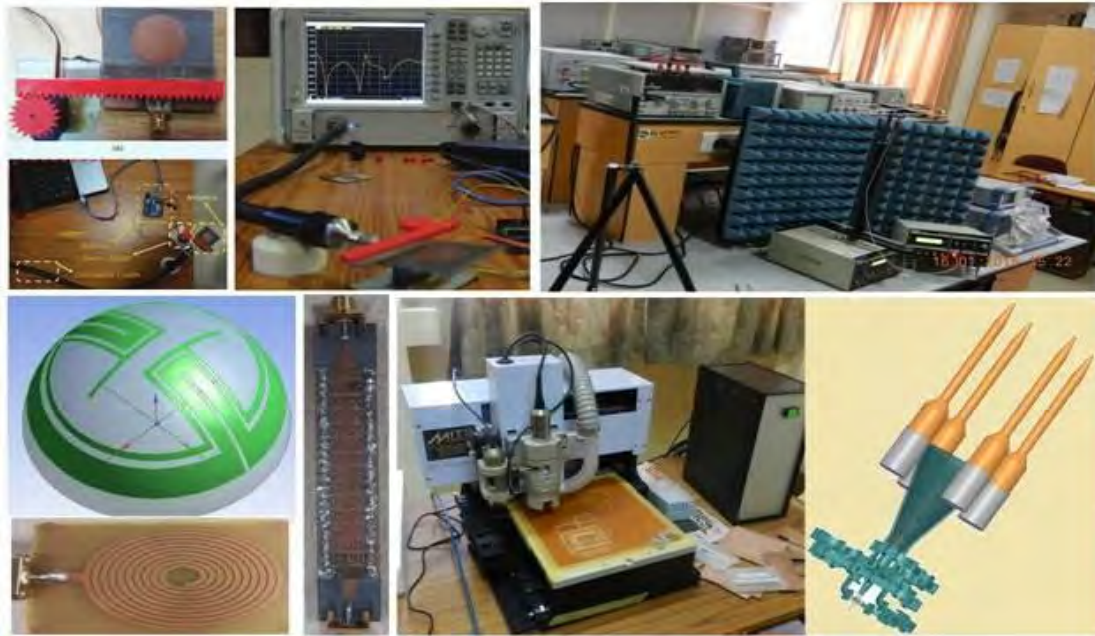
Figure: Glimpses of the selective major equipment and devices/antennas/system realized by the M Tech. in RF and Microwave students at IIST

Due to strong association and collaboration with various centre and laboratories of Indian Space Research Organization (ISRO), students get opportunities to work in various live projects catering to the space antennas, mm-wave and THz antennas, Internet of Things test beds, and circuits, etc. in various ISRO centres and industries. Above Figure shows the glimpses of some of the research equipment/facilities along with a few selected prototypes developed by the M.Tech RF and Microwave Engineering students under the supervision of the faculty members of the group. More than 65% of the alumni of M.Tech. in RF and Microwave have been placed and currently working in different reputed organizations like (selective):Ansys , Bangalore, India

- Ansys , Bangalore, India
- Mercedes-Benz, Bangalore, India
- COMSOL Multiphysics, Bangalore, India
- Astra Microwaves, Hyderabad, India
- Asarva Chips and Technologies Pvt. Ltd., Bangalore, India
- Teamindus, Bangalore, India
- Honeywell, India and Canada
- NEST Technology, Trivandrum, India
- BPL Medical Technologies, Bangalore, India
- Space Application Centre, ISRO, Ahmedabad, India
- UR Rao Satellite Centre,ISRO, Bangalore, India

- SatishDhawan Space Centre (SDSC), ISRO, Sriharikota, Andhra Pradesh
- Raman Research Institute, Bangalore, India
- NIT Surathkal, India
- Shivaji University,Kolhapur, Maharashtra

Till date 27% of the graduates from the RF and Microwave Engineering Students have opted for higher education at premier Institutes across India and abroad. A selective list is as follows:

- Indian Institute of Space science and Technology, Trivandrum, India
- University of Waterloo, Ontario, Canada
- Curtin University, Perth, Austra lia
- IISC Bangalore, India
- Indian Institute of Technology Madras, India
- Indian Institute of Technology, Hyderabad, India
- Graduates of M.Tech. in RF and Microwave Engineering students have
- received several best paper awards in prestigious International conferences
- received International Travel support awards from DST, Government of India
- published various high quality articles in reputed journals like IEEE Transaction on Antennas and Propagation, Microwave and Optical Technology Letters. IEEE Access, IET Microwave Antennas and Propagation etc.

4. M.Tech in Power Electronics

M. Tech in Power Electronics (PE) offers courses that cover the latest trends in Power Converters, Electric Drives, Grid Connected Systems, Internet of Things, Electronic Systems Design, Emerging and Advanced Topics in Power Electronics, and Control Systems with hands-on laboratory experience.

The PG Power Electronics Lab is equipped with several converter modules including rectifiers, inverters, Mult-i phase and mult-i level converters, high-end digital signal oscilloscopes, LCR meters, thermal cameras, power quality analyzers, programmable power supplies, and electronic loads, which are available for research and extensive experimentation to PG students. Control platforms such as Digital Signal Controllers, programmable System on Chip, and FPGAs are available. Electric machines including induction machines (3-phase, 5-phase, 6-phase), synchronous machines - (3 phase, 6 -phase), DC

machines are available. In addition to these, special electrical machines such as BLDC motors, multi-phase motors are also available.

PG students are encouraged to design and build converter prototypes and controller platforms, design electrical machines, explore research problems in emerging areas such as solid state transformers, electric-vehicle technology, multi-level converters, and multi-phase drives. B. Tech and M. Tech students who work in power electronics labs regularly publish in high quality journals and present their work in international conferences. In the past two years, there have been more than two journals and ten international conference publications where the lead work was done by an M. Tech student. Furthermore, the projects are nominated for the prestigious Indian National Academy of Engineering Innovative Students Project Award- as of now, two projects have qualified for the final presentation. A few achievements of students have been listed below.

Student Awards:

1. GS Athira (M.Tech 2018) Shortlisted for final presentation for INAE Innovative Student Project Award.
2. Ranjith S (M.Tech 2019) Shortlisted for final presentation for INAE Innovative Student Project Award.
3. Pragya Yadav (M. Tech 2020) Semi-finalist in India Innovation Design Challenge Competition 2020 (IICDC 2020).

Recent Journal papers by M. Tech Students:

[1]   Athira Suresh, Archana C M, R. Sudharshan Kaarthik and Rajeevan P P, "An Induction Generator Scheme with Se£ies Compensation for Frequency Insensitive Loads," in IEEE Transactions on Industrial Electronics, doi: 10.1109/TIE.2020.3013520.

[2]   Ranjith S, Vidya V and R. Sudharshan Kaarthik, "An Integrated EV Battery Charger with Retrofit Capability," in IEEE Transactions on Transportation Electrification, doi: 10.1109/TTE.2020.2980147

[3]   S. K. Dash and R. Sudharshan Kaarthik, "Independent Speed Control of Two Parallel Connected Split-Phase IM with a Common DC Link and Inverter," in IEEE Transactions on Power Electronics, vol. 34, no. 10, pp. 99S7 9965, Oct. 2019.

M.Tech in PE started in 2016 and has graduated Seven batches of students so far in 2018 to 2024.

Two of our research labs are shown below:

Figure: PEDS Lab

5. M.Tech in VLSI and Microsystems

M.Tech in VLSI and Microsystems - is a 2-year Full Time post-graduate programme offering specialization in Very Large Scale Integration (VLSI) design and Microelectronics systems.

The course covers the basics and advanced topics of Semiconductor devices and technology, analog, digital and mixed -mode VLSI design, RF Integrated Circuit Design, microelectronic devices and materials, Micro Electro Mechanical Systems (MEMS) and its applications and Optoelectronics system design. Mastering the above courses entails the students to acquire significant theoretical, practical experience and knowledge with the techniques and state of the art development

tools of Integrated circuits and Micro Electro Mechanical System to cater to the need for integrated microsystem and VLSI industries.

The VLSI Design Lab and Microelectronics Lab are well equipped with the latest IC design tools and MEMS design tools which could mould the student to take up the design of IC/MEMS for fabrication. The students will get hands-on experience in fabrication in the fabrication Lab, developing sensors and characterization in the sensor lab which is one of the unique features of this course. The students are exposed to advanced IC design projects. Each of the VLSI (analog, digital, mixed signal, RFIC) courses has their own course project which aid in -the indepth understanding of the course material and provide a hands-on design experience.
The uniqueness of this course depends on the student's interest. They will get the opportunity to work specifically on VLSI designs on developing analog/digital/mixed-signal design or integrated microsystem which includes sensors, actuators and its sophisticated electronic system for control and communication which will enable them to get expertise in the respective area. Faculty members associated with this M-Tech programme have active collaborative R&D projects with ISRO centres for development of MEMS and VLSI based ASICs. The programme also has a close collaboration with SCL Chandigarh (ISRO) for realizing the devices.

VLSI Microsystem Laboratories

These laboratories were established m 2013 to support the post graduate programme VLSI and Microsystems and research activities in the areas of VLSI, Micro/Nano electronics, MEMS/NEMS devices, and technologies. These laboratories would support the R&D activities in these areas at ISRO. The development of the R & D ecosystem in the area of NEMS and Nano electronics at IIST for academia, ISRO, and other research organizations is also in progress.

VLSI Design Lab

The VLSI Design Lab is equipped with high end computing facility, FPGA design kits (zynq, Virtex 7) with latest IDE software and state of art IC design simulation tools for Digital/ Analog and Mixed VLSI IC Design from Cadence, Synopsys, Mentor Graphics.

MEMS & Microelectronics Design Lab

The lab is equipped with modelling, design and simulation tools for MEMS devices, Micro/Nano electronics devices and systems. (High-end workstations, Coventorware and MEMS+ from Coventor, Silvaco ATLAS, and ATHENA TCAD, Sentaures TCAD 3D Process and Device TCAD from Synopsis, COMSOL Multi physics etc.)

Figure: VLSI and Microelectronics Design Lab

MEMS & Nano FAB (Micro/Nanofabrication Laboratory)

MEMS/Micro/nanofabrication facility is planned to be established m a cleanroom spanning 140 square meters. The facility is planned for 4" silicon wafer substrates with upgradability for 6" wafers. Phase- I of MEMS &Nano FAB has been established with the following major facilities.

a)   Class 1000 Modular wall cleanroom
b)   Double Side Mask Aligner (Photolithography)
c)   Spin processor and Hot Plates
d)   DC/RF*I* Pulse DC Sputtering System
e)   Parylene CVD
f)   Water Plant

Figure: MEMS and NanoFAB Facility

Micro/Nanosystems Characterization lab

Micro/Nano systems characterization lab has characterization equipment for electrical and mechanical characterization of micro/Nano-scale devices and VLSI.

Figure: Micro/Nanosystems Characterization lab

Gas Sensor and Biosensor Lab:

The lab has a facility to characterize the gas sensor for four gases together. Now, the lab is upgraded to handle eleven gases including explosive and toxic volatile compounds. It also has a facility to develop electrochemical sensors for various applications.

Placement Details

Students get an opportunity to do their final year projects as internships in various VLSI industries. In addition, students get placed in core VLSI companies on and off campus. Some students pursue their doctoral work in the top institutions in India and abroad. Companies like Intel, Global Foundries, Texas Instruments, Analog Devices, Ignitarium, etc., have recruited our students in the past through internships/placements.

Achievements Patents

M-Tech students in VLSI and Microsystems are provided opportunities to contribute to various R&D projects and some of their works have resulted in patent applications related to sensors/devices too.

1. "Reliable room temperature Gas Sensor with negligible baseline drift suitable at different air flow conditions" Palash Kumar Basu L. Karthikeyan, Akshaya. M. V, [Indian Patent 2017: 201741027050.

Papers Published

The scholars along with the faculty members have published papers in various reputed journals and proceedings such as IEEE Sensor, Journal of Micromechanics and Micro engineering, Microsystem Technologies (Springer), International Workshop on Physics of Semiconductor Devices, IEEE VLSI Design Conference etc.,

Best thesis/paper Award

The thesis work of the M.Tech (VLSI and Microsystem) graduates are accepted for INAE-M.Tech Best Thesis award and best paper award in International Conferences.

DEPARTMENT OF AVIONICS

MEASUREMENT AND INSTRUMENTATION LAB

NAVIGATION AND SENSORS LAB

VIRTUAL REALITY LAB

CONTROL SYSTEMS LAB

ADCS TEST SETUPS AT SSPACE LAB

SYSTEMS AND NETWORKS LAB

ADVANCED WIRELESS COMMUNICATION LAB

POWER ELECTRONICS RESEARCH LAB

ADVANCED MICROWAVE LAB

POWER ELECTRONICS IN DISTRIBUTED GENERATION LAB

ChemiSens Lab

Wire Bonder | Probe Station | Thermal Evaporation | Gas Calibration Setup
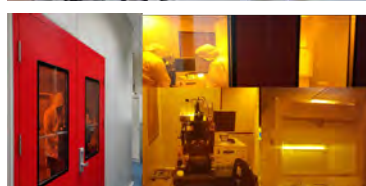
ASIC DESIGN & CHARACTERIZATION LAB

High Temperature Growth Setup | Gas Distribution Setup
Cascade EPX 150 Triax Probe Station | Keysight B1500 Semiconductor Parametric Analyzer | Nanomechanical Sensor & MEMS Electromechanical Test Setups

NEMS & Microelectronics Characterisation Lab

Hysitron (Bruker) TI Primier Nanoindenter | Polytec MSA 500 Microsystem Analyer | Mark-10 ESM303 semiautomated force tester

Department of Chemistry (CH)

1. M.Tech in Materials Science and Technology

'Steeped in fundamentals yet space-age' is the guiding principle of the M.Tech. programme in Materials Science and Technology offered by the Department of Chemistry. The core faculty strength of the department spread over diverse areas of Chemistry, Chemical Engineering, and Materials Science along with shared expertise from the industry suffice to implement this 71 credits programme which attracts students from diverse backgrounds including Mechanical Engineering / Metallurgical Engineering / Materials Science / Materials Science and Metallurgical Engineering / Nanoscience and Technology / Polymer Science and Technology / Chemical Engineering / Production Engineering / Industrial Engineering / Chemistry / Physics. A comprehensive curriculum grounded in fundamental sciences assists students to appreciate the macro micro-nano-angstrom level manifestations in materials and their role in dictating the material properties and their diverse applications including those for space technology.

Substantial components of laboratory sessions revealing the nexus of research and practice, a broad set of electives to explore and expand their research interests, and innumerable project opportunities to tackle real-world problems await the aspirants of the programme.

The students enrolled in the programme get opportunities to work in the advanced laboratories established in the department including Polymer and Materials Processing Lab, Materials Characterization Lab and Nanoscience Lab housing some of the advanced instrumentation facilities including Scanning electron microscopy, X-ray diffraction, Mass spectroscopy along with exposure to some of the unique facilities in ISRO centres. Students get exposure to industries like Tata Steel, Vizag Steel, TCS, Hind High Vac, Apollo Tyres, TVS Motor and Public/Govt. Sector organizations like HLL, CSIR, IIT, CECRI, ARCI, DRDO, and IISc through summer internships and projects.

Most of the students succeed in having publications/patents out of their final year project and emerge highly competent for pursuing higher studies or work in reputed firms demanding high levels of professionalism and practical knowledge. Over the past five years, 25% of the alumni were ISRO-sponsored. Among the remaining, 17% are currently engaged in doctoral research at prestigious institutions in India (such as IISc Bangalore, IITB, IITM, IITR) and abroad, while 44% have secured positions in leading industries, and 36% have been placed in government sectors.

Figure: Glimpses of Materials processing, Materials characterization and wet labs utilized by Masters students in the Department of Chemistry

Department of Chemistry

Field Emission Scanning Electron Microscope (FE-SEM)
Model: Zeiss Sigma 360

Equipped with Energy Dispersive Spectroscopy (EDS)
Model: Oxford Azetec

X-ray Diffractometer (XRD)
Model: Anton Paar
XRDynamic 500

Electrospray Ionisation Mass Spectrometry (ESI-MS)
Model: Bruker Compact QTOF

Universal Testing Machine (UTM)
Model: Instron

Spectroscopy
UV-Visible
Model: Perkin Elmer
Infrared (FTIR)
Model: Perkin Elmer
Fluorescence
Model: Horiba

Battery testing

Thermal analysis
Thermogravimetry (TGA)

Make: TA Instrument

Twin Screw Extruder
Model: Brabender

**Electrospinning
Model: ESPIN NANO**

Model: Ants Ceramics, ThermoSystem

Microcompounder
Model: Brabender

Department of Earth and Space Sciences (ESS)

1. Master of Science in Astronomy & Astrophysics

Astrophysics deals with understanding the physical universe through the fundamental laws of physics. The universe provides a natural laboratory to study phenomena in extreme conditions such as the near vacuum of interstellar space to nuclear densities inside neutron stars. Astrophysics uses knowledge from several domains of physics. Consequently, the pursuit of a career in astrophysics requires a foundation in basic physics.

Along with gaining an in depth understanding of how the universe works, the Master of Science programme in Astronomy & Astrophysics prepares students for the next step in higher education and research in this field. The first year of the programme includes coursework covering areas such as astronomical techniques, computational astrophysics, exoplanets and planetary sciences, stellar astrophysics, high- energy astrophysics, galactic and extragalactic astronomy, and cosmology. Students gain exposure to the analysis of multi wavelength archival data, along with collecting and analyzing data from the institute's observatory facility. The second year of the programme is devoted to original research leading to a thesis. The Astronomy & Astrophysics group has seven faculty members working on unsolved problems in star formation, galaxy evolution, interstellar and intergalactic medium, accretion around compact objects, and relativistic stellar explosions.

Figure: The observatory at IIST hosts an 8-inch and a 14-inch telescope. Students collect and analyze data from the telescope as part of their observational lab.

In the past, the programme has attracted undergraduate and post graduate students from diverse backgrounds in engineering and physical sciences. Most of the graduates from the Master of Science programme (100% over the last three years) have gone on to pursue a doctoral programme in Astronomy & Astrophysics in universities across the world or have taken up research project positions at various institutions. Universities where students have been placed (over the duration of the programme) include University of Liege (Belgium), University Cote d'Azur (France), Universitat Potsdam (Germany), University of Groningen (Netherlands), University of Texas, Dallas (USA), University of Strasbourg (France), University of Western Australia (Australia), Universidad de Chile, IIST, Tata Institute of

Fundamental Research, IIT Hyderabad and Indian Institute of Astrophysics (Bangalore).

2. M.Tech in Geoinformatics

Since July 2013, Indian Institute of Space Science and Technology has been offering M.Tech in Geoinformatics with the objective of contributing to the development of skilled manpower in Geoinformatics with potential for taking up methodological and computational aspects of Geoinformatics. The type of courses and delivery mechanism of this programme is structured in such a way as to equip the students with necessary skills in theoretical, practical and software implementations of different aspects of Geoinformatics and make themselves suitable for taking up careers in research and corporate entities. The programme spans through various fundamental courses like remote sensing, image processing, geographic information system, spatial data analytics, photogrammetry, and microwave remote sensing initially followed by advanced courses as core and elective subjects.

Rationale in curriculum design

1. To keep pace with the changing tools, technology and industrial environments for enhanced job prospects of students,
2. To continue offering the firm background in various areas of remote sensing, GIS and related IT environments and reflect the contemporary developments such as hyperspectral and LiDAR remote sensing, and close-range photogrammetry.
3. Blending the geospatial data handling and analysis with- machine learning-based approaches
4. To ensure student-led problem solving initiatives, the course has credited unconventional credited outreach programme to interact with government and non-government sector and identify local/regional social problems which can be addressed with geoinformatics
5. Improving masters level academic project works with staggered credits oriented towards research, manuscript writing and publication

Figure:Students using drone and Hyperspectral imager for image acquisition in the field

Remote Sensing lab is equipped with the state of the facilities equipped with hardware and software tools dedicated to processing, analyzing, and interpreting remotely sensed data, such as satellite imagery, aerial photography, ground based and airborne geospatial datasets. The lab has computers with high processing power, large storage capacity, and high-resolution monitors. The lab has access to variety of geospatial datasets from various platform. Ground based Instruments such as full range spectro radiometer, terrestrial laser scanner, hyper spiral imaging system, translational lab measurement unit, laser distometer, LAI meter are available for both training the students as well as for research activities. The state of the art UAV imaging system equipped with multispectral and RGB camera provides the students a hands on experience in flying the UAV, acquiring aerial images and process the same for various applications. Various commercial software packages such as ENVI, ERDAS IMAGINE, and ArcGIS, as well as open-source alternatives like QGIS, GRASS GIS, and Python-based libraries such as GDAL, NumPy, and SciPy are available in the lab for processing high resolution geospatial datasets. Overall, remote sensing lab facility serves as a hub for conducting research, education, and applications in the field of geospatial analysis, enabling students to harness the power of remotely sensed data for various purposes including environmental monitoring, urban planning, agriculture, natural resource management, disaster response, etc.

Geoinformatics students passed out have mostly joined industries across the country through Campus placement and individually. Geospatial industries where our alumni work include Aarav Unmanned Systems Pvt. Ltd, Tech Mahindra, GeoknoPvt Ltd Satsure, Seacon Pvt Ltd, BhuhPramaan Pvt Ltd, Quantela Pvt. Ltd etc. One of Alumni is has a startup company "Bhuh Pramaan" dealing with Government and Non-Government projects on various applications of Geospatial Technologies. About 40% of the students are pursuing research in IITs, IISC and other international universities including the University of Nice Sophia Antipolis France, Trinity College Dublin, University of Michigan Ann Arbor in the field of image processing, remote sensing, and spatial analytics. Few have joined the Government Departments also.

3. M. Tech in Earth System Science

Earth System Science explores the complex interactions between the atmosphere, oceans, and land, shaping Earth's weather and climate. It focuses on atmospheric and oceanic dynamics, their mutual influences, and their role in climate evolution. While weather prediction is a key goal, the field also examines large- and small-scale motions, cloud formation, radiation, air quality, and climate change. Satellites play a crucial role in observing atmospheric and oceanic patterns, aiding in understanding past, present, and future climates. Geological factors such as volcanic eruptions, plate tectonics, and changes in Earth's surface also play a crucial role in shaping climate over time. Understanding

these changes is essential for predicting future climate trends and their impacts on ecosystems and societies. By studying atmospheric, oceanic, and geological processes, scientists can better assess climate variability, mitigate risks, and develop strategies for adaptation.

Figure: Balloon experiments conducted in Climate observatory in Ponmudi

The M.Tech programme in Earth System Science equips students with expertise in atmospheric, oceanic, and land processes that shape weather and climate. The first semester covers core courses in atmospheric and ocean physics, Earth resources, and tectonics. The second semester offers electives in areas like numerical weather prediction, climate interactions, and planetary geosciences. In the second year, students conduct original research. With five faculty experts in climate, ocean, and Earth sciences, the programme boasts nearly 100% placement. The passed out students in the M Tech Earth System Science programme are pursuing higher studies toward the Doctoral programme. Universities where students have been placed include University of Hohenheim (Germany), University of Maryland (USA), LATMOS (Paris, France), University of Washington (USA), Embry Riddle Aeronautical University (USA), University of Alberta (Canada), Lund University (Sweden), Maastricht University (Netherlands), IISc (Bangalore), IITM (Pune) etc. A few of them got placed in industries and government sectors such as Climate Connect and Airport Authority of India

Department of Earth and Space Sciences

SOLAR TELESCOPE

Solar Telescope

RAIN GAUGE

Rain Gauge

LASER DISTANCE METER LEICA DISTO S-910

INSIDE VIEW OF SOLAR TELESCOPE

Inside view of Solar Telescope

TELESCOPE DOME

SURFACE RADIATION MONITORING STATION

SURFACE RADIATION

CELESTIAL SPHERE

SAMPLE INLET SYSTEM

PM10 Inlet
Primary SS tube
Secondary SS tube
2 m 38.4 LPM
Bypass flow
38.4-x L/Min Bypass flow
Lab
PTFE tube
x L/Min (instrument flow)
Diffusion dryer
4 way flow splitter
Instruments
Mass flow controller
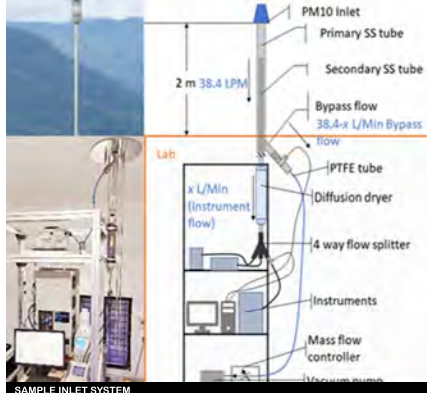
14 IN CASSGRAIN TELESCOPE

INSTRUMENTS AT PONUMDI OBSERVATORY ROOFTOP

Department of Mathematics (MA)

I. Master of Technology in Machine Learning & Computing

The Master of Technology (M.Tech.) in Machine Learning & Computing offered by the Department of Mathematics, IIST is a two year programme which started in 2010. It is one of the first Master programmes the institute has started and has now become one of the most sought-after courses. The admission is based on the GATE score and is highly competitive. A few seats are reserved for scientists from ISRO.

It is a four semester programme tailored in tune with the mathematical and computational aspects of the cutting-edge technologies in the area of Machine Learning. The curriculum comprises of the topics related to Artificial Intelligence, Machine Learning, and Computer programming by giving equal emphasis on their theoretical and practical aspects. Such treatment helps to produce highly competent Data scientists who could contribute positively to the growing field of Machine Learning.

The core courses include Optimization Techniques, Data Mining, Numerical Linear Algebra, Foundations of Machine Learning, Advanced Machine Learning and Statistical Models and Analysis. The elective courses in the programme give the candidate an exposure to the latest technologies and state of the-art techniques in Data Modeling. The list of elective courses includes Discrete Mathematics & Graph Theory, Introduction to Internet of-Things, Introduction to Parallel programming, Image & Video Processing, Advanced Kernel Methods, Advanced Optimization, Computer Vision, Graphical and Deep Learning Models, Reinforcement Learning, Theory of Algorithms, Topological Data Analysis, and Cloud Computing.

The second year of the programme is dedicated solely to the Project and Seminar. As part of the project thesis, the candidate is expected to work on a challenging problem that leads to novel contributions in the field of Machine Learning.

Lab facilities

The Machine Learning lab provides computer systems of customized configurations to meet the demanding computational requirements of the courses offered.
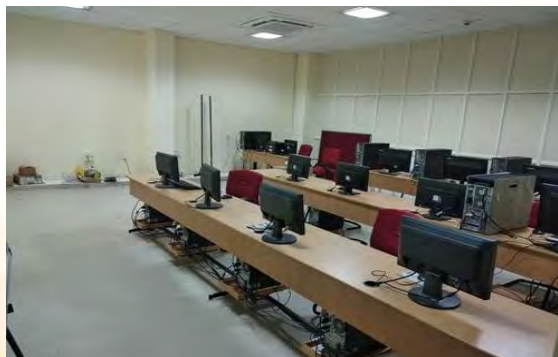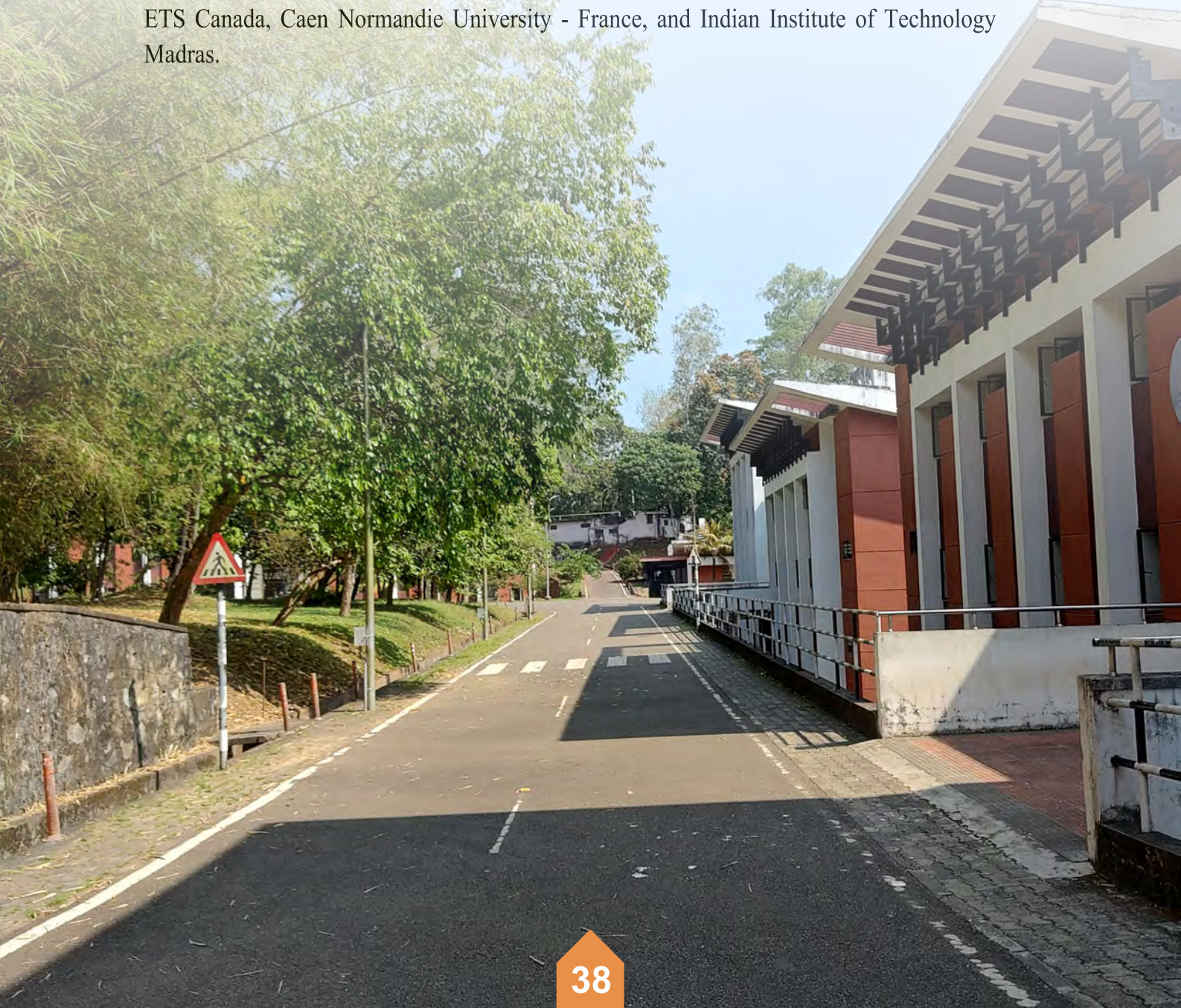

Figure: Machine Learning Lab

The lab is equipped with a high end workstation of 2 x Intel Xeon 3.2GHz CPU, Tesla K80 and GTX 1080 GPUs and 256 GB RAM, two workstations with Intel Xeon 2.4 GHz CPU, Quadro K4200 GPU and 80 GB RAM, a workstation with Intel Xeon 2.4 GHz CPU, GTX 1080-Ti GPU and 80 GB RAM, 10 desktops with Intel i5 3.2 GHz CPU and 4 GB RAM and a brain computer interface with 16 channel EEG recording unit.

Alumni details

The prospects of the course are found to be very promising on the basis of the current status of our Alumni. The majority of the alumni are working with reputed industries and some of them are in the field of academics.

Our students are in great demand in industries and are offered positions that ensure career growth and the best salary package available in the market. The industries in which they are working include Robert Bosch, Michelin, Hitachi, FireEye, Flytxt, Quantela, Happiest Minds, UST Global, Innovation Incubator Labs, Accenture, and TCS. Our students have also been enrolled for PhD in reputed national as well as international universities such as ETS Canada, Caen Normandie University - France, and Indian Institute of Technology Madras.

Department of Mathematics

Machine Learning Lab

Our state-of-the-art Machine Learning Laboratory is equipped with the following resources:

High-Performance Workstations (8 Units)
- ~RAM: Configurations ranging from 80 GB to 256 GB.
- ~GPU: Cutting-edge GPUs with 4 GB to 24 GB VRAM for deep learning and AI tasks.
- ~Processor: Multi-core CPUs for advanced parallel processing.
- ~Storage: High-speed NVMe SSDs for efficient data handling.

General-Purpose Computers (8 Units)
- ~Designed for everyday computing tasks and basic machine learning projects.

This setup enables students and researchers to explore advanced machine learning algorithms, train complex models, and analyze large datasets efficiently.

Programming Lab

Our Computer Instructional Laboratory is dedicated to supporting programming and software development training for B.Tech students. It is equipped with:
- ~40 High-Performance Computers
- ~Optimized for coding, debugging, and software development.
- ~Pre-installed with programming tools and IDEs (e.g., Python, Java, C/C++, MATLAB).
- ~Reliable hardware for seamless execution of programming tasks and simulations.

This lab serves as a hub for hands-on learning, fostering essential programming skills and computational thinking for students across various engineering disciplines.

Mini Research Room

Our Mini Research Room is designed to provide a focused and comfortable environment for Ph.D. scholars to conduct their research.

Facilities
- ~5 Dedicated Computers:
  Equipped with research-specific software and tools for computational tasks.
- ~Workspace for Personal Laptops:
  Ample desk space and power outlets for scholars to use their own devices.
- ~Air-Conditioned Environment:
  Ensures a comfortable setting for extended research hours.

This space is tailored to support advanced research activities and foster productivity and innovation among scholars.

Department of Physics (PH)

1. M. Tech in Optical Engineering

Optical engineering programme is offered to prepare students for the application of fundamental optics in modem technology and research environments. Rapid advancements in the field optics, lasers and optoelectronics are making optical engineering an essential tool in majority day today applications. Moreover, the recent advent of quantum information technology is largely driven by a combination of fundamental optics and optical technology.

The master's programme is offered in a truly interdisciplinary manner and it accommodates students from physics, mechanical engineering, electrical and electronics engineering, and equivalent areas equally well. The courses are designed with the right balance of science and engineering with full emphasis on optics. Advanced concepts like Fourier optics, holography, image processing, guided waves etc. are complemented by practical courses like laser and optoelectronics, optomechanical design, adaptive optics, etc. The course is supported by one of the most advanced optics training laboratories in the country. Emerging areas of quantum technology are also covered in the programme since the requisite expertise covering both experimental and theoretical aspects is available in the department. Experts from ISRO regularly visit the department to impart knowledge in specific areas unique to ISRO. The students get to visit and work in some of the ISRO centres as part of their projects.

Figure: A view of the Applied and Adaptive Optics Lab

As a matter of convention, most students passing out from the programme continue to pursue higher education in the field of optics and optical engineering. This is fuelled by the standards met both by the students as well as faculty involved in this programme. Many of our M. Tech. in optical engineering students publish papers in reputed international journals such as Physical Review A, Optics Letters, JOSAA, Applied Optics, etc, as part of their final year project, and this has enabled them to gain international visibility. Since the inception of the programme in the year 2012, with the first batch passing out in 2014, several of the passing out students have gone to pursue higher studies. In fact, two of our M.Tech in Optical engineering students had won the prestigious Marie Curie fellowship towards pursuing their doctorates in Europe. Seven others have gone abroad to pursue

Ph.D. which are fully funded. Three of them have gone on to pursue Ph.D. in the country, both at UST and IITs. Four of them have got absorbed in to public sector undertakings through open competition. The remaining have been readily placed in the industry due their unique training and experience.

Figure: Prof Chris Dainty interacting with a student in the Optics Lab, and Prof Takeda with some of our M Tech. in Optical engineering students.

Professors of international repute working in the field of optics, visit the department every year to deliver talks and interact with IIST students, and collaborate with our faculty. In particular, our M. Tech. in Optical Engineering students get the opportunity to interact with them on a very informal basis, to gain exposure.

2. M. Tech. in Quantum Technology

The MTech programme in Quantum Technology at IIST joins the global effort in preparing young engineering and science graduates, towards industry and research, to meet the specific goals targeted by ISRO and other national scientific establishments. The outlined coursework at IIST provides a strong foundation with the required basics and gives a broad overview of cutting-edge Quantum Technologies. The first semester lays the essential foundations where the students are trained in the basics of quantum mechanics, solid-state physics, optics, and experimental techniques, while simultaneously being introduced to quantum computation. In the second semester, the student covers various aspects of quantum technologies, such as quantum optical communication, quantum metrology, and quantum devices, while simultaneously being exposed to the physics of information. The students, in parallel, gets to perform several fundamental experiments and write elementary quantum computational codes as part of the curriculum. The student can also choose one elective from a range of courses directly related to quantum technology in the second semester. The second year of the course is dedicated to the final year project, where the student will carry out academic and research and development based activity in any of the relevant quantum technology related areas. The work carried out will have the potential to be publishable, with implications for the development and application of quantum technology.

IIST has developed state-of-the-art lab facilities in quantum technologies, which allow the generation and detection of entangled photons/beams and squeezed states and their

application in quantum optical technologies. Moreover, IIST trains students in several optical and solid-state technologies useful for quantum technologies.

Alumni details:

The 1st batch of IIST's MTech Quantum Technologies is already passed out with 100% placements. Some of IIST's students have gone abroad for PhD in Quantum Technology areas. However, most of our students are placed in quantum-related jobs in several government and private organizations, such as CDAC, ERNET, IITs, BosonQ Psi, Quanfluence, etc.
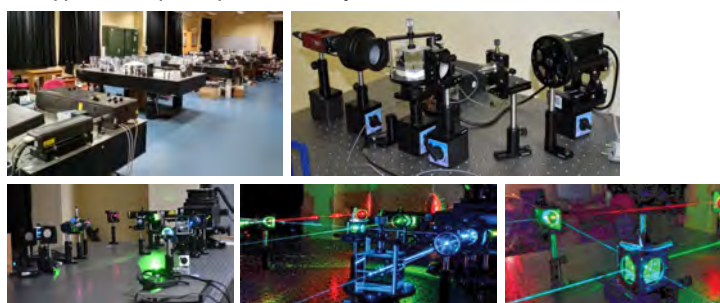
Department of Physics

Teaching Laboratories

General Physics

General Physics

Modern Physics

Solid State Physics

Optics

Quantum Technology

Computational Physics

Applied and Adaptive Optics

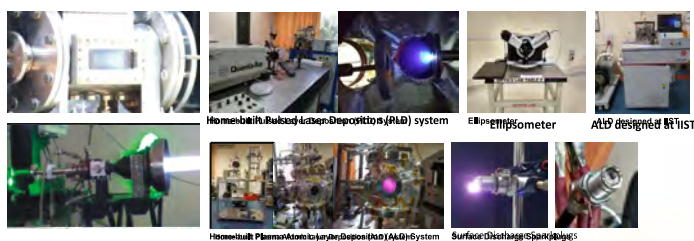## Research Laboratories

Applied & Adaptive Optics Laboratory

•Investigation on Impact of Turbulence on Optical Imaging
•Development of Digital Holography Microscopy System
•Optical Metrology

Quantum Optical Technology Laboratory

•Quantum Light Source-Generation & Characterization
•Quantum Sensing and Quantum Imaging
•Quantum Communication

Solid State (Device Physics) Laboratory

Home built Pulsed Laser Deposition (PLD) system

Ellipsometer

ALD designed at IIST

Home built Plasma Atomic Layer Deposition (ALD) System

Surface Discharge Spark Plug

•Surface engineering techniques for Ball-bearing systems in ISRO spacecrafts
•Development of Laser Ignition Systems
•Development of Surface Discharge Spark Plug
•Development of Seismocardiogram for Gaganyan project
•YIG thin films for 5G applications
•BST high-Q resonators for 5G applications

Atomic & Molecular Physics Laboratory
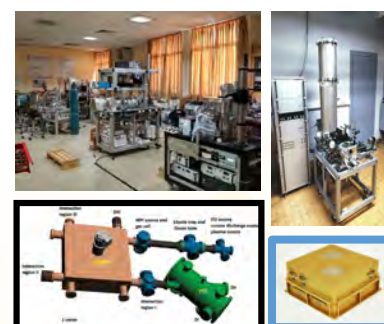
•Organics in space
•Physics of plasma propulsion

Department of Aerospace Engineering		Total Seats*
Sl.No	Branch	
1	Aerodynamics and Flight Mechanics	18
2	Structures and Design	12
3	Thermal and Propulsion	18
4	Manufacturing Technology	12
Department of Avionics		
Sl.No	Branch	
1	Control Systems	12
2	Digital Signal Processing	12
3	RF and Microwave Engineering	12
4	Power Electronics	12
5	VLSI and Microsystems	18
Department of Chemistry		
Sl.No	Branch	
1	Materials Science and Technology	12
Department of Earth and Space Sciences		
Sl.No	Branch	
1	Astronomy and Astrophysics	10
2	Earth System Science	12
3	Geoinformatics	10
Department of Mathematics		
Sl.No	Branch	
1	Machine Learning and Computing (Thro' IIST webportal)	12
Department of Physics		
Sl.No	Branch	
1	Optical Engineering	12
2	Quantum Technology	10
	Total	204
10% of Total seats additionally offered for EWS candidates (supernumerary)		
*Includes seats allotted for sponsored candidates.		

3. RESERVATION OF SEATS

As per the reservation policy of Government of India applicable to Central Educational Institutions (CEI), candidates belonging to the following categories are admitted to reserved seats based on relaxed criteria. The categories and the corresponding percentage of reservation are:

- Scheduled Castes (SC): 15%
- Scheduled Tribes (ST): 7.5%
- Other Backward Classes (OBC) belonging to Non Creamy Layer (NCL): 27%

- Persons with Disabilities (PWD): 5% (Horizontal Reservation)
- Economically Weaker Section (EWS): 10% of Total seats additionally offered for EWS candidates (supernumerary)

Sponsored Employees:

☐ Two years Full time PG programme: The employees shall avail 24 months study leave to pursue and complete PG programmes with stay at IIST

☐ PG Programmes leading to Ph.D Programmes: Those Candidates with CGPA

☐ 7.00 and above, throughout the semesters may register for Ph.D programmes (subject to vacancies) and complete the required course work for Ph.D programme during the second year project period. Sponsored employees shall avail 24 months leave.

5. SEMESTER FEE STRUCTURE FOR PG PROGRAMMES

The fee Structure per semester is as follows:

Description of Fees	Amount (Rs.)
Tuition Fees(*****)/ Semester	Rs.35000(*****)
Other Fees/Semester	Rs.5450
Total Fee(A)	**Rs.40450**
Hostel Fee/ Semester	Rs.8750
Admission Fee (Non-Refundable) (One-time)	Rs.1500
Caution Deposit (Refundable)(One-time)	Rs.5000
Total Fee(B)	**Rs.15250**
Grand Total 1ˢᵗ Semester (A+B)	**Rs.55700**
2ⁿᵈ Semester onwards (A+B-one time)	**Rs.49200**

Note:

- **Mess facility will be available on payment basis.**

- Additional fees: Supplementary Examination fees - Rs.100/- per paper and Thesis Submission - Rs.1000/- and Convocation fees - Rs.2000/- & Alumni Registration fees - Rs.500/-, which will be collected with the final semester fee.

  Refund of fees will be based on UGC guidelines.
-

6. AICTE/INSTITUTE PG SCHOLARSHIP

1. M.Tech students with valid GATE score will receive scholarship through AICTE.
2. For the students admitted for Master of Science programme, the scholarship will be paid by IIST.

7. ELIGIBILITY FOR ADMISSION

Nationality: Applicant should be an Indian citizen.

(I) Admission process: Through CCMT-2025. Please visit the CCMT website https://ccmt.admissions.nic.in/ for details.

(ii) Educational Qualification & Eligibility: B.E./B.Tech./Master of Science or equivalent degree with a minimum of 60% marks or CGPA 6.50 out of 10 for General/EWS & OBC category and minimum of 55% marks or CGPA 6.00 out of 10 for SC/ST & PwD category. A valid score in GATE in relevant area as the case may be is essential.

(iii) When CGPA & equivalent percentage are both provided in the mark list/certificate, CGPA alone would be considered for eligibility.

Department	Programme Code	Name of the Branch	Educational Qualification
Aerospace Engineering	MAE01	Thermal and Propulsion	(i) B.E./B.Tech. in any of the disciplines. (ii) A valid GATE Score in Aerospace Engineering / Mechanical Engineering / Chemical Engineering/ Engineering Science (with Fluid Mechanics and Thermodynamics as optional sections)
	MAE02	Aerodynamics and Flight Mechanics	(i) B.E./B.Tech. in any of the disciplines. (ii) A valid GATE Score in Aerospace Engineering / Mechanical Engineering / Naval Architecture & Marine Engineering / Chemical Engineering / Engineering Science (with Fluid Mechanics and Thermodynamics as optional sections)
	MAE03	Structures and Design	(i) B.E./B.Tech. in any of the disciplines. (ii) Valid GATE score in Aerospace Engineering / Mechanical Engineering / Civil Engineering / Engineering Science (in Solid Mechanics)
	MAE04	Manufacturing Technology	(i) B.E./B.Tech. in any of the disciplines. (ii) A valid GATE score in Aerospace Engineering / Mechanical Engineering /Production and Industrial Engineering / Metallurgical Engineering
Avionics	MAV01	RF and Microwave Engineering	(i) B.E./B.Tech. in any of the disciplines. (ii) A Valid GATE score in Electronics and Communication Engineering
	MAV02	Digital Signal Processing	(i) B.E./B.Tech. in any of the disciplines. (ii) A Valid GATE score in Electronics and Communication Engineering /Electrical Engineering/ Instrumentation Engineering.
	MAV03	VLSI and Microsystems	(i) B.E./B.Tech. in any of the disciplines. (ii) A Valid GATE score in Electronics and Communication Engineering / Electrical Engineering / Instrumentation Engineering.
	MAV04	Control Systems	(i) B.E./B.Tech. in any of the disciplines. (ii) A Valid GATE Score in Electronics and Communication Engineering / Electrical Engineering / Instrumentation Engineering / Aerospace Engineering / Mechanical Engineering / Biomedical Engineering

Department	Programme Code	Name of the Branch	Educational Qualification
Chemistry	MAV05	Power Electronics	(i) B.E./B.Tech. in any of the disciplines. (ii) A Valid GATE score in Electronics and Communication Engineering / Electrical Engineering / Instrumentation Engineering
	MCH01	Materials Science and Technology	(i) M.Sc in any of the disciplines or B.E/B.Tech. in any of the disciplines (ii) A Valid GATE score in Chemistry / Chemical Engineering /Mechanical Engineering / Metallurgical Engineering / Physics /Aerospace Engineering /Production and Industrial Engineering /Engineering Science (XE with Materials Science/ Polymer Sciences and Engineering)
Earth and Space Sciences	MES01	Earth System Science	(i) B.E./B.Tech. in any of the disciplines (ii) A Valid GATE score in Aerospace Engineering/Agricultural Engineering/ Civil Engineering/Chemical Engineering/Computer Science and Information Technology/Electronics and Communication Engineering/ Electrical Engineering/ Geology and Geophysics/Instrumentation Engineering/Mathematics/ Mechanical Engineering/Petroleum Engineering/Mining Engineering/Physics/Engineering neering or (iii) M.Sc in any of the disciplines (iv) A Valid GATE score in Physics/ Geology and Geophysics/ Mathematics/ Engineering Sciences
	MES02	Geoinformatics	(i) B.E./B.Tech. in any of the disciplines or M.Sc in any of the disciplines (ii) A valid GATE score in Geomatics Engineering/ Civil Engineering/ Computer Science and Information Technology/ Data Science and Artificial Intelligence/ Agricultural Engineering/ Architecture and Planning/ Electrical Engineering/ Electronics and Communications Engineering/ Engineering Sciences/ Environmental Science and Engineering/ Mathematics/ Mining Engineering/ Physics

| Department	Programme Code	Name of the Branch	Educational Qualification
	MES03	Master of Science in Astronomy and Astrophysics	(i) B.E./B.Tech. in any of the disciplines or M.Sc in any of the disciplines (ii) A valid GATE in Physics/ Electronics and Communication Engineering / Electrical Engineering / Mechanical Engineering / Instrumentation Engineering / Computer Science and Information Technology / Engineering Sciences(with Fluid Mechanics/ Thermodynamics/ Atmospheric and Ocean Sciences)
Mathematics	MMA01	Machine Learning and Computing **(Thro' IIST admission portal)** **https://admission.iist.ac.in/**	(i) B.E./B.Tech. in any of the disciplines or M.Sc/ Integrated -M.Sc / Integrated BS -MS in any discipline or Master of Computer Applications A valid GATE score in Aerospace Engineering/ Agricultural Engineering/ Biomedical Engineering/ Biotechnology/ Civil Engineering/ Chemical Engineering/ Computer Science & Information Technology/ Data Science & Artificial Intelligence/ Electronics & Communication Engineering/ Electrical Engineering/ Environmental Science & Engineering/ Instrumentation Engineering/ Mathematics/ Mechanical Engineering/ Mining Engineering/ Metallurgical Engineering/ Naval Architecture & Marine Engineering/ Petroleum Engineering/ Physics/ Production & Industrial Engineering/ Statistics/ Textile Engineering & Fibre Science / Engineering Sciences.
Physics	MPH01	Optical Engineering	(i) B.E./B.Tech. in any of the disciplines or M.Sc in any of the disciplines (ii) A Valid GATE score in Physics/ Electronics and Communication Engineering /Electrical Engineering /Mechanical Engineering / Computer Science and Information Technology
	MPH02	Quantum Technology	(i) B.E./B.Tech. in any of the disciplines. or M.Sc in any of the disciplines (ii) A Valid GATE score inPhysics/ Electronics and Communication Engineering /Electrical Engineering / Data Science and Artificial Intelligence/ Computer Science and Information Technology.

8. General Conditions for admission to MMA01: Machine Learning and Computing through IIST Admission Portal

1. Only Indian citizens are eligible to apply.

2. A candidate who confirms the seat has to remit the fees of Rs.14200/- as Seat Acceptance fee (Other fees plus Hostel fee)

3. Balance fees will be collected at a later date, which will be informed through email.

4. Applications received online only will be considered for processing under any circumstances.

5. SC/ST/OBC (Non-Creamy Layer)/EWS/Persons with Disabilities (PwD) candidates shall upload the relevant certificates as per the format available in admission portal before the last date of online application. GEN-EWS/OBC-NCL candidates need to produce updated certificate issued on or after 01/04/2025 during the reporting at the Institute.

6. Applications of GEN-EWS/OBC-NCL/SC/ST/PwD candidates will be processed only after the receipt of the relevant proof online. In other words, non-submission of proof online will lead to rejection of application.

7. Reservation of seats for SC/ST/OBC/EWS/PwD is applicable as per Govt. of India Orders.

8. In case of ST seats falling vacant, it will be filled by SC category candidates.

9. Application fee is Rs.600/- for General, OBC and EWS candidates who are male (Rs.300/- for SC, ST, PD and women candidates)

10. The application fee shall be paid through online only. The last date of registration and payment of application fee is 12.06.2025

11. The application fee is non-refundable.

12. The applicants who are shortlisted based on the valid GATE score are required to attend interview.

13. The interview will focus on basic topics in Mathematics and Computer Science.

14. List of shortlisted candidates for online interview will be displayed in the IIST website on 18 June 2025. Shortlisted candidates may download their online interview call letter from the portal.

15. Interview will be conducted through video conference mode.

16. A provisional admission list will be prepared based on the GATE score and interview score of the candidate.

17. After the provisional admission list is published, the candidate has to remit their seat acceptance fee of Rs 14,200/- through online (E-pay) within the stipulated date.

18. In case the candidate in the provisional admission list fails to remit the fee within the stipulated date, the seat will be allotted to the next candidate in the rank/wait list.

19. All candidates who are in the rank/wait list should confirm their willingness to be

considered for further allotments in the web portal by choosing "Revalidate and proceed" option on specified dates as given in Table 2.

20. The candidates who do not confirm their willingness using the revalidate option on the specified dates will not be considered for any future vacancies. (However, their existing allotment would be retained if they have paid the fees.)

21. However, the candidate can withdraw from the allotted programme in which they appear in the Allotment list/waiting list.

22. If the candidate with a confirmed seat, after paying fees, wishes to withdraw before the commencement of the class, he/she may send a request to academics@iist.ac.in. The fee will be refunded as per UGC Guidelines.

23. Students who are completing their qualifying degree programme in 2024-25 will have to provide the consolidated mark list/mark lists of all semesters along with Provisional/Degree Certificate on or before September 30, 2025. Till the date of submission of degree Certificate, the admission will be treated as provisional and such students who have not submitted the degree certificate/verification certificate/Graduation certificate will not be eligible for scholarship. Also those students who have not submitted the Degree certificate/Transfer certificate/Provisional certificate before 1700 hrs on September 30, 2025 shall be disqualified and such students shall not be eligible to continue their studies at IIST further. On submission of the certificate on or before September 30, 2025, the scholarship will be paid with effect from the date of commencement of classes or from the date of admission to the programme whichever is earlier.

24. Students who have completed their qualifying degree prior to and for 2024- will have to produce all the certificates and TC in original at the time of admission.

25. Candidates who are employed in Government/Semi Autonomous Bodies need to Government/PSUs/ produce a "No Objection Certificate (NOC)" at the time of interview.

26. Students who are selected for the admissions have to join the course on the specified dates as given in Table 1. Dates for starting of classes for these students are also given in Table 1.
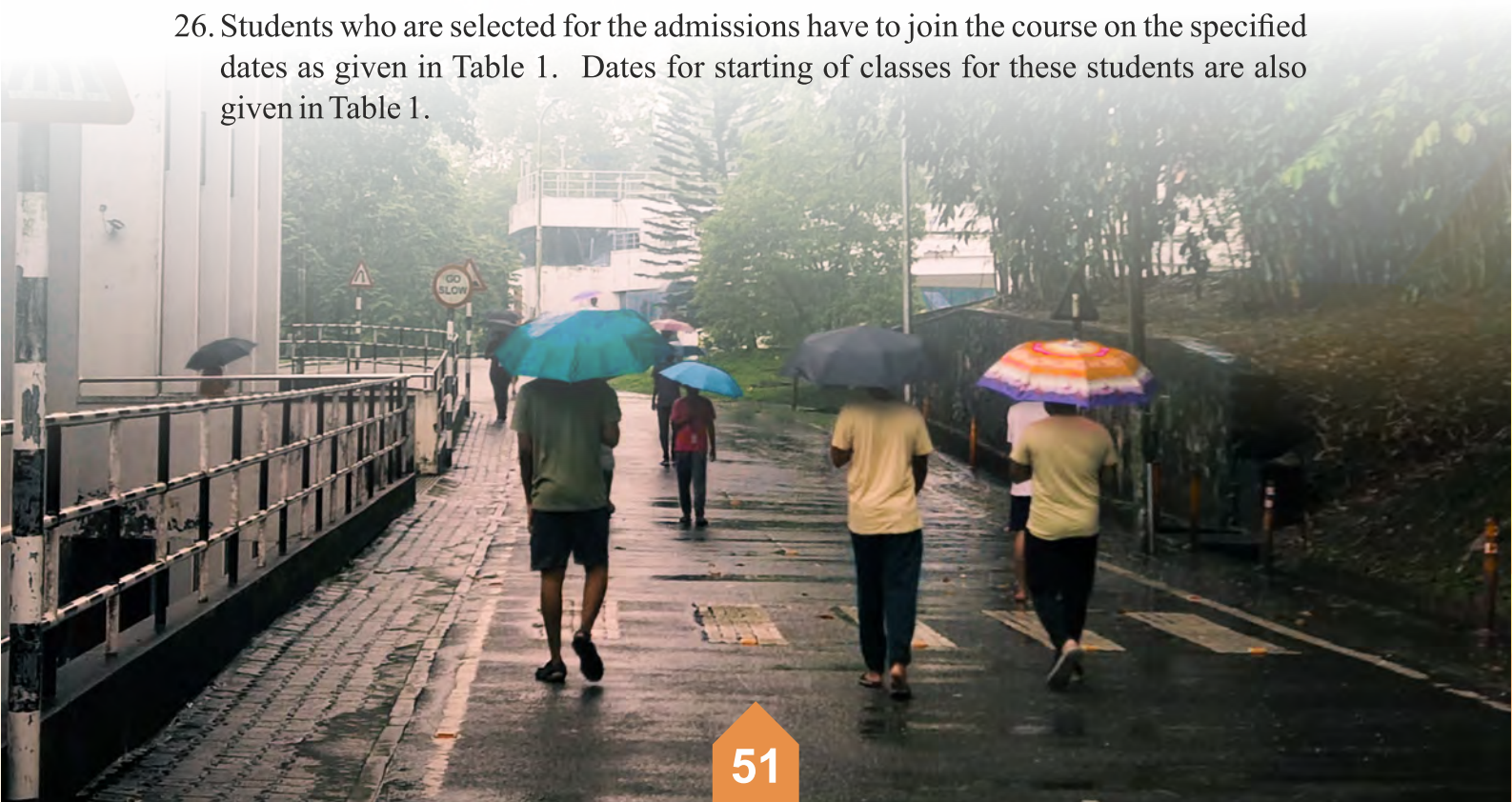
9. IMPORTANT DATES

	IMPORTANT DATES	
Sl No.	**Event**	**Dates (Tentative)**
1	Opening of IIST website for online submission of applications	May 16, 2025 – 1700 hrs (Friday)
2	Closing of IIST website for online submission of applications	June 12, 2025 - 2359 hrs (Thursday)
3	Last date for payment of application fee	June 12, 2025 - 2359 hrs (Thursday)
4	Display of shortlisted candidates for the	June 18, 2025 (Wednesday)
7	Interview for candidates	June 20 - 27, 2025
8	Display of rank list after Interview	July 03, 2025 (Thursday)
9	Fee payment of First Allotment	July 04, 2025 (Friday)
10	Reporting date at the Institution	August 1, 2025 (Friday)
11	Classes begins for all PG Programmes	August 4, 2025 (Monday)
12	PG Admission closes	August 14, 2025 (Thursday)

Instructions for filling of online application through IIST portal (for MMA01 only)

1. Online application can be made through https://admission.iist.ac.in/ Read instructions thoroughly before filling the application form.
2. Step 1: New User Registration – The applicant has to first register with the Name, valid Email ID and Mobile number along with a new Password that will be used for further login to the Admission Portal. You will get a valid Registration No. on successful user creation. Please use this Registration No. and the Password you have set for completing the registration process.
3. Step 2: Profile Registration – Login using the above Registration No. and Password. Read the instructions and click Continue to proceed to profile registration. Please enter the correct information in each tab and click Finish followed by CONFIRM button. You can use Save as Draft button to temporarily save your data. Once you confirm, you will be taken to fee registration page.
4. Step 4: Pay Registration Fee: With the registration number you can make application fee payment through epay.
5. Rank list will be published on 03.07.2025 & First allotment will be done on 04.07.2025. Using the login ID and password, the candidate can confirm their seats through online web portal. Seat Acceptance fee has to be remitted through e-pay to confirm the seat.

6. A fresh allotment list will be prepared and updated in IIST website every Tuesday and Friday at 1700 hrs, if vacancies exist. The candidate in the allotment list has to remit the stipulated fees on or before the subsequent Tuesday and Friday 1100hrs to confirm their candidature to the branch. Any change in the aforementioned schedule would be notified in the website.

7. Candidates can login to their web portal and withdraw from the candidature from the allotment list/wait list.

8. All candidates would be considered for allotments in the subsequent vacancy filling rounds only if the candidate chooses "REVALIDATE and PROCEED "option in the web portal on specified dates given in Table 2.

Table 2: REVALIDATION DATES (for MMA01 only)

Re-validation of candidature Round - 1	**July 25 (1700hrs) – 29 (1100hrs), 2025**

10. JOINING IIST

Candidates, who have accepted the seat allotment and completed the certification verification procedure, are required to report at IIST on dates specified in Table. During the joining process, Medical verification, issue of photo-identity cards, allotment of hostel rooms, etc. will be organized.

Candidates **ARE REQUIRED** to submit the following documents at the time of joining IIST:

a) SSLC/SSC or equivalent

b) Pre-degree/ Plus-2 or equivalent

c) B.E. *I* B.Tech / Master of Science, or equivalent degree certificate and consolidated mark sheet containing break up of marks of all semesters. If consolidated mark list is not received, mark sheet of all semesters have to be produced.

d) GATE Score card.

e) OBC-Non Creamy Layer certificate issued by the competent authority issued on or after 01/04/2025, if applicable.

f) EWS Certificate issued by the competent authority issued on or after 01/04/2025, if applicable

g) SC / ST certificate issued by the competent authority, if applicable

h) Transfer / Migration Certificate and Conduct Certificate in original from the Institution last studied.

i) Medical Fitness certificate from a Class 'A' Medical Practitioner

j) Vaccination certificate duly signed (along with seal) by a registered Medical Practitioner in the proforma given in admission portal.

k) No Objection Certificate' from the authorities concerned to your accepting the admission, if you are already under obligation to serve a Central Government Department/Organization/State Government/Public Authority.

Candidates have to make their own arrangements for stay in Thiruvananthapuram or Nedumangad (a nearby town). Hostel accommodation will be available only for students, from the evening of the date of joining, after completion of the admission formalities at IIST. Instructions to reach IIST can be found at https://www.iist.ac.in/aboutus/how-to-reach. Further instructions will be uploaded on the Admission Website.

11. CONTACT DETAILS

Contact Address	Chairman, PG Admissions Indian Institute of Space Science and Technology Valiamala (P.O.), Thiruvananthapuram - 695547 Kerala, INDIA
E-Mail	admissions@iist.ac.in **Queries will be answered via E-mail ONLY**
Help Desk Contact numbers	**Landline Numbers:** 0471-2568477, 618 (Monday to Friday from 9:30 a.m to 5:00 p.m) Fax:0471-2568556 **Help Desk will assist ONLY in Online Admission Procedure. Other queries will be accepted and answered over E-mail ONLY.**

12. DISPUTE REDRESSAL

Any complaints, grievances, etc. related to Admission to IIST must be referred to the Chairman, Postgraduate Admissions-2025, IIST. Vice- Chancellor, IIST will be the appellate authority with respect to such complaints. The courts having their jurisdiction at Thiruvananthapuram alone can adjudicate on all matters related to IIST Admission.

NATIONAL RAGGING PREVENTION PROGRAMME

National Anti-Ragging Helpline
24x7 Toll Free
1800-180-5522
helpline@antiragging.in | www.antiragging.in

UGC Monitoring Agency
Centre for Youth (C4Y)
antiragging@c4yindia.org | www.c4yindia.org

Contact Details of the Nodal Officers of Anti-Ragging Committee and Squad
Anti-Ragging Committee (ARC) | Anti-Ragging Squad (ARS)

Dr. Lekshmi V Nair	Smt. Bindya K R
Professor, Department of Humanities	Deputy Registrar (General Administration,
Associate Dean (Student Welfare and Outreach)	Student Activities and Student Welfare)
0471-2568673 , 9995779306	0471-2568452, 9446395516

RAGGING IS A CRIMINAL OFFENCE AND THE CULPRITS WILL ATTRACT PUNITIVE ACTION AS MENTIONED IN THE UGC REGULATIONS
(www.antiragging.in/assets/pdf/annexure/Annexure-I.pdf)

www.ugc.ac.in

विद्या सन्निधिः प्रवचनम् सन्धानम्।

Social Media & Website