



# **Indian Institute of Space Science and Technology**

(Declared as Deemed to be University under Sec.3 of UGC Act 1956)

Valiamala P O, Thiruvananthapuram- 695 547

[www.iist.ac.in](http://www.iist.ac.in)





## OUR SPIRIT AND SUPPORT

### *Our Chancellor*

*Chairman, ISRO/Secretary, DoS  
Board of Management*



**Dr. K. Radhakrishnan**



**Dr. A. P. J. Abdul Kalam**

*Director*



**Dr. K. S. Dasgupta**

### *Board of Management*

***Chairman:***

Secretary, Department of Space, Government of India

***Members:***

Secretary, Department of Atomic Energy, Government of India

Secretary, Department of Higher Education, Government of India

Chief Secretary, Government of Kerala

Prof. Roddam Narasimha, Member, Space Commission

Director, Indian Institute of Technology, Bombay, Mumbai

Director, Indian Institute of Technology, Madras, Chennai

Director, Indian Institute of Science, Bangalore

Director, Vikram Sarabhai Space Centre, Thiruvananthapuram

Director, Space Applications Centre, Ahmedabad

Additional Secretary, Department of Space, Government of India, Bangalore

Scientific Secretary, ISRO Head Quarters, Antariksh Bhavan, Bangalore

Nominee of UGC Chairman

Director, IIST-Member Secretary

# INTRODUCTION

Indian Institute of Space Science and Technology (IIST), at Thiruvananthapuram is a Deemed to be University under Section 3 of the UGC Act, 1956. IIST functions as an autonomous body under the Department of Space, Government of India.

## VISION

To be a world class educational and research institution contributing significantly to the Space Endeavors.

## MISSION

Create a unique learning environment enriched by the challenges of the Space Programme.

Nurture the spirit of innovation and creativity.

Establish Centers of Excellence in niche areas.

Provide ethical and value based education.

Promote activities to address societal needs.

Network with national and international institutions of repute.

## THE PLACEMENT CELL AT IIST

The Placement Cell at IIST continually liaisons with industry, R&D organizations, and management organizations, with the foresight of Training, Career-Guidance, Internship/Project, and Campus Placements.

The Placement Cell works closely in line with the policies of the Institute and tries to coherently match the interests of students with an appropriate job profile.

The Placement Cell channelizes feedback from Industry, R&D Organizations and Management Organizations regarding academic programmes, to the Institute. The Placement Cell continually functions to safeguard the interest of the students and also endeavors to be a part of their safe and secure future.

A company/R&D/Management, registers with the Placement Cell, through an online job portal for the purpose of placement and internship. Upon registration, the Company will receive a Log-In ID and Password to input furthermore details. The Placement Cell will appropriately co-ordinate to take the process further.

The internship period for both B.Tech. and M.Tech. programmes usually lasts for two months, tentatively from May to July, every year. However, internships which require more than two months, for select M.Tech Programmes, can be worked out in line with the Institute policies and guidelines. The Company/Organization could contact the Placement Cell for further details and discussions.

Students' who qualify for Internship/Placements are to required to register with the Placement Cell, by providing their detailed CV related details, well in advance.



Indian Institute of Space Science and Technology (IIST) a Deemed to be University started in the year 2007, is the only National Institute under the umbrella of Dept. of Space dedicated in contributing to the research and education in various key and allied areas of Space Science and Technology. Our B.Tech. students are inducted through a rank list prepared from the students who qualify IIT JEE (Main and Advanced) exams. Students inducted for M.Tech./M.S. and Ph.D programmes are also those who have qualified GATE for Engineering streams and NET/JRF for non-engineering streams.

IIST upholds an urge to develop and continuously strengthen research with various industries, defense sectors, and research organizations. With a rigor of Academic programmes at par with IITs, and Research labs being continuously upgraded with state-of-the-art facilities. IIST provides the right ambience for faculty and students to work extensively in specialized areas of research in collaboration with different ISRO Centres. IIST is always live with colloquia, seminars, conference, lectures by eminent experts in different fields so as to fuel the flames of blowing knowledge. IIST always encourages innovative ideas to grow and strive to gain international recognition for its academic programmes and research activities. The Institute churns out graduates and post-graduates capable of working in cutting edge technologies.

The academics and research ambience at IIST is well knitted with excellent infrastructure for indoor and outdoor activities/sports, fitness centres, cafeteria and an excellent library complex. Residential academic programme at IIST thereby moulds and hones the best of the talents within its students. This document gives a glimpse of our Faculty, research capabilities, along with various academic programmes and detailed curriculum.

I hope industries and research organizations would find this brochure to be a catalyst in initiating various research and collaborative programmes with us. I earnestly hope they would get in touch with our placement cell for inducting our students for their internship programmes and also for providing them with a career opportunity by allowing them to be a part and parcel of research, development and growth of the organization.

***K S Dasgupta***  
***Director***



With a bright set of students who have undergone a rigorous curriculum at IIST and capable of working at cutting edge technologies, Placement Cell has a key role in ensuring that our students are appropriately placed and continuously contribute to the growth of our nation. IIST values feedback from various industries and research organizations and hence the placement cell liaisons with industry and research organizations to arrange interactive sessions to receive feedback on academic programmes, programmes to hone specific skill sets, etc.

We hope that this booklet brings out key features of our institute. Typical procedure for internship and placements and that industry/research organization is also briefly indicated. We are confident that the students from IIST would be an asset to the organization they would be working in.

We sincerely hope that you would get in touch with us for internship and placements. The placement cell would be happy to provide you with all necessary information and guide you through the process of internship and placement.

**Dr. Deepak Mishra**  
Associate Professor  
Dept. of Avionics

**Dr. Pradeep Kumar P**  
Assistant Professor  
Dept. of Aerospace Engineering

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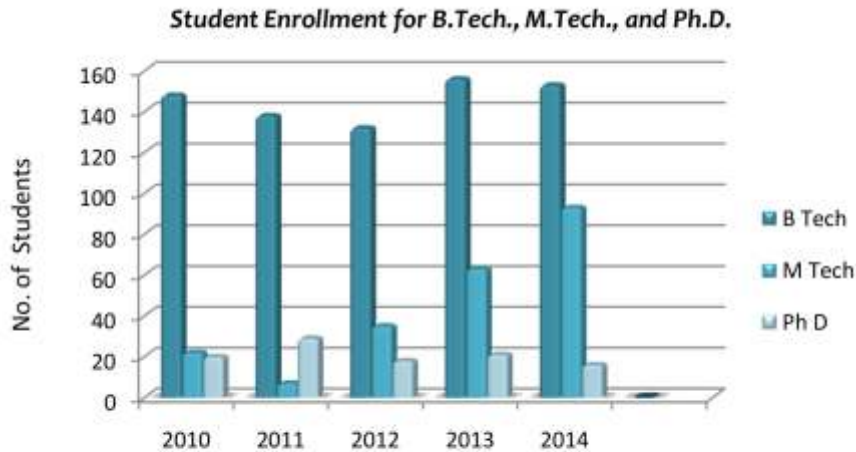
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# ACADEMIC PROGRAMMES

The institute offers education at the undergraduate, graduate, doctoral and post-doctoral levels with special focus on space sciences, space technology and space Applications. The academic programmes have been formulated to strengthen the fundamentals, experience the realities through practical work, and enhance the knowledge and understanding the areas of interest. The curriculum has been developed and continuously upgraded to meet these goals.



## B.TECH. PROGRAMMES

IIST offers four year (8 semesters) Bachelor of Technology (B.Tech. programme) in 3 branches.

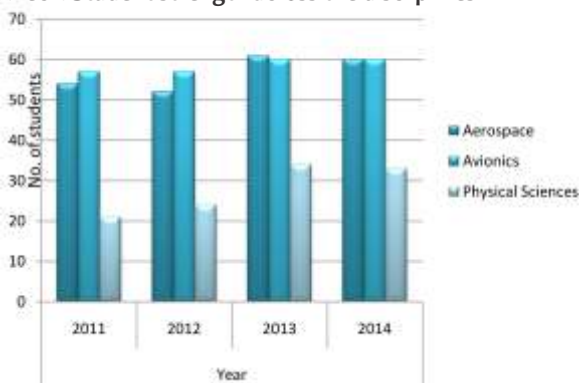
1. Aerospace Engineering
2. Avionics
3. Physical Sciences

The total number of seats is 156. The seat matrix for different programmes is as follows:

- B.Tech. in Aerospace Engineering: 60
- B.Tech. in Avionics: 60
- B.Tech. in Physical Sciences : 36

Admission to the B.Tech. programmes in IIST is through Joint Entrance Examination JEE (Main) conducted by CBSE and JEE (Advanced) conducted by IITs.

**B.Tech. Student strength across the disciplines**



**B.Tech. 2010-2014 Batch**



**B.Tech. 2011-2015 Batch**





# ACADEMIC PROGRAMMES

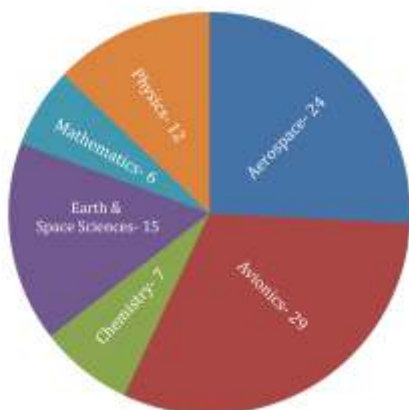
## M.TECH. PROGRAMMES/ M.S PROGRAMME

The M.Tech. programme is offered to students who have qualified GATE. Admissions to MS Programme in Astronomy and Astrophysics is based on JEST/JRF/NET/GATE.

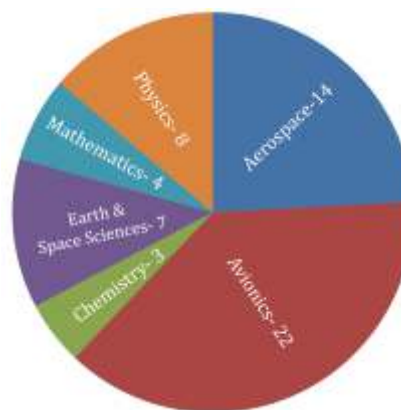
SL.NO	DEPARTMENT	POST GRADUATE PROGRAMMES
1	Aerospace Engineering	1. M.Tech. Propulsion 2. M.Tech. Aerodynamics & Flight Mechanics 3. M.Tech. Structures & Design
2	Avionics Engineering	1. M.Tech. in RF&Microwave Engineering 2. M.Tech. in Digital Signal Processing 3. M.Tech. in Control System 4. M.Tech. in VLSI & Microsystems
3	Chemistry	1. M.Tech. in Material Science and Technology
4	Earth & Space Sciences	1. M.Tech. in Earth System Sciences 2. M.Tech. in Geoinformatics 3. MS Astronomy and Astrophysics
5	Mathematics	1. M.Tech. Machine Learning & Computing
6	Physics	1. M.Tech. in Optical Engineering 2. M.Tech. in Solid State Technology

The institute offers education at the undergraduate, graduate, doctoral and post- doc admissions under the regular academic stream are announced through advertisements in national news papers as well as on the IIST website. Admission is based on gate score, test and interview. All selected candidates will get scholarship as per the AICTE norms.

Admissions under the DOS/ISRO stream are announced through notification circulated in all units/centres. Qualified candidates are admitted to the programme based on nominations by the respective centres.



M.Tech. First Year

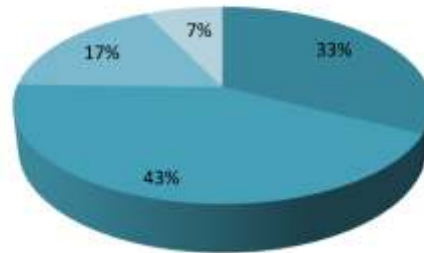


M.Tech. Second Year

# B.Tech. PLACEMENT HISTORY (ISRO ABSORPTION)

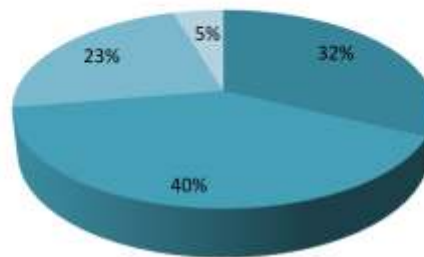
## Total Students : 126 (2007-11)

■ Aerospace ■ Avionics ■ Physical Sciences ■ Not absorbed in ISRO



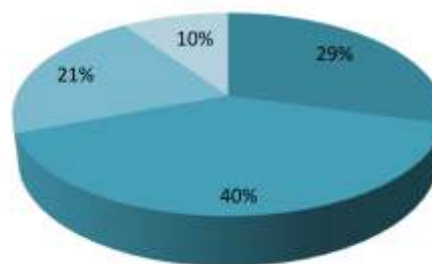
## Total Students : 130 (2008-12)

■ Aerospace ■ Avionics ■ Physical Sciences ■ Not absorbed in ISRO



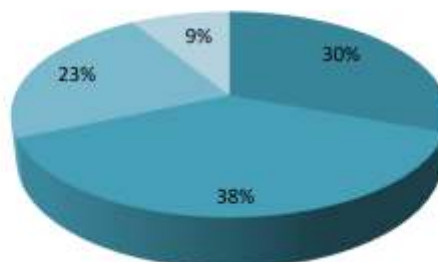
## Total Students : 136 (2009-13)

■ Aerospace ■ Avionics ■ Physical Sciences ■ Not absorbed in ISRO



## Total Students : 114 (2010-14)

■ Aerospace ■ Avionics ■ Physical Sciences ■ Not absorbed in ISRO



# ACADEMIC PROGRAMMES

## DOCTORAL PROGRAMMES

Doctoral programme leading to Ph.D. degree is currently available in the following departments:

- Aerospace Engineering
- Avionics
- Chemistry
- Earth and Space Sciences
- Humanities
- Mathematics
- Physics

The selection of full time Ph.D. scholars is being done twice in a year. The admission to part time Ph.D. programme is offered only to scientists/engineers from ISRO and to faculty from IIST.

At present there are 77 research scholars registered for the doctoral programme.

## POST DOCTORAL PROGRAMMES

IIST offers Post Doctoral Fellowship (PDF) in selected areas. Admission is based on test and interview.

### Ph.D. Completed as on date

**SR Shine-** Studies on Film Cooling in Rocket Combustion Chambers.

**V Ashok-** Computation of High Speed Chemically reacting Viscous Flows with Cartesian Mesh on a GPU based Parallel System.

**Sooraj V S-** Theoretical and Experimental Investigations on Ultra high Surface Finish Generation using Fine Abrasive Impingement.

**Raja J-** Justification of lower dimensional model for thin elastic and piezoelectric materials.

**Bhaskar Dubey-** Qualitative study of the basic properties of control systems such as controllability, observability and optimality of controls by using the tools of functional analysis and soft computing.

**Sanid-** Investigation in nanomagnets driven by spin-polarized current.

**Remya Mol-** Studies on conducting polymers and nanocomposites with special emphasis on light-matter interaction.

**Senthil Kumar-** Investigation on adaptive optics for high resolution optical earth observation systems.

**Preeti Manjari Mishra-** Formation and Destruction of polycyclic aromatic hydrocarbon ions under photon and ion impact.



# RESEARCH AND DEVELOPMENT

Research programmes in IIST focus on various areas of Science, Engineering and Humanities. The institute currently has 57 full-time and 22 part-time research scholars. With a view to provide a congenial academic and research atmosphere, the Institute funds projects for the areas. Nano Satellite and Sounding Rocket are two prestigious collaborative projects where B.Tech. students get to continually work in close interaction with ISRO scientists. Faculty members currently work with projects, closely related with the Indian Space Programmes. However, faculty members could also take up projects both fundamental as well as the cutting-edge of technology from reputed Industries/Research Organizations. The following Centres of Excellence have been established to focus on key technology developments in the field of Space Science and Technology and is being continuously augmented and developed so as to be with the cutting-edge of technology in these areas.

## 1. APLD LAB. (DEPT. OF AEROSPACE ENGINEERING)

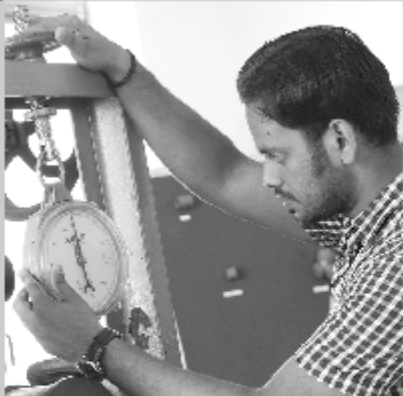
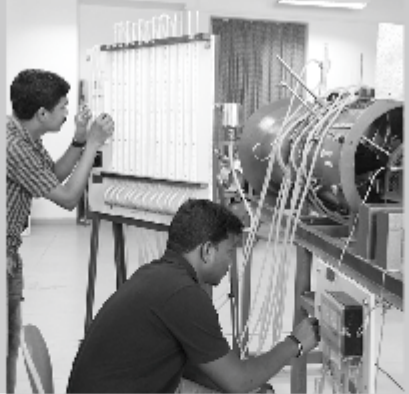
In IIST The Advanced Propulsion and Laser Diagnostics (APLD) Lab is currently setup with an objective to perform propulsion research studies through laser diagnostic techniques. The laboratory currently has the capability to perform PIV and PLIF measurements, and is equipped with: (i) Double Pulsed Nd-YAG PIV Laser, (ii) Precision Dye Laser, (iii) Intensified CCD Camera, (iv) PIV CCD Camera (v) High Resolution Wavemeter, (vi) Optical Tables, (vii) Optical Components and (viii) High Speed DAQ System. The lab would shortly be upgraded with a second dye laser for two line LIF thermometry measurements and particle size analyser for droplet size measurements.

## 2. VIRTUAL REALITY LAB (DEPT. OF AVIONICS)

The primary objective of this lab is to supplement a higher level course on image processing and enable students to understand the subject better. The lab consists of a diverse set of experiments with objective, theory, assessment, references and interactive examples which are designed to improve the clarity in understanding of the basic and advanced concepts. The lab is intended to help in clarifying concepts in virtual reality, computer vision and image processing. To carry various experiments in computer vision, image processing etc we have gigE vision camera, thermal imaging camera and stereo vision camera for image acquisition. We have five workstations with 3D display and a pair of 5DT data gloves for interaction via computer.

## 3. CENTER OF ADVANCED RESEARCH IN NANOSCIENCE AND TECHNOLOGY (DEPT. OF CHEMISTRY)

To spearhead the activities in Nanoscience and Technology and to address challenges in Space Science and Technology and related areas the department has established a Centre of Advanced Research in Nanoscience and Technology. The Department is in the process of bringing all the facilities required to conduct advanced research in Nanoscience and Technology and allied fields. Currently the facilities such as Atomic Force Microscope, Particle Size Analyzer, Glove Box, electrospinning machine, contact angle goniometer, HPLC, planetary ball mill and surface area analyser are available in the centre. Department plans to add X-ray Diffractometer and Plasma Reactor to the research centre shortly.





# DEPARTMENTS IN IIST

## DEPARTMENT OF AEROSPACE ENGINEERING

The Department of Aerospace Engineering was established in the year 2007 and currently offers, a four year B.Tech. and three M.Tech. programmes namely Aerodynamics, Thermal and Propulsion and Structures and Design. The department also has Ph.D. Programmes and also hosts Post Doctoral Programmes. The department research capabilities could be broadly grouped into (1) Aerodynamics and Flight Mechanics, (2) Thermal and Propulsion, (3) Design and Structures, and (4) Materials and Manufacturing.

The curricula of various courses offered by the Department of Aerospace Engineering deals with design and development of aircrafts, launch vehicles and spacecrafts. Unlike most traditional ground based systems, optimality and reliability are of paramount importance in such systems. This necessitates accurate theoretical and experimental analyzes of a variety of phenomena, and performance predications of a variety of complex systems.

*The department of Aerospace was established in the year 2007 and currently offers a four year B.Tech. Programme and M.Tech. in Aerodynamics and Flight Mechanics, Propulsion, Structures and Design and also Ph.D. Programmes.*

Faculty members of the Aerospace Engineering at IIST are graduates of reputed institutions who are supported by experienced and competent Technical staff force. We believe that engineering education is incomplete without exposure to real life phenomena and without developing the ability to experimentally investigate the performance of actual systems.

The academic programmes ( B.Tech., M.Tech. & Ph.D.) contributes more to the technical excellence in all realms of Aerospace Engineering and well equips and triggers the young minds to undertake challenging projects, research in cutting edge technology in various aspects of Propulsion Systems, Aerodynamic Design, Structural Systems, Precision Manufacturing, etc.

Currently, the department proclaims a state of art in the area of Advanced Propulsion and Laser Diagnostics, and plans to enhance its research facilities in the following areas:

- High speed flow facility
- Hypersonic boundary layer prediction
- Sub-scale semi-cryogenic rocket combustion chamber facility
- Structural health monitoring
- Combustion studies
- High temperature gas dynamics facility
- Aero-acoustic test facility
- Inter-disciplinary research facility for gas liquid flow and heat transfer

## LABORATORY FACILITIES (DEPT. OF AEROSPACE ENGINEERING)

- Advanced Propulsion, Laser Diagnostics & High Speed Flow Lab

# DEPARTMENTS IN IIST

- Aerodynamics Lab
- Aerospace Structures Lab
- Computer Aided Design and Analysis Lab
- Engineering Drawing Lab
- Engineering Workshop
- Flight Mechanics Lab
- Fluid Mechanics Lab
- Heat transfer Lab
- Manufacturing Processes Lab
- Metrology and Computer Aided Inspection lab
- Physical Metallurgy Lab
- Propulsion Lab
- Strength of Materials Lab
- Thermal Engineering Lab

## FACULTY PROFILE (DEPT. OF AEROSPACE ENGINEERING)



### **Kurien Issac K.**

Dean (Intellectual Property Rights and Continuing Education), Sr. Professor

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Education: Ph.D., IIT Madras

Area of Research: Kinematics of Mechanisms, Dynamics of Rigid Body Systems, Optimal Design, Automatic Control, Robotics, Aids for Rehabilitation



### **Salih A.**

Head & Associate Professor

Email: salih@iist.ac.in, Phone(Off) : 0471-2568436, Fax : 0471-2568406

Education: Ph.D., IIT Bombay / IIT Kharagpur

Area of Research: Numerical simulation of multiphase flows, Level set methods, Sloshing dynamics, Bubble dynamics, Rayleigh-Benard convection



### **Anup S.**

Assistant Professor

Email :anup@iist.ac.in, Phone(Off) : 0471-2568430, Fax : 0471-2568406

Education: Ph.D., IIT Madras

Area of Research: Fracture Mechanics, Nanomechanics and Micromechanics of failure of composites, Mechanics of biological & Bio-impaired materials



### **Aravind Vaidyanathan**

Associate Professor

Email: aravind7@iist.ac.in, Phone(Off) : 0471-2568435, Fax : 0471-2568406

Education: Ph.D., University of Florida

Area of Research: Experimental combustion, Jet and Spray studies, Supersonic flows and Mixing, Laser Diagnostics

# DEPARTMENTS IN IIST



**Arun C. O.**

Assistant Professor

Email: arunco@iist.ac.in, Phone(Off) : 0471-2568405, Fax : 0471-2568406

Education: Ph.D., IIT Madras

Area of Research: Computational structural mechanics, Meshfree methods, Finite element method, Stochastic mechanics, Structural reliability, Steel structures, Fracture mechanics, Damage mechanics, and related fields



**Bijudas C. R.**

Reader

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Education: Ph.D., IIT Bombay

Area of Research: Structural health monitoring, wave propagation in solids, composite monitoring



**Chakravarthy P.**

Assistant Professor

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Education: Ph.D., IIT Chennai

Area of Research: Powder metallurgy, Materials forming



**Deepu M.**

Associate Professor

Email: deepu@iist.ac.in, Phone(Off) : 0471-2568431, Fax : 0471-2568406

Education: Ph.D., NIT Calicut

Area of Research: Modeling of turbulent, compressible, reacting flows and heat transfer



**Girish B. S.**

Assistant Professor

Email: girishbs31@yahoo.co.in, Phone(Off) : 0471-2568434, Fax : 0471-2568406

Education: Ph.D., Anna University, Chennai

Area of Research: Operations Management, Optimize techniques



**Manoj T Nair**

Associate Professor

Email: manojtnair@iist.ac.in, Phone(Off) : 0471-2568415, Fax : 0471-2568406

Education: Ph.D., IIT Kanpur

Area of Research: Hypersonic Aerothermodynamics, Aerodynamic Shape Optimization, Computational Fluid Mechanics, Compressible Flow, Incompressible Flow, Unsteady Flows

# DEPARTMENTS IN IIST



## **Pankaj Priyadarshi**

Adjunct Professor

Email: pankaj@iist.ac.in, Phone(Off) : 0471-2568433, Fax : 0471-2568406

Education: M.E., IISc Bangalore

Area of Research : Multidisciplinary Design Optimisation, Reentry Aerothermodynamics and Flight Mechanics, Air-intake aerodynamics, Aerodynamic Shape Optimization, Computational Fluid Dynamics, Wind tunnel Testing



## **Pradeep Kumar P**

Assistant Professor

Email: pradeepkumarp@iist.ac.in, Phone(Off) : 0471-2568450, Fax : 0471-2568406

Education: Ph.D. IIT Bombay

Area of Research: Two-phase fluid flow and heat transfer, thermal hydraulics, microfluidics, electronic cooling



## **Prathap C**

Assistant Professor

Email : prathapc@iist.ac.in, Phone(Off) : 0471-2568496, Fax : 0471-2568406

Education: Ph. D., IIT Delhi

Area of Research: Combustion, Laminar premixed flames and Emission studies



## **Praveen Krishna I. R.**

Assistant Professor

Email: praveenkrishna@iist.ac.in, Phone(Off) : 0471-2568405, Fax : 0471-2568406

Education: Ph. D., IIT Chennai

Area of Research: Non Linear Dynamics, Structural Acoustics, Fluid Structure Interactions



## **Rajesh Sadanandan**

Assistant Professor

Education: Ph.D., University of Karlsruhe, Germany

Email: rajeshsadanandan@iist.ac.in, Phone(Off) : 0471-2568496, Fax : 0471-2568406

Area of Research: Combustion – Gas turbine combustion, Supersonic combustion, Spray combustion, Thermo-acoustic instabilities, Multiphase flows, Optical and Laser Diagnostics– Schlieren, Shadowgraph, Chemiluminescence, PIV, PLIF, High repetition rate laser diagnostics



## **Ramanan R. V.**

Adjunct Professor

Education: Ph.D., University of Kerala

Email: rvramanan at iist.ac.in, Phone(Off): 0471-2568438, Fax : 0471-2568406

Area of Research: Space Mission Design and Analysis including Lunar & Interplanetary Transfer Trajectory design., Orbit raising and Maneuvering, Optimization with main focus on transfer trajectory design of various space missions

# DEPARTMENTS IN IIST



**Raveendranath P.**

Adjunct Professor

Email: raveendranath@iist.ac.in, Phone(Off): 0471-2568437, Fax : 0471-2568406

Education: Ph.D, IIT Kharagpur

Area of Research: Finite Element Method, Analysis of aerospace structures



**Sam Noble**

Reader

Email: samnoble@iist.ac.in, Phone(Off) : 0471-2568449, Fax : 0471-2568406

Education: M.Tech., College of Engineering, Thiruvananthapuram

Area of Research: Composites



**Satheesh K**

Assistant Professor

Email: satheeshk@iist.ac.in, Phone(Off) : 0471-2568460, Fax : 0471-2568406

Education: Ph.D, IISc Bengaluru

Area of Research: Gas Dynamics, Hypersonic flows, Experimental Aerodynamics



**Shine S. R.**

Assistant Professor

Email: shine@iist.ac.in, Phone(Off) : 0471-2568427, Fax : 0471-2568406

Education: Ph.D., IIST Thiruvananthapuram

Additional Professional Qualification: Boiler Proficiency Engineer, Certified Energy Auditor, Ministry of Power, Government of India

Area of Research: Rocket thrust chamber cooling, Film cooling applications



**Sooraj V. S.**

Reader

Email: sooraj@iist.ac.in, Phone(Off) : 0471-2568449, Fax : 0471-2568406

Education: Ph.D., IIST Thiruvananthapuram

Area of Research: Micro/Nano Finishing of surfaces, Micro Machining, Advanced Manufacturing Techniques, Rapid Prototyping, Experimental analysis of metal cutting operations



**Vinoth B. R.**

Assistant Professor

Email: vinothbr@iist.ac.in, Phone(Off) : 0471-2568417, Fax : 0471-2568406

Education: Ph.D., IIT Kanpur

Area of Research: Aerodynamics, Aeroacoustics, Unsteady flows, Experimental methods

# DEPARTMENTS IN IIST

## CURRICULUM (DEPT. OF AEROSPACE ENGINEERING)

### B.TECH. IN AEROSPACE

SEMESTER I (21 CREDITS)		SEMESTER II (22 CREDITS)	
Code	Course Title	Code	Course Title
MA111	Calculus	MA121	Vector Calculus and Differential Equations
PH111	Physics I	PH121	Physics II
CH111	Chemistry	CH121	Materials Science
AE111	Basic Mechanical Engineering	AE121	Engineering Mechanics
AV111	Basic Electrical Engineering	AV121	Basic Electronics Engineering
HS111	Communication Skills I	HS121	Communication Skills II
PH131	Physics Lab I	PC141	Physics and Materials Science Lab
CH131	Chemistry Lab	AE141	Engineering Graphics
AE131	Basic Engineering Lab	AV141	Basic Electrical and Electronics Engineering Lab
HS131	Communication Skills Lab I	HS141	Communication Skills Lab II
SEMESTER III (21 CREDITS)		SEMESTER IV (21 CREDITS)	
Code	Course Title	Code	Course Title
MA211	Linear Algebra, Numerical Analysis, and Transforms	MA221	Partial Differential Equations, Calculus of variations and Complex Analysis
AE211	Engineering Thermodynamics	AE221	Gas Dynamics
AE212	Mechanics of Solids	AE222	Heat Transfer
AE213	Fluid Mechanics	AE223	Kinematics and Dynamics of Mechanisms
AE214	Manufacturing Technology I	AE224	Metrology and Computer Aided Inspection
ES211	Introduction to Space Science and Applications	HS221	Introduction to Social Science and Ethics
HS211	Introduction to Economics	MA241	C Programming Lab
AE231	Machine Drawing	AE241	Thermal and Fluid Lab
AE232	Strength of Materials Lab		
SEMESTER V (21 CREDITS)		SEMESTER VI (23 CREDITS)	
Code	Course Title	Code	Course Title
MA311	Probability and Statistics	AE321	Atmospheric Flight Mechanics
AE311	Aerodynamics	AE322	Spaceflight Mechanics
AE312	Aerospace Structures I	AE323	Air-Breathing Propulsion
AE313	Manufacturing Technology II	AE324	Aerospace Structures II
AV315	Instrumentation and Control Systems	E01	Elective I
CH311	Environmental Science and Engineering	HS321	Principles of Management Systems

# DEPARTMENTS IN IIST

AE331	Aerodynamics Lab	AE341	Aerospace Structures Lab
AE332	Metrology Lab	AE342	Manufacturing Processes Lab
AV335	Instrumentation and Control Systems Lab	AE343	Modeling and Analysis Lab
<b>SEMESTER VII (24 CREDITS)</b>		<b>SEMESTER VIII (15 CREDITS)</b>	
<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
AE411	Rocket Propulsion	AE453	Comprehensive Viva-Voce II
AE412	Aerospace Vehicle Design	AE454	Project Work
E02	Elective II		
E03	Elective III		
E04	Elective IV		
E05	Institute Elective		
AE431	Flight Mechanics and Propulsion Lab		
AE451	Summer Internship and Training		
AE452	Comprehensive Viva-Voce I		
<b>Elective Courses</b>			
<b>Sl No.</b>	<b>Code</b>	<b>Course Title</b>	
1.	AE461	Advanced Aerodynamics	
2.	AE462	Advanced Aerospace Structures	
3.	AE463	Advanced Fluid Mechanics	
4.	AE464	Advanced Heat Mechanics	
5.	AE465	Advanced Propulsion Systems	
6.	AE466	Structural Dynamics and Aeroelasticity	
7.	AE467	Analysis and Design of Composite Structures	
8.	AE468	Computational Fluid Dynamics	
9.	AE469	Computer Integrated Manufacturing	
10.	AE470	Design of Aerospace Structures	
11.	AE471	Convection Heat Transfer	
12.	AE472	Experimental Aerodynamics	
13.	AE473	Finite Element Method	
14.	AE474	Fracture Mechanics	
15.	AE475	Engineering Vibration	
16.	AE476	Industrial Engineering	
17.	AE477	Fundamentals of Combustion	
18.	AE478	Supply Chain Management	
19.	AE479	Introduction to Optimization	
20.	AE480	Nontraditional Machining	
21.	AE481	Operations Research	
22.	AE482	Project Management	
23.	AE483	Robot Mechanisms and Motion Planning	
24.	AE484	Space Mission Design and Optimization	
25.	AE485	Quality Engineering and Management	
26.	AE486	Refrigeration and Cryogenics	
27.	AE489	Aerospace Materials and Processes	
28.	AE491	Structural Dynamics	
29.	AE493	Introduction to Robotics	

# DEPARTMENTS IN IIST

## M.TECH. IN AERODYNAMICS AND FLIGHT MECHANICS

SEMESTER I (18 CREDITS)		SEMESTER II (18 CREDITS)	
Code	Course Title	Code	Course Title
AE601	Mathematical Methods in Aerospace Engineering	AE605	Flight dynamics and control
AE602	Elements of Aerospace Engineering	AE606	Spaceflight mechanics
AE603	Aerodynamics	E02	Elective ii
AE604	Atmospheric Flight Mechanics	E03	Elective iii
AE613	Compressible flow	E04	Elective iv
AE614	Advanced Heat Transfer	AE801	Aerodynamics and flight Mechanics Lab
		AE851	Seminar
SEMESTER III (17 CREDITS)		SEMESTER IV (18 CREDITS)	
Code	Course Title	Code	Course Title
AE607	Aerospace Vehicle Design	AE853	Project Work – Phase II
E05	Elective V		
AE852	Project Work – Phase 1		

### Elective Courses

Sl No	Code	Course Title
1	AE821	Experimental Aerodynamics
2	AE822	Aeroacoustics
3	AE823	Hypersonic Aerothermodynamics
4	AE824	Turbulence in Fluid Flows
5	AE825	Advanced Computational fluid dynamics
6	AE826	Navigation Guidance and Control
7	AE827	Optimal Control Theory
8	AE828	Space Mission Design
9	AE829	Multi-disciplinary Design Optimization

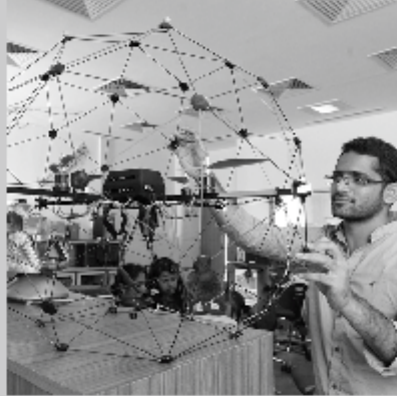
## M.TECH. IN THERMAL AND PROPULSION

SEMESTER I (18 CREDITS)		SEMESTER II (17 CREDITS)	
Code	Course Title	Code	Course Title
AE601	Mathematical Methods in Aerospace Engineering	AE615	Aerospace Propulsion
AE602	Elements of Aerospace Engineering	E01	Elective I
AE611	Advanced Fluid Mechanics	E02	Elective II
AE612	Fundamentals of Combustion	E03	Elective III
AE613	Compressible Flow	E04	Elective IV
AE614	Advanced Heat Transfer	AE802	Thermal and Propulsion Lab
		AE851	Seminar



# DEPARTMENTS IN IIST

SEMESTER III (17 CREDITS)		SEMESTER IV (18 CREDITS)	
<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
E05	Elective V	AE853	Project Title – Phase II
AE852	Project Work – Phase I		
<i>Elective Courses</i>			
<b>Sl No.</b>	<b>Code</b>	<b>Course Title</b>	
1	AE812	Cryogenic Engineering	
2	AE813	Computational Fluid Dynamics	
3	AE814	Turbomachines	
4	AE815	Boiling and Condensation	
5	AE816	Hypersonic Air- Breathing Propulsion	
6	AE817	Measurements in Fluid and Thermal Sciences	
7	AE818	Microscale and Nanoscale Heat Transfer	
8	AE819	Shockwave Dynamics	
9	AE820	Two-Phase Flow and Heat Transfer	
<b>M.TECH. IN STRUCTURES AND DESIGN</b>			
SEMESTER I (17 CREDITS)		SEMESTER II (17 CREDITS)	
<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
AE601	Mathamatical Methods in Aerospace Engineering	AE619	Fracture Mechanics and fatigue
AE602	Elements of Aerospace Engineering	AE620	Advanced Finite Element Method
AE616	Aerospace Structural Mechanics	AE621	Mechanics of Composite Materials
AE617	Structural Dynamics	E01	Elective-I
AE618	Finite Element Methods	E02	Elective-II
		AE803	Aerospace Structures Lab
		AE851	Seminar
SEMESTER III (18 CREDITS)		SEMESTER IV (70 CREDITS)	
<b>Code</b>	<b>Course</b>	<b>Code</b>	<b>Course Title</b>
AE852	Project Work-Phase I	AE853	Project Work – Phase II
AE607	Aerospace Vehicle Design		
E03	Elective III		
<i>Elective Courses</i>			
<b>Sl. No.</b>	<b>Code</b>	<b>Course Title</b>	
1	AE831	Continuum Mechanics	
2	AE832	Introduction to Robotics	
3	AE833	Multi-rigid body dynamics	
4	AE834	Aerospace Materials and Processes	
5	AE835	Energy Methods in Structural Mechanics	
6	AE836	Molecular Dynamics and Materials Failure	
7	AE846	Aeroelasticity	



## DEPARTMENT OF AVIONICS

An Aspirant of Avionics, the student encompasses tasks related to designing and programming electrical systems on board spacecraft, aircraft and satellites. The work role requires providing computer system support for all communication, navigation and guidance systems and performs testing to ensure that those systems are working properly.

The Department of Avionics at the Institute was established in the year 2007 and it offers a four year B.Tech. in Avionics and 2 years M.Tech. programme in

- RF & Microwave Engineering
- Digital Signal Processing
- Control System
- VLSI & Microsystems

And Ph.D Programmes, which gives technical exposure in the broad areas of Avionics Engineering such as:

- Digital System Design
- Digital Communication
- RF & Microwave Engineering
- VLSI Design
- Navigation
- Guidance and Control, Computer Technology
- Power Electronics

The department provides Ph.D. programme in various disciplines of Avionics like Electronics, Electrical Engineering and Computer Science.

The quality and reliability of electronics used in Aerospace vehicles and Space applications, in general, have to meet the stringent requirements of space environments for prolonged duration.

The academic programme in Avionics Department emphasizes deeper stress to fundamentals and greater thrust to enhance research ability to undertake challenges in the field of electronics and communication required for Space Vehicle Applications.

Main vision of the Department is to generate human resource with substantial knowledge, skills, and experience in the area of Avionics Engineering at the graduate, postgraduate and Ph.D. level. It is also envisaged to undertake futuristic research in areas related to Space Science and Technology which can feed to ISROs and other relevant industries programmes at suitable juncture. With this in mind, a well organized academic and research programme supported with lab facilities comparable with the world class institutions is planned to achieve excellence in particular to the field of Space Science and Technology and to meet the national requirements in the field of Science and Technology.

# DEPARTMENTS IN IIST

The Department has excellent lab facilities and state-of-art software tools for VLSI design for front end back end design, CAD software for design of analog circuits, Microwave Circuits and Components with the tie up for fabrication of devices at various foundries which provide good opportunity to the students and researchers to learn, design and innovate. The department provides access to the various laboratories of ISRO and other relevant industries through Internships and Projects for students to get hands on experience with some of the challenging works for space programmes.

A full-fledged Virtual reality Laboratory to stimulate a real life environment for Space Science and Research is also being established.

## LABORATORY FACILITIES (DEPT. OF AVIONICS)

- Basic Electronics Lab
- Basic Electrical Lab
- Analog Electronics Lab
- ECAD Lab
- Digital Electronics Lab
- RF & Microwave Lab
- Micro Processor Lab
- Digital Communication Lab
- Digital Signal Processing Lab
- Instrumentation and Measurement Lab
- Control System Lab
- Power Electronics Lab
- Computer Networks Lab
- VLSI Lab
- Navigation Systems and Sensor Lab

## THRUST AREAS OF RESEARCH

- Fault Tolerant Systems
- Adaptive Control Systems
- Robotics
- Virtual Instrumentation & Smart Systems
- Virtual reality and 3D image processing
- Power Electronics
- Smart Sensors and Networking
- MIMO OFDM Communication Systems
- Micro-Nano Electronics
- Micro-Electro Mechanical Systems (MEMS)
- Microwave Circuits and Antennas
- Signal Processing

## FACULTY PROFILE (DEPT. OF AVIONICS)

**Selvaganesan N.**

Head & Associate Professor

Email: n\_selvag@iist.ac.in, Phone(Off): 0471-2568456, Fax: 0471-2568406

Education: Ph.D.

Area of Research: System identification and control, Fault detection and control, Fractional order control

**Anindya Dasgupta**

Assistant Professor

Email: anindyadgupta@iist.ac.in, Fax: 0471-2568406

Education: Ph.D., IIT Kanpur

Area of Research: Modelling and control of Power Electronic systems

**Basudeb Ghosh**

Assistant Professor

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Education: Ph.D., IIT Roorkee

Area of Research: Computational Electromagnetics, Fractal Electromagnetics, Waveguide Passive Components, Aperture Antennas, Frequency Selective Surfaces (FSS), Electromagnetic Band Gap (EBG) structures, Substrate Integrated Waveguide (SIW), Rocket thrust chamber cooling, Film cooling applications

**Bidhan Pramanick**

Assistant Professor

Email: bidhan.pramanick@iist.ac.in, Phone(Off) : 0471-2568417, Fax: 0471-2568406

Education: Ph.D, IIT Kharagpur

Area of Research: RF MEMS devices for micropropulsion, Bio-MEMS, C-MEMS, Nano material based Sensors

**Chinmoy Saha**

Assistant Professor

Email: chinmoysaha@iist.ac.in, Phone(Off) : 0471-2568496, Fax : 0471-2568406

Education: Ph.D., University of Calcutta

Area of Research: Planar Microwave circuits and systems, Split Ring Resonators and their applications, Engineered Left Handed Materials, Metamaterial, Printed Antennas, Ultra Wide band (UWB) antennas

**Chris Prema S.**

Reader

Email: chrisprema@iist.ac.in, Phone(Off) : 0471-2568441, Fax : 0471-2568406

Education: M. E., Govt. College of Technology Coimbatore

Area of Interest: Multirate Signal Processing, Digital Communication

# DEPARTMENTS IN IIST



## **Deepak Mishra**

Associate Professor

Email: deepak.mishra@iist.ac.in, Phone(Off) : 0471-2568424, Fax : 0471-2568406

Education: Ph.D., IIT Kanpur

Area of Research: Machine learning, Computer vision and Graphics, Image processing, Artificial neural networks, Biometrics, Soft Computing, Computational Neuroscience, Nonlinear Dynamics, Intelligent controls and instrumentation, Embedded Systems



## **Harsha Simha M S**

Assistant Professor

Email: harshasimhams@iist.ac.in, Phone(Off) : 0471-2568411, Fax : 0471-2568406

Education: Ph.D., IIT Bombay

Area of Research: Non-linear dynamics and control



## **Lakshmi Narayanan R.**

Assistant Professor

Email: lakshminarayanan@iist.ac.in, Phone(Off) : 0471-2568446, Fax : 0471-2568406

Education : Ph.D., IIT Madras

Area of Research: Adaptive Signal Processing, Estimation theory



## **Manoj B. S.**

Associate Professor, Avionics

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Education: Ph.D., IIT Madras

Area of Research: Computer Networks, Internet, Internet Security, Next Generation Internet, Wireless Networks, Ad hoc wireless networks, Wireless Mesh Networks, Cognitive Networks, Sensor Networks, Giant Scale Computing, and Future Networked Systems



## **Palash Kumar Basu**

Assistant Professor

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Education: Ph.D., Jadavpur University Kolkata

Area of Research: Nanotechnology based Gas Sensor, Mass spectrometer, Bio Sensor, and Flexible Electronics



## **Priyadarshnam**

Assistant Professor

Email: priyadarshnam@iist.ac.in, Phone (Off) : 0471-2568426 Fax : 0471-2568406

Education: Ph.D., IIT Bombay

Area of Research: Control Systems Theory, Linear Complementarity Systems

# DEPARTMENTS IN IIST



**Rajeevan P. P.**

Assistant Professor

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Education: Ph.D., IISc Bangalore

Area of Research: Power Electronics-Power Converters, PWM Techniques, Multiphase drives, Power quality and renewable energy



**Rajesh Joseph Abraham**

Assistant Professor

Email: rajeshja@gmail.com, Phone(Off) : 0471-2568443, Fax : 0471-2568406

Education: Ph.D., IIT Kharagpur

Area of Research: Power System Control, Control Theory and Applications



**Sam Zachariah**

Adjunct Professor

Email: samzac@iist.ac.in, Phone(Off) : 0471-2568432, Fax : 0471-2568406

Education: M.Tech., IIT Bombay

Area of Research: Autonomous locomotion control of Biped Humanoid Robot



**Sanjeev Kumar Mishra**

Assistant Professor

Email: sanjeevkmishra@iist.ac.in, Phone(Off) : 0471-2568431, Fax : 0471-2568406

Education: Ph.D., IIT Bombay

Area of Research: Antenna Design, Microwave Remote Sensing, RF/Microwave Measurements



**Seena V.**

Assistant Professor

Email: seena.v@iist.ac.in, Phone(Off) : 0471-2568471, Fax : 0471-2568406

Education: Ph.D., IIT Bombay

Area of Research: MEMS/NEMS Sensors, Organic Electronics



**Sheeba Rani J**

Assistant Professor

Email: sheeba@iist.ac.in, Phone(Off): 0471-2568425, Fax: 0471-2568406

Education: Ph.D., Anna University Chennai

Area of Research: Computer Vision and pattern recognition, Image analysis and Understanding, Design and performance evaluation of hardware solutions for signal and image processing techniques

# DEPARTMENTS IN IIST



## Vanidevi M.

Reader

Email: vani@iist.ac.in, Phone(Off): 0471-2568447, Fax: 0471-2568406

Education: M.E., REC Trichy

Area of Research: Robust code book design, MIMO signal processing, OFDM, Wireless communication, Signal processing

## CURRICULUM (DEPT. OF AVIONICS)

### B.TECH. IN AVIONICS

#### SEMESTER I (21 CREDITS)

Code	Course Title
MA111	Calculus
PH111	Physics I
CH111	Chemistry
AE111	Basic Mechanical Engineering
AV111	Basic Electrical Engineering
HS111	Communication Skills I
PH131	Physics Lab I
CH131	Chemistry Lab
AE131	Basic Engineering Lab
HS131	Communication Skills Lab I

#### SEMESTER II (22 CREDITS)

Code	Course Title
MA121	Vector Calculus and Differential Equations
PH121	Physics II
CH121	Materials Science
AE121	Engineering Mechanics
AV121	Basic Electronics Engineering
HS121	Communication Skills II
PC141	Physics II and Materials Science Lab
AV141	Engineering Graphics Basic Electrical and Electronics Engineering Lab
HS141	Communication Skills Lab II

#### SEMESTER III (21 CREDITS)

Code	Course Title
MA211	Linear Algebra, Numerical Analysis and Transforms
AV211	Analog Electronic Circuit
AV212	Semi Conductor Devices
AV213	Signal and Systems
AV214	Electromagnetic and Wave Propagation
HS212	Introduction to Social Science and Ethics
MA231	C Programming Lab
AV231	Analog Electronics Circuit Lab
AV232	E-CAD Lab

#### SEMESTER IV (23 CREDITS)

Code	Course Title
MA221	Partial Differential Equations, Calculus of Variation and Complex Analysis
AV221	Digital Electronics and VLSI Design
AV222	Microprocessor and Microcontrollers
AV223	RF and Microwave Communication
AV224	Computer Organization and OS
HS222	Introduction to Economics
AV241	Digital Electronics Lab
AV242	VLSI Design Lab
AV243	Microprocessor and Microcontroller Lab
AV244	RF and Microwave Communication Lab



# DEPARTMENTS IN IIST

SEMESTER V (22 CREDITS)		SEMESTER VI (19 CREDITS)	
Code	Course Title	Code	Course Title
MA311	Probability and Statistics	AV321	Computer Networks
AV311	Digital Signal Processing	AV322	Power Electronics
AV312	Digital Communication	AV323	Radar Systems
AV313	Control and Guidance Systems	E01	Elective I
AV314	Instrumentation and Measurement	ES322	Introduction to Space Science and Applications
CH311	Environmental Science and Engineering	HS321	Principles of Management Systems
AV331	Digital Signal Processing Lab	AV341	Computer Networks Lab
AV332	Digital Communication Lab	AV342	Power Electronics Lab
AV333	Control and Guidance Lab		
AV334	Instrumentation and Measurement Lab		
SEMESTER VII (22 CREDITS)		SEMESTER VIII (15 CREDITS)	
Code	Course Title	Code	Course Title
AV411	Navigation Systems and Sensors	AV453	Comprehensive Viva-Voce II
E02	Elective II	AV454	Project Work
E03	Elective III		
E04	Elective IV		
I01	Institute Elective		
AV431	Navigation Systems and Sensors Lab		
AV451	Summer Internship and Training		
AV452	Comprehensive Viva-Voce I		
Elective Courses			
Sl. No.	Code	Course Title	
1	AV461	Advanced Control Theory	
2	AV462	Embedded Systems and Real Time OS	
3	AV463	Soft Computing	
4	AV464	Advanced DSP and Adaptive Filter	
5	AV465	Robust and Optimal Control	
6	AV466	Estimation and Stochastic Theory	
7	AV467	Introduction to Optimization and OR	
8	AV468	Digital Control System	
9	AV469	EMI/EMC	
10	AV470	Digital Image Processing	
11	AV471	VLSI Design	
12	AV472	Opto-Electronics and Fiber Optics Communication	
13	AV473	Information Theory and Coding	
14	AV474	Cryptography	

# DEPARTMENTS IN IIST

15	AV475	Mobile Communication
16	AV476	Microwave Integrated Circuits
17	AV477	Antenna Engineering
18	AV478	Satellite Communication
19	AV479	Computer Graphics
20	AV480	Graph Theory and OR
21	AV481	Modern Algebra and Tensors
22	AV482	Data Structure and DBMS
23	AV483	Software Engineering
24	AV484	Wireless Mesh Network
25	AV485	Microelectronics and Microsystem Technologies
26	AV486	Antenna Active and Passive
27	AV487	Virtual Reality

## M.TECH. IN RF AND MICROWAVE ENGINEERING

### SEMESTER I (17 CREDITS)

Code	Course Title
AVR611	Advanced Electromagnetic Engineering
AVR612	Microwave Circuits and Systems
AVR613	Microwave Semiconductor Devices
MA615	Advanced Engineering Mathematics
AVR631	Microwave Circuit Lab

### SEMESTER II (18 CREDITS)

Code	Course Title
AVR621	Antenna Theory and Design
AVR622	Computational Methods for Electromagnetics
E01	Elective I
E02	Elective II
AVR641	Antenna Design Lab
AVR851	Seminar

### SEMESTER III (15 CREDITS)

Code	Course Title
E03	Elective III
AVR852	Project Work – Phase 1

### SEMESTER IV (20 CREDITS)

Code	Course Title
AVR853	Project Work – Phase II

### Elective Courses

Sl No.	Code	Course Title
1	AVR861	RF IC Microwave MEMS
2	AVR862	Millimeter Wave Integrated Circuits
3	AVR863	RF Packaging And Electromagnetic Compatibility
4	AVR864	Adaptive And Smart Antennas
5	AV4865	Phased Array Antennas
6	AVR866	Satellite Communication
7	AVR867	Optoelectronics And Fiber Optic Communication
8	AVR868	Wireless Channels And UWB Radios
9	AVR869	Remote Sensing
10	AVR870	Mobile Communication

# DEPARTMENTS IN IIST

## M.TECH. IN DIGITAL SIGNAL PROCESSING

### SEMESTER I (17 CREDITS)

Code	Course Title
AVD611	Advanced Signal Analysis and Processing
AVD612	Mathematical Methods for Signal Processing
AVD613	DSP in Digital Communication
AVD614	Pattern Recognition and Machine Learning
AVD615	Image and Video Processing
AVD631	Digital Communication Lab
AVD632	Image and Video Processing Lab

### SEMESTER II (18 CREDITS)

Code	Course Title
AVD621	Statistical Signal Processing
AVD622	Digital Signal Processors For Real Time Applications
E01	Elective I
E02	Elective II
AVD641	DSP Hardware Lab
E03	Elective III

### SEMESTER III (15 CREDITS)

Code	Course Title
AVD851	Seminar
AVD852	Project Work – Phase I

### SEMESTER IV (18 CREDITS)

Code	Course Title
AVD853	Seminar II
AVD854	Project Work – Phase II

### Elective Courses

Sl No:	Code	Course Title
1	AVD861	Speech Signal Processing and Coding
2	AVD862	Information Theory And Coding
3	AVD863	Soft Computing And Its Application In Signal Processing
4	AVD864	Computer Vision
5	AVD865	Multimedia Processing Lab Courses
6	AVD866	Virtual Reality

## M.TECH. IN CONTROL SYSTEMS

### SEMESTER I (19 CREDITS)

Code	Course Title
AVC611	Mathematics for Control
AVC612	Linear Control System
AVC613	Digital Control and Embedded Systems
AVC614	Principles of Feedback Control
E01	Elective I
E02	Elective II
AVC631	Digital Control and Embedded Systems lab

### SEMESTER II (15 CREDITS)

Code	Course Title
AVC621	Optimal Control Systems
AVC622	Non Linear Dynamical Systems
AVC623	Robust Control Design
E03	Elective III
E04	Elective IV

# DEPARTMENTS IN IIST

## SUMMER PROJECT (Summer Vacation, 3 Credits) SEMESTER III (18 CREDITS)

Code	Course Title	Code	Course Title
AVC851	Design Project	AVC852	Seminar
		AVC853	Project Work – Phase I

## SEMESTER IV (18 CREDITS)

Code	Course Title
AVC853	Project Work – Phase II

### Elective Courses

Sl No.	Code	Course Title
1	AVC861	Introduction to Robotic Systmes
2	AVC862	Mobile Robotics and Visual Servoing
3	AVC863	Adaptive Control
4	AVC864	Modelling of Launch Vehicle and Space Craft Dynamics
5	AVC865	Machine Learning and Control
6	AVC866	Fractional Calculus and Control
7	AVC867	Optimization
8	AVC868	Geometric Approach to Mechanics and Control
9	AVC869	System Identification and Parameter Estimation
		Open Elective From DSP related to Filtering
		Open Elective from Aerospace Engineering related to Space and Flight Mechanics

## M.TECH. IN VLSI & MICROSYSTEMS

### SEMESTER I (16 CREDITS)

Code	Course Title
AVM611	Physics of Micro and Nanoelectronic Devices
AVM612	Introduction to Micro Electro Mechanical Systems (MEMS)
AVM613	Analog VLSI Circuits
AVM614	Digital VLSI Circuits
AVM631	VLSI Design Lab

### SEMESTER II (18 CREDITS)

Code	Course Title
AVM621	Mixed Signal VLSI Design
AVM622	Micro/Nano Fabrication Technology
E01	Elective I
E02	Elective II
AVM641	MEMS Lab
AVM642	Microelectronics Lab
AVM851	Seminar
AVM852	Comprehensive Viva

### SEMESTER III (18 CREDITS)

Code	Course Title
E03	Elective III ( Self Study)
AVM853	Project Work – Phase I

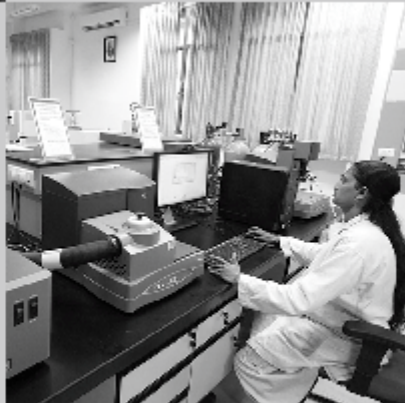
### SEMESTER IV (18 CREDITS)

Code	Course Title
AVM854	Project Work – Phase II

# DEPARTMENTS IN IIST

## *Elective Courses*

<b>Sl.</b>	<b>Code</b>	<b>Course Title</b>
1	AVM861	RF MEMS
2	AVM862	High Frequency VLSI Circuits
3	AVM863	Thin films: Materials and characterization
4	AVM864	VLSI Digital Signal Processing
5	AVM865	MEMS Integration
6	AVM866	Sensors and Actuators
7	AVM867	Power Semiconductor Devices
8	AVM868	Compound Semiconductor Devices and Technology
9	AVM869	EDA Principles and Practices
10	AVM870	Micro Fluids & Bio MEMS
11	AVM871	Testing and Verification of VLSI Circuits



# DEPARTMENTS IN IIST

## DEPARTMENT OF CHEMISTRY

The Department of Chemistry was established on September 5th, 20017, with four faculty members, which now grades up to 10 faculty members on roll.

The Department is offering Chemistry courses and Elective courses for B.Tech. and also offers M.Tech. in Material Science and Technology.

The Department has also started a Centre for Advanced Research in Nanoscience and Technology.

The Department promotes interdisciplinary and interdepartmental research activities. At present, the Department is having collaborations with various premier institutions in the country.

## LABORATORY FACILITIES (DEPT. OF CHEMISTRY)

- General Chemistry Lab
- Inorganic Chemistry Lab
- Nanoscience and Technology Lab
- Organic Chemistry Lab
- Physical Chemistry Lab
- Chemical Engineering Lab
- Polymer Processing Lab
- Material Characterization Lab

## FACULTY PROFILE (DEPT. OF CHEMISTRY)



### **Kuruvilla Joseph**

Dean (Student Activities), Sr. Professor & Head

Email: kuruvilla@iist.ac.in, Phone(Off) : 0471-2568501, Fax : 0471-2568541

Education: Ph.D., RRL, CSIR, Thiruvananthapuram, in collaboration with School of Chemical Sciences, Mahatma Gandhi University, Kottayam

Area of Research: Polymer based micro and nanocomposites, Synthesis of polymers from natural resources, Green materials and bio-composites, Commingled Polymer composite systems, Polymer-Polymer microfibrillar composites, Ageing and degradation



### **Gomathi. N**

Assistant Professor

Email : gomathi@iist.ac.in, Phone(Off) : 0471-2568534, Fax : 0471-2568541

Education: Ph.D., IIT, Kharagpur

Area of Research: Plasma Surface Modification, Surface functionalization of polymers, Enhancement of bio and blood compatibility, Biosensor, Nanocomposite



### **Honey John**

Associate Professor

Email: honey@iist.ac.in, Phone(Off) : 0471-2568536, Fax : 0471-2568541

Education: Ph.D., CUSAT, Cochin

Areas of Research: Polymer Synthesis, Nanomaterials and Composites for electronic and photonic applications, Nano conducting polymers and Hybrids for DSSC applications

# DEPARTMENTS IN IIST



## **Jobin Cyriac**

Assistant Professor

Email : jobincyriac@iist.ac.in, Phone(Off) : 0471-2568535, Fax : 0471-2568541

Education: Ph. D., IIT, Madras

Area of Research: Ion/surface interaction, Preparative mass spectrometry, Ice chemistry, Surface science |Instrumentation



## **Mahesh S**

Inspire Faculty

Email: maheshs@iist.ac.in, Phone(Off): 0471-2568537, Fax: 0471-2568541

Education: Ph.D., NIIST, Thiruvananthapuram (Affiliated to CUSAT)

Areas of Research: Functional Nanomaterials, Self-assembly and Scanning Probe Microscopy, Nanosystems for Biomedicine



## **Mary Gladis. J**

Assistant Professor

Email: marygladis@iist.ac.in, Phone(Off): 0471-2568533, Fax : 0471-2568541

Education: Ph.D., NIIST, Thiruvananthapuram

Area of Research: Inorganic and Nanomaterials for energy storage, surface coatings and sensing applications, Molecularly imprinting technology, Preconcentration/ separation, Trace analysis



## **Nirmala Rachel James**

Associate Professor

Email: nirmala@iist.ac.in, Phone(Off): 0471-2568538, Fax: 0471-2568541

Education: Ph.D., University of Pune

Area of Research: Step growth polymers, Polymers for medical applications, Hydrogels and nanofibers for tissue engineering, nanogels for drug delivery applications



## **Prabhakaran, K.**

Associate Professor

Email: prabhakaran@iist.ac.in, Phone(Off): 0471-2568535, Fax: 0471-2568541

Education: Ph.D., RRL, Thiruvananthapuram

Areas of Research: Surface chemistry and ceramic powder dispersions, Advanced ceramic powder processing technologies, Porous ceramics and ceramic foams, Synthesis of nanocrystalline ceramic powders, Porous carbon materials



## **Sandhya K. Y.**

Associate Professor

Email: sandhya@iist.ac.in, Phone(Off): 0471-2568537, Fax : 0471-2568541

Education: Ph.D., RRL, Thiruvananthapuram

Areas of Research: Liquid Crystalline Polymers, Nonlinear Optical Polymer, Biomaterials for Tissue Engineering, Dye Sensitized/Organic Solar Cells, Self Assembled Materials



# DEPARTMENTS IN IIST



## Sreejalekshmi, K. G.

Assistant Professor

Email: sreeja@iist.ac.in, Phone(Off): 0471-2568539, Fax: 0471-2568541

Education: Ph.D., Univ. of Kerala

Area of Research: Synthetic Organic Chemistry, Combinatorial Chemistry for material development, Dendrimer synthesis and applications, Drug delivery systems, Drug discovery, Peptide-based scaffolds for regenerative medicine, Supramolecular assemblies

## CURRICULUM (DEPT. OF CHEMISTRY)

### M.TECH. IN MATERIALS SCIENCE AND TECHNOLOGY

#### SEMESTER I (20 CREDITS)

Code	Course Title
CHM611	Fundamentals of Materials Science
CHM612	Polymer Science and Engineering
CHM613	Mathematical Modeling and Simulation
CHM614	Materials Characterisation Techniques
E01	Elective I
CHM631	Polymer Science and Materials Characterization Lab
CHM632	Modeling and Simulation Lab

#### SEMESTER II (18 CREDITS)

Code	Course Title
CHM621	Processing and Design of Materials
CHM622	Nanomaterials
CHM623	Composites Science and Technology
E02	Elective 2
E03	Elective 3
CHM641	Composite/Processing Lab
CHM642	Nanomaterials Lab
CHM643	Mini Project/Seminar

#### SEMESTER III (15 CREDITS)

Code	Course Title
CHM711	Energy Storage and Energy Conversion Materials Project Work – Phase I
CHM851	Literature Survey, Presentations, Phase 1 of experimental work *Prerequisite for project-audited courses(s)

#### SEMESTER IV (18 CREDITS)

Code	Course Title
CHM852	Project Work – Phase 2 Experimental work, Data Analysis and Dissertation, Viva-voce.

### Elective Courses

Sl No.	Code	Course Title
1	CHM861	Transport Processes
2	CHM862	Soft Materials
3	CHM863	Corrosion and Degradation
4	CHM864	Chemical Rocket Propellants
5	CHM865	Thin Films and Surface Engineering
6	CHM866	Mechanical Behavior of Materials
7	CHM867	Biomaterials
8	CHM868	Advanced Characterization Techniques
9	CHM869	Materials for Extreme Environment
10	CHM870	Smart and Intelligent Materials
11	CHM871	Electronic, Photonic and Magnetic Materials

# DEPARTMENTS IN IIST



# DEPARTMENTS IN IIST

## DEPARTMENT OF EARTH AND SPACE SCIENCES

The Earth & Space Sciences is the youngest department of the institute. The department is inter-disciplinary in nature, bridging gaps between technology and its application to fundamental research areas in physical sciences.

At IIST, Earth & Space Sciences spearheads the task of undergraduate teaching in B. Tech Physical Sciences.

In addition, the Earth & Space Sciences department offers post-graduate programs in Earth System Science, Geoinformatics and Astronomy & Astrophysics. These post-graduate specializations uniquely combine practical, theoretical and computational work with prominence to research.

The research activity of the faculty in the department covers:

- Atmospheric Science
- Geology
- Remote Sensing
- Astronomy & Astrophysics

The Astronomy group of the Department is pursuing observational and theoretical work in diverse areas of Astrophysics including understanding the mechanism of Star Formation, the Physics of Compact Objects and the physical conditions of gas in galaxies and the Intergalactic medium.

The Atmospheric Science group in Earth System Science's Research thrust is to better understand Aerosol-Cloud Interaction and its subsequent effect in climate as well as to improve the prediction and enhance the understanding of weather systems through assimilation of satellite observations in regional mesoscale models.

The Geology Group in Earth System Science focuses on Planetary Geosciences, carrying out field and laboratory work on terrestrial sites that are close analogues of Lunar and Martian Terrains.

The Remote Sensing Group work on many areas including Synthetic Aperture Radar image processing for retrieving Geophysical Parameters, Geospatial Technologies for Coastal Zone Management, Image Restoration, Transform based Profilometry and 3-D shape extraction and also the development of Novel Image Classification Algorithms.

## LABORATORY FACILITIES

Currently the Department possesses the following labs with state-of-the-art facilities.

- Astronomy lab
- Atmospheric Science Lab
- Geology Lab
- Remote Sensing Lab

# DEPARTMENTS IN IIST

## FACULTY PROFILE (DEPT. OF EARTH AND SPACE SCIENCES)



### **Chandrasekar A.**

Registrar and Dean (Academics), Sr. Professor & Head

Email: chandra@iist.ac.in, Phone(Off): 0471-2568503, Fax: 0471-2568406

Education: Ph.D., IISc, Bangalore

Area of Research: Numerical modeling of the atmosphere, data assimilation, mesoscale modeling, regional climate modeling



### **Anandmayee Tej**

Associate Professor

Email: tej@iist.ac.in, Phone(Off): 0471-2568524, Fax: 0471-2568406

Education: Ph.D., Physical Research Laboratory, Ahmedabad

Area of Research: High Angular resolution astronomy, AGB stars and Mira variables, High mass star formation, Stellar population studies



### **Anand Narayanan**

Associate Professor

Email: anand@iist.ac.in, Phone(Off) : 0471-2568518, Fax : 0471-2568406

Education : Ph.D., Pennsylvania State University, USA

Research Areas : Physical conditions of gas in galaxies and inter-galactic medium



### **Gnanappazham L.**

Assistant Professor

Email: gnanam@iist.ac.in, Phone(Off): 0471-2568528, Fax: 0471-2568406

Education: Ph.D., M. S. Swaminathan Research Foundation, University of Madras

Area of Research: Application of Remote sensing and GIS technologies in Natural Resources management and special focus on Coastal Zone and Mangrove management



### **Govindan Kutty M.**

Assistant Professor

Email: govind@iist.ac.in, Phone(Off) : 0471-2568540, Fax : 0471-2568406

Education: Ph.D., IIT Kharagpur

Area of Research: NASA New Investigator Program, NOAA The Observing System Research and Predictability Experiment



### **Gorthi R. K. S. S. Manyam**

Assistant Professor

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Education: Ph.D., IIT, Madras

Area of Research: Image restoration, denoising, inpainting, stereo vision, particle filters, fluid flow estimation with Ensemble Kalman filters and its weighted variants, transform based profilometry and 3-D shape extraction

# DEPARTMENTS IN IIST



## **Jagadheep D.**

Assistant Professor

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Education: Ph.D., Cornell University, USA

Area of Research: Observational astronomy, High-mass star formation, Astrochemistry, Astronomical masers, Galactic Structure, Radio Astronomy Instrumentation



## **Rajesh V. J.**

Assistant Professor

Email : rajeshvj@iist.ac.in, Phone(Off) : 0471-2568522, Fax : 0471-2568406

Education: Ph.D., Yokohama National University, Japan

Area of Research: Planetary Geoscience, Minerology, Igneous Petrology, Geochemistry, Stable and Radio Active Isotopes, Geology, Geochronology



## **Poompavai V.**

Assistant Professor

Email: poompavai@iist.ac.in, Phone(Off) : 0471-2568527, Fax : 0471-2568406

Education: Ph.D., College of Engineering(Guindy), Anna University Chennai

Area of Research: Microwave remote sensing/SAR Data Processing



## **Resmi Lekshmi**

Assistant Professor

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Education: Ph.D., IISc, Bangalore

Area of Research: High Energy Astrophysics, Radiation processes in astrophysical contexts, Relativistic sources, X-ray and gamma-ray astronomy



## **Rama Rao Nidamanuri**

Associate Professor

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Education: Ph.D., IIT, Roorkee

Area of Research: Hyperspectral Remote Sensing, Integrated Assessment Modelling (Forest and Agro-ecological Systems), Rapid Remote Sensing (UAV borne), Spectral Library Search Methods, digital image processing, reflectance spectroscopy



## **Ramiya A. M.**

Reader

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Education: M.S., University of Southampton, UK

Area of Research: LiDAR Remote sensing, Atmospheric Correction, Object oriented Classification, Sub Pixel Classification, Hyperspectral Remote Sensing

# DEPARTMENTS IN IIST



## Samir Mandal

Associate Professor

Email: samir@iist.ac.in, Phone(Off) : 0471-2568520, Fax : 0471-2568406

Education: Ph.D. Indian Centre for Space Physics, Kolkata

Area of Research: Accretion physics; studies of radiation spectrum of galactic as well as extra-galactic black hole systems; Gamma ray bursts; Background simulation for X-ray detectors



## Sarita Vig

Associate Professor

Email: sarita@iist.ac.in, Phone(Off) : 0471-2568525, Fax : 0471-2568406

Education: Ph.D., Tata Institute of Fundamental Research, India

Area of Research: Star formation, Embedded Galactic clusters associated with massive stars, Interstellar medium, Galactic structure, Complex molecules in star forming regions



## Venkata Ramana M.

Associate Professor

Email: ramana.iist@gmail.com, Phone(Off) : 0471-2568526, Fax : 0471-2568406

Education: Ph.D. (from Space Physics Laboratory, VSSC) awarded by M.G. University, Kottayam

Area of Research: Aerosol-Radiation-Cloud-Climate; Atmospheric Boundary Layer; Climate Change; Unmanned Aircraft Vehicle (UAV) as research platform; miniaturized instrumentation

## CURRICULUM (DEPT. OF EARTH AND SPACE SCIENCES)

### B.TECH. IN PHYSICAL SCIENCES

#### SEMESTER I (21 CREDITS)

#### SEMESTER II (22 CREDITS)

Code	Course Title	Code	Course Title
MA111	Calculus	MA121	Vector Calculus and Differential Equations
PH111	Physics I	PH121	Physics II
CH111	Chemistry	CH121	Materials Science
AE111	Basic Mechanical Engineering	AE121	Engineering Mechanics
AV111	Basic Electrical Engineering	AV121	Basic Electronics Engineering
HS111	Communication Skills I	HS121	Communication Skills II
PH131	Physics Lab I	PC141	Physics and Materials Science Lab
CH131	Chemistry Lab	AE141	Engineering Graphics
AE131	Basic Engineering Lab	AV141	Basic Electrical and Electronics Engineering Lab
HS131	Communication Skills Lab I	HS141	Communication Skills Lab II

# DEPARTMENTS IN IIST

SEMESTER III (22 CREDITS)		SEMESTER IV (21 CREDITS)	
Code	Course Title	Code	Course Title
MA211	Linear Algebra, Numerical Analysis and Transforms	MA221	Partial Differential Equations, Calculus of Variations and Complex Analysis
PH211	Optics and Electromagnetic Waves	PH221	Modern Optics
PH212	Mathematical Physics	PH222	Classical Mechanics
RS211	Remote Sensing and Applications	ES221	Earth System Science
AV215	Computer Organization and DBMS	AV225	Measurements and Instrumentation
HS211	Introduction to Economics	HS221	Introduction to Social Science & Ethics
MA231	C Programming Lab	PH241	Optics Lab
PH231	Optics Lab I	ES241	Earth System Science Lab
RS231	Remote Sensing	AV245	Measurements and Instrumentation Lab
SEMESTER V (20 CREDITS)		SEMESTER VI (23 CREDITS)	
Code	Course Title	Code	Course Title
MA311	Probability and Statistics	PH321	Statistical Mechanics
PH311	Quantum Mechanics	PH322	Atomic, Molecular and Nuclear Physics
ES311	Atmospheric and Ocean Sciences	RS321	Pattern Recognition
AP311	Introduction to Astronomy and Astrophysics	ES321	Introduction to Space Vehicles
AV321	Digital Signal Processing	E01	Elective I
CH311	Environmental Science and Engineering	E02	Elective II
Ph331	Computational Physics Lab	E03	Elective III
Av331	Digital Signal Processing Lab	PH341	Modern Physics Lab
		Es341	Astronomy Lab
SEMESTER VII (21 CREDITS)		SEMESTER VIII (15 CREDITS)	
Code	Course Title	Code	Course Title
Hs411	Principles of Management Systems	PS453	Comprehensive Viva-Voce Project Work
E04	Elective IV	Ps454	
E05	Elective V		
E06	Elective VI		
I01	Institute Elective		
ES431	Earth and Space Science Lab		
PS451	Summer Internship and Training		
Ps452	Comprehensive Viva-Voce I		

# DEPARTMENTS IN IIST

<i>Elective Courses</i>					
Sl.No	Course Code	Course Title	Earth System Science	Astrophysics and Planetary Sciences	Remote Sensing
1	Es461	Atmospheric Structure, Dynamics and Air-Sea Interaction	Yes	N/A	N/A
2	Es462	Solid Earth and its Dynamics	Yes	N/A	N/A
3	Es463	Biosphere and Hydrosphere	Yes	N/A	N/A
4	Es464	Gas Dynamics	Yes	Yes	N/A
5	Es465	Numerical Weather Prediction and Modeling	Yes	N/A	N/A
6	Es466	Earth Observation from Space	Yes	N/A	N/A
7	Es467	Solar Terrestrial Relations	Yes	N/A	N/A
8	Es468	Estimation and Stochastic Process	Yes	Yes	Yes
9	Es469	Astronomical Techniques	N/A	Yes	N/A
10	Es470	Radiation Process in Astrophysics	N/A	Yes	N/A
11	Es471	Structure and Evolution of Stars	N/A	Yes	N/A
12	Es472	Cosmology and Astro Biology	N/A	Yes	N/A
13	Es473	Diffused Matter in Space	N/A	Yes	N/A
14	Es474	High Energy Astrophysics	N/A	Yes	N/A
15	Es475	Galaxies (Structure, Dynamics and Evolution)	N/A	Yes	N/A
16	Es476	Solar System Science	N/A	Yes	N/A
17	Es477	Image Interpretation and Digital Image Processing	N/A	N/A	Yes
18	Es478	Optical Sensors	N/A	N/A	Yes
19	Es479	Geographic Information System	N/A	N/A	Yes
20	Es480	Introduction to Photogrammetry	N/A	N/A	Yes
21	Es481	Microwave Remote Sensing	N/A	N/A	Yes
22	Es482	Cartography and Navigation	N/A	N/A	Yes
23	Es483	Data Archival and Mining	N/A	N/A	Yes
24	Es484	Quantitative Methods in Remote Sensing	N/A	N/A	Yes
25	Es485	Physics of Stars	N/A	Yes	N/A
26	Es486	Planetary Geosciences	Yes	N/A	N/A
27	Es487	LIDAR Remote Sensing	N/A	N/A	Yes
28	Es488	Climate Change	Yes	N/A	N/A
29	Es489	Tropical Meteorology	Yes	N/A	N/A
30	Es490	Universe in a Nutshell	N/A	Yes	N/A
31	Es491	Introduction to Planetary Geoscience	N/A	Yes	N/A
32	Es492	Processing of Satellite Remote Sensing Data	N/A	N/A	Yes
33	Es493	Hyperspectral Remote Sensing	N/A	N/A	Yes
34	Es494	General Relativity and Cosmology	N/A	Yes	N/A



# DEPARTMENTS IN IIST

## M.TECH. IN EARTH SYSTEM SCIENCES

### SEMESTER I (17 CREDITS)

Code	Course Title
ESE611	Physical and Dynamic Meteorology
ESE612	Physical and Dynamical Oceanography
ESE613	Earth Resources and Tectonic Systems
ESE614	Atmospheric Radiation and Climate
ESE615	General Circulation and Monsoon
ESE631	Observational Techniques Lab I
ESE632	Earth System Science Lab II

### SEMESTER II (21 CREDITS)

Code	Course Title
E01	Elective I
E02	Elective II
E03	Elective III
E04	Elective IV
E05	Elective V
ESE641	Elective Lab I
ESE642	Elective Lab II
ESE651	Seminar – I
ESE652	Comprehensive Viva

### SEMESTER III (14 CREDITS)

Code	Course Title
ESE653	Self Study & Seminar
ESE654	Project Work – Phase I

### SEMESTER IV (18 CREDITS)

Code	Course Title
ESE655	Project Work – Phase II

### Elective Courses

Sl No.	Code	Course Title
1	ESE661	Numerical Weather Prediction
2	ESE662	Planetary Geosciences
3	ESE663	Aerosol Cloud-Climate Interaction
4	ESE664	Air-Sea Interaction
5	ESE665	Satellite Meteorology and Oceanography
6	ESE666	Boundary Layer Meteorology
7	ESE667	Polar Science

## M.TECH. IN GEOINFORMATICS

### SEMESTER I (18 CREDITS)

Code	Course Title
ESG611	Introduction to Remote Sensing
ESG612	Geographic Information System
ESG613	Satellite based Navigation and Positioning
MA612	Applied Statistics
MA613	Data Mining
ESG631	Remote Sensing Lab
ESG632	Geographic Information System Lab
Ma632	Data Mining Lab

### SEMESTER II (17 CREDITS)

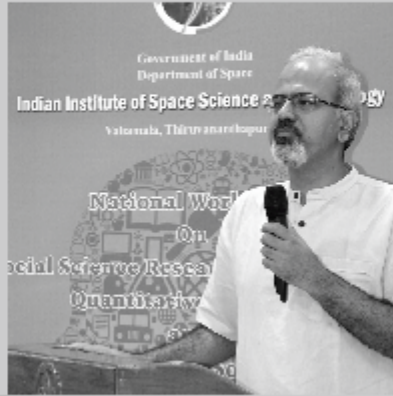
Code	Course Title
ESG621	Image Interpretation and Digital Image Processing
ESG622	Analysis and Modelling of Geospatial Data
ESG623	Microwave Remote Sensing
E01	Elective – 1
E02	Elective – 2
ESG641	Digital Image Processing Lab
ESG642	Microwave Remote Sensing Lab

# DEPARTMENTS IN IIST

SEMESTER III (16 CREDITS)			SEMESTER IV (18 CREDITS)		
<b>Code</b>	<b>Course Title</b>		<b>Code</b>	<b>Course Title</b>	
E03	Elective – 3		ESG653	Project Work – Phase II	
ESG651	Project Work – Phase I		ESG654	Seminar – II	
ESG652	Seminar I				
<b>Elective Courses</b>					
<b>Sl No.</b>	<b>Code</b>	<b>Courses</b>			
1	ESG671	Advanced GIS(GIS related course)			
2	ESG672	Pattern Recognition (interdisciplinary course)			
3	ESG973	Quantitative Methods in Remote Sensing (application oriented remote sensing course)			
4	ESG974	Photogrammetry (analog and digital photogrammetry course)			
5	ESG675	Hyperspectral Image Processing and Analysis (satellite image analyses course)			
6	ESG676	LIDAR Remote Sensing (GIS related course)			
<b>M.S. IN ASTRONOMY AND ASTROPHYSICS</b>					
SEMESTER I (15 CREDITS)			SEMESTER II (14 CREDITS)		
<b>Code</b>	<b>Course Title</b>		<b>Code</b>	<b>Course Title</b>	
ESA611	Introduction to Astronomy and Astrophysics		ESA621	General relativity and Cosmology	
ESA612	Astronomical Techniques		E01	Elective I	
ESA613	Radiation Processes in Physics		E02	Elective II	
PH618	Experimental and Computational Techniques		ESA641	Observational Astronomy Lab	
ESA631	Data Analysis Astronomy Lab		ESA651	Seminar	
Ph635	Experimental and Computational Lab		ESA652	Comprehensive Viva - Voce	
SEMESTER III (21 CREDITS)			SEMESTER IV (20 CREDITS)		
<b>Code</b>	<b>Course Title</b>		<b>Code</b>	<b>Course Title</b>	
ESA653	Self-Study Elective with Seminar		ESA655	Project Work-Phase II (Continuous assessment, Report, Seminar, Mid-Term and endterm)	
ESA654	Project Work-Phase I (Continuous assessment, Report, Seminar, Mid-Term and end term)				
<b>Elective courses</b>					
<b>Sl. No.</b>	<b>Code</b>	<b>Course Title</b>			
1.	ESA661	Structure and Evolution of Stars			
2.	ESA662	Gas Dynamics			
3.	ESA663	Diffuse Matter in Space			

# DEPARTMENTS IN IIST

4.	ESA664	High Energy Astrophysics
5.	ESA665	Estimation and Stochastic Processes
6.	ESA666	Galaxies (Structures, Dynamics and Evolution)
7.	ESA667	Solar System Science
8.	ESA668	Formation of Stars and Planets
9.	ESA669	Advanced Astronomical Imaging
10.	ESA670	Radiation Hydrodynamics
11.	ESA671	Accretion Physics
12.	ESA672	High Redshift Universe
13.	ESA673	Polarization in Astronomy
14.	ESA674	High Resolution Spectroscopy
15.	ESA675	Time Domain Astronomy
16.	ESA676	Exoplanets & Astrobiology
17.	ESA677	Physics of the Sun



# DEPARTMENTS IN IIST

## DEPARTMENT OF HUMANITIES

The Department of Humanities firmly believes in developing interpersonal communication between teachers and students as well as creating an environment that will synergistically link scientific developments and thoughts to enhance the socio-economic, linguistic, managerial and humanistic development of the country. It aims to build communication and managerial skills and also develop an awareness regarding various issues concerning society thus bringing in an all-encompassing and holistic development of the students.

Communication exercises have been introduced into the curriculum which covers visual, oral and written communication that ensures mirror expectations and best practices which make them stand uniquely and approachable any time. The study of Humanities at IIST also intend to enrich the engineering students to open up their mind for understanding the human, ethical and socio-economic problems faced by the country and the world, at large.

A solid grounding in the Humanities tends to expand individual consciousness, creating better human beings capable of managing difficult situations. Whether politically conservative, liberal, or independent, the study of Humanities leads the students to the development of thought and catapults one's understanding of why things are the way they are and how to successfully communicate or express his thoughts in the proper degree.

The Department instills the importance of responsible and sensitive global citizenship, through cultural self-reflection, ethical reasoning and historical understanding of one's relevance and positioning at the certain chronological axes of history. The Department of Humanities, empower young scientists, thinkers, and students with historical, social, economic and cultural thinking, impart communication and management skills to help them become good Indian citizens to serve the country and live a life rich in high intellectual acumen.

The doctoral program which the department offers in Economics, English, Management and Sociology is also highly sought after by students from all over the country.

The Department of Humanities plays a major role in the outreach programmes of the institute. It act as a liasoning body between the society and the institute. The department believe that youth is the time that epitomizes involvement, volunteerism and creative contribution. It would help students design activities that would enliven the campus as well as contribute to personality development. While the department intends to harness the innate potential and channelize the unspent energies and infuse more student initiatives on campus it would also help the students to contribute significantly to the society. The department thus intends to mould a group of men and women for others.

IIST@Schools is one such regular program of the department. This Workshop was intended for students of the VIII and IX Std. The objectives of the proposed workshop

were to bridge the perceptible gap between the pursuit of science and the fulfillment of societal needs and aspirations and to motivate and inspire the participants to look at science as way of life and to acquaint them with the achievements and challenges of the Indian Space Programme. The department has also adopted a neighboring village for community work – to test some models of development. The students are also trained in such a manner to help the people of the vicinity by developing their technical competency.

The Department has established an Audio Visual Lab in 2012-13. It is intended to create audio and video modules, study materials, to create content generation for lectures (both online and offline), documentaries, etc, by the faculty members, the students and the administrative fraternity of the institute. Following are few intended functional application areas where the studio will be utilized :

- a. As a tool of Audio Visual Lab for Enhancing Communication Skills
- b. Creating Content for various ISRO centres
- c. Content Development and Materials Development for lectures
- d. Recording of Interviews, talks of Dignitaries, etc.

## LABORATORY FACILITIES (DEPT. OF HUMANITIES)

- ☞ Audio Visual Lab
- ☞ Language Lab

## FACULTY PROFILE (DEPT. OF HUMANITIES)



### **Raju K. George**

Dean (Student Welfare), Sr. Professor & Head

Email: rkg.iist@gmail.com, Phone(Off): 0471- 2568504, Fax: 0471-2568406

Education: Ph.D., IIT, Bombay

Area of Research: Functional Analysis, Mathematical Control Theory, Soft Computing, Industrial Mathematics



### **Babitha Justin**

Reader

Email: babitha@iist.ac.in, Phone(Off): 0471-2568445, Fax: 0471-2568406

Education: Ph.D., University of Hyderabad

Area of Research: Post colonial and Women's Studies, Travel Writing and Photography, European Literature, Culture Studies, Visual Art and the Ontology of 20th Century English Poetry and Music, Studies in Indigenous Tribes and Cultures

# DEPARTMENTS IN IIST



## **Gigy J. Alex**

Reader

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Education: Ph.D., Mahatma Gandhi University

Area of Research: Resistance Literature, Comparative Literature, Culture Studies, Genre and gender studies, Post Colonial Writing, Indian English literature, Science Fiction, Black American and Native American Literature



## **Lekshmi V. Nair**

Associate Professor

Email: [lvnair@iist.ac.in](mailto:lvnair@iist.ac.in), Phone (Off): 0471-2568457, Fax: 0471-2568406

Education: Ph.D., University of Kerala

Area of Research: Gerontology, Social Research, Gender Studies, PLA, Science Technology and Society



## **Ravi. V**

Associate Professor

Email: [ravi@iist.ac.in](mailto:ravi@iist.ac.in), Phone(Off): 0471-2568442, Fax: 0471-2568462

Education: Ph.D., IIT, Delhi

Areas of Research: Reverse Logistics, Supply Chain Management, Operations Management, New Product Development, Quantitative Modeling, Multi-criteria decision making, etc., Heuristics for maximization of system reliability



## **Shaijumon C. S.**

Reader

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Education: Ph. D., University of Kerala

Area of Research (Economics): Technology, innovation and economic development, Space Economics, Indian economics, Development economics, Agricultural Issues, International trade, WTO and Globalization issues, Infrastructure, Governance and Regional economics





# DEPARTMENTS IN IIST

## DEPARTMENT OF MATHEMATICS

The Department of Mathematics was started in the year 2007, at the inception of IIST.

The Department offers courses at Undergraduate, Post Graduate and Doctoral levels. At the Undergraduate level, five papers are offered as core courses and three as Institute Electives for all the three B.Tech Programmes.

A two year M.Tech programme in Machine Learning and Computing is being run by the Department. A Mathematics core paper is included in the course work of the Ph.D programme across the Science and Engineering Departments. There are six full-time and one part-time research scholars in the Department.

At present, there are eleven faculty members, working in the following research areas:

- Mathematical Theory of Control, Functional Analysis, Soft Computing
- Suspension Rheology and Time Series Analysis
- Partial Differential Equations
- Differential Geometry and Applications
- Stochastic Modelling and Analysis
- Computational Fluid Dynamics
- Finite Element Method
- Numerical Analysis
- Commutative Algebra
- Machine Learning, Data Mining, Bioinformatics, Signal Processing
- Stochastic Process and Differential Equations, Control Theory

## LABORATORY FACILITIES

1. Programming Lab
2. High Performance Computing Lab
  - 10 High-End Work Stations
  - Quad Core Processor with 72 GB RAM, 4GB NVIDIA Graphic Card Memory and 30 inch LCD Monitor

## FACULTY PROFILE (DEPT. OF MATHEMATICS)



### **Raju K. George**

Dean (Student Welfare), Sr. Professor & Head

Email: rkg.iist@gmail.com, Phone(Off): 0471- 2568504, Fax: 0471-2568406

Education: Ph.D., IIT, Bombay

Area of Research: Functional Analysis, Mathematical Control Theory, Soft Computing, Industrial Mathematics

# DEPARTMENTS IN IIST



## **Anil Kumar C. V**

Associate Professor

Email: anil@iist.ac.in, Phone (Off): 0471-2568511, Fax: 0471-2568406

Education: Ph.D., CUSAT, Cochin

Area of Research: Suspension Rheology., Time series analysis



## **Deepak T. G.**

Associate Professor

Email: deepak@iist.ac.in, Phone (Off): 0471-2568516, Fax: 0471-2568406

Education: Ph.D., CUSAT, Cochin

Area of Research: Stochastic Modelling: Queueing Theory queueing network models



## **Kaushik Mukherjee**

Assistant Professor

Email: kaushik@iist.ac.in, Phone(Off): 0471-2568517, Fax: 0471-2568406

Education: Ph.D., IIT Guwahati

Area of Research: Finite Difference and Finite Element methods for Singularly Perturbed Problems, Numerical Techniques for Parabolic PDEs, Multi-Scale Problems



## **Natarajan E.**

Assistant Professor

Email: thanndavam@iist.ac.in, Phone (Off): 0471-2568515, Fax: 0471-2568406

Education: Ph.D., IIT, Chennai

Area of Research: Finite element methods, Computational fluid dynamics, Recent interest includes higher order FEM and compact difference schemes



## **Prosenjit Das**

Assistant Professor

Email: prosenjit.das@iist.ac.in, Phone(Off): 0471-2568517, Fax: 0471-2568406

Education: Ph.D., Indian Statistical Institute, Kolkata

Area of Research: Epimorphism problems, Cancellation problems, Affine forms, Affine fibrations, Locally Nilpotent Derivations and allied areas



## **Sakthivel Kumarasamy**

Inspire Faculty

Email: sakthivel@iist.ac.in, Phone(Off): 0471-2568515, Fax: 0471-2568406

Education: Ph.D., Bharathiar University, Coimbatore

Area of research: Partial Differential Equation, Stochastic Processes and Differential Equations, Search and Detection, Control Theory, Inverse Problems, Fluid Dynamics

# DEPARTMENTS IN IIST



## Sabu N.

Associate Professor

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Education: Ph.D., Institute of Mathematical Sciences, Chennai

Area of Research: Partial Differential Equations, Homogenization, Finite Element Method



## Sarvesh Kumar

Assistant Professor

Email: rajputsarvesh@gmail.com, Phone (Off): 0471-2568514, Fax: 0471-2568406

Education: Ph.D., IIT, Bombay

Area of Research: Computational Partial Differential Equations, Finite Volume Element Methods, Finite Element Methods, Discontinuous Galerkin Methods



## Subrahmanian Moosath K. S.

Associate Professor

Email: smoosath@rediffmail.com, Phone (Off): 0471-2568512, Fax: 0471-2568406

Education: Ph.D., University of Hyderabad

Area of Research: Differential Geometry and Applications



## Sumitra S. Nair

Assistant Professor

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Education Ph.D., The University of Sheffield, UK.

Area of Research: Machine Learning, Data Mining, Bioinformatics, Chemoinformatics, Signal Processing

## CURRICULUM (DEPT. OF MATHEMATICS)

### M.TECH. IN MACHINE LEARNING AND COMPUTING

#### SEMESTER I (19 CREDITS)

Code	Course Title
MA611	Optimization Techniques
MA612	Applied Statistics
MA613	Data Mining
MA614	Matrix Computation
Ma616	Evolutionary and Natural Computing
Ma631	Software Lab 1

#### SEMESTER II (19 CREDITS)

Code	Course Title
MA621	Discrete Mathematics
MA622	Pattern Recognition and Machine Learning
Ma623	Computer Modeling and Simulation
E01	Elective – I
E02	Elective – II
Ma641	Software Lab II

# DEPARTMENTS IN IIST

SEMESTER III (14 CREDITS)		SEMESTER IV (18 CREDITS)	
<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
MA851	Seminar	Ma853	Project Work – Phase II
MA711	Self Study Course		
MA712	Comprehensive Viva		
Ma852	Project Work – Phase I		

<i>Elective Courses</i>		
Sl No.	Code	Course Title
1	MA861	Computer Vision and Image Processing
2	MA862	Artificial Neural Networks
3	MA863	Stochastic Differential Equations
4	MA864	Machine Learning for Control
5	MA865	Fuzzy Sets and Applications
6	MA866	Control Theory
7	MA867	Reinforcement Learning
8	MA868	Scientific Computing
9	MA869	Computational Optimization

# DEPARTMENTS IN IIST

## DEPARTMENT OF PHYSICS

The department of Physics at IIST was started in September 2007. The department offers as many as seven courses in the First year of B.Tech.(Physical Sciences) apart from two compulsory Physics Courses in the first year of B.Tech. and a two year M.Tech programmes in Optical Engineering and in Solid State Technology and also Ph.D. programme in various branches of Physics.

From the academic year 2012-2013 onwards, the Department of Physics has started two year (4 semester) full time M.Tech course in Optical Engineering and from the academic year 2013-2014, the Department started two year full time M.Tech course in Solid State Technology.

Apart from delivering world-class teaching guidance and imparting basic and applied Physics Concepts to both the undergraduates and Post-graduates, through theory and experiments, the main vision and goal of the Department is to contribute to the knowledge driven Technological and Development in fundamental and Applied Physics for Space Science and Technology.

The faculties of Physics Department specialize in

- Applied Optics
- Adaptive Optics
- Classical Optics
- Non-Linear Optics
- Lasers and Photonics
- Solid State Physics
- Atomic and Molecular Physics
- Theoretical Physics (Non-linear dynamics, Statistical Mechanics)

### LABORATORY FACILITIES

- Adaptive Optics Lab
- Atomic and Molecular Physics Lab
- Lasers and Photonics Lab
- Modern Physics Lab
- General Physics Lab
- Optics Lab
- Solid State Physics lab
- Computational Physics Lab

## FACULTY PROFILE (DEPT. OF PHYSICS)



### **Narayanamurthy C. S.**

Sr. Professor & Head

Email: murthy@iist.ac.in, Phone(Off): 0471-2568502, Fax : 0471-2568542

Education: Ph.D., IIT, Madras

Area of Research: Holography, Optical coherence, Non-linear photorefractive optics, Optical testing, Interferometry, Electromagnetic theory, Adaptive optics (optical imaging through turbulence medium)



# DEPARTMENTS IN IIST



## **Apoorva Nagar**

Assistant Professor

Email: apoorva.nagar@iist.ac.in, Phone(Off): 0471-2568545, Fax : 0471-2568542

Education: Ph.D., TIFR, Mumbai

Area of Research: Nonequilibrium statistical Mechanics, Biological Physics



## **Jayanthi**

Assistant Professor

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Education: Ph.D., IISc, Bangalore

Area of Research: Nuclear Magnetic Resonance



## **Jinesh K B**

Assistant Professor

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Education: Ph.D., Leiden University, Netherlands

Area of Research: Nano Electronics, Semiconducting/High-K materials for advanced CMOS technology, Solar and photo voltaic materials



## **Kuntala Bhattacharjee**

Assistant Professor

Email: kuntala.b@iist.ac.in, Phone(Off): 0471-2568431, Fax: 0471-2568542

Education: Ph.D., Institute of Physics, Bhubaneswar.

Area of Research: Semiconductor, metal nanostructures. Self-assembly by molecular beam epitaxy (MBE). Various scanning probe techniques. Study of low dimensional structures by scanning tunneling microscopy (STM) and scanning tunneling spectroscopy (STS).



## **Murugesh S.**

Associate Professor

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Education: Ph.D., Institute of Mathematical Sciences, Chennai

Area of Research: Nonlinear Dynamics & applications to condensed matter systems, Geometry & integrability, Solitons in condensed matter physics



## **Naveen Surendran**

Assistant Professor

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Education: Ph.D., Institute of Mathematical Sciences, Chennai

Area of Research: Condensed matter theory: quantum spin systems, topological order, effects of frustration, quantum dynamics

# DEPARTMENTS IN IIST



## **Pramod Gopinath**

Assistant Professor

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Education: Ph.D., CUSAT, Cochin

Areas of Research: Laser Produced Plasmas, Emission Spectroscopy, Nonlinear Optics



## **Rakesh Kumar Singh**

Assistant Professor

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Education: Ph.D., IIT, Delhi

Areas of Research interest: Singular optics (optical vortex), High numerical aperture focusing, Speckle, Polarization imaging Coherence & Stokes Holography



## **Solomon Ivan J.**

Assistant Professor

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Education: Ph.D., Institute of Mathematical Sciences, Chennai

Areas of Research interest: Quantum Information Theory, Quantum Optics, Classical Optics



## **Sudheesh C.**

Assistant Professor

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Education: Ph.D., IIT, Chennai

Area of Research: Theoretical Physics, Nonlinear Dynamics, Chaos, Quantum Information, Quantum Optics, Quantum Decoherence



## **Umesh R. Kadhane**

Associate Professor

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Education: Ph.D., TIFR, Mumbai

Area of Research: Atomic and Molecular Physics



# DEPARTMENTS IN IIST

## CURRICULUM (DEPT. OF MATHEMATICS)

### M.TECH. IN SOLID STATE TECHNOLOGY

#### SEMESTER I (16 CREDITS)

Code	Course Title
PH615	Electromagnetic Waves and Applications
PH616	Statistical and Quantum Physics
PH617	Solid State Physics
PH618	Experimental and Computational Techniques
PH635	Experimental and Computational Lab

#### SEMESTER II (16 CREDITS)

Code	Course Title
PH625	Solid State Physics and Electronics
PH626	Solid State Devices
E03	Elective I
E04	Elective 2
PH653	Seminar I

#### SEMESTER III (18 CREDITS)

Code	Course Title
PH755	Project Work – Phase I
PH756	Seminar II

#### SEMESTER IV (20 CREDITS)

Code	Course Title
PH757	Project Work-Phase II

#### Elective Courses

Sl No:	Code	Course Title
1	PH669	Laser Applications
2	PH682	Quantum Optical Communications
3	PH683	Atomic and Molecular Spectroscopy
4	PH684	Dynamical Systems and Chaos
5	PH685	Nonlinear Optics
6	PH686	Analytical Techniques
7	PH687	VLSI Technology
8	PH688	Optoelectronics
9	PH689	Semiconductor Heterostructures and Applications
10	PH690	Quantum Heterostructures
11	PH691	Semiconductor Devices in Radiation Detection and
12	PH692	Chaos and Nonlinearity in Control and Sensor
13	PH693	Analog and Digital Signal Processing of Fast Electronics
14	PH694	Electric and Magnetic Properties of Materials
15	PH695	Thin Films: Physics and Technology
16	PH696	Advanced Mathematical Techniques
17	PH697	Superconductivity and Applications
18	PH698	Magnetism and Resonance Spectroscopy
19	PH699	Fibre Optic Communication

# DEPARTMENTS IN IIST

## M.TECH. IN OPTICAL ENGINEERING

SEMESTER I (17 CREDITS)		SEMESTER II (18 CREDITS)	
Code	Course Title	Code	Course Title
PH611	Optics Engineering Fundamentals	PH621	Guided Wave Optics
PH612	Opto-Mechanical Design Analysis	PH622	Adaptive Optics
PH613	Optical Fabrication and Testing	PH623	Optical System Analysis and Design
PH614	Lasers and Optoelectronics	E01	Elective I
PH619	Fourier Optics	E02	Elective II
PH631	Optics and Optoelectronics Lab	PH641	Guided Wave Optics Lab
PH 632	Design and Analysis Lab	PH642	Adaptive Optics Lab
		PH651	Seminar
SEMESTER III (17 CREDITS)		SEMESTER IV (18 CREDITS)	
Code	Course Title	Code	Course Title
E03	Elective III	PH754	Project Work – Phase II
PH751	Project Work – Phase 1		
PH752	Comprehensive Viva		
<i>Elective Courses</i>			
Sl No.	Code	Course Title	
1	PH661	Optical Thin Films Science and Technology	
2	PH662	Optical and Electro Optical Sensors	
3	PH663	Integrated Optics	
4	PH664	Optical Communication	
5	PH665	Advanced Optoelectronics	
6	PH666	Statistical and Quantum Optics	
7	PH667	Nonlinear Optics	
8	PH668	Modern Optics	
9	PH669	Laser Applications	
10	PH670	Quantum Optical Communication	
11	PH671	Nano Optics	
12	PH672	Atomic and Molecular Spectroscopy	

# STUDENT ACTIVITIES

## MAIN INTER-DISCIPLINARY STUDENT PROJECTS

Students and Faculty at IIST get-together and work closely with ISRO scientists currently on two major areas:

### • Sounding Rocket Project

Vyom, a single stage sounding rocket capable of carrying a payload to an altitude of 10 to 15 km was successfully designed. The rocket motors for Vyom were made at the Rocket Propellant Plant of VSSC and successfully tested on ground. A payload was designed to monitor the acceleration, velocity and altitude of the rocket and it is being fabricated at VSSC. Computational Fluid Dynamics simulations were carried out to verify the aerodynamics data of the rocket.

### • Nano-Satellite Project

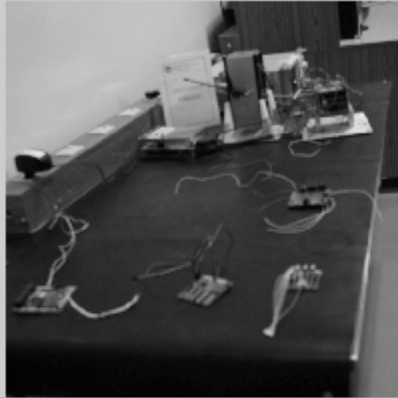
The students have conceived a 3-axis stabilized nano-satellite of mass less than 2 kilograms. The conceptual design of the satellite has been completed and the payload and components have been identified, based on the functional requirements and availability. The nano-satellite is proposed to be launched in a polar sun synchronous orbit of about 670 km altitude as a piggyback payload in the PSLV rocket.

The objective is to provide the students with knowledge and hands-on experience to work as a team in the design, development and building of space systems. These projects are executed on a continual basis with appropriate up gradation, implementing new ideas.

## CLUBS AT IIST

The major clubs functioning at IIST are

- Aeroclub Activities
- Music Club
- Dance Club
- Quiz Club
- Photography Club
- Performance and Digital Arts Club
- Food for Thought Forum
- Panacea – Club for Outreach Activities
- Aero Club
- Robotic Club
- Eco Club
- Astronomy Club



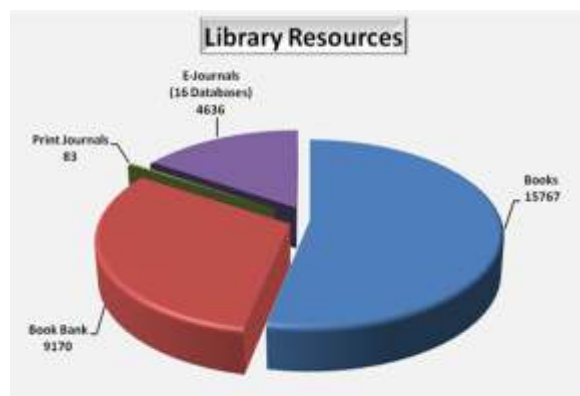
# FACILITIES AT IIST

## LIBRARY

The Library at IIST, housed in a six storey separate building, in beautiful surroundings on an elevated site at the centre of the Campus, offers a congenial environment for study and research facilities. It offers access for the teaching and student community. The Library which acts as a learning resource centre for teaching and research programmes is well equipped with learning resources, services and supporting infrastructure facilities. Most of the library services are being leveraged through an integrated library portal in an automated environment. The total collection of the library well exceeds 26637 books and provides a balanced collection of books, journals and e-resources covering all major subjects areas.

The Library Software has provision for making online suggestion for books/journals. The collection is based on the survey from Faculty and Students, under the guidance of Library Committee with representatives' drawn from all Departments and all sections of the students.

E-resources deployed in the Campus-wide network contains more than 4500 e-journals, hundreds of conference papers, standards, etc. The major e-resources are ACM Digital Library, AIAA, AIP, APS, Annual Reviews, ASME, Cambridge Online, IEL Online.



### KEY FEATURES OF THE LIBRARY AT IIST

1. Textbook Bank.  
The collection in the book bank is adequate to ensure that at least one textbook per course per student on loan for every semester.
2. Inter-Library Loan.  
Inter-Library Loan is arranged on request from VSSC and other ISRO Libraries.
3. Online Public Access Catalogue. (OPAC)  
An online catalogue of IIST Library deployed over the intranet. It's a finding tool, with many advanced features such as Boolean Search. Availability of a book can be checked in terms of the author, title, or dealing subject of the book.
4. Reprographic Facility.
5. Graphic Design and Central Binding Facility.



# FACILITIES AT IIST

## COMPUTER SYSTEMS GROUP (CSG) AT IIST

CSG provides the infrastructure for automation of all administrative functions, computerization of library operations including the development and upkeep support of the Open Library Management Software KOHA. CSG has tailored and developed a software exclusively for the smooth conduct of the B.Tech counseling and other admission processes.

### KEY FEATURES OF CSG AT IIST

1. Computing Facility: High performance cluster server having 3 Terra flop speed (32 HP Blade servers having 64 Dual Quad Processor). Storage – 1.20 TB SAN Storage with NAS Header. Tape Library with Back-up Software.
2. Campus Automation Servers: 8 Servers with 4CPU/Dual CPU High Performance.
3. Computing Lab: High-end Work Stations (Quad Core Processor with 72 GB RAM, 4 GB NVIDIA Graphic Card Memory and 30 inch LCD Monitor) installed with several advanced engineering and scientific software.
4. A programming lab for undergraduate students with 64 desktop computers and digital printers.
5. An internet lab for the use of undergraduate students with desktop computers and digital printers.

## IIST HOSTELS

Eleven hostels functioning in the campus, built based on contemporary architecture cater to the residential accommodation of students. Each of the hostel-block has well-ventilated rooms designed to accommodate students on single and double-occupancy basis. There are separate hostels for B.Tech, M.Tech. and Research Scholars and around 800+ students reside in the campus. Each hostel has provision of safe drinking water with hot and cold water dispensers, 24 hr uninterrupted power supply, housekeeping services, Wi-Fi internet facility, reading room with national and vernacular newspapers, indoor games facility, LCD television with satellite connection etc. and centralized gym facility with modern fitness equipments and laundry service provider.

## OTHER FACILITIES

- \* Two well equipped canteens giving prime importance to health and hygiene provide food to the students. There are separate canteens and counters for food of faculty members and staff.
- \* A private run cafeteria provides vegetarian and non vegetarian food to all till extended times.
- \* A stationery shop with essential commodities for students also functions as part of the cafeteria.





# FACILITIES AT IIST

- \* Medical facilities consists of a well equipped and twenty four hour functional Medical Centre with doctors and paramedical staff within the campus. It is well stocked with necessary medicines. A tie up also exists with one of the leading hospitals in the vicinity to provide medical services to the students. Accident Insurance coverage is available to all the students through this hospital. A fully equipped ambulance is always available in the campus.
- \* Sports facilities include indoor and out door badminton courts, volley ball and basket ball courts, cricket practice nets within the campus. A playground has been set up in the Institute property earmarked for residential complex well within the reach of the students. Two Physical Education Instructors have been engaged to support the students with training The students are also supported to represent the institute in outside sports meets .
- \* Health facilities in the form of most modern equipments have been provided in the full fledged gymnasium along with the services of trained instructors.
- \* A private run book store functioning in the campus meets the needs of the students in utilizing the book grant of B. Tech. Students along with their regular needs.
- \* Banking facilities are provide by a branch of Union Bank of India with ATM facility in the campus.



# COMPANY REGISTRATION

A company/R&D/Management, registers with the Placement Cell, through an online job portal for the purpose of placement and internship, by providing the company details and the purpose.



Indian Institute of Space Science and Technology  
Placement Cell

1. Name of the Company:
2. Website:
3. Address:
4. Contact Details

	Name	Designation	Mobile No:	Email ID
Contact Person 1				
Contact Person 2				
Contact Person 3				

## 5. Purpose (Internship/Placement/Placement & Internship)

5.1 Placement

M.Tech: Yes  No   
B.Tech: Yes  No

5.2 Internship

M.Tech: Yes  No   
B.Tech: Yes  No

SUBMIT

Upon registration, the Company will receive a Log-In ID and Password to input furthermore details. The Placement Cell will appropriately co-ordinate to take the process further.

**Kindly contact the Placement Cell at [placement@iist.ac.in](mailto:placement@iist.ac.in) or call to 0471-2568606, if you find any difficulty with the registration procedure.**