



INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
(Declared as Deemed to be University under section 3 of the UGC act 1956)
Government of India, Department of Space, Thiruvananthapuram – 695547

IIST Ph.D. Programme – July 2016 for Masters and Bachelors Degree holders

Indian Institute of Space Science and Technology envisions the integration of Space Technology and Space Science educational programs with basic and applied research for meeting the national R&D requirements of science and technology in general and of the Indian Space Programme in particular. The institute provides a vibrant research atmosphere and offers doctoral and postdoctoral programmes.

In the recent ‘National Institutional Ranking Framework (NIRF) – India Rankings 2016’ brought out by Department of Higher Education, Ministry of Human Resources Development, Government of India, IIST has been ranked as 8th among the Indian Universities.

Applications are invited from highly motivated applicants for admission to the Ph.D. Programme starting in July 2016, in the areas of Aerospace Engineering, Avionics, Earth and Space Sciences, Mathematics, Physics, Chemistry and Humanities.

Eligibility

Minimum Qualifications:

1. Applicants with Master’s Degree in Engineering/Technology

Applicants with Master’s Degree in Engineering / Technology must have secured first class or equivalent in the Master’s degree. **They must have pursued their Master’s degree on the basis of qualified GATE score.** Applicants with MS in Engineering or equivalent from leading foreign Universities with outstanding academic record (or) MS by Research with outstanding academic record can be considered without GATE. Applicants with Integrated Masters degree (or Dual Degree) in Engineering/Technology from IITs and IISc with minimum CGPA 9.0/10 can be considered without GATE.

2. Applicants with Master's Degree in Science

Applicants must have Master's Degree in the relevant area with first class or equivalent in their Master's degree. They must have qualified UGC/CSIR NET-JRF/JEST (or) GATE in the relevant disciplines.

3. Applicants with Master's Degree in Humanities

Applicants must have Master's Degree in the relevant area with first class or equivalent in their Master's degrees. They must have qualified UGC - NET Lectureship/JRF in the relevant disciplines.

4. Applicants with Bachelor's Degree in Engineering/Technology

Outstanding applicants with Bachelor's degree in Engineering with an excellent academic record and aptitude for research may be considered for direct admission to the Ph.D. Programme. Such applicants must have secured CGPA of 9.0/10 or better and a valid GATE score of 675 or better. B. Tech students from IITs with CGPA better than 9.0/10 do not require GATE.

Age Limit: Applicant should be below 28 years as on June 13, 2016. Age relaxation applicable as per Government Rules.

Nationality: Applicant should be an Indian citizen

Result awaited applicants in the final year/semester are also eligible to apply, if they have qualified for GATE/NET as required. Such applicants may be screened in for Test/Interview based on the marks obtained by them until the current year/semester. Based on their Test/Interview performance, these applicants may be provisionally selected subject to the condition that they have to produce the provisional certificate of obtaining the qualifying degree with required percentage of marks by the date stipulated in their provisional admission letter. If they fail to produce the provisional/ degree certificate by this date their admission offer will be withdrawn and the offer may be given to next eligible applicant in the waiting list.

In exceptional cases, a provisionally selected applicant may be allowed to join IIST without submitting the provisional/degree certificate on the stipulated date of joining, subject to the conditions that (a) At the time of joining the applicant should have completed all the requirements for the award of the qualifying degree including all examinations, project works and viva voce (b) The applicant should produce at the time of joining, a Course Completion Certificate issued by the competent authority in the University/Institute specifically confirming that all examinations, project works and viva voce for the qualifying degree are completed (c) If

the above condition is satisfied, the applicant can be given provisional admission with the undertaking that all pending certificates, mark sheets, degree certificates (Original or Provisional) will be submitted to IIST, latest by 31st October 2016, failing which the admission stands cancelled. For such applicants who are provisionally admitted to the IIST Ph.D. Programme as per (c) above, no fellowship is paid during the period before the required certificates are submitted. However, on regularization of admission following the submission of all required documents before the stipulated date, the applicant will be paid fellowship with retrospective effect from the date of joining.

Applicants who are employed in Government/Semi Government/PSUs/Autonomous Bodies need to produce a “No Objection Certificate (NOC)” from the current employer at the time of Interview.

Research Plan for July 2016 PhD Admission				
Sl. No.	Department	Department code	Research Area	Eligibility
1	Aerospace Engineering	AE/IIST/01	Modeling of turbulent, compressible, reacting flows/Heat transfer in reactive materials/ Microscale heat transfer	B.Tech. in Mechanical Engineering or equivalent and M.E./M.Tech. in Mechanical Engineering with specialization in Thermal Sciences/Thermal Engineering/ Propulsion Engineering/Energy Engineering/Heat Power Engineering or equivalent.
2	Aerospace Engineering	AE/IIST/02	Spaceflight Mechanics and Optimization	M.Tech./M.S. in Aerospace Engineering
3	Aerospace Engineering	AE/IIST/03	Structural Dynamics/ Vibration/Nonlinear Dynamics/Acoustics	M.Tech./M.S. in Machine Design/Machine Dynamics, Structural Engineering or allied branch in Mechanical/Applied Mechanics/Aerospace/Aeronautical/Civil Engineering, with B. Tech. in Mechanical/Applied Mechanics/Aerospace/Aeronautical/Civil Engineering
4	Aerospace Engineering	AE/IIST/04	Mechanics of Failure of Composites.	B.Tech. (Aerospace, Mechanical, Civil, allied); M.Tech. in Aerospace (structures), Machine Design, Engineering Mechanics, Structural Engineering and allied branches
5	Aerospace Engineering	AE/IIST/05	Aerospace Propulsion	M.E./M.Tech/MS or equivalent in Aerospace/Mechanical/Thermal/Chemical Engineering with background in Combustion or Propulsion research

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6	Aerospace Engineering	AE/IIST/06	Structural health monitoring/ Wave propagation in elastic media	ME/MTech or equivalent in Mechanical, Aerospace, Civil, Production Engineering or equivalent.
7	Aerospace Engineering	AE/IIST/07	Study of transient effects in compressible duct flows/Study of shock wave interaction and control	M.Tech/ME/MS with specialisation in Aerospace Engineering/Aeronautical Engineering/Thermal engineering/Mechanical Engineering/Chemical Engineering
8	Aerospace Engineering	AE/IIST/08	Experimental and theoretical investigations on precision/Hybrid manufacturing science and engineering	B.E./B.Tech. in Mechanical/Production/Automobile Engineering or equivalent M.E./M.Tech. in Manufacturing Technology/Manufacturing Engineering/CAD/CAM or equivalent
9	Aerospace Engineering	AE/IIST/09	Improved Nonlinear Finite Element Methods for analysis of curved conventional and piezoelectric beams/shells	M.Tech./M.S. in Mechanical/ Aerospace/ Civil Engineering with any specialization related to Structural Design and Analysis
10	Aerospace Engineering	AE/IIST/10	Combustion and propulsion	M.E./M.Tech/MS or equivalent in Aerospace/Mechanical/Thermal/Chemical Engineering with background in Combustion or Propulsion research
11	Aerospace Engineering	AE/IIST/11	Aerodynamics,/Fluid Dynamics/Computational Fluid Dynamics/Hypersonic Flow	M.Tech. Aerospace/Mechanical Engineering with background in Aerodynamics/Fluid Mechanics, CFD; M.Sc. Mathematics with background in Computational Fluid Dynamics
12	Aerospace Engineering	AE/IIST/12	Computational Fluid Dynamics	M.Tech./M.S. or equivalent in Mechanical/ Aerospace/Aeronautical/Chemical Engineering
13	Avionics	AV/IIST/01	Nanoscience and Nanotechnology for Sensor and Devices.	ME/M.Tech in Electrical Engineering or Electronics Engineering or Nanoscience and Nanotechnology or equivalent. The candidate should have good knowledge in SEMICONDUCTOR DEVICES

Sl. No.	Department	Department code	Research Area	Eligibility
14	Avionics	AV/IIST/02	Power Systems Control	B. Tech/BE in Electrical Engineering/ Electrical & Electronics Engineering or equivalent and M. Tech/ME in Control systems/ Power Systems or equivalent
15	Avionics	AV/IIST/03	Computational Intelligence Techniques for Video Analytics	First class B.Tech/BE in Electrical Engineering./ Electronics & Tele Communication/ Electronics & Communication/Computer Science/Electronics & Instrumentation or equivalent and ME/M.Tech in Digital Signal Processing/Computer Vision/Image Processing/Image Computing/Control Systems/Machine Learning /Computational Intelligence or related areas
16	Avionics	AV/IIST/04	Power Electronics	B.Tech/BE in Electrical and Electronics/ Electronics & Communication/Applied Electronics or equivalent and ME/M.Tech in Electrical Engineering/Power Electronics/ Industrial Electronics/ Power Systems or equivalent
17	Avionics	AV/IIST/05	Antenna Design, Microwave Circuits and System Design, RF/Microwave Measurements	ME/M.Tech/MS in RF and Microwave Engineering / Wireless Communication or equivalent in relevant areas with BE/B.Tech in Electronics and Communication Engineering or equivalent
18	Avionics	AV/IIST/06	Antenna design, Microwave circuits and systems, Computational Electromagnetics	ME/M.Tech/MS or equivalent in Microwave Engineering / Wireless Communication or equivalent in relevant areas with BE/B.Tech or equivalent in Electronics and Communication Engineering or equivalent. The candidate should have experience in simulation softwares like HFSS/CST Microwave studio
19	Avionics	AV/IIST/07	VLSI Signal Processing	ME/M. Tech in signal processing/ VLSI and embedded systems/ Digital Electronics or equivalent with BE/B. Tech in Electronics and Communication Engineering or equivalent
20	Chemistry	CH/IIST/01	Nanocomposites	M.Sc. in Chemistry/Nanoscience and allied fields/M.Tech in Polymer Technology/NanoTechnology and allied fields
21	Chemistry	CH/IIST/02	Design and Synthesis of Heterocycle-Dendrimer Conjugates for Theranostic Applications	M.Sc. in Chemistry or equivalent (Preferably with specialization in Organic Chemistry)

Sl. No.	Department	Department code	Research Area	Eligibility
22	Chemistry	CH/IIST/03	Materials for Energy storage and conversion	M.Sc. in Chemistry or equivalent
23	Earth and Space Science	ESS/IIST/01	Geology	MSc/MSc (Tech)/ME/M.Tech in Geology/Applied Geology or allied fields
24	Earth and Space Science	ESS/IIST/02	Atmospheric Sciences	M.Sc/ M.Tech/ME in Meteorology, Atmospheric Sciences, Earth System Sciences, Oceanography, Climate Sciences/Physics or equivalent
25	Earth and Space Science	ESS/IIST/03	Hyperspectral Remote Sensing Image Processing	M.Tech (Remote sensing / Geoinformatics or equivalent) / Digital image processing/ Digital signal processing (with specialization in image processing) or equivalent
26.	Earth and Space Science	ESS/IIST/04	Remote Sensing	ME/M. Tech / M. Sc degree in Remote sensing/ Remote sensing and GIS/ Geoinformatics/ related disciplines with courses on Remote sensing, Digital Image Processing and Geographic Information System. Note: Upon selection, the scholar is expected to do intensive field survey and collect data from the mangrove forests.
27	Earth and Space Science	ESS/IIST/05	Astronomy & Astrophysics	M.S./ M.Sc. in Physics, Astronomy & Astrophysics, Space Physics, Space Science, Space Science and Technology or equivalent / Integrated MS (Physics or equivalent)
28	Earth and Space Science	ESS/IIST/06	Astronomy & Astrophysics	M. Sc. in Physics or equivalent
29	Earth and Space Science	ESS/IIST/07	Astronomy & Astrophysics	M.S. in Astronomy & Astrophysics or equivalent/ M.Sc in Physics or equivalent
30	Earth and Space Science	ESS/IIST/08	Image Processing and Computer vision	B.Tech. in Electrical/ EEE/ ECE or related fields/ME/M.Tech./M.S/M.Sc. (Engg) in Electrical/Electronics/Computers/Signal Processing/Image computing/Machine learning or related fields..
31	Humanities	HU/IIST/01	Impact of Technology on Society, Problems of Marginalized groups	M.A. in Sociology/Social work or equivalent
32	Humanities	HU/IIST/02	Cultural Studies	M. A. in English Language and Literature/ Cultural Studies

Sl. No.	Department	Department code	Research Area	Eligibility
33	Mathematics	MA/IIST/01	Computational Partial Differential Equations	M.Sc. in Mathematics or equivalent / ME or M. Tech in Aerospace Engineering / Computer Science or equivalent
34	Mathematics	MA/IIST/02	Commutative Algebra and Applications to Affine Algebraic Geometry	M. Sc or MS in Mathematics or equivalent
35	Mathematics	MA/IIST/03	Machine Learning	ME or M. Tech/MSc or equivalent in Computer Science/ Electronics/ Electrical/Machine Learning and Computing/Mathematics/Statistics or in related areas
36	Mathematics	MA/IIST/04	Fluid Mechanics	M. Sc. in Mathematics / Applied Mathematics or equivalent.
37	Physics	PH/IIST/01	Holography for coherence waves	M.Sc. (Physics or Photonics or equivalent) /ME/ M.Tech. (Applied optics/ Photonics/ Optical Engineering or related areas)
38	Physics	PH/IIST/02	Electronic properties of Stanene	M.Sc.(Physics) or equivalent
39	Physics	PH/IIST/03	Solid State Nuclear Magnetic Resonance	M.Sc.(Physics), B.Tech.(Eng. Physics) or equivalent

RESEARCH FELLOWSHIP

1. Research Fellowships are as follows:

- For GATE and UGC/CSIR NET-JRF/JEST qualified students – Rs.25,000/- per month
- For UGC-NET Lectureship students – Rs.12,000/- per month

The fellowship will be enhanced based on a performance review after two years of Research.

2. The scholars will be required to assist the Departments in tutorials / practicals or related academic activities normally limited to 6 hours per week.
3. The scholars will have to pay fees and charges for the services provided by the Institute like boarding / lodging / medical facilities etc., as per IIST rules.

SELECTION PROCEDURE:

1. Applications will be received until **June 13, 2016** only through **on-line**.
2. From the eligible applicants, a short-listing will be done, taking into account their applicable GATE/NET scores. **Therefore applicants are advised to enter:**
 - **GATE score through which Master's Degree has been pursued;**
 - **Best GATE score if the applicant possesses more than one GATE score.**
3. List of short-listed applicants for written test or interview will be displayed in IIST website by **June 24, 2016**.
4. Depending on the number of applicants who have applied, the final selection is based on an interview, which will be conducted at IIST, Thiruvananthapuram during **July 18 - 22, 2016**. **In case of very large number of applicants being shortlisted for Ph.D. admission, a written test will be conducted for shortlisting applicants for the interview.**
5. Selected applicants will be intimated within a week after the final interview. Results will also be displayed in the IIST website on 27th of July, 2016.
6. Outstation applicants will be reimbursed to and fro sleeper class train fare/bus fare by shortest route from the place mentioned in the application to Thiruvananthapuram, or actual fare paid (whichever is less) for attending the interview. The applicants are advised to make their own arrangements for their stay at Thiruvananthapuram, at their cost.

HOW TO APPLY:

1. Applications shall be submitted **online** at the IIST website www.iist.ac.in. Applications received online only will be considered.
2. The applicants will not be allowed to make any changes in the profile registration once submitted. Hence utmost care should be taken by the applicant while filling the profile.
3. Application fee is to the extent of Rs. 250/- per Department code (for SC/ST/PWD and Women applicants - Rs.125/- per Department code). If the applicant is eligible and wishes to apply for more than one Department code, he/she has to submit the application and application fee for the respective Department codes separately. The application fee is non-refundable.
4. All the applicants have to bring the Bank challan copy of the respective Department code at the time of the interview as proof.
5. **Applicants who are employed in Government/Semi Government/PSUs/Autonomous Bodies need to produce a "No Objection Certificate (NOC)" from the current employer at the time of Interview.**
6. SC/ST/OBC/Persons with Disabilities (PWD) applicants shall upload in the website, the relevant certificate before the prescribed date.

IMPORTANT DATES		
Sl. No.	Event	Date
1	Opening of IIST website for online submission of applications	20.05.2016 (02 .00 PM)
2	Closing date for online submission of applications	13.06.2016
3	Last Date for Payment of application fee and uploading the challan	17.06.2016
4	Tentative date for display of shortlisted applicants in website for written test or interview	24.06.2016
5	Tentative Schedule of Interview	July 18-22, 2016
6	Tentative date for display of selected applicants (for admission) in IIST website	27.07.2016