**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 2015

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.

Applications are invited from highly motivated candidates for admission to the Ph.D. Programme starting in July 2015, in the areas of Aerospace Engineering, Avionics Engineering, Earth and Space Sciences, Mathematics and Physics.

**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. Candidates 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. Candidates with Integrated Masters degree (or Dual Degree) in Engg/Tech 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 (or) NET-Lectureship (or) GATE qualified in the relevant disciplines.

### 3. Applicants with Bachelor's Degree in Engineering/Technology

Outstanding candidates 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 candidates 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 12th May 2015. Age relaxation applicable as per Government Rules.

**Nationality:** Applicant should be an Indian citizen

Result awaited candidates in the final year/semester are also eligible to apply, if they have qualified for GATE/NET as required. Such candidates 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 candidates 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 candidate in the waiting list.

In exceptional cases, a provisionally selected candidate 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 candidate should have completed all the requirements for the award of the qualifying degree including all examinations, project works and viva voce (b) The candidate 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 candidate 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 2015, failing which the admission stands cancelled. For such candidates 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 candidate will be paid fellowship with retrospective effect from the date of joining.

**Areas of current research (Opportunity is available for a total number of 18 research scholars for the current session)**

| Research Plan for July-2015 PhD Admission | | | |
|---|---|---|---|
| Sl. No. | Dept code | Research Area | Eligibility |
| 1 | AE/IIST/01 | Structural Dynamics | ME/MTech or equivalent in Mechanical, Aerospace, Civil, Production Engg., or equivalent. |
| 2 | AE/IIST/02 | Thermal Engineering | Masters (M Tech, M. E or MS) in Applied mechanics/ Cryogenics /Energy Engineering / Fluid Mechanics /Propulsion Engineering/ Thermal Sciences /Engineering or related areas with B Tech/B.E. in Aerospace Engineering/ Aeronautical Engineering/ Civil/ Chemical/ Energy Engineering/ Mechanical Engineering or equivalent. |
| 3 | AE/IIST/03 | Computational Fluid Dynamics and Heat Transfer | B.Tech/B.E. in Mechanical Engineering and M.E/ M. Tech. in Mechanical Engineering with specialization in Thermal Sciences /Thermal Engineering/ Propulsion Engineering / Energy Engineering/ Heat Power Engineering. |
| 4 | AE/IIST/04 | Aerospace Propulsion | M.E./M.S/M.Tech in Aerospace/Aeronautical/Mechanical/Chemical Engineering with previous experience in Propulsion or Combustion research |
| 5 | AE/IIST/05 | Gas dynamics / Supersonic flows /Shock wave propagation/Shock tube flows | M. Tech/ME/MS with specialisation in Aerospace Engg/Aeronautical Engg//Thermal engineering/Mechanical Engineering/Chemical engineering |
| 6 | AE/IIST/06 | Aerodynamics, Unsteady Fluid Mechanics, Flow instabilities, Gas dynamics, | ME/M.Tech or equivalent in Aerospace / Aeronautical / Mechanical / Applied Mechanics / Chemical/ other relevant areas with background in Aerodynamics or Fluid mechanics |
| 7 | AE/IIST/07 | Fundamental/ Applied combustion, Chemical Kinetics, High Temperature Engineering | M.Tech/ ME/ MS in Mechanical/ Thermal/Chemical / Aerospace/ Aeronautical/Applied Mechanics |

| | | | |
|---|---|---|---|
| 8 | AE/IIST/08 | Nonlinear Finite Element Methods | M.Tech in Mechanical/Aerospace Engineering with Specialisation related to Structural Design and Analysis |
| 9 | AV/IIST/01 | Micro/ Nano Electronics, Biosensor, High Speed Devices | M.Tech/ MS in Electronic Engineering, Electrical Engineering or Equivalent. Candidate should have ample knowledge in Semiconductor Devices. |
| 10 | AV/IIST/02 | Antenna Design, Analysis and Modeling | ME/M.Tech/MS in RF and Microwave Engineering or Equivalent in relevant areas with BE/B. Tech in Electronics and Communication Engineering. |
| 11 | AV/IIST/03 | Micro/ Nano electronics and MEMS for sensors | BE/ B. Tech in Electronics and Communication Engineering or Equivalent and M. Tech / ME in Microelectronics and VLSI, Microsystems, Nanotechnology or Equivalent |
| 12 | AV/IIST/04 | Nonlinear dynamics and control | Master Degree in Control System/ Instrumentation and control/ Process control/ Aerospace Engineering/ Control and computing/ Systems and Control/ Nonlinear Dynamical Systems / Guidance and Navigational Control and relevant areas where Nonlinear dynamics or control is a major subject. B.E / B. Tech from any stream. |
| 13 | AV/IIST/05 | Fractional Control Design | M.E./M.S/M.Tech in Control System/ Control and Instrumentation/ Process control/ Control and Automaton or Equivalent in relevant areas with B.E/ B.Tech in Electrical and Electronics Engineering/ Electronics and Communication/ Electronics and Instrumentation/ Instrumentation/ Control and Instrumentation |
| 14 | ES/IIST/01 | Atmospheric Modelling | A first class MSc in Physics/Meteorology/Atmospheric science/M Tech/M.E. in Atmospheric science. |
| 15 | MA/IIST/01 | Queuing Theory; Queueing Network Models | M.Sc in Mathematics or Statistics |
| 16 | MA/IIST/02 | Applied Mathematics | MSc in Mathematics |

| 17 | MA/IIST/03 | Mathematical Theory of Control and Computation | MSc in Mathematics |
|----|-----------|------------------------------------------------|--------------------|
| 18 | PH/IIST/01 | Optical Information Processing and Holography | M.Sc (Physics /Applied Physics) MS (Integrated Physics)/ B.Tech/B.E. (Engg Physics) / M.Tech/M.E. (Opto-Electronics / Optical Engineering/ Photonics) |

**RESEARCH FELLOWSHIP**

1. Research Fellowships are as per Government of India norms

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 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 **12th May 2015** only through **on-line.**

2. From the eligible applicants, a short-listing will be done, taking into account their applicable GATE/NET scores.

3. List of short-listed candidates for written test or interview will be displayed in IIST website by **Fourth week of May 2015.**

4. Depending on the number of candidates who have applied, the final selection is based on a written test/ interview or interview alone, which will be conducted at IIST, Trivandrum during **second week of June 2015.**

5. The written test is aimed to evaluate the basic understanding and proficiency in the relevant area.

6. Selected candidates will be intimated within a week after the final interview. Results will also be displayed in the IIST website.

7. Outstation candidates 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. If required, the candidates 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 for processing under any circumstances.

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 - 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 candidates have to bring the Bank challan copy of the respective Department code at the time of the interview as proof.

5. Candidates 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) candidates 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** | 27.04.2015 (10.00 AM) |
| 2 | **Closing date for online submission of applications** | 12.05.2015 |
| 3 | **Last Date for Payment of application fee** | 16.05.2015 |
| 4 | **Display of shortlisted candidates on website** | **Fourth week of May 2015** |
| 5 | **Tentative Schedule of Interview** | **Second week of June 2015** |

**Advt. No. IIST/Admn/Ph.D./06/2015 dated 19.04.2015**