

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
INDIAN SPACE RESEARCH ORGANISATION
INDIAN INSTITUTE OF REMOTE SENSING
DEHRADUN**

Institutional Policy for Ph.D. Programme

Indian Institute of Remote Sensing (IIRS), a Unit of Indian Space Research Organisation (ISRO), carries out research in frontier areas of remote sensing and geoinformatics as an integral part of its prime objective of providing education & training and facilitating capacity building among the user community in various fields of geospatial technology and its applications.

The Institute has a multi-disciplinary and problem oriented research agenda that focuses on technology development as well as land/ocean/atmosphere applications in the area of geo-information (GI) science and earth observation. From the perspective of technology development, commendable research in GI science is pursued at the Institute, like advanced image processing techniques, digital photogrammetry, microwave remote sensing, radar interferometry, hyperspectral remote sensing, LiDAR data processing, spatial data mining, spatial data modelling, spatial decision support systems, etc. On the applications front, the Institute has proven its leadership in the country in developing key societal applications, like watershed management, ground water exploration, modelling urban dynamics, coastal zone management, irrigation water management, biodiversity characterisation, geo-hazards monitoring, assessment and modelling, to name a few.

IIRS is a recognized centre for carrying out research leading to Ph.D. by Forest Research Institute (Deemed University), Dehradun; Andhra University, Visakhapatnam; University of Pune, Pune; and IIT, Roorkee.

As a part of its policy to promote research in the field of remote sensing and geoinformatics, the Institute provides opportunities to the interested candidates for pursuing Doctoral research leading to Ph.D. Degree from a recognized university. Keeping in view the long tradition of academic excellence, the following institutional goal is laid down for doctoral research:

“To develop deep and broad understanding of the subject and to inculcate abilities for independently undertaking research in the chosen field of remote sensing and geoinformatics technology and applications.”

The institute adopts the following policy for facilitating doctoral research leading to Ph.D. Degree. This policy comes into force from 1st July 2011 onwards.

1. Research Topic

The research topic chosen by the candidate should either be related to the ongoing research projects or should be within the research interests of the Institute. The research work carried out by the candidate shall be an original work characterized either by the novel discovery of facts, or by a fresh approach towards the interpretation and application of facts.

2. Category of Ph.D. Student

The candidates for the Ph.D. research would include – (1) students working as JRFs in various ongoing sponsored research projects of IIRS; or (2) students having CSIR/UGC NET JRF fellowship with valid scorecard/certificate and willing to work full-time at the Institute; or (3) Ph.D. students already registered in other universities; or (4) in-service candidates of other institutes/organizations. The first and second categories of candidates are treated as **Full-time Research Students**, while the third and fourth category candidates are treated as **Part-time Research Students** of the Institute (IIRS). The category of the candidate shall be decided by the Research Advisory Committee of the Institute.

In case of the Part-time candidates, once selected, a Memorandum of Understanding (MoU) (Annexure-I) has to be signed by the student, IIRS Guide, University/ other Institute Guide(s), competent authority of the parent University/Institute and Group Head, Programme Planning and Evaluation Group (GH, PPEG), IIRS.

3. Eligibility and Selection Criteria

The research personnel (JRF/SRF/RA, etc.) recruited and working in the various research projects of the Institute shall in general be encouraged to register for Ph.D. programme in a recognized university, preferably where IIRS is recognized as a Research Centre by the university.

For the other candidates, the eligibility and selection criteria for the both the Full-time and Part-time Ph.D. students are as follows:

- The candidate must have a Master Degree in the subjects given below with minimum of 65% aggregate marks. The candidate should also have consistently good academic record.

Subjects in Master Degree:

- a. Forestry/ Botany/ Ecology/ Zoology/ Wildlife Sciences/ Environmental Sciences
- b. Geology/Applied Geology/Geophysics/Earth Sciences
- c. Agricultural Sciences/ Soil Sciences/ Agrometeorology
- d. Water resources/ Hydrology/ Agricultural Engineering
- e. Physics/ Mathematics/ Applied Mathematics/ Statistics/ Computer Science and Engineering

- f. Marine Science/ Oceanography/ Atmospheric Sciences/ Meteorology
 - g. Geography/ Urban and Regional planning/ City Planning/ Town and country Planning
 - h. Remote Sensing/ Geoinformatics or equivalent.
- The selection of candidates shall be based on past academic performance, their suitability in the ongoing research programmes and interests of the Institute, availability of appropriate supervisors, etc.
 - Preference will be given to the following candidates – (a) candidates who have qualified CSIR-UGC NET JRF or GATE examination and have valid scorecard/certificate, and (b) in-service candidates.
 - The selection of the candidate shall be done by the Research Advisory Committee of the Institute followed by the approval of Director, IIRS. The decision of the committee and Director, IIRS shall be binding on the candidate, and no further enquiries in this regard will be entertained by IIRS.

4. Admission Process

The research personnel working in the various research projects of the Institute need not undergo the process of admission and they will be governed by the service conditions mentioned in the appointment order issued by the competent authority.

All other candidates will require a formal “Admission” to IIRS. All such candidates intending to do Ph.D. research at IIRS should send a request letter addressed to Director, IIRS along with a copy of CV stating the purpose. The in-service candidates and the Ph.D. students already registered in a university have to submit a letter from the Head of the Department/Institute or the Registrar of the University as the case may be. In case the candidate has already established contact with a faculty member or Department of IIRS, the request letter may indicate such name(s). Once selected, the admission letter will be issued by the GH (PPEG) of IIRS based on the eligibility and selection criteria mentioned in Section 3 above. The admission shall be for specific purpose and duration.

The Admission committee for Ph.D. (i.e. Research Advisory Committee) will meet at least twice a year, or as often as required to select the suitable candidates.

5. Research Supervision

Full-Time Research Students: The Institute’s faculty shall be the Main Guide for the doctoral research in the case of full-time research students. The University faculty or a Scientist(s) from other Institute(s), if required, may be taken as Co-Guide(s).

In extra-ordinary cases, however, IIRS faculty may be the Co-Guide where the university rules and regulations prohibit taking any person other than University Faculty as the Main Guide; in such cases, willingness of the IIRS Supervisor and prior approval of Director, IIRS is mandatory.

Part-Time Research Students: The Institute's faculty shall be the Main-Guide or Co-Guide for the doctoral research in case of part-time research students.

At any point of time, an IIRS faculty can have a maximum of Two (02) Full-time and Three (03) Part-time Ph.D. students. This is done keeping in view the regular training & education, research/operational programmes and infrastructure facilities in the Institute.

6. Research Duration

Full-time Research Students:

The maximum residency period at IIRS shall be Five (05) years. After a period of three years (from the date of registration at IIRS), maximum two extensions of one year each may be provided. The decision in this regard will be taken by the IIRS Research Advisory Committee on a case-to-case basis, followed by the approval of Director, IIRS. The decision of the committee and Director, IIRS shall be binding on the candidate.

In case the candidate is not able to submit his thesis during the allowed period at the Institute mentioned above, then his/her status will change from 'Full-time Research Student' to 'Part-time Research Student.'

Part-time Research Students:

The maximum time will be decided as per the rules and regulations of the Parent University/Institute.

7. Attendance and Leave Rules

Full-time Research Students:

- a. Researchers working as JRFs in various ongoing sponsored research projects of IIRS will be primarily governed by the rules of the Department as mentioned in their appointment letter.
- b. Researchers with CSIR/UGC NET JRF fellowship will be governed as per UGC norms which are given below (Reference site: <http://www.ugc.ac.in/financialsupport/guideline9.html>):

“Research Fellows are entitled for a maximum period of 30 days leave in a year in addition to public holidays. They are not entitled to any other leave, for example, summer, winter, pooja vacations, etc. Women candidates are eligible for maternity leave of 135 days at full rates of fellowship once during the tenure of their award. In other cases, leave without fellowship will be

restricted to a period not exceeding three months during the tenure of the award on the recommendations of the supervisor and the head of institution. The period of leave without fellowship will be counted towards the total tenure of the fellowship. Fellows are advised to apply for leave well in advance for the approval of the competent authority.”

Part-time Research Students:

The minimum residency period (attendance) at IIRS will be 3 months during the entire research period. The leave rules will be governed by the parent university/institute.

8. Financial Assistance

The Institute (IIRS) shall not provide any financial assistance to the candidate for Ph.D. research, except research personnel recruited by the Institute in the ongoing research projects in which case fellowship will be provided subject to rules and regulations of IIRS/ISRO in force, and as mentioned in the appointment order.

Candidates (except the research personnel of IIRS) will have to bear all costs/ expenses on account of travel, boarding and lodging, field expenses, medical expenses, etc.

9. Facilities

The facilities that can be availed by the Ph.D. candidates are following:

Full-time Research Students:

- a. *Lab facilities:* The student will be provided computational and other lab facilities available at IIRS, which are needed for his/her research work.
- b. *Library facilities:* The student will be given library facilities similar to that provided to regular students/trainees of IIRS.
- c. *Hostel facilities:* The student may be provided hostel facility at IIRS, subject to availability. The expenses of boarding and lodging will be borne by the student.

Part-time Research Students:

- a. *Lab facilities:* The student will be provided computational and other lab facilities available at IIRS, maximum for three weeks in one stretch, subject to availability. The number of times a candidate can avail such facility will be decided by the IIRS Guide. No material/ maps in any form will be issued to the candidate.
- b. *Library facilities:* The student will be allowed only to consult the IIRS library. No books, journals, reports, CD, or any other library material will be issued in his/her name.

- c. Hostel facilities: The student may be provided hostel facility at IIRS based on the recommendation of IIRS Guide, subject to availability. The expenses of boarding and lodging will be borne by the student.

10. Review of Research Work

Full-time Research Students: The research work of the student will be reviewed once in every six months by the IIRS Research Advisory Committee.

Part-time Research Students: The research work of the student will be reviewed once in a year after consultation with the main guide at the parent University/Institute.

11. Publication of Research Work

Full-time Research Students:

- a. The student is required to publish at least one research paper in a peer-reviewed journal prior to submission of Ph.D. thesis.
- b. No publication originating from the Ph.D. research work will be made without prior approval of the IIRS Guide. All the faculty and staff of IIRS who have contributed in the research work will be duly acknowledged in all publications and presentations at various forums.

Part-time Research Students:

No publication originating from the Ph.D. research work will be made without prior approval of the IIRS Guide. All the faculty and staff of IIRS who have contributed in the research work will be duly acknowledged in all publications and presentations at various forums.

12. General Guidelines

The following guidelines are applicable to both Full-time and Part-time research students:

- The responsibility of Ph.D. registration in the university lies with the student. The Institute will, however, facilitate admission to Ph.D. Degree course to those Universities which have granted affiliation to IIRS (presently only FRI Deemed University, Dehradun). Students will be required to complete all admission/registration procedures at his/her cost and pay all relevant fees to the University in consultation with the IIRS Guide.
- The data provided by IIRS (remote sensing, ancillary data, etc.) for the Ph.D. research work shall be the property of IIRS. The candidate will be allowed to carry the processed data, power point presentation, text and excel files and software module(s) entirely coded by the

student, which are part of his/her research work with the consent of the IIRS Guide. The data provided by IIRS, however, shall not be allowed to be carried in any circumstances.

- The students will be permitted to leave the Institute only after submitting the “No-dues Certificate” by them and issue of relieving order subsequently by the GH (PPEG), IIRS, after recommendation of the IIRS Guide. The IIRS Guide will sign the candidate Ph.D. thesis certificate only after production of No-Dues certificate by the student.
- The student has to submit two hard copies of his/her thesis and a CD/DVD of the thesis in PDF version to the IIRS Guide; without this, “No Dues” certificate will not be issued. After the award of the Ph.D. degree to the student, the IIRS Guide will forward a hard and soft copy of the thesis to the IIRS library.
- The Full-time research student during his/ her stay at IIRS and the Part-time research student during his/ her visit to IIRS shall be governed by ordinance/ regulations of IIRS in vogue.
- The student will have to give an undertaking in a prescribed format for any loss, damage or mishap happening to the candidate while staying at IIRS Campus, field or during tour/transit.
- The conduct of the candidates in the IIRS campus as well as in the field should always be orderly and display high moral standards. The candidate himself/ herself will be responsible for the proper conduct; the admission will be cancelled if the student is found to disobey Institute’s rules/ norms/ guidelines, or is found to indulge in any unwarranted activities which harm the Institute’s reputation.
- The Director, IIRS reserves the right to modify, alter, delete, amend or add any of the rules or regulations contained herein for the smooth and efficient running of the Institute and may grant affiliation to deserving candidates not specifically covered under these rules and regulations. Further, Director, IIRS is the competent authority to discontinue above attachment / deter student to continue in the Ph.D. research, if he/she is found defaulter in any of the rules/regulations of the Institute.
- For any dispute, decision of Director, IIRS shall be final. The dispute in the implementation of MOU (applicable in case of only Part-time Candidates) will be settled as per the para 12.0 mentioned in MOU.

(Dr. Sameer Saran)
Scientist-SE, GID &
Member of the Committee

(Dr. Sandeep Maithani)
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(Dr. Sarnam Singh)

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