



भारतीय प्रौद्योगिकी संस्थान रुड़की
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

INFORMATION BROCHURE

2024-25



ADMISSION
Ph.D. Programme
(FULL TIME & PART TIME)
SPRING SEMESTER

Table Of Contents

01 Introduction

1.1 Location	4
1.2 Campus	4

02 About Doctoral Research

5

03 Details of Opportunities for Ph.D. Students

3.1 Prize/ Awards/ Medals	6
3.2 Joint Doctoral Degree programme with Universities outside India	8
3.3 Continuation of Fellowship during Research visit	9
3.4 Prime Ministers Fellowship (PMRF)	9
3.5 TCS Research Scholar Program	9
3.6 Visvesvaraya Ph.D. Scheme	11

04 Admission of International Candidates

11

05 Important Dates

11

06 Ph.D. Admission Categories

6.1 Full-time Research Scholar (FTRS)	12
6.2 Part Time Research Scholar (PTRS)	12
6.3 In-Service Special External Research Scholar (ISSERS)	12

Table Of Contents

07 Ph.D. Admission Requirements

7.1	Common Minimum Eligibility Criteria For Ph.D. Admission	13
7.2	SAKUNTALA (Scheme for Aspirants of Knowledge UNder TALent Advancement) Fellowship	15
7.3	Additional Information to In-Service External Research Scholar (ISERS) and Part Time Research Scholar (PTRS)	16
7.4	In-Service Special External Research Scholar (ISSERS) for IITR@175 Fellowship	16
7.5	Golden Girl Scheme for Female Applicants	17
7.6	Minimum Educational Qualification For Admission to Ph.D. Programme in Different Departments/ Centres/School	18

08 Application Fee (Non-Refundable) 28

09 Course Fee Structure 28

10 Cancellation Of Admission / Programme 29

11 Matters of Dispute 29

12 Ragging 29

13 Instructions For Online Application & Others 29

Annexure -1 34

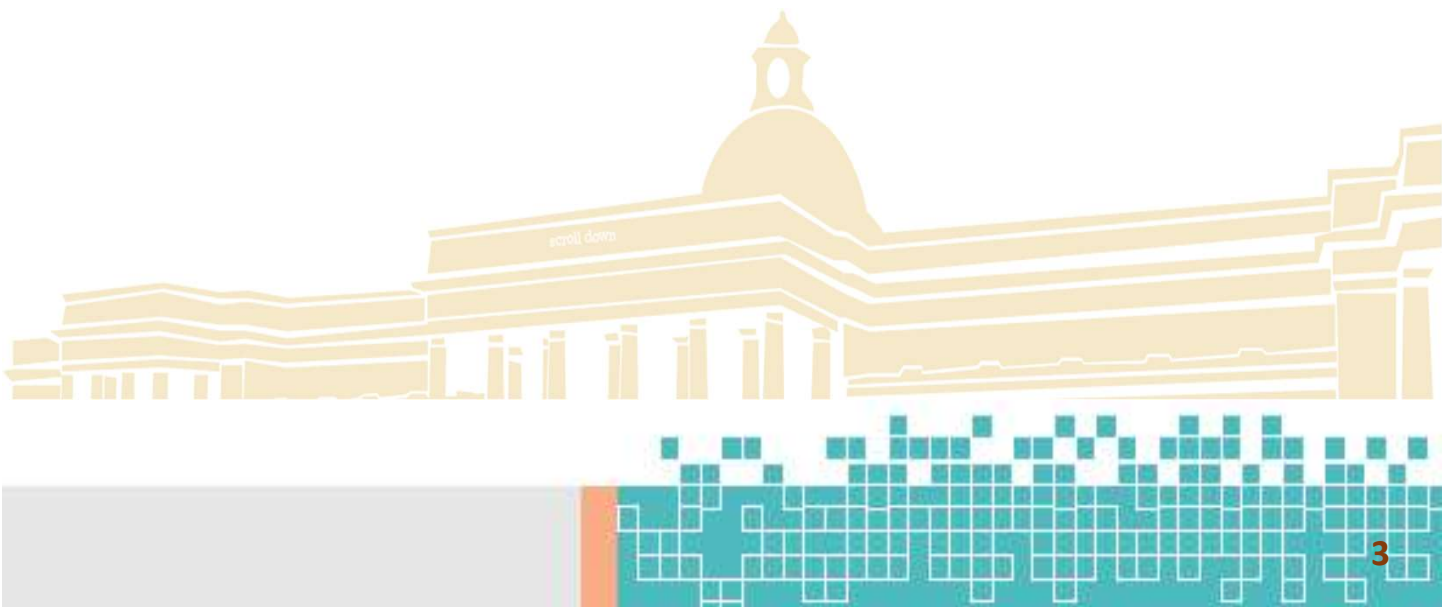
1

INTRODUCTION

Indian Institute of Technology Roorkee is one of the foremost institutes of national importance in higher technological and engineering education and basic and applied research. Since its establishment, the Institute has played a vital role in providing the technical manpower and know-how to the country and also in pursuit of cutting-edge research in Science, Technology, and subsequently in Architecture, Management and Humanities & Social Sciences. The Institute ranks amongst the best technological institutions in the world and has contributed to all sectors of technological development. It has also been considered a trend-setter in the area of education and research in the fields mentioned above.

The Institute has completed 176 years of its glorious existence. It was converted into an IIT on September 21, 2001 by an Ordinance issued by the Government of India, which declared it as the nation's seventh Indian Institute of Technology, an "Institution of National Importance".

The Institute offers Bachelor's Degree courses in 14 disciplines of Engineering and Architecture and 6 integrated Masters programmes in different disciplines of engineering and science apart from 58 Postgraduate courses in various disciplines of Engineering, Applied Science, Architecture and Planning, Management, Humanities & Social Sciences, Design and Innovation. The Institute offers doctoral degree in all Departments/Centres/School and Research Centres.





1.1 Location

IIT Roorkee is situated at the foothill of Himalayas, in Haridwar district, within the state of Uttarakhand. It is the gateway to the pilgrim centres of Haridwar, Rishikesh, and Char Dham (Gangotri, Yamnotri, Badrinath and Kedarnath), and tourist attraction cities like, Dehradun and Mussoorie. Roorkee is well connected to Delhi by rail and road. It is situated on National Highways 58 and 73 and is on Amritsar-Howrah main rail route. Nearest airport to Roorkee is Dehradun's Jolly Grant airport but most preferable airport nearest from Roorkee is the New Delhi International Airport which is about 180 kilometers away.



1.2 Campus

The Institute has three campuses. The main campus is at Roorkee in Uttarakhand and the second one is 50 km away at Saharanpur and third is the Greater Noida Campus Centre in Uttar Pradesh. The campus at Roorkee is spread over 356 acres of landscaped lush greenery. Nestled within this are several heritage buildings, modern academic departments, nineteen hostels, messes, hospital, school, banks, community centres, indoor and outdoor sports facilities which include three sports stadiums, a modern swimming pool, yoga bhawan, students' clubs and several activity centres and other buildings. The Department of Paper Technology is located in a 25-acre campus at Saharanpur. A 10-acre campus is being developed as an extension centre at Greater Noida.



2

ABOUT DOCTORAL RESEARCH

Keeping in view the long tradition of academic excellence, the following institutional goals have been laid for doctoral research:

- ❖ To develop deep and broad understanding of fundamentals and state of the art of knowledge in the chosen field through courses and self-study,
- ❖ To develop synergy between creativity, innovation and the frontiers of knowledge in the chosen field of study,
- ❖ To develop ability and skills to carry out independent research and development to face the challenges posed to mankind on specific problems, and
- ❖ To develop abilities to identify new possibilities in the given Indian social context and to undertake research and development through one's own initiatives.

The Degree of Doctor of Philosophy is granted for research work in areas recognized by the Academic Departments / Centres / School of the Institute. The research work shall be an original work characterized either by the discovery of facts, or by a fresh approach towards the interpretation and application of facts, or development of equipment making a distinct advancement in instrument technology. It shall evince the candidate's capacity for critical examination and sound judgment and shall represent original contribution to the existing knowledge. The Institute is also recognized as one of the centres in the country for Ph.D. programmes under QIP. Facilities for enrolling for the Ph.D. programme as a part time candidate are also available.

3

DETAILS OF OPPORTUNITIES FOR Ph.D. STUDENTS

3.1 Prize/Awards/Medals

	Name of Prize/ Award/ Medal	Amount (Rs.)	Criteria
1	Excellence in Doctoral Research Award	2,50,000/-	For outstanding research work in Engineering; Management, Architecture and Humanities; and Science streams. A maximum 5 awards, each of Rs. 50,000, are to be given every year.
2	Prof. V.K. Gupta Memorial Impactful Young Researcher Award	20,000/-	For getting a published/accepted research paper in an international journal of the highest impact factor amongst the research scholars from Department of Chemistry. The period of consideration will be from 1st April to 31st March every year starting from year 2021. In case of more than one eligible candidate, the award will be given to the younger candidate. If the age of candidates is same, then the award will be shared. The recommendation for this award will be obtained from the concerned department. This award will be announced on 6th May every year.
3	A.K. Goel Green Energy Prize and Gold Medal	1,00,000/- & Gold Medal	For significant contribution towards green/renewable energy sector amongst the graduating UG/PG (including Ph.D.) students.

S. No.	Name of Prize/ Award/ Medal	Amount (Rs.)	Criteria
4	Prabha Nayyar Award for Excellence in Time Management	2,50,000/-	For carrying out multiple activities simultaneously and showing significant improvement in some of them without compromising on the others amongst the students completing minimum 2 years at IIT Roorkee. The activities may be as diverse as possible including academic grade points, sports, cultural, hobbies, technical, leadership, social service, etc. A maximum 5 awards, each of Rs. 50,000, are to be given every year.
5	Nayyar Award for Excellence in Communication	1,11,000/-	For the best communication skills amongst III, IV and V year students of UG/IDD programmes and all students of PG programmes. There are total 3 awards, Rs. 50,000/- for the best student; Rs. 30,000/- for the second best student; and Rs. 20,000/- for the third best student. A fourth award of Rs, 11,000/- can also be given only if a female student is not among the first three.
6	Hari Krishna Mittal Leadership Award for Enhancing Entrepreneurship Culture at IIT Roorkee	20,000/-	For significant contribution towards enhancing the entrepreneurship culture at IIT Roorkee amongst the graduating UG/PG (including Ph.D.) students.
7	Smt. Lilawati Nayyar Golden Jubilee Scholarship	5,000/-	For the communication skills and merit amongst the UG and PG students of any year and of any branch of engineering.

S. No.	Name of Prize/ Award/ Medal	Amount (Rs.)	Criteria
8	Ajit Singh Yadav Memorial Essay Prize	20,000/-	For the best and second best essay on a general topic in terms of content and writing style that encourages independent thinking and originality amongst the existing students. There are total 2 awards, Rs. 13,000/- for the best essay; and Rs. 7,000/- for the second best essay.

3.2 Joint Doctoral Degree Programme with Universities outside India

Ph.D. students in consultation with their supervisors have options to enroll in Joint Doctoral Degree Programme. We have agreements with the following universities:

- i. University of Alberta, Canada
- ii. University of Strasbourg, France
- iii. Asian Institute of Technology, Thailand
- iv. Institute of Engineering (IOE), Tribhuvan University, Nepal
- v. Department Specific Joint Ph.D. Program with National Tsing Hua University (NTHU), Taiwan:

NTHU, Taiwan	IIT-Roorkee
<ul style="list-style-type: none"> ❖ College of Semiconductor Research, ❖ College of Engineering, including <ul style="list-style-type: none"> • Department of Materials Science and Engineering, • Department of Industrial Engineering and Engineering Management 	<ul style="list-style-type: none"> ❖ Department of Electronics & Communications Engineering ❖ Department of Physics

Ph.D. students can also convert their Jointly Supervised Ph.D. Proposal to a Joint/Dual Doctoral Degree Programme with **administrative support from willing partner universities not listed here.**

For more details please visit: <https://ir.iitr.ac.in/JointDegree>

3.3 Continuation of Fellowship during Research Visit

Ph.D. students can continue to avail their fellowship for a maximum period of six months during their Ph.D. program while on a research visit to other Research Universities/ Institution/ Research Labs etc., in addition to other funding support, if any.

3.4 Prime Minister's Research Fellowship (PMRF)

Ph.D. students get opportunity to apply for the prestigious PMR Fellowship program, through two channels, viz. Direct entry and Lateral entry. Students are strongly encouraged and supported to develop their research proposals for the purpose.

For more details, please follow the link <https://iitr.ac.in/Academics/PMRF.html>

3.5 TCS Research Scholar Program

This fellowship aims to call for quality multidisciplinary research activities in areas ranging from computer engineering and science, information systems and technology, software engineering, and **other disciplines which utilize computing.**

Scholarship Details:

Period: A scholar who is selected for the scholarship will be given a stipend for a maximum of four years, or submission of thesis for Ph.D., whichever is earlier.

Stipend: A stipend of Rs. 70,000 per month for the first and second year, Rs. 75,000 per month for the third year and fourth year.

Other Incentives:

1. Assignment of TCS Mentor from TCS Research and innovation team (R&I) soon after selection to TCS Research Scholar Program.
2. Support for the scholar with Rs. 2,00,000 per annum for Contingency / National Conference for Scholar / International Conference for Scholar / 1-time International Conference for Guide / Outbound sabbatical to foreign university to scholar.
3. Visit(s) & Interaction(s) of TCS Research Scholar to TCS Research and Innovation teams / Labs.

Eligibility Conditions:

1. Upper Age Limit – 28 years as on admission into fellowship
2. The scholar should have first class education career right from SSC.
3. The scheme is open for scholars who have been found to be eligible for admission to Ph.D. in an institute. The scheme is open only for fresh Ph.D. scholar admissions (completed 2 semesters).
4. Scholars must be registered as full-time scholars in the institute/college where the Ph.D. registration is sought.
5. The scholarship can be terminated by TCS, with one month notice, based on performance review report and for any violation of any operational rules applicable to all the research scholars at the institute.
6. The institute will intimate TCS on the date of filling of any patent related to any invention by the TCS Research Scholar under this program. TCS would be given a license on reasonable and non-discriminatory terms for any such patent which has been granted, on mutually agreed terms. The institute is free to publish any work developed by TCS Research Scholar provided it sends TCS a written intimation along with the work that will be published 30 days prior to such publication.
7. TCS Innovation Laboratory could look for opportunities of collaborations with the TCS Research scholar / institute, even beyond the period of internship.

3.6 Visvesvaraya Ph.D. Scheme

Visvesvaraya Ph.D. Scheme for Electronics & IT of Digital India Corporation, Ministry of Electronics & Information Technology (MeitY), Government of India was initiated in the year 2014 with an objective to enhance number of Ph.D.s in the country. Under this scheme, Ph.D. seats (Full/Part Time) are allocated, in the areas of ESDM/ IT-ITES, to few selected institutions. IIT Roorkee is one of the selected institutions in this scheme. Eligible candidates can apply whenever specific announcement for this scheme is announced subject to availability of the fellowship. Further details of the scheme are available at <https://phd.digitalindiacorporation.in/home>.

4

ADMISSION OF INTERNATIONAL CANDIDATES

Candidates who are NOT citizens of India (by birth or naturalized) and/ or are OCI/PIO card holders will be eligible to apply under this category. The applications from these candidates are invited through several channels like ICCR, SII, ASEAN, etc.

For more details please visit: <https://ir.iitr.ac.in/>

5

IMPORTANT DATES

Start of online Application Process	Oct. 01, 2024
Last date for filling up of application form	Nov. 01, 2024 (11: 59 p.m.)
Extended upto	Nov. 07, 2024 (05:00 p.m.)
Date of Registration by the Candidates in person	Jan. 13, 2025
Commencement of classes	Jan. 15, 2025

Candidates are requested to apply **online only**. The hard copy of the application need not be submitted. Physical application will not be considered.

6

Ph.D. ADMISSION CATEGORIES

Applicants for admission to the Ph.D. programme shall be classified under any one of the following categories which will be decided and recommended by DRC/CRC.

6.1 Full-time Research Scholar (FTRS)

- ❖ Institute Assistantship Research Scholars (IARS)
- ❖ Externally Funded Research Scholar (EFRS)
 - Fellowship
 - Foreign Nationals
 - Project Funded
- ❖ In-service External Research Scholar (ISERS)
- ❖ **SAKUNTALA (Scheme for Aspirants of Knowledge UNDER TALent Advancement)**
Fellowship, a special scheme for **female candidates**
- ❖ Golden Girl Scheme for Females

6.2 Part-time Research Scholar (PTRS):

- ❖ In-Service Internal Research Scholar (P-ISIRS)
- ❖ In-Service External Research Scholar (P-ISERS)

6.3 In-Service Special External Research Scholars (ISSERS)

- ❖ IITR@175 Fellowship

7


Ph.D. ADMISSION REQUIREMENTS

7.1 Common Minimum Eligibility Criteria For Ph.D. Admission:

An applicant should possess one of the following minimum qualifications in appropriate area(s) and she/he is required to fulfil the Department/ Centre/ School wise minimum educational qualification to be eligible to apply for admission for the Ph.D. programmes of the Institute.

1. Applicants with Master's degree should satisfy the following:
 - i. General, GEN-EWS and OBC category: Minimum Cumulative Grade Point Average (CGPA) of 6.0 on a 10-point scale, or 60% marks.

SC / ST / PWD category: Minimum Cumulative Grade Point Average (CGPA) of 5.50 on a 10-point scale or 55% marks.
 - ii. Qualified in a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship.
2. Applicants of all categories (GEN/GEN-EWS/OBC/ST/PWD) having B.Tech. degree or M.Sc. with a CGPA of 8.0 and above obtained from the Ministry of Education funded Technical Institutions (erstwhile CFTIs of MoE), the requirement of the national level tests such as GATE/NET is exempted.
3. Applicants of all categories (GEN/GEN-EWS/OBC/ST/PWD) with 4-Year Bachelor's degree from institutions other than CFTIs having a minimum CGPA of 7.50 on a 10-point scale or 75% marks and Qualified a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship.

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4. Applicants of all categories (GEN/GEN-EWS/OBC/SC/ST/PWD) with Bachelor's or Master's degree from IITs with a CGPA of 8.0 and above on a 10-point scale. Such candidates are exempted from the requirement of qualifying in a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship.
 5. Applicants of all categories (GEN/GEN-EWS/OBC/SC/ST/PWD) with MBBS / BAMS / BHMS / BDS degree from Indian Universities / Institution shall have minimum CGPA of 6.0 on a 10-point scale, or 60% in the qualifying degree. Such candidates are exempted from the requirement of qualifying in a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship.
 6. Applicants with Master of Surgery (MS) / Doctor of Medicine (MD) degree from Indian Universities / Institutions are exempted from the minimum CGPA as well as the requirement of qualifying in a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship.
 7. Candidates pursuing master's programs in Engineering / Architecture / Planning / M.Sc. / M. Des. in IIT Roorkee shall have a choice of lateral entry / switch-over to the Ph.D. program after completing the following:
 - i. First three semesters of the Master's program with CGPA 8.0 or above for the candidates of M.Sc. program.
 - ii. First two semesters of the master's program with CGPA 8.0 or above for candidates of other master programs.

Note:

- A. CGPA or percentage of marks in aggregate (in case marks are awarded) of all years / semesters will be considered. If the CGPA is awarded on a scale other than a 10-point scale, proportionate conversion to a 10-point scale will be considered.
- B. The requirement of qualifying in a national level test, such as- GATE / CEED / JEST / UGC-NET / CSIR-NET including lectureship (Assistant Professorship) or equivalent or holding a national level fellowship is not applicable to candidates in ISERS or P-ISIRS or P-ISERS category.

- C. Candidates with a medicine degree from an overseas university / institute should have qualified the Foreign Medical Graduate Examination, or equivalent conducted by the National Board of Examination.
- D. Candidates with Overseas Citizen of India (OCI) / Person of Indian Origin (PIO) status will be treated at par with Indian Nationals in the General Category.
- E. Candidates selected under DST-INSPIRE scheme may be considered for provisional admission through departmental/centre/school Ph.D. selection procedure. Such candidates shall be required to submit their INSPIRE Fellowship “Final Offer” from the funding agency to the Institute within 18 months from the date of initial joining, failing which their provisional admission shall stand cancelled automatically, without any further consideration.
- F. Candidates under OBC-NC and Economically Weaker Sections (EWS) category are required to submit a copy of valid certificate, issued after 31st March, 2024, while submitting the application, as per GOI issued by a competent authority. Reservation shall be applicable as per the GOI Norms.
- G. For details regarding EWS please go through the link:
<https://dopt.gov.in/sites/default/files/ewsf28ft.PDF>

7.2 SAKUNTALA (Scheme for Aspirants of Knowledge UNDER TALEnt Advancement) Fellowship

Any female candidate having B.Tech./B.E./B.Arch/B.Des. Degree from CFTIs with CGPA ≥ 8.5 in the 10-point scale will be eligible for admission to the Ph.D. programme in the relevant disciplines under **SAKUNTALA** Fellowship scheme. The requirement of GATE/CEED/National Level examination will be waived-off for such candidates.

Fellowship: At par with the Institute Assistantship.

7.3 Additional Information to In-Service External Research Scholar (ISERS) And Part-Time Research Scholars (PTRS)

At the time of academic registration, the candidates should have experience of at least two years in a Government / Semi-Government organization/Public Sector Undertaking, AICTE / UGC recognized educational institute, or in a registered company with an annual turnover of more than rupees twenty crores. They should have permission from the employer for pursuing the Ph.D. program with adequate leave of absence to complete the course work requirements. This requirement of leave of absence is waived off for candidates working within 100 km of the institute. Candidates in P-ISIRS category should, in addition, be regular employees of the institute.

Note: The eligibility conditions given above are the absolute minimum. Departments /Centres/Schools may prescribe any requirements over and above these. Reservation is applicable as per extant policies of the Government of India and prescribed by the Board of Governors.

7.4 In-Service Special External Research Scholar (ISSERS) for IITR@175 Fellowship

“IITR@175 Fellowship” is for In-Service Special External Research Scholars (ISSERS) for admission in full time Ph. D. program.

The Fellowship shall be opened to faculty members/ scientists/engineers of AICTE/UGC recognized academic institutions or Government funded research organizations who get admission in the full time PhD program of the Institute in the academic years 2022-23, 2023-24 or 2024-25.

All such academic institutions/research organisations must be located in the states of (i) Uttarakhand, or (ii) within 200 km from IIT Roorkee in UP, Haryana, Punjab, Himachal Pradesh, and UT of Chandigarh.

The Ph. D. admission in this category will be a full time as per the rules of IIT Roorkee and there shall not be any relaxation in residency requirements.

Eligibility Criteria:

Master's degree with minimum Cumulative Grade Point Average (CGPA) of 6.0 on a 10-point scale, or 60% marks for the General, GEN-EWS and OBC category.

For SC / ST or PWD candidates, the minimum CGPA requirements may be relaxed to 5.50 on a 10-point scale or to 55% marks.

The requirement of GATE / GPAT / JRF / NET score (marks) shall not be applicable to the candidates.

Minimum two years in the parent organization at the time of academic registration.

Maximum of two candidates under this scheme from one institute in an academic year will be eligible.

Such candidates should be recommended by the parent organization through proper channel; No Objection Certificate (NOC) needs to be produced at the time of application.

In case of a greater number of eligible applications from one institute, offer will be given to the candidates having higher experience in the parent organization.

Fellowship: At par with the scheme of Quality Improvement Programme (QIP) of Ministry of Education, Government of India.

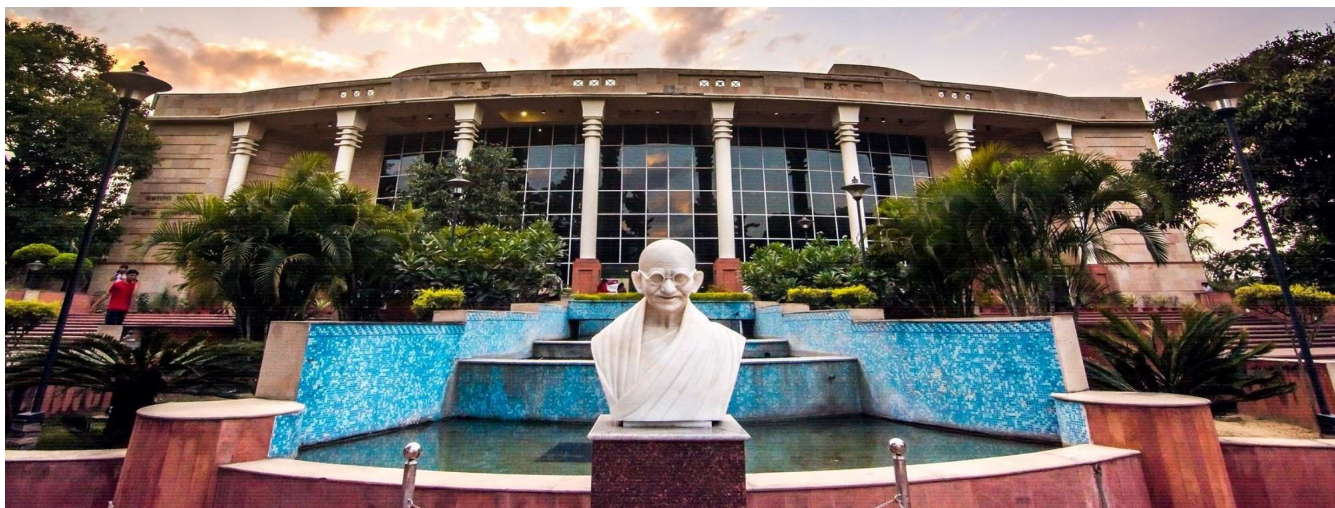
7.5 Golden Girl Scheme for Female Applicants

Direct admission for female candidates in Ph.D. programs under “Golden Girl Scheme”

- a) **Eligibility:** FIRST Rank Holder (Gold Medallist) female candidates from an IIT and/or Institute/University within the TOP 50 ranks (OVERALL category) in the NIRF in the most recent year.
- b) **Relaxation:** The requirement of qualifying an All-India Level Exam shall be EXEMPTED. However, all other MEQs will be applicable as per the institute policy.
- c) **Fellowship:** At par with the Institute's Assistantship.
- d) **Intake:** Intake shall be supernumerary.
- e) **Selection Process:** Interview by the Department/Centre/ School.

7.6 Minimum Educational Qualification for Admission to Ph.D. Programme in Different Departments / Centres/School

ROORKEE CAMPUS



1. Department of Architecture & Planning

- i. Bachelor's Degree in Architecture or Planning followed by Master's Degree in any specialization. **(OR)**
- ii. Bachelor's Degree in Civil Engineering followed by Master's Degree in any specialization of Planning. **(OR)**
- iii. B.Arch./ B. Planning.

2. Department of Biosciences and Bioengineering

- (i) **Structural and computational Biology:**
 - Master's degree in any disciplines of Science.
 - Four year Bachelor's (In any related areas of biological sciences (Biology, Biotechnology, Bioscience or related areas with biology as a subject))/ MBBS.
 - Bachelor's / Master's Degree in engineering, Pharmacy and related disciplines.

(ii) **Cell and Molecular Biology:**

- Master's Degree/ Four year Bachelor's (In any related areas of biological sciences (Biology, Biotechnology, Bioscience or related areas with biology as a subject))/ MBBS.
- Bachelor's / Master's Degree in engineering.
- MD/ MS in Ayurveda, M.Pharm., M.V. Sc.

(iii) **Biological Engineering:**

- B.Tech. (4 years after XII)/ M.Tech. with the condition that applicant should have Mathematics at 12th level.

3. Department of Civil Engineering

- (i) Bachelor's degree in Civil Engineering. **(OR)**
- (ii) Bachelor's degree in Civil Engineering and Master's degree in research areas relevant to the different groups of the Department (Environmental, Geomatics, Geotechnical, Hydraulics, Structural and Transportation). **(OR)**
- (iii) Bachelor's degree in any branch of engineering with Master's degree in relevant research areas of the above groups of Civil Engineering, having mathematics at the Bachelor's level. **(OR)**
- (iv) Bachelor's / Master's degree in any branch of engineering but having 8 years of work experience in the research areas relevant to the above groups of the department. **(OR)**
- (v) For Geomatics Engineering group, MCA (with mathematics as one of the subjects in Bachelor's level) shall also be eligible for applying.

4. Department of Chemical Engineering

B.Tech./M.Tech./M.Sc. or equivalent in Chemical Engineering/Chemical Technology/ Allied Disciplines in Engineering and Sciences.

5. Department of Chemistry

M.Sc. or equivalent degree in Chemistry / Physics / Applied Chemistry / Industrial Chemistry / Pharmaceutical Chemistry / Biochemistry or B.Tech. in Polymer Technology / Chemical Science and Technology/Chemical Engineering. **(OR)**

BS Degree (4-year) in Chemistry/ Chemical Sciences/ Physics/ Physical Sciences.

6. Department of Computer Science and Engineering

- (i) M.E. / M.Tech. in Information Technology/ Computer Science & Engg. / Software Engg./ AI and Data Science or equivalent. **(OR)**
- (ii) M.Tech. / ME in Electrical Engineering/ Electronics and Communications Engineering or equivalent. **(OR)**
- (iii) B.E. / B.Tech. in Computer Sc. & Engg. / Information Technology Mathematics and Computing or equivalent. **(OR)**
- (iv) Five years integrated BS-MS in mathematics and computing or equivalent.

GATE paper qualification is in CS/EC.

7. Department of Design

- (i) M.Des. / M.Tech. / M.Arch. **(OR)**
- (ii) Bachelor's degree in Design followed by Master's Degree in any specialization. **(OR)**
- (iii) MIM / Master's in Management / MBA or equivalent **(OR)**
- (iv) Master's degree in Science / Bachelor Degree in Engineering / Technology / Architecture may be considered for research areas consistent with the academic background and special interests.

8. Department of Electronics and Communication Engineering

- (i) M.E. / M.Tech. in Microelectronics / VLSI / Microwaves / Communication Systems / Control Systems / Instrumentation / Circuits & Systems / Computer Science or equivalent. **(OR)**

- (i) B.E. / B.Tech. in Electronics & Communication / Electrical Engg./ Computer Science & Engg. or equivalent. **(OR)**
- (ii) M.Sc. in Physics / Instrumentation / Electronics/Computer Science & Engg. or Equivalent.

9. Department of Earthquake Engineering

- (i) B.Tech. / M.Tech. or equivalent degree in Civil Engineering/ Earthquake Engineering. **(OR)**
- (ii) M.Sc. / M.Tech. in Geophysics/ Physics / Mathematics / Geology for research areas in Engineering Seismology and Seismotectonics.

10. Department of Earth Sciences

M.Sc. / M.Sc.Tech / M.Tech. / MS/ Integrated M.Tech./ Integrated M.Sc. degree in Geology / Geophysics / Applied Geology / Applied Geophysics / Geological Technology / Geophysical Technology / Geosciences / Applied Geosciences / Petroleum Geology / Petroleum Geophysics/ Earth Sciences.

11. Department of Electrical Engineering

- (i) B.Tech. / M.Tech. or equivalent degree in Electrical Engineering. **(OR)**
- (ii) B.Tech. / M.Tech. or equivalent degree in Electronics and Communication/ Electronics/ Instrumentation/ Electronics and Instrumentation / Instrumentation and Control Engineering. **(OR)**
- (iii) AI related specializations including B.Tech. / M.Tech. or equivalent degree in Computer Science/ M.Sc. (Maths)/ M.Sc. (Physics).

12. Department of Humanities and Social Sciences

- (i) M.A. or equivalent degree. **(OR)**
- (ii) Master's degree in Sequivalent grade) may be considered for cience/Graduate Degree in Engineering / Technology with 60% marks (or research areas consistent with the academic background and special interests.

13. Department of Hydrology

- i. Master's degree in any of the following or equivalent research areas relevant to the department **(OR)**
 - a) Civil Engg. / Agricultural Engg. / Hydrology / Environmental Engg. / Water Resources / Chemical Engg. **(OR)**
 - b) Geology / Geophysics / Soil Science / Forestry or Natural Resources/ Atmospheric Sciences/ Environmental Sciences/ Disaster Mitigation & Management; with Mathematics at Bachelor's level. **(OR)**
- ii. In-service or sponsored candidates having Master's degree in any branch of engineering with 4 years of work experience in the research areas relevant to the department.

14. Department of Hydro and Renewable Energy

- (i) B.Tech. / M. Tech. or equivalent in Civil / Electrical / Mechanical / Industrial / Chemical / Electronics / Computer / Agricultural / Environmental / Biotechnology/Instrumentation Engineering or Equivalent and related disciplines. (OR)
- (ii) M.Sc. in disciplines consistent with research areas of the department.

15. Department of Management Studies

- (i) B.E. / B.Tech. or equivalent, M.E. / M.Tech. or equivalent qualifications. (OR)
- (ii) M.Sc. / M.A. / M.Com. (OR)
- (iii) Master's in Management/M.B.A. or equivalent.

16. Department of Mathematics

- (i) M.A. / M.Sc. / M.Tech. / Int. M.Sc. (5 years) in Mathematics / Applied Mathematics / Industrial Mathematics / Statistics / Operations Research / Applied Operations Research / Mathematics and Computing or equivalent. (OR)
- (ii) M. Stat. / M. Math. (OR)
- (iii) B.Tech. in Maths and Computing / B.S. Maths (4 years) from IITs / IISc.

17. Department of Mechanical & Industrial Engineering

- (i) B.Tech. / M.Tech. degree or equivalent degree in Mechanical / Industrial / Production Engg. **(OR)**
- (ii) B.Tech. / M.Tech. degree in Aerospace / Chemical / Civil /Computer/Electrical/ Electronics/ Materials/ Metallurgical Engg./ Biotechnology/ Nanotechnology and other research areas consistent with the academic background and special interests.

18. Department of Metallurgical and Materials Engineering

- (i) B.Tech./ M.Tech. degree in Metallurgy / Materials Science and Engineering/ Ceramic Engineering/ Polymer Engineering or equivalent. **(OR)**
- (ii) B.Tech./ M.Tech. degree in Mechanical Engineering/ Production Engineering/ and allied disciplines. **(OR)**
- (iii) B.Tech. / M.Tech. in Biotechnology/ Bioengineering with Mathematics at the undergraduate level. **(OR)**
- (iv) M.Sc. in Materials Science/ Physics/ Chemistry and allied streams with Mathematics at the Undergraduate level.

19. Department of Physics

- (i) M.Sc. in Physics / Applied Physics or equivalent. **(OR)**
- (ii) M.Sc. in Chemistry / Mathematics / Biophysics / Geophysics / Computer Science / Electronics or equivalent, provided Physics was a subject at B.Sc. level. **(OR)**
- (iii) B.Tech. in Electrical / Electronics / Chemical / Metallurgical / Nanotechnology / Engineering Physics or equivalent. **(OR)**
- (iv) M.Tech. (Solid State Electronics Material), M.Tech. (Photonics), M.Tech. (Nanotechnology), M.Tech. (Applied Optics), M.Tech. (Optoelectronics and Optical Communication) or equivalent. **(OR)**
- (v) Integrated M.Sc. in Photonics or equivalent.

20. Department of Water Resources Development & Management

- i. B.E. /B. Tech. /M.E. /M.Tech. in Civil /Agricultural / Environment / Electrical/ Mechanical /Chemical / Computer/ Electronics Engineering /Architecture and Planning or equivalent degree consistent with research areas of the Department. **(OR)**
- ii. M.Sc. Degree in Agricultural Science / Natural (Land and Water) Science / Environmental Science or equivalent consistent with research areas of the Department along with mathematics at bachelor's level.

21. Centre for Transportation Systems (CTRANS)

M.Tech. / M.Arch. / M.Planning / M.Des. / MBA or equivalent degree in Civil Engg. / Mechanical Engg / Industrial Engg. / Production Engg. / Computer Science & Engg. / Chemical Engg. / Infrastructure Systems/ Biotechnology / Architecture / Planning / Urban Engg. / Business Administration /Automobile Engg. / Mechatronics Engg.

22. Institute Instrumentation Centre

- (i) M.Sc. In Physics, Applied Physics, Material Science, Chemistry, Electronics & Nanotechnology with NET/GATE. M.Sc. in Biological Sciences, Life Sciences or related with NET/GATE.
- (ii) M.Tech. (CS) / (Biotechnology) / (Nanotechnology) / (Material Science or equivalent) with NET/GATE
- (iii) B.Tech (Engineering Physics), (EC) / (CS) / (Biotechnology) with NET/GATE

23. Centre of Excellence in Disaster Mitigation & Management

- i. M. Tech. in Disaster Mitigation and Management, Civil Engineering, Geomatics Engineering, Mechanical and Industrial Engineering, Chemical Engineering, Computer Science and Engineering, M. Arch. & M. Planning, or equivalent. **(OR)**
- ii. M. Tech. in Geological Technology, Geophysical Technology, Earth System Science and Engineering, Atmospheric-Oceanic Science and Technology, Biosciences and Bioengineering, or equivalent (with Bachelors in Engineering, or Technology, or Sciences with Mathematics as a subject at least in one semester.) **(OR)**

- iii. M. Sc. in Disaster Management, Geology, Geophysics, Atmospheric and Ocean Sciences, Physics, Mathematics, Environmental Sciences, Biosciences, Biotechnology or equivalent (with Bachelors in Sciences with Mathematics as a subject at least in one semester. **(OR)**)
- iv. M.B.A. or M.C.A. (with Bachelors in Engineering, or Technology, or Sciences with Mathematics as a subject at least in one semester.)

24. Centre for Nanotechnology

- (i) B.E. / B.Tech. or M.E. / M.Tech. in Nanotechnology / Metallurgy / Chemical / Polymer / Mechanical / Biotechnology / Engineering Physics / Engineering Chemistry / Electronics / Electrical/ Computer Science and Engineering / Civil / Energy / Environmental / Agriculture or equivalent. **(OR)**
- (ii) M.Sc. / Int. M.Sc. / M.S. in Science / Engineering, B. Pharm. / M. Pharm. **(OR)**
- (iii) MBBS/MD/BDS/MDS or equivalent.

25. Centre for Photonics and Quantum Communication Technology (CPQCT)

- (i) M.Tech. in Electronics/Electronics and Communication/Computer Science / Electrical/Photonics/Optoelectronics and Optical Communication/ Applied Optics, or equivalent. **(OR)**
- (ii) M.Sc. in Physics / Applied Physics/Electronics/Photonics/Computer Science or equivalent. **(OR)**
- (iii) BS-MS in Physics/B.S. (4 years) / Applied Physics or equivalent. **(OR)**
- (iv) Integrated M.Sc. in Physics/ Photonics or equivalent. **(OR)**
- (v) B.Tech. in Electronics/Electronics and Communication/Computer Science, Electrical/ Engineering Physics or equivalent.

26. International Centre of Excellence for DAMS

- (i) Master's degree in Dam Safety and Rehabilitation/ Hydrology/ Water Resources Engineering/ Hydraulics/ Geotechnical Engineering/ Earthquake Engineering/ Geomatics Engineering/ Geology/ Geophysics / Master's in Architecture/ Master's in Planning or Equivalent. **(OR)**
- (ii) B. Tech. / M. Tech. in Civil / Mechanical/ Industrial / Production Engineering or equivalent.

27. Centre for Space Science and Technology

- (i) Bachelor's degree (4-year)/ Master's degree in Engineering. **(OR)**
- (ii) Master's degree in Physics/ Mathematics/ Atmospheric Science/ Space Science/ Economics/ Geology/ Applied Geology/ (or equivalent in Earth Sciences)/ Chemistry or equivalent.

28. Centre for Sustainable Energy

B.Arch. / M.Arch. / B.Plan. / M.Plan. / MURP / B.E. / B.Tech. / M.E. / M.Tech./M.Sc. in any branch of engineering & science.

29. Mehta Family School of Data Science and Artificial Intelligence

- (i) M.Tech. / M.E. or equivalent **(OR)**
- (ii) Bachelor's Degree in Science/ Mathematics/ Statistics / Operations Research/ Actuarial Science followed by Master's Degree in any specialization. **(OR)**
- (iii) MIM/ Masters in Management / M.B.A. /M.Arch. or equivalent with Mathematics/ Statistics at graduation level. **(OR)**
- (iv) MBBS followed by M.D./M.S. or equivalent.



30. Department of Applied Mathematics and Scientific Computing

- (i) M.A. / M.Sc. / Int. M.Sc. (5Years) in Mathematics/ Applied Mathematics/ Industrial Mathematics/ Statistics/ Operations Research/ Mathematics and Computing or equivalent. **(OR)**
- (ii) B.E. / B.Tech./ M.E. / M.Tech. in any branch of Engineering / B.S. Maths and Computing (4 years) or equivalent.

31. Department of Paper Technology

- i. M.Sc. /M.S. (Science/Engineering) . **(OR)**
- ii. BE / B.Tech. / B.Pharm. / M.E. / M.Tech. / M.Pharm. in any branch of engineering or equivalent.

32. Department of Polymer and Process Engineering

- (i) B.E./M.E./B.Tech./B.Pharm./M.Tech./ M.Pharm. in Polymer Science and Engineering / Technology; Chemical Engineering / Technology; Oil / Petroleum / Paint / Ceramics / Leather / Paper/ Packaging Technology; Material Science / Engineering / Technology; Plastics / Rubber / Jute / Textile / Membrane / Engineering / Technology; Mechanical Engineering; Electronics / Instrumentation; Environmental Engineering; Biotechnology; Pharmaceutical Science / Engineering; Biomedical Engineering / Technology; Nanobiotechnology; Nanotechnology / Engineering Physics and Computer Science & Engineering. **(OR)**

- (ii) M.Sc. in Chemistry/ Polymer/ Applied/ Industrial Chemistry/ Physics/ Applied Physics/ Electronics/ Materials Science/ Biochemistry.

8

APPLICATION FEE (Non-Refundable)

1. Application Fee per department :

For General/ Gen-EWS/OBC category

Rs 500/-

For SC/ST/PwD category

Rs 250/-

The candidates can deposit the requisite application fee by using net banking or debit/credit card facilities only. Additional charges will be applicable as per the rule of the concerned bank. **The Fee will not be accepted through any other mode.**

2. If candidate opts for more than one department/centre/School, then application fee should be paid in accordance to the number of Department/Centre/School.

9

COURSE FEE STRUCTURE

For details of course fee structure, please visit the following link: <https://iitr.ac.in/Academics/Institute%20Fees.html> . Revised fee structure if any, shall be uploaded accordingly. The fee will be charged each semester as per Institute rules/norms applicable from time to time. Details can be obtained through e-mail at: aao@iitr.ac.in



10

CANCELLATION OF ADMISSION / PROGRAMME

The Institute reserves the right to cancel, at any stage, the admission of a candidate admitted to a programme and is later found that he/she is not entitled, being unqualified or ineligible in accordance with the Regulations in vogue, or suspension/termination of programme. In case of cancellation/withdrawn of admission after registration from programme, refund of fee will not be permissible.

11

MATTERS OF DISPUTE

Disputes, if any, arising out of or relating to any matter whatsoever shall be subject to the exclusive jurisdiction of the Roorkee Courts.

12

RAGGING

Ragging is banned in the Institute and anyone indulging in ragging is likely to be punished appropriately and the punishment may include expulsion from the institution, suspension from the institution or classes for a limited period, or fine with a public apology. The punishment may also take the shape of: (i) withholding of scholarships or other benefits, (ii) debarring from representation in events, (iii) withholding of results, (iv) suspension, rustication or expulsion from hostel or mess, (v) monetary fine etc.

13

INSTRUCTIONS FOR ONLINE APPLICATION & OTHERS

For admission to Ph.D. programmes in Spring Semester of the session 2024-25, candidates need to register and fill the application ONLINE only by accessing the website link:

<https://iitr.ac.in/Academics/Admission%20To%20Doctoral%20Programmes.html> on or before

Nov 01, 2024 (11:59 p.m.).



Documents

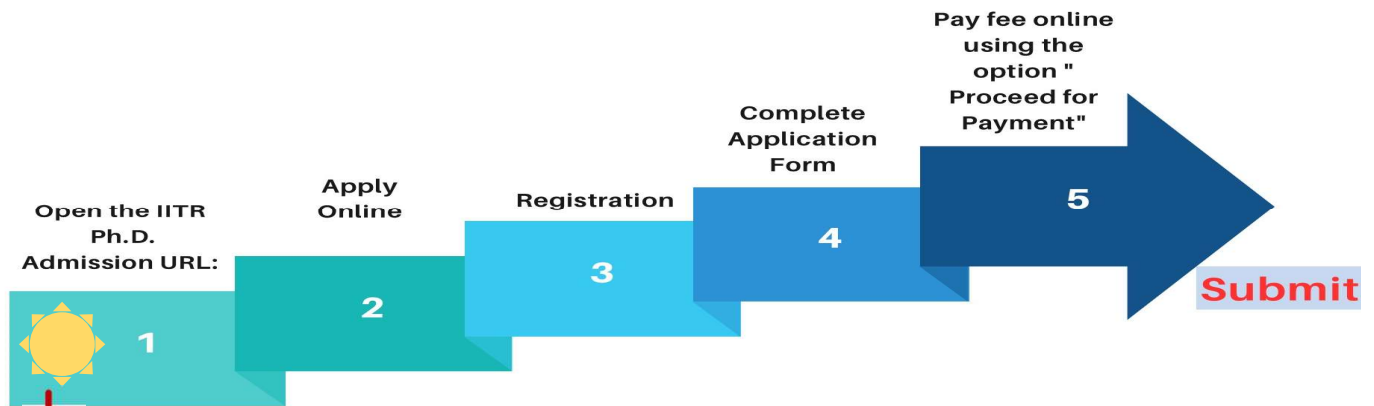
Before applying online, candidates are required to keep the following documents ready for uploading:

S.No.	Particulars	Size
1	Colour photograph (only in JPEG)	Up to 500 KB
2	Signature (only in JPEG)	Upto 500 KB
3	EWS/OBC/SC/ST/PD Category Certificate (PDF) (If applicable)	Upto 5 MB
4	10 th Certificate/Marksheet (in single PDF)	Upto 5 MB
5	12 th certificate/Diploma and Marksheet (in single PDF)	Upto 5 MB
6	Bachelor's Degree or Provisional /Consolidated Marksheet (in single PDF)	Upto 5 MB
7	Master's Degree or Provisional /Consolidated Marksheet (in single PDF), if applicable	Upto 5 MB
8	Experience certificate(s) and No Objection Certificate (NOC) for In-Service candidates (in single PDF) (If applicable)	Upto 5 MB
9	GATE score card / NET score card / Fellowship award letter (in single PDF) (If applicable)	Upto 5 MB
10	Certificate of first rank/gold medal issued by the institute/university (applicable only for Golden Girl Scheme for Females)	Upto 5 MB

NOTE: If any of the submitted document is password protected, then the application will not be considered for admission.

Steps to be followed

Candidates must follow the followings steps while filling online Application Form:



Candidates may download their online submitted application form, completed in all respect, for their own record, if required.

The candidates are advised to read each and every instruction given in this Information Brochure very carefully before applying Online.



Other Information, Terms & Conditions

1. Selection process is purely based on merit. Stipulated dates for a written test and/or interview shall be communicated by the concerned Departments/Centres/School to the shortlisted candidates. Simultaneously, the dates shall be uploaded in the portal of each Departments/Centres/School.
2. The prescribed qualifications and experience are the minimum required and the mere fact that a candidate possesses the same will not entitle the candidate for being called for an interview.
3. Departments / Centres / School of the Institute reserve the right to restrict the number of candidates to be called for interview to a reasonable number, on the basis of qualifications and/or experience.
4. Provision exists to apply in one or more Departments/Centres/School. Accordingly, a candidate can submit application(s) in one or more departments/centres/school through **single online application.**
5. All entries should be carefully made while applying online. IIT Roorkee will not be responsible for wrong entries. Candidates shall be solely responsible for the correctness and authenticity of the information / documents provided in the online application.

6. **Candidates must fill/enter their CGPA or percentage of marks as issued by their institute/college/university. Candidate must not convert their CGPA into percentage and vice-versa.**

7. Candidates should complete application in all respect in the admission portal and submit it online only. No correspondence / communication will be entertained for incomplete application.

8. Online application submitted by the candidates shall be considered final and binding. Requests for making correction in the online application shall not be entertained.

9. The last date for submission of online application shall not be extended. Accordingly, no request shall be entertained for accepting the application after the last date.

10. IIT Roorkee will not be responsible for technical error while making the online application / payment of fee. Therefore, candidates are advised to submit their application well in advance without waiting until the last date.

11. Admission will be offered subject to availability of seats, faculty in the Specialization and the Institute Assistantship.

12. Students shall be governed by ordinance/ regulations in vogue.

13. The Institute has the right to cancel, at any stage, the admission of the candidate who is found admitted to a course to which the candidate is not entitled, being unqualified or ineligible in accordance with the rules and regulations in force.

14. Disputes if any, arising out of or relating to any matter whatsoever, concerning the aforesaid shall be subject to the exclusive jurisdiction of Roorkee Court.

15. The Institute reserves the right to verify the antecedents or documents submitted by the candidate at any time during their period of study. In case it is found that the documents submitted by the candidate are not genuine, then his/her admission shall be terminated, and disciplinary / criminal proceedings will be initiated.

16. Merely applying for / being shortlisted / appearing for the interview / written test /or subsequent processes do not imply that a candidate will necessarily be offered admission in IITR. No request for considering the candidature in department, other than in which applied, will be entertained.

17. Candidates are advised to fill their correct and active e-mail addresses in the online application as all correspondence will be made by the Institute through online only. All information regarding Test/ Interview/ subsequent amendments/updates in the advertisement and results will be uploaded on the respective Department's/Centre's/School's website only. No separate communication will be made. The Institute shall not be responsible for the failure of candidates with respect to visiting the website on any ground.

18. The candidates should ensure that they fulfil all the eligibility conditions as specified. Their admission will be purely provisional subject to confirmation that they satisfy the prescribed eligibility conditions. Mere issue of call letters to the candidates will not imply that the candidature has been found eligible.

19. All the mandatory documents mentioned in point 13 including final results/provisional degree should be produced in original at the time of Admission Registration or on the last date mentioned for the same in the academic calendar of the Spring Semester 2024-25. Information to this effect will be available in the IIT Roorkee website. Failure to produce these documents will lead to cancellation of admission without any further notice.

20. After joining, hostel and mess facilities will be provided as per the availability.

21. **All candidates are advised to visit regularly the Institute website for further information.**

Undertaking by the applicants for submission of the required certificates towards admission to Ph.D. Programme (Spring Semester) 2024-25

I.....S/o/D/o.....
R/o (address) want to apply to pursue my study in Ph.D. programme at IIT Roorkee.

I hereby undertake that I will submit the following required documents:

1.
2.
3.

at the time of registration, if selected for admission. In case, I fail to submit the required documents within the due date, or found ineligible or information/certificate found incorrect/false at any stage, the Institute reserves the right to cancel my admission offer and registration.

Signature of the Applicant:.....

Name of Applicant:

Email:.....

“IIT Roorkee is committed to nurture and promote diversity and inclusion”.




**For further information,
please contact:**

Academic Affairs Office (Admissions)
Indian Institute of Technology Roorkee,
Roorkee -247 667
(Uttarakhand)

 <https://iitr.ac.in/Academics/Home.htm>

 phdadmission@iitr.ac.in

 6395059674 (message only)

 (Working hours only)

