

Indian Institute of Technology Roorkee
Ph.D. Admission for Autumn Semester 2018-19
INFORMATION BROCHURE



IMPORTANT DATES

Start of Online Application (Website Open)	February 26, 2018
Last Date for submission of Online application (Website Closure)	March 20, 2018
Last date for Receiving of completed application (Hard copy) at PG Admission Office, IIT Roorkee	March 26, 2018*

*** No Hard copy of the application shall be accepted after the due date/time. The Institute shall not be responsible for any delay regarding reaching of the application.**

IMPORTANT INSTRUCTIONS

1. The candidates are advised to read each and every instruction given in this Information Brochure very carefully before applying Online.
2. All entries should be carefully made while applying online. IIT Roorkee will not be responsible for wrong entries. Candidates shall be sole responsible for the correctness and authenticity of the information / documents provided in the online application.
3. Online application submitted by the candidates shall be considered final and binding. Requests for making correction in the online application shall not be entertained.
4. Online application found incomplete in any form will be summarily rejected. No correspondence / communication will be entertained in this regard.
5. 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. 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 and not to wait for the last moment.

6. Online applications will be scrutinized, relevant documents checked / verified for their authenticity.
7. Admission will be offered subject to availability of seats, faculty in the Specialization and the Institute Assistantship.
8. Students shall be governed by ordinance/ regulations in vogue.

9. The Institute has the right to cancel, at any stage, the admission for the candidate who is found admitted to a course to which he/she is not entitled, being unqualified or ineligible in accordance with the statutes and regulations in force.
10. 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.
11. Hostel Accommodation will be provided, if available.

APPLICATION FEE

1. **Application Fee (non-refundable): Rs. 200/- for General/OBC category and Rs. 100/- for SC/ST/PD category candidate.** The candidates can deposit the requisite application fee by using net banking or debit/credit card facilities. 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, then application fee should be paid in accordance to the number of department/centre**
3. **Separate application (Hard copy) with necessary documents/testimonials be sent for each department/centre.**

COURSE FEE STRUCTURE

For details of course fee structure, please visit the following link:

https://www.iitr.ac.in/academics/pages/Doctoral_Programmes.html

The fee will be charged each semester as per Institute rules/ norms applicable from time to time. Details can be obtained from Assistant Registrar (Academic Research).

Instructions for Online Application:

For admission to Ph.D. programmes for Autumn Semester of the session 2018-19 candidates need to register and fill the application ONLINE only from February 26, 2018 by accessing the website <http://pgadm.iitr.ernet.in> on or before March 20, 2018. **The application process shall be considered complete only when a print out of the filled ONLINE application with the candidate's signature, and a good quality photo affixed in the appropriate places is sent to the Institute along with necessary documents/testimonials on or before March 26, 2018.**

Candidates must follow the following Steps while applying online Application Form.

Step 1: Apply for Ph.D. programmes

- a) Register
- b) Login
- c) Apply online.
- d) Finalize Application Form
- e) Pay fee online using option "Proceed for Payment"
- f) Download Application Form (Take a print out of the entire file on A4 size white sheets)

Step 2: Paste your recent photograph (3.5 cm X 3.5 cm) at the designated place and sign at the designated place.

Step 3: Post/Submission:

(A) On the top of envelop, the following should be written: '**Application for Ph. D. Admission for Autumn Semester 2018-19**'.

(B) Other relevant documents as indicated below should be enclosed:

- GATE/NET Certificate, if applicable
- Copies of all the marksheets, degree certificates, or provisional certificate.
- M.Sc. Degree holders should submit the proof of mathematics as a subject at bachelor's level. The applicability of this requirement is specified in the Discipline wise Minimum Educational Qualification.
- Copy of OBC/SC/ST/PD category certificate as applicable.
- **Copy of experience of two years as on March 26, 2018 and NOC from the employer, in case the candidate is sponsored.**

Duly filled-in Application form with appropriate enclosures must be sent by Post /courier or handed over to **The PG ADMISSION OFFICE, INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, ROORKEE-247667, UTTARAKHAND** so as to reach on or before **March 26, 2018 up to 5:30 p.m.**

No Hard copy of the application shall be accepted after the due date/time. The Institute shall not be responsible for any delay regarding reaching of the application. If the last date happens to be non working day/a holiday then next working day shall be considered as last due date/time.

Name of Departments / Centres of IIT Roorkee

Roorkee Campus

- Alternate Hydro Energy Centre
- Architecture and Planning
- Biotechnology
- Civil Engineering
- Chemical Engineering
- Chemistry
- Computer Science & Engineering
- Electronics and Communication Engg.
- Earthquake Engineering
- Earth Sciences
- Electrical Engineering
- Humanities and Social Sciences
- Hydrology
- Management Studies
- Mathematics
- Mechanical and Industrial Engg.
- Metallurgical and Materials Engg.
- Physics
- Water Resources Development and Management
- Institute Instrumentation Centre
- Centre for Transportation Systems
- Centre for Disaster Mitigation & Management
- Centre for Nanotechnology

Saharanpur Campus (IIT Roorkee)

- Applied Science & Engineering
- Polymer & Process Engineering
- Paper Technology

1. Ph.D. PROGRAMMES

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 recognised by the Academic Departments 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 judgement and shall represent original contribution to the existing knowledge. The Institute is also recognised 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.

2. ADMISSION CATEGORIES

The applicant 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.

(I) Full-time Research student/Candidate

- a) Research student/Candidate getting Institute assistantship.
- b) Research student/Candidate including foreign nationals getting financial support from Govt. / Semi Govt. agencies (QIP, CSIR, UGC, NET, DAE, DST, DBT, NBHM, ICCR, ICAR, ICMR, GPAT, NDF, INSPIRE etc.)

- c) Research student/Candidate including foreign nationals supported by a sponsoring organization, the applicant (Sponsored Research Student/Candidate) having TWO years experience out of which at least ONE year experience with the sponsoring agency at the time of registration for Ph.D Programme.
- d) Research student / Candidate working regularly full-time in an R&D project in the institute. The project must have tenure of at least next 1½ years at the time of admission. His/her Ph.D. topic shall confirm to the project as certified by the SRC.

II) Part-time Research Student/ Candidate:

- a) Research student/Candidate working as a regular employee in the Institute
- b) Research student/Candidate working in other organizations / institutes, approved by IIT Roorkee as Research Centre or having MoU for research purposes.

3. ADMISSION ELIGIBILITY

1. An applicant belonging to the above admission categories should possess the following qualifications in appropriate areas to be eligible to apply for admission for the Ph.D. programme of the Institute.

- a) Masters degree or equivalent in respective discipline with a minimum Cumulative Grade Point Average (CGPA) of 6.00 on a 10 point scale or equivalent as determined by the Institute wherever letter grades are awarded; or 60% marks in aggregate (of all the years/semesters) where marks are awarded, for the GENERAL (UR) category and qualified national level graduate entrance test: GATE/UGC-NET/CSIR-NET or equivalent or holding a national level fellowship. The condition for national level graduate admission test is not applicable to sponsored full-time and part-time research candidates.

Candidates with postgraduate degree in professional courses can be admitted with

institute assistantship. The condition of GATE/NET qualification is not mandatory.

OR

- b) B.Tech. / B.Arch. degree or equivalent in respective discipline from CFTIs with excellent academic record (with a minimum CGPA of 7.00 on a 10 point scale or 70% marks) with GATE.

Graduates from the IITs getting a CGPA score of 8.00 or above (on scale of 10) would be entitled to the assistantship without having to appear in GATE.

OR

The candidates pursuing master's programs in Engineering or Architecture from IIT Roorkee having CGPA of at least 8.50 on a 10 point scale (after first year/ completing all courses) shall have a choice of internal lateral entry in to Ph.D. programme after completing all requirements of the first two semesters of first year of the Master's programme.

2. The admission eligibility requirements may be relaxed to 5.5 on a 10 point scale or equivalent, or to 55% marks to the following categories:
- SC/ST candidates with Master's degree or equivalent degree.
 - Any category of PD (Persons with different abilities) candidate holding Master's degree or equivalent degree.

Note: Candidates belonging to OBC category must submit a copy of category certificate as per GOI, the format of the same is also available on the Institute website, OBC Non-creamy layer certificate should have been issued after 31.03.2017 by a competent authority.

4. Eligibility for Part-time Ph.D.

- The applicant possesses the minimum entry qualifications for the degree as given;
- The applicant proves that his official duties permit him to devote sufficient time to research;
- He / She will be required to reside at the Institute for a period till he/she is admitted

for candidacy. (This condition of minimum residency period will be automatically waived for candidates who are working in Roorkee or in Organizations / Institutions located within a distance of 100 km from the Institute).

- The facility of part time registration will also be available to all employees of the IIT Roorkee or candidates working in organizations having MoU with IITR or organizations approved by IIT Roorkee as Research Centres. Such applicants are exempted from the requirement of having GATE/NET/GPAT.
 - The applicants must have been in continuous service with the sponsoring organization for at least two years at the time of registration for admission.
 - The candidates working in Institute/ University awarding Ph.D degree itself are not eligible for admission as part-time or full-time candidate, if facilities are not available except QIP candidates.**
5. Employee seeking admission to the Ph.D. programme with minimum of two years service in an organization or confirmed regular employee shall submit 'No Objection Certificate' from the employer to the effect that the duties allotted by the employer will allow the required time for this pursuit.
6. The candidate seeking admission to Ph.D. programme as project fellow (JRF/SRF) either as full-time or part-time research scholar, shall be allowed to register for Ph.D. in the beginning of the next semester, if the candidate is selected in project as project fellow through proper selection, i.e, proper advertisement of project fellowship and selection by the committee constituted as per Institute rules. The candidate shall register with the PI as supervisor.

If the candidate is not selected in project through proper advertisement or the candidate wants to switch over to Institute assistance, he/she has to

appear for Ph.D selection along with other candidates provided he/she has 'No-Objection Certificate' from the PI.

The project fellows shall be allowed to register for Ph.D. only if the remaining period of the project is at least 1½ years at the time of admission. These candidates are also eligible for Institute assistantship for a maximum period of TWO years once their project is completed provided the essential qualifications for Institute assistantships are met. The candidate has to apply for Institute assistantship through SRC.

7. MINIMUM QUALIFICATION FOR ADMISSION TO Ph.D. PROGRAMME IN DIFFERENT DISCIPLINES

A. ROORKEE CAMPUS

1. Alternate Hydro Energy Centre

- i. B.Tech. / M.Tech. or equivalent in Civil / Electrical / Mechanical/ Industrial / Chemical / Environmental / Agricultural / Computer / Electronics Engineering
- ii. M.Sc. in disciplines consistent with research areas of the centre.

2. Architecture & Planning

Master's degree in Architecture in any of the specializations offered by recognized Institutions of Architecture / Master's degree in Building Science / Technology with a Bachelor's degree in Architecture / Master's degree in Planning in any of the specializations offered by the recognized Institutions of Planning with a Bachelor's degree in either Architecture or Planning (B.Planning) or Civil Engineering.

3. Department of Biotechnology

- i. Master's degree in any disciplines of Science
- ii. Bachelor's / Master's degree in medical sciences, engineering, pharmacy, veterinary and related disciplines.
- iii. MD / MS in Ayurveda

4. Department of Civil Engineering

- i. B.Tech / M.Tech. or equivalent degree in Civil Engineering. Candidate having an M.Tech. Degree but not having a Bachelor's degree in Engineering must have studied Mathematics at the Bachelor's level.
- ii. B.Tech. / M.Tech. degree in any branch of Engineering may be considered for

research areas consistent with the academic background and experience.

- iii. M.Sc. Degree in any branch of Science or MCA (with mathematics at the Bachelor's level for both M.Sc. and MCA) may also be considered for research areas in Geomatics Engineering.

5. Department of Chemical Engineering

- i. B.Tech./M.Tech. or equivalent degree in Chemical Engineering.
- ii. B.Tech./M.Tech. or equivalent degree in any branch of Engineering/ Chemical Technology and interdisciplinary areas.
- iii. M.Sc. in disciplines consistent with the research areas of the department.

6. Department of Chemistry

- i. M.Sc. or equivalent degree in Chemistry/ Physics.
- ii. M.Sc. in Bio-technology or M.Sc. in Biochemistry

7. Department of Computer Science and Engg

- (i) M.E./M.Tech. in Information Technology/ Computer Science & Engg./ Software Engg. or equivalent.
- (ii) M.Tech./ME in Electrical Engineering/Electronics and Communications Engineering or equivalent
- (iii) B.E./ B.Tech. in Computer Sc. & Engg./ Information Technology or equivalent.

8. Department of Electronics and Communication Engineering

- (i) ME. / M.Tech. in Microelectronics / VLSI / Microwaves / Communication Systems / Control Systems / Instrumentation /Circuits & Systems or equivalent
- (ii) B.E. / B.Tech. in Electronics & Communication/ Electrical Engg. Or equivalent.
- (iii) M.Sc. in Physics / Instrumentation/Electronics.
- (iv) B.Tech + M.Tech in Computer Science

9. Earthquake Engineering

- i. B.Tech. / M.Tech. or equivalent degree in Civil Engineering/ Earthquake Engineering / any branch of Engineering .
- 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. degree in
Geology / Geophysics / Applied Geology /
Applied Geophysics / Geological Technology
/ Geophysical Technology / Geosciences /
Applied Geosciences / Petroleum Geology /
Petroleum Geophysics.

11. Department of Electrical Engineering

- i. B.Tech./M.Tech. or equivalent degree in
Electrical Engineering.
- ii. B.Tech./M.Tech. or equivalent degree in
a branch of Engineering consistent with
the research areas as mentioned by the
Department from time to time.
- iii. M.Sc. in a discipline consistent with the
research areas as mentioned by the
Department from time to time.

12. Department of Humanities and Social Sciences

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

13. Hydrology

- i. Master's degree in Civil Engg. / Water
Resources Development / Hydrology.
- ii. Master's degree in Agricultural Engg./
Environmental
Engg./Instrumentation/water use
management
- iii. M.Sc. / M.Tech. in Geology / Geophysics
/ Soil Science / Forestry or natural
Resources/ Chemistry / Meteorology /
Atmospheric Physics / Mathematics /
Nuclear Physics & Environmental
Sciences
- iv. M.Sc. Hydrology with Mathematics at
Bachelor's level

14. Department of Management Studies

- i. B.E. / B.Tech. or equivalent, M.E./ M.Tech
or equivalent qualifications.
- ii. M.Sc. / M.A. / M.Com.

iii. Master of Management/M.B.A. or
equivalent.

15. Department of Mathematics

- i. M.A. / M.Sc. / M.Tech. in Mathematics/
Applied Mathematics/ Industrial
Mathematics / Statistics / Operation
Research / Applied Operation Research/
Mathematics and Computing.
- ii. M.Stat. or Equivalent

16. Department of Mechanical & Industrial Engg.

- i. B.Tech. / M.Tech. degree or equivalent
degree in Mechanical/ Industrial/
Production Engg.
- ii. B.Tech. / M.Tech. degree in Aerospace /
Chemical / Civil / Electrical / Metallurgical
Engg. may be considered for research
areas consistent with the academic
background and special interests.

17. Department of Metallurgical and Materials Engineering

B.Tech/M.Tech or equivalent relate to the
following disciplines:

Metallurgical Engg, Materials Engg,
Nanotechnology, Engg Physics, Engg
Chemistry, Ceramics, Polymers, Corrosion,
Mechanical, Production & Industrial Engg.,
Chemical Engineering and Electrochemical
Engg. Or

1. M.Sc. degree in Physics, Chemistry,
Materials Science.
2. Candidates with a M.Sc. degree,
Mathematics as a subject at B.Sc.
degree level is an essential
requirement.

**Note: Candidates having a degree in
Industrial Engineering only, shall not be
eligible for admission to the Doctor of
Philosophy programme in the Department
of Metallurgical and Material Engg.**

18. Department of Physics

- i. M.Sc. in Physics/ Applied Physics
- ii. M.Sc. in Chemistry/ Mathematics/
Biophysics/ Geophysics/ Computer
Science, provided Physics was a subject
at B.Sc. level.

- iii. B.Tech. or equivalent in Electrical / Electronics / Chemical/ Metallurgical / Engineering Physics.

Candidates at Category (ii) and (iii) may be considered for research area consistent with the academic background and special interests.

19. Water Resources Development & Management

i Water Resources Development

B.E. / B.Tech. / M.E./ M.Tech. or equivalent degree in Civil, Electrical, Mechanical & Agricultural Engineering.

ii Irrigation Water Management

Master's Degree in Agricultural Sciences / Social Sciences / Chemical Engineering / Biological Sciences / Environmental Sciences / Engineering / Natural Sciences with at least one paper of Mathematics at the graduate level.

20. Institute Instrumentation Centre

M.Sc. / M.Tech. in Physics, Applied Physics, Material Science, Chemistry, Electronics & Nanotechnology with NET/GATE.

21. Centre for Transportation (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.

22. Disaster Mitigation & Management

M.Tech. (Civil, Mechanical & Industrial, Chemical, Computer Science), M.Arch. & M.Planning or equivalent. Or

M.Tech. in Geological Technology, Geophysical Technology, Biotechnology or equivalent. Or

M.B.A. or M.C.A. in Computer Science or M.Sc. in Physics, Geophysics, Geology, Mathematics, Environmental Sciences (with Maths in B.Sc.), M.Tech. Bio-technology or equivalent.

23. Centre for Nanotechnology

- (i) B.E./B.Tech or M.E./M.Tech. in Metallurgy / Chemical / Polymer / Mechanical / Biotechnology / Physics / Chemistry / Electronics / Electrical./Civil or equivalent
- (ii) M.Sc. / M.S. (Science / Engineering)
- (iii) B. Pharm /M. Pharm.

B. SAHARANPUR CAMPUS

1. Applied Science & Engineering:

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

2. Pulp & Paper Engineering:

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

3. Polymer and Process Engineering:

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