

PhD Admissions

Information Brochure | Autumn Semester 2024-25



Academic Office
Indian Institute of Technology Goa

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01. Eligibility criteria for PhD admission

a. Full-time PhD program

- i. Applicants must have one of the following in appropriate subject areas.
 1. Master's Degree in Engineering/Technology or equivalent degree with 60% marks or CPI 6/10 or equivalent. (55% marks or CPI 5.5/10 or equivalent for SC/ST).
 2. Bachelor's degree or equivalent degree in Engineering/Technology with 70% marks or CPI 7/10 or equivalent. (65% marks or CPI 6.5/10 or equivalent for SC/ST).
 3. Master's degree in science, arts, social sciences, or equivalent degree with 60% marks or CPI 6/10 or equivalent. (55% marks or CPI 5.5/10 or equivalent for SC/ST).
- ii. Applicants must also fulfill one of the following additional requirements.

1. For engineering stream¹:

- a. Qualified GATE in the relevant streams. (Candidates with B.E. /B.Tech/MCA/M.Sc. degree or equivalent relevant degree must have a **valid** GATE score).
- b. Junior Research Fellowship (JRF) of CSIR/ UGC/ NBHM/ DBT/ ICAR/ ICMR/ ICPR Fellowship in the relevant streams.
- c. B.Tech/Dual degree from IIT with a CPI/CGPA of 8.0 or more.
- d. Minimum of 2 years of professional experience. (Acquired after obtaining the qualifying degree and completed before the start of the semester in which admission is sought) in the relevant areas. (Applicable to B.Tech/B.E. /MCA/M.Sc. qualifying degree candidates).

2. For science stream:

- a. Qualified GATE/CSIR/UGC-NET/JEST in the relevant streams.
- b. Junior Research Fellowship (JRF) of CSIR/ UGC/ NBHM/ DBT/ ICAR/ ICMR/ ICPR Fellowship in the relevant streams.
- c. An ongoing degree may also be considered as a qualifying degree provided the applicant graduates before the PhD program starts.

¹ MTech/ME qualifying degree candidates are exempted from having an additional requirement for applying to the PhD program at IIT Goa

- d. B.Tech² degree in Mathematics and Computing from IIT with a CPI/CGPA of 8.0 or more.

3. For humanities and social science stream:

- a. UGC- NET/GATE is desirable under the institute TA category.
- b. UGC-Junior Research Fellowship (JRF) in the relevant streams under the JRF Category

b. Part-time PhD program

- i. Applicants must have ONE of the following in appropriate subject areas.
 1. Master's Degree in Science/ Engineering/ Technology or equivalent degree with 60% marks or CPI 6/10 or equivalent. (55% marks or CPI 5.5/10 or equivalent for SC/ST) marks or equivalent and a minimum of two (02) years of work experience at the time of application.
 2. Bachelor's degree in Science/Engineering/Technology with 60% marks or CPI 6/10 or equivalent. (55% marks or CPI 5.5/10 or equivalent for SC/ST) or equivalent and a minimum of four (04) years of work experience at the time of application.
 3. Master's degree in Science/Engineering/Technology or equivalent degree with 60% marks or CPI 6/10 or equivalent. (55% marks or CPI 5.5/10 or equivalent for SC/ST) or equivalent from IIT/ IISER/ IIIT/ IISc/ NIT and a minimum of one (01) year of work experience at the time of application.
 4. Bachelor's degree in Science/Engineering/Technology or equivalent degree with 80% marks or CPI 8/10 or equivalent (75% marks or CPI 7.5/10 or equivalent for SC/ST) or equivalent from IIT/ IISER/ IIIT/ IISc/ NIT and a minimum of one (01) year of work experience at the time of application.

02. Application categories for PhD admission

a. Full-time or Regular PhD program

- Teaching Assistantship (TA): Students get fellowship from the institute as per the guidelines by the Ministry of Education.
- TA through Project (TAP): Students get fellowship from the research project and partial support from the institute.

² Only applicable for Mathematics Program

- Govt./ Semi Govt. Fellowship Awards such as QIP, CSIR-JRF, UGC-JRF, DAE, DST-INSPIRE, DBT, NBHM, etc.
- Sponsored: A student in this category is sponsored by an R&D organization, academic institution, government organization, or industry for doing research in the institute on a full-time basis. The institute does not provide any assistantship/fellowship to such a student.
- Self-financed: A student in this category works full-time or part-time towards the PhD program. The institute does not provide any assistantship/fellowship to such a student.

b. Part-Time PhD program

A student in this category is a professionally employed person (including IIT Goa staff), who pursues the PhD program while continuing the duties of the employment. The institute does not provide any assistance/fellowship to such a student.

- Permanent employees from state or central government universities, colleges, or research institutes and labs.
- External - This category refers to a student employed in an R&D organization/academic institution/industry having adequate research facilities. The research work leading to the PhD degree may be carried out largely in the parent organization of the candidate under a Local Supervisor from the organization but with the overall guidance provided by a faculty member (Institute Supervisor) of the AU in which the student is registered.
- Self-sponsored.
- Permanent staff of IIT Goa.

03. Schedule of Admission for the Autumn Semester of the AY PhD Program in 2024-25

Sr. No.	Particulars	Date
1	Start date of application (online only)	04 April 2024
2	Last date for submitting an online application form and completing the payment	30 April 2024
3	Commencement of classes for the Autumn Semester	24 July 2024

The schedule for the written exam/interview will be informed to the shortlisted candidates via email separately.

04. Areas of Specialisation

Unless otherwise specified the opening is open to all categories.

Program	Research Area
Computer Science and Engineering (CSE)	<p>Institute TA category and JRF Category:</p> <ol style="list-style-type: none"> 1. Computer Vision, Deep Learning, Lifelong Learning, Pattern Recognition, and Aerial Imaging 2. Artificial Intelligence and Game Theory 3. Automata, Logic, Algebra, and Games 4. Computational Complexity, Graph Theory & Algorithms 5. Machine learning: Bayesian data analysis, approximate posterior inference, and deep latent variable models <p>TAP Category:</p> <ol style="list-style-type: none"> 1. Computer Vision, Deep Learning, Pattern Recognition, and Aerial Imaging <p>Part-Time:</p> <ol style="list-style-type: none"> 1. Computational Complexity
Chemical and Materials Engineering (CME)	<p>Institute TA category:</p> <ol style="list-style-type: none"> 1. Colloidal assembly and micromotions: building nanostructures 2. Cancer Therapy using Nanomaterials 3. Ionic Liquid-Assisted Copper-Based Nanostructured Catalysts for Electrochemical CO₂ Reduction 4. Nanomaterials for Water Electrolysis to Produce Green Hydrogen
Chemistry	<p>Institute TA category:</p> <p>Candidates must have valid GATE score</p> <ol style="list-style-type: none"> 1. Synthetic Organic Chemistry, Medicinal Chemistry 2. Organometallics and Catalysis 3. Soft Matter, Biophysical Chemistry, Statistical mechanics, theoretical physical chemistry <p>JRF category:</p>

	<ol style="list-style-type: none"> 1. Synthetic Organic Chemistry, Medicinal Chemistry 2. Organometallics and Catalysis 3. Soft Matter, Biophysical Chemistry, Statistical mechanics, theoretical physical chemistry 4. Ultrafast Spectroscopy, Experimental physical chemistry
Humanities and Social Sciences	<p>Institute TA category and JRF Category:</p> <ol style="list-style-type: none"> 1. Economics
Electrical Engineering	<p>Institute TA category:</p> <ol style="list-style-type: none"> 1. Communication and Signal Processing: Sparse Signal Processing, Interpretable Deep Learning.. 2. Power Engineering: Electrical Machines and Drives, High Voltage Insulation and Computational Electrostatics, High Voltage/Electrical Discharges, Power Electronics. 3. VLSI and Microengineering: Analog/mixed-signal Integrated Circuits and Systems, Digital Circuits/Systems Design, Approximate Computing, Computer Architecture, and Hardware Security. Sensors, MEMS, Microfabrication, Biomedical Devices.
Mathematics	<p>Institute TA category / JRF category:</p> <ol style="list-style-type: none"> 1. Differential Geometry 2. Functional Analysis 3. Numerical Analysis 4. Partial Differential Equations
Mechanical Engineering	<p>Institute TA category:</p> <p>Domain: Solid Mechanics and Design</p> <ol style="list-style-type: none"> 1. Granular mechanics; Gas-solid flows, Computational modelling of landslides 2. Mechanics of Composite Materials 3. Micro-robotic platforms using compliant mechanisms (EWS/SC/ST only) <p>Domain: Thermo-fluid Sciences</p> <ol style="list-style-type: none"> 1. Computational combustion: Advanced combustion modelling, high-speed combustion modelling, aeroacoustic modelling 2. Computational fluid dynamics and high-performance computing (EWS/SC/ST only) 3. Experimental and analytical combustion and emission study (EWS/SC/ST only)

	<p>Domain: Manufacturing</p> <ol style="list-style-type: none"> 1. Ultra Precision Finishing/Machining, Metal Additive Manufacturing, Application of ML in Manufacturing, Online Chatter Detection in Machining <p>TAP Category:</p> <p>Domain: Solid Mechanics and Design</p> <ol style="list-style-type: none"> 1. Multiscale modeling of composite translaminal fracture accounting for complex crack trajectories <p>Part-Time:</p> <ol style="list-style-type: none"> 1. Radiative heat transfer 2. Multiphase combustion modelling
Physics	<p>Institute TA and JRF category:</p> <ol style="list-style-type: none"> 1. Theoretical Quantum Condensed Matter and Quantum Materials Modelling <p>JRF category only:</p> <ol style="list-style-type: none"> 1. Experimental Condensed Matter Physics <p>Part-Time:</p> <ol style="list-style-type: none"> 2. Experimental Condensed Matter Physics

05. General Instructions

- Candidates are required to apply ONLINE only. No downloadable forms are available.
- Candidates should be engaged in professional work related to the area of research discipline applied for in part-time PhD.
- The candidate of the PhD (Sponsored) category should submit a Sponsor's Letter from the organization in which he/she is employed. The sponsoring organization should give an undertaking in the prescribed format (Appendix A and Appendix B) stating the following:
 - The candidate will be paid full salary during the PhD program and he/she will be allowed to fulfill the coursework requirement and qualifier examination.
 - Leave would be granted to fulfill the coursework and he/she will be allowed to attend the lectures, labs, etc. as per the academic schedule of IIT Goa.
- For more information regarding the PhD program, please visit the PhD Manual available at the institute's website.

06. Application Fee Payment

The application fee is as follows:

Female candidates	: ₹ 100/-
SC/ST/PwD/EWS Category candidates	: ₹ 100/-
All other candidates	: ₹ 200/-

The fee can be paid through NEFT/RTGS/UPI. The details of the institute bank details are:

Bank Name	: Union Bank of India
Account Name	: Student Fee Account IIT Goa
Account Number	: 520101260768219
Branch	: Farmagudi
IFSC	: UBIN0913286

Candidates are required to enter a valid UTR/Transaction Number and date in the online application form. The application fee is non-refundable.

07. How to Apply

Please read the instructions and proceed to online application portal

1. For New Registration Click on New User Registration.
2. Register with your valid email ID.
3. Fill the branch applying for (fill separate applications for different programs).
4. Click on submit, and you will be redirected to the login page.
5. Login to the portal.
6. Candidates are required to fill details as given in the form and save the form.
7. Candidates are required to upload a recent Passport Photograph (Maximum 200KB), scanned copy of Signature (Maximum 12KB), detailed CV, and Mark sheets as per eligibility (Maximum 400KB), Appendix A or Appendix B(if applicable). The CV should mention the projects completed (bachelor's and master's) and the awards/recognition you received.
8. The system will not allow you to Submit the application without filling payment details.
9. Fill the payment details carefully (see the corresponding section); once filled cannot be edited.
10. After filling all the details, please Preview and Submit your application form. After the Final Submission, the system will not allow any further editing.

For any academic query, please mail to academic_query@iitgoa.ac.in, and for any technical issue, please mail to phd_tec_issue@iitgoa.ac.in.

Please note meeting the basic eligibility criteria listed in the advertisement doesn't guarantee that the candidate will be shortlisted for the test/ Interview. The decision of the admission committee in this regard will be treated as final.

08. Glossary

Institute TA	Institute Teaching Assistantship.
JRF	Govt./ Semi Govt. Fellowship Awards such as CSIR-JRF.
TAP	Teaching Assistantship through Project.

Appendix A

(Employer's letter: To be submitted on the letterhead of the employer)

To

The Director,
Indian Institute of Technology Goa
Goa 403401

Sub: Employer's Letter for Part-Time PhD Admission under External Candidates Category

Dear Sir,

With respect to the application of Mr./Mrs./Miss _____,
employed as _____ (Designation) in our organization, for
Part-Time PhD Admission Under External Candidates Category, we hereby undertake the
following:

Mr./Mrs./Miss _____ will be allowed to take
leave as required for completing the coursework requirement and the PhD Qualifying
Examination as mandated by IIT Goa. We will/ will not continue to pay
Mr./Mrs./Miss _____ salary as per the HR policies
during the period of leave.

Name of Authorised Signatory

Signature of Authorised Signatory

Designation of Authorised signatory

Date:

Contact Details of Authorised Signatory

Employer's Seal:

Appendix B

(Sponsor's letter: To be submitted on the letterhead of the employer)

To

The Director,
Indian Institute of Technology Goa
Goa 403401

Sub: Sponsor's Letter for Part-Time PhD Admission under Sponsored Candidates Category

Dear Sir,

With respect to the application of Mr./Mrs./Miss _____, employed as _____ (Designation) in our organization, for Part-Time PhD Admission Under Sponsored Candidates Category, we hereby undertake the following:

- Mr./Mrs./Miss _____ will be allowed to take leave as required for completing the coursework requirement and the PhD Qualifying Examination as mandated by IIT Goa.
- We will/will not continue to pay Mr./Mrs./Miss _____ salary as per the HR policies during the period of leave.
- We state that appropriate facilities relevant to the research of Mr./Mrs./Miss _____ exist in our organization.
- Bio-data of proposed co-supervisor in our organization" Dr. _____ who is employed as _____ (Designation) is attached with the letter.

Name of Authorised Signatory

Signature of Authorised Signatory

Designation of Authorised signatory

Date:

Contact Details of Authorised Signatory

Employer's Seal: