# INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE (IACS)

***A Deemed to be University under de novo category***

Jadavpur, Kolkata-700032

## Admission notice for the PhD program for the academic year 2025-26 (Session starting from August 2025)

Advertisement No. **Acad/ PhD/Autumn Sem-2025** Date: 20.03.2025

Applications are invited for regular full-time PhD students to the PhD Programme in Autumn Semester of 2025 under different Schools, namely Applied and Interdisciplinary Sciences, Biological Sciences, Chemical Sciences, Material Sciences, Mathematical and Computational Sciences and Physical Sciences, of IACS (A deemed to be University). A candidate may apply to maximum two Schools by making appropriate selection in the Application Form.

**Eligibility:**

1. 55% or equivalent in masters is mandatory for general candidates, while for SC/ST/OBC (non-creamy layer)/Differently-abled and other categories 50% marks is necessary.
2. Minimum eligibility criteria as per UGC rules. Qualification and eligibility requirements for each School are given separately (*vide infra*).
3. Selection of the regular full-time students will be done on the basis of their academic record, their performance in the appropriate national level examination, and finally, their performance in the written test and/or interview as decided by the respective Schools.
4. Relaxation of the selection criteria for the candidates belonging to SC/ST/OBC (non-creamy layer)/Differently-abled and other categories will be levied according to the norms of UGC and Government of India.
5. Merely satisfying the eligibility criteria does not guarantee that a candidate will be shortlisted for interview.

**Fellowship:** As per IACS/CSIR/UGC/INSPIRE/ Other funding agency rules.

**Age limit:** Should be below 28 years on the closing date of application. Age relaxation is applicable as per Government of India rule.

**Nationality:** The applicant must be an Indian citizen.

**Selection Procedure:**

1. Applicants will be shortlisted on the basis of merit and eligibility criteria by different Schools. Only shortlisted candidates will be informed via email and called for a written test and/or interview (to be decided by theSchool) for the final selection. IACS holds full right of choosing a candidate and even not selecting any, in case suitable applications are not received.
2. Requirement given for each School are based on number of positions available in individual research groups in different research areas. Selection depends on the past academic record, performance in examination/interview by the School and also the availability of posts in particular research areas as opted by the shortlisted candidate.

**Application Procedure:** Applications have to be made online at http://phdapplicationiacs.iacs.res.in/. Any queries may be sent to **phdcell_iacs@iacs.res.in**. The details of the online application and its procedure are given in the IACS website. Exact date and time of Admission Test/or Interview for each School will be announced on the IACS website.

**Last Date of Submission of Applications:** April 14, 2025

**Tentative date of interview:** 02-16 May, 2025 which may change according to the decision of IACS.

For further information in this regard, please contact Academic Office (Phone: 24734971; Extn: 2215, Email: phdcell_iacs@iacs.res.in).

**Application/Examination Fees:** Rs. 1200/- (Rs. 600/- for SC/ST candidates) will have to be transferred electronically to the account of IACS (Name of the Account: Indian Association for the Cultivation of Science University, A/C no: 37739525415, State Bank of India, Jadavpur University Branch, Branch Code: 0093. IFSC: SBIN0000093). The electronic transfer reference number should be mentioned in the application form.

**Mode of Payment:** Payment can be made through either of the following options:

1) Directly by NEFT bank transfer if an applicant can avail Online Banking facility;

2) By depositing the amount at any SBI Counter having CBS facility.

**Fees to be paid during admission:** One time admission fee (Rs. 15000/-) and caution deposit (Rs. 10000/-) to be paid during the time of admission. The rest of the annual fees for the first year to be paid within 6-months from the date of joining. The fee structure and time line for the payment of fee for subsequent years are given at the IACS website.

**Scholarship:** All regular PhD students who join are eligible for scholarship from IACS/CSIR/UGC/INSPIRE/ other funding agency as per rules.

**Details of the PhD positions and the qualification and eligibility details for the different Schools are given below.**

## School of Applied and Interdisciplinary Sciences (SAIS)

| Number of positions | Broad Research Area (**Subject Code**) | Essential Qualifications |
|---|---|---|
| 1 | Synthesis of nano-micro structures for light harvesting devices (**SAIS01**) | M.Sc. in Chemistry/Physics with CSIR- NET (JRF) or other fellowships |
| 2 | Design and fabrication of nanoelectronic devices (**SAIS02**) | M.Sc. in Physics with CSIR-NET (JRF) or other fellowships |
| 1 | Organic synthesis of novel solid-state emissive monomers and copolymers for OLED applications (**SAIS 03**) | MS / M. Sc. in Chemistry with CSIR-NET (JRF) or other fellowships. (Organic synthesis will be preferred) |
| 1 | Electrocatalysis on the surface of conducting polymer nanotube (**SAIS 04**) | MS / M. Sc. in Chemistry with CSIR-NET (JRF) or other fellowships. |
| 1 | Aggregation of ionic chromophores and their photophysical properties (**SAIS 05**) | MS / M. Sc. in Chemistry with CSIR-NET (JRF) or other fellowships. |
| 1 | Electron transport and conductance fluctuation in polymer based molecular junction (**SAIS 06**) | M.Sc Physics, collaboration with Dr. Mintu Mondal SPS<br>CSIR-NET (JRF) or other fellowships. |
| 1 | Synthesis of structural analogues of natural product for biological evaluation (**SAIS 07**) | MS / M. Sc. in Chemistry with CSIR-NET (JRF) or other fellowships (Organic synthesis background). |
| 2 | Polymer Chemistry, Supramolecular Chemistry, Organic Materials (**SAIS 08**) | MSc in Chemistry CSIR/ UGC/ any other external Research Fellowship is preferred |
| 2 | Organic synthesis of Conjugated Chromophores for active materials in optoelectronic devices, (**SAIS 09**) | M. Sc. in Organic Chemistry/ Chemistry with GATE, NET, JRF or other fellowships |
| 2 | Device Physics of organic field effect transistors: Device fabrication and Advanced characterization. (**SAIS 10)** | M. Sc. in Physics or Physical Chemistry with GATE, NET, JRF or other fellowships |
| 2 | Materials and devices for wearable and flexible electronics in energy and health applications (**SAIS 011**) | M. Sc. in Physics or Chemistry with NET, JRF or other fellowships |

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| 1 | Organic Optoelectronics based on Molecular Assemblies (**SAIS 012**) | M.Sc. in Chemistry (Inorganic or Physical specialization). Candidates with fellowship will be preferred. |
| 2 | Ferroelectric Nanocrystals for Memory Applications (**SAIS 013**) | M.Sc. in Physics (Solid State Physics/Materials Science /Electronics specialization). Candidates with fellowship will be preferred. |

## School of Biological Sciences (SBS)

| Number of positions | Broad Research Area **(Subject Code)** | Essential qualification |
|---|---|---|
| 2 | Peptide based biomaterials in health care (**SBS 01**) | MSc. in any steam of Chemistry/Biochemistry/ or any other related subjects Sciences with Individual fellowship from NET ( UGC or CSIR) or any other sources from Indian Govt. |
| 1 | PCR-independent, fluorescent label-free, nanoscale sensing of nucleic acid biomarker sequences from cancer patients using alternative nucleic acid capture probes (**SBS 02**) | MSc in biotechnology/ chemistry/ biochemistry/biophysics<br><br>DBT/CSIR/UGC/ICMR fellowship |
| 2 | Unravelling the mitochondrial DNA damage and repair pathways in cancer and neurodegeneration (**SBS 03**) | Msc in any steam of Biological Sciences with Individual fellowship from NET/JRF; DBT/JRF; ICMR/JRF |
| 2 | Host-pathogen interactions (**SBS 04**) | M.Sc. in Biology with NET/GATE/equivalent qualification |
| 1 | Organic bioactive molecules synthesis and their biological activity determination (**SBS 05**) | MSC in Organic Chemistry preferable with Fellowship (CSIR/ UGC/DST-INSPIRE) or atleast GATE qualified |

## School of Chemical Sciences (SCS)

| **Number of positions** | **Broad Research Area (Subject Code)** | **Essential Qualifications** |
|---|---|---|
| 2 | Spectroscopy of Biomolecules (**SCS 01**) | MSc in Chemistry GATE or NET qualified with CSIR or UGC fellowship |
| 2 | Theoretical and computational chemistry/biophysics/biochemistry, | MSc in Physical Chemistry or Physics and NET qualified with CSIR or UGC |

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| | Computational soft condensed matter physics and Computational materials science (**SCS 02**) | fellowship |
| 1 | Biophysics of Metallo-peptides in relation to Amyloidogenic diseases (**SCS 03**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 1 | Supramolecular Catalysis and Sensing (**SCS 04**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Theoretical/computational (bio)physical chemistry using AI/ML (**SCS 05**) | M.Sc. Or equivalent In Physics/Chemistry/ biotechnology GATE or NET qualified with CSIR or UGC fellowship |
| 2 | Inorganic Chemistry (**SCS 06**) | MSc in Chemistry<br>GATE or NET qualified |
| 2 | 1 Chemical biology<br>1 Organic synthesis (**SCS 07**) | MSc in Biochemistry/ Life-Science, Chemistry<br>CSIR- UGC NET qualified |
| 2 | Synthetic Organic Chemistry (chemical synthesis of natural products and their variants having biological importance) (**SCS 08**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Theoretical Chemistry, Quantum chemistry, Machine learning, quantum computing (**SCS 09**) | MSc in Chemistry/Physics and NET qualified with CSIR or UGC or Inspire fellowship |
| 3 | Supramolecular Chemistry of π-Conjugated Acyclic and Macrocyclic Heterocycles (**SCS 10**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Bioinorganic Chemistry (**SCS 11**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Biomimetic Inorganic Chemistry and Bioinspired Catalysis (**SCS 12**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Multi-electron multi-proton reactions: Reaction and mechanism (**SCS 13**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 2 | Reaction mechanisms of Photochemical and Ground state processes from small systems to Enzymes and AI/ML for Excited State Aromaticity and Catalysis (**SCS 14**) | MSc in Chemistry and NET qualified with CSIR or UGC fellowship |
| 1 | Asymmetric catalysis | MSc in Chemistry (minimum 55% marks or equivalent) and NET qualified with CSIR or UGC fellowship |

## School of Material Sciences (SMS)

| Number of positions | Broad Research Area (Subject Code) | Essential Qualifications |
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| 02 | Engineered 2D Materials for High-Performance Hydrogen Generation<br>Tailored 2D Materials for Advanced Photodetector Applications<br>(**SMS01**) | M.Sc/MS in Physics/Chemistry with NET-JRF/INSPIRE |
| 1 | Designing new quantum materials, single crystal growth, electronic and magnetic structures of solids, quantum magnetism, and multiferroics.<br>(**SMS02**) | M.Sc. in Physics with CSIR/UGC/INSPIRE fellowship and/or outgoing IACS MS/PhD student. |
| 2 | Battery Materials<br>(**SMS03**) | Masters Chemistry/Physics/ Materials |

## School of Mathematical and Computational Sciences (SMCS)

| Number of positions | Broad Research Area (Subject Code) | Essential qualification |
|---|---|---|
| 2 | Statistical Mechanics/Active Matter Systems/Biophysics (Projects based on Computation and Mathematical modeling, requires programming ability in C/C++/Fortran/Python)<br>(**SMCS 01**) | M.Sc. in Physics/Computer Science with NET eligibility (CSIR/UGC), preferably with CSIR/UGC fellowship. |
| 2 | Applications of Generative AI Models/Large Language Models.<br>(**SMCS02**) | M.S./M.Tech. in Computer Science or a relevant area. Preferably UGC NET JRF qualified or with external funding. |
| 2 | Formal Verification OR Explainable Artificial Intelligence<br>(**SMCS03**) | M.S./M.Tech. in Computer Science or a relevant area. Preferably UGC NET JRF qualified or with external funding. |

## School of Physical Sciences (SPS)

| Number of vacancies. | Broad Research Area (Subject Code) | Essential Qualifications |
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| **2** | Experimental Condensed Matter Physics: 2D van der Waals materials for Optoelectronics<br>(**SPS01**) | M. Sc. In Physics and should be qualified CSIR NET/UGC NET/provisional INSPIRE/ UGC-NFSC (National Fellowship for Scheduled Caste students)/ or any other individual fellowship/JEST/ GATE. |
| **3** | Experimental Condensed Matter Physics – Topological Materials for Spintronics and Magnetoelectronics<br>(**SPS02**) | MSc in Physics with CSIR-NET-JRF / UGC-NET-JRF, INSPIRE – Provisionally Selected, GATE, JEST, UGC-NFSC (National Fellowship for Scheduled Caste students) or any other individual fellowship |

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| **3** | Experimental Condensed Matter Physics<br><br>(**SPS03**) | CSIR, UGC, INSPIRE (Own fellowship), UGC-NFSC (National Fellowship for Scheduled Caste Students) |
| **2** | Experimental Condensed Matter Physics: Magnetism in Chiral Magnetic Materials<br><br>(**SPS04**) | **Candidate 1:** M. Sc. in physics with CSIR-NET (JRF)/ UGC-NET (JRF)/ INSPIRE fellowship/ any other individual fellowship.<br><br>**Candidate 2:** M. Sc. in physics with at least 55% marks and qualified NET (LS or JRF)/ JEST/GATE/equivalent national level examination. |
| **2** | Particle and Astro-particle Physics<br><br>(**SPS05**) | IACS Integrated MSc-PhD students with GATE/JEST/CSIR-UGC NET<br><br>IACS regular PhD position (Institute Fellowship) (students with GATE/JEST/CSIR-UGC NET). |
| **2** | Experimental Solid State Physics - Molecular Electronics, Device Fabrication, Surface Chemistry, Molecular Logic Gates<br><br>(**SPS06**) | MSc in Physics/ Materials Science/ Chemistry with CSIR-NET-JRF / UGC-NET-JRF, INSPIRE – Provisionally Selected, GATE, JEST, UGC-NFSC (National Fellowship for Scheduled Caste students) or any other individual fellowship. |
| **3** | Experimental Condensed Matter Physics<br><br>(a) Topological electronic structure and long-range orders – Magnetism and charge density waves in quasi-1D compounds<br><br>(b) Electron transport and conductance fluctuations in conducting polymer molecular junctions based on point contact technique.<br><br>(**SPS07**) | MSc in Physics with CSIR-NET-JRF / UGC-NET-JRF, GATE, JEST, UGC-NFSC (National Fellowship for Scheduled Caste students) or any other individual fellowship. |
| **1** | Theoretical Study of Particle and Astroparticle Physics.<br>(**SPS 08**) | M.Sc. in Physics CSIR/UGC JRF Jest Rank Below 100 |

**PhD Coordinator**