

# INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

*A Deemed to be University under de novo category*

Jadavpur, Kolkata-700032

Advertisement No. Acad/ PhD/Spring Sem-2021      Date: December 03, 2020

Applications are invited in the prescribed form available in the website [www.iacs.res.in](http://www.iacs.res.in) for admission to the PhD Programme in Spring Semester of 2021 under different Schools of IACS (A deemed to be University).

## **Eligibility:**

Admission/Enrolment of every regular full-time PhD students in the PhD program of IACS University would require the following criteria to be fulfilled.

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. Only the students who qualify UGC-NET (including JRF)/UGC-CSIR NET (including JRF)/GATE/JEST/INSPIRE/equivalent national level examination conducted by Central Government Departments and their agencies and institutions, allowing entry into PhD program will be considered eligible to seek admission in the PhD program of IACS.
3. Selection of the regular full-time students will be done on the basis of their academic record, their performance in UGC-NET (including JRF)/UGC-CSIR NET (including JRF)/GATE/JEST/INSPIRE/equivalent national level examination conducted by Central Government Departments and their agencies and institutions, allowing entry into PhD program, 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.

Fellowship: As per IACS/CSIR/UGC/INSPIRE rules.

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

Nationality: The applicant must be an Indian citizen.

Selection Procedure: Applicants will be shortlisted on the basis of merit. In this regard, percentage of marks obtained in Bachelors (including particulars like specialization etc.) & Masters, year of passing, present status/enrolment, qualification details of NET (type of NET whether UGC or CSIR)/GATE/JEST exams including ranks, INSPIRE fellowship and qualification information in other equivalent national level examination conducted by Central

Government Departments and their agencies and institutions should be mentioned in the application. Only shortlisted candidates will be communicated via email and called for a written test and/or interview (to be decided by the school) towards the final selection. IACS holds full right of choosing a candidate and even not selecting any, in case suitable applications are not received /met.

### **Application Procedure:**

Applicants may send their application form to the Academic Office, IACS (phd.application@iacs.res.in) along with the filled up excel file.

**Last Date of Submission:** December 20, 2020

Details of the desired PhD positions to be filled up by the different Schools: -

### **School of Chemical Sciences**

Sr. No.	Broad research area	No. of students	Requirement
01.	1. Theoretical and Computational Studies of molecular self assembly 2. Computational studies of phase transitions in soft matter systems and development of algorithms	2 (CSIR/UGC)	1. M.Sc. in Chemistry 2. M.Sc. in Physics/Chemistry, equivalent degree in Materials Science /Chemical Engineering
02.	Organometallic Chemistry of N/S-Confused Porphyrinoids	4 (3 CSIR/UGC, 1 DST/Inspire/GATE)	M.Sc. in Chemistry (organic/Inorganic/Physical Chemistry)
03.	Supramolecular gels	2(CSIR)	M.Sc. in Chemistry
04.	Supramolecular Chemistry: Recognition, Sensing and Catalysis	1 (CSIR/UGC)	M.Sc. in Chemistry
05.	Spectroscopy/ Physical Chemistry	3(CSIR)	M.Sc. in Chemistry
06.	Natural Product Synthesis	1(CSIR/UGC)	MSc Chemistry (organic)
07.	Inorganic functional materials	2	M.Sc. in Chemistry
08.	Reaction dynamics, Beyond Bonn-Oppenheimer theories	2 (CSIR/UGC/Inspire)	M.Sc. in Chemistry/Physics

### School of Mathematical and Computational Sciences

Sr. No.	Broad research area	No. of students	Requirement
01.	Data Mining/Graph Mining, Machine Learning	1	<p>M.Sc./M.E./M.Tech in Computer Science or in a relevant area.</p> <p>Pre-requisites:</p> <p>Necessary - experience of writing programs of 500 lines or more, in any of these programming languages - C/C++/Java/Python.</p> <p>Desirable (at least one of these) –</p> <p>A. Experience of implementing graph algorithms from scratch.</p> <p>B. Working in Deep Learning (use of Tensorflow/PyTorch)</p> <p>C. Experience in Bioinformatics/Gene related algorithms/QSAR in drug discovery/Bio-NLP</p> <p>D. Applications of Deep Learning in NLP</p>
02.	Complex analysis and holomorphic dynamics.	1	M.Sc. in Mathematics or any equivalent degree with a major in Mathematics

### School of Biological Sciences

Sr. No.	Broad research area	No. of students	Requirement
01.	Single Molecule Structural Biology	1	M.Sc. in Biochemistry/Biotechnology
02.	Cellular Signalling	1 to 2	M.Sc. in Biology/Chemistry
03.	Infection Biology of Bacterial Pathogen	2	M.Sc. in Biology/Biochemistry

### School of Applied and Interdisciplinary Sciences

Sr. No.	Broad research area	No. of students	Requirement
01.	1. Structure-property relation of Semicrystalline polymers 2. Covalent organic framework as emissive materials 3. Energy storage application of polymer	3	1. M.Sc. in Chemistry (Physical) 2. M.Sc. in Chemistry (Organic) 3. M.Sc. in Chemistry
02.	Supramolecular assembly, amphiphilic and biodegradable polymers	1	M.Sc. in Chemistry
03.	Nanofabrication for energy-harvesting device applications	1	M.Sc. in Physics
04.	Nucleotide chemistry and drug development	1	M.Sc. in Chemistry
05.	Novel ferroelectrics, materials for energy harvesting, biopolymer hybrid inorganic materials for energy applications	1	M.Sc. in Chemistry

\*Selection will strictly depend on the performance of the student in the interview, past academic achievements of the candidates, matching of the educational background as per the desired criteria. In case of exceptional candidates, the total number of vacancies may be relaxed. If suitable candidates are not found, all vacancies may not be filled up.

\*\*Interested candidates are encouraged to visit the School website (<http://www.iacs-sais.com/>) for detail information and research activities of individual research groups.

### School of Physical Sciences

Sr. No.	Broad research area	No. of students	Requirement
01.	1. Superfluidity with Bose and Fermi atomic gases in one- and two-dimensional ring traps  2. Collision physics with cold atoms, ions and molecules: Specific goal is to explore quantum information by controlled cold collisions	2 (CSIR or UGC or INSPIRE)	1. M.Sc. in Physics (which requires some background in condensed matter physics)  2. M.Sc. in Physics (this requires some knowledge in atomic physics and quantum optics)
02.	Multiferroic materials for Energy Applications	1 (CSIR or UGC or INSPIRE)	M.Sc. in Physics
03.	Nanoscale electron transport, Raman Spectroscopy	1 (CSIR or UGC)	M.Sc. in Physics
04.	Low-frequency electrodynamic response of functional materials	1 (CSIR or UGC)	M.Sc. in Physics
05.	Magnetism	1 (CSIR/UGC/INSPIRE)	M.Sc. in Physics

### School of Materials Science

Sr. No.	Broad research area	No. of students	Requirement
01.	1. Magnetism 2. Energy materials	2	1. M.Sc. in Physics 2. M.Sc. in Chemistry
02.	2D Materials based supercapacitor/photodetectors	1	M.Sc. in Physics/ Chemistry
03.	Nanocrystals for Light Harvesting	1	M.Sc. in Chemistry
04.	Nanobiotechnology	1	M.Sc. in Chemistry
05.	Battery materials	2	M.Sc. in Chemistry

Application/Examination Fees: Rs. 1200/- (Rs. 600/- for reserved 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:**

Courses	Admission Fee (Rs)	Tuition Fee (Rs) Per Annum	Other Academic Fee (Rs)	Caution Deposit (Rs)	Students' Emergency Fund (Rs)	Contributor y Medical Scheme (Rs) per Annum	Total fees to be paid at the time of Admission (Rs)
PhD (Direct Admission) (General/OBC Candidate)	15000	13800	5000	10000 (Refundable on completion of curriculum)	1000	3000	<b>47800</b>
PhD (Direct Admission) (SC/ST Candidate)	15000	0	5000	10000 (Refundable on completion of curriculum)	1000	3000	<b>34000</b>

Duly filled in applications in the prescribed format should be sent by email ([phd.application@iacs.res.in](mailto:phd.application@iacs.res.in)) to the academic office by **December 20, 2020**. The subject line should be marked as "PhD Program, IACS – Spring Semester 2021". Exact date and time of Admission Test/or Interview will be announced on the website.

**Tentative date of interview:** 28 December, 2020 - 11 January, 2021 which is subject to change according to the decision of IACS.

For further information in this regard, please contact Dr. Sasanka Maji (Phone: 24734971; Extn: 2219,. Email: [mssm4@iacs.res.in](mailto:mssm4@iacs.res.in)).

**Co-ordinator, PhD programme**