



Indian Institute of Engineering Science and Technology, Shibpur

भारतीय अभियांत्रिकी विज्ञान एवं प्रौद्योगिकी संस्थान, शिवपुर

ভারতীয় প্রকৌশল বিজ্ঞান এবং প্রযুক্তিবিদ্যা প্রতিষ্ঠান, শিবপুর

(An Institute of National Importance under MHRD, Govt. of India)

Admission to PhD Programme July Cycle, 2020

Advt. No. RO/JL/20/51

Date: 07.07.2020

Applications are invited for admission to the PhD programme (July Cycle: 2020) of the Institute [Regular Candidates with Institute fellowship, Candidates with Individual Fellowship (CSIR–NET JRF/UGC–NET JRF/ICMR/DST-INSPIRE etc.), Candidates from Sponsored Research Project and Sponsored Candidates categories] through the **online portal only starting from 13th July 2020** in all disciplines of Engineering & Technology, Science, Architecture, Town & Regional Planning, Humanities & Social Sciences and Human Resource Management. For eligibility criteria, submission deadlines, seat matrix and other details please visit: www.iiests.ac.in. **Last date of online submission is 3rd August 2020.**

Registrar

Copy forwarded for information and necessary action to:

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1. Dean Academic (dean.ac@iiests.ac.in) - With a request to forward the soft copy of advertisement/NIT details (whichever is applicable) to webmaster@iiests.ac.in for uploading in the Institute website.
2. Deputy Registrar (Establishment, Stores & Purchase and Security)
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5. Assistant Registrar (Academic)
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Deputy Registrar (Stores & Purchase)

Information Brochure

Admission to Ph.D. Program

July cycle 2020

Indian Institute of Engineering Science and Technology, Shibpur

भारतीय अभियांत्रिकी विज्ञान एवं प्रौद्योगिकी संस्थान, शिबपुर
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Formerly Known as Bengal Engineering and Science University, Shibpur

Howrah - 711103, West Bengal, India

NIRF Ranking (Year –2020)
Engineering – 21; Architecture – 6; Overall – 43



Website: www.iiests.ac.in

July, 2020

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1 IMPORTANT INFORMATION

Applications are invited for admission to the Ph.D. Program (Regular, Individual Fellowship i.e. CSIR/UGC/DBT/ICMR/INSPIRE etc., Sponsored Research Project & Sponsored Candidates categories of the Institute) in the July cycle of 2020 in all disciplines of Engineering, Technology, Science, Architecture, Town & Regional Planning, Humanities & Social Sciences, and Human Resource Management. Admission to the candidates in the reserved category will be done as per the notification of the Government of India. Applicants are required to apply online only at www.iests.ac.in

Application fee is Rs. 1500/- for OC/OBC(NCL)/EWS and Rs. 1000/- for SC/ST/PwD candidates.

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

- a. A candidate with M.Tech./M.E./ Integrated M.Tech /M.Arch./M.Plan./M.T.R.P./M.Sc./M.A./M.Phil./ and/or B.Tech. degree fulfilling minimum eligibility criteria (Section 5, page no. 6) can **apply to any one of the Departments/Centres/Schools** listed in the Table (page no. 8 to 12). No request for considering the candidature in department, other than in which applied, will be entertained.
- b. **A candidate can apply more than one Departments/Centres/Schools. Separate application to be made by paying requisite fee for each application**
- c. Selection of candidates will be based on an initial screening followed by their performance in the online mode of interview/counseling for this cycle for all categories of admission. *Appearing in the online interview/counseling process does not give the guarantee of selection.* **Candidates have the sole responsibility to be present in the online interview/counseling process on the scheduled date and time. Institute shall not entertain any appeal in this regard for failing to appear at the scheduled online interview/ counseling process for any reason.**
- d. Mere fulfilling of eligibility requirements does not ensure shortlisting. Institute reserves the right to restrict the number of candidates to be called for interview/ counseling process. Depending on the number of applications received, Institute/Department(s) may set the criteria higher than the minimum eligibility requirements for shortlisting candidates for online interview/counseling process.
- e. IEST, Shibpur shall not be responsible for wrong entries and technical error(s) while making the online application/payment of the fee.
- f. Admission shall be offered subject to the availability of seats, faculty members in the respective specializations and availability of Institute Fellowships.
- g. All candidates are advised to visit regularly the Institute website (**www.iests.ac.in**) for any updates about subsequent amendments in the advertisement and results. **No correspondence in any form in this regard will be made by the Institute with an individual candidate.**
- h. The admission shall be purely provisional subject to the confirmation that they satisfy the prescribed eligibility conditions.
- i. Hostel accommodation is not guaranteed. A limited number of hostel accommodations are available which will be allocated on a preferential basis.

- j. **Age limit:** Maximum age limit prescribed for the award of Institute Fellowship Category is 30 years as on 31st July 2020. Relaxation in upper age limit of 05 years is applicable for SC/ST/Persons with Disability (PwD) and Female applicants (i.e. 35 years as on 31st July 2020). For other categories of admission to Ph.D. Program, the age limit shall be as per guidelines of funding agency.
- k. **Reservation for SC/ST/OBC(NCL)/EWS/PwD Categories:** The Institute shall follow the reservation policies of the MHRD, Govt. of India. Certificate for EWS/OBC(NCL)/SC/ST/PwD will be as per Govt. of India Rules. For OBC (NCL) category, the format for certificates must be as per DoPT OM No. 36036/2/2013-Estt (Res) dated 30.05.2014 and for EWS category, the format for certificates must be as per DoPT OM No. 36039/1/2019-Estt (Res) dated 31.01.2019. ***OBC (NCL)/EWS certificate issued on or after April 1, 2019 will be accepted during online document verification. However, admission offered, if any, will be provisional, and subject to submission of OBC (NCL)/EWS certificate issued on or after April 1, 2020 at the time of physical reporting in the Institute.***
- l. All candidates who are eligible for admission but whose results are yet to be declared, shall be allowed for provisional admission, if selected, on production of Course Completion Certificate from appropriate authorities. Similarly all eligible candidates who are migrating from other University/Institute shall be allowed for provision admission, if migration certificate or no objection certificate from the University/Institute last attended cannot be submitted at the time of admission. They shall be required to submit their results of the qualifying degree examinations and migration certificate (as applicable) by 30.09.2020 (subject to change due to COVID-19 situation) and failing which their admission shall stand canceled.
- m. Students shall be governed by Ph.D. ordinance/ regulations in vogue.
- n. If selected, all the original documents will be verified during physical reporting for admission. If anything found wrong, applicant's admission shall stand canceled.

Instructions to Fill the Online Application Form

STEP-I : Register with your Email ID (the candidates are advised to provide correct Email ID while creating new account) and Login to online submission system at www.iests.ac.in. Fill up the ONLINE application form with appropriate data. In the online application form: (i) the candidate has to write within 100 words why he/she wants to pursue Ph.D. and why in IEST, Shibpur (ii) he/she has to write a Statement of Problem (SOP) within 500 words about his/her proposed research work. Please note that you have to upload your documents wherever it is required to validate your information along with your digital photograph and signature.

STEP-II : Make PAYMENT and SUBMIT Application. Payment of application fee has to be made through online payment gateway only.

STEP-III : Take PRINT OUT of your submitted application. This printed application may be retained with you for future requirements.

- ❖ **The applicants must submit the print out of the generated application form during admission if selected.**

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

Please note that sending any hard copy of the application is not required.

Additional instructions to candidates with B. Tech.–M.Tech.

Dual Degree Candidates are advised to fill up the 'Academic Qualification' option in the online application format as

- 'Sl. No. 3': fill up the CGPA / % Marks up to 8th Semester (year of passing: 8th Semester Examination year).
- 'Sl. No. 4': fill up the CGPA / %Marks of the 7th to 10th Semester (year of passing: 10th Semester Examination year).

Important Dates#:

Sl. No.	Event	Date
1	Publication of advertisement in the newspaper	9 th July 2020
2	Online application starts	13 th July 2020
3	Last date of submission of online application with payment of application fee	3 rd August 2020 (11:59 pm)
4	Publication of shortlist of candidates to be called for online interview/ counseling in the Institute website	To be notified in the institute's website
5	Date(s) of online Interview/ counseling	
6	Publication of final list of selected candidates for Ph.D. admission, July cycle 2020 in the Institute website	
7	Date(s) of admission	

Please visit the Institute website (www.iiests.ac.in) regularly for any updates about subsequent amendments in the advertisement and results. **No correspondence in any form in this regard will be made by the Institute with an individual candidate.**

The dates given above are tentative. Any changes in the dates will be indicated on the website.

2. THE INSTITUTE

Indian Institute of Engineering Science and Technology, Shibpur (IEST, Shibpur) started its journey in 1856 as Calcutta Civil Engineering College and emerged as a premier engineering college in the pre-independence India. It was renamed as Bengal Engineering College, Shibpur in 1920. The College received the status of a Deemed University in 1993 and was subsequently transformed to Bengal Engineering and Science University, Shibpur in 2004. The institute has been upgraded to an Institute of National Importance by the amendment of NITSER Act of the Parliament in 2014 and renamed as Indian Institute of Engineering Science and Technology, Shibpur. The Institute has fifteen departments of Engineering, Architecture, Science and Humanities & Social Science disciplines. In addition, it has five Schools and two Centres dedicated for imparting education and conducting

research in interdisciplinary fields. One of the remarkable strengths of the Institute is the pool of excellent faculty members. State-of-the-art research facilities and other academic resources are helpful to undertake fruitful and relevant research at the Institute. The century-old legacy of the Institute has produced illustrious alumni who made remarkable contributions in different fields across the globe. The current (2020) NIRF ranking of the Institute is 21 in Engineering with overall ranking of 43.

3. MISSION-VISION

The Vision of IEST, Shibpur is to become one of the best Institutes in the world in providing the state-of-the art multi-disciplinary research ambiance that will usher innovative world class technologies developed towards realizing the goal of Developed India.

IEST, Shibpur functions as an Institute of higher learning and advanced research. Prime activities include creation and dissemination of knowledge, producing engineers, scientists, and entrepreneurs of highest quality equipped with the latest technologies and developing innovative technology solutions for the cause of the society.

4. Ph.D. PROGRAMS

The Doctor of Philosophy (Ph.D.) is recommended for those research scholars who are really interested in leadership careers in academia, research institutions, research industries and important decision making bodies of government. After completion of the program, they are expected to be involved in knowledge generation activities.

5. ELIGIBILITY CRITERIA FOR Ph.D. ADMISSIONS:

The Ph.D. program shall be open to candidates of any Nationality and candidates with the following qualification shall be eligible for admission to the Ph.D. Program of the Institute:

5.1 Minimum qualifications for all categories:

Candidates possessing M.Tech. / M.E. / M.Sc.(Engg.) / M.Arch. / M.U.R.P. / M.Plan. / M.T.R.P. / M.Sc. / M.A. / M.Phil. or an equivalent postgraduate degree in the relevant branch from a recognized University/Institute with minimum 60% marks or 6.5 CGPA on a ten point scale (throughout from class X to the qualifying degree) are eligible to apply for admission in the relevant departments.

For SC/ST/ Person with Disability (PwD) category, a minimum 55% marks or 6.0 CGPA on 10 point scale (throughout from class X to the qualifying degree) is required.

Note: CGPA will not be converted into percentage marks and vice versa.

5.2 Categories of admission:

5.2.1 Regular Candidates with Institute fellowship:

The maximum age is 30 years as on 31st July 2020. Relaxation of 5 years is applicable for SC/ST/ Person with Disability (PwD) /Female candidates. Selection will be based on an initial screening followed by online interview. To be eligible for Institute Fellowship, the candidates: (i) must have completed Master's programme in Engineering/ Technology/Architecture with GATE fellowship or (ii) must have qualified GATE/NET for Science/Humanities/Management discipline.

Candidates possessing B.Tech./B.E./B.Sc.(Engg.)/B.Arch./B.Plan. or an equivalent Degree in the relevant

branch from a recognized University/Institute with minimum of 80% aggregate marks or 8.5 CGPA on a 10 point scale (throughout from class X to the qualifying degree) and a valid GATE score are eligible to apply for admission in the relevant departments/schools/centres.

Candidates, who are already working in a research project in the Institute and **satisfying the minimum eligibility criteria as mentioned in 5.1 and 5.2.1**, may be allowed to appear in the online interview and if selected, a no objection certificate (NOC) from the Principal Investigator (PI) of the concerned project is needed for availing the institute fellowship and in such cases, he/she will be treated as a regular candidate and has to enroll afresh.

5.2.2 Candidates with Individual Fellowship (CSIR–NET JRF/UGC–NET JRF/ICMR/DST-INSPIRE etc.):

Candidates who are qualified for the Individual Fellowship category (i.e. CSIR/ UGC/ ICMR/ DST-Inspire etc.) and who fulfill the minimum eligibility criteria as prescribed in the **Section 5.1** are eligible to apply for admission in the relevant departments/schools/centres. They must have a valid offer letter of the fellowship issued by the respective funding agency. They are exempted from appearing in the interview, but they have to appear in the counseling process. Selection will be based on an initial screening followed by online counseling process. Note that appearing in the counseling process does not give the guarantee of selection. **Candidates admitted under this category will not be entitled to the award of institute fellowship.** The maximum age will be considered as per prevailing norms of the respective funding agency.

5.2.3 Candidates from Sponsored Research Project:

Candidates who are already working in a research project in the Institute, appointed through the Office of the Dean (R&C) and applying for Ph.D. under Sponsored Research Project category, must fulfill the minimum eligibility criteria as prescribed in the Section 5.1. They have to appear in the online counseling process, provided they work in the same sponsored project. If selected, a no objection certificate (NOC) as per supplied format (Form I-C, Annexure III) from the PI of the concerned project is needed for enrolment in the Ph.D. program. The minimum remaining period of the project as well as tenure of the said project employee should be at least 2 years from the date of interview of the Ph.D. program. **The Institute will not provide any assistantship /fellowship to such a research scholar.**

5.2.4 Sponsored Candidates

Sponsored candidates who are regular faculty/ regular staff members of this Institute or regular faculty members of Govt./Semi Govt. /reputed academic institute or regular employee of reputed industrial or research organization having adequate R&D facilities and who have fulfilled the eligibility criteria as prescribed in the Section 5.1 and have a minimum of two years of professional work experience are eligible to apply for admission to Ph.D. program in the relevant departments/schools/centres. ***They will have to produce a NOC as per supplied format (Form I-A, Annexure I or for Institute employee: Form I-B, Annexure II) at the time of interview from her/his employer stating clearly that, in the event of her/his being offered an admission, she/he shall be granted a leave of appropriate kind at least for a period of three years to enable her/him to undertake doctoral research at the Institute. Under special circumstances, the Institute may, in its own discretion, permit a candidate belonging to this category to take admission in the PhD program if she/he is granted a minimum of six months' study leave to enable her/him to complete such part or parts of the course requirement. The Institute will not provide any assistantship /fellowship to such a research scholar.*** They have to qualify in the online interview process. After completion of the necessary

course work, the candidate may be allowed to work from their parent organization.

The eligibility criteria of the candidates having only B.Tech. / B.E. degree (for the Sponsored category):

- B.Tech. / B.E. candidate seeking admission to the Ph.D. program having 02 years experience in the reputed industry with R&D facility and having at least 80% marks or 8.5 CGPA on the scale of 10 throughout her/his academic career.
- B.Tech. / B.E. candidate having more than 06 years and less than 10 years experience in the reputed industry with R&D facility and having at least 70% marks or 7.5 CGPA on the scale of 10 throughout her/his academic career.
- B.Tech. / B.E. candidate having 10 years or more experience in the reputed industry with R&D facility should have at least 60% marks or 6.5 CGPA on the scale of 10 throughout her/his academic career.

5.3 Research Areas:

Broad areas of research available in the different Departments/Centres/Schools are listed below:

Name of the Department / Center / School	Allied branches	Research Specializations
Core Departments		
Aerospace Engineering and Applied Mechanics	Mechanical / Civil / Physics / Mathematics / Chemistry / Geology	Aerodynamics, Structure, Robotics, Mechatronics, Fluid Power System, CAD/CAM, Automation, Turbulence, Hydromechanics, Fluid Mechanics, Bio-mechanics, Earthquake Engineering, Soil dynamics, Structural dynamics, Computation Mechanics, Hydraulics, Hydraulic Structure, Structural Engineering, Plasticity, Fracture, Fatigue Computational modelling, Microfluidics, Fluid Mechanics, Thermal Engineering, CFD, Fluid Mechanics, Thermal Engineering, Solid Mechanics, FEM, Aerodynamics, Flight Mechanics, Green Fuels for propulsion & combustion catalytic combustion, Nonlinear Vibrations/Dynamics and Aeroelasticity, Heat Transfer, and Artificial Intelligence.
Architecture, Town and Regional Planning	Civil Engineering; Computer Science; Mathematics; Mechanical Engineering	Architecture and Built-form; Bamboo as a Design Element; Building Information Modelling; Building Systems; Climate Change and Human Settlements; Computational Fluid Dynamics and Simulation Models in Urban Climate Research; Computer Aided Architecture; Critical Infrastructure Protection; Disaster Mitigation and Risk Reduction; Disaster Resilient Architecture; Earthquake Resilient Buildings; Environmental Planning and Management; History and Theory of Architecture; Housing and Human Settlement Planning; Infrastructure Planning; Intelligent Architecture; Rapid Visual Screening; Regional Planning and Development; Remote Sensing

		and Geographical Information System; Rural Planning and Development; Smart Cities; Thermal Comfort in Urban Environment; Thermal Performance and Energy Conservation in Buildings; Transportation Planning; Tourism Planning; Urban Conservation; Urban Design; Urban Ecology; Urban Governance; Urban Heat Island Studies; Urban Planning; Vernacular and Rural Architecture.
Chemistry		Synthetic Organic Chemistry, Benign Metal and non-metal Catalysis, Molecular Recognition and Supramolecular Chemistry, Synthetic Inorganic and Bio-inorganic Chemistry, Homogenous Catalysis, Applied nano-materials and heterogeneous catalysis, Materials Chemistry, Photoelectrochemistry, Experimental Single-molecule and Time-resolved Spectroscopy, and Theoretical & Computational Chemistry
Civil Engineering	Environmental Science/Engineering, Mechanical Engineering, Mining Engineering, Aerospace Engineering, Earthquake Engineering, Ocean/Offshore Engineering, Naval Architecture, Applied Mechanics, Construction Engineering/ Technology, Urban Planning Water Resources Engineering	Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering, Water Resources Engineering
Computer Science and Technology	Computer Science and Engineering/Information Technology	Data Mining, Machine Learning, Cryptology, Hardware Security, Defect Tolerance in Nanocrossbar Circuits' Social network/Medical network using Machine learning/AI, Intelligent Chip design, and Block Chain Technology, Image Processing, Routing in Internet of Things (IoT), Reconfigurable Cryptographic Processor, Sequence Motif, Cellular Automata theory and Applications, Computer Architecture, Ad Hoc Network, Network security, Disaster management, IoT
Earth Sciences	Geology, GIS and Remote Sensing, Geography	Hydrogeology, Environmental Geology, Sedimentology, Structural Geology and Tectonics, Metamorphic Petrology and Geochemistry
Electrical Engineering	Electrical/ Electronics/Instrumentation	Control Systems and Instrumentation, Power and Energy Systems, Power Electronics, Machines and Drives
Electronics and Telecommunication Engineering		Frequency selective surface, Metasurfaces, Planar microwave components and antennas, DSP architectures using CORDIC for real time signal

		processing, VLSI architecture design for Digital Image Processing systems, Communication under challenging conditions, Graphene derivative and other 2D material based gas sensor device development, Metamaterials for radar application, Antenna design for biomedical application, Design of high capacity free space communication channel using angular momentum of light, Routing and resource allocation issues in emerging wireless and optical networks
Humanities and Social Sciences	English, Cultural Studies and Management	Postcolonial literature, Cultural studies, Popular literature, Strategic Management.
Human Resource Management	Management	HR, Entrepreneurship, IPR
Information Technology	Computer Science and Engineering/Technology, Electronics and Communication Engineering, VLSI Design or Equivalent	Vehicular Ad-Hoc Network, Fault Diagnosis using Machine learning, Approximate Computing, Memresistor based Logic and Circuit Design, Emerging Circuits and Systems, Cognitive Radio in IoT, Medical Image Analysis using AI, Shape Analysis using Digital geometry, Image Analysis using Machine Learning, Cellular Automata, Advanced Wireless Communication Network, Application Specific Intelligent Embedded System Design, Future Generation Computing System, IoT Based Intelligent System Design, Hardware Security, MEDA based Biochip Design and Test, Remote User Authentication, Image Encryption, Information Securities, Machine Learning in Medical Image Segmentation and Diagnosis, Machine Learning (ML) and NoC based systems, NoC: Analysis, Optimization, Verification, Systems, and Applications, Emerging NoC Technologies, Heterogeneous Computing, NoC Security and Cyber Physical Systems, Biomolecular Computation: Drug design and Delivery
Mathematics		Functional and Applied functional analysis, Quantum information theory, Mathematical Biology, Statistical Modelling, Reliability Theory, Mathematical Statistics, Optimization, Information systems, Entropy optimization, Operations Research, Fuzzy mathematical systems, Fuzzy Optimization, Fuzzy entropy, Nonlinear dynamics, Mathematical Epidemiology, Fluid Dynamics, Mathematical modeling of Neural, Social network, Relativity, Cosmology and Astrophysics, Solid Mechanics, Thermoelasticity, Matrix Theory.
Mechanical Engineering	Production Engineering, Manufacturing Process/Science/Technolo	Thermal Engineering, Machine Design, Manufacturing Science: Vibration and Control, Renewable Energy,

	gy, Industrial Engineering, Ceramics Engineering, Power Engineering, Engineering Design, Alternative/Renewable Energy, Robotics/Industrial Robotics	Greenhouse Technology, Tribology / Biotribology, Nonlinear Dynamics, Biomechanics, Non-traditional machining, Engineering Ceramics.
Metallurgy and Materials Engineering	Materials / Mechanical /Aerospace /Manufacturing Engineering	Structure-properties correlations of various materials, Cyclic plasticity of multi-phase materials: Modeling and Experiments, Tribological performance of advanced materials, New generation of Steels, Thermo-mechanical simulations different non-ferrous alloys, Composite materials, Advanced joining techniques, Surface engineering, Crystallographic texture
	Physics/ Chemistry	and Bio-materials, Magnetic, Electrical, and Energy materials
	Computer Science and Information Technology	Computational Materials Engineering, Machine Learning in Materials Science, Multiscale Modelling
Mining Engineering	Mining Machinery/ Mineral Processing/ Environmental Engineering/Mechanical Engineering/ Metallurgical Engineering/Civil Engineering/Chemical Engineering/Information Technology/ Electrical Engineering/Electronics Engineering/ Master of Computer Application/Industrial Safety/Materials Science and Technology/Environmental Science/ Applied Geology/Geology/Applied Physiology/Ergonomics/Work Physiology/Chemistry/ Applied Geophysics/ Petroleum Engg./ /Biotechnology/Microbiology	Extraction of metal values from mine Waste/ tailings/ low grade ores, Value added products from mine waste, Design and optimization of Mineral Dressing process/equipment, Metallurgical accounting and mineral processing design, Sustainable Development framework, Low grade Coal washing, Mineral processing, Bulk Material Handling and Transport, IOT application in Mining/Material Handling Plant, Ergonomics, Mining Machinery/ Operation, Mines/Industrial safety, Overburden Dump Slope Stability, Wellbore Stability, Environmental Management of Mine Waste, Clean Coal Technology, Bioreactor for Mineral Recovery, Biomining of Deep Seated Deposit, Design of Compliant tailings disposal facilities, Mine Closure – Ecological Economics Approach, Methodology design for EIA of Mining Projects, Mine Support Design, Underground Coal Extraction Technology, Mine Machine & Simulation
Physics	Condensed Matter Physics, Nuclear Physics, High	Theoretical and Experimental studies of Condensed Matter Systems, Theoretical and Experimental Nuclear Physics, Fibre Optics, Quantum Mechanics of

	Energy Physics, Optics, Plasma Physics	Plasma, Theoretical High Energy Physics and Cosmology, Application of Plasma to Biomedical Research.
Centres		
Centre for Healthcare Science and Technology	Aerospace Engineering and Applied, Mechanics, Chemistry, Electronics and Telecommunication Engineering, Information Technology, Metallurgy & Materials Engineering, Mining, Physics	Biomaterial, Early cancer diagnosis, Nanomedicine for cancer and Alzheimer's diseases, Stem cells, Gene Expression analysis using Machine Learning, Occupational Health.
Centre of Excellence in Green Energy and Sensor Systems	Chemistry, Electronics Science and Engineering, Physics, Ceramic Technology, Electrical Engineering	Advanced Solar Cells (Si and non-Si based), Optical/Gas/Biosensors, Semiconductor Devices, Electrical and Electronics Circuits
Schools		
School of VLSI Technology	Electronics and Communication Engineering, Electrical Engineering, Applied Electronics and Instrumentation, Computer Science and Engineering, Information Technology or Equivalent	Fault Diagnosis using Machine learning, Approximate Computing, Memresistor based Logic and Circuit Design, Emerging Devices, Circuits and Systems, Analog Circuit Design and Testing, 3D IC Design and Testing, CAD for VLSI Physical Design, Machine Learning based Fault Diagnosis, CNT/Graphene Based Devices and Interconnects, SIC Based Device and Circuits, Spin Based devices and Circuits, Approximate Computing for VLSI Circuits, VLSI Circuits for Hardware Security, Device Modeling and 3D Integration, Memristor Based Logic and Circuit design, Quantum Computing Circuits
School of Community Science and Technology	Chemistry	Food product development, Utilization of food waste for the production of value added food ingredients, Food waste to energy concept, Application of fermentation technology in food development
School of Mechatronics and Robotics	Electronics, Electrical, Mechanical	Mechatronics, Robotics

5.4 Seat Matrix:

The Institute fellowships are available in the following Departments/Centres/Schools:

Name of the Department / Center / School	OC	EWS	OBC	SC	ST	OCPWD	EWSPWD	OBCPWD	SCPWD	STPWD	Total
Departments											
Aerospace Engineering and Applied Mechanics	4	1	3	2	1						11
Architecture, Town and Regional Planning	2	1	2	1							6
Chemistry	2	1	1	1		1					6
Civil Engineering	4	1	3	1	1						10
Computer Science and Technology	3		2	2	1		1				9
Earth Sciences	1		1								2
Electrical Engineering	3	1	1	1	1			1			8
Electronics and Telecommunication Engineering	2	1	1	1	0						5
Humanities and Social Sciences	1		1	0	0						2
Information Technology	2	1	1	1	1	1					7
Mathematics	3		2	1	1						7
Mechanical Engineering	2	1	2	1	0						6
Metallurgy and Materials Engineering	2		1	1	0						4
Mining Engineering	2		1	1	0						4
Physics	2	1	2		1				1		7
Human Resource Management	1		0	0	0						1
Centres											
Centre for Healthcare Science and Technology			1	0	0						1
Centre of Excellence in Green Energy and Sensor Systems	1		0	0	0						1
Schools											
School of VLSI Technology	1		0	0	0						1
School of Community Science & Technology	1		0	0	0						1
School of Mechatronics & Robotics	0		1	0	0						1
Total	39	9	26	14	7	2	1	1	1	0	100

Note: In absence of any applicant from PwD category, the seat reserved for PwD category will be filled by the candidate(s) who belong to the same category (without PwD).

5.5 Fees and other details for the Ph.D. program

Every Research Scholar shall be required to pay the following fees at the time of joining. All Fees may be revised as per the decisions of the Institute authority. The candidates will be notified about such revisions through the Institute website.

Sl. No.	Item	Amount per semester (Rs.) [#]
1.	Enrolment Fee (One time and non-refundable)	3,000
2.	Research scholar Activity Fee	500
3.	Infrastructure Maintenance Fee	2,500
4.	Examination Fee (One time and non-refundable)	1,000
5.	Tuition Fee	7,500
6.	Institute Caution Money (One time and refundable)	3,000
Total		17,500.00[#]

[#] In addition to above an amount equals to the yearly premium for enrolling in compulsory medical insurance scheme of the students shall have to be paid. The exact amount of yearly insurance premium shall be intimated at the time of admission.

At the time of admission Institute fees of **Rs. 17,500/-** is to be deposited in the UCO Bank, BESUS Branch located in the ground floor of the Eight-Storeyed Building (either in Cash or by Demand Draft/Pay order drawn in favour of "Registrar, IEST, Shibpur", payable at Kolkata). The candidate should collect his/her copy of the bank receipt as well as the Institutes' copy of the receipt and shall enclose the Institutes' copy of the receipt together with his/her application form for admission.

Semester registration is must for all categories of research scholar as per academic calendar of the Institute. Defaulters with pending dues are not allowed to pursue further academic activities of the Institute. In future, the payment method may change.

Joining the Ph.D. Program

1. On receiving the offer for admission, if a candidate fails to take admission in the respective course on scheduled date and time, the offer for admission to the Ph.D. course made to him/her will stand canceled.
2. All candidates who are eligible for admission but whose results are yet to be declared, shall be allowed for provisional admission, if selected, on production of Course Completion Certificate from appropriate authorities. Similarly all eligible candidates who are migrating from other University/Institute shall be allowed for provision admission, if migration certificate or no objection certificate from the University/Institute last attended cannot be submitted at the time of admission. They shall be required to submit their results of the qualifying degree examinations and migration certificate (as applicable) by 30.09.2020 (subject to change due to COVID-19 situation) and failing which their admission shall stand canceled.
3. The research scholar should report to the respective Head of the Department along with the Provisional

Admission Certificate issued by the Dean (Academic). Supervisors will be allotted as per article 14 of the PhD ordinances 2019 of the institute

5.6 Delay in joining the Institute

Any research scholar who is unable to join the Institute on the scheduled day must send an application for extension of the offer (not more than two weeks), countersigned by his/her guardian clearly stating the reason of delay. In case of illness, a medical certificate must be attached. Decision of final admission will be guided by PhD ordinance.

5.7 Compliance to Institute Rules

All students shall be guided by the PhD Ordinance of the Institute. [Ref: <https://www.iests.ac.in>]

All students are bound by the Institute Rules and must obey such orders as may be issued from time to time by the appropriate authority. Serious breach of Institute Rules may entail removal from the Institute. For vacations and holidays the academic calendar notified at the beginning of each semester shall be followed.

The Campus of IEST, Shibpur is RAGGING FREE zone. At the time of admission, each student shall be required to furnish an undertaking in non-judicial stamp paper of ₹10.00 and signed by a notary in a prescribed format (text will be made available in the website) that the student shall not indulge in any form of ragging. Appropriate action including expulsion from the Institute may be taken against the erring students.

6. CAMPUS

The Institute has a beautiful green campus covering an area of about 49 hectares situated on the bank of the river Hooghly. It is located next to the AJC Bose Indian Botanical Garden and opposite to the Kolkata Port. The campus has a number of academic and administrative buildings, library, accommodations for staffs and students, guest house, auditorium, swimming pool, students amenities, banks, school, hospitals and general services.



A portion of The Institute Campus

Institute: Academic Area

The four-storied main academic building accommodates most of the engineering departments, department of Human Resources Management, Office of the Dean and Office of the Controller of Examinations. The eight-storied Science and Technology building accommodates other engineering departments, architecture and science departments, and various centers and schools. SOCSAT is located inside a heritage building. Offices of the Director, Deans, Registrar, and other administrative offices are also located in this building.



Main Academic Building

Students Amenities

Office of the Dean of Students Welfare facilitates all students including the M.Sc. students to use different facilities available at the campus. The students of this Institute are encouraged to participate in sports and games, various cultural activities like music, photography, dramatics, paintings, model making, creative writing, debating, as well as to explore innovation and incubation of business plans, etc. All students are encouraged to participate in games or some form of physical training. The students are advised to join the athletics Club and at least one of the societies in the Students' Activity Centre. The campus has the following amenities for the students

- Centre for Creative Expressions with different hobby clubs
- R. N. Banerjee Student Recreation Centre
- Institute Hall: A Multipurpose Auditorium
- Gymnasium
- Oval and Lords - Two sports grounds
- Swimming Pool
- Alpona Banerjee Memorial Centre for Innovation
- Basketball court
- Student canteens /cafeteria as well as food kiosks
- Shanti-Neer: A Meditation Centre
- Tagore Green Business Incubation Centre

Health Service

The Institute has a hospital with Medical Officers and other supporting staff to serve the primary medical

needs of the campus inmates. It provides 24hours ambulance service. The hospital has an ID Ward to isolate the students effectively suffering from infectious diseases. However, for serious cases the patients are referred to suitable city hospital.



Oval Ground



Gymnasium



Swimming Pool



Hospital Building



Research scholar' Amenities Centre



Meditation Centre

Other Services

The Institute is provided with uninterrupted power supply and Water supply. In addition, the Institute has its own captive generation plant and also water supply sources. There are three nationalized banks with ATM service inside the campus. The Institute has a well managed guesthouse. The students can purchase their stationary items from two shops located near the main academic building.

7. CENTRAL FACILITIES

Computer Centre

All departments, schools and centres of the Institute have computing facilities for their students. In addition, there is a Central Computer Centre which provides computing facilities for UG & PG courses and research works. The Computer Centre along with the departments, schools, centers, offices and hostels are connected to a campus wide fibre optic network. The entire campus including the hostels is Wi-Fi enabled.

Library

The Institute has a separate library building which is kept open from 9:00am to midnight. The library

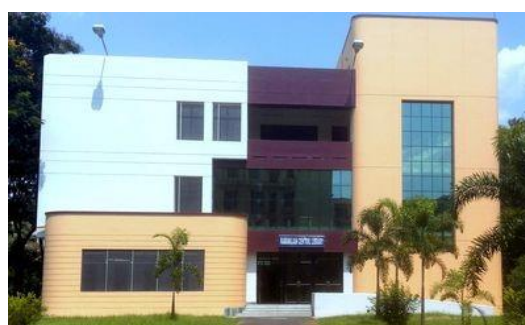
provides online search facilities (OPAC) of its database from any computer connected to the Internet and also from the computers in the library dedicated for the users. Currently, the library has more than 1.4 lakhs text and reference books, and 40,000 bound volumes of journals. It also has a huge collection of documents including patents, standards, technical reports and pamphlets. The library possesses a good collection of old and rare books and journals of the nineteenth century. The library is a member of the Indian National Digital Library in Engineering Science and Technology (INDEST) and UGC-INFONET Digital Library Consortium of Information and Library Network (INFLIBNET) Centre and provides online access to full text of journals including American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), Economic and Political Weekly, IEEE /IIEE Electronic Library (IELOnline), ISID, JCCC@INFLIBNET, JSTOR, Science Direct, Springer Link and many others. It subscribes a large volume of e-books. The library also has different software which helps the students to write papers and reports in correct English with the plagiarism checking.

Workshop

The Workshop Complex has nine engineering workshops including Carpentry, Smithy, Welding and Painting, Fitting, Machine, Foundry and Pattern, Boiler, Electric, Automobile, and Project Model to offer workshop practice.



Workshop



Central Library

8. HOSTEL ACCOMMODATION

The Institute, with a student population of more than 3700, has 18 hostels including three girls' hostels. However, residential accommodation of all Ph.D. scholars is not guaranteed due to a shortage of hostels. Hostel accommodation will be provided as per the availability of the rooms. All new Ph.D. scholars, who have been allotted hostel accommodation, should report themselves to the respective Hostel Warden on their first arrival at the Institute. Hostel Warden may not enter Ph.D. candidate's name in the roll of the hostel or assign him/her a seat until he/she produces the Receipt for the first installment of fees.

Hostel Dues and *Mess Dues* are to be paid by Ph.D. scholars residing in hostels. All these dues are to be paid in advance at the time of admission to the first semester and also at the beginning of other semesters. Caution money, however, is to be paid one-time only (during admission) and need not be paid in other semesters. Caution money will be refunded after the completion of the course. However, caution money will be forfeited if not claimed within one year after passing the course or leaving the Institution for any other reason, whichever is earlier. Research scholars withdrawing from the Institute after admission may get some refund as per the refund policy of the Institute.

Hostel Dues (for Ph.D. scholars staying in hostels)

Hostel Charges of **Rs. 4000/-** is to be deposited in the UCO Bank, BESUS Branch located in the ground floor of the Eight-Storeyed Building (either in Cash or by Demand Draft/Pay order drawn in favour of “Registrar, IEST, Shibpur”, payable at Kolkata). The candidate should collect his/her copy of the bank receipt as well as the Institutes’ copy of the receipt and shall enclose the Institutes’ copy of the receipt together with his/her application form for admission to Hostel. **HRA for such candidates will not be provided, as per Institute norms.**

Sl No	Item	Amount per Semester (Rs.)
1	Hostel Maintenance Charge	2200
2	Seat Rent	1000
3	Electricity and Water Charges	800
	Total amount payable at the time of admission	4000

All charges may change as per the orders of the Institute authority, from time to time. The candidates will be notified about the changes through the website.

Mess Dues (for Ph.D. scholars staying in Hostels)

Mess dues of Rs. 25500/- is to be deposited in the State Bank of India, BESU Branch preferably through HMS (Hall Management System Portal “**MESS ADVANCE / MESS ENTRANCE / MESS CAUTION / MESS ESTABLISHMENT A/C**”) at the time of admission. The candidates are requested to carry Debit Card /Credit Card or may pay using Net Banking.

Sl No	Item	Amount Per Semester (Rs.)
1	Mess Caution Money (one time and refundable)	1000
2	Mess Dues Advance (per semester and adjustable)	17500
3	Mess Entrance Fee (per year and non-refundable)	3000
4	Mess Establishment Fees (per semester and non-refundable)	4000
	Total amount payable at the time of admission	25500

All charges may change as per orders of the Institute authority. The candidates will be notified about the changes through the website.

Opening of Bank Account

Institute fees (Tuition fees and Examination fees etc.) are collected through the individual bank account of the student (to be opened with UCO Bank, BESUS Branch). This is mandatory and to be opened within a month from the date of admission failing which the candidature of the student will be canceled

Annexure I

FORM I-A
No Objection Certificate for Admission into Ph.D. Program
(Sponsored Candidates)
(Should be typed on the letter head of the sponsoring organization)

Reference No.

Date:

To
The Dean, Academic
Indian Institute of Engineering Science and Technology, Shibpur
Howrah 711103

Sub: Sponsoring an Employee for Ph.D. Program

Dear Sir,

We hereby sponsor the candidature of Mr./Ms./Mrs. -----, Designation: -----
----- who is a regular employee in our organization, for joining Ph.D. Program in
the Department of ----- at your Institute as a full-time student.

It is certified that he/she has completed two years of service in our organization as a regular employee.
He/she has gained experience in the field(s) -----.

If selected, we shall relieve him/her from his/her duties to join the program during the first three years of
the Ph.D. Program.

Signature and Seal of the Sponsoring Authority

Annexure II

FORM I-B
No Objection Certificate for Admission into Ph.D. Program (Institute Employee)

Reference No.

Date:

It is certified that we have no objection if Mr./Mrs/Ms. -----,
Designation: -----, a regular employee/staff member of this Institute, working
in the department of -----, is applied for admission into the Ph.D. Program in the
department of ----- at this Institute.

If selected, he/she shall be allowed to attend classes/research work without affecting normal duties
assigned to him/her.

Signature of Head of the Department

Signature of Registrar

Annexure III

FORM I-C
No Objection Certificate for Admission into Ph.D. Program
(Sponsored Research Project candidates)

Reference No.

Date:

To
 The Dean, Academic
 Indian Institute of Engineering Science and Technology, Shibpur
 Howrah 711103

Sub: No objection Certificate

Dear Sir,

We have no objection if Mr./Mrs/Ms. -----, a research scholar/ Project fellow working under the project: -----(title of the project), project code----- (DRC project code) funded by ----- (name of the funding agency), Sanction letter no. -----, in the Department/School/Centre of -----, is admitted to the Ph.D. Program of the Institute.

It is certified that the minimum remaining period of the sponsored project as well as total tenure of appointment of the said project employee must not be less than two years from the date of joining the PhD programme.

If selected, we shall allow him/her to attend classes/research work during the Ph.D. program without affecting normal project work assigned to him/her.

Signature of Project Investigator
(Name)

Signature of Dean (R & C)

For any specific inquiry regarding Ph.D. admission July Cycle 2020, please mail us at phd_admission@iests.ac.in

Professor Chandan Kumar Chanda, Professor-In-Charge of Admission & Examination
Professor Binay Krishna Ghorai, Admission-In-Charge, PhD July cycle 2020

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