

Admission to Full time/ Part time Ph.D. Program in Engineering and Sciences

IcfaiTech offers Doctoral Program in the disciplines of Engineering/Technology, Sciences and English. Applications are invited from bright, aspiring students committed to excellence to apply for admission to Ph.D. Program for the academic year 2024-2025 (August 2024 Session).

Financial Assistance:

Full time Ph.D. students admitted into the Ph.D. programme are eligible to be considered for an institute fellowship up to Rs. 40,000 /- per month. Candidates who do not possess any GATE, CSIR and INSPIRE, will be eligible for institute fellowship.

Eligibility Criteria:

Students with minimum 60% marks in aggregate (overall percentage; not only in majoring subject) or CGPA 6 on a 10-point scale in Master's degree from any university recognized by UGC are eligible. The broad areas of research and eligibility criteria in each department for both engineering and Science disciplines are as follows:

Ph.D. in Engineering

Broad areas of research

Department	Eligibility
Computer Science and Engineering	Bachelor's degree in Computer Science and Engineering followed by a Master's degree in an appropriate area with consistently good academic background.
Electrical, Electronics and Communication Engineering	Bachelor's degree in Electrical/ Electronics/ Communications/ Computer Science/ Instrumentation Engineering followed by a Master's degree in an appropriate area with consistently good academic background.
Mechanical Engineering	Bachelor's degree in Mechanical Engineering followed by a Master's degree in an appropriate area with consistently good academic background.
Civil Engineering	Bachelor's degree in Civil engineering followed by a Master's degree in an appropriate area with consistently good academic background.

Ph.D. in Sciences
Broad areas of research

Department	Eligibility
Physics	Master's degree in Physics.
Mathematics	Master's degree in Mathematics
Chemistry	Master's degree in Chemistry

Ph.D. in Humanities
Broad areas of research

Department	Eligibility
English	Master's degree in English.

Candidates satisfying the minimum eligibility criteria are encouraged to apply.

Selection Procedure:

Candidates qualified in the written test will be called for interview and final selection is based on interview performance.

Fee Structure:

One-time Fee	
Admission Fee	Rs. 40,000
Caution Deposit	Rs. 10,000
Fees Payable for Each Semester (for 8 semesters)	
Tuition Fee	Rs. 60,000

Important Dates and Deadlines:

Admission Calendar	
Particulars	Ph.D in Basic Sciences & Engineering
Last Date for Submission of completed Application Form	August 19, 2024
Eligibility / Admission Test	August 28, 2024
Results	August 30, 2024
Personal Interviews	September 16, 2024
Reporting and Registration	September 16, 2024
Commencement of Program	September 16, 2024

Details of Written Tests

Candidates shortlisted will have to appear written examination RAPT-2024, which will be conducted for 100 min. The RAPT has two parts. Part A Research Methodology will be common to all disciplines and Part B will be discipline specific. The written Test and interviews will be conducted at IcfaiTech, IFHE Campus, Hyderabad. The details of the tests are as follows:

S.No	Test	Format	Competency assessed	Duration
1	Part A	50 Multiple choice questions	Research Methodology	50 Minutes
2	Part B	50 Multiple choice questions	Discipline subject (syllabus available on website)	50 Minutes

Research Areas:

IcfaiTech faculty are involved in cutting edge research in the following areas:

Computer Science & Engineering and Data Science & Artificial Intelligence
<ul style="list-style-type: none">• Data Science• Content-Based Image and Video Retrieval• Object Tracking in Video Sequence• Mammogram Analysis and Interpretation• Artificial Intelligence• Deep Learning and Image Processing (CNN, RNN)• Internet of Things and Wireless Sensor Networks• Cloud Computing• Computer Networks, Cyber Security and Social Media Analytics.• Blockchain Technology• Augmented and Virtual Reality• Generative AI

- Data Analytics
- Video analytics
- Application of Machine Learning on IoT, Distributed Networks
- Cloud Security and SAR INAGE Analysis

Electronics & Communication Engineering

- VLSI
- Image Processing and Pattern Recognition
- IoT and Wireless Communication Networks
- Power System and Control System
- Product Design
- Wearable antennas, Electromagnetic bandgap structures, Defected ground structures, Wireless wearable body sensors
- Speech bandwidth extension and Telephony Speech Enhancement
- Substrate Integrated Waveguide (SIW) Technology
- Metamaterial inspired substrate integrated circuit based multi-band filter and antenna design
- Development of independent band tuning in planar multiple band filters and antennas.
- Reconfigurable RF and Microwave resonator analysis and synthesis
- Microwave filter and antenna design
- Antennas, Microwaves, Radars, Smart transportation system, Communications
- Signal Processing
- Image Processing and Pattern Recognition
- IoT and Wireless Communication Networks
- Power System and Control System
- Product Design

Mechatronics / Mechanical Engineering

- Additive Manufacturing - Manufacturing of prototypes for mechanical engineering domain, fabrication of pre-planning surgical models for medical community (Orthopaedic and Dental implants, Surgical planning, Drug delivery system etc) and develop Architecture models for civil and architectural engineering domains.
- Machine Design - CAD Design models for manufacturing of Nano and micro machining components for aerospace applications using composite materials, Advance High Strength Steels etc.
- Refrigeration - Simulation and Analysis of Vapour compression refrigeration system, Heat transfer analysis through HVAC nozzles, turbulence flow and

modelling, solid cryogenic green propulsion system (IPRC 014) etc.

- Robotics - Modeling, simulation, analysis and design of a controller for a robotic manipulator having five degree of freedom for lunar mission (VSSC), Use of Artificial Intelligence (AI) / Expert Systems (ES) / Machine Learning (ML) in Mission operations, Development of end effectors for spacecraft berthing and sample retrieval etc.
- Autonomous land and water vehicles, Intelligent control of dynamic systems, Robot Dynamic modelling and control, Automated robotic CAPP (Computer Aided Process Planning)
- Bio-Manufacturing and Optimization Techniques.

Civil Engineering

- Green Construction
- Innovative Construction Materials
- Infrastructure Engineering & Management

Mathematics

- Operations Research
- Boolean Algebra
- Fluid Dynamics
- Fixed Point Theory
- Commutative Algebra
- Queuing Theory
- Markov/Non-Markovian Analysis, and Stochastic Modeling, Computational Fluid Dynamics
- Mathematical Modelling, Mathematical Physics

Physics

- Experimental Solid State Physics
- Applications of quantum mechanics
- Mathematical Physics and Quantum optics
- Laser matter interaction (Experimental): Imaging of laser induced shock waves from materials, time and spatially resolved spectral studies, laser ablation propulsion, filamentation, acoustic and radio frequency detection of shock waves.
- Nonlinear Optics
- Deep Learning of Dynamical Systems

- Quantum Computation
- Quantum computation and application of machine learning to physics

Chemistry

- Energy storage materials: Nano-scale energy materials – synthesis and applications
- Chemistry of Nano materials
- Chemical Dynamics
- Synthesis and applications of nano-composites based on transition metals
- Heterogeneous catalysis
- Environmental Science and Green chemistry
- Polymers and Functional Materials, Azide-alkyne Click Chemistry, Flame retardants, Biopolymers, Polyurethanes (Foams and Coatings)
- Synthesis, characterization, and Catalytic activities of Oxo-Metal complexes. Electrocatalytic water oxidation and reduction using Metal Organic Frameworks and Polyoxometalates as electrocatalysts

English

- Differential Psychology, Writing skills, Language Pedagogy
- Applied linguistics, Language acquisition studies, Psycholinguistics
- Linguistics Phonetics and Phonology Psycholinguistics Cognitive Science, English Literature
- Teaching and Learning Second Language Skills and L2 Vocabulary, Second Language Acquisition, ESL Studies, Corpus Linguistics, Materials Evaluation
- Second Language Writing, Academic Writing, Second Language Learning and Acquisition, CALL and MALL