

NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR**SILCHAR– 788010, ASSAM, INDIA****Admission into Ph.D. Programme for the session January- June, 2023****No. Dean (RC)/105/2022-2023/2****Date: 13 -12-2022**

Applications are invited for admission into **Ph.D. programme** in the following departments with the area/ specializations and admission group as mentioned in the table for the session **January- June, 2023**.

DEPARTMENT	SPECIALISATION	GROUP
Civil Engineering	Hydrology, Water Resources Engineering, Optimization methods, Sediment transport / River Mechanics Water & Wastewater Engineering, Surface Water Hydrology, Sediment Transport, Climate change, River Modeling, hydrological modeling, groundwater Engineering , Climate change impact in DRF, Transportation planning, Transportation Engineering, Traffic Engineering, Pavement Engineering, Geotechnical Engineering, Shallow foundation, deep foundation, machine foundation, soil dynamics, soil stabilization, Application of probability and reliability theory in geotechnical engineering, Ground improvement and Geosynthetics. Construction Materials & Structural Engineering, Earthquake Engineering, Vibroacoustics, Structural Dynamics and vibration control, Active Structural Acoustic Control (ASAC), Environmental Engineering	Group A & B
Mechanical Engineering	Computational fluid dynamics (CFD), Computational heat transfer, Multiphase flow Droplet dynamics, Solar collector and application of solar energy, Computational Bioheat transfer, Thermal clothing design, Application of PCM, Application of Porous medium, HVAC and Building information modeling (BIM) for thermal performance management, Wettability, Evaporation and condensation, Micro-scale fluid flow and heat transfer, Non-Newtonian fluid mechanics, Droplet dynamics, Energy storage and conversion (Batteries, fuel cells), Scram jet Engine, Natural and mixed convection heat transfer, Lattice Boltzmann Method, Combustion, Porous media flows, Multiphase flows, Solar polygeneration, Flow control and performance improvement of vertical axis wind turbines, Renewable energy (Wind renewable energy, Ocean renewable energy), Design of underwater objects at a high velocity of water flow, Design and development of well turbine and impulse turbine used in the oscillating water column (OWC), Development of floating and fixed type OWC, Ocean thermal energy conversion (OTEC), Method: Experimental, CFD, Numerical Matlab Coding, Composite fabrication and analysis, Application of MCDM techniques for Renewable Energy, Composites / FGM / Metamaterials / Smart / Deployable structures, Uncertainty Quantification, Artificial Intelligence and Machine Learning, Molecular Dynamics, Additive Manufacturing, Tribology of Bearing, Composite Materials, 3D printing, Bionic, Bioscience/ Biotechnology/ Bio-Mechanics, Modelling and	Group A

DEPARTMENT	SPECIALISATION	GROUP
	<p>development of Expert System for communicable and non-communicable diseases, Augmented/ virtual reality</p> <p>Material Selection, Material Synthesis and Characterization, Metal Matrix Composites, Powder Metallurgy, Advanced (Non-traditional) Machining, Surface Coating, Welding Technology, Soft Computing, Fatigue & Fracture, Nontraditional Optimization Tools, Multi-criteria Decision Making (MCDM) Techniques.</p> <p>Smart Adhesives and their joining, Hybrid multiscale laminated composites, Bio-composites, Phase change materials and encapsulation technology, Surface engineering and functionalization, Self-healing composite materials and FRP laminates, 3R Composites and vitrimers, Energy-efficient building materials, Vibration analysis, Machine Dynamics, Mechatronics systems and energy harvester Rotor dynamics and control Engineering Condition monitoring of dynamic system, Sustainable materials for coatings, Surface engineering and additively manufactured coatings, Robotic and control, Compliant mechanism, Soft actuation and mechanism, Sensor and actuators, Mobile robotics, Mobile manipulators, Underwater robotics, Machining, Electro-deposition, Machining Learning, Product Development, Dissimilar welding of materials, Welding for Biodevices, Corrosion science, Thin film deposition, Sheet metal joining and riveting, Metal forming/Joining, Tribology, Nano materials, Unconventional machining, Renewable energy</p>	
	<p>Computational fluid dynamics (CFD), Computational, heat transfer, Multiphase flow, Droplet dynamics, Solar collector and application of solar energy, Computational Bio heat transfer, Thermal clothing design, Application of PCM, Application of Porous medium, HVAC and Building information modeling (BIM) for thermal performance management, Wettability, Evaporation and condensation, Micro-scale fluid flow and heat transfer, Non-Newtonian fluid mechanics, Droplet dynamics, Energy storage and conversion (Batteries, fuel cells), Scram jet Engine, Natural and mixed convection heat transfer, Lattice Boltzmann Method, Combustion, Porous media flows, Multiphase flows, Studies on co-axial vertical axis wind/water turbines, Studies on improved solar PVT collector, Renewable energy (Wind renewable energy, Ocean renewable energy), Design of underwater objects at a high velocity of water flow, Design and development of well turbine and impulse turbine used in the oscillating water column (OWC), Development of floating and fixed type OWC, Ocean thermal energy conversion (OTEC), Method: Experimental, CFD, Numerical Matlab Coding, Dynamics of composites / FGM / Smart Structures, Tribology of Bearing, Composite Materials, Additive Manufacturing, Agricultural machines / mechanisms development Smart Adhesives and</p>	Group B

DEPARTMENT	SPECIALISATION	GROUP
	<p>their joining, Hybrid multiscale laminated composites, Bio-composites, Phase change materials and encapsulation technology, Surface engineering and functionalization, Self-healing composite materials and FRP laminates, 3R Composites and vitrimers, Energy-efficient building materials, Vibration analysis, Machine Dynamics, Mechatronics systems and energy harvester Rotor dynamics and control Engineering Condition monitoring of dynamic system, Sustainable materials for coatings, Surface engineering and additively manufactured coatings, Robotic and control, Compliant mechanism, Soft actuation and mechanism, Sensor and actuators, Mobile robotics, Mobile manipulators, Underwater robotics, Machining and Machine Learning, Dissimilar welding of materials, Welding for Biodevices, Corrosion science, Sheet metal joining and riveting, Metal forming/Joining Tribology, Nano materials, Unconventional machining, Renewable energy</p>	
<p>Electrical Engineering</p>	<p>Micro-grid Operation and Management, Energy Forecasting & Pricing, Single and Multi-Objective Optimization and application in Power systems Meta-heuristic Algorithms, Electric Power Distribution systems, Optimal Power Flow in Power Systems, Power Electronics applications to Electric Power and Energy Systems, Microgrid Control (Power Management, Power Quality, and Transient Issues), Power Conditioning of Power Distribution Systems using Active Filters (Shunt/ Series/ Combined/ Hybrid), Smart Grid Power Management and Control, Application of Soft Computing Techniques, Primary secondary control for DC microgrid, Optimization techniques, Distribution network operation and planning, High Voltage Engineering and Testing, Design of Lithium-ion Batteries New Insulation Materials for AC and DC Cables, Electromagnetic Field Simulations using MATLAB, PSCAD, and COMSOL softwares, Applications of non-thermal plasma such as diesel exhaust pollution control, surface decontamination, carbon capture, food processing and waste water treatment,</p> <p>Plasma Pyrolysis Small-scale power generation Hydro Power Plants Applications of machine learning techniques in Electrical Engineering, Power System Flexibility Power System Security Load Forecasting Condition Health Monitoring and Fault Diagnosis of Electrical Machines Power Quality, Power system Reliability, Deregulated power system operations, Power Economics, Design of Current Sensor for Phasor Measurement Units and their applications in Power systems operation and control, Mitigation of Subsynchronous Resonance with STATCOM, SSSC and UPFC using PI and FOPI controllers, Electric Vehicles, Charging Infrastructure planning for Electric Vehicles, Electric Vehicle Route Planning using Machine Learning, Aging assessment for Battery Energy</p>	<p>Group A</p>

DEPARTMENT	SPECIALISATION	GROUP
	<p>Storage System in Electric Vehicles, Power Converters applications in Electric Vehicles, Power converters design, development, hardware implementation for Electric Vehicles charging system, grid tie interface, Scheduling of electric vehicles in residential distribution network, Mathematical Modelling of Motors for Electric Vehicles, Power Electronics Converters related to EV Applications, Insulation Design and Diagnosis of Electric Vehicles, Renewable Energy Technologies, Renewable Energy and Energy Market, Distributed Generation, PV integration to grid and power quality issues, Renewable energy sources Fuel Cells, Optimization of renewable generation and storage in distribution grids, Renewable Generation Forecasting, Renewable Energy Sources and Restructured Power System, Grid interactive and isolated Renewable Energy Systems and Control (Wind, SPV, Hybrid); Multifunctional and Flexible Power Converters and its applications; Power Electronics Electrical Machines and Drives, Low Power Switched Capacitor Converters Low Power Electronics converter based VLSI design. Batteries and Capacitors, Power Electronics Packaging, Design and development of Underwater Autonomous Vehicles, their control and applications</p> <p>Advanced Battery Management System of electrical vehicles to overcome sudden explosion of batteries. Nonlinear dynamics and chaos, their control with advanced nonlinear controllers and applications, including secured communications, Design and development of a mobile application to measure the correctness of Pranayam in terms of number/ sec and postures and suggest corrections, Design and development of a solar-based trimming of lawns and trimming of bushes (next phase will be autonomous) for a 5000 + population campus, Design and development of a solar-based road cleaner along with bruising (next phase will be autonomous) for a 5000 + population campus. Designing an awareness program on cybersecurity for common people, Develop a unified criterion for using block chain technologies to satisfy cybersecurity properties. IStability analysis of networked-isolated micro-grids in the presence of source, load disturbances and faults. Design, develop and control drones for different societal applications, Robust Control, Quantitative feedback theory based Control System: Design and application, Fractional Order Control Systems, Passivity based control, Water Quality Control, Any relevant societal application having applications of Control Systems, Mathematical Control (includes robust, adaptive and optimal control), Application of control theories for -- Power & Energy System Problems, Robotics, Biomedical Systems, System Theory development for Behavioural and Psychological models (Transdisciplinary research in</p>	

DEPARTMENT	SPECIALISATION	GROUP
	<p>collaboration with social & psychological sciences), NN based embedded adaptive control system with wireless communication, Variable order dynamics, Optimal control, II Instrumentation, Machine Learning, Instrumentation and Signal Processing, Sensors and Actators, Embedded System Design and Programming, Numerical Linear Algebra, Digital Image Processing, Image processing VLSI</p>	
	<p>Micro-grid Operation and Management, Energy Forecasting & Pricing, Single and Multi-Objective Optimization and application in Power systems, Meta-heuristic Algorithms, Electric Power Distribution systems, Optimal Power Flow in Power Systems, Power Electronics applications to Electric Power and Energy Systems, Microgrid Control (Power Management, Power Quality, and Transient Issues); Power Conditioning of Power Distribution Systems using Active Filters (Shunt/ Series/ Combined/ Hybrid), Smart Grid Power Management and Control, Application of Soft Computing Techniques, Optimization techniques, High Voltage Engineering and Testing, Design of Lithium-ion Batteries, New Insulation Materials for AC and DC Cables, Electromagnetic Field Simulations using MATLAB, PSCAD, and COMSOL softwares, Applications of non-thermal plasma such as diesel exhaust pollution control, surface decontamination, carbon capture, food processing and waste water treatment, Plasma Pyrolysis</p> <p>Small-scale power generation, Hydro Power Plants, Applications of machine learning techniques in Electrical Engineering, Power System Flexibility, Power System Security, Load Forecasting, Condition Health Monitoring and Fault Diagnosis of Electrical Machines Power Quality, Power system Reliability, Deregulated power system operations, Power Economics, Electric Vehicles, Power Converters applications in Electric Vehicles; Mathematical Modelling of Motors for Electric Vehicles, Power Electronics Converters related to EV Applications, Insulation Design and Diagnosis of Electric Vehicles, Renewable Energy Technologies, Renewable Energy and Energy Market, Distributed Generation, Renewable Generation Forecasting, Renewable Energy Sources and Restructured Power System, Grid interactive and isolated Renewable Energy Systems and Control (Wind, SPV, Hybrid); Thermo Electric Generation (TEG), Carbon Balance, Photovoltaics, Advanced cookstoves, Rural energy systems, speech recognition, Multifunctional and Flexible Power Converters and its applications; Power Electronics Electrical Machines and Drives, Low Power Switched Capacitor Converters, Low Power Electronics converter based VLSI design, Batteries and Capacitors, Power Electronics Packaging Design and development of Underwater Autonomous Vehicles, their control and applications,</p>	<p>Group B</p>

DEPARTMENT	SPECIALISATION	GROUP
	<p>Advanced Battery Management System of electrical vehicles to overcome sudden explosion of batteries, Nonlinear dynamics and chaos, their control with advanced nonlinear controllers and applications, including secured communications, Design and development of a mobile application to measure the correctness of Pranayam in terms of number/ sec and postures and suggest corrections, Design and development of a solar-based trimming of lawns and trimming of bushes (next phase will be autonomous) for a 5000 + population campus, Design and development of a solar-based road cleaner along with bruising (next phase will be autonomous) for a 5000 + population campus, Designing an awareness program on cybersecurity for common people, Develop a unified criterion for using block chain technologies to satisfy cybersecurity properties, Stability analysis of networked-isolated micro-grids in the presence of source, load disturbances and faults, Design, develop and control drones for different societal applications, Robust Control, Quantitative feedback theory based Control System: Design and application, Fractional Order Control, Systems Passivity based control, Water Quality Control, Any relevant societal application having applications of Control Systems, Mathematical Control (includes robust, adaptive and optimal control), Application of control theories for -- Power & Energy System Problems, Robotics, Biomedical Systems, System Theory development for Behavioural and Psychological models (Transdisciplinary research in collaboration with social & psychological sciences), NN based embedded adaptive control system with wireless communication, Variable order dynamics, Optimal control, Instrumentation, Biomedical Engineering, Machine Learning, Image processing, VLSI, Application of AI/ML for biomedical and rehabilitation systems (Product and patent oriented focus) with emphasis on either signal/image/data driven approach.</p>	
<p>Electronics and Communication Engineering</p>	<p>Communication Systems: Wireless Communication, Cognitive Radio Networks, UAV based Communication and networking in C-RAN, Resource Allocation in 5G, Energy Harvesting protocols, Network Slicing, Caching and Splitting of network function in 5G, Satellite Communications, Wireless Sensor Networks, Communication Systems, Millimeter Wave Communications, Digital Communication, Information Theory and Coding, Signals and System, Satellite Communication, Mobile Communication and Wireless Networks, Underwater Networks, Free Space Optical Communications and Green Communications, Massive / Cooperative MIMO, NOMA, Power Line Communications, Smart Grid, IoT, Artificial Intelligence, Convex Optimization, 5G Networks, Next Generation Wireless Networks, UAV-assisted Networks, 5G Communication Techniques, Cooperative</p>	<p>Group A & B</p>

DEPARTMENT	SPECIALISATION	GROUP
	<p>Communications), Soft Computing Techniques, Smart Grid Communications, Energy efficient, NOMA, MIMO-OFDM Communications, IoT, Efficient scheduling of wireless resources, and various aspects of all other recent forms of communications, Physical Layer Security, Cooperative Communications, 5G Techniques, Optical Fibre Communication, Cyber Security.</p> <p>Signal Processing: Signal Processing, Speech and Audio Processing, Image and Video Processing, Biomedical Signal Processing, Multimedia Signal processing, Machine Learning, Deep Learning Techniques, Soft Computing Techniques, Computer Vision, Medical Imaging, Neuroimaging, Pattern Recognition, Optimization Techniques, Signal Processing for Communication and VLSI, Embedded System and IoT based system Design, Natural Language Processing, Drone Technology, Unmanned Aerial Vehicles (UAVs), Brain Computer Interface, Application of computer-vision and machine in Robotics.</p> <p>Microwave and RF System Design: RF Energy Harvesting Systems, WPT, SWIPT, Machine Learning for Electromagnetic Problems, Ultra-Wideband Technologies, Dielectric Resonators and Applications, EBG and FSS Structures, Antenna design for 5G Communications, MIMO antenna Design for 5G communication, Implantable sensor antenna.</p> <p>Antenna Design, Meta-material, WBAN, Flexible Antennas, Antenna Array Optimization, Resonators for RF Applications, Meta-material-Inspired Structures for Antenna Application, Soft Computing Techniques in WSNs, Wearable antenna, MIMO antenna, Meta-material antenna, Machine Learning for Microwave & mm-Wave Devices, Microwave Imaging, RADAR, Metamaterials for mm-wave Structures, Active and Passive Microwave Devices, Microwave Imaging, Smart Antenna Systems.</p> <p>Micro/Nanoelectronics: SPICE/Compact modeling of multigate FETs/Nanowire FETs/ Nanosheet FETs; TCAD Simulation of nanoscale and emerging transistor architectures; Computational Nanoelectronics/Quantum modeling; Statistical analysis of Reliability issues/Self-heating/Stress; Machine learning based device modeling; Non-volatile memory/RRAM/SRAM/Memristor; Semiconductor device modeling; MOS physics and modeling; Semiconductor devices for RF & mm-wave applications; Micro/Nanoelectronics: Compact Modeling of GaN and Ga2O3 based HEMT; Nanotechnology: III-V Nanowire LED; Growth of TiO2 Nanowires using Thermal/E-Beam evaporation and its Characterization; Energy Harvesting: Perovskite/CZTS Solar Photovoltaics (simulations & experimental); Renewable Energy, Li-Ion Battery, High-K based CMOS Logic and Non-Volatile Memory Devices (Charge Trap Flash</p>	

DEPARTMENT	SPECIALISATION	GROUP
	<p>Memories, Ferroelectric RAM and Resistive RAM), Negative Capacitance Transistors, 2D Materials, High mobility Group-IV Ge/GeSn based epitaxial devices, Organic Electronic Devices and Photodetectors; deposition techniques, Thin Films and device Characterizations.</p> <p>VLSI Design, MEMS and Photonics:</p> <p>Digital VLSI design, Analog VLSI design, Analog and Mixed System VLSI Design, Algorithms to VLSI Architectures, VLSI testing and verification, MEMS/NEMS, Bio-MEMS, Optical MEMS, MEMS Sensors, MEMS Energy Harvesting, Optimizations, VLSI Interconnects, Stretchable electronics, Synthesis of Nanoparticle and Application of Nanotechnology, Photonic Integrated Circuits, Photonic Integrated Circuits, Optoelectronic Devices, Biosensors. Stretchable electronics, Photonic Crystal Sensors, Photonic Devices, Semiconductor.</p>	
<p>Computer Science and Engineering</p>	<p>Hardware Security, Edge A,IC Layout, Hardware Acceleration, Theoretical Machine and Deep Learning, Cyber Physical System, Image Processing, Machine learning, Medical imaging, Human Activity Recognition Machine Learning and Time Series Mining, Distributed Computing, Graph Algorithms, Approximations, Distributed Artificial Intelligence, Natural Language Processing/Quantum Computing Network Security, Internet of Things Wireless Sensor Network, Cryptography, Image and video processing, spiking neural networks, Networks optimization Human-Computer Interaction, Machine Translation, Applied machine learning and Deep learning, Social Media Analytics, Speech Processing, NLP, Human Activity Recognition, Time Series Mining, Distributed Computing, Graph Algorithms, Approximations Artificial Intelligence, Cryptography, video processing,</p>	<p>Group A & B</p>
<p>Electronics and Instrumentation Engineering</p>	<p>IoT, 5G Communications & Beyond, Cyber-Physical Systems</p> <p>Communication: IRS for 6G Communication, Block chain for 6G, UAV for 5G and beyond, IoT&IIoT Communication, Vehicular: V2X communication, D2D, mm Wave 5G, Cognitive Radio, MIMO, etc., AI: Machine Learning, Deep Learning and its applications in Healthcare, Communication and Signal Processing.</p> <p>Bio-medical Instrumentation and Signal Processing</p> <p>Sensing Technology, Instrumentation, Biomedical Instrumentation & signal processing, Smart sensor, Industrial Instrumentation, Machine Learning, and Application of IoT. Transdermal Drug delivery, Medical Electronic devices, Biomedical signal processing, machine learning algorithms, artificial intelligence, intelligent instrumentation for health monitoring, cognitive neuroscience, Pain Measurement and analysis, VR/AR in Biomedical applications, Wearable devices, Traditional and Indigenous</p>	<p>Group A & B</p>

DEPARTMENT	SPECIALISATION	GROUP
	<p>healing methods, Automation for societal needs, Biomedical waste disposer - sanitary napkin and condom, Design and development of products, Development of Sensors for biomedical applications such as continuous monitoring of Glucose, pH, Temperature, Pulse Rate etc, Design and Development of Sensing Devices for water quality and air quality monitoring, Gas-sensors</p> <p>Nano/Micro Electronics and VLSI</p> <p>Digital ICs, modern semiconductor devices, solar cells, New Generation Solar Cell, Design, Fabrication & Characterization of Sensors, Emerging memories with artificial intelligence (AI) applications, emerging memory technologies (PCM, RRAM): Materials, Device Fabrication & Characterization, Nano electronics and semiconductor devices</p> <p>Renewable Energy and Energy Storage Systems</p> <p>Renewable Energy system; Energy storage (battery, super capacitor, fuel cell, Flow batteries, Pumped hydro); Battery management; Electric vehicle; Smart village, Design and Development of Energy Harvesting Devices, Design, development and optimization of super capacitors, NEMS & MEMS Devices, Mathematical modelling, scheduling & advanced control of Hybrid renewable energy system (Solar, Wind, Waste to Energy etc.) based smart grid under uncertainties, Hydrogen based energy generation- Fuel cells and its challenges,</p> <p>Control Theory, Robotics and Automation</p> <p>Control systems (conventional and data driven Modelling, estimation, control);; Fractional order systems, Control of Cyber Physical Systems, Network Control Systems, Event-triggered Control, Sliding Mode Control, Learning Based Control, Control of Multi-agent systems, Platooning Control, Application areas: Biological systems, Robotics, etc., Modelling of Epidemics, Model Predictive Control and its applications, Robotics, Biomimetic Robots, Robust and Adaptive Control, Modelling of dynamic systems Motion planning of single and multi-robots, Autonomous Aerial and Underwater Vehicles, Formation control of multiple robotic systems, Time Delay Systems, Lyapunov Stability, Fractional Order Systems, Linear and Nonlinear Multi-Dimensional Systems, Biological Control System, Control of renewable energy system, Optimization based process Scheduling, Machine Learning/AI based control & scheduling of process and energy systems</p> <p>Signal and Image Processing</p> <p>Condition Monitoring and Fault Diagnosis using Advanced Signal Processing Techniques, Application of Machine Learning and Artificial Intelligence, Intelligent Instrumentation, Image processing, Image and Signal Processing:</p>	

DEPARTMENT	SPECIALISATION	GROUP
	Image Segmentation models for real-time and medical applications, Medical Imaging,	
Chemistry	Development of nanomaterials and/or mesoporous materials based on modification of graphitic carbon nitride (g-C ₃ N ₄), hydroxyapatite (HAP) and metalorganic framework (MOF) and investigation of their potential applications as catalysts in chemical transformation and environmental remediation, Physical Chemistry, Nanoscience and Nanotechnology, Nanocatalysts, Synthesis and characterization of inorganic nanostructured materials (microporouszeolitic and mesoporous materials, clays, layered doubled hydroxides LDHs, nanosized metals and metal oxides), as catalysts, sorbents or polymer reinforcing nano-additives, Organic synthesis, Synthesis of Schiff bases and Metal complexes, DFT and Biological studies, Organic Chemistry and Renewable Energy, Synthesis and Characterization of Nanomaterials for various applications (such as, Photo-catalysis, Nanoelectronics, Sensors etc.). Recycling and Potential Utilization of Hazardous Industrial Waste Materials, Studying the photophysical and photochemical processes of organic fluorophores in homogeneous and heterogeneous environments using fluorescence spectroscopy; protein-ligand interaction, Application of nanomaterials for electrochemical applications, Renewable energy, Nano-technology, Nano-electronics, Bio-fuel and Energy from Bio-waste Energy and Environment.	Group A & B
Physics	<p>Experimental Condensed Matter Physics:</p> <p>Memory Devices, Perovskite Solar Cells, Multiferroics, Ferroelectrics, Solar Energy Materials, Semiconductor Photocatalysis, Photocatalytic Hydrogen Production, Dye Sensitized Solar Cells, Quantum Dot Sensitized Solar cells, Photocatalytic Reactor Design & Fabrication, Energy storage devices and materials, Nanoionics based resistive switching devices, Bulk Crystal Growth, Non linear optics, Non linear optical nano-fibers, Image processing.</p> <p>Computational condensed matter physics:</p> <p>DFT studies of material for optoelectronic application, quantum materials, Mathematical Modelling of New Generation Solar Cells(Dye sensitized solar cells, Quantum dot sensitized solar cells, Perovskite solar cells)</p> <p>High energy physics theory:</p> <p>B physics, New Physics, Neutrino Physics</p>	Group A & B
Mathematics	Wave Propagation, Mathematical Modelling, Elastodynamics, Theoretical Seismology, Smart Materials and Structures, Computational Fluid Dynamics (CFD), Microfluidics and microscale transport, Computational Mathematics, Complex Analysis, Fuzzy set and its	Group A

DEPARTMENT	SPECIALISATION	GROUP
	application, Operations Research, Fuzzy Optimization and Decision Making, Elasto Dynamics, Linear algebra, Inverse eigenvalue problem, sequence space, Fuzzy sequence, Fuzzy optimization, Integral equation, Integro-differential equations.	
	Mathematical Modelling of Biological Problems, Operations Research, Mathematical Modelling, Fuzzy Optimization and Decision Making, Elasto-Dynamics, Evolutionary Optimization, Networking Optimization, Multi-objective Optimization, Many Objective Optimization, Graph Theory Applications, Fuzzy Optimization.	Group B
Humanities and Social Sciences	Women's Writing, Post-colonial Literature, Feminist Literature, Cultural Studies & Media Studies.	Group A & B
Management Studies	Finance, Marketing and Intellectual Property Rights, Human Resource Management	Group A
	Finance, Marketing, Human Resource Management, Intellectual Property Rights	Group B

ADMISSION GROUP:

1. There are two Groups (A and B) of admission under Ph.D. Program

GROUP A: Ph.D. Program - Regular Category who may receive fellowship from the MoE / CSIR/ UGC or any other recognized funding agency as per MoE/ CSIR/ UGC guide lines.

Research Fellowship is available to the scholars who are admitted to Ph.D. programmes in different departments subject to the availability as stipulated by Ministry of Education. The award and renewal of the fellowship is as per the guide lines issued by MoE, from time to time.

In case of students, who secure a new job or otherwise wish to move outside the institute and end their doctoral program prematurely, need to refund any scholarship received.

Eligibility for application in GROUP A:

- Students for admission into Ph.D. Programs in Engineering Departments must satisfy one of the following criteria:
 - M.E./ M. Tech. or equivalent with GATE / NET qualification in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST/PwD candidates, a minimum CPI of 6.0 (ona10 points cale) or equivalent (55%of marks).
 - B.E./B. Tech. with an excellent academic record with valid GATE score and with a CPI of at least 8.0 (on 10 point scale) or equivalent (75% of marks). For graduates from IITs/NITs, the minimum CPI requirement is 7.0 (on 10 point scale). For SC/ST/PwD candidates, there is a relaxation of 0.5CPI or 5%ofmarks.
- Students for admission into the Ph.D. Programs in Science departments must have a Master degree in the relevant discipline with a GATE / UGC / CSIR / NBHM / NET score for admission with a minimum CPIof6.5(ona10pointscale)or equivalent (60% of marks).For SC/ST/PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks) with a GATE / UGC / CSIR / NBHM / NET score is required for admission.

3. Students for admission into the Ph.D. Programs in Management Studies departments must have a Master's degree in Business Administration or Master's degree in Engineering/Technology with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks) or Master degree in other disciplines with a minimum CPI of 6.5(on a10 point scale)or equivalent (60%of marks).For SC/ST/PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks) is required. A score in NET /GATE/UGC is required for all.
4. Students for admission into the Ph.D. Programs in Humanities and Social Sciences (HSS) Department must have a Master's degree in any field with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60 %of marks) or Master degree in other disciplines with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60 % of marks). For SC / ST/ PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55 %of marks) is required. A score in NET/GATE /UGC is required for all.
5. Candidates appearing for final year ME / M. Tech/ M Sc/ MA/ MBA are also eligible to apply. However, their final result must be published on or before the publication of the provisional selection list.

GROUP B: Ph.D. Program—No financial assistance or stipend by NIT Silchar will be provided for this GROUP.

Following students will be considered under this GROUP:

- (i) **REGULAR (Group-B)**-The regular students are those who work full-time for their Ph.D. and self-financed.
- (ii) **SPONSORED**-who are employed in a Central/State Govt. Departments/ PSUs/ Reputed Educational Institutes/ Research organizations/ Reputed Industries for doing researching the Institute on a full time basis. He/ She should have at least two years of working experience in the respective field. The candidate must submit the filled-in sponsorship letter (FORM I) from the employer with the application for admission. He / She shall not be entitled to any financial support from the Institute.
- (iii) **PART-TIME**- This category refers to the candidates who are professionally employed personnel. They have to stay in the Institute/around the Institute at least during the period of course works so that they can attend regular classes as per the Institute academic norm. The applicant must be an employee of a State/ Central Govt. Departments/ PSUs/ Reputed Educational Institutes/ Research organizations/ Reputed Industries at the time of admission having at least one year experience in the discipline in which admission is sought. No financial assistance shall be provided by the Institute to such students. A No Objection Certificate from the Head of the Institute/ Organization, in which he/she is employed, must be enclosed with application in FORM II-A.
- (iv) **INSTITUTE EMPLOYEES**- Employees of NIT Silchar. A No Objection Certificate from the concerned Head of the Department and the Director must be enclosed with application form (FORM II-B).
- (v) **PROJECT STAFF** -This category refers to the candidates who work on sponsored projects in the Institute. A No Objection Certificate from the Principal Investigator of the concerned project and Dean (R &C) must be enclosed with application form (FORMIII).
- (vi) **SPONSORED (EXTERNAL REGISTRATION)**- Candidates employed in R&D organizations/ educational Institute shaving adequate research facilities. Sponsorship certificate (FORMIV) from the Head of the organization where the candidate is employed must be enclosed at the time of application.

Eligibility for application in GROUP B:

1. Students for admission into Ph.D. Programs in Engineering Departments must satisfy one of the

following criteria:

M.E./M.Tech. or equivalent in an appropriate area with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC /ST /PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks).

2. Students for admission into the Ph.D. Programs in Science departments must have a Master degree in the relevant discipline with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST/ PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks) is required.
3. Students for admission into the Ph.D. Programs in Management Studies departments must have a Master's degree in Business Administration or Master's degree in relevant disciplines with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60% of marks). For SC/ST/PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks) is required.
4. Students for admission into the Ph.D. Programs in Humanities and Social Sciences (HSS) Department must have a Masters degree in any field with a minimum CPI of 6.5 (on a 10 point scale) or equivalent (60 % of marks). For SC / ST/ PwD candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55 % of marks) is required.

Procedure for online application:

1. Please click the link below for initiating the online application.
<http://admission.nits.ac.in/phdadmission2023>
2. After completing the online application first phase, you will receive a mail with a registration key. In that mail you will find the link for application fee payment. Follow the following steps for fee payment as per your category.
3. An Application Fee of **Rs.500/-**(for Open/ OBC) **OR Rs.250/-**(for SC/ ST/ PwD) must be paid via online payment and steps for online payment is as follows:
 - a. Click or goto: <https://www.onlinesbi.sbi/sbicollect/icollecthome.htm>
 - b. Accept and proceed.
 - c. State of Institute> Assam.
 - d. Type of Institute> Educational institutions> Go.
 - e. Educational Institutions Name> Select "online fee collection account NIT Silchar">Submit.
 - f. Select payment category as "Application fee for PhD Admission 2022". Please select the appropriate category. Please note that once you pay this fee, cannot be refunded or adjusted to other category and you are requested to select the correct category and after that you will get the payment form directly.
 - g. Fill the required information and submit and pay as per your convenient channel.
 - h. After successful payment, payment confirmation slip are to be saved in a pdf format. This will be necessary for further steps.
4. Once you complete your payment, click the link, : "**Click here if you have already register online**" by visiting <http://admission.nits.ac.in/phdadmission2023>
5. Now using the 'Registration key' received in your mail, and other details, please click the button "Proceed".
6. Fill the Payment details and your address to proceed further.
7. Now fill the form correctly and upload your details.
8. Merge below documents in a single pdf file in following order and then upload it through the link (max file size 15MB). Also upload the Photo in JPG format. **Remember, the sequence of your documents should be in the following order.**

1. Self attested declaration form
2. SB Collect Receipt
3. Address Proof
4. Proof of Age
5. Class X Marksheet
6. Class X Certificate
7. Diploma Marksheet (If Applicable)
8. Diploma Certificate (If Applicable)
9. Class XII Marksheet
10. Class XII Certificate
11. Graduation Marksheet
12. Graduation Certificate (if applicable)
13. Post Graduation Marksheet
14. Post Graduation Certificate (if applicable)
15. Experience Certificates from competent authority (If Applicable)
16. Valid Caste Certificate (If Applicable)
17. Gate/NET CSIR Scorecard (Mandatory for Group-A and for Group-B, If Applicable)
18. PWD Certificate (If Applicable)
19. NOC from current employer (For Group-B, If Applicable)

9. After uploading the document in pdf and Photo in JPG in the previous step, you will find the complete filled application form in the next step. Please check it for its correctness of your application data and after checking the declaration, Click the "Final Submission". However, editing is possible after every steps before final submission.

Important Dates:

(i)	Last date of submission of form to the Institute	:	28 Dec, 2022 (Midnight)
(ii)	List of short-listed candidates to be uploaded in the institute website	:	6 Jan, 2023
(iii)	Selection Process (at NIT Silchar in offline mode), counselling and document verification	:	17-18 Jan, 2023
(iv)	List of provisionally selected candidates to be uploaded in the institute website	:	20 Jan, 2023
(v)	Period of registration	:	23-25 Jan, 2023

The final pdf copy of the Application form must be emailed to phd_admission@nits.ac.in on or before **29th December, 2022 by 12.00 Midnight** with Subject line should be "Application for Ph.D. program- *Name of the department (applying for)-GroupA/ GroupB*". No need to send the hard copy of the Application form.

The candidates are advised to give their latest contact numbers/e-mail ids in the application form. The Institute reserves the right to reject any or all applications or it may amend any of the clauses above as per orders of the competent authority/ Government of India.

- **Candidates are requested to check the institute website regularly for updates.**
- **Hostel accommodation is subject to availability.**

GENERAL TERMS AND CONDITIONS:

1. The Institute reserves the right to cancel the candidature without assigning any reason thereof.
2. The prescribed qualification are minimum and mere repossession of the same does not entitle candidates to be called for written test and counseling.
3. No correspondence will be entertained with the candidates, who are not called for counseling/selected for appointment.
4. Canvassing in any form will resultants qualification of candidature.
5. Legal disputes, if any, will be restricted within the jurisdiction of Silchar Court only.
6. Candidates should upload their application form along with all supporting documents duly self attested.
7. All reserved category candidates shall be required to submit self-attested copies of the latest Caste certificate issued by competent authority.
8. Candidates must produce original marksheets and certificates during verification and counselling at the time of counselling, if called for.

OTHER IMPORTANT INFORMATION:

1. Candidates are requested to provide their active e-mail Id/mobile phone numbers/ land line phone numbers in the application form for easy contact.
2. List of shortlisted candidates will be displayed on the Website of the Institute. No personal intimation will be made to the candidates. Candidates are advised to visit the Institute website regularly.

**Sd/-
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