

NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR
SILCHAR - 788 010, ASSAM, INDIA
ADMISSION INTO Ph.D. Programme

Applications are invited for admission into **Ph.D. programme** in the following departments for
January-June, 2018 session

DEPARTMENT	SPECIALISATION	
Civil Engineering	<ul style="list-style-type: none"> ➤ Water Resources Engineering ➤ Structural Engineering ➤ Earthquake Engineering ➤ Transportation Planning ➤ Transportation Engineering ➤ Geotechnical Engineering. 	
Mechanical Engineering	<ul style="list-style-type: none"> ➤ Thermal Engineering, CFD application, Non-conventional energy; Computational combustion; Bio-fuel research, Boiling heat transfer, Refrigeration, Air-conditioning, CFD, Solar Energy; Renewable energy, Robotics; Advanced Manufacturing processes, Micro-machining; Micro hydro turbine, Hybrid renewable energy system, Solar thermal collectors; Composite, Fatigue & fracture behaviour of material; Extended surface, Heat transfer, Thermodynamics, Nano fluidics; Design of object under water, Non-linear & linear water flow. 	<ul style="list-style-type: none"> ➤ Development of innovative idea; Microfluidics, Natural convection, Non-Newtonian fluid mechanics, Numerical heat transfer; Bio-mechanics, Bio-materials, Fatigue behaviour of materials; Heat exchanges, Mixed convection, Solar thermal; Uncertainty quantification, Computational mechanics and modelling, Mechanics of tribology, Meta-materials, functionally graded materials and composites, Multi-scale Analysis, Optimization and reliability analysis; Non-traditional optimization, Virtual manufacturing; Fluid mechanics, LBM.
Electrical Engineering	<ul style="list-style-type: none"> ➤ Low power VLSI, Image Processing, CNT & Nanowires Compound Semiconductors ➤ Power System Analysis and Optimization, Renewable Energy Sources ➤ Nonconventional Energy, Application of soft computing techniques in control and Operation of non-conventional energy based hybrid power system ➤ Smart grid, Power Quality, Power system Reliability, Renewable energy sources Cogeneration Management, Application of Big Data in Power system ➤ Micro-grid, Renewable energy integration in competitive power markets, FACTS device Transmission system planning. 	<ul style="list-style-type: none"> ➤ Renewable energy generation of control (Power electronics control) FACTS Devices & its Control, Microgrid control, Power electronics, Electric device control ➤ Smart grid, Reliability of power system, cost allocation, Deregulated power System, use of artificial intelligence in power system, Economics of power System ➤ Control Theory, Application of control in biomedical application Time-delay system and control, Robust Control ➤ Control System, Nonlinear Control, adoptive control, Fractional order control.

Electronics & Communication Engg	Open	
Computer Science and Engineering	<ul style="list-style-type: none"> ➤ Machine Intelligence ➤ Artificial Intelligence ➤ Natural Language Processing ➤ Bran Waves Research ➤ Artificial Immune Systems ➤ Semantic Networks ➤ Information Retrieval ➤ Digital Geometry ➤ Computational Geometry ➤ Computer Network Communication and Related Areas. 	<ul style="list-style-type: none"> ➤ Mathematical Imaging And Image Analysis ➤ Image Hashing ➤ Shot Boundary Detection ➤ Video Indexing ➤ VLSI Physical Design Automation ➤ FPGA Layout ➤ Internet of Things ➤ Sensor Technology ➤ Speech Processing ➤ Cloud Computing.
Electronics & Instrumentation Engg	<ul style="list-style-type: none"> ➤ Biomedical Signal Processing ➤ Biomedical Instrumentation, BCI ➤ Biosensors ➤ Transdermal drug delivery ➤ Sensors design & Application ➤ VLSI design (Analog & Digital) ➤ Thin Film solar cells ➤ Signal, Speech & Image Processing ➤ Image Segmentation ➤ Measurement and monitoring of Industrial parameters ➤ Modelling, Estimation, Control and Optimization of energy systems (PG, Batteries, Supercapacitors in Electrified Vehicles, Wireless Sensor Nodes, Consumer Electronics). 	<ul style="list-style-type: none"> ➤ Industrial Instrumentation ➤ Intelligent Instrumentation ➤ Linear and Non-linear Control ➤ Sliding Mode Control ➤ Control of Biological systems ➤ Study of dielectric material used for insulator, Communication circuit, nano-film, defense, pharmaceutical, polymer, food and agricultural industry ➤ Communication System: Performance Analysis, Energy Efficiency and Power Allocation ➤ Wireless Communication: D2D, Cognitive Radio, 5G, UWB ➤ Wireless Networks: VANET, Cross Layer Optimization.
Humanities and Social Sciences	<ul style="list-style-type: none"> ➤ Economics: Development Economics, International Trade, Regional Development, Political Economy & Agricultural Economics. 	<ul style="list-style-type: none"> ➤ Post-colonial Literature, Indian writing in English, Feminist Literature, Cultural Studies, Literature, Literary Theory, Film Sociology, Comparative literature, Cultural Studies & Media Studies.
Mathematics	<ul style="list-style-type: none"> ➤ Evolutionary Optimization, Networking Optimization ➤ Operation Research and Optimization Techniques, Mathematical Modeling, Uncertainty Modeling, Fuzzy Logic and Fuzzy Set Theory, Seismic Wave Propagation, Fuzzy reliability and Fuzzy Statistics. 	<ul style="list-style-type: none"> ➤ Inverse Eigen Value Problem, Fractional Integral Equation, Fuzzy Set Theory ➤ Computational Fluid Dynamics ➤ Differential Equations, Fractional Differential Equations and Function Differential Equations.
Chemistry	<p>Green synthesis and applications of Organosulphur compounds. Synthesis of metal complexes and applications.</p> <p>Synthesis of Nanocatalysts and their applications in photochemical and Chemical transformation</p> <p>“Synthesis and Characterization of Fly-ash based nanoaggregates for various applications” And “Industrial waste management and its potential utilization”.</p> <p>Study of Photoexcited states in different pure solvents and microheterogenous media</p>	

	Organic Synthesis , Heterogeneous catalysis, Solid phase synthesis, nanocatalysis Synthesis of nanocomposites for dye sensitized solar cells, Photocatalysis Green and facile methodologies for production of nanomaterials (nanostructures) and porous materials, noble metal and metal oxide (semiconductor) nanomaterial's for organic transformations, and degradation of organic compounds and purification of water, Adsorption/interfacial phenomenon, Development of low cost, synthetic nanoadsorbents and nanocomposites for waste water treatment, waste plastic recycling, Co-processing of petroleum vacuum residue with plastics and biomass, cracking or pyrolysis of biomass, polymer composites and nanocomposites and their applications, Desulfurization, solid waste Management.	
Physics	<ul style="list-style-type: none"> ➤ B- Physics, Neutrino Physics, CP Violation ➤ Solar energy materials, Solar Photo Catalysis, Solar Photo-voltaics ➤ Resistive memory, devices, Semiconductor nanostructure. 	<ul style="list-style-type: none"> ➤ Multiferroics ➤ Nanomaterials ➤ Energy storage materials ➤ Nanoionic resistive switching devices
Management Studies	<ul style="list-style-type: none"> ➤ Finance, Marketing, General Management. 	

Minimum Qualifications:

For Ph.D. :

1. Students for admission into Ph.D. Programs in Engineering Departments must satisfy one of the following criteria:
 - (ii) 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 candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks).
 - (iii) 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 candidates, there is a relaxation of 0.5 CPI or 5% of marks.
2. Students for admission into the Ph.D. Programs in Science and Management Studies 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 candidates, a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks).
3. Students for admission into the Ph.D. Programs in Humanities and Social Sciences (HSS) Department must have a Masters degree in any field a minimum CPI of 6.0 (on a 10 point scale) or equivalent (55% of marks). For SC/ST candidates, a minimum CPI of 5.5 (on a 10 point scale) or equivalent (50% of marks).

Assistantship: As per MHRD guidelines.

Downloadable application form with other relevant papers is available in the Institute's website: www.nits.ac.in

The filled in and sign Application Form must be accompanied with an Application Fee of Rs. 500/- (for General/OBC) OR Rs. 250/- (for SC/ST) in the form of crossed Demand Draft (photocopy) in favour of **Director, N.I.T. Silchar**, payable at Silchar; otherwise, the application form will be treated as cancelled.

Application form (scanned) complete in all respects should reach the **N.I.T. Silchar, within 24th January, 2018 by 5.00 p.m. to email address - deanrcnits@gmail.com/director@nits.ac.in.**

The candidates are advised to give their latest contact nos./e-mail ids in the application form.

Names of the short-listed candidates for attending interview and written test shall be available in the Institute's website in due course of time. 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.

The result will be available in the website.

Important Dates:

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| (i) | Last date of on-line (through email) submission of form to the Institute. | : | 24 th January, 2018 |
| (ii) | List of short-listed candidates to be uploaded in the institute website
(To be communicated by the deptt concerned to the students through Institute's Website) | : | 30 th January, 2018 |
| (iii) | Date of written test and Interview | : | 6 th and 7 th February, 2018 |
| (iv) | Date of sending recommended list by the Dept to Dean (R & C) | : | 8 th February, 2018 |
| (v) | List of provisionally selected candidates to be uploaded in the Institute website | : | 9 th February, 2018 |
| (v) | Period of Registration | : | 10 th to 15 th February, 2018 |
- **Hostel accommodation is subject to availability.**

The details of specialisations, regulations, and applications form (downloadable) is available in the Institute website www.nits.ac.in.

N.B.: While sending the e-mail, please mention the **Name of the Dept.** in the *subject line* of the e-mail.

Dean (R & C)