

INFORMATION BULLETIN
Ph.D. Programme
WINTER SEMESTER (DECEMBER) ADMISSIONS 2022-23



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Part-I PROFILE OF THE INSTITUTE

1. Introduction

National Institute of Technology Calicut (an Institution of National Importance) is one of the premier National institutions for technical education in India. This was originally established in September 1961 as “Calicut Regional Engineering College (CREC)”, jointly by the Government of India and the Government of Kerala. The Ministry of Education (formerly Ministry of HRD), Government of India elevated CREC to a Deemed University under the name National Institute of Technology Calicut (NITC) in June 2002. NIT Calicut is an academically autonomous Institute of National Importance fully funded by the Government of India and is administered by the National Institutes of Technology Act, 2007. The President of India is the visitor to the Institute under the Act. The governance structure includes the National Council for NITs as the apex policy making body, while the Institute’s governance is vested with a Board of Governors. Institute’s senate is the authority in academic matters. Chairman of the Board of Governors is nominated by the visitor. NITC offers academic programmes leading to B.Tech., B.Arch., M. Tech., M. Plan., M.Sc., MBA and Ph.D. degrees in various disciplines. NITC is a recognized Quality Improvement Programme (QIP) Centre for offering M. Tech. and Ph.D. programmes for faculty members of Engineering Colleges & Polytechnics. The institute is a recognized research institution for pursuing research work leading to Ph.D. degree under the National Doctoral Fellowship Scheme. NITC has well qualified faculty and dedicated supporting staff. Apart from teaching, NIT Calicut is engaged in a wide spectrum of activities covering research and development, industrial consultancy, continuing education to faculty/staff, and community development.

2. Location

Set in a picturesque landscape at the foothills of the Western Ghats, NIT Calicut is located about 22 kilometers north-east of Kozhikode city in the state of Kerala, India. Calicut, also known as Kozhikode, located in the Malabar region of Kerala State, found a place in the world history with the discovery of a sea route to India in 1498 by the Portuguese navigator Vasco Da Gama. Basking in the idyllic setting of the Arabian Sea on the west and the proud peaks of the Wayanad hills on the east, Calicut is known for its serene beaches, lush green countryside, historic sites, calm backwaters, wildlife sanctuaries, rivers and waterfalls. The campus of National Institute of Technology Calicut stretches over a length of about 1.5 km along the Calicut-Mukkam Road, extending over an area of approximately 120 hectares. NITC is connected with Calicut city by KSRTC Buses (towards Mukkam) starting from KSRTC Central Bus Station and by Private Buses starting from Corporation Bus Station, Palayam (near Calicut Railway Station). The nearest airport is at Karipur, which is 45 kms from the Institute. Kozhikode railway station is 23 kilometers away from the NITC campus. Local buses are available frequently for commutation between campus and the Calicut city.

3. Computing Facilities and Campus Network

Central Computer Centre (CCC) is the central facility in NIT Calicut which caters for the computing requirements of the whole community of this institution. The center has state of the art infrastructure with four fully operational terminal rooms spanning over three floors of the building. Decision Support System (DSS) of the institute also operate from the Centre building. The Centre

has 250+ client machines and has a capacity to include 400+ machines. Client systems are of both desktop and workstation genre. Desktops contain DELL OPTIPLEX 7010, DELL Precision T3610, HP 406 Micro tower and HP Prodesk series which are of adequate performance and workstations contain Fujitsu Celsius W570 power series machines which are capable of more than handling high-end production and design level applications. CCC hosts some of the high-end servers and a parallel processing cluster machine. Servers include DELL PowerEdge T620 which has a dual Hexa-core processor, Lenovo ThinkSystem SR650 with 32GB Nvidia V100 card and HP ProLiant Rack server which has a dual quad-core processor. A state of the art HPC system with 25 Tera FLOPS computing power meet the research needs of the Institute. The facility can be accessed by all the departments and schools anywhere in the campus through networking. Computers in the CCC are loaded with Windows and Linux operating systems for convenience and centralized authentication is provided. Students are mandated to follow strict classroom discipline inside the Centre. Centre is fully air-conditioned and has UPS power backup for the whole setup. The Centre works 16 hours a day (8 am – 12 midnight), 7 days a week, except national holidays unless instructed otherwise.

The Campus Networking Centre (CNC) is the central facility providing the software, hardware and networking support to the entire student and staff community of NITC Campus. CNC manages internet connectivity (both wired and wireless), Institute website and IP phones within the campus. The campus, interconnected with about 30 kms of fiber optic backbone network with 80 routed internal networks, is managed by the Unified Threat Management System. The centre is equipped with Firewall, Routers, Domain Name Server, Web Server, Proxy Servers and IP phone server, etc. Presently the network is served by 2Gbps of Internet connectivity provided by BSNL (1 Gbps under NKN scheme of MoE). CNC functions on a 24x7 basis, 365 days without any holidays. IP phones are installed in all Academic and Administrative sections. The IP Phones and IP Phone server are also implemented, configured and managed by CNC.

4. Library Facilities

The Central Library of NIT Calicut is one of the best technical libraries in South India. It came into being with the establishment of the college in 1961. The library has a very good collection of more than one lakh technical/scientific books. Central Library offers its services to more than 8,000 users comprising of undergraduate, postgraduate students, research scholars, faculty and employees from various Departments/Schools/Centres/ Sections of the Institute. The services of the Central Library are fully automated using KOHA, and the entire collection is accessible throughout the campus. Using KOHA OPAC, users can search the online library catalogue by Author, Title, Subject and Keywords. The library management software along with the existing campus-wide intranet imparts the following features: Automated front-desk operations, Campus-wide online access, catalogue access and RFID-based automated collection/bar-coded user identification. Central Library subscribes to reputed International Journals and Indian Journals in online and print forms. The Digital Library, 'NALANDA' provides online access to more than 6000 electronic journals in various Engineering and Science disciplines. NALANDA hosts many electronics databases in its servers. As a member of the Shodh Sindhu Consortium under the Ministry of Education, GOI, NALANDA promotes the use of e-journals and e-books for advanced research and learning in Engineering and Science Education. Major online resources are journal/magazine/ conference records/standards of IEE, IEEE, Springer, ASME, ASCE, and ACM Digital Library core packages.

Online access to study materials is available through a local copy of NPTEL. Resources like CMIE, ACE Analyzer, Eikon, Grammarly, Knimbus, Emerald, J Gate, Scopus, and Web of Science are available to the NITC community through the digital library. Library also subscribes to a plagiarism checker - Turnitin. The digital library is developing the NITC resources by collecting and indexing the students' project reports/theses through an ETD run with DSpace, which also houses the national and international standards. Eduserver - running in the Digital Library - hosts the Moodle platform for online course management. E-books from Wiley, Springer and Pearson are also made available.

5. Centre for Career Development

Centre for Career Development envisages to inculcate a career-oriented campus culture that moulds the undergraduate, postgraduate and doctoral research students of the Institute to pursue their academic and professional goals. Formerly this centre was known as the Centre for Training and Placement which was formed in 1988. Understanding the need for a broader role to be taken for our students, the Centre for Career Development has been formed with effect from March 2022. This Centre is functioning with the following Objectives:

- Connect the students with placement and internship opportunities;
- Educate the students on knowledge of the self, career options and resources available;
- Empower the students with skill sets required in their careers.

6. Programmes of Study

NITC offers undergraduate programmes leading to B. Tech. degree in 10 disciplines and post-graduate programmes leading to M. Tech./M. Plan degrees in various specialized streams. In addition to this, the institute offers MSc degree programmes in three streams and an MBA programme (2 years - 4 semesters). The Institute also offers facilities for research leading to Ph.D. degrees in various branches of Engineering, Science and Management. The details of B. Tech, M. Tech./M. Plan. and MSc programmes are as given below:

Under graduate Level - B. Tech. Programmes (4 years - 8 semesters)

- Biotechnology (BT)
- Chemical Engineering (CH)
- Civil Engineering (CE)
- Computer Science and Engineering (CS)
- Electrical & Electronics Engineering (EE)
- Electronics & Communication Engineering (EC)
- Engineering Physics (EP)
- Materials Science and Engineering (MT)
- Mechanical Engineering (ME)
- Production Engineering (PE)

Under graduate Level - B. Arch. Programme (5 years - 10 semesters)

Post graduate Level - M.Tech./M.Plan. Programmes (2 years - 4 semesters)

Department/ School	Programme	Programme Code
Architecture & Planning	Urban Planning	AR61
Civil Engineering	Structural Engineering	CE61
	Traffic & Transportation Planning	CE62
	Offshore Structures	CE63
	Environmental Geotechnology	CE64
	Water Resources Engineering	CE65
Chemical Engineering	Chemical Engineering	CH61
Computer Science & Engineering	Computer Science & Engineering	CS61
	Computer Science & Engineering (Information Security)	CS62
Electronics & Communication Engineering	Electronics Design & Technology	EC61
	Microelectronics & VLSI Design	EC62
	Telecommunication	EC63
	Signal Processing	EC64
Electrical Engineering	Instrumentation & Control Systems	EE61
	Power Systems	EE62
	Power Electronics	EE63
	Industrial Power and Automation	EE64
	High Voltage Engineering	EE65
Mechanical Engineering	Industrial Engineering and Management	ME61
	Thermal Sciences	ME62
	Manufacturing Technology	ME63
	Energy Engineering and Management	ME64
	Materials Science and Technology	ME65
	Machine Design	ME66
Materials Science and Engineering	Nanotechnology	MT61

M.Sc. Programmes (2 years - 4 semesters)

Department	M. Sc. Programme	Programme Code
Mathematics	Mathematics	MA62
Physics	Physics	PH62
Chemistry	Chemistry	CY62

7. Major Areas of Research and Consultancy

The major areas of research and consultancy of various departments/schools are as follows:

A. ARCHITECTURE AND PLANNING

- Urban and Regional Planning
 - Transportation
 - Infrastructure
 - Housing
 - Environmental Planning
 - Planning Informatics
 - Disaster Management & Climate Change
- Architecture
 - Urban Design
 - Landscape
 - Conservation
 - Architectural Theory
 - Architectural Visualization & Product Design
- Sustainable Building Design
 - Building Services
 - Energy Modelling
 - Building Information & Management
- Building Technology & Management
 - Alternate Building Materials
 - Construction Management

B. CHEMICAL ENGINEERING

- Energy & Environment
 - Biofuels
 - Biochemical Engineering
 - Fuel Cells
 - Energy Harvesters
 - Waste Water Treatment
 - Clean Coal Research & Development

- Electrochemical Engineering
 - Renewable Energy and Clean Technology
- Materials Science
 - Nano Composites
 - Fracture Mechanics
 - Polymer Technology
 - Membrane Technology
- Multiphase Flow Systems
 - Microfluidics
 - Phase Change Heat Transfer
 - Comminution & Classification
 - Experimental & Computational Fluid Dynamics
- Process Dynamics & Control
 - Control systems
 - Process Intensification
 - Process Systems Engineering

C. CHEMISTRY

- Bioinorganic Chemistry
- Bioinspired Catalysis
- Biomimetic Inorganic Chemistry
- Energetic Materials/ High Energy Materials
- Heterocyclic Chemistry
- Main Group Organometallic Materials and Supramolecular Chemistry
- Materials Chemistry & Technology (Polymers, Biomacromolecules, Blends, Composites, Membranes)
- Medicinal Chemistry
- Organic & Bio-organic Chemistry
- Organic Synthesis and Catalysis
- Porphyrins and Metalloporphyrins
- Soft Materials
- Theoretical and Computational Chemistry
- Thermoelectric Materials
- Waste Management

D. CIVIL ENGINEERING

- Structural Engineering
- Geotechnical Engineering
- Environmental Geotechnology
- Hydraulic/ Water Resources Engineering
- Hydrology
- Geoinformatics
- Offshore Structures

- Coastal Engineering
- Traffic and Transportation Planning
- Environmental Engineering
- Construction Project Management
- Building Materials

E. COMPUTER SCIENCE & ENGINEERING

- Parallel and Distributed Computing Systems
- Intelligent Systems
- Program Analysis
- Algorithms and Complexity
- Information Management & Security
- Machine Learning

F. ELECTRICAL ENGINEERING

- Power & Energy Systems
- High Voltage Engineering
- Power Electronics & Drives
- Control and Signal Processing
- Biomedical signal/image processing and Instrumentation
- Industrial Power & Automation

G. ELECTRONICS & COMMUNICATION ENGINEERING

- Speech/Audio/Image/Video Processing
- Signal Theory
- Compressed Sensing/Sparse Signal Processing
- Multi-rate Signal Processing and Filter banks
- Biomedical Signal Processing
- Machine Learning
- Wireless Communications and Networks
- OFDM/MIMO and Massive MIMO
- 5G Wireless Communications
- Cryptography and Secure Communication
- VLSI architectures for Signal Processing
- Power Management IC Design
- Analog & Mixed-signal IC design
- Semiconductor Device modeling
- Micro fabrication Technology
- Micro/Nano Electro Mechanical System (MEMS/NEMS)
- RF/Microwave

H. MATHEMATICS

- Discrete and Fuzzy Mathematics
- Stochastic Modelling and Applied Statistics
- Numerical Analysis and Scientific Computing
- Mathematical Analysis
- Nonlinear Dynamics
- Operations Research
- Complex Analysis
- Fractional Calculus
- Differential Equations
- Number Theory

I. MECHANICAL ENGINEERING

- Industrial Engineering and Management Stream
 - Ergonomics and Product Design
 - Supply Chain Management
 - Marketing Management
 - Human Resource Management
 - Production Planning and Control
 - Healthcare/Services Management
 - Data Science Applications in Operations Management
- Machine Design Stream
 - Computational Mechanics
 - Robotics
 - Tribology
 - Machine Dynamics and Vibrations
 - Nano- and Micro-mechanics
 - Product Design
- Materials and Manufacturing Stream
 - Macro and Micro Machining
 - Modern Machining
 - Metrology
 - CAD/CAM
 - Composite Materials
 - Ferrous and Non-ferrous Metallurgy
 - Materials for Electronics Application
 - Additive Manufacturing/3D printing
 - Digital Manufacturing and Design
 - Automation of Manufacturing Functions
- Thermal and Energy Engineering Stream
 - Renewable Energy Technologies
 - Energy Conservation

- Fuel Cells and Hydrogen Technology
- Computational Fluid Dynamics
- Heat Pipes
- Cryogenics
- Jets and Flow Acoustics
- Combustion
- Multi-phase Flows
- High Speed Flows
- Turbo-machinery
- Internal Combustion Engines
- Convection and Radiation Heat Transfer

J. PHYSICS

- Organic Solar Cell, Nano material for Energy Applications
- Organic & Hybrid Electronics & Photonics
- Graphene Photonics and Carbon Quantum Dots
- Nonlinear Optics and Nano Photonics
- Statistical mechanics of phase transitions – Soft condensed matter Systems
- Computational Modeling of Materials
- Environmental Monitoring using principle of Optics
- Experimental Condensed Matter Physics
- Surface and Interface Science
- Diamond and Related Materials
- Oxide Thin films and Heterostructures
- Microfluidics and optofluidics
- Gravity and Black holes, Constrained dynamics
- Theoretical High Energy physics - Quantum Field Theory, Lattice gauge theory, Quantum Chromodynamics
- Solar Astrophysics
- Photonic Crystals, Metamaterials, and Terahertz Devices
- Soft matter and statistical physics
- Statistical Physics and Thermodynamics
- Lasers, Imaging through Disordered media, Photonic crystals, and optical waveguides
- Nonlinear optics and Fluorescence microscopy

K. SCHOOL OF BIOTECHNOLOGY

- Enzyme Technology
- Microbiology
- Bioprospecting
- Cancer Research
- Bioinformatics and Computational Biology
- Gene Regulation
- Molecular genetics
- Machine Learning and Network biology
- NGS data analysis for Precision Medicine

- Protein Folding
- Protein Engineering
- Genetic Engineering
- Biomodeling and Drug Design
- Neurobiology
- Immunology
- Cytoskeleton and Motorproteins
- Biophysics
- Bionanotechnology
- Bio-Nano Engineering, tissue engineering, bioinspired materials, supramolecular chemistry and extremozymes

L. SCHOOL OF MANAGEMENT STUDIES

- Management & Social Sciences
 - Finance, Human Resources and Behavioural Sciences, Quantitative Techniques and Operations Management, Data Sciences & Analytics, Marketing, Economics Strategy, Entrepreneurship, Technology Management, Health Business & Policy, Public Policy and Public Administration
- Humanities (English)
 - English Studies, ELT, Cultural Studies, Indian Writing in English and Translations, Postcolonial Studies, Dalit Studies, Canadian Literature, Comparative Literature, Literary Theories, Theatre and Drama, and Art Management

M. SCHOOL OF MATERIALS SCIENCE AND ENGINEERING

- Nano-materials and their applications
- Nano-fluids
- Photo Catalysis/Water Splitting
- Biomaterials
- Corrosion and Wear Resistant Coating
- Nano Composites for Energy
- Nanocomposites and Nanosensors

Part II ADMISSION TO Ph.D. PROGRAMME

1. Introduction

Facility for doing research leading to Ph.D. degree is available in various Departments/Schools of NITC as detailed below:

	Department/School	Code
1	Architecture and Planning	AR
2	Chemical Engineering	CH
3	Chemistry	CY
4	Civil Engineering	CE
5	Computer Science and Engineering	CS
6	Electrical Engineering	EE
7	Electronics and Communication Engineering	EC
8	Mathematics	MA
9	Mechanical Engineering	ME
10	Physics	PH
11	Biotechnology	BT
12	Management Studies	MS
13	Materials Science and Engineering	MT

Applications are invited for admission to the Ph.D. programmes (Winter Semester) 2022-2023 in the following schemes:

Scheme I: Full-time registration with Institute Fellowship or other Govt. Fellowships like CSIR-UGC JRF/KSCSTE/INSPIRE/QIP/Visvesvaraya scheme etc.

Scheme II: Full-time registration under the Self-Sponsored category

Scheme III: Full-time registration for candidates sponsored from Industry or other organizations including Educational Institutions

Scheme IV: Internal Registration for regular staff employed at NITC/ Research staff employed in funded projects at NITC

Scheme V: External (Part-time) Registration for candidates from Industry or other organizations including Educational Institutions

- i. Prospective candidates can apply for **scheme I** mentioned above, under two categories: (i) The regular full-time scheme for candidates who possess post graduate degree in the appropriate branch/discipline of study as specified by the individual departments/schools and (ii) The Direct Ph. D. scheme where B. Tech/ B.E./B. Arch/B. Plan./ B.Des graduates with good academic records and research potential. It may be noted that the direct Ph.D. programme is offered by the Engineering departments/Department of Physics/ Department of Architecture & Planning/ other Schools of NITC. Candidates selected under scheme I are eligible for institute fellowship. For those candidates who are qualified to receive fellowships from external agencies, the amount of fellowship shall be as per the norms of the funding agency. A total of three vacancies are available (in

ECED/EED/MED/CSED) under Visvesvaraya Phd scheme for Electronics and IT during winter 2022-23. Candidates admitted under Visvesvaraya Phd scheme will be governed by the guidelines issued by the Ministry of Electronics and IT (MEITY), Govt. of India. For more details regarding Visvesvaraya Phd scheme, interested candidates may explore the webpage: <https://phd.dic.gov.in/>

- ii. Candidates applying under **scheme II**, if selected for the Ph.D. programme, will be in the self-supporting mode. Such candidates will not receive any kind of fellowship/stipend from the institute. However, the students can try to get external funding after joining the Institute or/move to any internal funding scheme if available (eg: Ramanujan Fellowship/Inspire Fellowship etc.). They will also be able to join as Research staff of funded projects if any granted to the thesis guide/others subject to the approval of the Guide/funding agency.
- iii. Prospective candidates applying for the Ph.D. programmes under **scheme III** shall be sponsored and financed by the sponsoring institute /organization/company. They are not entitled for Institute fellowship. The candidate must be a regular employee of a recognized Institution/Organization/Company with at least two years of continuous service. He/she should produce a sponsorship certificate from the Head of the Institution/Organization/Company along with the application. The employer should also indicate that the candidates will not be withdrawn midway till the completion of the course.
- iv. Candidates applying under **scheme IV** must be regular staff of NITC or research staff of funded projects employed at NITC. Such candidates have to attach a recommendation letter from the concerned HOD/Principal Investigator along with the application. The fellowship given to the research staff working in funded projects who joins the Ph.D. program will be as per the terms and conditions of the funded project. Such candidates can apply for Institute fellowship, if the Ph.D. programme is not completed within the duration of the project and it may be granted subject to the availability of fellowship at that point of time. They can also join as a research staff in a subsequent funded project in the institute with the consent of the thesis supervisor. If the research staff who has joined as a Ph.D. candidate under this scheme resigns his/her job before the completion of the funded project, his/her Ph.D. registration shall stand automatically cancelled. However, if he/she has completed the course work and comprehensive examination, he/she can be allowed to continue the research work as external registrant, if the Doctoral Committee of the research scholar recommends the same.
- v. Candidates employed in Research and Development organizations/National Laboratories/Industries/Academic Institutions can apply for Ph.D. admission under **scheme V** provided they have minimum of two years' experience at the time of application. Such candidates have to submit a no objection-cum-Experience certificate, stating that the institute/organization/ company has no objection to the candidate joining for Ph.D. programme at NIT Calicut under the external registration scheme, along with the application. Once admitted for the Ph.D. programme, there will not be mandatory residential requirements for such candidates. They are expected to complete the course work by opting for certified SWAYAM/MOOC/NPTEL courses or courses from similar

platforms approved by the concerned Doctoral Committee. They can also credit courses offered by various departments/schools at NITC. In such cases, attendance will not be made mandatory.

2. Reservation Policy

Government of India reservation policy will be followed for GEN-EWS/OBC-NCL/SC/ST and the Persons with Disabilities (PwD) categories for candidates admitted for the Ph.D. programme under scheme I. In the absence of application from PwD candidates, the seat reserved for PwD category will be filled by the candidate(s) who belong to the same category (without PwD).

3. Eligibility & Academic Requirements for Admission to Ph.D. Programmes

The candidates applying for admission to Ph.D. Programmes at NITC have to satisfy the following minimum academic eligibility requirements as given below:

A. Faculty of Engineering:

The candidates applying for admission to Ph.D. Programmes in Engineering departments at NITC must have passed M.E./M. Tech. Degree in the appropriate branch of study with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. Candidates are also required to have passed B.E./B. Tech. Degree in an appropriate branch with minimum 60% marks (CGPA 6.0/10) in the qualifying examination. [For SC/ST/PWD candidates the minimum percentage of marks is 55% (CGPA 5.5/10)]. Candidates who secured B. Tech./BE degree under lateral entry should have passed the three-year diploma in engineering with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates 55% marks (CGPA 5.5/10)]. Holders of AMIE (approved by AICTE) / other nationally approved programmes equivalent to B. Tech / B.E. in an appropriate area of study, may also be considered eligible.

An additional criterion of GATE score (obtained at some point of time in the past) in the respective disciplines or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is also mandatory to apply for admission under scheme I.

The additional mandatory criterion mentioned above is not applicable for candidates applying under schemes II to V.

For those who are qualified to receive fellowships from external agencies, the amount of fellowship shall be as per the norms of the Funding agency.

Department of Mechanical Engineering (ME): For admission to Ph. D program in ME Department, candidates with ME/M. Tech or equivalent in Mechanical Engineering(ME)/Production Engineering(PE) or in relevant disciplines related to the major areas of research available in ME department are eligible to apply.

Department of Chemical Engineering: For admissions to PhD programme in Department of Chemical engineering, the candidates must possess ME/M.Tech/M.Tech (by research)/MS/MS (by research) / Integrated / dual degree M. Tech. in Chemical Engineering/ or any other relevant

branch of Engineering and Technology including Petroleum/Petrochemical/Energy/Environmental Technology/Biotechnology/Industrial Biotechnology/Biochemical/Polymer science & Technology/Ceramic/Nanotechnology/Material science/Thermal Engineering/Metallurgy/ Applied Electronics / Instrumentation and Control.

Department of Electronics and Communication Engineering (ECE): For admission to Ph. D program in ECE Department, candidates with ME/M. Tech or equivalent in Electronics and Communication Engineering (ECE)/Electrical Engineering (EE)/Computer Science and Engineering (CSE) or in relevant disciplines related to major areas of research available in ECE department are eligible to apply.

B. Department of Architecture and Planning

Master's degree in Architecture/Design/Planning/Engineering/Technology or in any other relevant disciplines (such as in Geography, Sociology, Economics, Disaster management etc.) related to major areas of research available in the department with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. Candidates are also required to have passed the relevant undergraduate degree with minimum 60% marks (CGPA 6.0/10) in the qualifying examination [For SC/ST/PWD candidates the minimum mark is 55% (CGPA 5.5/10)]. Candidates who secured B. Arch/ B. Plan./ B. Tech. degree under lateral entry should have passed the three-year diploma in engineering with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates 55% marks (CGPA 5.5/10)]. Holders of AMIE (approved by AICTE) / other nationally approved programmes equivalent to B.Arch. / B. Plan. may also be considered eligible.

An additional criterion of GATE score (obtained at some point of time in the past) in the respective disciplines or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests specified by the GoI order* is also mandatory to apply for admission under scheme I.

The additional mandatory criterion mentioned above is not applicable for candidates applying under schemes II to V.

For those who are qualified to receive fellowships from external agency, the amount of fellowship shall be as per the norms of the Funding agency.

C. School of Materials Science and Engineering

M.E./M. Tech. Degree in the appropriate branch of study /Nanoscience and Technology with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. An additional criterion of GATE score (obtained at some point of time in the past) in the respective discipline or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is also mandatory for candidates applying under scheme I.

OR

Master's degree in Chemistry/Physics/Life science/Nanoscience and Technology/ any other relevant disciplines related to major areas of research available in the department with minimum 60 % marks (CGPA 6.0/10) or equivalent, [for SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. A valid GATE score or UGC/CSIR/NBHM/NET/KSCSTE fellowship in the relevant

area, tenable from the current year is also mandatory for candidates applying under scheme I.

OR

A master's degree in Medicine and Surgery with a Bachelor's degree in MBBS/BDS/Bachelor of Ayurvedic Medicine and Surgery/Bachelor of Siddha Medicine and Surgery/ Bachelor of Homeopathic Medicine and Surgery/ Bachelor of Naturopathy & Yoga/ Bachelor of Unani Medicine & Surgery with minimum 60% marks (CGPA 6.0/10), [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. For applying under scheme I, A master's degree in Medicine with a Bachelor's degree in MBBS/BDS/Bachelor of Ayurvedic Medicine and Surgery/Bachelor of Siddha Medicine and Surgery/ Bachelor of Homeopathic Medicine and Surgery/ Bachelor of Naturopathy & Yoga/ Bachelor of Unani Medicine & Surgery should have qualified in any national level examination for their PG programme and they are exempted from GATE score and other fellowships such as NET-UGC/ CSIR/ NBHM/ KSCSTE/ INSPIRE/ DBT.

OR

A Master's degree in Veterinary Medicine/Agriculture with minimum 60 % marks (CGPA 6.0/10), [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. For applying under scheme I, candidates with Master's degree in Veterinary Medicine/Agriculture should have qualified in any national level examination for their PG programme and they are exempted from GATE score and other fellowships such as NET-UGC/ CSIR/ NBHM/ KSCSTE/ INSPIRE/ DBT.

Candidates applying under schemes II-V do not require additional eligibility criteria such as GATE score or UGC/CSIR/NBHM/NET/KSCSTE fellowship.

Apart from this, the candidates should possess minimum 60% marks (CGPA 6.0/10) or equivalent in their Bachelor's degree as well [For SC/ST/PWD candidates, the minimum requirement is 55% marks (CGPA 5.5/10)].

D. School of Biotechnology

A Master's degree in Engineering/Technology/Pharmacy with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. An additional criterion of GATE/GPAT score (obtained at some point of time in the past) in the respective discipline or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is also mandatory for candidates applying under scheme I.

OR

A Master's degree in any discipline in Science with minimum 60 % marks (CGPA 6.0/10) or equivalent, [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. A valid GATE score or fellowships such as NET-UGC/CSIR/NBHM/KSCSTE/INSPIRE/DBT in the relevant area, tenable from the current year is also mandatory for candidates applying under scheme I.

OR

A master's degree in Medicine and Surgery with a Bachelor's degree in MBBS/BDS/Bachelor of Ayurvedic Medicine and Surgery/Bachelor of Siddha Medicine and Surgery/ Bachelor of Homeopathic Medicine and Surgery/ Bachelor of Naturopathy & Yoga/ Bachelor of Unani Medicine & Surgery with minimum 60% marks (CGPA 6.0/10), [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. For applying under scheme I, A master's degree in Medicine with a Bachelor's degree in MBBS/BDS/Bachelor of Ayurvedic Medicine and Surgery/Bachelor of Siddha

Medicine and Surgery/ Bachelor of Homeopathic Medicine and Surgery/ Bachelor of Naturopathy & Yoga/ Bachelor of Unani Medicine & Surgery should have qualified in any national level examination for their PG programme and they are exempted from GATE score and other fellowships such as NET-UGC/ CSIR/ NBHM/ KSCSTE/ INSPIRE/ DBT.

OR

A Master's degree in Veterinary Medicine/Agriculture with minimum 60 % marks (CGPA 6.0/10), [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. For applying under scheme I, candidates with Master's degree in Veterinary Medicine/Agriculture should have qualified in any national level examination for their PG programme and they are exempted from GATE score and other fellowships such as NET-UGC/ CSIR/ NBHM/ KSCSTE/ INSPIRE/ DBT.

Candidates applying under schemes II to V do not require additional eligibility criteria such as GATE score or UGC/CSIR/NBHM/NET/KSCSTE/DBT fellowship.

Apart from this, the candidates should possess minimum 60% marks (CGPA 6.0/10) or equivalent in their Bachelor's degrees as well [For SC/ST/PWD candidates, the minimum requirement is 55% marks (CGPA 5.5/10)].

E. Faculty of Science (Chemistry, Physics and Mathematics)

Master's degree in an appropriate subject of Mathematics/Statistics/Chemistry/Physics/ Life Sciences/ Electronics/Computer Science and Applications/ Nano Science and Technology/ Material Science/ Photonics with minimum 60% marks (CGPA 6.0/10) or equivalent [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. A valid NET/GATE score or UGC/CSIR/NBHM/NET/JEST/KSCSTE or any other National fellowship in the relevant areas tenable from the current year, is also mandatory for candidates applying under scheme I.

OR

M.E./M. Tech. Degree in the appropriate branch of study in relevant disciplines related to the major areas of research available in these departments with minimum 60% marks (CGPA 6.0/10) [For SC/ST/PWD candidates, the minimum mark is 55% (CGPA 5.5/10)]. An additional criterion of GATE score (obtained at some point of time in the past) in the respective disciplines or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is also mandatory for candidates applying under scheme I.

Candidates applying under schemes II to V do not require additional eligibility criteria such as GATE Score or UGC/CSIR/NBHM/NET/JEST/KSCSTE fellowship.

Apart from this, the candidates should possess minimum 60% marks (CGPA 6.0/10) or equivalent in their Bachelor's degree as well [For SC/ST/PWD candidates, the minimum requirement is 55% mark (CGPA 5.5/10)].

F. School of Management Studies

Candidates should possess minimum 60% marks (CGPA 6.0/10) or equivalent both in Bachelors and Master's degrees in a relevant area from an Institution recognized by UGC/AICTE [For SC/ST/PWD candidates, the minimum requirement is 55% mark (CGPA 5.5/10) or equivalent both in Bachelors

and Masters degrees]. Candidates shall be required to have passed both the bachelors and Master's degrees in regular full-time mode. In addition, the candidates should have a valid GATE score or UGC/NET/CSIR/JRF fellowship in the relevant areas tenable from the current year to apply under scheme I. For candidates who have master's degree in engineering and technology, an additional criterion of GATE score (obtained at some point of time in the past) in the respective disciplines or fellowships such as JRF/UGC/NET/CSIR//KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is mandatory to apply under scheme I.

Candidates applying under schemes II to V do not require additional eligibility criteria such as GATE score or UGC/CSIR/NBHM/NET/JEST/KSCSTE fellowship.

4. Eligibility & Academic Requirements for Admission to Direct Ph.D. Programme

Candidates with B.E./ B. Tech./ B. Arch./ B. Plan./ B. Des. or equivalent with 8.5 CGPA on a 10-point scale or 85% Marks [For SC/ST/PWD candidates, 8 CGPA on a 10-point scale or 80% Marks] are eligible to apply for direct Ph. D admission within 5 years after obtaining the qualifying degree. Direct Ph.D. programme is offered by the Engineering Departments/Department of Physics/ Department of Architecture & Planning/ Other Schools of NIT Calicut.

An additional criterion of valid GATE score in the respective disciplines or fellowships such as JRF/UGC/NET/CSIR/KSCSTE etc. or qualification in any other national level tests as specified by the GoI order* is also mandatory. For those who are qualified to receive fellowships from external agency, the amount of fellowship shall be as per the norms of the Funding agency. If the candidate has completed the UG degree from CFTI (Centrally Funded Technical Institute), valid GATE score is not mandatory for direct Ph.D. admissions.

5. Candidates Holding Degrees from Foreign Universities:

If the candidates applying for Ph.D. admission at NITC have secured their undergraduate/post graduate degrees from foreign universities, they have to produce a certificate stating that the degrees of the candidates have been recognized and approved by the Association of Indian Universities (AIU)/ Commonwealth Universities/International Association of Universities (IAU)/Accredited Universities as equivalent to the corresponding Indian degrees for the purpose of higher studies. However, if the candidates have secured their undergraduate/post graduate degrees from reputed foreign institutions (i.e., institutions within QS rank ≤ 500), their applications will be considered by an expert committee constituted in this regard.

6. Selection of Candidates

Selection of candidates for the Ph.D. Programmes at NITC will be through an admission process as decided by the respective Department/School, provided the candidates satisfy the minimum eligibility criterion as detailed above.

* GoI order: GoI order No. F. No. 33 – 1/2019 – TS.III dated 1st February 2019 by the Ministry of HRD, GOI "Revision of emoluments and guidelines on service conditions for research personnel engaged in R&D programme of the Central Government Departments/Agencies.

7. Fee Structure

The fee structure for Ph.D. Programme (Scheme I) 2022-23 admissions is given below.

Tuition Fee may vary as per the directives of Ministry of HRD, Government of India from time to time. The present tuition fee is as per MHRD Order F. No. 33-4/2014-TS.III dated 5th May, 2014 and subsequent clarifications under reference F No. 28/2013/TS.III dated 21st October, 2014. Other fees are as determined by the Institute as per provision of Statute No. 37(i)(b).

Fee Category		All Candidates	
(a) Onetime fee at the time of admission#(Rs.)			
Caution Deposit	5,000		
Admission Fee	5,000		
Development Fee	10,000		
Library Fee	5,000		
Alumni Affairs Fee	2,000		
Career Development Fee	500		
Students Welfare Fee	1,000		
Association and Cultural Fee	1,000		
Convocation Fee	3,000		
Total (a)	Rs.32,500/-		
(b) Other Fee#(Rs.)		Winter Semester 2022-23	Monsoon Semester 2023-24
Tuition Fee	7,500*	7,500*	7,500*
Registration Fee	750	750	750
Examination Fee**	1,500	1,500	1,500
Students Activities Fee	1,000	-	-
Health Centre Facility Fee	500	-	-
Sports Fee	1,000	-	-
Campus Amenities Fee	500	-	-
Computing Facility Fee	1,000	-	-
Internet Fee	500	-	-
Mediclaime***	755	-	-
Total (b)	Rs.15,005	Rs.9,750	Rs.9,750
(c) Thesis Evaluation Fee		Rs. 25,000/-##	
(d) Hostel Seat Rent (Includes Room Rent, Electricity, Water Charges)#	Rs. 9,000/- (Shared Room)	Rs. 9,000/- (Shared Room)	
	Rs. 10,000/- (Single Room)	Rs. 10,000/- (Single Room)	
Total Amount during admission	Rs.56,505/-@		

*NIL for SC/ST students

**To be paid upto 4th Semester only

***Mediclaime coverage will be available for the registered students from 31st July 2022 to 30th July 2023. Policy amount may vary year to year.

@ Room rent for shared room is added. Additional rent of Rs.1,000/- for single room, if allotted, shall be collected later as dues.

#Subject to revision every year.

##To be paid during the registration for Vth Semester

The fee structure for Ph. D Programme (Schemes II, III & V) 2022-23 admissions is given below.

Tuition Fee may vary as per the directives of Ministry of HRD, Government of India from time to time. The present tuition fee is as per MHRD Order F. No. 33-4/2014-TS.III dated 5th May, 2014 and subsequent clarifications under reference F No. 28/2013/TS.III dated 21st October, 2014. Other fees are as determined by the Institute as per provision of Statute No. 37(i)(b).

Fee Category	All Candidates	
(a) Onetime fee at the time of admission#(Rs.)		
Caution Deposit	5,000	
Admission Fee	5,000	
Development Fee	10,000	
Library Fee	5,000	
Alumni Affairs Fee	2,000	
Career Development Fee	500	
Students Welfare Fee	1,000	
Association and Cultural Fee	1,000	
Convocation Fee	3,000	
Total (a)	Rs.32,500/-	
(b) Other Fee#(Rs.)	Winter Semester 2022-23	Monsoon Semester 2023-24
Tuition Fee	12,000	12,000
Registration Fee	750	750
Examination Fee**	1,500	1,500
Students Activities Fee	1,000	-
Health Centre Facility Fee	500	-
Sports Fee	1,000	-
Campus Amenities Fee	500	-
Computing Facility Fee	1,000	-
Internet Fee	500	-
Mediclaime***	755	-
Total (b)	Rs.19,505	Rs.14,250
(c) Thesis Evaluation Fee#	Rs. 25,000/-##	
(d) Hostel Seat Rent (Includes Room Rent, Electricity, Water Charges)#	Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)	Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)
Total Amount during admission	Rs.61,005/-@	

**To be paid upto 4th Semester only

***Mediclaime coverage will be available for the registered students from 31st July 2022 to 30th July 2023. Policy amount may vary year to year.

@ Room rent for shared room is added. Additional rent of Rs.1,000/- for single room, if allotted, shall be collected later as dues.

#Subject to revision every year.

##To be paid during the registration for Vth Semester

The fee structure for Ph. D Programme (Scheme IV) 2022-23 admissions is given below.

Tuition Fee may vary as per the directives of Ministry of HRD, Government of India from time to time. The present tuition fee is as per MHRD Order F. No. 33-4/2014-TS.III dated 5th May, 2014 and subsequent clarifications under reference F No. 28/2013/TS.III dated 21st October, 2014. Other fees are as determined by the Institute as per provision of Statute No. 37(i)(b).

Fee Category		All Candidates
(a) Onetime fee at the time of admission[#](Rs.)		
Caution Deposit	5,000	
Admission Fee	5,000	
Development Fee	10,000	
Library Fee	5,000	
Alumni Affairs Fee	2,000	
Career Development Fee	500	
Students Welfare Fee	1,000	
Association and Cultural Fee	1,000	
Convocation Fee	3,000	
Total (a)	Rs.32,500/-	
(b) Other Fee[#](Rs.)	Winter Semester 2022-23	Monsoon Semester 2023-24
Tuition Fee	7,500	7,500
Registration Fee	750	750
Examination Fee ^{**}	1,500	1,500
Students Activities Fee	1,000	-
Health Centre Facility Fee	500	-
Sports Fee	1,000	-
Campus Amenities Fee	500	-
Computing Facility Fee	1,000	-
Internet Fee	500	-
Mediclaime ^{***}	755	-
Total (b)	Rs.15,005	Rs.9,750
(c) Thesis Evaluation Fee	Rs. 25,000/-^{##}	
(d) Hostel Seat Rent (Includes Room Rent, Electricity, Water Charges) [#]	Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)	Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)
Total Amount during admission	Rs.56,505/-[@]	

^{**}To be paid upto 4th Semester only

^{***}Mediclaime coverage will be available for the registered students from 31st July 2022 to 30th July 2023. Policy amount may vary year to year.

[@] Room rent for shared room is added. Additional rent of Rs.1,000/- for single room, if allotted, shall be collected later as dues.

[#]Subject to revision every year.

^{##}To be paid during the registration for Vth Semester

8. How to Apply?

- a. Apply online using the following link:
<https://dss.nitc.ac.in/mtechApp/phD/frmLogin.aspx>
- b. Register with your e-mail id and mobile number for creating a login in the online portal.
- c. Before login, keep the soft copy of the following documents ready with you.
 - i. Degree certificates and consolidated mark list (If consolidated mark list is not available semester wise/ year wise mark lists combined in a single pdf file) (Maximum of 800 kB).

OR

A certificate from the Head of the Institution stating that he/she has appeared/appearing for the final semester examination (for candidates who are appearing for their final examination and are awaiting results)

- ii. Recent Photograph (Maximum of 120 kB)
- iii. Online fee payment receipt
- iv. Aadhaar Card
- v. First page of the research publications in Journals and Conferences
- vi. For candidates belonging to SC/ST category, Community Certificate from a competent authority (not below the rank of Tahsildar).
- vii. Certificate from the Medical Board of Govt. Medical Colleges/Dist. Head Quarters Hospitals, in the case of Physically Handicapped candidates.
- viii. Proof of National Level Eligibility Tests/Fellowships (GATE/ UGC/ CSIR/ NBHM/NET/ JEST/KSCSTE etc.) for candidates applying under Scheme I
- ix. For OBC-NCL category candidates applying under Scheme I, Community Certificate, from a competent authority (not below the rank of Tahsildar) indicating the status regarding Creamy Layer based on financial year ending March 31, 2022 (should have been issued on or after 1st April, 2022).
- x. Certificate for Economically Weaker Sections (EWS) for candidates applying under Scheme I, if applicable, issued by the competent authority (not below the rank of Tahsildar) indicating the financial status for the financial year ending March 31, 2022 (should have been issued on or after 1st April, 2022).
- xi. For candidates applying under scheme III, a Sponsorship certificate, signed by the Head/Competent authority of the Institution/organization/Company has to be uploaded in the prescribed format.
- xii. For candidates applying under scheme IV, a No Objection Certificate from the Head of the department/school has to be uploaded.
- xiii. For candidates applying under scheme V, a *No objection-cum-Experience certificate* signed by the Head/Competent authority of the Institution/organization/Company has to be uploaded, along with the application.

- d. Candidates who wish to apply to multiple departments or schools (subject to fulfilling the eligibility criteria) should select each such department/school and pay the application fee separately considering the total no. of such departments (eg:- if a candidate under OPEN category wishes to apply to both CSE & ECE departments, he/she has to pay Rs.1000/- for each department). However, candidates applying for multiple schemes under one department need to pay the application fee for that department only (Payment details and copy of the same fee payment receipt may be uploaded again).
- e. Application fee has to be made through State Bank Collect (online) by following link <https://www.onlinesbi.com/sbicollect/icollecthome.htm?corpID=365553> using Net Banking/Credit Card/SBI Challan (by cash) by choosing the payment category as **Ph.D. APPLICATION FEE PAYMENT WINTER SEMESTER 2022-2023**. After successful completion of the fee payment, save the fee payment receipt for uploading in the application form. **Application fee details are as follows: Rs. 1,000/- for OPEN/EWS/OBC/PwD candidates and Rs. 500/- for SC/ST candidates. APPLICATION FEE IS NON- REFUNDABLE.**
- The formats of all required certificates are available in our website.
 - <http://nitc.ac.in/index.php/?url=admission/index/35>
 - The list of short listed candidates for the selection process of the admission to the Ph.D. Programmewill be available in our website in due course. **No separate call letter for the selection process will be dispatched.**

9. Hostel Facility:

Limited Hostel facilities are available for the students. Hostel Room Allotment will be done subject to availability of vacant rooms. Fee structure for the hostel accommodation is available in the following link:

http://www.nitc.ac.in/app/webroot/img/upload/newsfile_2848.pdf

10. Institute Refund Rules

Refund of fee shall be permitted to a student who leaves the academic programme till such dates that will permit the Institute to fill the vacancy so created through subsequent seat allotment process of the Institute. In such cases, all fee and deposits paid at the time of admission will be refunded after a deduction of processing fee of Rs. 1,000/- (Rupees One Thousand only). No fee other than Caution Deposit shall be refunded to students who withdraw admission after such stipulated dates.

11. Important Dates

Events	Dates
Activation of the website for submission of online application	10th October 2022 (9.00AM)
Last date for submission of completed application form through on-line	14th November 2022 (9.00PM)
Publishing the list of short listed candidates for the selection process, in the website	25 th November 2022 (Tentative)
Selection process for short listed candidates (Offline Mode)	7 th – 9 th December 2022 (Tentative)
Publishing list of selected candidates for provisional admission, in the website	To be announced later
Date of Admission and Reporting for the Programme	

LEGAL JURISDICTION

All disputes pertaining to the counselling and admission for the Ph.D. programme of NIT Calicut shall fall within the jurisdiction of High Court of Kerala only.

DISCLAIMER

The statement made in the information brochure and all other information contained herein is believed to be correct at the time of publication. However, the Institute reserves the right to make at any time without notice, changes in and additions to the regulations, conditions governing the admission, requirements, seats, fees and any other information, or statements contained in this information brochure. No responsibility will be accepted by the Institute/Chairperson- PG Admissions for hardship or expenses encountered by its students/any other person for such changes, additions, omissions or errors, no matter how they are caused.

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