INFORMATION BULLETIN

Admissions to Full-Time M. Tech./ M. Plan/M.Sc. & MBA Programmes under the Self-Sponsored Category

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Full-Time M. Tech./M. Plan. Programmes under the Sponsored[1] Category for the Academic Year 2024-2025

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[1] sponsored from Industries/R&D Organizations/Central and State Government Institutions/ Defence Organizations/ Other Reputed Private Organizations/Institutions.

Part-I PROFILE OF THE INSTITUTE

A. Introduction

National Institute of Technology Calicut (NITC) 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 and renamed CREC as National Institute of Technology Calicut 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.

B. Location

Set in a picturesque landscape at the foothills of the Western Ghats, NIT Calicut is located about 22kilometers 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 theeast, 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). Taxi and auto-rickshaws are available from Calicut Railway/Bus Station to NITC. 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 main city.

C. Computing Facilities and Campus Network

Central Computer Centre (CCC) is the central facility in NIT Calicut which caters for the computingrequirements 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 operates 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 Rackserver 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 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 aday (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 is interconnected with about 30 kms of fiber optic backbone network with 80 routed internal networks, 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 2 Gbps 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.

D. 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/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.

E. 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.

F. 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)

M.TECH./M.PLAN. Programmes offered

The details of M. Tech. and M. Plan programs offered by various departments at NITC are given below.

Dept.	Dept. code	Specialization of the M. Tech. / M. Plan. programmes	Programme Code
Architecture and Planning	AP	Urban Planning	AR61
Bioscience and Engineering	BT	Bioengineering	BT61
Civil Engineering	CE	Structural Engineering	CE61
		Traffic & Transportation Planning	CE62
		Offshore Structures	CE63
		Geotechnical Engineering	CE64
		Water Resources Engineering	CE65
		Environmental Engineering	CE66
Chemical Engineering	CH	Chemical Engineering	CH61
Computer Science & Engineering	CS	Computer Science & Engineering	CS61
		Computer Science & Engineering (Information Security)	CS62
		Computer Science and Engineering (Artificial Intelligence & Data Analytics)	CS63
Electrical Engineering	EE	Instrumentation & Control Systems	EE61
		Power Systems	EE62
		Power Electronics	EE63
		Industrial Power and Automation	EE64
		High Voltage Engineering	EE65
		Electric Vehicle Engineering	EE66
Electronics & Communication Engineering	EC	Electronics Design & Technology	EC61
		Microelectronics & VLSI Design	EC62
		Telecommunication	EC63
		Signal Processing	EC64
Mechanical Engineering	ME	Industrial Engineering & Management	ME61
		Thermal Sciences	ME62
		Manufacturing Technology	ME63
		Energy Engineering & Management	ME64
		Materials Science & Technology	ME65
		Machine Design	ME66
Materials Science and Engineering	MT	Materials Science and Engineering (Nanotechnology)	MT61

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

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

G. Major Areas of Research and Consultancy

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

ARCHITECTURE AND PLANNING

- Urban and Regional Planning
  - Transportation
  - Infrastructure
  - Housing
  - Environmental Planning
  - Planning Informatics
  - Disaster Management &Climate Change
  - Smart Cities planning
  - Energy & Sustainability studies
- Architecture
  - Urban Design
  - Landscape
  - Conservation
  - Architectural Theory
  - Architectural Visualization & Product Design
  - Pedagogy
  - Sustainable Architecture
- Landscape Planning and Design
  - Landscape Urbanism
  - Wetland Studies
  - Ecological Assessments
  - Human Ecology
  - Environmental History
  - Cultural Landscape
- Building Technology & Management
  - Building Services
  - Energy Modelling
  - Building Information &Modelling
  - Alternate Building Materials
  - Construction Management
  - Modern Methods of Construction
  - Change Management

- Structural Engineering
    - Masonry Structure,
    - Seismic Safety of Structures
    - Sustainable Strengthening Techniques,
    - Structural Dynamics &Earthquake Engineering,
    - Sustainable Concrete
    - Reinforced concrete structure
    - Bio concrete
    - Computational Mechanics

BIOSCIENCE AND ENGINEERING

- Biomaterials Design & Applications
- Tissue Engineering and Regenerative Medicine
- Stem Cell Technology
- Bio signals and Bioimaging
- Diagnostics and Therapeutics
- Biomedical Nanotechnology
- Microfluidics And Nanofluidics
- Drug Design & Development
- Molecular and Cell Bioengineering
- Biomedical Device Design
- Additive Manufacturing Technologies

CHEMICAL ENGINEERING

- Reaction and Bioprocess engineering
    - Bio-materials
    - Biofuels
    - Catalysts
    - Fermentation Technology
    - Bioreactors
- Energy and Electrochemical Engineering
    - Electrochemical systems
    - Fuel Cells
    - Phase Change Heat transfer
- Materials Science and Engineering
    - Carbon-based materials
    - Nano –composites
    - Polymers and polymer Composites
    - Soft Matter
- Process Control, Optimization and systems Engineering
    - Flow Assurance in Oil and Gas Pipelines
    - Process Intensification
    - Rheology
    - Optimization under uncertainty
    - Supply chain optimization
- Process Modelling, Simulation, CFD and Theoretical computation
    - Machine Learning
    - Molecular Simulations

- Multiphase Flow Modelling
- Non-Newtonian Fluid Dynamics
- Thermodynamic Modelling

- Environmental Engineering
  - Carbon Capture and Storage
  - Desalination
  - Membrane Separation
  - Microfluidics
  - Wastewater Treatment

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

CIVIL ENGINEERING

- Structural Engineering
- Offshore Structures
- Traffic and Transportation Planning
- Geotechnical Engineering
- Water Resources Engineering
- Environmental Engineering
- Environmental Geotechnology
- Building Technology and Construction Management
- Town Planning
- Geomatics Engineering
- Applied Geology

COMPUTER SCIENCE & ENGINEERING

- Algorithms and complexity
- Bioinformatics
- Cloud Computing
- Compilers and Programming Languages
- Computer Architecture

- Database Management Systems
- Distributed Computing
- Image Processing
- Information Security
- Networks
- Operating Systems
- Software Engineering
- Artificial Intelligence/Machine Learning

ELECTRICAL ENGINEERING

- Instrumentation and Control Systems.
- Power and Energy Systems.
- Power Electronics & Machines.
- Industrial Power & Automation.
- Biomedical Signal Processing and Instrumentation.
- High Voltage Engineering
- Electric Vehicle Engineering

ELECTRONICS & COMMUNICATION ENGINEERING

- Electronics Design and Technology
    - Embedded System Design
    - EMI/ EMC, Control System Design
    - Biomedical System Design
    - System Design for Signal Processing and Communication
    - Biomedical Imaging System Design
- Microelectronics and VLSI Design
    - Power Management in IC Design
    - Analog & Mixed-signal IC design
    - Semiconductor Device modelling
    - Micro fabrication Technology, Micro/Nano Electro Mechanical System MEMS/NEMS
    - VLSI architectures for Signal Processing and Communication
    - Photovoltaics Devices for Energy Harvesting
    - Fabrication and Modelling of Photovoltaics Devices
    - CMOS Image Sensors
    - Semiconductor Memory Devices
    - Photonic Integrated Circuits
- Telecommunication
    - Wireless Communications and Networks
    - OFDM/MIMO and Massive MIMO
    - 5G & Beyond 5G Wireless Communications
    - Cryptography and Secure Communication
    - RF & Microwave Engineering
    - Coding Theory and Applications
    - Distributed Computing and Content Delivery
    - Optical Communication and Optical Wireless Communication
- Signal Processing

- Speech/ Audio / Image / Video Processing
- Signal Theory
- Compressed Sensing/ Sparse Signal Processing,
- Multi-rate Signal Processing
- Biomedical Signal Processing
- Radar/Array Signal Processing
- Machine Learning, Computer Vision
- Deep Learning
- Statistical Signal Processing and Bayesian Machine Learning
- Reinforcement Learning
- VLSI Architectures for Signal Processing & Deep Learning
- Biomedical Imaging
- AI for Biomedical Imaging and Signal Processing

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
- Reliability of systems
- Combinatorics & Graph Theory
- Special Function and Function Spaces
- Wave Structure Interactions
- Functional Analysis
- Lie Algebra/Superalgebra
- Wavelets Theory
- Commutative Algebra
- Topology
- Fractal Geometry
- Spectral Graph Theory
- Operator Theory
- Time Series Analysis
- Computational Finance
- Actuarial Science
- Differential Geometry
- Category theory
- Banach Algebras
- Game Theory
- Optimization
- Algebraic Topology
- Theory of Rings and Modules
- Topological Data Analysis

- Set Generalizations
- Fuzzy Logic
- Fuzzy Graph Theory
- Matrix Theory
- Numerics of Singularly Perturbed Differential Equations
- Linear algebra
- Spectral Graph Theory
- Partition Theory
- Modular Forms
- Variational Analysis
- Nonlinear Elliptic and Subelliptic PDEs
- Algebraic Function Theory
- Geometric Functions Theory
- Several Complex Variable
- Numerical Analysis of Differential Equations

MECHANICAL ENGINEERING

- Industrial Engineering and Management
    - Ergonomics and Product Design
    - Supply Chain Management
    - Marketing Management
    - Human Resource Management
    - Data Science Applications in Operations Management
- Machine Design
    - Computational Mechanics
    - Robotics
    - Tribology
    - Machine Dynamics and Vibrations
    - Nano- and Micro-mechanics
    - Product Design
    - Biomechanics
    - Nonlinear dynamics
    - Nonlinear Solid Mechanics
    - Fatigue and Fracture
- Materials and Manufacturing
    - 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
    - Mechatronics and industrial automation
    - Materials for Sustainable Development
    - Structure-Property Correlation of materials
    - Advanced structural and functional ceramics

- Biomaterials and surface engineering

- Thermal and Energy Engineering
  - Renewal Energy Technologies
  - Energy Conservation
  - Fuel Cells and Hydrogen Technology
  - Computational Fluid Dynamics
  - Heat Pipes
  - Cryogenics
  - Jets and Flow Acoustics
  - Combustion and Fire Safety
  - Fluid-Structure Interactions
  - Multi-phase Flows
  - High Performance Computing
  - Lattice Boltzmann Modeling
  - High Speed Flows
  - Turbo-machinery
  - Internal Combustion Engines
  - Convection and Radiation Heat Transfer
  - Non-Newtonian flows
  - Heating and Ventilation Systems
  - Thermal Management
  - Microfluidics

PHYSICS

- Organic Solar Cell
- Nanomaterials for Energy & Environmental Applications
- Organic & Hybrid Electronics & Photonics
- Photonic devices based on 2D materials, Paper-based retinomorphic photodetctors
- Nonlinear Optics and Nano Photonics
- Statistical mechanics of phase transitions – Soft condensed matter Systems
- Computational Modeling of Materials
- Climate, Atmospheric and 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
- Microfluidics and Optofluidics
- Soft Matter
- Astrophysics, 21-cm Cosmology, Radio Astronomy, Cosmological Simulations
- Experimental Nuclear Physics
- Gravitational Wave Physics
- Gas Sensors, Chemical Sensors, Energy Storage Devices, Interface Electronics

MANAGEMENT STUDIES

- Finance and Accounting, Marketing Management, Consumer Psychology, Human Resource Management and Organisational Behaviour, Behavioural Science, Operations Management Decision Sciences, Data Analytics, Information Systems, Strategic Management, Economics, Health Care Management, Public Policy and Governance, Natural Resource Management, Entrepreneurship, Technology Management.

HUMANITIES ARTS AND SOCIAL SCIENCES

English Studies, ELT, Cultural Studies, Indian Writing in English and Translations, Postcolonial Studies, Dalit Studies, Food and Culture, Gender Studies, Early Childhood Education, Childhood Studies, Canadian Literature, Comparative Literature, Memory Studies and Trauma Narratives, Literary Theories, Theatre and Drama.

MATERIALS SCIENCE AND ENGINEERING

- Solar Thermal Systems
- Solar Fuels
- Microscale/Nanoscale heat transfer
- Interferometric measurements
- Thermal Management of Devices (Electronics/Batteries)
- Emerging Solar Cell Technologies
- Perovskite Solar Cells
- Nanofluids
- Photo Catalysis/ Water Splitting
- Biomaterials
- Corrosion and Wear Resistant Coating
- Nano Composites for Energy
- Nanocomposites and Nanosensors
- Surface Modifications and Coating Techniques (Metals)
- Biodegradable Metals
- Lightweight metallic systems
- Electrospinning
- Nanocomposites
- Medical Materials (Metals and alloys)
- Affordable Healthcare
- Magnesium based Hydrogen storage
- Applied microscopy and spectroscopy

- Phase Change Materials
- Carbon materials for energy and devices
- Semiconductor Memories and devices
- Additive manufacturing materials
- Mechanical behaviour of materials
- Process-Microstructure-property correlations
- Multiscale numerical modelling
- Computational material science
- Microfluidics and Nanofluidics

Part- II ADMISSIONS TO FULL TIME M.TECH./ M. PLAN. / M. Sc./MBA PROGRAMMES

A. Admissions to Full Time M.TECH./ M. PLAN. Programmes (Self-sponsored & Sponsored[2])

1. Introduction

Applications are invited for admission to the full-time M. Tech. and M. Plan. Programmes starting in July-August 2024 under the self-sponsored & sponsored category for the academic year 2024-2025. The candidates who fulfil the prescribed minimum eligibility criteria as given in the following section may apply for the same. Students admitted under the full-time self-sponsored & sponsored (industry/academia) categories will not receive any financial aid/stipend or scholarship. Candidates sponsored from Industries, R&D Organizations, Central/State Government institutions, Defence organizations, other reputed private organizations/institutions will be considered in sponsored (industry/academia) category. In the case of teachers sponsored by Engineering Colleges and Polytechnics, the sponsoring institute should be recognized by All India Council for Technical Education (AICTE)/Council of Architecture (CoA). The seat allocation for each PG programme under self-sponsored & sponsored (industry/academia) categories are given in Table 1 below. The self-sponsored and sponsored (industry/academia) candidates are eligible to appear for campus placement interview coordinated by the Centre for Career Development in the institute.

Table 1: List of M. Tech. / M. Plan. Programme and No. of Seats

Programme Code	M. Tech. / M. Plan. programme	No. of seats	
		Self-sponsored	Industry Sponsored
AR61	Urban Planning	15	5
BT61	Bioengineering	15	0
CE61	Structural Engineering	5	5
CE62	Traffic & Transportation Planning	5	5
CE63	Offshore Structures	5	5

[2] sponsored from Industries/R&D Organizations/Central and State Government Institutions/ Defence Organizations/ Other Reputed Private Organizations/Institutions.

CE64	Geotechnical Engineering	5	0
CE65	Water Resources Engineering	5	5
CE66	Environmental Engineering	5	5
CH61	Chemical Engineering	5	5
CS61	Computer Science & Engineering	5	5
CS62	Computer Science & Engineering (Information Security)	5	5
CS63	Computer Science and Engineering (Artificial Intelligence & Data Analytics)	20	5
EE61	Instrumentation & Control Systems	5	5
EE62	Power Systems	5	5
EE63	Power Electronics	5	5
EE64	Industrial Power and Automation	5	5
EE65	High Voltage Engineering	5	5
EE66	Electric Vehicle Engineering	10	10
EC61	Electronics Design & Technology	5	5
EC62	Microelectronics & VLSI Design	5	5
EC63	Telecommunication	5	5
EC64	Signal Processing	5	5
ME61	Industrial Engineering & Management	5	5
ME62	Thermal Sciences	5	5
ME63	Manufacturing Technology	5	5
ME64	Energy Engineering & Management	5	5
ME65	Materials Science & Technology	5	5
ME66	Machine Design	5	5
MT61	Materials Science and Engineering (Nanotechnology)	5	5

2. Eligibility for Admission to M.TECH./M. PLAN. Programmes (Self-sponsored & Sponsored)

Candidates for admission to **M. Tech.** degree programmes (except M.Tech in Computer Science and Engineering- Artificial Intelligence & Data Analytics) should have passed B.E./ B. Tech. in an appropriate branch from an approved Institute/University with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD categories.

Candidates for admission to M. Tech. degree programme in Computer Science and Engineering (Artificial Intelligence & Data Analytics) should have passed Bachelors degree of four years duration in any branch of Engineering/Technology/Science OR Master's degree of two/three years duration in any stream of Science / Mathematics / Statistics / Computer Science / Computer Applications, from a recognized university/institute, with minimum 60% marks or CGPA of 6 for GEN/GEN-EWS/OBC and 55% marks (or CGPA 5.5/10) for SC/ST/PwD categories.

Candidates for admission to **M. Plan.** degree programme should have passed B. Arch./B.Plan./B.Tech. (Civil engineering or Architectural Engineering), / or M.A/MSc in

Geography, Sociology or Economics or any other relevant degree approved by Institute of Town Planners India from an approved Institute/University with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD categories.

Candidates applying for **M. Tech. admission with MCA** should have minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD categories, in both MCA and undergraduate degree.

Candidates who secured their **B.E./B. Tech. degree under the lateral entry scheme** should have passed the three-year diploma in Engineering with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD categories. Holders of AMIE (approved by AICTE) / other nationally approved programmes equivalent to B. Tech. / B.E., in the appropriate branch of study, are also eligible to apply for the self-sponsored M. Tech./M. Plan. programmes. Conversion from CGPA to percentage or vice versa given by individual Institute/University will not be considered/ allowed. If CGPA is on a different scale than the 10-point scale, then it would be linearly mapped to a 10-point scale. **Reservation rules are not applicable for M.Tech./M.Plan.** admissions under self-sponsored & sponsored categories. **In addition to the above qualifications, a minimum of 2 years of continuous industrial/ research/ teaching experience in the relevant organizations is also mandatory at the time of submitting application for candidates seeking admissions under the sponsored category. They need to upload a sponsorship certificate from the employer (in the format specified by NITC available in NITC website) along with the applications.**

Final semester under graduate students can also apply under the self-sponsored category provided their final semester marks are made available by 30th September 2024. Such candidates may be considered for provisional admission. Any candidate admitted provisionally will have to discontinue the course, if the candidate fails to produce the provisional degree certificate and mark lists (satisfying the minimum requirements of marks / CGPA) on or before 30th September 2024. Such candidates will not be eligible for any refund of fees paid by him/her.

Selection of candidates for M. Tech./M. Plan Programmes under the Self-Sponsored Category will be based on the performance of the candidate in the test/ interview conducted by the respective Department. No specific weightage shall be given for candidates possessing valid GATE score during the selection process.

The details of M. Tech./M. Plan programme codes are given below. The candidates are required to have B.E. /B. Tech. /B. Arch. B. Plan./B. Des. MA/MSc in the disciplines mentioned against the corresponding programme code.

M. Tech./ M. Plan. programme code	Required B.E./B.Tech/B.Arch. B. Plan./B. Des. / MA/MSc degree/ branch/ discipline

AR61	B. Arch. / B. Plan. / B.Tech. (Civil engineering or Architectural Engineering), or M.A/MSc in Geography, Sociology or Economics or any other relevant degree approved by Institute of Town Planners India
BT61	Bachelor's degree of four years duration - Biotechnology, Biomedical Engineering, Bioinformatics, Pharmacy, Mechanical, Electrical engineering, Electronics & Communication Engineering, Computer Science/ Bachelor's degree in Agri/Veterinary/Fisheries/Forestry/Master's degree in any stream of Life sciences, Physics, Chemistry/Five years of program in Medicine and Surgery.
CH61	Chemical Engineering/ Chemical Technology/ Petro-Chemical Engineering/ Petroleum Engineering/Petrochemical Technology/Biotechnology/Polymer Technology/ Plastic Technology/ Chemical&Electrochemical Engineering/Pharmaceutical Technology/Food Technology/Ceramic Technology/ Rubber and Plastic Technology/ Rubber Technology
CE61/CE62/CE63/CE64/CE65	Civil Engineering
CE66	Civil Engineering/ Environmental Engineering/ Chemical Engineering/ Mechanical Engineering/Biotechnology
CS61 / CS62	Computer Science & Engineering/ Information Technology/ MCA
CS63	Bachelor's degree of four years duration in any branch of Engineering/Technology OR Master's degree of two/three years duration in any stream of Science / Mathematics / Statistics / Computer Science / Computer Applications, from a recognized university/institute
EE61	Four year B.Tech Degree in Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control System/ Applied Electronics & Instrumentation/ Instrumentation
EE62/EE63/EE65	Four year B.Tech Degree in Electrical Engineering/Electrical & Electronics Engineering
EE64	Four year B.Tech Degree in Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control Systems/Applied Electronics & Instrumentation Engg. /Electronics & Instrumentation/Instrumentation

EE66	Four year B.Tech Degree in Electrical Engineering/Electrical & Electronics Engineering, Automobile Engg or equivalent
EC61/EC62/EC63/EC64	Electronics Engg./Electronics & Communication /Electrical and Electronics/ Electrical Engineering/Applied Electronics & Instrumentation or allied disciplines
ME61	Mechanical Engineering/Aerospace Engineering/ Agricultural Engineering/ Automobile Engineering/ Material Science & Engineering/ Manufacturing Engineering/ Mechatronics/ Metallurgical Engineering/ Industrial Metallurgy/ Production Engineering/ Production & Industrial Engineering/ Production & Management/Textile Engineering & Fiber Science / Industrial Engineering
ME62	UG Degree in Mechanical Engineering/ Aerospace Engineering/Aeronautical Engineering/Automobile Engineering/ Energy Engineering/Manufacturing Engineering/Nuclear Engineering/ Production Engineering
ME63	UG Degree in Mechanical Engineering/ Automobile Engineering/Manufacturing Engineering/Material Science & Engg/ Mechatronics/ Metallurgical Engineering./ Production Engineering/Production & Industrial Engg./Production & Management
ME64	UG Degree in Mechanical Engineering/ Chemical Engineering/Aeronautical Engineering/Aerospace Engineering/ Automobile Engineering/ Energy Engineering/ Nuclear Engineering/Renewable Energy
ME65	UG Degree in Mechanical Engineering/ Automobile Engineering/Material Science & Engg./Engineering Physics/ Manufacturing Engineering/ Mechatronics/Metallurgical Engineering/ Industrial Metallurgy/Nano Technology/ Production Engg/ Production & Industrial Engg./Production &Management
ME66	UG Degree in Mechanical Engineering/ Aerospace Engineering/ Aeronautical Engineering/ Automobile Engineering/Material Science & Engg./ Manufacturing Engineering/ Mechatronics/ Metallurgical Engineering/ Industrial Metallurgy/ Production Engg/Production & Industrial Engg./Production & Management

MT61	Mechanical Engg/Chemical Engg/ Production Engg/ Material Science & Engg.

3. The Highlights of M.TECH./M.PLAN. Programmes

The four-semester (two-year) M. Tech./M. Plan. Programmes are based on the credit system. The programmes comprise several core and elective courses and project work. The highlights of M. Tech./M. Plan. Programmes offered by various departments are given in the following section.

DEPARTMENT OF ARCHITECTURE AND PLANNING

M. Plan. in Urban Planning (AR61)

The Post Graduate Degree (2 Year M. Plan.) Program in Urban Planning aims to produce generalist planning professionals of international quality who can adapt to any challenging planning situation with superior capability to use geo-informatics which includes GIS, remote sensing, related models and quantitative methods in urban, regional and environmental planning. The program envisages inculcating scientific diagnostic and urban management abilities in professional planners to understand planning issues holistically and equip them with predictive ability to analyze the outcome of economic, social, environment and energy impacts using simulation of future scenarios.

DEPARTMENT OF BIOSCEINCE AND ENGINEERING

M. Tech in Bioengineering (BT61)

M. Tech in Bioengineering is a specialized graduate program that focuses on the intersection of biology, engineering, and medicine. It combines principles and techniques from various disciplines to develop innovative solutions for biological and healthcare challenges. This program equips students with the necessary skills and knowledge to apply engineering principles and tools in the field of biology and medicine. The curriculum of an M.Tech in Bioengineering program typically consists of outstanding academic tutoring by well-renowned faculties, regular guest lectures by bioengineering technologists, consistent workshops/seminars from industrial partners, state of art laboratory experiments, practical assignments and mini projects/internships in real-time industry scenarios, and many more.

DEPARTMENT OF CHEMICAL ENGINEERING

M. Tech. Programme in Chemical Engineering (CH61)

The M.Tech. Programme in Chemical Engineering is designed to provide a strong base on Chemical reactor theory, Transport phenomena, Thermodynamics, Mathematical methods in chemical engineering, Process simulation, Optimization and control, Separation processes, Polymer engineering, as well as in frontier areas of Energy and environment, Nanoscience, Molecular simulations, and Biotechnology. The research component of the programme is

meant to develop capabilities to confidently undertake an independent analysis of problems of industrial relevance as well as of fundamental significance. The M.Tech. programme equips students with skills which enable them to contribute to the development of Chemical Industry in India.

DEPARTMENT OF CIVIL ENGINEERING

M. Tech. Programme in Structural Engineering (CE61)

The M.Tech. Programme in Structural Engineering was started in the year 1971 with an intention of providing a comprehensive education and training to civil engineers using a holistic approach to structural systems engineering by emphasising and building on the commonality of engineering structures at the levels of materials, mechanics, analysis and design. The programme provides a thorough training in the design principles and structural action as related to components and systems over a broad range of application areas. It also provides a thorough training in the methods of analysis, including problem formulation and the use of current mathematical and computational tools. The programme covers specialised topics in Theory of Elasticity, Earthquake Resistance Structures, Structural Dynamics, Structural Optimisation, Finite Element Analysis, Advanced Metal Structures, etc.

M. Tech. Programme in Traffic and Transportation Planning (CE62)

The M. Tech. Programme in Traffic and Transportation Planning was started in the year 1985. The programme aims to impart futuristic and need-based technical education, and to promote reengineering in the field of Transportation Engineering for working out cost- effective solutions in liaison with local authorities and to establish social relevance of research and developmental activities. Under the PMGSY (Pradhan Mantri Gram SadakYojana), and National Highway Development Programme (NHDP-Golden Quadrilateral, North-South and East-West corridors), etc. the importance given to the highway development has increased in leaps and bounds. Similarly, considerable attention is being given to the development of railways, waterways and airways. The present programme in Traffic and Transportation Planning has three broad areas of specialization namely i) Traffic Engineering ii) Transportation Planning and iii) Pavement Technology.

M. Tech. Programme in Offshore Structures (CE63)

The goal of the Programme is to prepare graduate students in civil engineering for the offshore profession having application to the challenging conditions encountered in the ocean environment. The oil industry with its crucial role in deciding the economy of the nation is shifting its exploitation strategy from land-based to ocean-based systems the world over. This shift in emphasis has resulted in turn in a growing need for structural engineers with expertise in design of offshore platforms and other deepwater structures, marine pipelines, towed bodies and cable systems, etc.The various major courses offered in the programme are Dynamics, Design of Offshore Structures, Marine Foundations, Offshore Structural Systems-Modelling and Behaviour, Theory of Elasticity, Structural Wave Hydrodynamics, Statistics, Probability & Reliability Methods in Civil Engineering.

M. Tech. Programme in Geotechnical Engineering (CE64)

The M.Tech. Program in Geotechnical Engineering at the National Institute of Technology Calicut is structured to provide graduates with a comprehensive foundation for both professional practice and scholarly pursuit in the field. Our curriculum is carefully structured to offer a well-rounded education encompassing theoretical knowledge, analytical skills, practical applications, and experimental methodologies essential for effective geotechnical engineering endeavours. Through a meticulously curated selection of courses such as Advanced Soil Mechanics and Foundation Engineering, Site Investigations, Geotechnical Earthquake Engineering, Rock Mechanics, Tunnelling and Underground Structures, Finite Element Modelling, and Slope & Retaining Wall Design, students gain specialized expertise in key areas of geotechnical engineering.

This course also focuses on Geophysical and Geotechnical ground investigations, including field and laboratory testing, as well as numerical modelling to simulate real field applications. It trains students in the utility of advanced equipment and software to conduct accurate site assessments and predictive modelling, optimizing project outcomes. This holistic approach ensures that graduates are equipped with the requisite knowledge and skills to navigate diverse challenges in geotechnical projects worldwide, positioning them as adept professionals capable of making significant contributions to the field.

M. Tech. Programme in Water Resources Engineering (CE65)

The M.Tech. Programme in Water Resources Engineering was started by the Department of Civil Engineering in the year 2015. A scientific and systematic approach is required to efficiently manage any water resources system which is characterized by either scarcity or excess issues, and quality issues. The success of any water resources project depends on the sound understanding of the interactions of various components of the system, effectiveness in collection and interpretation of relevant data, and use of modern computational techniques in the solution of the problem. This PG Programme intends to prepare graduates in Civil Engineering to attain these abilities by introducing them to topics like Advanced Fluid Mechanics, Surface and Subsurface Hydrology, Water Resources Systems Analysis and Design, Remote Sensing and its Applications in Water Resources Engineering and Computational Hydraulics and Hydrology. In addition to these core courses, six more elective courses from the related fields of Water Resources Engineering can be credited by the students depending on their aptitude and interest. A project work in the second year of the Programme provides the student with an opportunity to apply the principles and methods got familiarized in the first year to analyze and design some aspects of realistic water resources case studies.

M. Tech. Programme in Environmental Engineering (CE66)

The M.Tech. Programme in Environmental Engineering shall equip the graduants with the ability to study water, air and soil pollution problems, and impart necessary skills to develop technical solutions to solve, attenuate or control these problems in a manner that meets legislative, economic, social and political requirements. The students shall be trained in the accepted engineering practices and protocols for planning, design and operation of water and wastewater treatment facilities, modelling and analysis of water and air quality, design of soil remediation systems, design of air pollution control systems, and the management of solid waste, including its

collection, transport, processing, recovery and disposal. Students shall also be trained in undertaking high quality research, professional report preparation and scientific communication.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

M.Tech. Programme in Computer Science and Engineering (CS61)

The two-year post graduate Programme in Computer Science is intended to train the students in advanced areas in computer science and specialized topics in emerging areas in computing. Courses offered include Topics in Algorithms, Topics in Programming Languages, Operating Systems Design, Trends in Middleware Technologies, Bioinformatics and Machine Learning. The project work in the second yearis intended to orient the student towards deeper study and research in her/his area of interest.

M. Tech. Programme in Computer Science and Engineering [Information Security] (CS62)

Information security relates to the protection of IT assets against the risks of loss, misuse, disclosure or damage. Information security management comprises of the controls that sensibly manage these risks. By proactively managing information security, we can reduce the likelihood and/or the impact on our information systems from a wide range ofthreats. The M.Tech. Programme in Computer Science and Engineering (Information Security) is envisaged to train graduates in Computer Science and Engg. / IT/ MCA withthe necessary skills to design and develop policies, protocols and techniques to secure information systems.

M. Tech. in Computer Science and Engineering [Artificial Intelligence & Data Analytics] (CS63)

With the emergence of Artificial Intelligence (AI) back in the limelight, coupled with the availability of huge chunks of data in diverse fields, life is becoming more and more oriented towards Machine Learning (ML) and Data Science (DS). Availability of unprecedented processing power, storage capacity and access to enormous data opens up boundless possibilities. The 'fourth industrial revolution', characterized by the fusion of technologies that is blurring the boundaries between physical, digital and biological fields, calls for intelligent solutions in all spheres of life. In the backdrop of such a scenario, when the world is "drowning in data, but starving for knowledge", a harmonious blend of AI and Data Analytics (DA) tends to offer promising computational solutions for problems in diverse fields of activities such as life science, education, health and medical science, climate and environment, web and social media, finance, and agriculture. AI and ML techniques facilitate data analysis through automated analytical model building, which is based on the idea that machines should be able to learn and adapt through experience. With the ever-growing investments in the field of AI, and the emergence of Big Data technologies, there will be high demand for 'AI and Data Analytics' engineers in the coming years. Various research institutes are also in need of this manpower for their flagship research works. This M.Tech. programme in Computer Science and Engineering (Artificial Intelligence & Data Analytics) is offered for graduates from any branch of Engineering and post-graduates from any field of Science, having a special interest in CSE in general and AI & Data Science in particular. In this way, this programme will be a unique learning experience for the students coming from multidisciplinary fields of Engineering, Science and Technology, which is deemed as the need of the hour. The curriculum, designed in consultation with experts

from both the industry and academia, provides a balanced coverage of the theoretical foundations of the subject and places heavy emphasis on the engineering practice that suits the industrial requirements.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

M. Tech. Programme in Electronic Design and Technology (EC61)

This course aims to educate / train engineers as creative designers of electronic productsand systems. This programme is designed with the belief that any engineer concerned with the development of new electronic product needs to integrate the functional design, industrial design, equipment packaging and manufacturing. The electronics industries need design engineers, who can identify customer requirements and develop appropriate systems. This program is one among the very few post graduate programmes in India, providing specialized training program on Electronics Design Technology with emphasis on practical design and problem solving skills. In this program the students aretrained with the courses in the field of Mathematics, Digital System Design, Embedded System Design, Analog and Digital VLSI designs. The students will also get exposure tospecialized courses required for electronics industries such as Electromagnetic Compatibility, Electronic Product Design Lab etc. with necessary competence andinnovative skills to be an effective part of the research field of electronics design and development.

M. Tech. Programme in Microelectronics and VLSI Design (EC62)

The programme is focussed at training students in design, simulation, modelling of electronic components and systems. The programme cover the basics of all aspects of Microelectronics, Analog & circutes digital IC design and physical design. A significant component of all courses are devoted for laboratory works where the students carry outpre silicon design and testing of analog and digital circuits using industry standard EDA tools besides modelling modern semiconductor devices. The programme has elective courses in the field of advanced semiconductor devices, testing and verification, MEMS and sensors, data converters, high frequency analog and digital design. and in allied areas of Electronic Design and Technology, Telecommunication and Signal Processing.At the end of this two year M.Tech programme, the fundamental knowledge and the expertise in modern Microelectronics and VLSI tools will equip the students undergoing this programme to take up challenges in industry in wide variety of areas in the field of Microelectronics and VLSI Design.

M. Tech. Programme in Telecommunication (EC63)

The M.Tech program in "Telecommunication" is designed to cater the needs of Industry in diverse domains of wireless communication and networking with a special emphasis on current and next generation wireless systems and standards. This program has a rich blendof core courses in communication system design and electives focusing on "Data Structures", "Artificial Intelligence", and "Design & Verification of VLSI Systems". A significant component of all courses is devoted for laboratory works where the students getfamiliarized programming in Python, C/C++ along with software defined radio systems, wireless communication testbed etc. At the end of this program, the students will be gaining adequate fundamental knowledge, application level design orientation, and algorithm development and

analysis skills, with sound footing on programming and system level VLSIdesign skillsets, which will make them industry ready.

M. Tech. Programme in Signal Processing (EC64)

The M Tech program in Signal Processing is focused on creative design and developmentof multidisciplinary signal processing systems. In addition to strong theoretical foundationsand practical knowledge earned through courses such as Linear Algebra, Random Process, Statistical Signal Processing and Data Compression Techniques the students ofthis program earn specialized skills in areas such as Artificial Intelligence, Pattern Recognition & Machine Learning, Computer Vision, DSP Algorithms & System Design, Testing and Verification of VLSI Systems, Physical Design Automation, etc. with the codingskills in VERILOG, C/C++, Python, MATLAB, Simulink and OpenCV. The program is designed to make the graduates industry ready with skills to identify, analyze and solve multi-disciplinary problems and expertise in application development through system levelVLSI design.

DEPARTMENT OF ELECTRICAL ENGINEERING

M. Tech. Programme in Instrumentation and Control Systems (EE61)

Instrumentation is the heart of any industry and sophisticated process control and guidance techniques are essential in modern days. This course, which was the first master's Programme to be started in this institute, has been very useful in processing sufficient knowledge in control system and instrumentation to cater to the needs of industry and research organisations. The syllabus of this programme is structured to have the latest trends in Control and Instrumentation.

M. Tech. Programme in Power Systems (EE62)

This course is structured to give a strong base on power system generation, transmission and distribution, operation, analysis, dynamics and control together with the recent advances such as FACTS, power quality and deregulation and smart grid technologies. Adequate exposure is also given on software tools and techniques in the relevant areas. The course is designed so as to enable the students to work effectively both in industries and utilities.

M. Tech. Programme in Power Electronics (EE63)

This programme was introduced to meet the needs of the modern power industry which makes use of power converters and inverters. The emphasis is given for both theory and practical through design, fabrication and testing. The courses incorporate modern trends in switched mode power supplies, active power filters and the latest control techniques in drives.

M. Tech. Programme in Industrial Power and Automation (EE64)

Micro-processors/Micro-controller/DSP controlled motor drives, process control and SCADA systems, plant automation, cogeneration, power wheeling, power factor controllers etc. in industries make the necessity of integrating these devices and systems with electric power control. With the introduction of time of use and dynamic tariff schemes by the utilities, industries can effectively adapt load control techniques and energy conservation programmes.

Computer controlled systems with integrated load control become essential for the modern industries. The M.Tech. programme in 'Industrial Power and Automation' is with this objective to provide sufficient theoretical and field experience on the above systems to the Electrical engineers.

M. Tech. Programme in High Voltage Engineering (EE65)

With the progress of technology, the transmission voltages have increased to ultra- high voltage levels. At these levels the insulators, the circuit breakers and all other equipments that are in operation will have to deal with strong electromagnetic fields that can affect the power quality as well as the proper functioning of the equipment. Thus it is essential that the electrical engineers need be equipped with the latest research and development issues in high voltage transmission and distribution technology and its analysis from the electromagnetic point of view. The curriculum is designed to include both theoretical and practical aspects of high voltage technology. Exposure is also given on experimental techniques for testing of insulators as well as on software tools and techniques in the relevant area. Emphasis is also given on the latest developments in the field of nano-dielectrics.

M. Tech. Programme in Electric Vehicle Engineering (EE66)

The Electric Vehicle Engineering programme has been designed to cater to the growing demand of skilled engineers in the EV industry. The program exposes students to meet the evolving needs of the automotive industry in its quest for integrating technological advances in hardware, power electronics, machine intelligence etc. The course covers power train drives and control, battery and storage technology, charging infrastructure and analysis, electric vehicle system engg and policy, sensors for electric vehicle and embedded systems-design in the core with a range of electives from all relevant areas of transportation engineering and management, vehicular dynamics, communication, BMS and intelligent transport system, for which there is high industrial demand. Industry experts will also share their experience during classes. Theory classes will be offered in hybrid mode while practical classes and examinations are off line at NIT Calicut campus.

DEPARTMENT OF MECHANICAL ENGINEERING

M. Tech. Programme in Industrial Engineering and Management (ME61)

NIT Calicut has started PG Programme in Industrial Engineering in the year 1984. Later this Programme was restructured in the year 2003 to include management topics also and it was renamed as Industrial Engineering and Management. This Programme is tailored to train the students to meet the current needs of operations function. Along with it, this programme integrates other business functions to develop a total Industrial Engineer who can very well manage the resources of an organization. The Programme includes courses covering Decision modelling, Statistics for management, Inventory and supply chain management, Manufacturing planning and control, Machine learning and artificial intelligence, Accounting and finance management and a number of electives courses from different business functions. A choice of several advanced electives in areas such as Lean manufacturing, Marketing Management, Human resource management, Strategic management, Work system design, System modelling and simulation, Risk management, Quality engineering, Decision support system, etc. are offered under the Programme. The theory is enhanced through laboratory classes and seminars. Adequate exposure is also given on software tools and techniques in the relevant areas. This Programme is tailored to develop suitable skills for students to manage resources optimally, especially in the data science era and to develop better procedures and management

practices for efficient operation of the corporate.

M. Tech. Programme in Thermal Sciences (ME62)

The M.Tech.. in Thermal Sciences is designed to equip engineers with latest know-how of the current trends related in the fields of research and industry. The course content includes adequate amount of theoretical aspects of thermodynamics, fluid flow and heat transfer applied to classical and practical engineering problems. The major courses offered in this specialization are Advanced chemical thermodynamics, Advanced fluid mechanics, Analytical methods in heat transfer, Analysis of thermal power plant cycles and systems, Cryogenic engineering, Thermal environmental engineering, Internal combustion engine systems, Combustion and performance analysis, Multiphase flow, Design of heat transfer equipments Advanced computational methods in fluid flow and heat transfer, etc. The students also get opportunity to undertake research work pertaining to current engineering problems in the dissertation wherein they are exposed to latest equipments and software packages.

M. Tech. Programme in Manufacturing Technology (ME63)

The objective of this PG programme is to train manpower required to develop and manage the manufacturing capabilities of industries. The students will develop a capability to model, analyse and solve complex engineering problems in manufacturing and allied fields. The thrust areas of the programme are machining science, advanced machining processes, advanced metrology, digital manufacturing and automation. The core courses offered in this specialization are Advanced Machining Science, Modern Machining Processes, Machine Tool Design, Industrial Automation & Robotics and Advanced Metrology & Computer Aided Inspection. Two Laboratory courses in Advanced Manufacturing and CAD/CAM are also part of the curriculum. Students may also choose electives such as Mechatronics Systems, Additive Manufacturing, Quality Engineering & Management, Six Sigma, Vibration & Noise in Machine Tools and Machinery, Finite Element Methods and Applications, Design of Experiments, Computer Aided Design, etc.

M. Tech. Programme in Energy Engineering and Management (ME64)

Energy Management is critical to our future economic prosperity and environmental well-being. This M.Tech. Programme is designed to develop Mechanical/Chemical engineers with a high standard of expertise in energy management. The core courses offered in this Programme include Energy conversion systems, Renewable energy technology, Electrical energy systems and management, Design and analysis of energy systems, Energy and environment, and Energy conservation in thermal systems. A number of courses such as Energy policies for sustainable development, Optimal design of heat exchangers, Direct energy conversion, Cost management, Heat pump technology, Fluidized bed systems, Industrial load management etc., are offered as electives. There is ample scope for doing project work in non-conventional energy systems.

M. Tech. Programme in Materials Science and Technology (ME65)

The educational mission of the Materials Science and Technology Programme is to provide students with a unique interdisciplinary academic foundation on which development of

intellectual capacity, and the scholarly training needed to address complex problems in materials science with emphasis on advances in materials processing, Electronic materials, Ceramics, Composites, Polymers, Super alloys, and the selection of materials to meet specific design goals. An in-depth study on materials science and technologies will contribute to the development of newer materials and material systems. The programme provides students the following essential elements: a firm grasp of the fundamentals of science and engineering, ample exposure to a wide range of applications and an understanding of contemporary issues and the need for lifelong learning.

M. Tech. Programme in Machine Design (ME66)

The objective of this programme is to develop personnel trained in design of mechanical systems and related areas for serving the industry as design engineers and analysts, or to motivate them for research in this challenging field. The thrust areas of this programme can be divided into two major categories: (i) stress analysis and related fields and (ii) vibration and dynamics. Students will be given a thorough training in both these areas before being exposed to an advanced design course, where in they are expected to use their knowledge for system level design. After doing advanced core courses in subjects like solid mechanics, mechanisms and design, the students are expected to choose electives of their interest from an array of specialised courses like fracture mechanics, non-linear dynamics, etc., for developing the skills required for a successful career as a design engineer, analyst or researcher.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

M. Tech. Programme in Nanotechnology (MT61)

Nanotechnology is an emerging interdisciplinary area, which is rated as one of the top- ranked subjects in academics and research. This programme will impart state-of-the art knowledge in this new area, and has an objective of training the students to make them capable of addressing the challenges of this emerging technological field. The programme is designed for students with a background in Mechanical/Production/ Chemical Engineering. This will deal with topics related to the fundamentals and applications of the subject, with a focus on emerging areas in nanoscience and nanotechnology. The courses offered in the programme include fundamental and applied subjects such as Physics of Materials, Thermodynamics of Nano Materials and Systems, Mechanics of Finite-size Elements, Microscale and Nanoscale Heat Transfer, Nanosized Structures, Experimental Techniques in Nanotechnology and Micro Electro Mechanical Systems, and a variety of elective subjects ranging from Computational Nanotechnology to Composite Materials from which students can choose, according to their background and interest. Laboratory courses dealing with production and applications of nanoparticles, nanofluids and nanocomposites, as well as giving exposure to discrete computational analysis of nanoscale phenomena and systems will also be offered as part of the curriculum. The specialization in Nanotechnology holds a very high potential for employment in R&D, academics and industries, as well as provides a gateway to this extremely challenging field, which is expected to have a profound impact on the future of all streams of science and technology.

B. Admissions to Full Time M.Sc. Programmes (Self-sponsored)

1. Introduction

Programmes leading to M.Sc. degree are offered by the Departments of Mathematics, Physics and Chemistry. The details of the M.Sc. programmes and the number of seats under the self-sponsored category are as given below:

Department	Code	Programme	Programme Code	No. of Seats (Self-sponsored)
Mathematics	MA	M.Sc. Mathematics	MA62	10
Physics	PH	M.Sc. Physics	PH62	10
Chemistry	CY	M.Sc. Chemistry	CY62	10

2. Eligibility for Admission to M Sc. Programmes (Self-sponsored)

The candidates applying for admission to M.Sc. programmes at NITC under the self-sponsored category have to satisfy the following minimum academic eligibility requirements as given below:

M.Sc. Degree in Mathematics: B. Sc. Degree in Mathematics/ Applied Mathematics Or B. Mathematics with Mathematics/Statistics in all semesters Or B. Tech Degree in Engineering Physics/ Electrical Engineering/ Electronics Engineering/ Computer Science & Engineering/ Mechanical Engineering/ with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD. In addition to this, the candidate should have done Mathematics at 10+2 level.

M.Sc. Degree in Physics: B Sc Degree in Physics/Applied Physics/Electronics with a minimum of 3 Mathematics courses during their UG program Or B. Sc. Ed. with Physics/Chemistry/Mathematics or related subjects with a minimum of 3 Mathematics courses during their UG program Or BE/B. Tech. degree in any discipline with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD.

M.Sc. Degree in Chemistry: B Sc Degree in Chemistry (Main) with Mathematics as one of the subsidiaries (should have Mathematics in 2 semesters or 1 year) with minimum 60% marks (or CGPA 6.5/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 6.0/10) for SC/ST/PwD.

Conversion from CGPA to percentage or vice versa given by individual Institute/University will not be considered / allowed.

Selection of candidates for M. Sc. programmes under the Self-Sponsored Category will be based on the performance of the candidate in the test/ interview conducted by the respective Department. No specific weightage shall be given for candidates possessing valid JAM score during the selection process.

Candidates appearing for final semester/year Bachelor's degree during the academic year 2023-24 are also eligible to apply provided their final semester/year results are made available by 30th September 2024. Such candidates will be considered for provisional admission. The

provisionally admitted candidates will have to discontinue the course, if he/she does not produce the provisional certificate and mark lists (satisfying the minimum requirements of marks / CGPA) on or before 30th September 2024. Such candidates will not be eligible for any refund of fees paid by him/her. Provisional admission is not applicable to candidates who have failed in the qualifying examination and subsequently appeared for the supplementary examination.

3. Highlights of the M.Sc. Programmes Conducted by NIT Calicut

The Four semester (Two year) M.Sc. programmes are based on the credit system comprising different core and elective courses and project work. The highlights of M.Sc. programmes offered by various departments at NITC are given in the following section.

DEPARTMENT OF MATHEMATICS

M.Sc. Degree in Mathematics: The focus of the Programme would be to generate mathematics graduates with strong fundamentals, who are confident of applying their knowledge to practical/research problems in Mathematics and related areas. The curriculum and syllabi maintain an appropriate balance between pure and applied mathematics by providing familiarity with a wide range of mathematical tools on the one hand and at the same time giving enough importance for developing analytical skills, thus keeping career option in academia, R&D organizations and Industries open.

DEPARTMENT OF CHEMISTRY

M.Sc. Degree in Chemistry: The department is offering a M.Sc. course in Chemistry. The aim of the programme is to prepare students for a career in academia or industry, with strong basics in fundamental aspects of chemistry and exposure to the latest research trends. The programme curriculum and syllabi are designed to cover all major branches of chemistry with regular revisions to incorporate the latest developments in each area.

DEPARTMENT OF PHYSICS

M.Sc. Degree in Physics: The objective of this two year M.Sc. Physics programme is to prepare students for a career of research and academics, in basic or applied sciences. The programme focuses on building a strong base of fundamental principles on which modern physics is built. This would enable the students emerging from this programme to compete with the best of talent available at the entry point to Ph.D. programmes anywhere in the country or abroad.

C. Admissions to Full Time MBA Programme (Self-sponsored)

The Department of Management Studies offers a two-year full-time MBA programme with dual specialization. The students can opt for any two majors among the five specializations offered such as Finance, Human Resource, Operations, Marketing, and Business Analytics & Systems. Students can opt for the specialization of their choice in the second year of the MBA. The deliverable of the programme is to contribute to the business fraternity, competent executives and professionals combined with human values, meeting the needs and standards of the industry globally.

NIT Calicut invites applications from eligible candidates for admissions to two-years full-time MBA programme (2024-26) under the self-sponsored category as per the table given below.

Department	Code	Programme	Programme Code	No. of Seats (Self-sponsored)
Management Studies	MS	MBA	MS61	10

The MBA programme is offered by the Department of Management Studies (DMS) NIT Calicut. Prospective canddiates should have acquired Bachelor's degree in any discipline from a recognized University or Institution with an aggregate minimum 60% marks (or CGPA 6.0/10) for GEN/GEN-EWS/OBC and 55% marks (or CGPA 5.5/10) for SC/ST/PwD. The applicants should have any valid MBA Admission Eligibility Test Score (such as XAT, MAT/ CMAT, CAT, KMAT or any national/state level admission test score). Final semester under graduate students can also apply, provided their final semester marks are made available by 30th September 2024. The aspirants shall be ranked based on their performance in personal interviews, conducted as a part of selection procedure for admission. Students admitted under the full-time self-sponsored category will not receive any financial aid/stipend or scholarship. However, such candidates are eligible to appear for campus placement interview coordinated by the Centre for Career Development in the institute.

D. Selection of Candidates

The admission to M. Tech./M. Plan./M.Sc. & MBA Programmes under the self-sponsored category will be based on written test and/or Interview by the respective Department. The candidates shortlisted for test and/or interview will have to produce all the original certificates and other documents for verification in the respective departments. Candidates selected for admission will have to remit the required fee at the time of admissions.

E. Withdrawal/ Discontinuation of the Programme

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. 1000/- (Rupees One Thousand only). No fee other than Caution Deposit shall be refunded to students who withdraw admission after such stipulated dates.

F. Fee Structure

The fee structure for M. Tech/ M. Plan (Self Sponsored) Programme 2024-25 admissions is given below.

Fee Category		All Candidates
(a) Onetime fee at the time of admission[#] (Rs.)		
Caution Deposit	20,000	
Admission Fee	5,000	
Library Fee	5,000	
Development Fee	12,000	
Association & Cultural fee	1,000	
Alumni Affairs Fee	2,000	
Seminar/Thesis Fee	1,500	
Career Development Fee	2,000	

Students Welfare Fee	1,000			
Convocation Fee	3,000			
Total (a)	**Rs. 52,500/-**			
(b) Other Fee# (Rs.)	**Monsoon Semester 2024-25**	**Winter Semester 2024-25**	**Monsoon Semester 2025-26**	**Winter Semester 2025-26**
Tuition Fee	1,00,000	1,00,000	1,00,000	1,00,000
Registration Fee	2,000	2,000	2,000	2,000
Examination Fee	2,000	2,000	2,000	2,000
Health Centre Facility Fees	1,200	-	1,200	-
Students Activities Fee	1,000	-	1,000	-
Sports Fees	1,000	-	1,000	-
Campus Amenities	1,200	-	1,200	-
Central Computing Facility Fee	1,000	-	1,000	-
Internet Fee	1,200	-	1,200	-
Mediclaim**	1,186	-	1,186	-
Total (b)	**Rs. 1,11,786**	**Rs.1,04,000**	**Rs.1,11,786**	**Rs.1, 04,000**
Total Amount during admission	**Rs. 1,64,286/-**			

**Mediclaim policy amount may vary year to year.
#Subject to revision every year.

The fee structure for M.Sc. Programmes (self-sponsored) admissions for the academic year 2024-2025 is as 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	20,000			
Admission Fee	5,000			
Library Fee	4,000			
Development Fee	12,000			
Association & Cultural Fee	1,000			
Alumni Affairs Fee	2,000			
Seminar/Thesis Fee	1,500			
Career Development Fee	2,000			
Students Welfare Fee	1,000			
Convocation Fee	3,000			
Total (a)	**Rs. 51,500/-**			
(b) Other Fee# (Rs.)	**Monsoon Semester 2024-25**	**Winter Semester 2024-25**	**Monsoon Semester 2025-26**	**Winter Semester 2025-26**
Tuition Fee	25,000	25,000	25,000	25,000
Registration Fee	2,000	2,000	2,000	2,000
Examination Fee	2,000	2,000	2,000	2,000
Health Centre Facility Fee	1,200	-	1,200	-
Students Activities Fee	1,000	-	1,000	-
Sports Fee	1,000	-	1,000	-

Campus Amenities Fee	1,200	-	1,200	-
Central Computing Facility Fee	1,000	-	1,000	-
Internet Fee	1,200	-	1,200	-
Mediclaim**	1,186	-	1,186	-
Total (b)	**Rs.36,786**	**Rs.29,000**	**Rs.36,786**	**Rs29,000**
Total Amount during admission	**Rs.88,286/-**			

**Mediclaim policy amount may vary year to year.
#Subject to revision every year.

The fee structure for MBA (Self Sponsored) Programme 2024-25 admissions is given below.

Fee Category	**All Candidates**			
(a) Onetime fee at the time of admission# (Rs.)				
Caution Deposit	20,000			
Admission Fee	4,500			
Library Fee	4,000			
Development Fee	12,000			
Association & Cultural Fee	1,000			
Alumni Affairs Fee	2,000			
Career Development Fee	2,000			
Students Welfare Fee	1,000			
Convocation Fee	3,000			
Total (a)	**Rs. 49,500/-**			
(b) Other Fee# (Rs.)	**Monsoon Semester 2024-25**	**Winter Semester 2024-25**	**Monsoon Semester 2025-26**	**Winter Semester 2025-26**
Tuition Fee	1,35,000*	1,35,000*	1,35,000*	1,35,000*
Registration Fee	2,000	2,000	2,000	2,000
Examination Fee	1,500	1,500	1,500	1,500
Health Centre Facility Fee	500	-	500	-
Students Activities Fee	1,000	-	1,000	-
Sports Fee	1,000	-	1,000	-
Campus Amenities Fee	1,200	-	1,200	-
Central Computing Facility Fee	500	-	500	-
Internet Fee	500	-	500	-
External Expert/Seminar Fees	6,000	3,000	3,000	3,000
Mediclaim**	1,186	-	1,186	-
Total (b)	**Rs.1,50,386**	**Rs.1,41,500**	**Rs.1,47,386**	**Rs.1,41,500**
Total Amount during admission	**Rs.1,99,886/-**			

**Mediclaim policy amount may vary year to year.
#Subject to revision every year.

G. How To Apply?

1. Apply online using the following link:
   https://dss.nitc.ac.in/MtechApp/mtechspons/loginsp.aspx
2. Register with your e-mail id and mobile number for creating a login in the online portal.
3. Upload colored scan copy of the following documents in the portal.
   a) Mark sheet of Class X
   b) Photo ID proof as per Govt. of India norms.
   c) Grade/Mark sheets of qualifying examination for all semesters (Mark sheets of all semesters/years need to be combined to a single pdf for uploading/ Consolidated Grade (Mark) sheet with all subjects mentioned in it).
   d) Degree/ Provisional certificate. If result of qualifying degree is awaited, certificate of course completion from the institute/university last studied must be provided clearly indicating the date of completion of the course.
   e) Candidates claiming percentage/CGPA relaxation as specified in the eligibility conditions should produce the relevant category certificate as detailed below.
      i. Community Certificate, in the case of SC/ST candidate, from a competent authority (not below the rank of Tahsildar).
      ii. Certificate from the Medical Board of Govt. Medical Colleges/Dist. Head Quarters Hospitals, in the case of Persons with Disabilities (PwD), if applicable.
   f) Recent PHOTOGRAPH (Maximum of 120 kB).
4. Payment can be made using Net Banking/Credit Card/SBI Challan (by cash) through State Bank Collect (online) at the following link by choosing the payment category as PG (Self-sponsored/Sponsored) APPLICATION FEE MONSOON 2024-25.
   https://www.onlinesbi.sbi/sbicollect/icollecthome.htm?corpID=365553
   After successful completion of the fee payment, save the fee payment receipt for uploading along with the application form. Application fee for OP/EWS/OBC is Rs. 1000/- while that for SC/ST/PwD is Rs. 500/-. **APPLICATION FEE IS NON-REFUNDABLE.**

Note:

1. If the original certificates are not in English/Hindi, English/Hindi version/translation of such certificates, duly certified by the Principal/Director or other competent authority of the graduating Institute, will be required during the verification of documents.
2. Standard format of the necessary certificates are available in the following link https://nitc.ac.in/pg-formats-of-certificates.
3. Applications which are incomplete/defective/received late, will be rejected summarily and no correspondence will be entertained on such applications. The instructions for online submission of application are available in the online admission portal.

H. IMPORTANT DATES

Events	Dates
Activation of the portal for submission of online application	**08 April 2024**
Last Date for Receipt of Completed Applications (through online)	**05 May 2024 (23:59 pm)**
Test and/or Interview	**To be announced later**

LEGAL JURISDICTION

All disputes pertaining to the counseling and admission for the M.Tech./M.Plan/M.Sc./MBA Self-Sponsored programmes 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 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 students/any other person for such changes, additions, omissions or errors, no matter how they are caused.

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