



**NATIONAL INSTITUTE OF TECHNOLOGY CALICUT**  
**NIT CAMPUS POST, CALICUT, KERALA - 673 601, INDIA**

**Information Brochure for Admission to Full-Time M. Tech./M. Plan. Programmes  
under the Sponsored<sup>1</sup> Category for the Academic Year 2022-2023**

### **1. 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 under the name 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.

### **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). Taxi and auto-rickshaws are available from Calicut Railway/Bus Station to

---

<sup>1</sup> sponsored from Industries/R&D Organizations/Central and State Government Institutions/ Defence Organizations/ Other Reputed Private Organizations/Institutions.

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.

### **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 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 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, 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.

### **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. M.TECH./M.PLAN. Programmes Offered

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

Dept. /School	Dept./ School code	Specialization of the M. Tech. / M. Plan. programmes	Programme Code
Architecture and Planning	AP	Urban Planning	AR61
Civil Engineering	CE	Structural Engineering	CE61
		Traffic & Transportation Planning	CE62
		Offshore Structures	CE63
		Environmental Geotechnology	CE64
		Water Resources Engineering	CE65
Chemical Engineering	CH	Chemical Engineering	CH61
Computer Science & Engineering	CS	Computer Science & Engineering	CS61
		Computer Science & Engineering (Information Security)	CS62
Electrical Engineering	EE	Instrumentation & Control Systems	EE61
		Power Systems	EE62
		Power Electronics	EE63
		Industrial Power and Automation	EE64
		High Voltage Engineering	EE65
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
School of Materials Science and Engineering	MT	Materials Science and Engineering (Nanotechnology)	MT61

## **7. Admission to Full-time M.TECH./M.PLAN. Programmes under the Sponsored Category**

Applications are invited for admission to the full-time M.Tech. and M. Plan. programmes starting in July 2022 under the sponsored category for the academic year 2022-2023. 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 sponsored category will not receive any financial aid/stipend or scholarship. A maximum of 5 seats in each M.Tech. programme and a maximum of 10 seats in the M. Plan. program are available for candidates under the sponsored category. Candidates sponsored from Industries, R&D Organizations, Central/State Government institutions, Defence organizations, other reputed private organizations/institutions will be considered in this 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 employer while sponsoring the candidate will have to give an undertaking that the candidate will be paid salary and other benefits during the entire period of the M. Tech./M. Plan. Programme and that the candidate will not be withdrawn midway. The sponsored candidates are NOT eligible to appear for campus interview conducted by the Centre for Career Development at NIT Calicut.

## **8. Eligibility for Admission to M.TECH./M. PLAN. Programmes**

Candidates for admission to M. Tech. degree programme 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. Plan. degree programme should have passed B.Arch./B. Plan./B.Tech (Civil engineering) 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 the under graduate degree. Candidates who secured B.E./B. Tech. 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. Conversion from CGPA to percentage or vice versa given by individual Institute/University will not be considered/allowed. 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, subject to the condition that the candidate possesses eligible GATE score in the appropriate discipline. **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.**

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

<b>M. Tech./M. Plan programme code</b>	<b>Required B.E./B.Tech/B.Arch./B.Plan branch/ discipline</b>
AR61	Architecture/Planning/Civil Engineering
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
CS61 / CS62	Computer Science & Engineering/ Information Technology/ I class MCA
EE61	Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control System/ Applied Electronics & Instrumentation/ Instrumentation
EE62/EE63/EE65	Electrical Engineering/Electrical & Electronics Engineering
EE64	Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control Systems/Applied Electronics & InstrumentationEngg. /Electronics & Instrumentation/Instrumentation
EC61/EC62/EC63/EC64	Electronics Engg./Electronics & Communication /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/ EnergyEngineering/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.

## 9. Fee Structure\*

The fee structure for M.Tech/M.Plan (Sponsored-Industry/Organisation) Programme 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 5<sup>th</sup> May, 2014 and subsequent clarifications under reference F No. 28/2013/TS.III dated 21<sup>st</sup> October, 2014. Other fees are as determined by the Institute as per provision of Statute No. 37(i)(b)

Fee Category		All Candidates			
<b>(a) Onetime fee at the time of admission#(Rs.)</b>					
Caution Deposit	5,000				
Admission Fee	3,000				
Library Fee	2,000				
Development Fee	10,000				
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				
<b>Total (a)</b>	<b>Rs. 30,500/-</b>				
<b>(b) Other Fee#(Rs.)</b>	<b>Monsoon Semester 2022-23</b>	<b>Winter Semester 2022-23</b>	<b>Monsoon Semester 2023-24</b>	<b>Winter Semester 2023-24</b>	
Tuition Fee	56,000	56,000	56,000	56,000	
Registration Fee	750	750	750	750	
Examination Fee	1500	1500	1500	1500	
Health Centre Facility Fees	500	-	500	-	
Students Activities Fee	1,000	-	1,000	-	
Sports Fees	1,000	-	1,000	-	
Campus Amenities	500	-	500	-	
Central Computing Facility Fee	500	-	500	-	
Internet Fee	500	-	500	-	
Mediclaime**	755	-	755	-	
<b>Total (b)</b>	<b>Rs.63,005</b>	<b>Rs.58,250</b>	<b>Rs.63,005</b>	<b>Rs.58,250</b>	
<b>(c) Hostel Seat Rent (Includes Room Rent, Electricity, Water Charges)#</b>	<b>Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)</b>	<b>Rs. 9,000/- (Shared Room) Rs. 10,000/- (Single Room)</b>			
<b>Total Amount during admission</b>	<b>Rs.1,02,505/-@</b>				

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

@ Room rent for shared room is added. Additional rent of Rs.1000/- for single room, if allotted, shall be collected later as dues.

#Subject to revision every year.

## **10. Selection of Candidates**

The admission to M. Tech. as well as M. Plan. programmes under the sponsored category will be based on written test and/or Interview by the respective Department/School. Eligibility for test and/or interview and call letter for test and/or interview can be down loaded from the website after login using application number and date of birth. No separate call letter will be dispatched. All those who are called for test and/or interview will have to produce all the original certificates and other documents for verification. The verification of the documents, test and/or interview will be held in the Office of the respective Department/School. Admission is subject to satisfying the eligibility requirements and the performance of the candidate in the test and/or interview. The call for attending test and/or interview does not guarantee admission to the programme. Candidates offered admission will be required to remit the fees on the day of admission.

## **11. 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. 5000/- (Rupees Five Thousand only). No fee other than Caution Deposit shall be refunded to students who withdraw admission after such stipulated dates.

## **12. 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 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 Environmental Geotechnology (CE64)**

The M.Tech. Programme in Environmental Geotechnology is an inter-disciplinary course covering geotechnical engineering and environmental engineering. The Programme will train

engineers to develop environmentally sound solutions to geotechnical problems and to solve environmental engineering problems unique to soil and subsurface conditions. The Programme has its major core courses in topics dealing with geotechnical engineering, environmental protection and pollution control. A good number of electives are offered in areas such as foundation engineering in difficult soils, waste management, waste water engineering, earth quake engineering, landslide mitigation methods, etc. The project work is spread over the third and fourth semesters.

#### **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.

### **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 year is 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 of threats. The M.Tech. Programme in Computer Science and Engineering (Information Security) is envisaged to train graduates in Computer Science and Engg. / IT/ MCA with the necessary skills to design and develop policies, protocols and techniques to secure information systems.

### **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 products and 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 are retrained 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 to specialized courses required for electronics industries such as Electromagnetic Compatibility, Electronic Product Design Lab etc. with necessary competence and innovative 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 covers the basics of all aspects of Microelectronics, Analog & digital IC design and physical design. A significant component of all courses are devoted for laboratory works where the students carry out pre 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 blend of 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 get familiarized 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 VLSI design 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 development of multidisciplinary signal processing systems. In addition to strong theoretical foundations and practical knowledge earned through courses such as Linear Algebra, Random Process, Statistical Signal Processing and Data Compression Techniques the students of this 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 coding skills 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 level VLSI 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 nanodielectrics.

## **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.

## **SCHOOL 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.

### 13. How TO Apply?

1. Apply online using the following link:  
<https://dss.nitc.ac.in/MtechApp/login.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 certificate.
  - 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) Sponsorship certificate duly filled by the sponsoring authority on their letter head with the seal of the sponsoring authority in the prescribed format.
  - g) Certificate of AICTE recognition in the prescribed format, for teachers sponsored by Engineering Colleges and Polytechnics.
  - h) 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 **MTECH/MPLAN (SPONSORED) APPLICATION FEE MONSOON 2022-23**.  
<https://www.onlinesbi.com/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/PwD is Rs. 1000/- while that for SC/ST 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 <http://nitc.ac.in/index.php?url=admission/index/58>
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.

**IMPORTANT DATES**

<b>Events</b>	<b>Dates</b>
Availability of Online Application in Institute website	<b>1<sup>st</sup> April to 30<sup>th</sup> April 2022</b>
Last Date for Receipt of Completed Applications (through online)	<b>30<sup>th</sup> April 2022 (4.00 pm)</b>
Test and/or Interview	<b>To be announced later</b>

**LEGAL JURISDICTION**

All disputes pertaining to the counseling and admission for the M. Tech./M.Plan. 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.

**Address for Correspondence**

Chairperson – PG Admissions  
National Institute of Technology Calicut  
NIT Campus P.O. Calicut 673 601  
Kerala, India

**Telephone: 0495 2286119**

**E-mail: [pgadmissions@nitc.ac.in](mailto:pgadmissions@nitc.ac.in)**

**Website: <http://www.nitc.ac.in/index.php?url=admission/index/35>**

\*\*\*\*\*

.....