

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
Mangaluru- 575025, Karnataka State

INFORMATION BULLETIN



**Admission to
M. Tech (Research) and Ph.D. Programmes 2023-24
(December Session)**

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
Mangalore- 575025, Karnataka State, India



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(December Session)

Website: www.nitk.ac.in
Fax : 91-824-2474033

Phone : 2474000-2474023
E-Mail : deanacad@nitk.ac.in

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NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

1. The Institute:

The National Institute of Technology Karnataka (NITK), Surathkal is rated as one of the top Institutions in India. Since its inception in 1960 as the Karnataka Regional Engineering College, the Institute has established itself as a premier center engaged in imparting quality technical education and providing support to research and development activities. The Government of India as per the NIT Act 2007, declared NITs as Institutes of National Importance. The Institute is governed by the rules and statutes of the NIT Act. The Institute has a long tradition of research for several years in both traditional and modern areas of engineering and sciences in all the departments. The Institute has been actively involved in application oriented research focused in resolving problems faced by the society in several areas like environment, water resources, materials, rock mechanics, new structures, VLSI, etc. NITK attracts students from all over the country and abroad. The Institute admits students to the B.Tech degree program on the basis of the Joint Entrance Examination (JEE Mains). Foreign students are admitted on various student exchange programs through MEA, ICCR, etc., and scheme of Direct Admission to Students Abroad (DASA). Scholarship seats for M.Tech programs are awarded on the basis of the Graduate Aptitude Test in Engineering (GATE) and a few seats are available for sponsored students. The institute admits students to MCA Program on the basis of NIMCET, admission to MBA is made on the basis of CAT / MAT/ GATE score and for M.Sc Program admissions are made based upon the JAM scores. A limited number of seats are also available for M.Tech, M.Sc., MCA and MBA under Self-financed category. Every year the Institute admits candidates with Institute fellowships and also admits sponsored/external candidates to the doctoral program. NITK graduates are sought after by top industries/companies and the Institute has been rated as one of the best Institutions in the country with regard to student placements.

2. Location:

NITK is located in Mangalore City along the Kanyakumari-Mumbai National Highway 66. It is well connected by road, rail and by air to major cities in India and a few international destinations. The Institute is located amid 300 acres of sylvan surroundings with the picturesque Western Ghat Mountains on the east and the sun-kissed sands of the Arabian sea to the west. The Mangalore (Bajpe) airport and the Mangalore Railway Station are about 20 km. away from the Campus, while Surathkal Railway Station is about 3 km away from the campus. The campus is located far away from the din and bustle of a city and is very conducive for academic activities. The climate throughout the year is equitable and has temperature range of 18 to 38° Celsius. The campus being on the sea shore, is blessed with clean air and healthy climate.

3. Self-Contained Residential Campus:

The Institute is a residential Institution with adequate hostel facilities for boys and girls. All the students are expected to stay in the Institute hostels. To suit the tastes of the students from different regions, independent messes of various types are run in different hostels. The amenities include 13 Hostel blocks for boys & 6 hostel blocks for ladies with all basic amenities. A good number of faculty quarters provide ample opportunity to draw upon benefits of campus life. Vast stretches of play fields, a swimming pool, a gymnasium, a central library, a well-equipped Health Care Centre, post office, branches of State Bank of India and Canara Bank, both with ATM facilities and two canteens are the amenities available. N.C.C. and N.S.S. constitute two more prominent extra-curricular activities in addition to a host of activities through music, photography, web enthusiast and dramatic clubs of the Institute.

4. Computing Facilities and Campus Network:

NITK has a campus wide network spanning the entire campus – academic buildings, guest houses, student hostels and campus residences. The campus backbone services are provided with about 20 kms of 12 / 24 core OFC using 1 Gbps and 10 Gbps backbone to the different buildings and broad band to the residences. Departments, Residences (through the broadband), Directorate (and administrative net), Guest houses and Hostels are individually connected to the core switch. The hostel networks are integrated into the academic network of NITK sharing the Internet bandwidth of the Institute. The Institute has 24 x 7 Internet connectivity. The journals subscribed through INDEST consortium are available throughout the campus LAN. In addition to this the students can access learning material from the internet. The Wi-Fi network is provided as an extension of the wired networks in the different buildings with close to 1000 indoor access points and 40 outdoor access points, which provides transparent seamless migration of connectivity between the access points to the user. NITK has 10Gbps Internet. The NITK Data centre acts as an integration hub of OFC/backbone. It houses Internet connections to BSNL and National Knowledge Network, associated networking equipment's and has sufficient hardware to handle the critical backbone network services such as the core switch cluster, firewalls, academic and administrative servers and virtual machine hosts. Main servers are connected to the data centre network. CCC Uses Virtualisation with Proxmox virtualisation environment / Ubuntu System containerisation environment. Data centre also houses the NITK Websites. CCC hosts a campus-wide license to MATLAB, Simulink, and companion products. All faculty, researchers, and students are eligible to download and install these products on their university computers as well as their personally-owned computers. The network infrastructure facility management of NITK is outsourced with a help desk facility. The requirement of compute and network resources are assessed from time to time and upgraded accordingly.

5. Library Facilities:

Central Library at NITK Surathkal is the window to the world of latest information in sciences, engineering, technology & management. The library has a rich collection of print materials (1.5 lacs) on all the branches of Engineering, Science, Social Sciences, Humanities and Management. The collection includes reference books, text books, bound volumes, CDs, etc. The library subscribes core collection of print journals (100 plus), e-journals (12045), e-databases (25), e-books (11202) and others. The library is also a core member of e-ShodhSindu - a Consortia for Higher Education E-Resources which provides access to more than 10,000 qualitative electronic resources including full-text, bibliographic and factual databases to the students. E-journals available to access with various reputed online scientific databases such as American Chemical Society, American Physical Society, IoP, Royal Society of Chemistry, Emerald, Taylor & Francis, American Mathematical Society, Annual Reviews, ASME, IEEE, JSTOR, MathScinet, Nature, Science-Direct, SpringerLink, etc. The Library also subscribes to premium version of Grammarly - an automated grammar tutor and revision tool for writing effective and mistake-free documents. Library offers Plagiarism Checking Service using "Ouriginal" web tool for the Ph.D/M.Tech by Research students. Remote Access to all the eResources and mobile app are other important services of the library.

Library has been fully computerised with integrated web based library management software to Koha, which enables users to search real-time book status and reservations. The library is fully air conditioned with more than 1000 seating capacity. Newly established eLibrary Complex has the State-of-the-Art modern IT facilities with e-Studio for lecture capturing and live streaming facility, 2 Cyber Libraries with 50+ computers to conduct hands-on training, 2 Seminar Halls of 50+ Capacity each, 8 Discussion Rooms, dedicated Research Scholars Section, Digital Reading Rooms, Laptop Zones etc. catering to more than 7000 on campus library users 24X7 along with in-housed cafeteria.

6. Courses of Study:

The Institute offers undergraduate programmes in 11 disciplines and post-graduate programmes in 31 specialized areas. The Institute also offers facilities for research leading to Ph.D. degrees in various branches of Engineering, Science and Humanities & Social Sciences. The academic responsibilities are shared by the following 14 Teaching Departments:

1. Chemical Engineering
2. Chemistry
3. Civil Engineering
4. Computer Science and Engineering
5. Electrical & Electronics Engineering
6. Electronics & Communication Engineering
7. Information Technology
8. Mathematical and Computational Sciences
9. Mechanical Engineering
10. Metallurgical & Materials Engineering
11. Mining Engineering
12. Physics
13. School of Humanities, Social Sciences and Management
14. Water Resources and Ocean Engineering (Formerly Applied Mechanics & Hydraulics Department)

The Teaching Departments responsible for conducting the 31 postgraduate programmes which include M.Tech, M.Tech by Research, M.Sc, MCA and MBA are shown below. M.Tech (Research) programmes are offered in all the specializations available under M Tech.

a) **Civil Engineering:**

- | | | | |
|------|-------------|---|--|
| i) | M.Tech (ST) | - | Structural Engineering |
| ii) | M.Tech (GT) | - | Geotechnical Engineering |
| iii) | M.Tech (EN) | - | Environmental Engineering |
| iv) | M.Tech (TS) | - | Transportation Engineering |
| v) | M.Tech (CM) | - | Construction Technology and Management |

b) **Water Resources and Ocean Engineering (Formerly Applied Mechanics & Hydraulics Department)**

- | | | | |
|-------|-------------|---|--|
| vi) | M.Tech (MS) | - | Marine Structures |
| vii) | M.Tech (WR) | - | Water Resources Engineering and Management |
| viii) | M.Tech (GF) | - | Geoinformatics |

- c) Mechanical Engineering:**
- ix) M.Tech (TH) - Thermal Engineering
 - x) M.Tech (MF) - Manufacturing Engineering
 - xi) M.Tech (MC) - Mechatronics Engineering.
 - xii) M.Tech (MD) - Mechanical Design
- d) Electronics & Communication Engineering:**
- xiii) M.Tech (VL) - VLSI Design
 - xiv) M.Tech (CN) - Communication Engineering & Networks
 - xv) M.Tech (SPML) - Signal Processing and Machine Learning
- e) Chemical Engineering:**
- xvi) M.Tech (CG) - Chemical Engineering
 - xvii) M.Tech (EH) - Environmental Science & Technology
 - xviii) M.Tech (IB) - Industrial Biotechnology
- f) Metallurgical & Materials Engineering:**
- xix) M.Tech (PM) - Materials Process Technology
 - xx) M.Tech (ML) - Materials Engineering
 - xxi) M. Tech (NT) - Nanotechnology
- g) Electrical & Electronics Engineering:**
- xxii) M.Tech (PS) - Power & Energy Systems
- h) Information Technology:**
- xxiii) M.Tech (IT) - Information Technology
- i) Computer Science and Engineering:**
- xxiv) M.Tech (CS) - Computer Science and Engineering
 - xxv) M.Tech (IS) - Computer Science and Engineering - Information Security
- j) Mining Engineering:**
- xxvi) M.Tech - Rock Excavation Technology and Management.
(by Research) only
- k) Mathematical and Computational Sciences:**
- xxvii) M Tech (CD) - Computational and Data Science
 - xxviii) M.C.A. (MCA) - Master of Computer Applications
- l) School of Humanities, Social Sciences and Management:**
- xxix) M.B.A. - Master of Business Administration
- m) Chemistry:**
- xxx) M.Sc.(CY) - M.Sc. in Chemistry
- n) Physics:**
- xxxix) M.Sc.(PH) - M. Sc. in Physics

7. Minimum Qualification / Eligibility:

A. M.Tech. Programme (Common to all M.Tech Programmes):

Admission to a M.Tech Programme shall be open to Indian nationals who have passed the prescribed qualifying examination with a Cumulative Grade Point Average (CGPA) of at least 6.5 in the 0-10 scale grading system, OR not less than 60% marks in the aggregate (taking into account the marks scored in all the subjects of all the public/university examinations conducted during the entire prescribed period for the degree programme). However, this prescribed minimum shall be a CGPA of 6.0 OR 55% marks in the aggregate for SC/ST/PwD candidates. If the evaluation system in qualifying degree is in both CGPA and Marks, CGPA value will be considered. In such cases, conversion from Grade point system to Percentage system will not be considered. The allotment of seats for scholarship category is done based on GATE score and **M.Tech–2023 admissions were done by Centralized counselling through CCMT-2023, coordinated by NIT Kurukshetra Haryana .**

Types of student status for M.Tech Programme:

- 1) Full-time student on GATE-scholarship
- 2) Full-time sponsored student under QIP
- 3) Full-time sponsored student from Industry/other organizations/Educational Institutions.
- 4) Full time self-financed

B. M. Tech (Research) Programme: [Common to all M.Tech (Research) Programmes]:

Admission to a M.Tech (Research) Programme shall be open to Indian nationals who have passed the prescribed qualifying examination with a Cumulative Grade Point Average (CGPA) of at least 6.5 in the 0-10 scale grading system, OR not less than 60% marks in the aggregate (taking into account the marks scored in all the subjects of all the public/university examinations conducted during the entire prescribed period for the degree programme). However, this prescribed minimum shall be a CGPA of 6.0 OR 55% marks in the aggregate for SC/ST/PwD candidates. If the evaluation system in qualifying degree is in both CGPA and Marks, CGPA value will be considered. In suchcases, conversion from Grade point system to Percentage system will not be considered. Valid GATE score is essential for scholarship seats.

Student Status: There are four types of student status in the M.Tech (Research) Degree Programme.

- a) Full time student on GATE scholarship.
- b) Full time student sponsored from Industry or other organization
- c) External Registrants – Student Sponsored from Industry or other Organizations.
- d) Internal Registrants - sponsored institute or project staff of NITK

Student of the type (a) will receive GATE scholarship for the duration of four semesters, which is subjected to GATE scholarship rules of MHRD. Student of the type (b & c) shall be sponsored and financed by the sponsoring organization. They are not entitled for Institute scholarship. He/she should produce a sponsorship-cum-clearance certificate in the given format of the Institute along with the application. The candidate must have minimum of 2 years of full-time work experience in the sponsoring organization, after completing the qualifying examination. External Registrants are expected to carry-out their research work in their parent organization after fulfilling certain prerequisites in the Institute. External registrants may have an additional Research Guide from the sponsoring organization. In case of external registrants, residential requirement may be waived and they are expected to complete their course work by opting for (pre-approved by DPGC) certified courses. An internal student of type (d) shall produce a sponsorship-cum-clearance certificate from the Director, NITK.

Departments, Specialization offered and Qualifying Examinations for) M.Tech (Research) are listed below:

S.N	Department	Specialization	Qualifying Examination
1.	Civil Engineering	Structural Engineering	i) B.E. / B.Tech / B.Sc.(Engineering) in Civil Engineering /Structural Engineering of any Recognised Indian Universities. ii) AMIE in Civil Engineering.
2.	Civil Engineering	Geotechnical Engineering	i) B.E. / B.Tech / B.Sc.(Engineering) in Civil Engineering of any Recognised Indian Universities. ii) AMIE in Civil Engineering.
3.	Civil Engineering	Environmental Engineering	i) B.E. / B.Tech / B.Sc.(Engineering) in Civil Engineering / Chemical/Mechanical / Metallurgical / Mining Engg / Environmental Engg / Bio-Chemical Engineering / Bio- Technology / Agricultural Engg / Biological Science and Bio-Engg / Bio- Sciences & Bio- Engg / Bio-Tech Engineering / Bio Technology & Bio-Chemical Engineering / Chemical & Bio Engineering / Chemical Technology / Civil & Water Management / Civil Engg (Public Health Engg) / Civil Environmental Engg / Environment & Pollution Control / Environmental Science & Engineering / Environment Science and Technology Health Science & Water Engg / Mining Technology / Paper & pulp Engineering / Pulp Technology / Sugar Technology / Water Management / Bio-Engg / Chemical & Bio Engg / Bio-Chemical & Biotechnology Engineering ii) AMIE in Civil Engineering/Chemical Engineering iii) MSc in Applied Chemistry / Earth Sciences / Environmental Sciences / Industrial Chemistry / Life Science / Bio-Chemistry / Bio -Technology
4.	Civil Engineering	Transportation Engineering	i) B.E. / B.Tech / B.Sc.(Engineering) in Civil Engineering / Highway Engg / Transportations Engg / Civil & Transportation Engineering / Civil & Transportation Technology of any recognised Indian University ii) AMIE in Civil Engineering
5.	Civil Engineering	Construction Technology and Management	i) B.E. / B.Tech. / B.Sc (Engineering) in Civil Engineering / Civil Engg & Planning / Construction & Project Management / Construction Engineering / Construction Engineering Management / Construction Technology / Construction Technology and Management / Mining Engineering / Transportation Engineering / Environmental Engg / Structural Engineering of any recognized Indian University. ii) AMIE in Civil / Mining Engineering. iv) Bachelors' degree in Architecture (B.Arch. / B.E. or B.Tech. in Architecture of any recognized Indian University).
6.	Water Resources and Ocean Engineering	Marine Structures	i) B.E. / B.Tech in Civil Engineering / B. Sc (Civil Engg) / B.E / B.Tech Ocean Engineering ii) AMIE in Civil Engineering

7.	Water Resources and Ocean Engineering	Water Resources Engineering and Management	i) B.E. / B.Tech in Civil Engg / B. Sc (Civil Engg) ii) BE Water Management iii) AMIE in Civil Engineering
8.	Water Resources and Ocean Engineering	Geoinformatics	i) B.E. / B. Tech or B.Sc (Engineering) in Civil Engineering ii) AMIE in Civil Engineering
9.	Mechanical Engineering	Thermal Engineering	B.E. / B.Tech. / AMIE) in Mechanical Engineering / Automobile Engineering / Aeronautical Engineering / Aerospace Engg / Energy System Engg / Marine Technology / Power Plant Engg / Renewable Energy Engineering / Chemical Engg.
10.	Mechanical Engineering	Manufacturing Engineering	B.E. / B.Tech. / AMIE in Mechanical Engineering / Industrial Engineering / Industrial and Production Engineering / Industrial Engineering and Management / Manufacturing Engineering / Production Engg / tool Engineering
11.	Mechanical Engineering	Mechatronics Engg	i) B.E / B. Tech / AMIE in Mechanical Engineering ii) B.E / B. Tech / AMIE in Electronics & Comm. Electrical & Electronics, Instrumentation. Control Engg / Electronics & Instrumentation Engineering B.E / B. Tech / AMIE in Mechatronics / Industrial Production / Production Engg / Manufacturing Engg / Industrial Engg / Aeronautical Engg, Automobile Engg,.
12.	Mechanical Engineering	Mechanical Design	i) B.E / B. Tech / AMIE in Mechanical Engineering, Automobile Engg, Manufacturing Engineering, Aeronautical Engineering/Aerospace Engineering, Production Engineering
13.	Electronics & Communication Engineering	VLSI Design	i) B.E. / B.Tech. / B.Sc. (Engineering) in E&C, Electronics & Telecommunications / Instrumentation Technology / E&E / Computer Science & Engineering / Electronics / Telecommunication / Electronics & Control / Biomedical Engineering/Medical Electronics. ii) AMIETE (Electronics & Telecommunication)
14.	Electronics & Communication Engineering	Communication Engineering and Networks	i) B.E. / B.Tech. / B.Sc. (Engineering) in E&C, Electronics & Telecommunications. ii) AMIETE (Electronics & Telecommunication)
15.	Electronics & Communication Engineering	Signal Processing and Machine Learning	i) B.E. / B.Tech. / B.Sc. (Engineering) in E&C, Electronics & Telecommunications / Instrumentation Technology / E&E / Computer Science & Engineering / Electronics / Telecommunication / Electronics & Control / Biomedical Engineering/Medical Electronics/Information Science/ Information Science and Engineering/Information Technology. ii) AMIETE (Electronics & Telecommunication)
16.	Chemical Engineering	Chemical Engineering	i) B.E. / B.Tech. in Chemical Engg / Polymer Technology / Ceramic and Cement Technology / Bio-Chemical Engineering / Biotechnology / Petrochemical Engg ii) AMIE (Chemical Engineering) / A.M.I.I.Ch.E.
17.	Chemical Engineering	Environmental Science & Technology	i) B.E. / B.Tech. in Chemical Engg/Mechanical / Mining Engineering / Polymer Technology / Ceramic and Cement Technology / Environmental Engineering / Bio-Chemical Engineering / Biotechnology / Petrochemical Engineering ii) AMIE (Chemical Engineering) / A.M.I.I.Ch.E.
18.	Chemical Engineering	Industrial Biotechnology	i). B.E. / B.Tech. in Biotechnology ii). B.E. / B.Tech. in Chemical Engineering iii). B.E / B.Tech in Biochemical Engineering iv). M.Sc. in Biotechnology.
19.	Metallurgical & Materials Engineering	Materials Process Technology	i) B.E. / B.Tech. / B.Sc.(Engineering) in Metallurgical Engineering / Industrial & Production Engg / Metallurgy / Metallurgical & Materials Engineering / Metallurgical Engg & Materials Science / Metallurgical & Materials Technology / Mechanical Engg / Chemical Engg / Production Engineering / Ceramics Engineering. ii) AMIE in Metallurgical Engineering / Mechanical Engineering (by Examination) iii) Associate Member of the Indian Institute of Metals (by examination) -A.M.I.I.M. iv) M.Sc. Chemistry (Physical / Analytical / Industrial / Applied Inorganic) v). M.Sc. (Materials Science) vi). Master Degree in Mineral Beneficiation / Mineral Processing / Ore Dressing.

20.	Metallurgical & Materials Engineering	Materials Engineering	i) B.E./B.Tech./B.Sc Engineering in Metallurgy / Mechanical Engineering / Chemical Engineering / Industrial Production / Polymer Technology / Ceramic & Cement Technology / Manufacturing Engineering / Industrial & Production Engg / Metallurgical & Materials Engineering / Metallurgical Engineering / Metallurgical Engg & Materials Science / Polymer Science & Technology / Polymer Science & Rubber Technology / Metallurgy & Materials Technology / Production Engineering. ii) AMIE in Mechanical / Metallurgical Engineering by exam. ii) AMIIM (by examination) of Indian Institute of Metals. iv) M.Sc (Materials Science / Physics / Chemistry (Physical / Analytica / Industrial / Applied / Inorganic)
21.	Metallurgical & Materials Engineering	Nanotechnology	i) B.Tech. in Nanotechnology ii) M. Sc. In Physics, Chemistry, Materials Science, Bio-Technology. Nanoscience / Nanotechnology iii) B. Tech / AMIE in Civil, Mechanical, E & E, E & C, Instrumentation, Chemical, Metallurgy, Mining Engineering, Metallurgical & Materials Engineering. iv) Associate member of the Indian Institute of Metals (by examination) – AMIIM.
22.	Electrical & Electronics Engineering	Power and Energy Systems	i) B.E. / B.Tech. / B. Sc (Engg) in Electrical Engineering or Electrical & Electronics Engineering ii) AMIE in Electrical Engineering
23.	Information Technology	Information Technology	i) B.Tech/ B.E (Any branch), M.Sc(Math) / M.Sc(Stat) / MCA with valid GATE score in CS/IT ii) AMIE in Computer Science & Engineering (by Examination) iii) AMIETE in Computer Science & Engineering and Information Technology (by Examination)
24.	Computer Science and Engineering	Computer Science & Engineering	B.E/B.Tech in Computer Science and Engineering, B.E./B.Tech. in Computer Engineering, B.E./B.Tech. in Computer Science, B.E./B.Tech. in Artificial Intelligence/Machine Learning, B.E./B.Tech. in Data Science, B.E./B.Tech. in Information Technology, B.E./B.Tech. in Information Science with valid GATE in CS .
25.	Computer Science and Engineering	Computer Science & Engineering - Information Security	B.E/B.Tech in Computer Science and Engineering, B.E./B.Tech. in Computer Engineering, B.E./B.Tech. in Computer Science, B.E./B.Tech. in Artificial Intelligence/Machine Learning, B.E./B.Tech. in Data Science, B.E./B.Tech. in Information Technology, B.E./B.Tech. in Information Science with valid GATE in CS .
26.	Mathematical & Computational Sciences	Computational and Data Science	B.E./B.Tech./B.Sc (Engineering) any branch; M.Sc. (Mathematics), M.Sc.(Statistics),M.Sc. (Physics) M.C.A.(Master of Computer Applications)
27.	Mining Engineering	Rock Excavation Technology & Management	B.E/B.Tech/AMIE in Mining Engineering

C. Ph.D. Programme

- i) Admission to a Ph.D. Programme shall be open to Indian Nationals who passed the qualifying degree in relevant field with a Cumulative Grade Point Average (CGPA) of at least 6.0 in the 0-10 scale grading system, or not less than 60% marks in the aggregate (taking into account the marks scored in all the subjects of all the public/ university examinations conducted during the entire prescribed period for the qualifying degree). However, this prescribed minimum shall be a CGPA of 5.5 or 55% marks in the aggregate for SC / ST / PwD candidates. The prescribed qualifying examination is as follows:
- For Ph.D. in Engineering /Technology – Master’s degree in relevant field.
 - For Ph.D. in Physics – Master’s degree in relevant field
 - For Ph.D. in Chemistry - M.Sc. / M. Tech in relevant field including M. Pharma.
 - For Ph.D. in Mathematics - M.Sc.in Mathematics / M. Tech in relevant field / MCA
 - For Ph.D. in Metallurgical & Materials Engineering – Master’s degree in relevant field and **M.Sc.** in Materials Science / Dental Materials / Nanoscience / Physics / Chemistry / Electrochemistry / Applied Chemistry / Industrial Chemistry / Polymer Chemistry / Biochemistry/ Microbiology. **B.Tech.** in Metallurgical Engineering / Metallurgical and Materials Engineering / Materials Engineering / Mechanical Engineering / Chemical Engineering / Industrial and Production Engineering / Nanotechnology.
 - For Ph.D. in Humanities, Social Science and Management – Master degree in relevant field, CA along with undergraduate degree.
 - For Ph.D. in Computer Science and Engineering – Master’s degree in relevant field. Candidates with M.Sc/MCA/MBA degree etc. will not be considered and candidate with 1 year PG degree (M.S / M.Tech.) will also be not considered.

If the evaluation system in qualifying degree is in both CGPA and Marks, CGPA value will be considered. In such cases, conversion from Grade point system to Percentage system will not be considered.

- ii) There are five types of student status for Ph.D. program:
1. Full-time students on Institute Scholarship
 2. Full-time sponsored students under QIP
 - Full-time / External Registrants - sponsored from Industry or other organizations including Educational Institutions.
 3. Internal Registrants - sponsored institute or project staff of NITK
 4. Full-time – Non-sponsored / Non-scholarship students
- iii) Students of type 1 must have passed GATE/UGC–CSIR exam/ DAE-JEST to be admitted to Ph.D programme.
- iv) Student of the type 3 shall be sponsored and financed by the sponsoring organization. They are not entitled for Institute scholarship. He/she should produce a sponsorship-cum-clearance certificate in the given format of the Institute along with the application. The candidate must have minimum of 2 years of full-time work experience in the sponsoring organization, after completing the qualifying examination.
- v) In the case of External registrant sponsored from the industry or other organizations, the minimum of one semester residential requirement may be waived and they are expected to complete their course work by opting for (pre-approved by DRPC) certified MOOCS courses.
- vi) The Internal registrants are the Institute faculty/staff who work on part-time basis at the Institute. They shall produce a sponsorship-cum-clearance certificate from the Director, NITK.
- vii) Only those applicants having Post-Graduate Degree in Basic Sciences / Social Sciences / Humanities / Management/ Mathematics / Engineering / Technology and who have qualified through **NET / GATE** are eligible for fellowship as per Institute's norms.
- viii) Employed professionals having experience and proven competence aspiring for Ph.D. Programme will be considered under External Registration and will be allowed to pursue their research at their own location of work.

Specializations in Ph.D. Programme are listed below:

<i>Sl. No</i>	<i>Department</i>	<i>Areas of Research</i>
1	Civil Engineering	Sustainable Construction Materials, Alternate Building Materials, Green Buildings, Health and Safety of Construction Workers, Knowledge Management and Automation Applications, Air Pollution Assessment and Modelling, Health Risk Assessment of Air Pollutants, Groundwater Contamination Remediations, Biological and Physico-chemical Treatment of Water and Wastewater, Advanced Oxidation Process, Photocatalysis, Environmental Quality Assessment, Soil Behaviour, Soft Clay Engineering, Ground Improvement Techniques, Geotechnical Instrumentation, Geo-disaster Prevention, Sustainable Geomaterials, Renewal energy, Rock Mechanics and Energy Geotechnics with Carbon Sequestration, Engineering Geology and Landslide Hazards, Structural Reliability, Steel Structures, Bridges, Bioconcrete, Concrete Battery, Road Safety, Public transportation, Asphalt and Asphalt Mixture Characterization, Pavement Interlayer Strength Studies, Traffic Flow Modelling
2	Water Resources and Ocean Engineering	Water Resources Engg. and Management; Surface Water Hydrology, Ground Water Hydrology, Hydrological modelling,, Artificial Intelligence in water resources, Urban Hydrology, Urban water management, Sediment Transport, Ocean and Coastal Engineering, Offshore Renewable Energy, Computational Hydrodynamics, Structural Dynamics, Offshore Engineering, Marine Structures, Isotropic Elasticity in Marine Structure Analysis, Finite Element Analysis of marine and hydraulic structures, Soft computing Applications in Civil Engineering , Geo-informatics Applications in Civil Engineering: Hyperspectral Remote Sensing, Microwave Remote Sensing , Disaster management using advance surveying , GIS and UAV.
3	Mechanical Engg	Renewable Energy, Alternative Fuels, Biofuels and Biorefining, IC Engine & Combustion, Refrigeration and Air-conditioning, Heat Transfer and Bio Heat Transfer, Fluid Dynamics and Micro and Bio fluidics, Fluid Structure Interaction, Fracture Mechanics and Fatigue, FEM, Stress Analysis, Tribology, Machine Dynamics and Vibration, Advanced Materials, Biomaterials and Biomechanics, Advanced Manufacturing, Mechatronics, MEMS, Nanotechnology, Robotics and Control, Product Design, Systems and Bio systems Engineering, Structural Acoustics, Polymer Nano-Composites, Precision Manufacturing.
4	Electrical and Electronics Engineering	Power and Energy Systems/ Power Electronics and Electric Drives/ Control Systems/ New and Renewable Energy Systems/ Insulation and High Voltage Engineering/ Application of Signal Processing, Artificial Intelligence (AI)/Machine Learning (ML) Algorithms in Electrical Engineering.

5	Electronics & Communication	Broad areas of Electronic Communication / VLSI/ Signal Processing – 5G networks, Semiconductor modeling, Signal processing, Image Processing, computer Vision, Machine learning and Deep learning algorithms with applications Design, synthesis and performance verification of channel codes for Flash memory devices, magnetic storage devices, IPV6 protocol, deep space communications and underwater optical communications.
6	Chemical Engineering	Process Development, Particulate Systems, Environmental Engineering, Transfer Operations, Industrial Biotechnology, Energy, Process Modelling and Simulation, Computational Fluid Dynamics, Nanosciences / Nanotechnology, Polymer nanocomposites, Process dynamics and control, and Molecular Simulations
7	Metallurgical & Materials Engineering	Physical Metallurgy, Mechanical Metallurgy, Extractive Metallurgy, Beneficiation of Minerals, Welding, Surface Engineering, Corrosion, Polymer Nanocomposites, Ceramic and Polymeric Nanofabrics, Energy conversion and storage, Thin films & coatings, Advanced Materials, Heat transfer studies.
8	Mining Engineering	Rock Mechanics & Ground Control Engineering, Drilling & Blasting, Mine Planning, Environmental Management, Slope Stability, Design and stability of civil Excavations, Waste Management, Mineral beneficiation. Computer Applications in Mining, Mine health & Safety Engineering
9	Physics	High energy theory, Quantum gravity, Quantum field theory and gravity, Optoelectronics, Condensed Matter- Theory and Experiment, Cosmology and High Energy Physics, Nonlinear Dynamics, and Material Science
10	Chemistry	Inorganic, Materials, Organic and Physical Chemistry
11	School of Humanities, Social Science and Management	Strategic Management, International Business, Technology Management, Organizational Behaviour, Human Resource Management, Marketing, Corporate Finance, Capital Markets, Behavioural Finance, Development Economics, International Economics, Agricultural Economics, Rural Development, Applied Econometrics, Operations Management, Information Systems, E-Governance, English and Comparative Literature, and Other related areas.
12	Mathematical and Computational Sciences	Computer Stream: Computer Network Security, Graph Algorithms, Image Processing, Machine Learning, Cloud Computing, Cryptography, Wireless Sensor Networks, Block Chain Technology, Internet of Things, Artificial Intelligence, Deep Learning. Mathematics Stream: Computational Fluid Dynamics, Reliability Engineering, Graph Theory, Algebra, Number Theory, Real Analysis, Dynamical Systems, Differential Equations, Numerical Analysis, Functional Analysis, Scientific Computing, Numerical Linear Algebra.
13	Information Technology *	Affective Computing, Big Data Analytics, Blockchain Technologies, Cloud/Edge/Fog Computing, Cloud Security, Computer Networks, Cyber Security, Databases, Data Mining, Deep Learning Applications, Distributed Computing, Future Internet Architecture, Healthcare Informatics, High Performance Computing, Information Retrieval, Information Security, Internet of Things, Mobile Software Engineering, Natural Language Processing, Network Security, Semantic Web Technology, Social Multimedia/Social Network Analysis, , Software Engineering , Web Services, Wireless, Deep Learning for Computer Vision and Natural Language Processing; Evolutionary Deep Intelligence; Scientific Imaging; Remote Sensing; Biomedical Imaging.
14	Computer Science and Engineering	Computer Networks, Software Engineering, Distributed Computing, Data Mining, Information Security, High Performance Computing, Computer Vision, Cloud Computing, Image Processing, Speech Processing, Mobile computing, Cloud system, Internet of Things (IoT), Blockchain Applications, Computer Architecture, Machine Learning and Artificial Intelligence, Networks-on-Chip, Formal Verification, Cyber- Physical Systems, Data Science, Precision agriculture and farming, Social Computing, Graph Theory, Big Data analytics, Network Function Virtualization, Information Centric Networking, 5G Core, Underwater Communication, Cryptography, Deterministic Networking, Industrial IoT, Quantum Computing, Neuromorphic Computing,

8. Selection Procedure:

1. **M.Tech (Research):** Selection of candidates for admission will be based upon GATE score or in some of the programmes selection will be based on at least 70% weightage to GATE score and the remaining 30% weightage to academic performance in qualifying examination or / and written aptitude test or / and interview, etc., as decided by the DPGC of the Concerned Department offering the programme.
2. **Ph.D.:** Selection of candidates for admission to Ph.D. programme will be based upon the GATE score, academic performance in the qualifying examinations, written aptitude test, presentation on a research topic and interview as specified by the DRPC of the concerned departments.

9. How to Apply:

The Information Bulletin, Seat Matrix and Online Application portal for admission to M Tech (Research) and Ph.D. programmes is available on the Institute website www.nitk.ac.in. The applicants need to register online with the portal. The registered candidates have to complete Online Application form and pay prescribed application fee, i.e. **Rs 500 (OC/OBC/EWS) and Rs150 (SC / ST / PwD)** through IRIS portal on or before **24.11.2023 (Friday)**.

The hardcopy of the completed application form with payment receipts and copies of all necessary documents is to be sent to the Assistant Registrar (Academic), National Institute of Technology Karnataka, Surathkal, Srinivasnagar, Mangalore -575 025, Karnataka to reach on or before 28.11.2023 (Tuesday) “Application for Ph.D or M.Tech (Research) Admission in the Department of” should be clearly mentioned on the top of the envelop.

Candidates sponsored by the Educational Institutions/Industries must get their applications forwarded through proper channel.

Applications which are incomplete / defective / received late are liable to be rejected summarily and no correspondence will be entertained on such applications.

Note: If a candidate desires to apply to more than one course [M. Tech (Research) / Department (Ph.D.) he / she should submit separate APPLICATION along with Payment Receipt of Application fee for each program. Candidates called for interview will have to appear for written test and / or interview at their own cost. The written test and / or interview will be held at N.I.T.K., Surathkal on **offline mode.**

Calendar of Events for Admission to M.Tech (Research) and Ph.D. Programmes 2023-24. (December Session)

Last Date for Online Submission of applications	24.11.2023 (Friday)
Last Date for hard copy of applications to reach NITK	28.11.2023 (Tuesday)
Last date for dispatch of call letters (by email only) to short-listed candidates, and announcement in the website by respective departments.	04.12.2023 (Monday)
Selection Test and / or Interview (Offline)	13.12.2023 (Wednesday) and 14.12.2023 (Thursday)
Last date for sending recommendations merit list by Departments to the Dean (Academic)	15.12.2023 (Friday)
Publication of provisional selection/merit-list on website by Dean (Academic)	20.12.2023 (Wednesday)
Last date for sending admission offer letters	22.12.2023 ((Friday)
Physical Reporting and Fee Payment Dates for Selection-List Candidates	26.12.2023 (Tuesday) and 27.12.2023 (Wednesday)
Class start date	27.12.2023 (Wednesday)
Last Date for sending admission offer letters to waiting-list candidates	28.12.2023 (Thursday)
Last Date for physical Reporting and Fee Payment, for waiting-list candidates	29.12.2023 (Friday) 01.01.2024 (Monday) 02.01.2024 (Tuesday)

10. Intake for M.Tech (Research) and Ph.D. Programmes:

1) M. Tech (Research) for 2023-24 (December session)

Category	OC	OC-PWD	EWS	EWS-PWD	OBC	OBC-NCL PWD	SC	SC- PWD	ST	ST- PWD	Total
No. of Seats	17	1	5	0	15	1	8	0	5	0	52

2) Ph.D. Programme for 2023-24 : Regular PhD Programme under Institute's Scholarship (December session)

Category	OC	EWS	OBC- NCL	SC	ST	Persons with disability (PWD)					Total
						OC	EWS	OBC- NCL	SC	ST	
Intake	40	11	29	16	9	2	1	2	1	0	111

OC = Open Category / GM EWS = Economically weaker Section OBC =Other Backward Caste SC=Scheduled Caste ST=Scheduled Tribe

Note: Foreign Nationals are admitted to Ph.D. program under the ICCR Scheme.

Note:

- Reservation for SC / ST / Persons with Disabilities (PWD) is as per Central Government rules.
- Reservation of seats for OBC /EWS is as per GOI / MHRD norms.
- The above intake is excluding QIP seats allotted by AICTE / MHRD and seats earmarked for Indian Navy.

11. Documents to be produced:

A. At the time of counselling/written test/interview:

- Original marks card of all Semesters/years of Masters /Bachelor's degree
- Date of Birth Certificate in Original (SSLC / X Std.)
- Degree Certificate or Course Completion certificate from college (if qualifying degree exam results are awaiting)
- Caste Certificate if belonging to SC / ST (original)
- EWS Category Certificate as per prescribed format issued by the Competent Authority on or after 1-4-2023.
- OBC certificate as per prescribed format for OBC candidates. (if applicable) from the Competent Authority issued on or after 1-4-2023.
- GATE / NET Score Card (if applicable)
- Sponsorship Certificate, if applicable in the prescribed format
- No objection certificate, if applicable in the prescribed format
- Pass certificate for A.M.I.E. candidates (M Tech.)
- Persons with Disabilities (PWD) certificate, if applicable.

B. Documents to be submitted at the time of admission:

- Admission order issued by Competent Authority.
- Original marks card of qualifying examinations (First to Final Year) with two sets of duplicate copies. (The spelling and order of the name should be same in all the years of marks card, degree certificate and Migration Certificate).
- Course Completion certificate from college (if qualifying degree exam results are awaiting)
- Original GATE / NET Score Card (if applicable).
- Degree Certificate or Provisional Pass Certificate issued by the University.
- Sponsorship Certificate (if sponsored) in the prescribed format.
- No objection certificate, if applicable in the prescribed format
- Medical Certificate (general fitness).
- Relieving Certificate in the case of Sponsored Candidates.
- Date of Birth Certificate in original (X Std. or SSLC).
- Caste Certificate in case of SC / ST.
- OBC Certificate (if applicable) from the competent authority issued on or after 1-4-2023.
- EWS Category Certificate issued by the Competent Authority on or after 1-4-2023.
- Transfer Certificate.
- Conduct Certificate.
- Aadhar card copy.
- Persons with Disabilities (PWD) certificate, if applicable.
- Migration Certificate other than Karnataka students

Note:

- OBC candidates have to furnish the OBC certificate as per prescribed format. **Candidate can download the prescribed format for OBC Certificate from the NITK website (i.e. www.nitk.ac.in)**
- EWS candidates have to furnish the EWS certificate as per prescribed format. **Candidate can download the prescribed format for EWS Certificate from the NITK website (i.e. www.nitk.ac.in)**
- Sponsored candidates / External registrants should produce a sponsorship certificate / No Objection Certificate in the given format of the Institute.
- Internal Registrants shall produce a No objection certificate from the Director, NITK.

In case the result of qualifying degree is awaited, provisional admission will be given subject to meeting eligibility requirements latest by 31st January 2024.

12. Financial Assistance:

A. M. Tech. (Research) Programs – GATE Scholarship

A candidate will become eligible for GATE scholarship in M.Tech / M.Tech (Research) programme on possessing a valid GATE score. Only Indian Nationals are eligible for this scholarship.

A student is eligible to receive GATE scholarship at the rate Rs.12,400/- per month if he / she accepts the following conditions:

- i) It will be obligatory for every post graduate student to undertake 8 to 10 hours (per week) of work related to teaching and research activities as assigned to him / her by the Institute. This could include tutorials, laboratory classes, development and maintenance of laboratories, assistance in research and development activities undertaken by faculty members, maintenance and operation of computers and other central facilities.

Student should have registered and passed in all courses listed in the suggested plan for study for I semester and secured a SGPA not less than 6.0 at the end of I semester in order to be eligible for the continuation of full GATE stipend. However, students who have passed in all courses with SGPA less than 6.0 at the end of I semester will be awarded 50% of the entitled stipend for II semester and the full GATE stipend will be restored if the candidate secures a CGPA of 6.0 at the end of II semester.

Student should have registered and passed in all courses listed in the suggested plan for study for I & II semesters and secured a CGPA not less than 6.0 at the end of II semester in order to be eligible for the continuation of full GATE stipend. However, students who have passed in all courses with CGPA less than 6.0 at the end of II semester will be awarded 50% of the entitled stipend for the remaining duration of study.

In case of M Tech (Research), a student at any stage should have passed in all the registered courses with a SGPA / CGPA not less than 6.0 in order to be eligible for the continuation of GATE stipend.

- ii) A student shall be required to give an undertaking to the effect that he/she would not leave the course midway or appear in any competitive examinations, etc, not related to engineering or technology, in order to be eligible to receive this scholarship.
A student receiving the scholarship shall not receive any other emoluments like salary, stipend from any other sources. In no case will the scholarship be allowed for more than 24 months.
Scholarship meant for SC/ST candidates will not be granted to the students under OP / OBC category.
The scholarship holders are governed by the leave rules as prescribed from time to time. If an awardee remains absent for the class / programmes without proper sanction of leave, he/she will be liable to forfeit the scholarship. Leave is sanctioned subject to the conditions stipulated in the leave rules of the Institute

B. Ph.D. Programme:

- a) Full time research scholars of type 1 are eligible for a fellowship of ~~Rs. 31,000/- pm~~ ***Rs. 37,000/-pm** for the first two years and ~~Rs. 35,000/- pm~~ ***Rs.42,000/- pm** for the remaining two years on satisfactory progress. Pursuant to the directives of MHRD Government of India, the revision in PhD scholarship will be effected. The Research scholars have to assist in teaching and laboratory work assigned by the department and are eligible for 30 days' vacation leave per year.
- b) Full-time sponsored candidates may receive complete financial support including stipend, contingency grants and project expenses from the sponsoring organizations.
- c) Internal Registrants (Institute Faculty / Staff, Project staff) are expected to work for their Ph.D. Programme while fulfilling their normal duties.
- d) External Registrants are expected to carry out their Research work in their parent organization after fulfilling certain pre-requisites in the Institute. They are not entitled for Institute scholarship. The external candidate shall produce a sponsorship and clearance certificate from his employer and submit it along with the application.

*Revision in Ph.D scholarship vide letter F.No. 33/2/2023-T.S.III Part (1) dated 13.09.2023 from Ministry of Education, Dept. of Higher Education, Govt. of India and the same is approved by the BOG vide item no.73.3.1 dated 06.10.2023.

13. **Sponsored Candidates:**

- i) Preference would be given to those candidates who are GATE qualified for M Tech programs. Sponsored candidates will not be eligible to receive scholarship, even if they are admitted based on GATE score.
- ii) The candidates must have a minimum two years of full-time work experience, after completion of qualifying degree, in a registered firm/company / industry/educational and research institutions / any Government Departments or Government Autonomous Organisations in the relevant field in which admission is being sought.
- iii) In case of contract faculty sponsored from other NITs for Ph.D program, the two year full time work experience requirement is waived.
- iv) There will not be any age restriction. However, preference should be given to those who are below 45 years of age.
- v) A letter from the employer must be furnished stating that the candidate is being sponsored with full salary. The employer should also indicate that the candidates will not be withdrawn midway till the completion of the course.

14. **Fees and Deposits:**

FEE STRUCTURE FOR M.Tech & M.Tech (Research) PROGRAMME for the year 2023-24:

<u>Semester Fees</u>	First Year	
	I Sem.Rs.	II Sem.Rs.
Tuition fee	35000	35000
Other fee (PART A)#		
Institute Admission Fee	1218	-
Development Fee	2436	2436
Security Deposit (refundable)	6080	-
NITK Alma Mater Endowment Contribution	2436	-
Convocation Fee	3000	-
Other fee (PART B)##		
Library Resources Fee	3654	3654
Career Development Fee	2500	-
Health Care Facility	1500	-
Students Activities Fee	6000	-
Campus Amenities	1500	-
Group Insurance coverage of students *	600	-
Computing Resource Fee	4000	-
Day Scholar Total Fees	69924	41090
Hostel Rent (For Hosteller)		
Hostel Rent (including water/electricity charges) Boys / Girls (Shared accommodation) 2 nd year Single Room accommodation - Rs.10000/- each semester	8000	8000
Hosteller Total Fees	77924	49090

Note:

PART A of other fee is the one time fee to be paid at the time of admission. It will be increased @5% every year forevery newly admitting batch of students.

PART B of other fee will be increased @5% every year applicable to all students of all the batches irrespective of theyear of admission w.e.f 2023 -24 admission batch onwards

***Subject to revision.**

FEE STRUCTURE FOR Ph.D. PROGRAMME for the year 2023-24:

<u>Semester Fees</u>	First Year	
	I Sem Rs.	II Sem Rs.
Tuition fee	7500	7500
Other Fee		
Other fee (PART A)#		
Institute Admission Fee	2436	-
Development Fee	2436	2436
Security Deposit (refundable)	6080	-

NITK Alma Mater Endowment Contribution	2436	-
Convocation Fee	3000	-
Other fee (PART B)^{##}		
Library & E-resources Fee	3654	3654
Thesis Processing Fee	6080	-
Thesis Evaluation Fees	18239	-
Career Development Fee	1817	-
Health Care Facility	1500	-
Students Activities Fee	6000	-
Swimming Pool Fee		
Campus Amenities	1500	-
Group Insurance coverage of students *	600	-
Computing Resource Fee	6080	-
Day Scholar Total Fee	69358	13590
Hostel Rent (For Hosteller)		
Hostel Rent (including water/electricity charges) Boys / Girls (Shared accommodation) 2 nd year Single Room accommodation - Rs.10000/ each semester	8000	8000
Hosteller Total fee	77358	21590

Note:

PART A of other fee is the one time fee to be paid at the time of admission. It will be increased @5% every year for every newly admitting batch of students.

^{##} PART B of other fee will be increased @5% every year applicable to all students of all the batches irrespective of their year of admission w.e.f 2023 -24 admission batch onwards

***Subject to revision.**

Fee structure for the internal Regular Faculty /Staff for Ph.D. programme. (Only for regular (Permanent) staff of the Institute)

Tuition fee = Rs.5000 per year

Institute Development Contribution = Rs.6000 first year

Alumni Fee = Rs.1000 (one-time payment at the time admission)

Convocation fee = Rs.2000/- (1st Sem Rs.1000/- & 2nd Sem Rs.1000/-)

Thesis Evaluation Fees = Rs.5000/- (One time at the time of admission)

Provisional Mess Fees (At Hostel Office) for Hostellers (first semester)

1. Admission Fee	1000.00
2. Establishment Charges- Per semester	7500.00
3. Maintenance	3035.00
4. Student Extra Curricular	565.00
5. Mess Advance – Every Semester	20000.00

32,100.00

Mess Fee structure is tentative subject to revision.

Note: Refund of Fees:

Any student who withdraws admission before the closing date of admission is eligible for the refund of all the fees and deposits, after deduction of a processing fee of Rs.1000 /- (Rupees One Thousand Only)

Any disputes arising out of admissions shall be subject to Mangalore Court jurisdiction.

Ragging: If any incident of ragging comes to the notice of the authority, concerned student shall be given liberty to explain and if his explanation is not found satisfactory, the authority would expel him / her from the institution.
