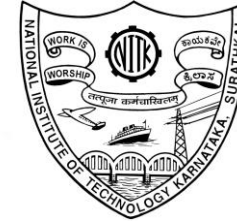


NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL
Mangaluru- 575025, Karnataka, India

INFORMATION BULLETIN



Selection for Institutional Post-Doctoral Programme
2023

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

Phone : +91-824-2473005
E-Mail : dean.rc@nitk.edu.in

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



INFORMATION BULLETIN

Selection for Institutional Post-Doctoral Programme
2023

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

Phone : +91-824-2473005
E-Mail : dean.rc@nitk.edu.in

CONTENTS

| | Page No. |
|--|-----------------|
| 1. The Institute | 4 |
| 2. Location | 4 |
| 3. Computing Facilities and Campus Network | 4 |
| 4. Library Facilities | 5 |
| 5. Post-Doctoral Fellowship | 5 |
| 6. Eligibility Criteria | 5 |
| 7. Selection Procedure | 6 |
| 8. How to Apply | 6 |
| 9. Institutional Post-Doctoral Programme | 6 |
| 10. Documents to be Produced | 6 |
| 11. Financial Assistance | 7 |
| 12. Annexure-1 | 8-13 |

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 ranked #10 in NIRF. 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 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, 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. 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. In this call for applications, NITK is seeking applications from eligible candidates for institute-funded post-doctoral positions.

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 a temperature range of 18 to 38° Celsius. The campus being on the sea shore is blessed with clean air and a healthy climate.

3. 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 km of 12 / 24 core OFC using 1 Gbps and 10 Gbps backbone to the different buildings and broadband 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 5Gbps Internet bandwidth and is currently being upgraded to 10Gbps. 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 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 Virtualization with Proxmox virtualization environment / Ubuntu System containerization 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 computing and network resources are assessed from time to time and upgraded accordingly.

4. 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 web tools for the Post-Doctoral Fellows/ Ph.D scholars and M. Tech students. Remote Access to all the e-Resources and mobile app are other important services of the library.

Library has been fully computerized 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 e-Library 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.

5. Post-Doctoral Fellowship

Departments/ Centers offering Post-doctoral positions:

The Institute is offering Post-doctoral Fellowships in the following Departments and the Central Research Facility (CRF).

1. Central Research Facility (CRF)
2. Chemical Engineering
3. Chemistry
4. Civil Engineering
5. Computer Science Engineering
6. Electrical & Electronics Engineering
7. Electronics & Communication Engineering
8. Information Technology
9. Mechanical Engineering
10. Metallurgical & Materials Engineering
11. Mathematical and Computational Science

6. Eligibility Criteria:

- The appointee should possess a Ph.D. or equivalent doctorate degree (e.g., D. Sc), which has been obtained in the **past five years**, in the field directly related to the appointee's proposed research topic. PhD Viva should be completed or a **provisional degree certificate should be available** on or before the submission date of application.
- International researchers/ Indian citizens with foreign degrees must hold an advanced (Doctoral) degree that is equivalent to those provided by Indian Institutions. Every prospective post-doctoral candidate must have acquired his/ her Ph.D. degree from a University/ Institute recognized by the regulating authority in the respective country in which the research work has been conducted.

- Candidates working as employees/Post-doc fellows should apply through proper channel, providing a No objection certificate from the employing organization.

7. **Selection Process (For Institute Fellowship):**

- The selected candidates must appear for the written test/interview conducted by the departmental post-doctoral selection committee (DPDSC), and followed by IPDSC (Institutional level post-doctoral selection committee).
- A candidate selected as a post-doctoral fellow with the institute fellowship shall be appointed for a period of two years.

8. **How to Apply:**

The Information Bulletin and Online Application portal for admission to Institutional Post-Doctoral 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 the Online Application form and pay the prescribed application fee, i.e., Rs 500, through the IRIS portal on or before **12th June 2023**.

The hard copy of the completed application form with payment receipts and copies of all necessary documents is to be submitted at the time of attending the interview.

Note: If a candidate desires to apply to more than one post-doctoral fellowship title, he/she should submit a separate APPLICATION along with the Payment Receipt of Application fee for each proposal. Candidates called for an interview will have to appear for a written test and/or interview at their own cost. The written test and/or interview will be held at N.I.T.K., Surathkal.

Calendar of Events for Selection for Institutional Post-Doctoral Programme -2023.

| | |
|---|------------------------------|
| Last Date for Online Submission of applications and fees payment | 12. 06. 2023 (Monday) |
| Test and/or Interview for selection | 26. 06. 2023 (Monday) |

9. **Institutional Post-Doctoral Programme**

Departments and Specialization offered for Institutional Post-Doctoral Programme are listed in Annexure-1:

10. **Documents to be Produced:**

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

1. Original marks card of all Semesters/years of Ph D / Master's / Bachelor's degree
2. Date of Birth Certificate in Original (SSLC / X Std.)
3. Degree Certificate or Course Completion certificate from college (if qualifying degree exam results are awaiting)
4. Caste Certificate if belonging to SC / ST (original)
5. EWS Category Certificate as per the prescribed format (See Appendix issued by the Competent Authority on or after 1-4-2022.
6. OBC certificate as per prescribed format (See Appendix) for OBC candidates. (If applicable) from the Competent Authority issued on or after 1-4-2022.
7. GATE / NET Score Card (if applicable)
8. Publication/patents first page
9. Persons with Disabilities (PWD) certificate, if applicable.
10. Updated Resume

B. Documents to be Submitted at the Time of Appointment:

- a. Appointment order issued by Competent Authority.
- b. 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).
- c. Original GATE / NET Score Card (if applicable).
- d. Degree Certificate or Provisional Degree Certificate issued by the University/Institute.
- e. Sponsorship Certificate (if sponsored) in the prescribed format.
- f. Medical Certificate (general fitness).
- g. Relieving Certificate in the case of Sponsored Candidates.
- h. Date of Birth Certificate in original (X Std. or SSLC).
- i. Caste Certificate in case of SC / ST.
- j. OBC Certificate (if applicable) from the competent authority issued on or after 1-4-2022.
- k. EWS Category Certificate issued by the Competent Authority on or after 1-4-2022.
- l. Conduct Certificate.
- m. Aadhar card copy.
- n. Persons with Disabilities (PWD) certificate, if applicable.
- o. Migration Certificate.

11. Financial Assistance for Institutional Post-Doctoral Programme:

- Each Post-doctoral Fellow selected under this scheme will be paid a fellowship of Rs. 50,000 (Rupees Fifty thousand only) per month. They will also be eligible to receive a contingency grant of Rs. 30,000 (Rupees Thirty Thousand only) per year which will be made available starting from the third month of their fellowship. Each selected PDF would be eligible to receive a fellowship for a period of **two years** from the month of appointment.
- In deserving and exceptional cases, additional resources can be allocated to supplement the contingency grant made available to the PDF. This additional contingency grant will be provided only once during the tenure of a post-doctoral fellow. Support under this provision will be limited to a maximum of Rs. 30,000 only. This request must carry strong justification and must be recommended and forwarded to the Dean (R&C) with due recommendation of the Departmental Post-Doctoral Assessment Committee (DPDAC). This will be provided subject to the availability of funds.
- **No separate HRA is admissible. Accommodation shall be provided subject to availability with due charges as per institute norms.**

Annexure-1

| Sl. No | Department | No. | Area of Research | Title of the Proposal from Mentor | Name, Designation, and Address of the Mentor | E-mail ID | Mobile/Landline number |
|--------|--|-----|---|--|--|---|---------------------------|
| 1. | Mechanical Engineering | 1 | Smart materials and Structures | Multiphase smart composites for energy harvesting | Dr. Subhaschandra Kattimani Associate Professor Department of Mechanical Engineering , NITK Surathkal, Srinivasnagar PO, Mangalore- 575025, Karnataka | subhaskatti@nitk.edu.in | 9481413661 08242473661 |
| | | 2 | Wind Turbine Aerodynamics | Numerical and Experimental Study of Small-Scale Vertical Axis Wind Turbine with Variable Pitch Control | Dr. A Sathyabhama Associate Professor Department of Mechanical Engineering, NITK Surathkal, Srinivasnagar PO, Mangalore- 575025, Karnataka | bhama72@gmail.com , sathyabhama@nitk.edu.in | 9448134433 08242473683 |
| | | 3 | Structural Dynamics, Acoustics | Experimental investigations on vibro-acoustics of aircraft sandwich panels under non-uniform heating | Dr. P. Jeyaraj Associate Professor Department of Mechanical Engineering ,NITK Surathkal, Srinivasnagar PO, Mangalore- 575025 Karnataka | jeyaraj@nitk.edu.in | 07795858559 |
| 2 | Metallurgical and Materials Engineering | 1 | Material science, drug design, diagnostic, oncology | Evaluation and development of graphene quantum dots as theranostic agents for breast cancer | Dr Mohammad Rizwanar Rahman, Associate Professor Department of Metallurgical and Materials Engineering, NITK Surathkal, Srinivasnagar PO, Mangalore- 575025 Karnataka | rizwan@nitk.edu.in , Rizwan.mme@gmail.com | 9620169801 |

Annexure-1

| | | | | | | | |
|---|----------------------|---|--|--|---|--|---|
| | | 2 | Corrosion, Passivity, Tribo-corrosion, Surface Engineering | Internal corrosion and tribo-corrosion issue at the crucial joint (elbow and T joint I the Oil and Gas industry) | Dr. Shashi Bhushan Arya Assistant Professor Department of Metallurgical and Materials Engineering, NITK Surathkal, Srinivasnagar PO, Mangalore- 575025 Karnataka | sbary@nitk.edu.in , sbushanarya@gmail.com | 9380452282 0824-2473754 |
| 3 | Chemical Engineering | 1 | Bionanotechnology and biosensing | Design and development of a nanoparticle-based microfluidic point of care device for the rapid detection of pathogens | Dr. Raj Mohan B. Professor Department of Chemical Engineering, NITK Surathkal Srinivasnagar PO, Mangalore- 575025 Karnataka | rajmohanbala@gmail.com rajmohan.che@nitk.edu.in | 9739939986 08242473605,3115 |
| | | 2 | Nano Drug Delivery System | Synthesis of organic and inorganic drug delivery vector for targeted and sustained release of drug Doxorubicin | Dr. P. E. Jagadeesh Babu Associate Professor Department of Chemical Engineering, NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | jagadeesh_78@nitk.edu.in | 9632896086 08242473605 |
| | | 3 | Nanotechnology applications for water treatment | Phytoextract mediated large scale synthesis of metal based nanoparticles for water disinfection-Scale-up effect on the characteristics and application potential | Dr. Vidya Shetty K Professor Department of Chemical Engineering, NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | vidyaks68@yahoo.com , vidyaks95@nitk.edu.in | 9844771919 08242473606 |
| 4 | Chemistry | 1 | Bio Sensors | Design and Development of Highly Sensitive Electrochemical Biosensors Dengue | Dr. Badekai Ramachandra Bhat Professor Department of Chemistry NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | brchandra@gmail.com , ram@nitk.edu.in | 9449553759 08242474046, 3043,3204 |

Annexure-1

| | | | | | | | |
|---|----------------------------------|---|---|--|--|--|---|
| | | 2 | Supramolecular Chemistry, Analytical Chemistry, Organic Chemistry | Design and Development of colorimetric and fluorescence chemosensors for the detection and removal of environment pollutant heavy metal ions | Dr. Darshak R Trivedi Associate Professor Department of Chemistry NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | darshakrtrivedi@yahoo.co.in darshakrtrivedi@nitk.ac.in darshak_rtrivedi@yahoo.co.in | |
| 5 | Civil Engineering | 1 | Earthquake Engineering | Development of a Novel Method to Control the Settlement of Railway Embankments using Effective Vibration Isolation with Sustainable Materials | Dr. Katta Venkataramana Professor Department of Civil Engineering NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | katta@nitk.edu.in , ven.nitk@gmail.com | 9448475875 08242473337, 08242473041 |
| | | 2 | Sustainable Construction Materials | Performance of Nano SiO ₂ Admixed Cementitious Mortar Integrated with Micro Encapsulated Phase change Materials Derived from Bio-Wastes | Dr. Bibhuti Bhusan Das Associate Professor Department of Civil Engineering NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | bibhutibhusan@gmail.com bdas@nitk.edu.in | 9589200861, 08242473970, |
| 6 | Computer Science and Engineering | 1 | Speech Processing | Punctuating the English text, got converted from speech | Dr. Shashidhar G. Koolagudi Associate Professor Department of Computer Science & Engineering NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | koolagudi@nitk.edu.in , koolagudi@yahoo.com | 9986332545 08242473413 |
| | | 2 | Cloud Computing | Interoperability in Multi-Cloud Architecture | Prof. K. Chandrasekaran Professor Department of Computer Science & Engineering NITK Surathkal Srinivasnagar PO, | kch@nitk.edu.in | |

Annexure-1

| | | | | | | | |
|---|--|---|---|---|---|--|---------------------------|
| | | | | | Mangalore- 575025, Karnataka | | |
| | | 3 | Data Analytics, Data Security, Data management | Developing a robust solution for detecting and mitigating application layer attacks in Internet of Things (IoT) environment | Prof. P. Santhi Thilagam Professor Department of Computer Science & Engineering NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | santhi@nitk.edu.in , santhi.cse.nitk@gmail.com | 0824-2473404 |
| 7 | Information Technology | 1 | Healthcare Analytics, Machine learning, Artificial intelligence | XAI approaches for Trustworthy Clinical Decision support Systems | Dr. Sowmya Kamath S. Department of Information Technology NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | sowmyakamath@nitk.edu.in | 08242473557 |
| | | 2 | Machine Learning, Multimodal Data Analytics | Federated Learning and Explainable-AI-based Multimodal Data Analytics | Dr. Ananthanarayana V S Professor Department of Information Technology NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | anvs@nitk.edu.in , ananthvs1967@gmail.com anvs@nitk.ac.in | |
| 8 | Electrical and Electronics Engineering | 1 | Smart grid Control and Operation | Experimental Studies on Dynamic Operation and Control of Multi Machine Smart Grid | Dr. Panduranga Vittal K Professor Department of EEE NITK Surathkal Srinivasnagar PO, Mangalore- 575025 | vittal@nitk.edu.in | 9448115984 08242473454 |
| | | 2 | Power Electronics and Control | Development of 3.3 kW portable DC charger for 3-wheeler and light 4-wheeler electric vehicles | Dr. B. Venkatesaperumal Professor Department of EEE NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | bvperumal@nitk.edu.in | 9980861389 |

Annexure-1

| | | | | | | | |
|----|--|---|---|---|--|--|---------------------------|
| | | 3 | EV charging station, Smart Grid, Renewable energy systems | Performance investigation of Electric Vehicle Charging in a Bipolar DC Microgrid | Dr. Dattatraya N Gaonkar Associate Professor Department of EEE NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | dngaonkar@gmail.com , dngaonkar@nitk.edu.in | 9482249764 08242473457 |
| 9 | Electronics & Communication Engineering | 1 | Remote Sensing | Design and development of Deep Learning Framework for change detection form Bi-temporal Synthetic Aperture Radar Images | Dr. Shyam Lal Assistant Professor Department of ECE NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | shyamfec@nitk.edu.in , shyam.mtec@gmail.com | 9741072082, 9997840444 |
| | | 2 | Metamaterial, Antenna design and microwave Engineering | Electromagnetic Wave Manipulation and Control using Metasurfaces for intelligent reflective and transmissive Surface Applications | Dr. Krishnamoorthy K Assistant Professor Department of ECE NITK Surathkal Srinivasnagar PO, Mangalore- 575025 Karnataka | Krishnak_ece@yahoo.com | 7208039132 08242474512 |
| 10 | Mathematical and Computational Sciences | 1 | The Internet Security | A Novel Authentication Scheme for 6G enabled Internet of Things(IoT) using Blockchain | Dr. R. Madhusudhan Associate Professor Department of Mathematical and Computational Sciences NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | madhu@nitk.edu.in | 819723723 |
| | | 2 | Nonlinear Analysis | Fractional Iterates of Functions and Hyers-Ulam Stability | Dr. V. Muragan Associate Professor Department of Mathematical and Computational Sciences NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | muragan@nitk.edu.in | 9448150143 |

Annexure-1

| | | | | | | | |
|----|----------------------------------|---|------------------------------------|--|--|------------------|---------------------------|
| | | 3 | Computer science, Image processing | Satellite image enhancement and analysis using optimized deep learning architecture | Dr Jidesh P. Assistant Professor Department of Mathematical and Computational Sciences NITK Surathkal Srinivasnagar PO, Mangalore- 575025, Karnataka | | |
| 11 | Central Research Facility | 1 | Materials Science and Technology | Fabrication of Polyimide based hollow fiber composite membranes for gas separation application | Dr. Arun M Isloor Professor Department of Chemistry NITK Surathkal Srinivasnagar PO, Mangalore- 575025 Karnataka | isloor@yahoo.com | 9448523990 08242473206 |