Department of Civil Engineering

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

B.Tech. Civil Engineering
Information Brochure

About the Institute

National Institute of Technology Karnataka, Surathkal is located in Mangalore City, Karnataka State, India. The Institute was established as Karnataka Regional Engineering College (KREC) in 1960 and upgraded to the National Institute of Technology Karnataka (NITK) in 2002. The functioning of NITK is governed by NIT Act, 2007 and by the rules laid down by the Government of India from time to time. NITK Board of Governors comprises the Chairperson nominated by the Institute Visitor, the Director, and the nominated members of the Government of India, the Government of Karnataka, the NIT Council, the Institute Senate, and the nearest Indian Institute of Technology. The institute is considered as a premier centre engaged in imparting quality technological education and supporting research and development activities. The institute has a long tradition of research for several decades in both traditional and modern areas of engineering and science. In the recent India Ranking-2022 announced by the National Institutional Ranking Framework (NIRF), NITK secured 10th position in the Engineering Discipline and 27th position in the Overall category. Another academic distinction of the institute is that the National Board of Accreditation (NBA) has granted accreditation to nine undergraduate and 18 postgraduate programmes.

Vision

To facilitate transformation of students into good human beings, responsible citizens & competent professionals, focusing on the assimilation, generation and dissemination of knowledge.

Mission

- Impart quality education to meet the needs of profession and society, and achieve excellence in teaching-learning and research.
- Attract and develop talented and committed human resources, and provide an environment conducive to innovation, creativity, team-spirit and entrepreneurial leadership.
- Facilitate effective interactions among faculty and students, and foster networking with alumni, industries, institutions and other stake-holders.
- Practice and promote high standards of professional ethics, transparency and accountability.

About the Department

The Department of Civil Engineering, established in the year 1960, is one of the oldest departments of the Institute. The Department offers an undergraduate programme in Civil Engineering; five postgraduate programmes in Construction Technology and Management, Environmental Engineering, Geotechnical Engineering, Structural Engineering, and Transportation Engineering; research programmes for Master and Doctoral degrees. The Department has well-experienced faculty, skilled technical staff and well-equipped laboratories. It is a recognised Quality Improvement Programme (QIP) centre for training faculty from other engineering colleges and polytechnics. The Department has always been at the forefront of R&D initiatives and Industrial Consultancy assignments.

Vision

To produce Civil Engineers with the necessary knowledge, skills and attitudes, who can be entrusted by the society to lead a sustainable world with enhanced quality of life.

Mission

To effectively train our students as Civil Engineers who can serve the society competently, collaboratively and ethically as

- Planners, designers, constructors and operators of the built environment
- Leaders of the natural environment and its resources
- Innovators and integrators of ideas and technologies across the public, private and academic sectors
- Managers of risk and uncertainty caused by natural events, accidents and other threats
- Leaders in discussions and decisions; shaping public, environmental and infrastructure policies.

B.Tech. Civil Engineering Programme

About

The Department has been offering an undergraduate degree programme in Civil Engineering since its inception 1960. The B.Tech. Civil Engineering programme has continuously been accredited by the National Board of Accreditation (NBA). At present, the programme has been accredited under Tier-I for a period till 30th June 2022.

Admission

In the institute, admission to the four-year B.Tech. Programmes are made in the odd semester of each session at the first-year level. The Joint Seat Allocation Authority (JoSAA) has been set up by the Ministry of Education [erstwhile Ministry of Human Resources Development (MHRD)] to manage and regulate the joint seat allocation for admissions to IITs, NITs, IIEST Shibpur, IIITs and Other-Government Funded Technical Institutes (Other GFTIs). Admission to all the academic programs offered by these Institutes is made through a single platform. Admission to NITs is based on the performance in Joint Entrance Examination-Main (JEE-Main) conducted by National Testing Agency. For candidates to qualify for admission in the IITs/NITS/IIITs and such other GFTIs whose admission is based on JEE ranks, they should have secured at least 75% marks in the 12th Class or be in the top 20 percentile in the 12th Class exam conducted by the respective Boards (65% for SC/ST/PwD students). A limited number of admissions is offered to Foreign Nationals and Indians living abroad by the rules applicable for such admission issued, from time to time, by MoE. Sanctioned intake and admitted student strength for the B.Tech. Civil Engineering Programme for the current and the past three academic years are as follows:

Intake/Strength for B.Tech. Civil Engineering	2022-23	2021-22	2020-21	2019-20
Sanctioned Intake	115	115	123	106
Total number of students admitted in the Programme	111	114	129	111

Programme Educational Objectives (PEOs)

PEO1: To prepare graduates for successful careers in various domains of Civil Engineering Profession by providing a strong foundation in mathematical analysis, scientific reasoning, and sound engineering fundamentals necessary to solve practical problems.

PEO2: To expose graduates to emerging issues, and approaches to problem-solving, in order to meet the changing needs of the Society, and the Indian industry in areas related to civil engineering design, planning, and construction.

PEO3: To inculcate team-spirit, and leadership capabilities among graduates through group-based activities and projects with emphasis on planning of experiments, use of software, development of skills for interpreting results of analyses, and writing of effective technical reports.

PEO4: To familiarize graduates with professional issues in civil engineering including: professional ethics, issues related to the global economy; emerging technologies; and fostering of job-related skills with emphasis on improved communication skills.

PEO5: To imbibe a spirit of inquiry among graduates in order to promote keen interest in pursuing higher studies and engineering-research.

Programme Outcomes and Programme Specific Outcomes

The Department adopted the Programme Outcomes recommended by the NBA and specified four Programme Specific Outcomes.

Programme Outcomes (POs)

PO1 ***Engineering knowledge:*** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 ***Problem analysis:*** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 ***Design/development of solutions:*** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 ***Conduct investigations of complex problems:*** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 ***Modern tool usage:*** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 ***The engineer and society:*** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 ***Environment and sustainability:*** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 ***Ethics:*** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 ***Individual and teamwork:*** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 ***Communication:*** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 ***Project management and finance:*** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 ***Life-long learning:*** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs)

PSO1 An ability to find solutions to civil engineering problems using mathematical and scientific knowledge.

PSO2 An ability to plan, and design civil engineering systems, components or processes as per relevant codes of practice, user requirements and constraints.

PSO3 An ability to develop attitudes, techniques and skills to succeed in a competitive professional environment including higher studies in a global context.

PSO4 An ability to develop the spirit of innovation and entrepreneurial leadership focused towards the design and implementation of sustainable civil engineering systems.

Programme Curriculum

The curriculum has been designed in line with the requirements of the stated POs and PSOs. Further, the curriculum has various well-balanced course components under basic sciences, engineering sciences, humanities and social sciences, programme core, programme electives, project, and mandatory learning courses.

The mandatory learning courses include environmental studies, professional ethics and human values, an introduction to design thinking, a liberal arts course, a seminar, practical training, and co-curricular and extracurricular activities. The curriculum allows students to register for certified MOOC courses (NPTEL/SWAYAM etc.) limited to 8 credits for their elective credit requirement. List of courses offered for the B.Tech. Civil Engineering Programme:

Course Component	Total number of credits
Basic Science Core Courses	16
Engineering Science Core Courses	17
Humanities and Social Sciences	9
Program Core	65
Programme Specific Electives and Open Electives Mini Projects (0 - 4); MOOC Courses (0 - 8)	39
Project	6
Mandatory Learning Courses	16
Total (Minimum Credits to be earned)	**168**

Basic Science Core (BSC)
CY110 Chemistry
CY111 Chemistry Laboratory
MA110 Engineering Mathematics - I
MA111 Engineering Mathematics - II
PH110 Physics
PH111 Physics Laboratory

Engineering Science Core (ESC)
CS100 Python Programming
CS101 Python Programming Lab
EC100 Elements of Electronics and Communication Engineering
EE110 Elements of Electrical Engineering
ME110 Elements of Mechanical Engineering
ME111 Engineering Graphics
WO110 Engineering Mechanics

Humanities and Social Science Core (HSC)
SM110 Professional Communication
SM300 Engineering Economics
SM302 Principles of Management

Mandatory Learning Courses (MLC)
CV110 Environmental Studies
SM111 Professional Ethics and Human Values
UC100 Introduction to Design Thinking
UC401 Liberal Arts courses/cocurricular/extracurricular activities
CV390 Seminar
CV440 Practical Training

Project (MP)
CV449 Major Project – I
CV499 Major Project – II

Programme Core (PC)
CV100 Civil Engineering Materials and Construction
CV201 Elements of Surveying
CV202 Engineering Geology
CV216 Civil Engineering Materials Lab.
CV251 Design of RCC Structures
CV252 Soil Mechanics
CV253 Structural Analysis
CV254 Highway and Traffic Engineering
CV265 Surveying Practice
CV266 Geology Lab
CV267 Soil Mechanics Lab
CV301 Environmental Engineering
CV316 Building Design and Drawing
CV351 Design of Steel Structures
CV366 Highway Materials and Concrete Testing Lab
CV367 Environmental Engineering Lab
CV401 Estimation Costing and Specifications
CV417 Structural Design and Drawing
MA207 Numerical Methods
WO200 Mechanics of Materials
WO216 Strength of Materials Lab
WO218 Mechanics of Fluids
WO219 Hydraulics Lab
WO260 Water Resources Engineering

Programme Specific Electives (PSE)
To access the complete list of PSE offered, please refer to the curriculum. Scan the QR code or click the below link to access the latest curriculum.
<https://tinyurl.com/2hy65t5x>

Minor

Civil Engineering students can take additional specified courses totalling 15 to 20 credits for, a) Minor in other disciplines where all the courses are offered by a department other than the Civil Engineering department, or b) Interdisciplinary Minor where courses are offered by two or more departments. If the student earns the specified total number of credits required for the minor discipline, then it will find a mention in the student's grade cards and degree certificate.

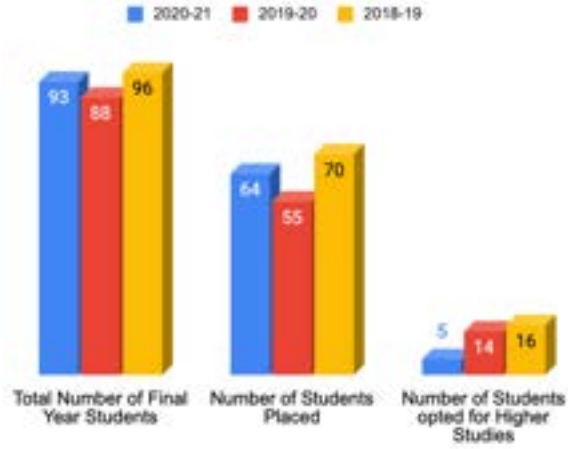
Honors

Civil Engineering students seeking Honors degree shall credit a minimum of 15 additional credits from a minimum of five Postgraduate courses offered by the Department of Civil Engineering and the Department of Water Resources and Ocean Engineering, as decided by the Department Undergraduate Committee.

Students' Performance

Students' Academic Performance, Placement, and Higher Studies

Students of the Programme have good academic performance, with an average success rate of 91 per cent for the academic years from 2018-19 to 2020-21. The average success rate without backlogs in any semester is 76 per cent. During these academic years, on an average, more than 65 per cent of the students have got placed. The percentage of students who qualified in national/international level tests and opted to pursue higher studies is approximately 10.



Students' Participation in Professional Activities

The Institute has student chapters of major national and international technical societies such as the Indian Society for Technical Education (ISTE), the Institution of Engineers, the Computer Society of India, the Institute of Electrical and Electronics Engineers (IEEE), the Institution of Engineering and Technology (IET), and the Robotics Club.

Civil Engineering students started their association with the American Society of Civil Engineers, and the NITK-ASCE Student chapter was chartered in 2014. As per the mandate of ASCE, the student chapter regularly conducts various activities, such as

- Membership drive to increase strength of the chapter
- Professional meetings with an invited speaker
- Student talks or paper presentations
- Lectures on professional ethics
- Organising field trips
- Organising social events
- Organising workshop on modern tools
- Participation in intra- and inter-institutional technical events

The chapter, in association with the Institutes' annual technical event ***Engineer*** used to organise various activities with theme names such as Architect, Colossus, Fantasticity, Inquizitive, Mind Bend, and Nirvahana. The chapter regularly prepares its annual report and submits it to the ASCE for evaluation.

The Department also launched the Indian Green Building Council (IGBC) Students' Chapter in the Institute on 14th August 2019. Civil Engineering students are also actively involved in various non-professional clubs in the Institute.

Faculty Information

Faculty Strength

The Department has highly qualified and well-experienced regular faculty members from various civil engineering specialisations.

Faculty Name	Highest Degree	Designation	Specialisation
Dr. A. S. Balu	PhD (IIT Madras)	Associate Professor	Structural Engineering
Dr. A. U. Ravi Shankar	PhD (University of Roorkee/IIT Roorkee)	Professor (HAG)	Transportation Engineering
Dr. Adani Azhoni	PhD (Cranfield University, UK)	Assistant Professor	Environmental Engineering
Dr. Anupama Surenjan	PhD (IIT Madras)	Assistant Professor	Environmental Engineering
Dr. Arun Kumar Thalla	PhD (IIT Roorkee)	Associate Professor	Environmental Engineering
Dr. B. B. Das	PhD (IIT Bombay)	Associate Professor	Construction Technology & Management
Dr. Babloo Chaudhary	PhD (Kyushu University, Japan)	Assistant Professor	Geotechnical Engineering
Dr. Basavaraju Manu	PhD (IIT Bombay)	Associate Professor	Environmental Engineering
Dr. C. P. Devatha	PhD (IIT Roorkee)	Associate Professor	Environmental Engineering
Dr. Gangadhar Mahesh	PhD (The University of Hong Kong, Hong Kong)	Associate Professor	Construction Technology & Management
Dr. J. Vijaya Vengadesh Kumar	PhD (IIT Madras)	Assistant Professor	Structural Engineering
Dr. Jayalekshmi B.R.	PhD (NITK, Surathkal)	Professor and Head	Structural Engineering
Dr. K. S. Babu Narayan	PhD (NITK, Surathkal)	Professor	Structural Engineering
Dr. K. Swaminathan	PhD (IIT Bombay)	Professor	Structural Engineering
Dr. Katta Venkataramana	PhD (Kyoto University, Japan)	Professor (HAG)	Structural Engineering
Dr. M. H. Prashanth	PhD (IISc, Bangalore)	Assistant Professor	Structural Engineering
Dr. Mithun Mohan	PhD (IIT Roorkee)	Assistant Professor	Transportation Engineering
Dr. Narasimhan M.C.	PhD (IIT Madras)	Professor (HAG)	Structural Engineering
Dr. Pavan G. S.	PhD (IISc, Bangalore)	Assistant Professor	Structural Engineering
Dr. Rajasekaran C.	PhD (IIT Madras)	Assistant Professor	Construction Technology & Management
Dr. Raviraj H. M.	PhD (IISc, Bangalore)	Assistant Professor	Transportation Engineering
Dr. Shrihari S.	PhD (University of Roorkee/IIT Roorkee)	Professor	Environmental Engineering
Dr. Sitaram Nayak	PhD (IISc, Bangalore)	Professor	Geotechnical Engineering
Dr. Sreekumar M.	PhD (IIT Bombay)	Assistant Professor	Transportation Engineering
Dr. Sreevalsa Kolathayar	PhD (IISc, Bangalore)	Assistant Professor	Geotechnical Engineering
Dr. Sridhar G.	PhD (IIT Madras - National University of Singapore)	Assistant Professor	Geotechnical Engineering
Dr. Subhash C. Yaragal	PhD (IISc, Bangalore)	Professor	Structural Engineering
Dr. Sunil B.M.	PhD (NITK, Surathkal)	Associate Professor	Geotechnical Engineering
Dr. Suresha S. N.	PhD (NITK, Surathkal)	Associate Professor	Transportation Engineering
Dr. T. Palanisamy	PhD (Anna University, Chennai)	Assistant Professor	Structural Engineering
Dr. Varghese George	PhD (IIT Bombay)	Professor	Transportation Engineering
Dr. Vinoth S.	PhD (Anna University, Chennai)	Assistant Professor	Engineering Geology

Research and Development Activities

The Department faculty members are actively involved in research and development works. Broad research areas of the faculty members are construction materials, technology, and management; disaster risk reduction; earth science and engineering geology; earthquake engineering; environmental engineering; geotechnical engineering; structural engineering; transportation engineering. The Department regularly receives external research grants from various Indian and International agencies.

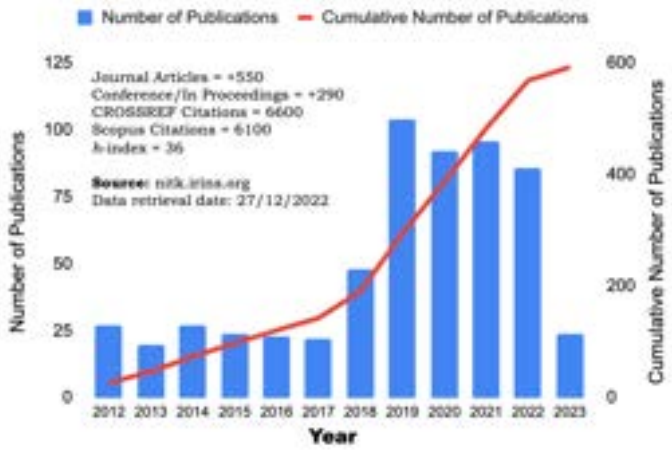
Sl. No.	Project title	Sanctioned Year (FY)	Duration	Funding Agency	Amount (INR)	Project Coordinator(s)/ Principal Investigator(s)
1	Hydrogen Loaded Concrete	2012-13	3 Years	Board of Research in Nuclear Sciences (BRNS-DAE)	20,91,000/-	Dr. M.C. Narasimhan Dr. K.Venkataramana Dr. S.M.Kulkarni Dr. K.S.Ravishankar Dr. M.N.Satyanarayana
2	Experimental Investigation on Rutting and Flexural Behaviour of Structural Asphalt Mixes with Warm Mix Asphalt Additives	2013-14	3 Years	SERB (DST)	18,58,000/-	Dr.Suresha S.N.
3	Fund for Improvement of S&T Infrastructure (FIST)	2014-15	5 Years	Department of Science and Technology, GoI	1,10,80,000/-	Dr. Suresha S.N.
4	Network on Decentralized Grey /Waste Water Treatment and Recycling (GreyWatNet)	2016-17	2 Years	CERIPRA, France	8,48,000/-	Dr. Arun Kumar Thalla (Co-PI)
5	Investigation, Evaluation and Diagnosis on Irrigation System in India	2016-17	3 Years	JSPS, Japan	2,00,00,000/-	Dr Babloo Chaudhary (Collaborator)
6	Small Scale and Sustainable Household GreyWater Recycling (S3HWR) Ref IMPRINT 5670	2017-18	3 Year	MHRD& MoUD	31,90,000/-	Dr. Arun Kumar Thalla
7	Development of Value Added Geopolymer Aggregates using Iron Ore Mine Tailings - A Sustainable Solution	2018-19	4.5 years	Department of Science and Technology, GoI	32,36,000/-	Dr. B B Das
8	Influence of Binary and Ternary Cementitious Composites on the Engineering Properties of Interfacial Transition Zone of Reinforced Concrete Exposed to Aggressive Environments	2018-19	3.5 years	Department of Science and Technology, GoI	32,95,600/-	Dr. B B Das
9	Social-Economic-Environmental Trade-offs in Managing the Land-River-Interface	2019-20	2 Years	Ministry of Science & Technology, Department of Biotechnology, GoI	79,41,560/-	Dr. Adani Azhoni
10	SEIBOCCA: Socio-Economic and Institutional Barriers and Opportunities for Climate Change Adaptation in Northeast India	2019-20	2 Years	IMPRESS, Indian Council of Social Science Research, MHRD	8,00,000/-	Dr. Adani Azhoni
11	Collaborative Research and Capacity Building on Climate Resilient Concrete for Marine Environment	2019-20	2 Years	Royal Academy of Engineering, United Kingdom, in collaboration with University of Leeds, UK	45,33,648/- (49,725 £)	Dr. B B Das
12	Performance Studies on Concrete Mixed with Spent Catalyst Waste for Sustainable Solutions	2019-20	3 Years	Mangalore Refinery and Petrochemicals Limited	6,50,000/-	Dr. B B Das
13	"Impounding of River Flood Waters along Dakshina Kannada Coast: A Sustainable Strategy for Water Resource Development" in Water Resources	2019-20	4 Years	IMPRINT	1,11,84,756/-	Dr. Sreevalsa Kolathayar (Co-PI)
14	Development of Effluent Treatment Techniques for Cashew Nut Shell Liquid Effluent, Phenalkamine Condensate and Development of Method for Stabilizing Colour of Cashewnut Shell Liquid	2019-20	6 Months	Adarsh Industrial Chemicals, Karkala, Mangalore,Karnataka	1,00,000/-	Dr. Basavaraju Manu
15	Coastal reservoirs as a sustainable strategy for Water Security	2019-20	3 Years	SPARC, Govt of India	60,00,000/-	Dr. Sreevalsa Kolathayar (Co-PI)
16	Development of an Innovative Marine Bacteria Based Cement Electrolyte Battery for Cathodic Protection of Reinforced Concrete as Low Power Operator	2019-20	3 Years	SERB (DST)	33,43,148/-	Dr.T.Palanisamy
17	Development of Countermeasures to Mitigate Earthquake-induced Damage of RM Breakwater	2020-21	2 Years	SERB (DST)	31,27,630/-	Dr. Babloo Chaudhary
18	Strength, serviceability and hazard assessment of Global Vipassana Pagoda considering as-built information and in–situ material properties	2020-21	3 Years	Global Vipassana Foundation, Mumbai	18,52,010/-	Dr Pavan G S, Dr. Sreevalsa Kolathayar, Dr. Prashanth M H
19	Interaction of various Environmental Factors on the Fracturing Behavior and Damage Mechanism in Rocks	2021-22	2 Years	SERB (DST)	32,64,000/-	Dr.Vinoth S.
20	Development of Trip Generation Manual for Indian Cities	2021-22	2 Years	CSIR-CRRI	7,97,500/-	Dr. Mithun Mohan (Nodal PI)
21	New Resilient Breakwater for Safety of Port and Harbour against Tsunami	2022-23	3 Years	Ministry of Ports, Shipping and Waterways, GoI	45,00,000/-	Dr. Babloo Chaudhary Prof. Katta Venkataramana Dr Sridhar G
22	Development of microbial surfactant for the remediation of selected NSAIDs	2022-23	3 Years	Department of Science and Technology, GoI	29,92,616/-	Dr. C. P. Devatha
23	Computation of Site-Specific Earthquake Parameters and Dynamic Analysis of Bhandardara Masonry Dam	2022-23	2 Year	Water Resource Department Government of Maharashtra	24,00,000/-	Dr. Sreevalsa Kolathayar Dr. Pavan G.S.
24	Development of AI based Prediction System Coupled with Ecological Mitigation Technologies for Landslide Prone Areas	2022-23	1 Year	Department of Science and Technology, GoI	24,00,000/- (For Year I)	Dr. Sreevalsa Kolathayar (Co-PI)
25	A study of organic and Inorganic constituent's removal from Leachate by Photocatalytic nanomaterial	2022-23	2 Years	VTU, Belgaum, Karnataka	14,50,000/-	Dr. Basavaraju Manu (Co-PI)
26	Influence of perforation in cold-formed steel compression member design	2022-23	2 Years	Craftsman Automation Limited, Coimbatore. CSR fund.	11,12,000/-	Dr. J Vijaya Vengadesh Kumar

Patents

- Dr T Palanisamy was granted a patent, “Microbialcrete composite”, Patent No: 399619 on 21.06.2022
- Dr T Palanisamy was granted a patent, “Glasscrete Building Blocks”, 5315/ CHE/2013
- Dr T Palanisamy was granted a patent, “Basaltcrete Building Blocks”, 4959/CHE/2012

Publications

The total number of research publications for the past ten years has crossed more than 550, the number of citations is close to 6100, and the *h*-index is 36.



Books

- *Civil Engineering for Disaster Risk Reduction.* Kolathayar S, Pal I, SC Chian, Mondal A, ISBN 978-981-16-5311-7. Springer. 2021, https://link.springer.com/book/10.1007/978-981-16-5312-4
- *Earthquake Hazard Assessment.* Kolathayar S and Sitharam TG. ISBN 978-1-138-30923-4, CRC Press / Balkema, Taylor & Francis Group, London, UK, 2018. https://doi.org/10.1201/9781315143811
- *Comprehensive Seismic Zonation Schemes for Regions at different Scales.* Sitharam T.G., Naveen James and Kolathayar S. ISBN: 978-3-319-89658-8, Springer International Publishing, 2018. DOI: https://doi.org/10.1007/978-3-319-89659-5
- *Preparing for Earthquakes: Lessons for India.* Sitharam T.G. and Kolathayar S. ISBN: 978-3-319-59521-4, Springer International Publishing, 2017. DOI: https://doi.org/10.1007/978-3-319-59522-1
- *Sustainable Water Resource Development Using Coastal Reservoirs (Elsevier),* T.G. Sitharam Shu-Qing Yang Roger Falconer Muttucumaru Sivakumar Brian Jones Sreevalsa Kolathayar Lim Sinpoh, *Elsevier,* ISBN: 9780128180020, 2020.
- *Geocells - Advances and Applications.* T. G., Sitharam, Hegde, Amarnath M., Kolathayar, Sreevalsa (Eds.), Springer, ISBN: 978-981-15-6094-1, 2020. https://doi.org/10.1007/978-981-15-6095-8
- *Latest Developments in Geotechnical Earthquake Engineering and Soil Dynamics,* Sitharam, T.G., Jakka, Ravi, Kolathayar, Sreevalsa (Eds.), Springer, ISBN: 978-981-16-1467-5
- *Theory and Practice in Earthquake Engineering and Technology*. Sitharam, T. G., Kolathayar, S., Jakka, R. S., & Matsagar, V. Springer, 2022. ISBN: 978-981-19-2323-4
- Advances in Earthquake Geotechnics (Springer Tracts in Civil Engineering). Sitharam TG, Jakka RS, Kolathayar S, 2022, Springer. ISBN: 978-981-19-3329-5
- How To Write An Outstanding Undergraduate/Postgraduate/Doctoral Thesis: Excellent Thesis, Basavaraju Manu, 2022, Amazon Asia-Pacific Holdings Private Limited
- Sequential Anaerobic-Aerobic Treatment of Azo Dye Wastewater, Basavaraju Manu and Sanjeev Chaudhari, Scholar’s Press, Germany, 2014, ISBN:978-3639711660
- Proceedings of Sustainable Practices and Innovations in Civil Engineering, Sivakumar Naganathan, Kamal Nasharuddin Mustapha, Dr.T, Palanisamy. Springer, Springer Nature Singapore ISBN: 978-981-16-5040-
- Sustainable Geo-Technologies for Climate Change Adaptation, Hazarika, H., Stuart Haigh, K., Kanaya, H., Chaudhary, Babloo., Kochi, Y., Murai, M., Wahyudi, S. and Fujishiro T. (Eds) Springer Singapore, 2022, ISBN: 978-981-19-4074-3
- Trends in Engineering and Challenges for Sustainability, M.C.Narasimhan, Varghese George, G.Udayakumar, Anik Kumar (Eds) Springer Nature Singapore, 2021, ISBN-978-981-15-6827-5
- Sustainability Trends and Challenges in Civil Engineering, Lakshman Nandagiri, M.C.Narasimhan, Sriram Maratha, S.V.Dinesh (Eds)springer Nature Singapore,ISBN-978-981-16-2825-2
- Sustainable Construction and Building Materials – Select Proceedings of ICSCBM 2018, Bibhuti Bhusan Das and Narayanan Neithalath (Eds), Springer Nature Singapore, ISBN- 978-981-13-3316-3
- Recent Developments in Sustainable Infrastructure - Select Proceedings of ICRDSI 2019, B. B. Das, S Barbhuiya, R Gupta and P Saha (Eds), Springer Nature Singapore, ISBN- 978-981-15-4576-4
- Smart Techniques for Sustainable Development - Select Proceedings of SMTS 2019, S. K. Shukla, S. Chandrasekaran, B. B. Das and S Kolathayar, Springer Nature Singapore, ISBN-978-981-15-5000-3
- Recent Trends in Civil Engineering - Select Proceedings of TMSF-2019, Bibhuti Bhusan Das, Sreejith V. Nanukuttan, Anil K Patnaik and Neena Shekhar Panandikar, " Springer Nature, Singapore. ISBN - 978-981-15-8292-9
- Recent Developments in Sustainable Infrastructure (ICRDSI-2020)—Structure and Construction Management - Conference Proceedings from ICRDSI-2020, B. B. Das, Christy P. Gomez, Benu. G. Mohapatra, Volume 1", Springer Nature Singapore. ISBN - 978-981-16-8432-6
- Recent Developments in Sustainable Infrastructure (ICRDSI-2020) - GEO-TRA-ENV-WRM - Conference Proceedings from ICRDSI-2020 Vol. 2, B. B. Das, Hiroshan Hettiarachchi, Prasanta Kumar Sahu, Satyajeet Nanda, Springer Nature Singapore. ISBN - 978-981-16-7508-9.
- Recent Trends in Construction Technology and Management - Select Proceedings of ACTM 2021, M. S. Ranadive, Bibhuti Bhusan Das, Yusuf A. Mehta, Rishi Gupta, Springer Nature Singapore. ISBN - 978-981-19-2144-5.

Memorandum of Understanding

- An MOU was signed between Garrison Engineer (P) Indian Naval Academy Ezhimala and National Institute of Technology, Karnataka, Surathkal, represented by Dr Sreevalsa Kolathayar, Assistant Professor, Department of Civil Engineering, NITK duly authorized by Prof Karanam Uma Maheshwar Rao the Director, NITK, Surathkal, Mangalore. (Letter No 139/07/LBW/02 dated 07 Sep 2020)
- An MoU was signed between NITK, Surathkal and Karnataka Rural Infrastructure Development Corporation Limited (KRIDL) vide agreement dated 29 - 12 - 2021 bearing certificate number IN-KA91074347149263T

Laboratory Resources

Laboratories and Major Equipment

To meet the curricular requirements of academic programmes, the Department has well-equipped laboratories. In addition, there are six project laboratories in different disciplines of Civil Engineering.

Academic Laboratories

1. Advanced Geotechnical Engineering Laboratory
2. AutoCAD Laboratory
3. Earthquake Engineering Laboratory
4. Environmental Engineering Laboratory
5. Environmental Geotechnology Laboratory
6. Geology Laboratory
7. Material Testing Laboratory
8. Soil Mechanics Laboratory
9. Structural Engineering Laboratory
10. Surveying Equipment Laboratory
11. Transportation Design Studio
12. Transportation Engineering Laboratory

Project Laboratories

1. Advanced Asphalt Characterization and Rheology Laboratory
2. Bio-Concrete Laboratory
3. Bio-Processes Engineering Laboratory
4. Geo-Disaster Prevention Laboratory
5. Geotechnical Model Testing Facility
6. Sustainable Construction and Building Materials Laboratory

List of Major Equipment

- Asphalt Vertical Mixers
- Autoclave
- Automatic Marshall-Compactor
- Automatic Soil Compactor
- Bioreactor (10 L)
- BOD Trak Apparatus
- Brookfield Viscometer
- Carbonation Chamber
- Carbonation Testing Facility
- Capillary Viscometers
- COD Analyser
- Compression Testing Machine - 3000 kN
- Concrete Mixer
- Consolidation Apparatus
- Digital Theodolite
- Digital Triaxial Testing machine
- Distillation unit
- Ductility Machine
- Dynamic Cone Penetration Test set-up
- Fifth Wheel Bump Integrator
- Flexure testing machine
- Freezing Unit
- Gas Chromatograph
- Grinding and Polishing Equipment
- Horizontal and Vertical Shake Table
- Hotplate & Orbital shaker
- Immersion Wheel Tracker
- Laboratory Scale Disc Pelletizer and Pulveriser
- Levelling instruments
- Magnetic stirrer
- Marshall apparatus
- Miclins Peristaltic pumps
- Model Footing (Plate Load)-Test Setup
- Model Pile Testing Setup
- Landslide Flume Setup
- Modular Compact Rheometer System
- Multiparameter system
- Orbital Shaking Incubator
- ORP meter
- Petrological Microscope
- PH & Conductivity meter
- Pressure Aging Vessel
- PUNDIT Device
- RCPT Apparatus
- Repeated load system–5T
- Resistivity Meter
- Rock-Testing Equipment
- Rolling Thin Film Oven
- Slow Speed Precision Diamond Saw Cutter
- Skid Resistance Tester
- Small-scale-Decentralized Grey Water Treatment System
- Superpave Gyratory-Compactor
- Table Vibrator
- Thermogravimetric Analyzer
- Total stations
- UV atomic spectrophotometer
- UV Digestion system
- UV/VIS Spectrophotometer
- Voltammetry System for analysis of water & wastewater
- Wheel Rut Shaper
- Wheel Rut Tester

Testing and Consultancy Services

The Department is actively involved in testing and consultancy services. Revenue generated during the past six financial years is more than INR 275 lakh, with an annual average income of INR 46 lakh. On an average, 55 per cent of total revenue comes from consultancy services, and the remaining from testing services. Some of the regular services are

- CBR Tests
- Concrete Mix Design
- Dam safety evaluation
- Design of Bituminous Concrete Mixes
- Design of Pavements
- Design of Solid Waste Management Systems
- Design of Water Treatment Plants
- Design of Water-distribution Networks
- Distance and level Measurements
- Estimation of Earthwork
- Geological and Geo-physical investigations
- Ground improvement Methods
- Highway and Railway Material Testing
- Industrial Waste Water Treatment Plants
- Location of Open wells and Bore-wells
- Non-Destructive Testing of Concrete Structures
- Plate load Tests
- Preparation of EIA Reports
- Rockfall stability analysis
- Safe Bearing Capacity of foundation systems
- Slope stability Analysis and Design of slopes
- Soil investigations Tests for Soil Classification
- Structural Analysis and Design
- Structural Distress Assessment and Rehabilitation
- Testing of Building Materials
- Topographical Map Preparations
- Town Planning
- Traffic Planning
- Vetting of Structural Designs of Buildings, Bridges, and Retaining Walls.
- Water and wastewater quality analysis

For more details contact

Professor and Head
Department of Civil Engineering
National Institute of Technology Karnataka, Surathkal
NH-66, Srinivasnagar, Mangalore, 575025, India

Tel.: +91 824 247 3041
Fax. +91 824 247 4033
Email Id.: hodcivil@nitk.edu.in
Website: www.civil.nitk.ac.in