

National Institute of Technology Karnataka, Surathkal

Mangaluru - 575 025, Karnataka, India

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NITK NEWSLETTER

WAVES

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Message from the Director



I am very happy to forward this second issue of the sixth volume of Waves, our biannual newsletter. The reporting period for this issue marks the closure of our Diamond Jubilee celebrations and the 18th Annual Convocation as flagship events. The then Hon'ble Minister of Education, Shri Ramesh Pokhriyal 'Nishank' was generous in being part of these celebrations and advised our graduands at the Convocation to take forward the grand legacy of the last sixty years of the institute by successfully facing the challenges of the time by innovation and hard work.

The passing of the Diamond Jubilee year witnessed 44 flagship activities including several reputed conferences, workshops and other such important academic activities. This was an indication not only of our capabilities but also of our potential. Our innovative abilities are bringing us laurels in terms of a good number of patents in the recent months too. Apart from academics, our commitment to community service and nation building also got a boost during this period through several of our activities. We also conducted activities such as the 'Fit India Freedom Run', 'Rashtriya Ekata Divas', 'National Education Day', 'Constitution Day', etc. with the necessary Covid protocols.

Crossing the sixty years' milestone, we have duties and responsibilities ahead. The pandemic itself has thrown several challenges not just to individuals but also to larger bodies such as institutions, communities and the country as a whole. Our immediate task is to not only find the lost rhythm but also to innovatively help the larger communities to reorient themselves strongly towards facing bigger challenges by facilitating better technologies. At this juncture, I am of the firm opinion that we, as an institute, have geared up to meet these challenges successfully.

K. Umamaheshwar Rao

Message from the Deputy Director



It gives me immense pleasure to write a message for this second issue of the sixth volume of *Waves* biannual newsletter. During this reporting period of the magazine, we have conducted the closure activities of Diamond Jubilee Celebrations, 18th Convocation, National and International Conferences, Symposiums, Workshops, Research and Testing activities, National level extra-curricular activities, and more importantly, Teaching-Learning activities in flipped mode, under the challenging situations amid the pandemic, Covid-19. The pandemic has redefined our workplace culture in every possible way. The newsletter's content shows that NITK can adapt swiftly to the changes and situations without compromising academic and research performances. More specifically, the number and magnitude of research projects, testing and consultancy activities, the number of patents granted, the number and quality of research publications, participants' response for the conferences and workshops conducted – clearly shows that NITK used the challenging scenario of the pandemic into an opportunity. I am sure this rhythm definitely will continue to enable us to face bigger challenges in future and that the new normal is a notch above the pre-covid times.

Ananthanarayana V.S.

Prefatory Note

The current issue of *Waves* covers highlights of the institute activities during July-December 2020. This was a time when the campus mostly wore a deserted look (as in most other campuses around the world) and 'virtual' and 'online' were the oft-repeated prefixes for any activity. One of the most prominent events of the institute, the Annual Convocation was held in 'online' mode for the first time, enabling the students to graduate without the constraints of their physical presence during the pandemic. Most other activities followed suit. And here in this issue of the newsletter, we make an effort to document the important activities of this period. The Editorial Committee has been strengthened by the addition of another editorial coordinator, Dr. T.K. Shajahan, Assistant Professor, Department of Physics. We are thankful to all teaching and non-teaching staff, editorial team and administration for their continued cooperation in bringing out this issue. As always, it may please be noted that even as we try to catch the main and important happenings and achievements for the reporting period, we cannot and do not claim to cover *all* happenings and *all* achievements accomplished by the institute stakeholders during this time.



Shashikantha Koudur and T.K. Shajahan
Coordinators - *Waves*

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S. Shrihari

Chairman, Career Development Centre

Contents (July - December 2020)

- ◆ 18th Annual Convocation and Valedictory of Diamond Jubilee
- ◆ Other Events (Centrally Organised)
- ◆ Administrative Assignments
- ◆ Conferences/Workshops Organized
- ◆ Faculty Achievements
- ◆ Projects/Consultancies Sanctioned
- ◆ Patents and Other Particulars from IIP Cell
- ◆ Students' Achievements
- ◆ Placements 2020-21
- ◆ Students' Activities
- ◆ TEQIP III
- ◆ Launch of New Website for Library
- ◆ Alumni Relationship
- ◆ Institutional Relationship
- ◆ New Infrastructure
- ◆ Central Research Facility (CRF)
- ◆ Retirement – Teaching and Non-teaching Staff

18th Annual Convocation and Valedictory of Diamond Jubilee Celebrations



Hon'ble Union Minister of Education, Dr. Ramesh Pokhriyal 'Nishank' delivering the Convocation address

The 18th Annual Convocation of the Institute was held virtually on 23 November 2020. 763 Undergraduate, 659 postgraduate and 121 research scholars received their degrees in this convocation. Dr. Ramesh Pokhriyal 'Nishank', the then Hon'ble Minister of Education delivered the Convocation address as Chief Guest. Dr. G. Satheesh Reddy, Secretary, Department of Defence R&D and Chairman, DRDO, delivered his speech as Guest of Honour. The Diamond Jubilee celebrations of the institute which ran during the academic year 2019-2020, saw the closing ceremony on this occasion. 44 events including National, International Conferences and Workshops had been conducted as part of these celebrations.

Other Events (Centrally Organised)

NITK Surathkal Organises 'Fit India Freedom Run'

National Institute of Technology Karnataka, Surathkal organised 'FIT India Freedom Run' under the aegis of 'Fit India Movement' as directed by the Ministry of Youth Affairs and Sports & Ministry of Education on Wednesday, 30th September 2020.

Prof. Umamaheshwar Rao, Director NITK, addressing the gathering said it is very important to be fit, keeping in mind how the pandemic has affected all of us. Fit India freedom run was flagged off by Prof. Umamaheshwar Rao. The protocols related to COVID-19, including social distancing,

were observed during the run. Deans, Registrar, Joint Registrar, faculty and the non-teaching staff participated in the Freedom Run. Prof. M.S. Bhat, Dean (Faculty Welfare), welcomed the gathering. Prof. Jagannath Nayak, Dean (Student Welfare), proposed a vote of thanks. SAS officers, Dr. Hem Prasad Nath and Dr. Manoj organised the event.

NITK Surathkal observes 'Rastriya Ekta Diwas'

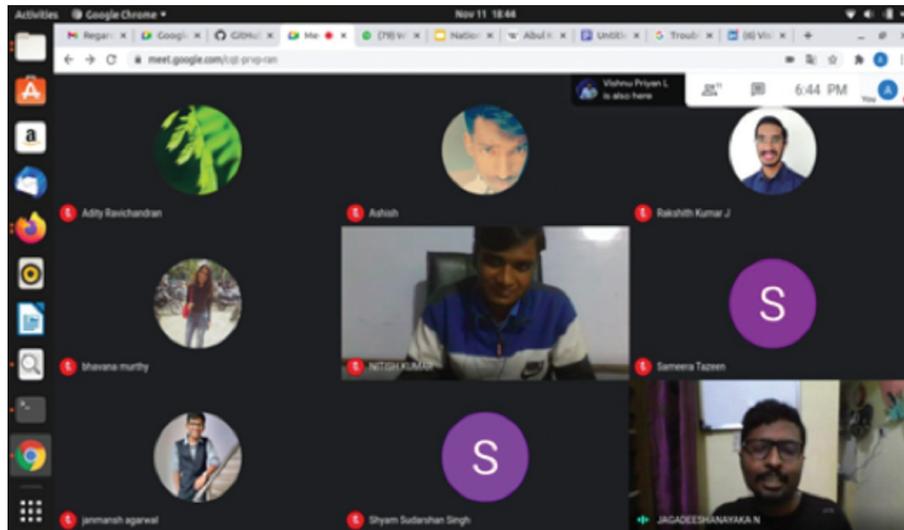
The institute observed 'National Unity Day' (Rastriya Ekta Diwas) to salute Sardar Vallabhbhai Patel on his birth anniversary, as directed by the Ministry of Education (Shiksha Mantralaya), Government of India on Thursday, 29 October 2020. Prof. U. Sripathi Acharya, Dean (R&C) administered the Unity Pledge. Deans, Registrar, Assistant Registrars, faculty and non-teaching staff participated in the unity pledge at the Administrative Block following the COVID-19 Guidelines.



Officers and staff taking pledge

Celebration of National Education Day

The National Education Day was celebrated on 11 November 2020 in commemoration of the birth anniversary of Maulana Abul Kalam Azad. On this occasion, three events were organized in on-line mode by the Hindi and Sanskrit Club. The Student Convener of the club Mr. Arpith, Final year B.Tech (IT) and his team organized the following events with the guidance of the Faculty Advisor Dr. Darshak Trivedi.



Students participating in online competitions

Initially there were presentations by students on National Education Policy (NEP) – 2020. It was followed by an online elocution competition on the topic ‘An Ideal Education System’. The last event was an online quiz on NEP 2020. Prizes were given away to the winners in the competition.

Constitution Day Celebration at NITK Suratkal

The Constitution Day is celebrated on November 26, 2020 at NITK Suratkal and to mark the celebration, the Preamble of Indian Constitution was read in English, Kannada and Hindi.



Prof. K. Balaveera Reddy taking part in the reading of the Preamble

Prof. K. Balaveera Reddy, Chairperson, BoG, NITK, Surathkal, took part in the reading of the Preamble to the Constitution and the celebration was attended by Deputy Director, Registrar, Deans, and faculty. Administrative Officers and non-teaching staff also participated in the reading of the Preamble to the Constitution at their sections, while maintaining social distancing.

National Education Policy (NEP) 2020

As per directions from Honourable Minister of Higher Education, GOI on launching NEP 2020, immediate plan of action was charted at NITK Surathkal in June 2020. Under the leadership of the Director Prof. Umamaheshwar Rao and the Chairman BOG Prof. Balaveera Reddy, a NEP 2020 Task Force was constituted consisting of Deputy Director and all Deans. An elaborate schedule of presentations and deliberations was part of the preparations to gear up for the implementation of NEP 2020.

Sl. No.	Theme of NEP/ Title of the webinar	Date	Number of participants	Level of participants	Name of the resource person
1	Roles of Institutes of National Importance	25-08-2020	278	Faculty members (Professor, Assoc. Professors & Asst. Professors) and administrative staff	Prof. N.C. Shivaprakash, IISc, B'luru, Senate Member
2	NEP-2020: What it does for us and what we can do for it	04-09-2020	275		Prof. A.K. Suresh, IIT Bombay, BoG Member
3	Role of Teachers in Higher Education	05-09-2020	288		Prof. K. Balaveera Reddy, Chairman, BoG
4	Vision to transform NITK towards MERU	05-09-2020	276		Prof. K. Balaveera Reddy, Chairman, BoG
5	Multiple Entry and Multiple Exit points in HE	16-09-2020	281		Prof. K. Balaveera Reddy, Chairman, BoG
6	Nurture Creativity, IPR and Patent culture	26-09-2020	240		Prof. Arun M. Isloor, NITK
7	Student Activity and Participation and Support	03-10-2020	255		Prof. Jagannatha Nayak, NITK

8	NITK – A View on Vision (Academics & Admin)	10-10-2020	284		Prof. K Umamaheshwar Rao, Director
9	Implementation of Multiple Entry and Multiple Exit Scheme at NITK	17-10-2020	282		Prof. K. Balaveera Reddy, Chairman, BoG
10	Academic Reforms in Multidisciplinary systems	24-10-2020	257		Prof. G. Ram Mohan Reddy, NITK
11	Opportunities for Multidisciplinary Research and Academics in Mining	31-10-2020	212		Dr. Karra Ram Chandar, NITK
12	Research Centers in Higher Education Systems	07-11-2020	267		Prof. Udaya Bhat K., NITK
13	Holistic and Multidisciplinary Education	28-11-2020	283		Prof. K. Balaveera Reddy, Chairman, BoG
14	Role of Teachers in Higher Education	04-12-2020	290		Prof. K. Balaveera Reddy, Chairman, BoG
15	Effective Teaching -Learning in Higher Education	05-12-2020	230		Prof. S.M. Kulkarni, NITK
16	Faculty Participation- Role and Outcome	12-12-2020	210		Dr. Nagaraja H.S., NITK

Based on the interaction with the participants, NITK, Surathkal is making preparations for the timely and smooth adoption of NEP 2020 and is proposing certain changes in its rules and regulations and curriculum to meet the goals of NEP 2020. Some of the proposed changes to be made for smooth adaption of NEP 2020 are listed below:

- Introduction of liberal arts into B.Tech
- Flip classes
- Introduction of trans-disciplinary projects at B.Tech, M.Tech and Ph.D level
- Introduction of the cornerstone, Capstone projects
- Vocational Training
- Design of New Courses
- Dual-degree programmes
- Multiple entry-multiple exit schemes.

Five-year Strategic Plan Presentations

In order to facilitate the implementation of National Educational Policy-2020, presentations were organised on “Five-year Strategic Plans” by all Deans, Heads of the Departments, Chairpersons of various centres like CDC, CSD, CCC, Library, etc. from 02 November 2020 to 05 January 2021. The Five-year Strategic Plan for the institute was slated to be drafted based on these presentations and deliberations that followed.

Administrative Assignment

Dr. I. Regupathy, Associate Professor, Department of Chemical Engineering was appointed as Liaison Officer, OBC Cell from 16 November 2020.

Conferences/Workshops/GIAN Programmes/Expert Lectures Organized

Department of Civil Engineering

1. Dr. Suresha S.N. coordinated a five-day online Faculty Development Programme titled “Infrastructure Engineering – Transport Infrastructure Asset Management” during 21-25 September 2020. This programme was sponsored by the AICTE under ATAL Scheme.
2. Dr. B.M. Sunil along with Dr. Basavaraju Manu and Dr. Raviraj H.M. organized a two-day online International Conference on “Green Highway Construction – A Sustainable Approach” during 14-15 September 2020. This conference was sponsored by IEI, Mangalore Chapter.
3. Dr. Babloo Chaudhary organized a nine-day Indo-Canadian online Workshop on “Interactive Design in Geotechnical Engineering: Theory to Practice” from 24 September to 1 October 2020.

Department of Computer Science & Engineering

Dr. B.R. Chandavarkar and Dr. Mohit P. Tahiliani organized a five-day workshop on “Open-Source Network Experimentation (ONE-2020)” from 14 to 18 December 2020.

Department of Electronics and Communication Engineering

1. A five-day online Faculty Development Programme on “Recent Trends in Nanoelectronics and Optoelectronics (RNO-2020)” was held from 12 to 16 October 2020.
2. A five-day workshop on “IEEE WANS 2020 Advances in Nanophotonic devices & Sensors – 2020” was held from 11 December 2020.

Department of Information Technology

1. Dr. Jaidhar C.D. and Dr. Nagamma Patil organized a five-day STTP on “Applications of Machine Learning and Deep Learning Techniques in Multidisciplinary Area”, during 16-20 November 2020.
2. Dr. Anand Kumar M. organized a five-day AICTE/ATAL sponsored FDP on Data Sciences during 21-25 September 2020.
3. Dr. Anand Kumar M., Dr. Jothi Ramalingam (Dept. of MACS) and Dr. Biju R. Mohan organized a short-term course on “Cybersecurity and Deep Learning”, sponsored by CySeck (Government of Karnataka) from 15 to 22 July 2020.
4. Dr. Anand Kumar M Conducted the “Dravidian-CodeMix-HASOC2020” Shared task Jointly with National University of Ireland at FIRE2020 International Conference (online)” Dec 16-20, 2020.

Department of Mathematical and Computational Sciences

1. Dr. Pushparaj Shetty D. was the Organizing Co-Chair of 2020 IEEE DISCOVER: International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics held during 30-31 October 2020, hosted by SMVITM, Bantakal, Udupi.
2. Dr. Vishwanath K. P, Dr. Chandhini G, Dr. Mythili Priyadarshini, Dr. Y. Santhi Sheela organised a One-day Webinar Series on Python Programming (in collaboration with DellEMC) on 31 October 2020.

Department of Mechanical Engineering

1. Dr. Mruthyunjaya Swamy K.B. and Dr. Pramod K., organised TEQIP-III sponsored five-day short term technical programme at Government college of Engineering, Jhalawar, Rajasthan during 11-15 February 2020.
2. Dr. Hemantha Kumar organised a one-day webinar on “Rheology with MRD attachment” on 12 October 2020. It was sponsored by the Central Research Facility (CRF), NITK, Surathkal and Anton Paar Ltd.

Department of Metallurgical and Materials Engineering

Prof. Udaya Bhat K., Dr. M. Rizwanur Rahman and Dr. Saumen Mandal coordinated a National (online) Workshop on “Surface Characterization: Tools and Applications”, Sponsored by TEQIP – III, during 14-18 December 2020.

School of Management

1. Dr. Sheena Organised an International FDP on “Open-Source Tools for Online Teaching”, as Joint coordinator and resource person with the Department of Commerce, Aligarh Muslim University (a Central University), Aligarh during 20-24 July 2020.
2. Dr. Bijuna C. Mohan, Dr. Savita Bhat, Dr. Rashmi Uchil, Dr. Suprabha K.R, and Dr. Ritanjali Majhi coordinated a National (Virtual) Conference on “Convergence of Management Practices in the Era of Industry 4.0.” during 22-23 July 2020 as part of the Diamond Jubilee celebrations of the institute.

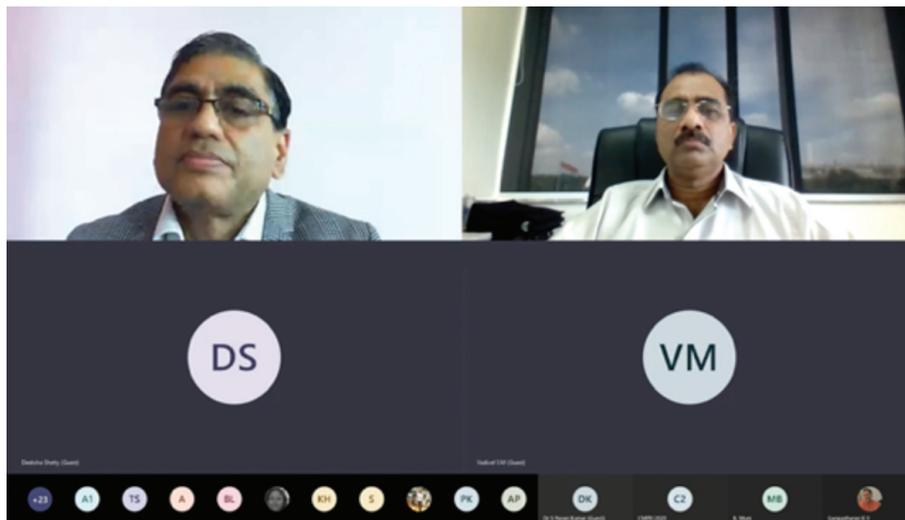


Figure 2: (Left to Right) Mr. Murali Lakshmi Narasimhan, Senior Director-Technical at Siemens Industry Software and Mr. Biju Balendran, MD and CEO, Renault Nissan Automotive India Private Ltd during the Inaugural Session of CMPEI 2020

3. Dr. Sheena organised an International FDP on “Digitization of Education Content through Open-Source Tools” as Joint coordinator and resource person with the Department of Commerce, Aligarh Muslim University (a Central University), Aligarh during 6 – 10 August 2020.

4. Dr. Sheena organized three PALS-VLAB FDPs as Outreach Coordinator, Centre for System Design, NITK for 30 engineering colleges in the state of Tamil Nadu during 10-14 August, 24-28 August and 14-18 September 2020.
5. Dr. Sheena organised an “Online Professional Training on Teaching-Learning Process using Virtual Platforms” with the Department of Commerce, Aligarh Muslim University (a Central University), Aligarh, during 16-20 August 2020.
6. Dr. Sheena organized a one-week FDP for the engineering colleges coming under VTU, Belagavi on Virtual labs as the Outreach Coordinator, Centre for System Design, NITK during 19-23 October 2020.
7. Dr. Pradyot Ranjan Jena organised a five-day International Workshop on “Climate-Smart Agriculture: Challenges and Opportunities” during 23 to 27 October 2020.

Faculty Achievements

Department of Civil Engineering

1. Dr. Mithun Mohan of the Department of Civil Engineering delivered the keynote address on “An Overview of Road Accidents at Indian Intersections” at the National Conference titled “Current Outlook on Civil Engineering” held from 16 to 20, November 2020 organized by MES College of Engineering, Kerala.
2. Dr. C. Rajasekaran of the Department of Civil Engineering delivered the keynote address on “Safety in Construction: Insights and Implementation” at the Five Days Short Term Technical Programme on “Practical Aspects in Civil Engineering” held from 3 to 7 August 2020 organized by the Department of Civil Engineering, Sethu Institute of Technology, Virudhunagar, Tamilnadu.
3. Dr. Babloo Chaudhary of the Department of Civil Engineering delivered the keynote address on “Fifteen Years after the 2004 Indian Ocean Earthquake and Tsunami: Are We Better Prepared for Such Disaster?” at the “National Conference on Emerging Practices and Innovations in Civil Engineering” (EPIC 2020) held during 26-27, October 2020, organized by S.R.K.R. Engineering College, Bhimavaram, Andhra Pradesh.

4. Dr. B.B. Das delivered a keynote address on “Engineering Properties of Nano Silica Admixed Cementitious Composites”, during the Online International Conference on ‘Sustainable Materials and Practices For Infrastructure Development (SMPID-2020)’, organized by the Department of Civil Engineering, Government College of Engineering, Kalahandi, Bhawanipatna, Odisha, India, held on 17th -18th September 2020.
5. Dr. B.B. Das was the Program Chair for an International Conference on “Sustainability and Equity” organized by KIIT University, Bhubaneswar, during 23-25 November 2020. During the conference he virtually shared the platform with a Nobel Laureate, Dr. Richard John Robert.
6. Dr. B.B. Das was the Conference Advisor and also chaired the technical session of the International Conference on “Recent Developments in Sustainable Infrastructure” (ICRDSI 2020), organized by the School of Civil Engineering, KIIT Bhubaneswar, India, held during 18-21 December 2020.
7. Dr. B.B. Das has been the Guest Editor for *Indian Concrete Journal*, (Theme: Green Concrete), a Scopus indexed journal managed and published by Associated Cement Companies, Thane, Mumbai, India, during December 2020.
8. Dr. Sreevalsa Kolathayar was nominated as Associate Editor of the International Journal of Geosynthetics and Ground Engineering (IGGE), Springer
9. Dr. Sreevalsa Kolathayar was nominated to the Technical Committee Earthquake Engineering and Soil Dynamics (EESD) of the American Society of Civil Engineers (ASCE).
10. Dr. Sreevalsa Kolathayar served as Executive Committee Member of Indian Society of Earthquake Technology (ISET), IIT Roorkee.

Department of Information Technology

1. B.Tech student team mentored by Dr. Sowmya Kamath S. won the Software Grand Finale of the Smart India Hackathon 2020 (Prob. Stmt no. AR 256, National Jute Board), during 1-4 August 2020
2. Dr. Sowmya Kamath S. was awarded Google Cloud COVID-19 Research Grant of USD 10,600 for research work on Cost-effective early-screening mechanisms for COVID-19 during July 2020.

3. Sahil Ahmed S. and Anand Kumar M. won the best paper award in the 4th International Conference on Intelligent Computing and Communication (ICICC-2020), at Dayananda Sagar University, Bengaluru.

Department of Mechanical Engineering

1. Ravikumar K.N., Madhusudana C.K., Kumar H., Gangadharan K.V., published a book titled *Ball Bearing Fault Diagnosis Based on Vibration Signals of Two Stroke IC Engine Using Continuous Wavelet Transform*, during 2020, doi.org/10.1007/978-981-15-5693-7_28, Springer, Singapore
2. Santosh C., Veershetty G., Perumal D.A., published a book titled *Numerical Analysis of Composite Phase Change Material in a Square Enclosure*, during 2020, doi.org/10.1007/978-981-15-2666-4_35, Springer, Singapore.
3. Libin O., Kumar G.N., published a book titled *Experimental Studies on the Effect of Varying Rates of Part-Cooled EGR in High Pressure Loop on an MPFI Engine Under Variable Speed Operation*, during 2020, doi.org/10.1007/978-981-15-5996-9_37, Springer.

Department of Mining Engineering

1. Prof. Harsha Vardhan received the award for Best Paper at the 35th Indian Engineering Congress held during 18-20 December 2020, for the paper entitled “Experimental and Prediction Analysis of the Screening Performance of Coal in Linear and Circular Vibratory Screen” in the Mechanical Engineering Division.
2. Prof. Harsha Vardhan received the “Distinguished Alumnus Award” for achieving excellence in the profession and bringing laurels to the Alma Mater from National Institute of Technology Karnataka, Surathkal, during Diamond Jubilee Celebrations (06 August 2019 - 06 August 2020).

School of Management

1. Dr. Ritanjali Majhi delivered an expert lecture in an FDP on “Machine learning with business applications”, held at NIT Warangal, during 24-28 August 2020.
2. Prof. Shashikantha Koudur delivered a public lecture on “Reviewing Dasa Sahitya: Modernity, Communities, and Culture” on 10 October 2020, organised by Bengaluru Historians Society, *Itihasa Darpana* and ritumana.com.

3. Naganna Chetty and Dr. Sreejith Alathur have been awarded the best paper award for a research paper titled “2019- nCoV Disease Control and Rehabilitation: Insights from Twitter Analytics” in the 2020 International Conference on “Computing, Communication and Security” held at Indian Institute of Technology Patna, Patna, India during 14-16 October 2020.
4. Dr. Ritanjali Majhi delivered an expert lecture in the one-week online Faculty Development Programme on “Research Methodology in Management”, held at NIT Andhra Pradesh during 19-24 October 2020.
5. Dr. Pradyot Ranjan Jena delivered an expert lecture in the 3-Day National Workshop cum Training on “Green Growth Strategies for Climate Resilience and DRR: Policies, Pathways and Tools” held during 26-28 November 2020 at ISEC, Bangalore.

Projects/Consultancies Sanctioned

Project Title	Investigator(s)	Funding Agency	Sanctioned Amount (in Lakhs)	Duration
Department of Chemical Engineering				
Development of Electrospun ceria-based nano fibres for diesel soot oxidation activity	Dr. Hari Prasad Dasari	SERB-Core Research Grant	36.57	24 December 2020 to 24 December 2023
Oligo-Saccharides from marine enzyme for medical / food application	Dr. Keyur Raval	NITK Alumni Fund, IMPACT 79ers	3.9	01 January 2021 to 30 June 2022
Algal Biorefinery using Spirulina Model to Integrate Wastewater Utilization and Biofuel Production	Dr. Venkatesh Kamath, Department of Biotechnology Engg. NMAMIT Nitte, Dr. I. Regupathi	Teachers Associateships for Research Excellence (TARE) by SERB - DST	18.3	December 2020 to December 2023
Design and Optimization of Distributor and Flow Distribution of a Multiphase Trickle Bed Reactor Using 3D CFD Modelling	Dr. B Ashraf Ali	MRPL, Mangalore	9.80	December 2020 to May 2022

Department of Civil Engineering				
Development of Countermeasures to Mitigate Earthquake-induced Damage of RM Breakwater	Dr. Babloo Chaudhary	SERB (DST)	31.3	2020-2022
Department of Electronics and Communication Engineering				
Development of Highly Conductive Ultrathin VS2 Crystals for High-Performance Flexible Supercapacitors	Dr. Sushil Kumar Pandey	SERB (DST)	27.86	December 2020 – December 2022
Development of design essentials for Ga2O3 FinFET for SOC in automotive applications	Dr. Nikhil K. S.	SERB (DST)	26.64	December 2020 – December 2022
Design and Development of GaN HEMT Based LNA for L5 and S-Band IRNSS Receiver	Dr. Sandeep Kumar	SERB (DST)	30	October 2020 – October 2023
Design and development of Ultra-Low Power CMOS IC for wireless neural monitoring system	Dr. Sandeep Kumar, (India) Prof. Hanjung Song, Inje University, Busan (South Korea)	DST, Ministry of Science and technology, India and ICT of the Republic of Korea.	102	December 2020 – December 2023
Department of Information Technology				
Identification and Extraction of Question and Answers from Unstructured Documents	Dr. Anand Kumar M.	Edumister (US)	1.18	September 2020 - December 2020
Department of Mechanical Engineering				
Investigation On Radiolucent Composite Sandwich Materials for Biomedical Imaging Systems Under Hygrothermal Environment	Dr. S. Kattimani	DST- ASEAN - India Collaboration	41	2020-2022

Design And Testing of Robust, High Efficient, Low Polluting Lpg Porous Burners For Household Applications	Dr. Parthasarathy P. and Dr. Arun M.	DST-SYST	33	2020-2023
Cost-Effective Enhanced Insulating Foams for Cold Storage Application	Dr. Mrityunjay Doddamani	ISHRAE	30.62	2020-2023
Investigation On Radiolucent Composite Sandwich Materials for Biomedical Imaging Systems Under Hygrothermal Environment	Dr. S. Kattimani, Dr. N.T. Trung (Vietnam), and Dr S. Mehdi (Malaysia).	AISTDF-SERB	37.08	2020-2022
Development of Brushless DC (BLDC) Motors for an Automotive Power Window Application	Prof. Gangadharan K.V., Dr. Yaswanth Kayap (EE) and Pruthviraj U. (WROE)	Dept. of Heavy Industries and M/s Aditya Auto	375	2020-2022
Explore - Experiential Learning Reengineered	Prof. Gangadharan K.V., Dr. Sheena (SOM), and Dr. Pruthviraj U. (WROE)	IITM Alumni Association (IITMAA)	24	2020-2024
E Mobility	Prof. Gangadharan K.V. and Dr. Pruthviraj U. (WROE)	NITK+NITK Alumni	15	2020-2023
Fight Against Covid19 - Face Shield	Prof. Gangadharan K.V. and Dr. Pruthviraj U. (WROE)	ONGC, NMPT, OMPL, MRPL, Stratasys	44	2020-2022
Department of Metallurgical and Materials Engineering				
Consultancy Project "Failure Analysis of Jockey Pump Shaft"	Dr. Subray R. Hegde, Dr. Sumanth Govindarajan	Mangalore Refinery and Petrochemicals Limited (MRPL)	2.71	August - September 2020

Consultancy Project “Failure Analysis of Classifier Base Bolt”	Dr. Subray R. Hegde, Dr. Sumanth Govindarajan	Mangalore Refinery and Petrochemicals Limited (MRPL)	4.36	October - December 2020
Department of Mining Engineering				
Assessment of ground vibrations generated due to Blasting in Nalakath granite quarry, Malappuram District of Kerala (Consultancy)	Dr. K. Ram Chandar	M/s. Nalakath Granites	1.8	Two months during the reporting period
Scientific study for Design the method of Working, Ultimate pit Slope, Dump Slopes Including Monitoring of Final Highwall benches, OB Dumps Slopes of RGOC-V OCP, Ramagundam area, SCCL	Dr. K. Ram Chandar	M/s. The Singareni Collieries CO. Ltd	3.8	Four months during the reporting period
Scientific Study for designing the method of working, ultimate pit slope, dump slope and monitoring of Slope stability for the life of the mine at RG OC-III, RG-II Area, SCCL	Dr. K. Ram Chandar	M/s. The Singareni Collieries CO. Ltd	3.8	Four months during the reporting period
Assessment of intensity of ground vibrations generated due to blasting operations in stone quarry in Kavalapadooru village, Bantwal taluk, DK District, Karnataka	Dr. K. Ram Chandar	M/s. MK Associates	1.8	Two months during the reporting period

Patents and Other Particulars from IIP Cell

Title	Patentee	Status & Number (granted/ published /filed)	Date (of filing/ publishing/ granting)
Department of Chemical Engineering			
Method and system for preparing a Lanthanum Zirconium Oxide based dielectric ink for Micro electronics	Dr. Jagannathan T.K., Kishor Kumar M.J., Pavan Pujar	Granted Patent Number: 347616	24-09-2020
Removal of Heavy Metals from Contaminated Water by Adsorption Using Melanin Bound Activated Carbon	Dr. Keyur Raval, Vishnu M., Prof. Rajmohan B.	Granted Patent Number: 351670	18-11-2020
Rotating Packed Disc Bioreactor	Dr. Keyur Raval, Rohith Kalnake, Prof. D.V.R. Murthy	Granted Patent number: 351997	23-11-2020
Department of Chemistry			
Method of preparation of High Energy conducting Polyaniline Phosphovanadomolybdate Nanohybrid electrode for supercapacitor device application	Dr. Sib sankar Mal	Filed	03-11-2020
Method of preparation of activated carbon supported vanado-nickelate (IV)- nanohybrid electrode for high performance super-capacitor device application	Dr. Sib sankar Mal	Filed	03-11-2020

Department of Electrical and Electronics Engineering			
Scalable single stage-single phase differential flipped gamma semi magnetically coupled impedance source inverter	Dr. Debashish Jena	Filed	03-11-2020
Department of Information Technology			
A Method, System and Apparatus for Generating Patient Knowledgebase for Clinical Decision Support Applications	Dr. Sowmya Kamath S.	Filed	29-12-2020
Department of Mechanical Engineering			
Method and System for Fabricating a Metallic Continuous Reinforced Composite	Dr. H. Shivananda Nayaka	Filed	07-07-2020
Variable Stiffness Magnetorheological Isolator	Prof. K.V. Gangadharan, Kiran Kattari	Published	13-11-2020
Method, system and apparatus for upgrading tyre pyrolysis oil	Dr. Vasudeva Madav, Saikat Dutta, Akhil Mohan	Granted	25-09-2020
Department of Metallurgical and Materials Engineering			
Method and System for Fabricating a Structure Using Additive Manufacturing Wastes of C300 Maraging Steel	Dr. Udaya Bhat K., et al	Published	11-09-2020
Fabrication of high conductive metallic films at low temperature	Dr. Saumen Mandal, Bikesh Gupta, Pavan Pujar, Komalakrushna Hadagalli, Robbi Vivek Vardhan	Granted. Patent Number: 347677	24-9-2020

- B) Number of Major Testing & Consultancy (T&C) Projects undertaken (above Rs. 1 lakh) for the said period: 24
- C) Total revenue generated from T&C for the said period: Rs 109.96 Lakh

Students Achievements

Department of Civil Engineering

1. Dr. Manjunath R., Ph.D. Scholar of the Department of Civil Engineering was awarded the ICI (Bengaluru Centre) – UltraTech Award 2020: Outstanding Thesis (Doctoral) in Karnataka, for his thesis Experimental Studies on High Performance Alkali Activated Slag Concrete Mixes. Dr. Mattur C. Narasimhan was his thesis supervisor.
2. Mr. Apurva Naik, a postgraduate student, NITK Surathkal, (2018-2020 Batch) bagged the 1st Runner-Up award under the Project Awards 2020, L&T Build India Scholarship (L&T Construction).

Department of Electronics and Communication Engineering

NITK IEEE Student Branch received the Best Large Student Branch Award from IEEE Bangalore Section for the year 2020, in recognition of their outstanding contribution to the Bangalore section in the year 2020.

Department of Mathematics and Computational Sciences

Ms. Smitha A., a PhD scholar, received IAPR best student paper award for the paper titled “A Semi-Supervised Generative Adversarial Network for Retinal Analysis from Fundus Images” (Authors: A. Smitha and P. Jidesh) in the 5th IAPR International Conference on Computer Vision and Image processing 2020, held at IIIT Allahabad, during December 2020 (<https://cvip2020.iiita.ac.in/awards.php>).

Department of Mining Engineering

Thumalapally Anusha of B.Tech III Semester received the Bronze medal representing her team in All India Inter-NIT Women’s Kabaddi-2020.

Placements 2020-2021

Placement Statistics as on 31 December 2020

Department	Eligible Students	Placed	% Placed
B.Tech.			
Civil Engg.	75	42	56
Chemical Engg	33	24	73
Computer Science & Engg.	98	90	92
Electronics & Communication Engg.	82	63	77
Electrical & Electronics Engg.	90	72	80
Information Technology	95	88	93
Mechanical Engg.	125	94	75
Metallurgical & Materials Engg.	30	20	67
Mining Engg.	33	21	64
Total B.Tech.	661	514	78
M.Tech.			
Civil Engg			
Structural Engg.	31	7	23
Geotech Engg.	13	2	15
Environmental Engg.	28	5	18
Transportation Systems Engg.	27	5	19
Construction Tech & Mgmt	26	2	8
Water Resources & Ocean Engg			
Marine Structures	28	4	14
Water Resource Engg & Mgmt.	12	3	25
Remote Sensing & GIS	23	1	4

Department	Eligible Students	Placed	% Placed
Chemical Engg.			
Environmental Science	9	4	44
Chemical Engg	12	3	25
Industrial Biotechnology	25	8	32
Computer Science & Engg.			
Computer Science & Engg.	23	18	78
Information Security	32	23	72
Electronics & Communication Engg.			
VLSI	33	18	55
Communication Engg & Network	31	16	52
SPML	25	14	56
Electrical & Electronics Engg.			
Power & Energy System	29	7	24
Information Technology			
Information Technology	26	18	69
Mechanical Engg.			
Thermal Engg.	17	6	35
Manufacturing Engg.	16	3	19
Mechatronics	28	9	32
Mechanical Design	18	7	39
Metallurgical & Materials Engg.			
Process Metallurgy	12	1	8
Materials Engg.	18	2	11
Nanotechnology	6	0	0
Mathematical & Computational Science			
Computational Data Science	23	17	74
Total M.Tech.	571	203	36

Department	Eligible Students	Placed	% Placed
MCA	89	66	74
MBA	28	12	43
MSc (Chemistry)	23	8	35
MSc (Physics)	24	1	4
Total	Eligible Students	Placed	Total % Placed
	1396	804	58
Total Companies Visited: 203	Maximum salary Rs. 51.75 LPA		
Average Salary UG: Rs. 13.56 LPA		UG: 78 %	PG: 39 %

Training Slots for the Academic Year 2020-21 as on 31-12-2020

Sl. No.	Branch	No. of Slots
01	Chemical Engineering	12
02	Civil Engineering	18
03	Computer Engineering	78
04	Electronics & Communication Engineering	43
05	Electrical & Electronics Engineering	35
06	Information Technology	72
07	Mechanical Engineering	41
08	Metallurgical & Material Engineering	14
09	Mining Engineering	12

Number of Companies: 93

Number of Training Slots: 325

Students' Activities

Orientation Programme for First Year B.Tech Students

Orientation programme for the first year B.Tech students was conducted on 12 December 2020 in online mode. The programme was coordinated by dean (SW). The Chairman BoG, the Director, the Deputy Director, all Deans, Chairman-CDC, Chief Warden, Registrar and Joint Registrar addressed the students. Students were given an overall picture of amenities available in the campus. The programme was well received and appreciated by the students and their parents. About 900 students participated in the event.

Webinar to First year B.Tech Students by Chairperson, BoG

A webinar by Prof. K. Balaveera Reddy, Chairman BoG, NITK on the topic “Successful Career Planning for NITKians” was organized for the first year B.Tech students on 26 December 2020. The programme was well appreciated by the students and their parents.

Students Club Activities

Various clubs conducted virtual events like skill development, motivational talks, seminar, workshops, weekly quiz, mentoring sessions, article writing, B-Plan competition, skill development programmes at International (5), National (35), and State (33) levels.

Technical Education Quality Improvement Programme, Phase III (TEQIP-III)

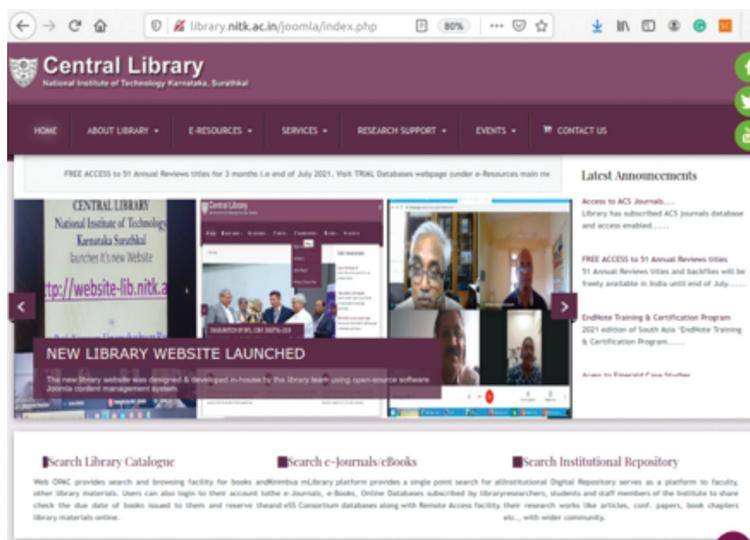
TEQIP-III project activities too were disturbed by the Covid 19 pandemic. However, even during the pandemic period, the TEQIP officers and staff made it a point to keep the activities going. National Programme Implementation Unit (NPIU) issued new procurement guidelines in June 2020, insisting that GeM and NIP CPP portals be used in all future procurement. Nodal officer, Procurement was swift enough to take on the challenge and initiated fresh procurements that were halted from September 2020. By December 2020 we were able to put into procurement worth INR 185.0 Lakhs and completing worth INR 75.0 Lakhs.

Many activities under the academic head such as faculty organizing FDPs, Workshops, STTPs turned to online mode. TEQIP could fund two Faculty Development Programmes, two workshops and one STTP under the faculty and staff development head. A six-day workshop on ‘Advanced Topics in Information Technology and Computer Science’ was organised for the students of Engineering College, Jhalawar, under the Twinning Activities. Research papers were presented by five of our UG/PG/PhD students (5 Nos.) in reputed conferences with the financial support for registration fee. TEQIP-III also funded the publication of four research articles in peer reviewed, high impact, and SCOPUS indexed journals under the Research and Development head.

Launch of New Website for Library

Central Library, National Institute of Technology Karnataka, Surathkal launched its newly developed library website on 6 August 2020, on its 61st Foundation Day during the Diamond Jubilee Year. The website was launched by Prof. K. Umamaheshwar Rao, Director, NITK Surathkal, through the virtual platform Google Meet. While congratulating Prof. M.N. Satyanarayan, Chairman,

Library Advisory Committee, Dr. Mallikarjun Angadi, Librarian & Mr. Iranna Shettar, Assistant Librarian and the library team for developing such a wonderful and user-focused library website, Prof. Umamaheshwar Rao said that the library is the spine of the institute and is a repository of the wealth of knowledge. He said that through this new website, we had opened a window to the outside world and that we needed to reach out to a worldwide audience and interact with the national and international institutions. It is in this direction that the new library website yearns to function and it is one of the important milestones in the trajectory of Central Library, NITK Surathkal.



The new library website was designed and developed in-house by the library team using open-source software Joomla content management system. It is a One-Stop-Centre for all the information needs of the students, staff and faculty of NITK.

Key Features of the New Library Website:

- The overall website has been designed keeping the library users in mind.
- Easy navigation and quick access to all library e-Resources
- Remote access to all the library e-Resources
- Mobile app application for all the library services
- List of books published by faculty members
- Recent faculty publications
- Highlights research activities and profiles of faculty members of NITK
- Three search interfaces viz., library catalogue, e-journals/databases & institutional repository
- Separate section for research scholars
- Live Chat facility for reference queries

- Appealing and pleasing look and feel
- A One-Stop-Centre for all information requirements

Alumni Relationship Building Activities

Conferring of Distinguished Alumnus / Alumna Award

Distinguished Alumnus / Alumna Award to Alumni Achievers who graduated from 1980 to 2019, was part of the Diamond Jubilee Year Celebration of NITK Surathkal and was held on 9 August 2020 at 10 am through the Web meeting platform. This event started with the greeting and introduction by Prof. K.P. Vittal, Dean (AA&IR). Following this, the welcome address was delivered by the Director, NITK, and the presidential address by Chairman, BOG. In total, thirty-eight alumni (who graduated during 1980-2019) serving industry, research organisations and educational institutions were invited and felicitated by the award of “Distinguished Alumnus / Alumna” through the Web Meeting Platform. The event was live casted on YouTube Live to facilitate participation of faculty, staff, students, alumni and other well-wishers of the institute.



A group of distinguished alumni attending virtual meet

Award of Cash and Certificate of Merit for the Wards of NITK Non-Teaching and Contract Staff

The institute received a grant of Rs. 4,73,663.81 from the Batch of 1981 for the purpose of instituting an award of Cash cum Certificate of Merit for wards of NITK Non-Teaching (temporary/contractual staff) every year. The award would be constituted of a scholarship of Rs. 10,000/- each and a merit certificate to two meritorious students of our temporary/contractual employees.

Institutional Relationship Building

MOU signed with Industries, Institutions and Universities from 01 July 2020 to 31 December 2020

No.	Date	Duration	Organisation/ Institute/ University	Purpose
1	03-08-2020	10 years	National Institute of Technology, Puducherry (NITP)	To facilitate faculty members of the Institute to submit a Joint project with faculty members of NITK in Regional Academic Centre for Space (RAC-S) setup at NITK.
2	03-08-2020	10 years	Government Engineering College, Thrissur, Kerala	To facilitate faculty members of the Institute to submit a Joint project with faculty members of NITK in Regional Academic Centre for Space (RAC-S) setup at NITK.
3	03-08-2020	10 years	National Institute of Technology, Andhra Pradesh (NITAP)	To facilitate faculty members of the Institute to submit a Joint project with faculty members of NITK in Regional Academic Centre for Space (RAC-S) setup at NITK.
4	03-08-2020	10 years	National Institute of Technology, Warangal	To facilitate faculty members of the Institute to submit a Joint project with faculty members of NITK in Regional Academic Centre for Space (RAC-S) setup at NITK.
5	27-08-2020	1 year	Garrett motion Technologies India Pvt. Ltd, Pune	To provide financial aid to five deserving students of B.Tech Mechanical Engineering branch from NITK, Subject to selection and approval by Garrett
6	21-09-2020	10 years	Government College of Technology, Coimbatore	To facilitate faculty members of the Institute submit Joint project with faculty members of NITK in Regional Academic Centre for Space (RAC-S) setup at NITK.
7	29-10-2020	5 Years	National Council for Cement Building Materials, Ballabgarh, Haryana	To facilitate students for internship/ Training and research students for laboratory facilities at NCCBM

CSR Funding Received

The institute received a scholarship fund of Rs.2,75,569/- from Garrett Motion Technologies India Pvt. Ltd, Pune, to the NITK /KREC Endowment Fund. This fund will be utilized to disburse the “Garrett WeCare4 Scholarship”. Garrett has reimbursed 80% of tuition fees of 5 students from B.Tech I Year (Mechanical Engineering), based on the cumulative Academic Score and their family income.

New Infrastructure

The Board of Governors (BoG), NITK, has approved the construction of the following infrastructure:

a) Construction of SKY-TRACK (Foot Over-bridge) across National Highway (66) Connecting Eastern and Western Parts of the Campus

The SKY-TRACK (Foot Over-bridge) across National Highway (66) would connect eastern and western parts of the Campus. This would be constructed at an estimated cost of Rs. 319.38 lakh. This work will be executed through the National Highways Authority of India (NHAI). An MoU has been signed with the NHAI on 13 November 2020 in this regard. Foundation stone was laid on 23 November 2020. The SKY-TRACK will be constructed with entry and exit points within the institute boundary wall.

b) Construction of New Security Office and Security Gate at the main entrances of the Campus (Eastern and western side)

The New Security Office and Security Gate at the main entrances of the Campus (Eastern and western side) would be built at an estimated cost of Rs. 136.41 lakh. This work would be executed through the Central Public Works Department (CPWD).

c) Construction of Laboratory Building for Concrete Testing and Environmental Engineering:

The laboratory building for Concrete Testing and Environmental Engineering at the Department of Civil Engineering will be constructed at an estimated cost of Rs. 132.50 lakh. This work would be executed through CPWD. The work would be commenced soon and would be completed by December 2021.

Central Research Facility

A number of equipment/simulation tools were installed in the Central Research Facility at the institute during July-December 2020, to facilitate cutting edge research in the region. These include High Performance Workstations, ANSYS Multiphysics Simulation Tool, Particle Sizing

& Zeta Potential Analyzer, Controlled Current-Voltage Source for Thin film Multilayer coatings, Ion Chromatography, Advanced Modular Rheometer, X-ray diffractometer with accessories and High-resolution Liquid Chromatography Mass Spectrometry.



Advanced Modular Rheometer



Particle Sizing and Zeta Potential Analyzer

Retirement on Superannuation Faculty



Dr. Sujatha D. Achar, Associate Professor, Department of Mathematics and Computational Sciences, retired on 31 July 2020.

Non-teaching Staff

1. **Sri Krishna Kumar**, Technician (SG-I), Department of Mechanical Engineering, retired on 30 September 2020.
2. **Sri Dinesh Acharya**, Assistant Engineer (SG-I), Department of Water Resources and Ocean Engineering, retired on 30 November 2020.





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