

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA SURATHKAL  
MANGALORE - 575 025 INDIA**



# **ANNUAL REPORT 2021-22**

Website : [www.nitk.ac.in](http://www.nitk.ac.in)  
E-mail : [director@nitk.ac.in](mailto:director@nitk.ac.in)

Tel : 0824-2474000 (24 lines)  
Fax : 0824-2474033



## NITK SURATHKAL – AT A GLANCE

### GOVERNANCE

NITK is governed by the Board of Governors, which consists of representatives of the Government of India, Government of Karnataka, Industry, Alumni, and other Nominees. The Chairman of the Board is nominated by the Government of India. The Director is the administrative head of the Institute. NITK an “Institute of National Importance”, is governed by NIT Act 2007 and statutes laid down by Government of India. Reconstituted Board of Governors is in place since September 2011.

### TEAM NITK

14 Departments  
272 highly qualified and dedicated faculty  
123 committed supporting staff  
6655 talented and motivated students

### LIST OF DEPARTMENTS

- Water Resources and Ocean Engineering
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science & Engineering
- Electronics & Communication Engineering
- Electrical & Electronics Engineering
- Information Technology
- Mathematical & Computational Sciences
- Mechanical Engineering
- Metallurgical & Materials Engineering
- Mining Engineering
- Physics

### SCHOOLS

- School of Management

### Academic Programs

B.Tech. – 10 disciplines  
M.Tech. – 26 Specializations  
M.Tech. (Research) – All Specializations  
MBA  
MCA  
M.Sc. (Chemistry) and M.Sc. (Physics)  
Ph. D. – offered in all departments

All the Departments of the Institute are recognized QIP centers for admission of teachers of both Engineering colleges and Polytechnics for their post-graduate & doctoral studies.

### PUBLICATIONS (2021-22)

International Journals – 697  
National Journals -03  
International Conference – 227  
National Conference – 38

### INTERDISCIPLINARY CENTERS OF EXCELLENCE

Disaster Risk Reduction Innovation Material Research Sustainable Technologies System Design (Virtual Instrumentation) Wireless Sensor Networks.

### ASSOCIATED CENTRES

Centre for Continuing Education, R&D center for - clay, Roofing Tiles & Ceramic Products, Industry Institute Partnership Cell; NITK Science and Technology Entrepreneurs Park (NITK-STEP).

### CAMPUS

295 acres of lush green beach-side campus located at Srinivasnagar, Surathkal Mangalore. Departments & facilities on Eastern and Western sides of NH-66 with connectivity through a 2-lane vehicular underpass. Well connected by rail and road to the rest of country. Flights available to major Indian cities and International destinations.

### FACILITIES & SUPPORTS

150 + Classrooms, 140+ laboratories  
12 hostel blocks for boys, 5 hostel blocks for girls. Mega Hostel for boys with 1512 single-seater rooms. New Ladies Hostel with 347 single –seater room. Internet connectivity (1Gpbs, 155 Mbps, 6000 nodes) Central computer Center, Central Library, E-Library, On-line access to journals 1200-capacity Auditorium, 1800-capacity Open-air theatre, Co- Operatives stores, Post office, Banks, ATMs, Health Care Centre with many visiting specialist doctors, Yoga Centre, 3 Campus schools (Kannada & English Medium), Guest House, Food Court and Canteens, International standard Swimming – Pool, Sports Grounds for cricket, hockey, football floodlit Courts for Basketball, Volley ball and Tennis, NCC– 2<sup>nd</sup> Karnataka Engineering Company, Surathkal Innovation Challenge (SIC), Student Internship Programme (SIP).

## **BUDGET (2021-22)**

Total Financial Outlay Rs. 207.94 Crores, Internal Revenue Generated Rs. 58.13 Crores, Consultancy & Testing Earnings Rs.2,86,85,262, Crores Corpus Fund of more than Rs. 244.59 Crores.

## **DOCTORAL OUTPUT**

2017 - 58 candidates  
2018 - 124 candidates  
2019 -116 candidates  
2020 - 121 candidates  
2021 - 120 Candidates  
candidates Doctoral students on rolls - 928

## **EXTRA AND CO-CURRICULAR ACTIVITIES**

More than 30 clubs, societies and professional body chapters are active conducting regular activities through elected leaders and representatives. "INCIDENT" and "ENGINEER" are popular cultural and technical annual festivals. NITK has won the overall championship of Inter NIT Sports consecutively for the last 3 years.

## **SCHOLARSHIPS & MEDALS**

Several well known and prestigious scholarship (27) awards and medals (66) are on offer for students at all levels. This is in addition to all regular scholarships of Govt. of India and Other State Governments.

## **Career Development Centre (Formerly Training And Placement)**

NITK is ranked among the top institutions for student placements. During 2021-22. UG placements 93%, PG 83% students got placement through the campus selection. The department also facilitates internships for students within India and overseas.

## **MOUS with Universities, Institutes for the year 2021-22.**

1. 16-03-2022, TATA Consultancy Services Limited, Mumbai, Consultancy Services.
2. 02-03-2022, UniCourt, To collaborate on research and Consultancy projects and Internship.
3. 02-03-2022, Mangalore Infotech Solutions Pvt. Ltd Mangalore, To collaborate on

Research and Consultancy Project and Internship.

4. 02-03-2022, Trishilabs Infosystems LLP, Bangalore, To collaborate in academic, scientific, and technical research in specific areas of common interest in the broad areas of artificial intelligence in medical image analysis under a project titled Development of Software tools for retinal image analysis.
5. 17-12-2021, Karnataka Veterinary, Animal and Fisheries Science University, Bidar, To Foster in implementation of state of the art Technology in aquaculture, and National and International cooperation in education and Consultancy.
6. 17-01-2022, Industry Network Technology Council (INTC), To Promote education and collaboration on current and evolving Internet Standards in a Vendor-Neutral Environment.
7. 08-12-2021, India Internet Engineering Society (IIESoc), Cooperation in areas of common interest such as IPv6 deployment at university campuses and explore additional related work items.
8. 08-12-2021, Garrison Engineer (P) Ezhimala, Naval Academy, Ezhimala, Consultancy Services.
9. 04-09-2021, Nukus Branch of Navoi State Mining Institute, Development of cooperation in the field of Technical Education and science. Training mineral industry personnel for acquiring higher skill levels and preparing qualified scientific personnel to be ready for industry 4.0 and beyond. Continuous improvement of the qualifications of field professionals. Integration of vocational education and science. Co-operation within the framework of the implementation of international projects using the personnel potential of the parties.
10. 21-10-2021, M.S Ramaiah Institute of Technology, Bangalore, To facilitate faculty members of the Institute to submit Joint project with faculty members of NITK in the Regional Academic Centre for Space (RAC-S) setup at NITK.
11. 17-08-2021, Manipal Academy of Higher Education, Manipal, To Promote Academic Cooperation.
12. 25-03-2021, Maire Tecnimont S.p.A, for the creation of Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy.
13. 12-04-2021, Prime Ever Ayurvedic Research Laboratories, Navsari, Gujarat, To foster cooperation in education and research

# Annual Report 2021-2022

<b>Contents</b>	<b>Page No.</b>
1. The Institute	01
2. Governance & Administration	02
3. Departments/Schools	09
4. Academic Programmes	10
5. Admission Policies	11
6. Admissions for 2021-2022	12
7. Evaluation and Examination	38
8. Examination Results for 2021	39
9. Ph.D. Programmes & Doctorates Awarded	52
10. Human Resources	61
11. Facilities/Amenities	70
12. Student Activities	98
13. Research and Development and Consultancy Projects	99
14. Technical Events	193
15. Human Resource Developments	209
16. Student Placements	213
17. Special Initiatives	215
18. Industry Institute Interaction	224
19. Significant Achievements	228
20. Associated Centres	261
21. Finance and Accounts	264



## 1. THE INSTITUTE

### 1.1 HISTORICAL BACKGROUND

National Institute of Technology Karnataka (NITK) Surathkal, formerly known as Karnataka Regional Engineering College (KREC) Surathkal, was established in the year 1960 at Srinivasnagar, Mangalore, Karnataka State. Sri U. Srinivasa Mallya, a visionary and a philanthropist was instrumental in the establishment of this Institute and hence the campus is named after him as "Srinivasnagar". KREC made a small yet significant beginning with 3 Departments offering BE programs in Civil, Mechanical and Electrical Engineering. Since then KREC grew from strength to strength and set unprecedented records in the field of technical education in the country. Initially the College was affiliated to the University of Mysore but in 1980 the affiliation was transferred to the Mangalore University. With every passing batch of students who went on to conquer unexplored domains in the service of humanity, the stature of KREC grew and the world recognized and applauded. So much so, 'Surathkal' is synonymous with high quality engineering education. In 2002, the Government of India decided to grant full autonomy and accordingly the College was elevated to the status of Deemed University and renamed as the National Institute of Technology Karnataka. Subsequently, the National Institute of Technology Act, 2007 was enacted by the Parliament of India to declare India's National Institutes of Technology as Institutes of National Importance. The Act received the assent of the President of India on 5<sup>th</sup> June, 2007 and became effective from August 15, 2007. The Institute is governed by the rules and statutes of the NIT Act.

The Institute has established itself as a premier center engaged in imparting quality technological education and providing support to research and development activities. The Institute has a long tradition of research for several decades in both traditional and modern areas of engineering and sciences in all departments. The Institute has been actively involved in applied research while

identifying and resolving problems faced by the society in several areas. NITK attracts students from all over the country and abroad. 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. Many of its alumni occupy coveted positions both in India and abroad and are sources of pride and inspiration to the Institute. NITK is consistently rated among the top engineering and technological institutes in India. Today, the Institute offers 10 B.Tech programmes, 31 Post Graduate programmes and Doctoral programmes in all its fourteen Departments and is making significant advances in R&D and Research activities too.

### 1.2 LOCATION

The Institute is located at Srinivasnagar, Surathkal in the Dakshina Kannada District of Karnataka State, 21 km. North of Mangalore city on either side of NH.66 which cuts across the campus. The campus is well connected by rail, road, air and sea with the rest of the country. The airport is situated at Bajpe, 20 km from Surathkal. The nearest Railway station is Surathkal (3 km.) which is on the Mangalore-Mumbai Konkan Railway route and the nearest sea port is New Mangalore which is 8 km. south of Institute premise.

### 1.3 CAMPUS

The campus covers an area of 295 acres in picturesque surroundings with Western Ghats in the East and the West Arabian Sea in the West. The campus is well laid out with roads, electrical installation, water supply, underground drainage etc. The campus being on the seashore, is blessed with clean air lush green and a healthy climate. The National Highway NH 66 separates the campus into Western Side and Eastern Side campus. The Western Side of the campus houses the Departments of Electrical and Electronics Engg., Electronics & Communication Engg., Computer Science and Engg. and Information Technology, Guest House, STEP, Yoga centre and pristine beach.

## 2 GOVERNANCE & ADMINISTRATION

### 2.1 ADMINISTRATION

NITK is governed by the Board of Governors which consists of representatives of the Government of India, Government of Karnataka, Alumni, Industry and other nominees. The Chairman of the Board is nominated by the Government of India. The Director is the administrative Head of the Institute. The functioning of NITK is governed by NITSER Act 2007 and rules laid down by Government of India.

### COUNCIL, BOG AND OTHER COMMITTEES

#### COUNCIL OF NITs

- 1 Hon'ble Minister, Ministry of Education (erstwhile MHRD), Government of India
- 2 Education Secretary, Ministry of Education (erstwhile MHRD), Government of India
- 3 The Chairperson of National Institute of Technology Karnataka, Surathkal
- 4 Director of National Institute of Technology Karnataka, Surathkal
- 5 Chairman, UGC
- 6 Chairman, All India Council for Technical Education
- 7 Director, General, Council for Scientific and Industrial Research
- 8 Secretary, Department of Bio-Technology, Government of India
- 9 Secretary, Department of Atomic Energy, Government of India
- 10 Secretary, Department of Information Technology, GOI
- 11 Secretary, Department of Space, Government of India
- 12 Not less than three but not more than five persons to be nominated Member by the Visitor, atleast one of whom shall be a women, having special knowledge or practical experience in respect of education, industry, science or technology
- 13 Three members of Parliament, of whom two shall be chosen by the Member House of the people and one by the Council of States

- 14 Two Secretaries to the State Government, from amongst the ministries Member or departments of that Government dealing with technical education
- 15 Financial Adviser, Ministry Government of India
- 16 Joint Secretary -Technical (Technical)/Additional Secretary (Technical), Department of Higher Education, Ministry of HRD, GOI

### BOARD OF GOVERNORS

#### Chairperson

Dr. K. Balaveera Reddy (Upto 27.06.2021)  
former Vice Chancellor – VTU-Belgaum  
Veerabhadra Nilayam, H.No.10  
4<sup>th</sup> A Cross, 2<sup>nd</sup> Block, HRBR Layout  
Kalyana Nagar, Bangalore – 560043

#### Chairperson In-charge

(From 28.06.2021 to 16.02.2022)

Dr. K. Umamaheshwar Rao  
Director  
NITK, SURATHKAL

#### Chairperson In-charge

(From 17.02.2022 to 24-08-2202)

Prof. Udaykumar R. Yaragatti  
Director (In-charge)  
NITK, Surathkal.

#### Members

##### Director Ex-Officio

Dr. K. Umamaheshwar Rao (upto 16.02.2022)

Director  
NITK, SURATHKAL

#### Members

##### Director Ex-Officio

Prof. Udaykumar R. Yaragatti, (from 17.02.2022 till 24 - 08 - 2022)

Director (In-charge)  
NITK, Surathkal.

#### Nominee of the Central Government

Shri Mrutyunjay Behera (upto 06.12.2021)  
Economic Adviser (HE)  
Dept. of Higher Education  
Ministry of Education (Shiksha Mantralaya)  
Govt. of India,  
Shastri Bhavan, NEW DELHI – 110 001.

**Nominee of the Central Government**

Ms. Saumya Gupta, IAS (TR:2004)(from 07.12.2021 to till date)  
Joint Secretary (NITs)  
Dept. of Higher Education  
Ministry of Education (Shiksha Mantralaya)  
Govt. of India  
Room No.203, C – Wing, Shastri Bhavan,  
NEW DELHI – 110 115.

**Nominee of the Central Government**

Ms. Darshana M. Dabral (till date)  
Joint Secretary and Financial Advisor  
Integrated Finance Bureau  
Ministry of Education (Shiksha Mantralaya)  
Govt. of India, 120-C, Shastri Bhawan,  
NEW DELHI – 110 001.

**Nominee of the State Government**

Dr. Shanth Averahally Thimmaiah  
E-516 Nirman (Upto 12.12.2021)  
Nydhile, Bannerghatta Road  
Near Shell Petrol Bunk, Gottigere,  
Bangalore South – 560083.

**Nominee of the State Government**

Mr. G M Ravindra B.E., (Upto 12.12.2021)  
Corporate Office:  
RKS Infratech Pvt. Ltd.  
#42/36, “Rajani Towers”, 3<sup>rd</sup> Floor,  
27<sup>th</sup> Cross, 7<sup>th</sup> ‘B’ Main Road  
4<sup>th</sup> Block, Jayanagar, Bengaluru – 560011.

**Nominee of the State Government**

Dr. Y. A. Narayanaswamy (from 29.01.2022 to 28.01.2025)  
Hon’ble Member  
Karnataka Legislative Council  
No.461, 7<sup>th</sup> Cross, 4<sup>th</sup> Main  
H.I.G. Dollar’s Colony  
RMV 2<sup>nd</sup> State, Bengaluru – 560094.

**Nominee of the State Government**

Shri Aprameya Radhakrishna  
CEO & Co-founder of Koo

No.101, Van Gogh’s Garden  
Kasturba Cross Road  
Bengaluru – 560001.

**Nominee of the Institute Senate**

Prof. Subhash C Yaragal 10.11.2020 to 09.11.2022  
Professor  
Department of Civil Engineering  
NITK, SURATHKAL.

**Nominee of the Institute Senate**

Dr. Prasanna B D, Upto 16.10.2021  
Associate Professor  
Department of Chemical Engg.  
NITK, SURATHKAL.

**Nominee of the Institute Senate**

Dr. Vasudeva Madav,  
17.10.2021 to 16.10.2023  
Assistant Professor  
Department of Mechanical Engineering  
NITK, SURATHKAL.

**[Nominee of the Director, IIT Bombay.]**

Prof. A K Suresh (upto12.12.2021)  
Professor of Chemical Engineering and  
Dy. Director (Academic & Infrastructure Affairs)  
Indian Institute of Technology Bombay  
Powai, Mumbai – 400 076

**[Nominee of the Director, IIT Bombay.]**

Prof. Subhasis Chaudhuri, 13.12.2021 to till date  
Director  
Indian Institute of Technology Bombay  
IIT Powai, Mumbai – 400 076

**Secretary**

Shri K. Ravindranath, (Till date)  
Registrar  
N.I.T.K., SURATHKAL.

**FINANCE COMMITTEE**

**Chairperson**

Dr. K. Balaveera Reddy, Upto 27.06.2021  
former Vice Chancellor –  
VTU-Belgaum  
Veerabhadra Nilayam, H.No.10  
4<sup>th</sup> A Cross, 2<sup>nd</sup> Block, HRBR Layout  
Kalyana Nagar, Bangalore – 560043

**Chairperson In-charge**

Dr. K. Umamaheshwar Rao, (From 28.06.2021 to 16.02.2022)  
Director  
NITK, SURATHKAL

**Chairperson In-charge**

Prof. Udaykumar R. Yaragatti, From 17.02.2022 to till 24 - 08 - 2022  
Director (In-charge)  
NITK, Surathkal.

**Members**

**Director Ex-Officio** Dr. K. Umamaheshwar Rao,  
Upto 16.02.2022  
Director  
NITK, SURATHKAL

Prof. Udaykumar R. Yaragatti (from 17.02.2022 to 24 - 08 - 2022)  
Director (In-charge)  
NITK, Surathkal.

**Nominee of the Central Government**

Shri Mrutyunjay Behera, Upto 06.12.2021  
Economic Adviser (HE)  
Dept. of Higher Education  
Ministry of Education (Shiksha Mantralaya), Govt. of India,  
Shastri Bhavan, NEW DELHI – 110 001.

**Nominee of the Central Government**

Ms. Saumya Gupta, IAS (TR:2004), MoE  
Communication dated 06.12.2021 From 07.12.2021 to till date  
Joint Secretary (NITs)  
Dept. of Higher Education  
Ministry of Education (Shiksha Mantralaya)  
Govt. of India, Room No.203, C – Wing  
Shastri Bhavan, NEW DELHI – 110 115.

**Nominee of the Central Government**

Ms. Darshana M. Dabral, Till date  
Joint Secretary and Financial Advisor  
Integrated Finance Bureau  
Ministry of Education (Shiksha Mantralaya)  
Govt. of India  
120-C, Shastri Bhawan, NEW DELHI – 110 001.

**FC Member - - Nominee of the State Government**

Mr. G M Ravindra B.E., Upto 12.12.2021  
Corporate Office:  
RKS Infratech Pvt. Ltd.  
#42/36, “Rajani Towers”,  
3rd Floor, 27th Cross  
7th ‘B’ Main Road, 4th Block  
Jayanagar, Bengaluru – 560011.

**FC Member - - Nominee of the State Government**

Shri Aprameya Radhakrishna, From 29.01.2022 to 28.01.2025  
Notification No: ED/252/ TEC/2021 dated 29.01.2022 received from the Deputy Secretary to Government, Higher Education Department, Bengaluru.  
CEO & Co-founder of Koo  
No.101, Van Gogh’s Garden  
Kasturba Cross Road  
Bengaluru – 560001.

**Nominee of the Institute Senate**

Prof. Subhash C Yaragal, 10.11.2020 to 09.11.2022  
Professor  
Department of Civil Engineering  
NITK, SURATHKAL.

Shri K. Ravindranath, Till date  
Registrar  
N.I.T.K., SURATHKAL

**BUILDING AND WORKS COMMITTEE**

**Chairman**

Prof.K Umamaheshwar Rao, Ph.D.  
Director  
NITK, Surathkal – 575 025

**Chairperson In-charge**

(From 17.02.2022 to till 24 - 08 - 2022)  
Prof. Udaykumar R. Yaragatti  
Director (In-charge)  
NITK, Surathkal.

**Members**

Shri. M L Soni  
Director – NITs,  
Ministry of Education, Govt. of India,  
Dept of Higher Education, Shastri Bhavan, New Delhi – 110 001

Shri Anil Kumar  
Director – Finance  
Ministry of Education (erstwhile MHRD),  
Dept. of Higher Education, No. 213-C  
Shasrti Bhavan, New Delhi -110 001

Subhash C Yaragal, Ph.D. till 31.07.2022  
Dean (P&D), NITK, Surathkal  
Mangalore – 575 025

K S Babu Narayan, Ph.D.  
Dean (P&D), NITK, Surathkal  
Mangalore – 575 025

Lakshman Nandagiri, Ph.D.  
Professor  
Dept. of Water Resources and Ocean  
Engineering  
NITK, Surathkal  
Mangaluru – 575 025

Shri. Suneet K Dadheech  
Superintending Engineer, Project  
Director, CPWD, NITKS Project Circle  
Office, NITK Campus, Mangalore –  
575 025

Shri Manjappa  
Superintending Engineer, MESCOM,  
O&M Circle, Attavar,  
Mangalore – 575 001

**Member – Secretary**

Sri K Ravindranath  
Registrar  
NITK, Surathkal,  
Post Srinivasnagar,  
Mangalore-575 025

**OTHER COMMITTEES**

**SENATE**

**Chairman**

Name	Position
K. Umamaheshwar Rao, Ph.D.	Chairman – upto 16.02.2022
Udaykumar R Yaragatti, Ph.D.	Chairman – from 17.02.2022 to 24 - 08 - 2022
K.V. Jayakumar, Ph.D.	External Member
N. C. Shivaprakash, Ph.D.	External Member
Prof. (Ms.) Anjula Gurtoo	External Member
(Ms.) Vidya Shetty K.,	Member

Ph.D.	
G. C. Mohan Kumar, Ph.D.	Member
K. S. Babu Narayan, Ph.D.	Member
S. M. Kulkarni, Ph.D.	Member
Vijay H. Desai, Ph.D.	Member
Narendranath S., Ph.D.	Member
B M Dodamani, Ph.D.	Member
Lakshman Nandagiri, Ph.D.	Member
Subba Rao, Ph.D.	Member
Dwarakish G S, Ph.D.	Member
Kiran G. Shirlal, Ph.D.	Member
A. Mahesha, Ph.D.	Member
(Mrs.) Amba Shetty, Ph.D.	Member
P E Jagadeesh Babu (HoD), Ph.D.	Member
M.B. Saidutta, Ph.D.	Member
Raj Mohan B, Ph.D.	Member
Gopal Mugeraya, Ph.D. (on deputation to NIT Goa as Director)	Member
Uday Kumar Dalimba, Ph.D. (HoD)	Member
A. Chitharanjan Hegde, Ph.D.	Member
A. Nityananda Shetty, Ph.D.	Member
Badekai Ramachandra Bhat, Ph.D.	Member
Denthaje Krishna Bhat, Ph.D.	Member
Arun Mohan Isloor, Ph.D.	Member
(Mrs.) B R Jayalekshmi, Ph.D.	Member
M. C. Narasimhan, Ph.D.	Member
Katta Venkataramana, Ph.D.	Member
A.U. Ravi Shankar, Ph.D.	Member
K. Swaminathan, Ph.D.	Member
Varghese George, Ph.D.	Member
S. Shrihari, Ph.D.	Member
Sitaram Nayak, Ph.D.	Member
Subhash C Yaragal, Ph.D.	Member
Shashidhar G Koolagudi, Ph.D. (HoD)	Member
K. Chandrasekaran, Ph.D.	Member
Annappa, Ph.D.	Member
P. Santhi Thilagam, Ph.D.	Member
Ashvini Chaturvedi, Ph.D.	Member
U Shripathi Acharya, Ph.D.	Member
(Mrs.) Sumam David S., Ph.D.	Member
Muralidhar Kulkarni, Ph.D.	Member
M. S. Bhat, Ph.D.	Member

T. Laxminidhi, Ph.D.	Member	Ph.D.	
John D'Souza, Ph.D.	Member	Chairman - CCC	Member
Neelavar Shekar Vittal Shet, Ph.D.	Member	System Manager, CCC	
Gururaj S Puneekar, Ph.D.	Member	Mallikarjuna Angadi, Ph.D.	Member
K Panduranga Vittal, Ph.D.	Member	Librarian	
B Venkatesa Perumal, Ph.D.	Member	Shri K. Ravindranath,	Secretary
Shubhanga K N, Ph.D.	Member	Registrar	
Jaidhar C D (HoD), Ph.D.	Member		
G. Ram Mohana Reddy, Ph.D.	Member		
Ananthanarayana V. S., Ph.D.	Member		
R Madhusudhan (HoD), Ph.D.	Member		
A. Kandasamy, Ph.D.	Member		
Suresh M Hegde, Ph.D.	Member		
Santhosh George, Ph.D.	Member		
B. R. Shankar, Ph.D.	Member		
Murulidhar N. N., Ph.D.	Member		
Shyam S. Kamath, Ph.D.	Member		
Ravikiran Kadoli, Ph.D.	Member		
Prasad Krishna, Ph.D. (on lien to NIT Calicut as Director)	Member		
Gangadharan K. V., Ph.D.	Member		
Shrikantha S. Rao, Ph.D.	Member		
H. Suresh Hebbar, Ph.D.	Member		
S. M. Murigendrappa, Ph.D.	Member		
Ravishankar K S, Ph.D. (HoD)	Member		
K. Narayan Prabhu, Ph.D.	Member		
Jagannath Nayak, Ph.D.	Member		
Anandhan Srinivasan, Ph.D.	Member		
Udaya Bhat K., Ph.D.	Member		
Aruna M (HoD), Ph.D.	Member		
Ch. S. N. Murthy, Ph.D.	Member		
V. R. Sastry, Ph.D.	Member		
M. Govinda Raj, Ph.D.	Member		
Harsha Vardhan, Ph.D.	Member		
N. K. Udayashankar, Ph.D.	Member		
(Mrs.) H. D. Shashikala, Ph.D.	Member		
M. N. Satyanarayan, Ph.D.	Member		
Rajesh Acharya H, Ph.D. (HoD)	Member		
Aloysius Henry Sequeira, Ph.D.	Member		
K. B. Kiran, Ph.D.	Member		
Shashikantha Koudur,	Member		

<b>BOARD OF STUDIES (BOS - UG/PG/RESEARCH)</b>			
<b>Constitution:</b>			
Dean (Academic)		Chairman	
Dean (Faculty Welfare)		Member	
Dean (Planning & Development)		Member	
Dean (Students' Welfare)		Member	
Dean (Research & Consultancy)		Member	
Dean (Alumni Affairs & Institutional Affairs)		Member	
H.O.D. of each Department/his nominee		Members	
BOG member representing the faculty		Member	
Three Representatives from the premier Academic Institutions such as IIT, NIT, IISc., IIM, others belonging to Southern region		Member	
Assistant Registrars (Academic)		Members	
Registrar		Secretary	

<b>QUARTERS ALLOTMENT COMMITTEE</b>			
Director		President	
Dean (Faculty Welfare)		Chairperson	
Faculty In-charge (Estate & Works)		Member	
Senior Internal BOG Member		Secretary	
Resident Engineer In-charge		Member	
Associate Dean (Faculty Welfare) – 1		Member	
Dr. Ajay Kumar Yadav, Asst. Professor, Dept. of Mechanical Engg.		Member	
Supdt. In-charge, Estt. & Gen. Section		Member	
Liaison Officer, SC/ST Cell		Member	
Mrs. Vani M, Associate Professor, Dept. of CSE		Member	
Grievance Redressal Officer		Member	

– PwD  
 President -NITK Non Member  
 Teaching Employees  
 Association  
 President–NITK Employees Member  
 Association

Faculty i/c Estate & Works  
 Faculty i/c Ele. Works  
 Faculty i/c Security  
 Security Officer

**Special Invitees**

Shri. K Ravindranath, Registrar  
 Shri. Ram Mohan Y, Joint Registrar

**LIBRARY ADVISORY COMMITTEE**

**INSTITUTE GRIEVANCE REDRESSAL COMMITTEE**

Murulidhar N N, Ph.D. Chairman  
 Professor, Mathematical &  
 Computational Sciences  
 S M Murigendrappa, Ph.D. Member  
 Professor, Dept. of  
 Mechanical Engg.  
 Ravishankar K S, Associate Member  
 Professor, Metallurgical &  
 Materials Engg.  
 Nagendrappa H, Asst. Member  
 Professor Grade- 1, Dept. of  
 E&E Engg.  
 Mrs. Rashmi Uchil, Ph.D. Member  
 Asst. Professor Grade – 1,  
 School of Management  
 Dinesh Naik, Asst. Professor, Member  
 Dept. of Information  
 Technology  
 Pathipati Srihari, Asst. Member  
 Professor Grade – 1, Dept. Of  
 E&C Engg.  
 Kedarnath Senapati, Asst. Member  
 Professor Grade – 1, Dept.  
 MACS Dept.  
 Shri. P N Subrahmanya, Member  
 Asst. (SG-II)  
 Establishment & General  
 Section  
 Dr. Shreekant R Lamani, Convener  
 Asst. Engineer SG- 1, Dept.  
 of Mining Engg., and Asst.  
 Registrar I/c (Admin)

Prof. B R Shankar Chairman,  
 Dr. Subrahmanya K Member  
 Dr. Gangamma S Member  
 Dr. Anup Kumar Tripathi Member  
 Dr. Anupama Surenan Member  
 Dr. Biswajit R Bhowmik Member  
 Mr. Girisha H Navada Member  
 Dr. P Srihari Member  
 Dr. Kiran M Member  
 Dr. V Murugan Member  
 Dr. Anish S Member  
 Dr. Shashi Bhushan Arya Member  
 Dr. Beneesh P B Member  
 Dr. Ajith K M Member  
 Dr. Suprabha K R Member  
 Mr. Iranna Shettar Member  
 Mrs. Anasuya C Member  
 Dr. Mallikarjun Angadi Convener,  
 Library

**SPORTS ADVISORY COMMITTEE**

Director President  
 Dean (S. W.) Chairman  
 Dean (F.W.) Member  
 Registrar Member  
 Joint Registrar Member  
 Associate Dean (SW) - I Member  
 Associate Dean (SW) - II Member  
 Resident Engineer In-charge Member  
 Professor-in-charge of Hostel Member  
 Affairs  
 Prof. S M Murigendrappa, Member  
 Dept. of Mechanical Engg.  
 Prof. B Venkatesa Perumal, Member  
 Dept. of E&E Engg.  
 Dr. Vasudeva M, Dept. of Member  
 Mechanical Engg.  
 Dr. Nagendrappa H, Dept. of Member  
 E&E Engg.  
 Dr. S Pavan Kumar, School of Member  
 Management  
 Dr. Shyam Lal, Dept. of E&C Member  
 Engg.

**SECURITY COMMITTEE**

Dean (Faculty Welfare)  
 Dean (P&D)  
 Dean (SW)  
 Registrar  
 Chairman, CCC  
 Prof. i/c Hostels  
 Resident Engineer  
 Joint Registrar

Dr. Kiran M, Dept. of IT	Member
Dr. Shwetha H R, Dept. of WR&OE	Member
Shri. Shivaram A, Sr. Sc.Asst. P.D.	Member
Dr. Hem Prasad Nath, SAS Officer	Member
Librarian	Member
Students Coucil President	Member
Vice President	Member
Sports Secretary	Member
R C Convenor	Member
All Captains	Member
Dr. Manoj, SAS Officer	Member

#### **INTERNAL COMPLAINTS COMMITTEE**

Mrs. Amba Shetty, Ph.D., Professor	Member
Annappa, Professor,Ph.D.	Member
Mrs. Sathyabbhama A, Ph.D., Associate Professor	Member
Mrs. Suprabha K R, Ph.D., Asst. Professor- Grade - 1	Member
Shri. Murugavelu, Supdt. (SG-II)	Member
Mrs. Parvathi, Asst. (SG- I)	Member
Mrs. Manjula V Prasad, Madhu Nivasa, Ambagilu, Udupi	Member

#### **HEALTH CARE COMMITTEE**

Dean (Faculty Welfare)	Chairman
Warden, Girls Hostel	Member
Professor in-charge (Hostel Affairs)	Member
Liaison Officer, SC/ST Cell	Member
G Ram mohan Reddy, Ph.D.	Member
Pavan Kumar, Ph.D.	Member
C P Devatha, Ph.D.	Member
Ms. Gayathri Rao K	Member
Joint Registrar	Member
Supdt. Accounts III	Member
President Student's Council	Member
Girls Representative	Member
Dr. M L Balabhaskara, Medical Officer	Member
Dr. (Mrs.) Shrimathi B, Medical Officer	Secretary

### 3. DEPARTMENTS AND SCHOOLS

Water Resources & Ocean Engineering	(WROE)
Chemical Engineering	(CH)
Chemistry	(CY)
Civil Engineering	(CV)
Computer Science & Engineering	(CO)
Electrical & Electronics Engineering	(E&E)
Electronics & Communication Engineering	(E&C)
Information Technology	(IT)
Mathematical & Computational Sciences	(MACS)
Mechanical Engineering	(ME)
Metallurgical & Materials Engineering	(MT)
Mining Engineering	(MN)
Physics	(PH)
<b>SCHOOLS</b>	(SOM)
School of Management	

## 4. ACADEMIC PROGRAMMES

### 4.1 PROGRAMMES OFFERED

#### I. B.TECH. (Undergraduate Programme)

##### - Eight semesters

- 1 Chemical Engineering
- 2 Civil Engineering
- 3 Computer Science & Engineering
- 4 Electrical and Electronics Engineering
- 5 Electronics & Communication Engineering
- 6 Mechanical Engineering
- 7 Metallurgical & Materials Engineering
- 8 Mining Engineering
- 9 Information Technology
- 10 Artificial Intelligence

#### II .M.Tech. (Post Graduate Programme) – Four Semesters

- 1 Structural Engg.
- 2 Geotechnical Engg.
- 3 Environmental Engg.
- 4 Transportation Engg.
- 5 Construction Technology and Management
- 6 Marine Structures
- 7 Water Resources Engineering and Management
- 8 Geoinformatics
- 9 Manufacturing Engg
- 10 Mechatronics Engg
- 11 Thermal Engg
- 12 Mechanical Design
- 13 Power & Energy Systems
- 14 VLSI Design
- 15 Communication Engineering and Networks
- 16 Signal processing and Machine Design
- 17 Environmental Science and Technology
- 18 Chemical Engineering
- 19 Industrial Biotechnology
- 20 Materials Engg
- 21 Process Metallurgy
- 22 Nanotechnology
- 23 Computer Science & Engg
- 24 Computer Science & Engg- Information Security

- 25 Computational and Data Science
- 26 Information Technology

**III M.Tech. by Research :** In all the above M.Tech Programme and in the Department of Mining - M.Tech Research Programme in Rock Excavation Technology and Management

#### IV. M.C.A. (Master of Computer Applications) - Six semesters

#### V. M.B.A. (Master of Business Administration) - Four semesters

#### VI. M.Sc. in Chemistry – (Four semesters)

#### VII. M.Sc. in Physics – (Four semesters)

#### VIII. Ph. D. Programme:-

Ph.D. Programmes are offered in 14 Departments in various streams and interdisciplinary specializations.

### 4.2 ACADEMIC CALENDAR

Academic Year	Programmes	Admission Commenced on	Admission closed on
2021-22	B.Tech.	07.12.2021	13.12.2021
2021-22	M.Tech.	19.08.2021	25.08.2021
2021-22	M.Tech. by Research/ Spon.	19.08.2021	26.08.2021
2021-22	MCA	29.09.2021	06.10.2021
2021-22	M.B.A.	13.08.2021	19.08.2021
2021-22	M.Sc. (Physics & Chemistry)	19.08.2021	25.08.2021
2021-22	Ph.D	19.08.2021	26.08.2021

## 5. ADMISSION POLICIES

### 5.1 ADMISSION PROCEDURE

#### B. Tech.:-

The Government of India, Department of Ministry of Education (erstwhile MHRD) issued a uniform admission procedure for all the NITs in the country. Candidates seeking admission to NIT are required to appear for the JEE (Main) conducted by NTA. Seats are filled up as per the merit list prepared on the basis of JEE (Main) Examination and qualifying examination scores. According to All India rank prepared on the basis of the performance in JEE (Main), seats will be allotted in the centralized on-line campus counseling through Central Seat Allocation Board (CSAB). The seat allocation done on the basis of 50% Home State Quota (HS) and 50% Other State Quota (OS). These seats are filled on All India ranking Merit Basis (JEE Main). Seats are reserved for candidates belonging to Scheduled Caste, Scheduled Tribes, Persons with Disabilities (PWD,) Other Backward Classes and Economically Weaker Section (EWS) as per the guidelines issued by the Ministry of Education (erstwhile MHRD). Female supernumerary seats are also created by CSAB to accommodate 20% seats for female candidates. In addition to this, 15% over and above the intake is available under the Direct Admission of Students Abroad (DASA) Scheme, and a few seats are reserved for the candidates nominated by the Ministry of External Affairs and ICCR

#### M.Tech -GATE/Scholarship seats:-

On the basis of GATE Score, admissions for scholarship category (GATE) were made in the centralized on-line common Admission Process through Centralized Counseling for M.Tech. (CCMT) coordinated by MNIT Jaipur.

#### M.Tech.(Sponsored Seats/Research):-

Selection of candidates for admission were made on the basis of GATE score or in some of the programmes,

selection was based on GATE score and on academic performance in qualifying examination and written aptitude test or/ and interview etc as decided by the DPGC of the concerned Department offering that programme.

#### M.C.A.:-

Selection of candidates for admissions was done through a common entrance test NIMCET. Admissions were made through a centralized counseling. (NIMCET)

#### M.B.A:-

Selection was based on CAT/MAT /GATE score and performance in the qualifying examination and written aptitude test or/ and interview etc as decided by the DPGC of the School of Management.

#### M.Sc (Chemistry & Physics):-

Selection of candidates for admissions was made on the basis of JAM Score. Admissions were made through a centralized counseling. (CCMN)

#### Ph.D. Programme:-

Selection of candidates for admission to Ph.D. Programme was based upon the academic performance in the qualifying examinations, written aptitude test and interviews conducted by the respective departments.

All the students are required to stay in the Institute Hostels, unless permitted to reside outside under special circumstances. Students have to strictly adhere to the rules and regulations of the institute.

## 6. ADMISSIONS FOR 2021-22

### 6.1 The number of candidates admitted are as follows:

#### I. B.Tech.

1	Admission through JEE (Main) Rank	910	<b>OP</b>	<b>EWS</b>	<b>OBC</b>	<b>SC</b>	<b>ST</b>	<b>PwD</b>
			346	88	238	136	66	17 (OP), 4 (EWS), 10 (OBC), 3 (SC), 2 (ST)
2	G.O.I. Nominee- through Ministry of External Affairs (Education & Welfare)	02						
3	DASA Scheme	67						
	<b>Total</b>	<b>979</b>						

#### II. M.Tech./M.Tech. (By Research)

- i) **M.Tech Programme:** The number of candidates admitted to First Year M.Tech. Programmes are:

1	With GATE qualifications for scholarship seats	685	<b>OP</b>	<b>EWS</b>	<b>OBC</b>	<b>SC</b>	<b>ST</b>	<b>PwD</b>
			302	58	179	100	39	4 (OP), 2 (EWS), 1 (OBC)
2	Sponsored candidates	--						
3	L&T Sponsored Candidates	30						
4	ICCR Sponsored	01						
5	Self Finance	104						
6	QIP (P)	01						
	<b>Total</b>	<b>821</b>						

#### II. M.Tech. (By Research)

1	GATE qualified with Scholarship	29	<b>OP</b>	<b>EWS</b>	<b>OBC</b>	<b>SC</b>	<b>ST</b>	<b>PwD</b>
			17	3	8	1	0	0
2	Non-Scholarship	12						
	<b>Total</b>	<b>41</b>						

#### IV MCA.:

Selection of candidates for admission to MCA, were made on the basis of rank obtained in NIT MCA Common Entrance Test (NIMCET). Admissions were made through a Centralized counseling conducted by N.I.T. Raipur. A Total 64 candidates admitted were as follows:-

1	OP	22
2	OBC	15
3	EWS	06
4	SC	09
5	ST	04
6	PWD (1 OP, 1 OBC)	02
7	Self Finance	06
	<b>Total</b>	<b>64</b>

#### IV M.B.A.:

Selection of candidates were made on the basis of CAT/MAT/GATR among candidates applied to NITK, Surathkal, Group Discussion and interview. A total 45 candidates were admitted as follows:-

1	OP	29
2	OBC	7
3	EWS	1
4	SC	0
5	ST	01
6	Self Finance	07
	<b>Total</b>	<b>45</b>

**V. M.Sc (Chemistry & Physics):-** Selection were made on the basis of score obtained JAM 2021. Admissions were made through CCMN conducted by MNIT, Jaipur. Following are the admission details:

##### i. M.Sc (Chemistry)

1	OP	13
2	OBC	09
3	EWS	03
4	SC	05
5	ST	03
6	Self Finance	04
	<b>Total</b>	<b>37</b>

##### ii M.Sc (Physics)

1	OP	11
2	OBC	09
3	EWS	04
4	SC	05
5	ST	01
6	Self Finance	04
	<b>Total</b>	<b>34</b>

#### VI. Ph.D. Programme: Fellowship Holders

1	OP	57
2	OBC	29
3	EWS	6
4	SC	16
5	ST	6
6	PWD (1 OC, 1 EWS)	2
	<b>Total</b>	<b>116</b>

**Others**

1	Full Time Sponsored	01
2	Full Time Non-Sponsored Non Scholarship	6
3	QIP	08
4	External Registrants	56
5	Internal Registrants	16
	<b>Total</b>	<b>97</b>

A total number of 979 candidates have been admitted to the First Year B.Tech. Programmes according to the guidelines, instructions issued by the Ministry of Education (erstwhile MHRD). The PG & Ph.D. admissions have been made according to the Rules and Regulations issued by the Senate of the Institute.

**6.2 B.Tech. Students Strength for the year 2021-22**

B.Tech I Year	SC			ST			OBC			DASA			ICCR			EWS			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
Civil Engg	13	4	17	4	5	9	25	7	32	0	0	0	0	0	0	8	2	10	37	9	46	87	27	114
Mechanical Engg.	21	5	26	9	3	12	38	9	47	9	1	10	0	0	0	13	4	17	55	12	67	145	34	179
Electrical & Electronics Engg.	14	3	17	6	2	8	25	6	31	6	2	8	1	0	1	10	2	12	37	10	47	99	25	124
Electronics & Communication Engg.	14	3	17	5	3	8	25	6	31	15	2	17	0	0	0	10	2	12	36	10	46	105	26	131
Chemical Engg.	6	2	8	2	2	4	12	3	15	2	1	3	0	0	0	5	1	6	18	5	23	45	14	59
Metallurgical & Materials Engg.	7	2	9	2	2	4	11	3	14	0	0	0	0	0	0	5	1	6	17	4	21	42	12	54
Mining Engg.	7	2	9	3	1	4	13	3	16	0	0	0	0	0	0	5	1	6	18	3	21	46	10	56
Computer Engg.	14	3	17	7	2	9	24	7	31	13	3	16	0	0	0	9	2	11	38	9	47	105	26	131
Information Technology	9	2	11	4	1	5	15	5	20	5	2	7	0	0	0	6	2	8	26	5	31	65	17	82
Artificial Intelligence	5	1	6	2	1	3	9	2	11	4	0	4	0	0	0	3	1	4	11	3	14	34	8	42
<b>Total</b>	110	27	137	44	22	66	197	51	248	54	11	65	1	0	1	74	18	92	293	70	363	773	199	972

B.Tech IIYear	SC			ST			OBC			DASA			ICCR			EWS			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
Civil Engg	14	4	18	5	1	6	26	8	34	3	2	5	2	0	2	10	2	12	34	12	46	94	29	123
Mechanical Engg.	22	5	27	11	4	15	38	10	48	12	1	13	3	0	3	14	3	17	56	15	71	156	38	194
Electrical & Electronics Engg.	15	4	19	4	4	8	25	7	32	8	4	12	1	0	1	11	2	13	40	9	49	104	30	134
Electronics & Communication Engg.	15	3	18	6	3	9	26	7	33	15	2	17	0	0	0	10	2	12	40	10	50	112	27	139

Chemical Engg.	7	2	9	2	1	3	13	3	16	4	2	6	0	0	0	5	1	6	18	4	22	49	13	62
Metallurgical & Materials Engg.	6	2	8	3	0	3	9	2	11	0	0	0	0	0	0	4	2	6	18	6	24	40	12	52
Mining Engg.	6	2	8	4	0	4	12	2	14	0	0	0	0	0	3	2	5	13	2	15	38	8	46	
Computer Engg.	13	4	17	7	2	9	26	6	32	15	1	16	2	1	3	9	2	11	38	11	49	110	27	137
Information Technology	15	4	19	6	3	9	26	7	33	4	8	12	0	1	1	11	2	13	40	10	50	102	35	137
<b>Total</b>	<b>113</b>	<b>30</b>	<b>143</b>	<b>48</b>	<b>18</b>	<b>66</b>	<b>201</b>	<b>52</b>	<b>253</b>	<b>61</b>	<b>20</b>	<b>81</b>	<b>8</b>	<b>2</b>	<b>10</b>	<b>77</b>	<b>18</b>	<b>95</b>	<b>297</b>	<b>79</b>	<b>376</b>	<b>805</b>	<b>219</b>	<b>1024</b>

B.Tech III Year	SC			ST			OBC			DASA			ICCR			EWS			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
Civil Engg	14	2	16	7	2	9	21	2	23	4	2	6	0	0	0	6	2	8	32	8	40	84	18	102
Mechanical Engg.	22	3	25	11	2	13	39	8	47	21	0	21	1	0	1	7	1	8	64	15	79	165	29	194
Electrical & Electronics Engg.	15	2	17	7	2	9	24	4	28	8	4	12	2	0	2	4	1	5	41	8	49	101	21	122
Electronics & Communication Engg.	14	2	16	6	1	7	23	5	28	11	5	16	0	0	0	4	3	7	38	7	45	96	23	119
Chemical Engg.	5	2	7	3	1	4	12	3	15	4	2	6	1	1	2	1	2	3	18	7	25	44	18	62
Metallurgical & Materials Engg.	6	2	8	3	0	3	12	2	14	0	0	0	0	0	0	3	0	3	16	2	18	40	6	46
Mining Engg.	6	1	7	3	1	4	11	2	13	0	0	0	0	0	0	3	0	3	17	3	20	40	7	47
Computer Science & Engg.	15	2	17	4	2	6	25	6	31	11	4	15	0	0	0	4	2	6	41	8	49	100	24	124
Information Technology	14	2	16	6	0	6	25	5	30	8	4	12	0	0	0	5	2	7	37	9	46	95	22	117
<b>Total</b>	<b>111</b>	<b>18</b>	<b>129</b>	<b>50</b>	<b>11</b>	<b>61</b>	<b>192</b>	<b>37</b>	<b>229</b>	<b>67</b>	<b>21</b>	<b>88</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>37</b>	<b>13</b>	<b>50</b>	<b>304</b>	<b>67</b>	<b>371</b>	<b>765</b>	<b>168</b>	<b>933</b>

B.Tech IV Year	SC			ST			OBC			DASA			SII			ICCR			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
Civil Engg	12	2	14	6	1	7	21	3	24	11	3	14	1	0	1	1	0	1	37	9	46	89	18	107
Mechanical Engg.	19	3	22	10	2	12	37	6	43	18	4	22	1	0	1	0	0	0	64	10	74	149	25	174
Electrical & Electronics Engg.	12	3	15	6	1	7	23	4	27	8	4	12	0	0	0	1	0	1	40	7	47	90	19	109
Electronics & Communication Engg.	11	3	14	5	1	6	21	5	26	12	4	16	0	0	0	0	0	0	40	7	47	89	20	109
Chemical Engg.	5	1	6	3	1	4	11	2	13	4	3	7	0	0	0	1	0	1	16	5	21	40	12	52
Metallurgical & Materials Engg.	6	1	7	3	0	3	8	4	12	0	0	0	0	0	0	0	0	0	19	3	22	36	8	44
Mining Engg.	5	1	6	2	2	4	7	2	9	0	0	0	0	0	0	0	0	0	15	2	17	29	7	36
Computer Science & Engg.	12	2	14	5	2	7	23	4	27	12	2	14	3	0	3	1	0	1	44	6	50	100	16	116
Information Technology	12	1	13	6	0	6	22	4	26	8	3	11	0	0	0	0	0	0	35	11	46	83	19	102
<b>Total</b>	94	17	111	46	10	56	173	34	207	73	23	96	5	0	5	4	0	4	310	60	370	705	144	849

**M.Tech. Students Strength for the year 2021-22**

M.Tech (I Year)	SC			ST			OBC			QIP			EWS			ICCR			Sponsored /L&T			Self Finance			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	T	M	F	T	M	F	To	M	F	To	M	F	To			
Structural Engg.	4	0	4	1	2	3	3	6	9	0	0	0	3	0	3	0	0	0	0	0	0	4	1	5	10	2	12	25	11	36
Geotechnical Engg.	2	1	3	0	1	1	1	4	5	0	0	0	2	0	2	0	0	0	0	0	0	2	3	5	6	1	7	13	10	23
Environmental Engg.	4	1	5	0	2	2	6	3	9	0	0	0	2	1	3	0	0	0	0	0	0	0	5	5	6	8	14	18	20	38

National Institute of Technology Karnataka, Surathkal

Transportation Systems Engg.	5	0	5	2	1	3	7	2	9	0	0	0	3	0	3	0	0	0	0	0	2	0	2	7	5	12	26	8	34	
Construction Technology & Mgt.	3	2	5	3	0	3	7	2	9	0	0	0	1	2	3	1	0	1	23	6	29	0	0	0	10	2	12	48	14	62
Marine Structures	2	1	3	1	0	1	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	4	23	24	6	30	
Water Resources Engg. & Management	2	1	3	1	0	1	2	3	5	0	0	0	0	1	1	0	0	0	0	0	0	2	0	2	7	1	8	14	6	20
Geoinformatics	3	1	4	1	1	2	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	20	15	15	30	
Thermal Engg.	2	1	3	0	0	0	4	0	4	0	0	0	2	0	2	0	0	0	0	0	0	7	2	9	8	0	8	23	3	26
Mechatronics Engg.	4	1	5	1	0	1	6	2	8	0	0	0	2	0	2	0	0	0	0	0	0	5	0	5	10	1	11	28	4	32
Manufacturing Engg.	3	0	3	0	0	0	4	0	4	1	0	1	2	0	2	0	0	0	0	0	0	9	0	9	7	1	8	26	1	27
Mechanical Design	2	1	3	0	1	1	6	0	6	0	0	0	2	0	2	0	0	0	0	0	0	8	1	9	6	0	6	24	3	27
Power & Energy Systems	4	1	5	2	0	2	6	2	8	0	0	0	3	1	4	0	0	0	0	0	0	7	3	10	9	3	12	31	10	41
VLSI Design	4	0	4	2	0	2	8	1	9	0	0	0	3	0	3	0	0	0	0	0	0	2	5	7	13	1	14	32	7	39
Signal Processing & Machine Learning	3	1	4	1	0	1	7	1	8	0	0	0	2	0	2	0	0	0	0	0	0	5	2	7	10	3	13	28	7	35
Communication Engg. & Networks	2	3	5	0	0	0	5	3	8	0	0	0	3	0	3	0	0	0	0	0	0	4	1	5	6	6	12	20	13	33
<b>CHEMICAL ENGG:-</b>	0	0	0	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	2	1	3	6	1	7	11	3	14	
Environmental Science & Technology	3	1	4	2	1	3	5	3	8	0	0	0	2	0	2	0	0	0	0	0	0	0	1	1	10	4	14	22	10	32
Industrial Biotechnology	4	0	4	0	0	0	5	3	8	0	0	0	1	2	3	0	0	0	0	0	0	0	0	5	8	13	15	13	28	
Process Metallurgy	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	4	0	4	
Materials Engg.	4	0	4	0	0	0	9	0	9	0	0	0	3	0	3	0	0	0	0	0	0	0	0	10	0	10	26	0	26	
Nanotechnology	3	0	3	0	0	0	3	1	4	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1	7	0	7	15	1	16

Computer Science & Engg	5	0	5	3	0	3	6	1	7	0	0	0	2	2	4	0	0	0	0	0	0	4	1	5	11	3	14	31	7	38
Computer Science & Engg. - Information Security	4	0	4	2	0	2	7	2	9	0	0	0	2	1	3	0	0	0	0	0	0	3	2	5	12	2	14	30	7	37
Computational & Data Science	4	0	4	2	0	2	9	0	9	0	0	0	3	0	3	0	0	0	0	0	0	4	0	4	14	0	14	36	0	36
INFORMATION TECHNOLOGY	4	1	5	2	1	3	7	1	8	0	0	0	3	2	5	0	0	0	0	0	0	4	0	4	11	0	11	31	5	36
<b>TOTAL</b>	<b>80</b>	<b>17</b>	<b>97</b>	<b>26</b>	<b>10</b>	<b>36</b>	<b>130</b>	<b>45</b>	<b>175</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>47</b>	<b>12</b>	<b>59</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>23</b>	<b>6</b>	<b>29</b>	<b>75</b>	<b>28</b>	<b>103</b>	<b>233</b>	<b>66</b>	<b>299</b>	<b>616</b>	<b>184</b>	<b>800</b>

M.Tech (II Year)	SC			ST			OBC			EWS			Sponsored /L&T			ICCR			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	T	M	F	To	M	F	To	M	F	To	M	F	To
Structural Engg.	4	1	5	3	0	3	9	0	9	3	0	3	0	0	0	1	0	1	11	2	13	31	3	34
Geotechnical Engg.	3	0	3	1	0	1	5	0	5	2	0	2	0	0	0	0	0	0	4	3	7	15	3	18
Environmental Engg.	3	1	4	0	1	1	4	5	9	1	2	3	0	0	0	1	0	1	6	7	13	15	16	31
Transportation Engg.	3	1	4	1	2	3	7	1	8	2	0	2	0	0	0	0	0	0	10	2	12	23	6	29
Construction Technology & Mgt.	5	0	5	0	3	3	7	2	9	2	0	2	28	2	30	0	0	0	8	4	12	50	11	61
Marine Structures	4	1	5	1	0	1	7	2	9	3	0	3	0	0	0	0	0	0	9	5	14	24	8	32
Water Resources Engg. & Management	3	0	3	1	0	1	3	2	5	1	1	2	0	0	0	0	0	0	3	3	6	11	6	17
Remote Sensing & GIS	1	2	3	1	0	1	0	6	6	1	0	1	0	0	0	0	0	0	9	6	15	12	14	26
Thermal Engg.	2	0	2	0	0	0	2	0	2	2	0	2	0	0	0	0	0	0	4	1	5	10	1	11
Mechatronics Engg.	5	0	5	2	0	2	8	0	8	1	0	1	1	0	1	0	0	0	9	2	11	26	2	28

Manufacturing Engg.	3	0	3	1	0	1	5	0	5	1	1	2	0	0	0	0	0	7	0	7	17	1	18	
Mechanical Design	2	1	3	1	0	1	3	1	4	2	0	2	1	0	1	0	0	6	1	7	15	3	18	
Power & Energy Systems	4	1	5	3	0	3	8	0	8	2	1	3	0	0	0	0	0	10	0	10	27	2	29	
VLSI Design	3	1	4	2	0	2	8	0	8	3	0	3	0	0	0	0	0	7	3	10	23	4	27	
Signal Processing & Machine Learning	1	1	2	1	0	1	7	1	8	2	0	2	0	0	0	0	0	6	2	8	17	4	21	
Communication Engg.& Network	4	0	4	1	1	2	5	2	7	2	1	3	0	0	0	0	1	1	10	3	13	22	8	30
<b>CHEMICAL ENGG:-</b>	1	1	2	0	0	0	3	2	5	1	0	1	0	0	0	0	0	4	4	8	9	7	16	
Environmental Science & Technology	1	0	1	0	0	0	2	0	2	2	0	2	0	0	0	0	0	6	2	8	11	2	13	
Industrial Biotechnology	1	1	2	0	0	0	2	3	5	1	0	1	0	0	0	0	0	7	10	17	11	14	25	
Process Metallurgy	2	1	3	0	0	0	5	0	5	2	0	2	0	0	0	0	0	6	1	7	15	2	17	
Materials Engg.	3	1	4	1	0	1	9	0	9	3	0	3	0	0	0	0	0	7	0	7	23	1	24	
Nanotechnology	0	2	2	1	0	1	4	1	5	2	0	2	0	0	0	0	0	6	1	7	13	4	17	
Computer Science & Engg	5	0	5	2	1	3	7	0	7	3	0	3	0	0	0	0	1	1	9	4	0	26	6	32
Computer Science & Engg. - Information Security	4	1	5	2	0	2	8	2	10	2	1	3	0	0	0	0	0	8	3	11	24	7	31	
Computational & data science.	4	1	5	1	1	2	9	0	9	3	0	3	0	0	0	0	0	12	1	13	29	3	32	
INFORMATION TECHNOLOGY	3	2	5	2	0	2	5	2	7	4	0	4	0	0	0	0	0	8	4	12	22	8	30	
<b>TOTAL</b>	<b>74</b>	<b>20</b>	<b>94</b>	<b>28</b>	<b>9</b>	<b>37</b>	<b>142</b>	<b>32</b>	<b>174</b>	<b>53</b>	<b>7</b>	<b>60</b>	<b>30</b>	<b>2</b>	<b>32</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>192</b>	<b>74</b>	<b>253</b>	<b>521</b>	<b>146</b>	<b>667</b>

M.Tech Research	SC			OBC			EWS			GENERAL			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
Marine Structure	0	0	0	0	0	0	0	0	0	1	1	2	1	1	2
Water Resources Engg. & Management	0	0	0	0	0	0	0	0	0	1	4	5	1	4	5
Structural Engg.	1	0	1	1	1	2	1	0	1	5	5	10	8	6	14
Geotechnical Engg.	0	0	0	0	0	0	0	1	1	1	1	2	1	2	3
Environmental Engg.	0	0	0	1	1	2	0	0	0	0	0	0	1	1	2
Transportation Engineering	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Thermal Engg.	0	0	0	2	1	3	1	0	1	4	0	4	7	1	8
Mechatronics Engg.	2	0	2	4	0	4	0	0	0	3	2	5	9	2	11
Manufacturing Engg.	0	0	0	0	0	0	0	0	0	5	0	5	5	0	5
Mechanical Design	0	0	0	3	0	3	0	0	0	2	0	2	5	0	5
Power & Energy Systems	0	0	0	1	0	1	0	0	0	5	0	5	6	0	6
VLSI Design	0	1	1	1	0	1	0	0	0	2	1	3	3	2	5
Communication Engg	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Communication Engg. and Network	0	0	0	1	0	1	0	0	0	1	3	4	2	3	5
Signal Processing and Machine Learning	1	0	1	0	0	0	0	0	0	1	0	1	2	0	2
Materials Engg.	0	0	0	1	0	1	0	0	0	5	0	5	6	0	6
Industrial Pollution Control	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Chemical Engg	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
Industrial Biotechnology	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1
Environmental Science & Technology	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1
Computer Science & Engg	1	0	1	2	0	2	0	0	0	2	0	2	5	0	5
Computer Science & Engg. - Information Security	0	0	0	0	0	0	0	1	1	3	0	3	3	1	4
Rock Excavation Technology & Mgt	0	0	0	1	0	1	0	0	0	2	0	2	3	0	3
Information Technology	0	0	0	1	0	1	1	0	1	1	1	2	3	1	4
Computational and Data Science	0	0	0	2	0	2	1	0	1	2	0	2	5	0	5
<b>TOTAL</b>	<b>5</b>	<b>1</b>	<b>6</b>	<b>21</b>	<b>4</b>	<b>25</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>47</b>	<b>22</b>	<b>69</b>	<b>77</b>	<b>29</b>	<b>106</b>

Year	MCA Students Strength for the year 2021-22																				
	SC			ST			OBC			EWS			GENERAL			Self Finance			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
<b>I YEAR</b>	7	2	9	3	1	4	13	3	16	6	0	6	19	4	23	6	0	6	54	10	64
<b>II Year</b>	6	2	8	4	0	4	15	1	16	1	5	6	16	7	23	0	0	0	42	15	57
<b>III YEAR</b>	8	1	9	3	0	3	9	5	14	0	0	0	19	7	26	0	0	0	39	13	52
<b>TOTAL</b>	<b>21</b>	<b>5</b>	<b>26</b>	<b>10</b>	<b>1</b>	<b>11</b>	<b>37</b>	<b>9</b>	<b>46</b>	<b>7</b>	<b>5</b>	<b>12</b>	<b>54</b>	<b>18</b>	<b>72</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>135</b>	<b>38</b>	<b>173</b>
M.B.A- 2021-22																					
YEAR	SC			ST			OBC			EWS			GENERAL			Self Finance			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
<b>I YEAR</b>	0	0	0	0	1	1	3	4	7	1	0	1	15	14	29	4	3	7	23	22	45
<b>II YEAR</b>	0	0	0	0	0	0	4	4	8	1	0	1	9	11	20	0	0	0	14	15	29
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>8</b>	<b>15</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>24</b>	<b>25</b>	<b>49</b>	<b>4</b>	<b>3</b>	<b>7</b>	<b>37</b>	<b>37</b>	<b>74</b>
M.Sc(Chemistry) Students Strength for the year 2021-22																					
YEAR	SC			ST			OBC			EWS			GENERAL			Self Finance			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
<b>I YEAR</b>	3	2	5	1	1	2	5	3	8	1	2	3	6	7	13	1	4	5	17	19	36
<b>II YEAR</b>	0	5	5	1	0	1	7	3	10	2	1	3	8	4	12	0	0	0	18	13	31
<b>TOTAL</b>	<b>3</b>	<b>7</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>12</b>	<b>6</b>	<b>18</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>14</b>	<b>11</b>	<b>25</b>	<b>1</b>	<b>4</b>	<b>5</b>	<b>35</b>	<b>32</b>	<b>67</b>
M.Sc(Physics) Students Strength for the year 2021-22																					
YEAR	SC			ST			OBC			EWS			GENERAL			Self Finance			TOTAL		
	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To	M	F	To
<b>I YEAR</b>	4	1	5	0	1	1	7	2	9	5	1	6	8	2	10	0	4	4	24	11	35
<b>II YEAR</b>	5	0	5	0	0	0	6	1	7	4	0	4	9	2	11	0	0	0	24	3	27
<b>TOTAL</b>	<b>9</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>13</b>	<b>3</b>	<b>16</b>	<b>9</b>	<b>1</b>	<b>10</b>	<b>17</b>	<b>4</b>	<b>21</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>48</b>	<b>14</b>	<b>62</b>

**Ph.D. Students Strength for the year 2021-22****Ph.D. Students Strength for the year 2021-22**

Branch	SC			ST			OBC			EWS			QIP			ICCR			Ethiopian			VTU Scheme			Sponsored			GENERAL			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Civil	7	3	10	2	2	4	14	9	23	1	0	1	3	1	4	1	0	1	2	0	2	0	0	0	2	0	2	37	25	62	<b>69</b>	<b>40</b>	109
Water Resources and Ocean Engg.	5	0	5	4	1	5	11	4	15	2	1	3	1	1	2	3	0	3	0	0	0	0	0	0	2	3	5	28	23	51	<b>56</b>	<b>33</b>	89
Mechanical	22	1	23	6	1	7	34	0	34	1	0	1	12	0	12	0	0	0	3	0	3	0	0	0	5	1	6	86	6	92	<b>169</b>	<b>9</b>	178
E&E	4	2	6	4	0	4	19	5	24	3	1	4	4	1	5	0	0	0	0	0	0	0	0	2	0	2	31	8	39	<b>67</b>	<b>17</b>	84	
E&C	2	0	2	2	1	3	11	1	12	1	0	1	5	4	9	0	0	0	0	0	0	1	1	2	2	1	3	34	10	44	<b>58</b>	<b>18</b>	76
Chemical	1	1	2	0	2	2	4	8	12	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7	13	20	<b>13</b>	<b>24</b>	37
Metallurgy	3	0	3	2	0	2	8	1	9	2	0	2	1	0	1	0	0	0	0	0	0	0	0	1	0	1	26	2	28	<b>43</b>	<b>3</b>	46	
Mining	2	0	2	0	0	0	9	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4	18	0	18	<b>32</b>	<b>2</b>	34	
Computer	2	5	7	0	0	0	8	2	10	0	0	0	4	0	4	0	0	0	0	0	0	1	1	2	1	0	1	15	13	30	<b>31</b>	<b>21</b>	52
Information Technology	4	1	5	2	0	2	5	5	10	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	5	15	20	<b>19</b>	<b>22</b>	41
Physics	3	1	4	2	1	3	1	2	3	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	11	13	24	<b>19</b>	<b>17</b>	36
Chemistry	3	2	5	1	0	1	6	9	15	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	30	<b>26</b>	<b>26</b>	52
MACS	0	1	2	1	0	1	2	5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	17	12	29	<b>21</b>	<b>18</b>	39	
School of Mgt.	3	3	6	0	0	0	6	3	9	0	2	2	0	0	0	0	0	0	0	0	0	0	0	3	0	3	16	19	35	<b>28</b>	<b>27</b>	55	
<b>Total</b>	<b>61</b>	<b>20</b>	<b>82</b>	<b>26</b>	<b>8</b>	<b>34</b>	<b>138</b>	<b>55</b>	<b>193</b>	<b>13</b>	<b>4</b>	<b>17</b>	<b>31</b>	<b>7</b>	<b>38</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>22</b>	<b>6</b>	<b>28</b>	<b>346</b>	<b>174</b>	<b>569</b>	<b>651</b>	<b>277</b>	<b>928</b>

**6.3 ADMISSION STATISTICS Undergraduate Programmes – B. Tech.**  
**Particulars of sanctioned intake and admissions made during 2021-22**

Sl. No	Courses offered	Sanctioned intake				Admissions made to Undergraduate Programmes									
		Normal Intake	ICCR + MEA	DASA	Total	Normal Intake							ICCR	DASA	Total Admission
						OC	EWS	OBC	SC	ST	PWD	Total			
1	Civil Engineering	115	3	16	134	44	9	30	17	9	2 OPEN, 1 EWS, 1 OBC	113	1	0	114
2	Mechanical Engineering	174	3	24	201	62	16	45	27	12	3 OPEN, 1 EWS, 2 OBC	168	0	11	179
3	Electrical & Electronics Engineering	116	4	14	134	45	12	29	17	9	2 OPEN, 2 OBC	116	1	8	125
4	Electronics & Communication Engineering	116	3	17	136	44	11	30	16	8	2 OPEN, 1 EWS, 1 OBC, 1 SC, 1 ST	115	0	17	132
5	Chemical Engineering	58	2	9	69	22	6	15	9	4	1 OPEN	57	0	3	60
6	Metallurgical & Materials Engineering	58	0	2	60	20	6	15	9	4	2 OPEN	56	0	0	56
7	Mining Engineering	58	0	1	59	21	6	16	9	4	--	56	0	0	56
8	Computer Engineering	115	2	16	133	45	10	29	16	9	2 OPEN, 1 EWS, 2 OBC, 1 SC	115	0	16	131
9	Information Technology	76	0	12	84	30	8	19	10	4	2 OPEN, 1 OBC, 1 SC, 1 ST	76	0	8	84
10	Artificial Intelligence	40	4		44	13	4	10	6	3	1 OPEN, 1 OBC	38	0	4	42
<b>Total</b>		<b>926</b>	<b>17</b>	<b>111</b>	<b>1054</b>	<b>346</b>	<b>88</b>	<b>238</b>	<b>136</b>	<b>66</b>	<b>17 OPEN, 4 EWS, 10 OBC, 3 SC, 2 ST</b>	<b>910</b>	<b>2</b>	<b>67</b>	<b>979</b>

**ADMISSION STATISTICS – B.TECH. 2021-22****Details of Male & Female admissions – course wise and category wise**

Sl. No.	Programme	OC		EWS		OBC		SC		ST		ICCR		DASA		Total Admission		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total		
1	Civil Engg	35 + 2 PH	9	7 + 1 PH	2	24	6 + 1PH	13	4	4	5	0	1	0	0	86	28	114
2	Mechanical Engg	50 + 3PH	12	12 +1PH	4	36+2PH	9	22	5	9	3	0	0	10	1	145	34	179
3	Electrical & Electronics Engg	36+1PH	9+1P H	10	2	23+2PH	6	14	3	6	3	1	0	6	2	99	26	125
4	Electronics & Communications	36	8+2P H	9+1P H	2	24+1PH	6	13+1P H	3	5+1P H	3	0	0	15	2	106	26	132
5	Chemical Engg	17+1PH	5	5	1	12	3	7	2	2	2	0	0	2	1	46	14	60
6	Metallurgical & Materials Engg	16+2PH	4	5	1	12	3	7	2	2	2	0	0	0	0	44	12	56
7	Mining Engg	18	3	5	1	13	3	7	2	3	1	0	0	0	0	46	10	56
8	Computer Engg	37+1PH	8+1P H	8+1P H	2	23+1PH	6+1PH	13+1P H	3	7	2	0	0	13	3	105	26	131
9	Information Technology	25+2PH	5	6	2	15	4+1PH	8+1PH	2	3+1P H	1	0	0	5	3	66	18	84
10	Artificial Intelligence	10+1PH	3	3	1	8+1PH	2	5	1	2	1	0	0	4	0	34	8	42
	<b>Total</b>	<b>280+13 PH</b>	<b>66+4 PH</b>	<b>70+4 PH</b>	<b>18</b>	<b>190+7PH</b>	<b>48+3P H</b>	<b>109+3 PH</b>	<b>27</b>	<b>43+ 2PH</b>	<b>23</b>	<b>1</b>	<b>1</b>	<b>55</b>	<b>12</b>	<b>777</b>	<b>202</b>	<b>979</b>

PH= Persons with Disabilities

**M. Tech. Programme - Particulars of Intake during 2021-22**

Sl. No.	Name of the Programmes	Normal Intake (through GATE)	Sponsored /L&T	DASA	ICCR	Self Finance Scheme	Total
1	Structural Engg.	33	1	0	1	5	40
2	Geotechnical Engg.	18	1	1	1	5	26
3	Environmental Engg.	33	1	0	1	5	40
4	Transportation Engg.	33	1	0	1	5	40
5	Construction Technology & Management	33	1 + 30 L&T	0	1	0	65
6	Marine Structures	33	1	1	1	5	41
7	Water Resources Engineering & Mgt.	18	1	0	1	5	25
8	Geoinformatics	33	1	1	1	5	41
9	Mechanical Design	18	1	0	1	10	30
10	Manufacturing Engg.	18	1	0	1	10	30
11	Mechatronics Engg.	33	1	0	1	5	40
12	Thermal Engineering	18	1	1	1	10	31
13	Power & Energy Systems	33	1	0	1	10	45
14	VLSI Design	33	1	1	1	8	44
15	Communication Engineering and Networks	33	1	1	1	8	44
16	Signal Processing and machine learning	29	1	1	1	8	40
17	Chemical Engineering	18	1	0	1	5	25
18	Environmental Science and Technology	33	1	0	1	5	40
19	Industrial Biotechnology	33	1	0	1	5	40
20	Materials Engg.	33	1	0	1	5	40
21	Process Metallurgy	18	1	1	1	5	26
22	Nanotechnology	18	1	0	1	5	25
23	Computer Science & Engg.	33	1	1	1	5	41
24	Computer Science & Engg. – Information Security	33	1	0	1	5	40
25	Information Technology	33	1	0	1	5	40
26	Computational and Data Science	33	1	0	1	5	40
	<b>Total</b>	<b>734 (CCMT)</b>	<b>26 + 30 L&amp;T</b>	<b>9</b>	<b>26</b>	<b>154</b>	<b>979</b>

**M. Tech. Programme - Particulars of Admissions during 2021-22**

Sl. No.	Name of the Programmes	Admitted					Out of the total admissions-No. of candidates admitted under category																	
		GATE (Scholarship seats)	Other	Total			SC			ST			OBC			EWS			OC			PWD		
				M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO
1	Structural Engg.	32	5 SF	26	11	37	4	0	4	1	2	3	3	6	9	2	0	2	11+ 4 SF	2+1 SF	13+5S F	1 EWS	0	1
2	Geotechnical Engg.	18	5 SF	13	10	23	2	1	3	0	1	1	1	4	5	2	0	2	6+ 2 SF	1+3 SF	7+5 SF	-	-	-
3	Environmental Engg.	33	5 SF	18	20	38	4	1	5	0	2	2	7	3	10	2	1	3	5	8+5 SF	13+ 5SF			
4	Transportation Engg.	33	3 SF	27	9	36	5	0	5	2	1	3	7	2	9	3	0	3	8+ 2 SF	5+1SF	13 + 3SF	-	-	-
5	Construction Technology & Management	33	30 L&T 1 ICCR	50	14	64	3	2	5	3	0	3	7	2	9	1	2	3	10 24 L&T 1ICCR	2 6 L&T	12+ 30 L&T	1 OP	-	1
6	Marine Structures	30	-	24	6	30	2	1	3	1	0	1	1	1	2	0	0	0	20	4	24	-	-	-
7	Water Resources Engineering & Management	18	2 SF	14	6	20	2	1	3	1	0	1	2	3	5	0	1	1	7 2SF	1	8 + 2SF	-	-	-
8	Geoinformatics	30	0	15	15	30	3	1	4	1	1	2	1	3	4	0	0	0	10	10	20	-	-	-
9	Mechanical Design	18	9 SF	24	3	27	2	1	3	0	1	1	5	0	5	2	0	2	7 8SF	1 SF	7+ 9SF	-	-	-
10	Manufacturing Engg.	17	9 SF 1 QIP	26	1	27	3	0	3	0	0	0	5	0	5	2	0	2	6+9 SF 1 QIP	1	7+ 9SF+ 1QIP	-	-	-
11	Mechatronics Engg.	32	5 SF	33	4	37	4	1	5	1	0	1	7	2	9	3	0	3	13 +5SF	1	14+ 5SF	-	-	-

Sl. No.	Name of the Programmes	Admitted					Out of the total admissions-No. of candidates admitted under category																	
		GATE (Scholarship seats)	Other	Total			SC			ST			OBC			EWS			OC			PWD		
				M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO
12	Thermal Engineering	18	9 SF	24	3	27	2	1	3	1	0	1	5	0	5	2	0	2	7+ 7 SF	2 SF	7+ 9SF	-	-	-
13	Power & Energy Systems	33	10 SF	33	10	43	4	1	5	3	0	3	6	2	8	3	1	4	10+ 7 SF	3+ 3 SF	13+ 10 SF	-	-	-
14	VLSI Design	33	7 SF	33	7	40	5	0	5	2	0	2	8	1	9	2	0	2	12 + 2 SF	1 + 5SF	13+ 7SF	1 OP	-	2
15	Communication Engineering and Networks	29	5 SF	21	13	34	2	3	5	0	0	0	4	3	7	3	0	3	7 + 4SF	6 + 1SF	13+ 5SF	1 OBC	0	1
16	Signal Processing and machine learning	29	7 SF	29	7	36	3	1	4	2	0	2	7	1	8	3	0	3	8 + 5SF	3 + 2SF	11+7S F	1OP	0	1
17	Chemical Engineering	11	3 SF	11	3	14	0	0	0	0	0	0	3	1	4	0	0	0	6 + 2SF	1 + 1SF	7+3S F	-	-	-
18	Environmental Science and Technology	31	1SF	22	10	32	3	1	4	2	1	3	5	3	8	2	0	2	10	4 + 1SF	14+1S F	-	-	-
19	Industrial Biotechnology	30	0	17	13	30	5	0	5	0	0	0	6	3	9	1	2	3	5	8	13	-	-	-
20	Materials Engg.	28	0	28	0	28	4	0	4	0	0	0	10	0	10	3	0	3	11	0	11	-	-	-
21	Process Metallurgy	3	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	-	-	-
22	Nanotechnology	15	1 SF	15	1	16	3	0	3	0	0	0	3	1	4	1	0	1	7 + 1SF	0	7+ 1SF	-	-	-
23	Computer Science & Engg.	33	5 SF	31	7	38	5	0	5	3	0	3	7	1	8	2	2	4	9 + 4 SF	3 + 1SF	12+ 5SF	1 OP	-	1

Sl. No.	Name of the Programmes	Admitted					Out of the total admissions-No. of candidates admitted under category																	
		GATE (Scholarship seats)	Other	Total			SC			ST			OBC			EWS			OC			PWD		
				M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO	M	F	TO
24	Computer Science & Engg. – Information Security	33	5 SF	29	9	38	4	0	4	2	0	2	7	3	10	2	1	3	12 + 2SF	2+ 3SF	14+ 5SF	-	-	-
25	Information Technology	32	4 SF	31	5	36	4	1	5	2	1	3	7	1	8	2	2	4	12 + 4SF	0	12+ 4SF	-	-	-
26	Computational and Data Science	33	4 SF	37	0	37	5	0	5	2	0	2	9	0	9	3	0	3	14 + 4SF	0	14+ 4SF	-	-	-
	<b>Total</b>	<b>685</b>	<b>104 SF</b>	<b>634</b>	<b>187</b>	<b>821</b>	<b>83</b>	<b>17</b>	<b>100</b>	<b>29</b>	<b>10</b>	<b>39</b>	<b>133</b>	<b>46</b>	<b>179</b>	<b>46</b>	<b>12</b>	<b>58</b>	<b>236</b>	<b>66</b>	<b>302</b>	<b>7</b>	<b>0</b>	<b>7</b>
			<b>30 L&amp;T</b>																<b>74 SF</b>	<b>30 SF</b>	<b>104 SF</b>			
			<b>1 ICCR</b>																<b>24 L&amp;T</b>	<b>6 L&amp;T</b>	<b>30 L&amp;T</b>			
			<b>1 QIP</b>																<b>1 ICCR</b>		<b>1 ICCR</b>			
																			<b>1QIP</b>		<b>1QIP</b>			

SF – Self Finance

**M.TECH. PROGRAMME (BY RESEARCH) 2021-22**

OC	OC PwD	EWS	EWS PwD	OBC	OBC PwD	SC	SC PwD	ST	ST PwD	Total
25	1	6	0	16	1	9	0	5	0	63

Sl. No.	Name of the Programme	No. of candidates admitted		Total number of candidates admitted		
		Gate Scholarship Seat	Non-Scholarship Seat	M	F	Total Admission
<b>DEPARTMENT OF CIVIL ENGINEERING</b>						
1	Structural Engg.	2 OC 1EWS, 1OBC	-	2	2	4
2	Transportation Engg.	1 OC	-	0	1	1
3	Geotechnical Engineering	2 OC	-	1	1	2
4	Environmental Engg.	1 OBC	-	1	0	1
<b>DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING</b>						
1	Materials Engg.	1 OC	2 ER (OC)	3	0	3
<b>DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING</b>						
1	VLSI Design	1 OC	-	1	0	1
2	Communication Engineering	1 OBC	-	1	0	1
3	Signal Processing and machine learning	1 SC	-	1	0	1
<b>DEPARTMENT OF MECHANICAL ENGINEERING</b>						
1	Mechanical Design	1 OC 1OBC	1ER (OC)	3	0	3
2	Mechatronics Engineering	1 OC	1 ER (OC) 1ER (SC) 2 IR (OBC)	4	1	5
3	Manufacturing Engineering	1 OC	1 ER (OC)	2	0	2
4	Thermal Engg.	1 OC	-	1	0	1
<b>DEPARTMENT OF MINING ENGINEERING</b>						
1	Rock Excavation Technology and Management	1 OBC	1 ER (SC)	2	0	2
<b>DEPARTMENT OF WATER RESOURCES AND OCEAN ENGG.</b>						
1	Water Resources Engineering & Mgt.	2 OC	2 IR (OC)	1	3	4
<b>DEPARTMENT OF CHEMICAL ENGINEERING</b>						
1	Industrial Biotechnology	1 OBC	-	0	1	1

<b>DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING</b>						
1	Power and Energy Systems	1 OBC	1 IR (OC)	2	0	2
<b>COMPUTER SCIENCE &amp; ENGINEERING</b>						
1	Computer Science and Engineering	1 OC	-	1	0	1
2	Computer Science and Engineering - Information Security	1 OC, 1EWS	-	1	1	2
<b>INFORMATION TECHNOLOGY</b>						
1	Information Technology	1 OC, 1OBC, 1EWS	-	2	1	3
<b>DEPARTMENT OF MACS</b>						
1	Computational and Data Science	1 OC	-	1	0	1
	<b>Total</b>	<b>17 OC 3 EWS 8 OBC 1 SC</b>	<b>3 IR (OC) 2 IR (OBC) 5 ER (OC) 2 ER (SC)</b>	<b>30</b>	<b>11</b>	<b>41</b>

**M.C.A., M.B.A. AND M.Sc. PROGRAMMES****Particulars of Admissions during 2021-22**

Sl. No.	Programme	Intake	Total Admission			SC		ST		OBC		OC		EWS		PwD		Self - Finance d	
			M	F	Total	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	Master of Computer Applications (MCA)	58+ 1**+10* **	54	10	<b>64</b>	7	2	3	1	12	3	18	4	6	0	1 OBC 1OC	0	6	0
2	Master of Business Administration (MBA)	80+5*+ 1**+10* **	23	22	<b>45</b>	0	0	0	1	3	4	15	14	1	0	-	-	4	3
3	M.Sc. (Chemistry)	33+ 1**+5** *	19	18	<b>37</b>	3	2	2	1	6	3	6	7	1	2	-	-	1	3
4	M.Sc. (Physics)	33+ 1**+7** *	23	11	<b>34</b>	4	1	0	1	7	2	8	3	4	0			0	4
	<b>Total</b>	<b>204+ 5*+ 4** +32***= 245</b>	<b>119</b>	<b>61</b>	<b>180</b>	<b>14</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>28</b>	<b>12</b>	<b>47</b>	<b>28</b>	<b>12</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>11</b>	<b>10</b>

\* Seats reserved for DASA candidates

\*\* Additional seats for the international students under ICCR Scheme

\*\*\* Self-Financed Scheme

PwD – Persons with Disabilities

**Ph.D. PROGRAMME**

**Particulars of Intake & Admissions made during 2021-22  
Intake for the year 2021-22**

OC	OC PWD	EWS	EWS PWD	OBC	OBC PWD	SC	SC PWD	ST	ST PWD	Total
72	4	18	1	48	2	27	1	14	1	188

**Details of Admissions made during 2021-22**

Sl No.	Name of the Department	Admitted Full time Programme				Admitted Under External Registrants (Part Time)		Out of the total Full time scholars, Number of Candidates belonging to the category of									
		Fellowship Holder		Other category-Non Fellowship+ QIP+ Sponsored + Ethiopian		M	F	OC		EWS		OBC		SC		ST	
		M	F	M	F			M	F	M	F	M	F	M	F		
1	Civil Engg.	9	8	1 QIP (R) (OC)	-	3 IR (OC) 6 ER (OC) 1 ER (OBC)	1 ER (OC)	4	5	1	-	2	1	2	1	0	1
2	Water Resources and Ocean Engg.	7	2	-	-	1 ER (OC)	1 ER (OBC)	2	2	1	-	2	-	1	-	1	-
3	Mechanical Engg.	19	-	1 QIP (R) (OC) 1 QIP (P) (OC) 1 QIP (P) (ST) 1 NSCH-NSPN (OC)	-	9 ER (OC) 2 ER (OBC) 1 ER (SC) 2 IR (OC)	1ER (OC) 1ER (ST)	9	-	-	-	6	-	3	-	1	-

Sl No.	Name of the Department	Admitted Full time Programme				Admitted Under External Registrants (Part Time)		Out of the total Full time scholars, Number of Candidates belonging to the category of									
		Fellowship Holder		Other category-Non Fellowship+ QIP+ Sponsored + Ethiopian		M	F	OC		EWS		OBC		SC		ST	
		M	F	M	F			M	F	M	F	M	F	M	F		
4	Electrical & Electronics Engg.	9	3	-	-	3 ER (OC) 1 IR (OBC)	-	4	1	-	1	3	1	1	-	1	-
5	Electronics & Communication Engg	7	4	1 QIP (P) (OC) 1 QIP (R) (OBC) 1 FT-SPON - NSCH (OC)	1 QIP (R) (OC)	2 IR (OBC)  2 IR (OC)	-	3	3	1	-	2	-	1	-	0	1
6	Chemical Engg	5	-	-	-	-	1 IR (OC)	3	-	-	-	1	-	1	-	-	-
7	Metallurgical & Materials Engg	6	-	-	-	5 ER (OC)  1 ER (OBC)	1 ER (OC)	4	-	-	-	2	-	-	-	-	-
08	Mining Engg	2	-	1 NSCH-NSPN (OC)	1 NSCH-NSPN (OC)	1 IR (OC) 2 ER (OC) 1 ER (OBC) 1 ER (SC)	1 ER (OC)	-	-	-	-	1	-	1	-	-	-
9	Computer Science & Engg	4	2	1 QIP (R) (OC)  1 NSCH-NSPN (OC) 1 NSCH-NSPN (OBC)	2 NSCH-NSPN (OC)	1 ER (OC) 1 IR (OC)	2 ER (SC)  1 IR (OC)	1 + 1 PwD	1	-	-	2	-	-	1	-	-

Sl No.	Name of the Department	Admitted Full time Programme				Admitted Under External Registrants (Part Time)		Out of the total Full time scholars, Number of Candidates belonging to the category of									
		Fellowship Holder		Other category-Non Fellowship+ QIP+ Sponsored + Ethiopian		M	F	OC		EWS		OBC		SC		ST	
		M	F	M	F			M	F	M	F	M	F	M	F		
10	Information Technology	2	3	-	1 NSCH-NSPN (OBC) 1 NSCH-NSPN (OC)	2 ER (OBC )	5 ER (OC)	1	2	-	-	-	1	1	-	-	-
11	Physics	2	3	-	1 NSCH-NSPN (OC)	-	-	-	2	1 PwD	-	-	1	1	-	-	-
12	Chemistry	3	2	1 NSCH-NSPN (OC) 1 NSCH-NSPN (OBC)	3 NSCH-NSPN (OBC)	1 IR (OC) 1ER (OBC)	-	2	1	-	-	1	-	-	1	-	-
13	Mathematical & Computational Sciences	5	2	-	-	-	1 ER (OC) 1 IR (OC)	3	1	-	1	1	-	-	-	1	-
14	School of Management	4	3	-	1 NSCH-	3 ER (OC)	2 ER (OC)	2	1	-	1	1	1	1	-	-	-

Sl No.	Name of the Department	Admitted Full time Programme				Admitted Under External Registrants (Part Time)		Out of the total Full time scholars, Number of Candidates belonging to the category of									
		Fellowship Holder		Other category-Non Fellowship+ QIP+ Sponsored + Ethiopian		M	F	OC		EWS		OBC		SC		ST	
		M	F	M	F			M	F	M	F	M	F	M	F		
		84	32	7 QIP	1QIP	13 IR	3 IR	38 + 1PwD	1 9	3 + 1PwD	3	24	5	13	3	4	2
				1 FT-SPON-NSCH	10 NSCH-NSPN	40 ER	16 ER										
				6 NSCH-NSPN													

Spon= Sponsored. QIP = Admitted Under AICTE QIP Scheme, PwD – Persons with Disabilities

**Total Student's Strength**

**Programme**

**Strength**

1. Undergraduate	3778
2. Post Graduate (Including MCA /M.Tech./M.Tech (Research)/MBA/M.Sc.)	1949
3. Ph.D. Programme	<u>928</u>
<b>Total</b>	<b><u>6655</u></b>

## **7. EVALUATION AND EXAMINATION**

### **7.1 EDUCATION SYSTEM**

The normal duration of programmes leading to B.Tech degree in Engineering is eight semesters. For full time M.Tech. Programmes, the duration of study is a minimum of four semesters and a maximum of four years. For Master of Science, programme the duration of study shall be a minimum of four semesters and a maximum of four years. For Master of Computer Application (MCA) the duration of study shall be a minimum of six semesters and a maximum of six years. For Master of Business Administration (MBA), the duration of study is a minimum of four semesters and a maximum of four years. For Doctoral Programmes (Ph.D.) the duration of study is a minimum of two years and maximum of seven years for all categories of research scholars.

Each academic year is divided into two semesters. A semester that is typically from August to Mid- December is called the ODD SEMESTER, and the one that is from January to Mid-May is called EVEN SEMESTER.

The medium of instruction, examination and project work is English only.

### **7.2 EXAMINATION & EVALUATION PROCEDURE**

The examination and evaluation work of all the B.Tech./M.Tech./MCA/MSc/MBA students and Ph.D./M.Tech by Research candidates were carried out by the respective Faculty Members in their concerned Departments itself as per the regulations approved by the Senate of the Institute. The Grades obtained by each student with details of attendance in each course are submitted to the Examination/Evaluation Section for processing their Grade Cards as per the regulations of the Institute. The results are declared and published on the website of the Institute in time and Grade Cards were issued to all eligible students.

## 8. EXAMINATION RESULTS FOR 2021

### UNDER GRADUATE

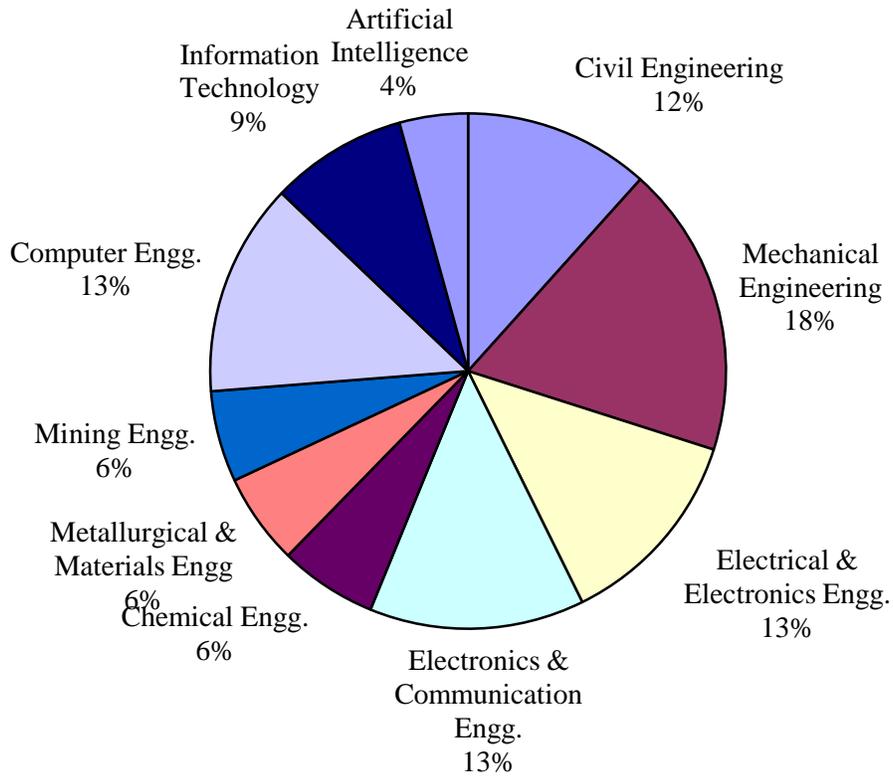
<b>Result 2020-21</b>									
<b>Under Graduate</b>									
Sl.No.	Branch	Total No. Appeared	No. of students passed in				Total Pass	Percent age of passes	No. of SC/ST candidates passed
			CGPA above 7 & below 10	CGPA above 6 & below 7	CGPA above 5 & below 6	CGPA below 5			
1.	Civil Engineering	94+1*	74	14	3+1*	0	91+1*	96.84	17+1*
2.	Mechanical Engineering	157+4*	117	24+1*	13+3*	2	156+4*	99.38	28+2*
3.	Electrical And Electronics Engineering	104+1*	77	23	5	0	104+1*	100.00	20
4.	Electronics And Communication Engineering	106	75	22	8	1	106	100.00	19
5.	Chemical Engineering	49	30	10	6	0	46	93.88	8
6.	Metallurgical And Materials Engineering	40	32	5	2	0	39	97.50	8
7.	Mining Engineering	38+1*	28	6+1*	3	0	38	97.44	7
8.	Computer Engineering	109+1*	80+1*	19	7	0	107	97.27	19
9.	Information Technology	102	81	17	3	1	102	100.00	19
		799+8*					787+8*	98.51	
	*- Repeaters								

**POST GRADUATE**

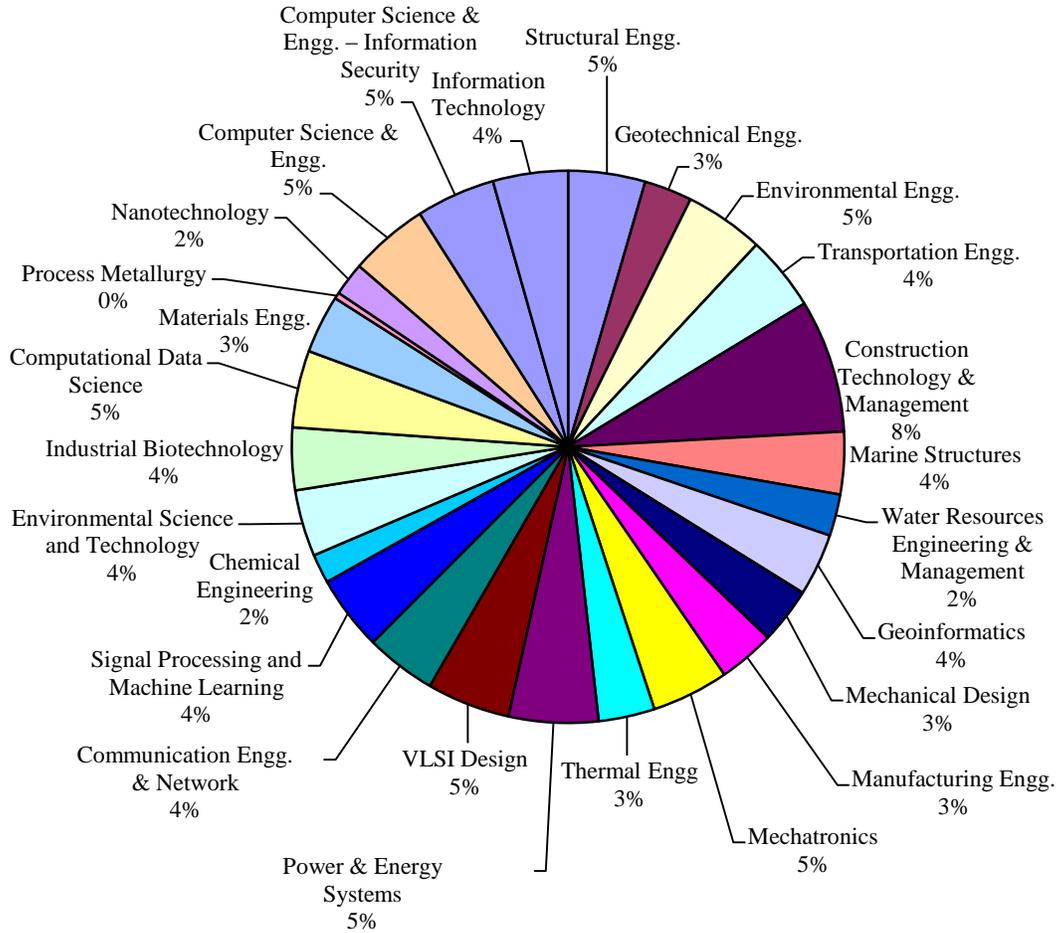
Sl.No.	Branch	Total No. Appeared	No. of students passed in			Total Pass	Percentage of passes	No. of SC/ST candidates passed
			CGPA above 7 & below 10	CGPA above 6 & below 7	CGPA above 5.50 & below 6			
1.	Construction Technology & Management	56	56	0	0	56	100.00	4
2.	Structural Engineering	26	25	1	0	26	100.00	3
3.	Geotechnical Engineering	12	11	0	0	11	91.67	2
4.	Environmental Engineering	28	28	0	0	28	100.00	5
5.	Transportation Engineering	28	23	3	1	27	96.43	4
6.	Marine Structures	29	28	1	0	29	100.00	5
7.	Geoinformatics	23	21	1	0	22	95.65	2
8.	Water Resources Engineering & Management	11	10	0	0	10	90.91	2
9.	Mechanical Design	16	16	0	0	16	100.00	3
10.	Manufacturing Engineering	14	14	0	0	14	100.00	3
11.	Mechatronics Engineering	26	24	1	0	25	96.15	4
12.	Thermal Engineering	16	16	0	0	16	100.00	3
13.	Power & Energy Systems	28	26	1	1	28	100.00	4
14.	VLSI Design	29	28	0	0	28	96.55	5
15.	Communication Engineering and Networks	28	27	1	0	28	100.00	5
16.	Signal Processing and Machine Learning	26	23	2	1	26	100.00	4
17.	Chemical Plant Design	0+1*	0	1*	0	0+1*	100.00	1*
18.	Chemical Engineering	12	11	1	0	12	100.00	1
19.	Industrial Biotechnology	27	23	4	0	27	100.00	5
20.	Enivronmental Science and Technology	9	8	1	0	9	100.00	0
21.	Process Metallurgy	12	12	0	0	12	100.00	1
22.	Materials Engineering	23	20	2	0	22	95.65	2
23.	Nanotechnology	5	5	0	0	5	100.00	1
24.	Computational Data Science	23	22	0	0	22	95.65	3
25.	Computer Science and Engineering	26	24	1	0	25	96.15	4
26.	Computer Science and Engineering - Information Security	30	28	2	0	30	100.00	6
27.	Information Technology	25+1*	24	1*	0	24+1*	96.15	3+1*

*National Institute of Technology Karnataka, Surathkal*

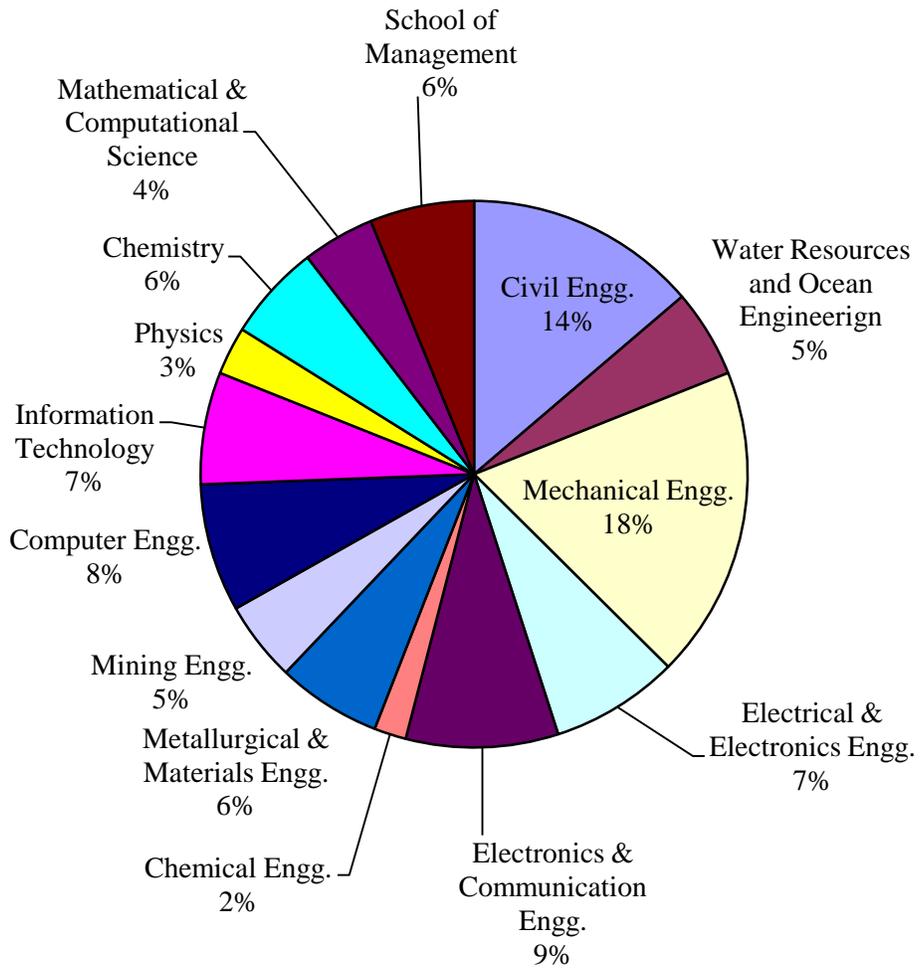
28	Master of Computer Applications	89	84	4	0	88	98.88	18
29	Master of Business Administration	28	23	5	0	28	100.00	3
30	Master of Science (Chemistry)	23	23	0	0	23	100.00	1
31	Master of Science (Physics)	24	20	4	0	24	100.00	5



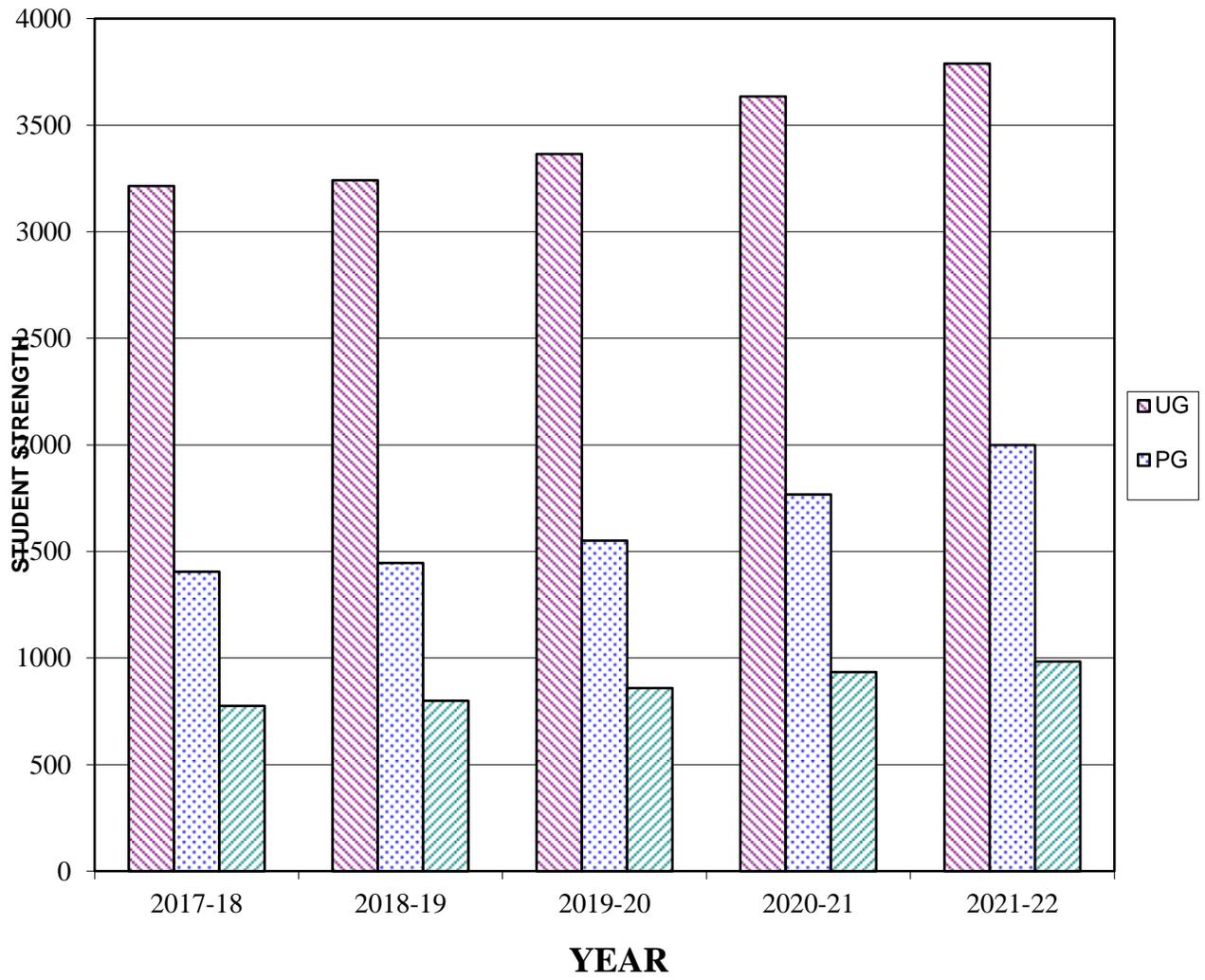
**Pie chart showing discipline wise B.Tech. admissions 2021-22**



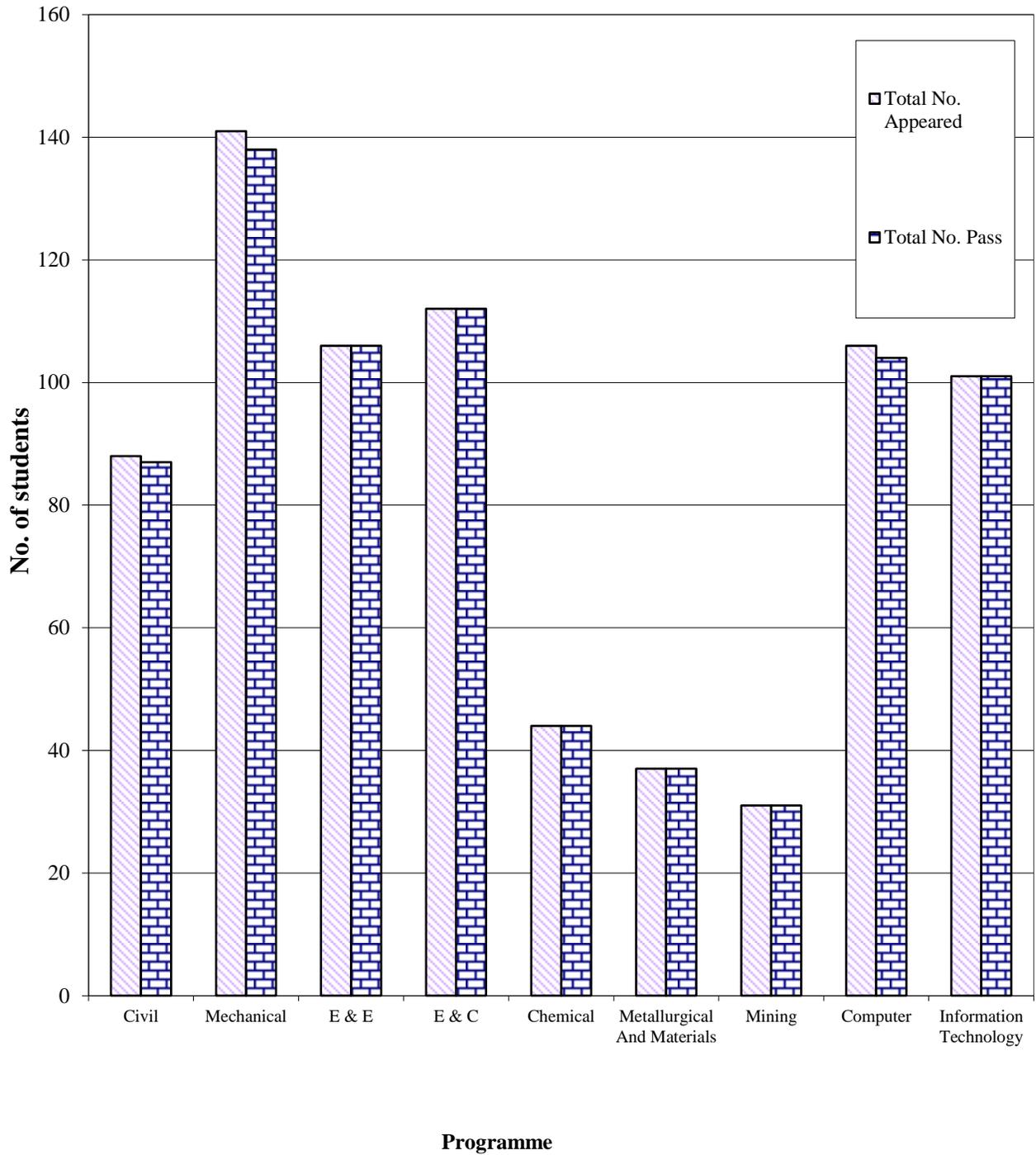
**Pie chart showing discipline wise M.Tech. admissions 2021-22**



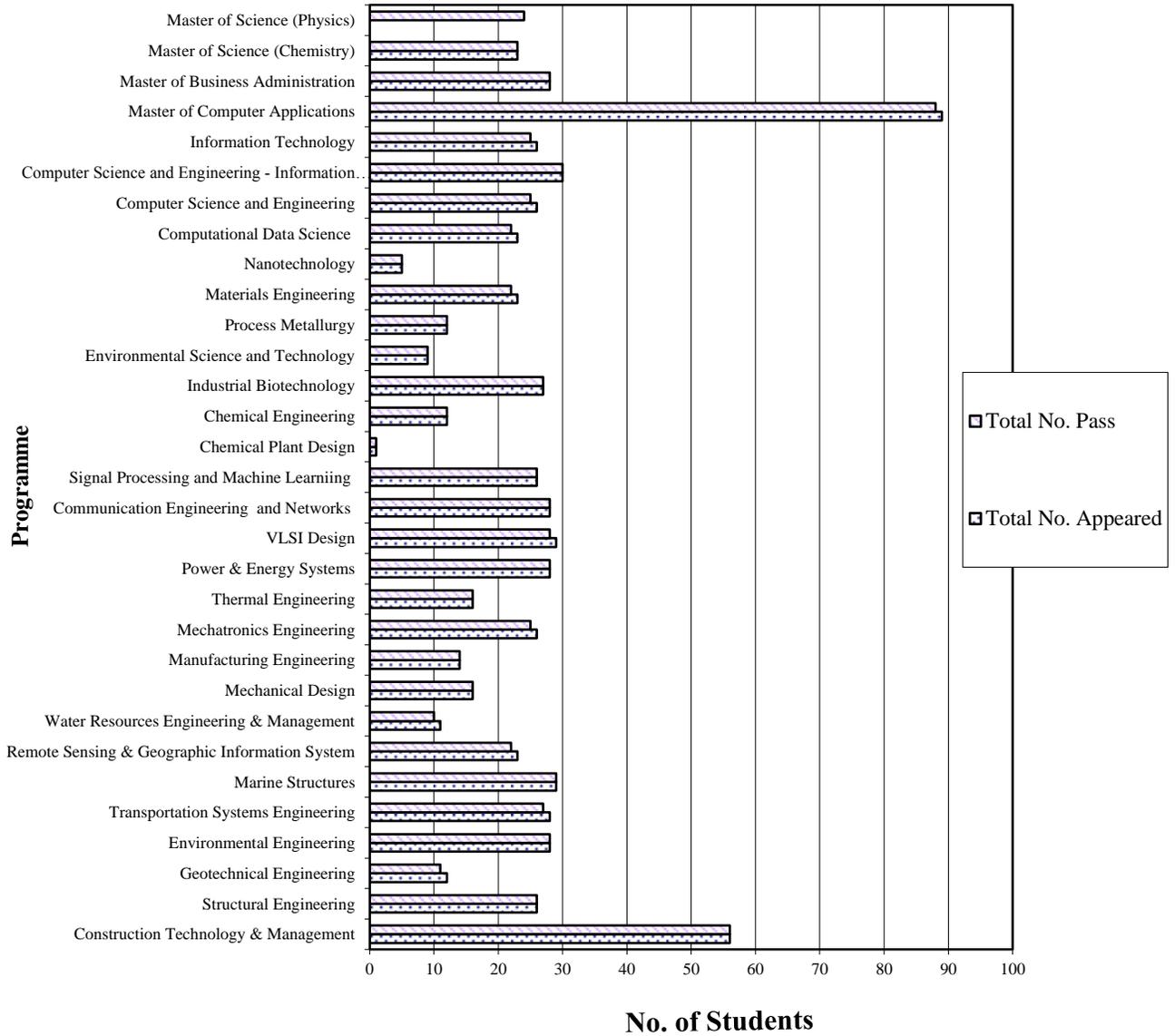
**Pie chart showing discipline with Ph.D. admissions 2021-22**



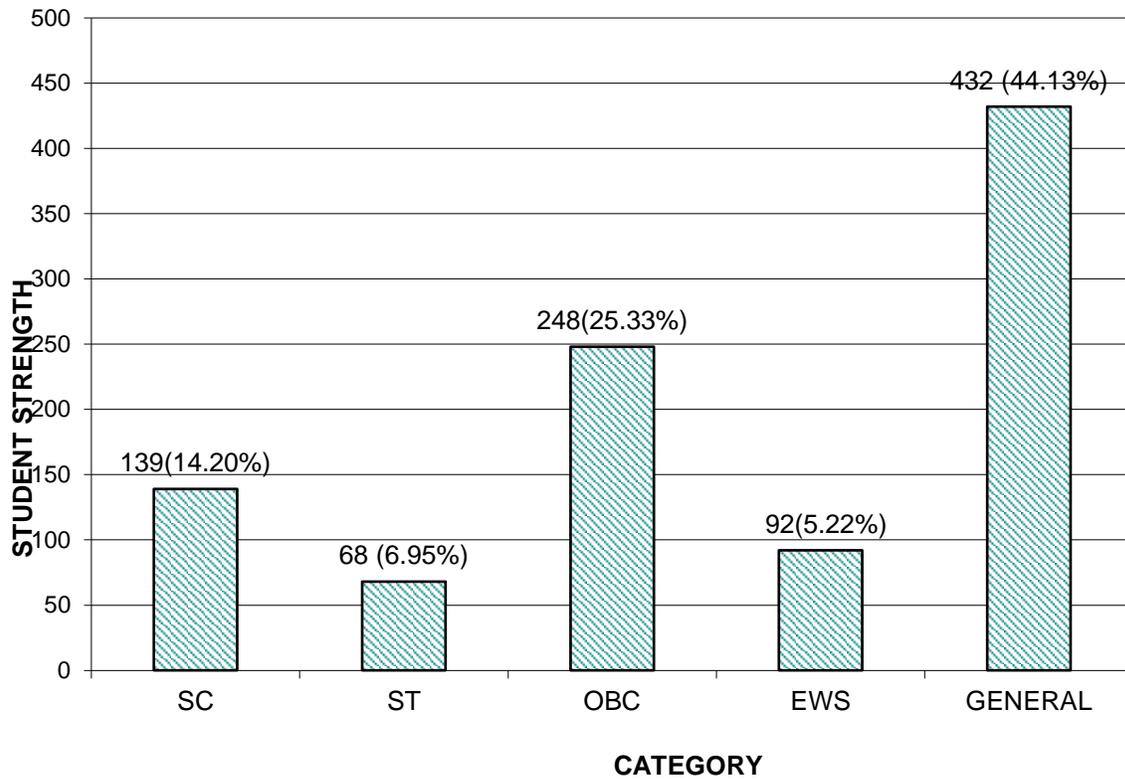
**Growth enrolment UG/PG/Ph.D. students during last 5 years 2017-2018 to 2021-22**



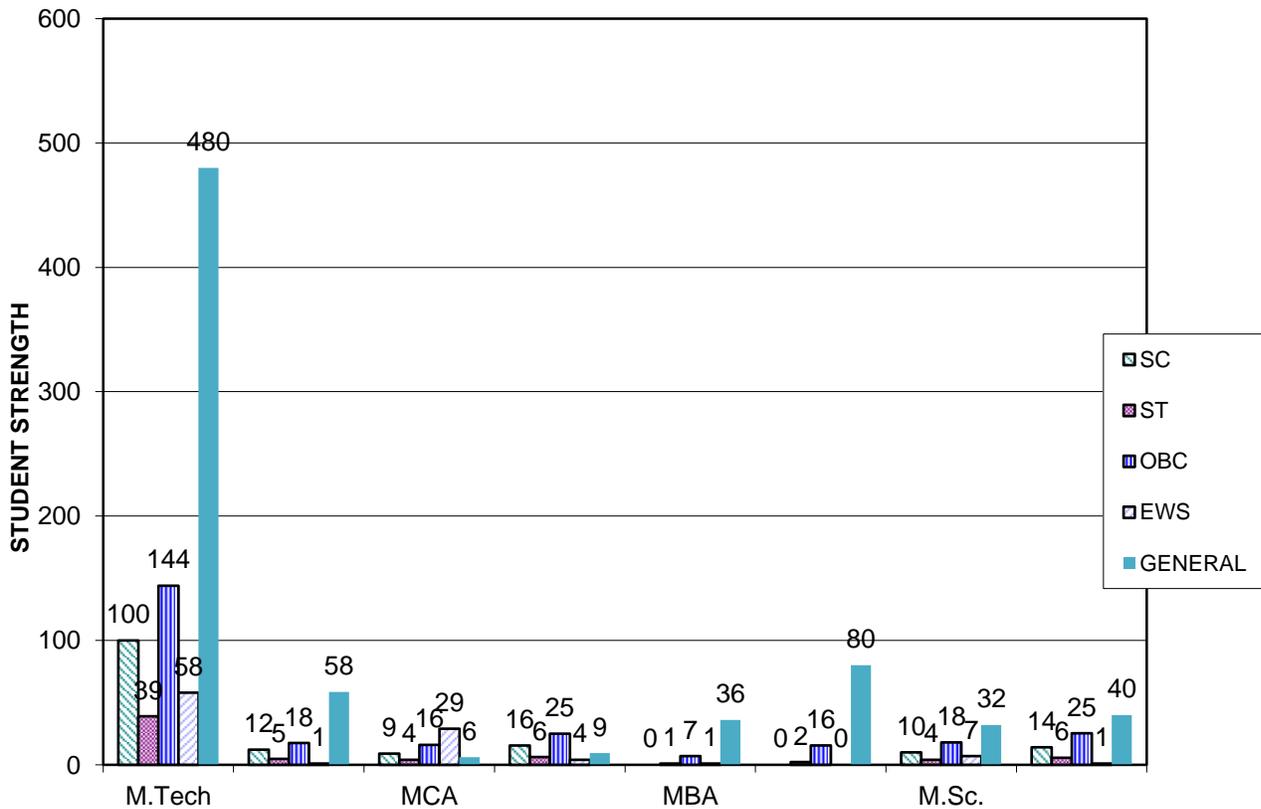
**Examination Results 2021(UG)**



Examination Results 2021 (PG)



Category wise details of UG admissions 2021-22



Category wise details of PG admissions 2021-22

**Ranks secured by the B.Tech./M.Tech./MCA/MBA/M.Sc. (Physics & Chemistry) Examination held in April/May, 2021**

**B.Tech.**

Sl. No.	Branch	Reg. No.	Name of the Student
1	CHEMICAL ENGINEERING	171024CH031	NIHAL MOHAMED NAEEM 1) Institute Medal 2) Mohan V Hosur Gold Medal 3) 1986 Batch Gold Medal
2	CIVIL ENGINEERING	171294CV108	BALAJI G R 1) Institute Medal 2) Prof. M. N. Shivshankar Gold Medal 3) Dr. R.K. Yaji Gold Medal 4) 1986 Batch Gold Medal
3	COMPUTER SCIENCE AND ENGINEERING	171342CO114	DEEPAK K 1) Institute Medal
4	ELECTRONICS & COMMUNICATION ENGINEERING	171490EC113	<u>DEEKSHA M S</u> 1) Institute Medal 2) 1986 Batch Gold Medal
5	ELECTRICAL & ELECTRONICS ENGINEERING	171668EE212	<u>CHAITALI SHAH</u> 1) Institute Medal 2) Prof. M.R. Shenoy Memorial Prize 3) Prof. K. M. Hebbar Gold Medal 4) 1986 Batch Gold Medal
6	INFORMATION TECHNOLOGY	171451IT253	SHUBHAM AGRAWAL 1) Institute Medal
7	MECHANICAL ENGINEERING	171226ME136	KARTHIK RAO M 1) Institute Medal 2) 1986 Batch Gold Medal 3) Prof. Shuichi Torii Gold Medal
8	METALLURGICAL & MATERIALS ENGINEERING	171793MT039	<u>SWATHILAKSHMI</u> 1) Institute Medal 2) Karthik Alloys Gold Medal 3) Prof. H. V. Sudhaker Nayak Gold Medal 4) SMIORE Gold Medal 5) 1986 Batch Gold Medal
9	MINING ENGINEERING	171823MN029	RISHITESH PRAJAPATI 1) Institute Medal 2) Hutti Gold Mines Medal

**POST GRADUATES**

Sl. No.	Branch	Reg. No.	Name of the Student
1	Marine Structures	192570MS010	<u>KHANSA ABDULLA</u> 1) Institute Medal
2	Remote Sensing & Geographic Information System	192512RS010	GOSUVARIPALLI MASTHAN WALI 1) Institute Medal
3	Water Resources Engineering & Management	192566WR003	DEV ANAND THAKUR 1) Institute Medal
4	Chemical Engineering	192294CG009	<u>PRIYANKA HARIDAS PADOLE</u> 1) Institute Medal
5	Industrial Biotechnology	192401IB021	<u>SANDHYA N</u> 1) Institute Medal
6	Environmental Science and Technology	192356ES004	<u>DEEPTI SADANAND JOSHI</u> 1) Institute Medal
7	Construction Technology & Management	192382CM034	<u>NAVYA KOPPANA</u> 1) Institute Medal
8	Environmental Engineering	192028EN001	<u>A ANAKHA</u> 1) Institute Medal
9	Geotechnical Engineering	192161GT001	A S KASYAP VASUDEVAN 1) Institute Medal
		192633GT006	BHAGYARAJ U 1) Institute Medal
10	Structural Engineering	192006ST013	<u>KADEEJA SENSY</u> 1) Institute Medal
11	Transportation Engineering	192562TS006	<u>ARATHY LAL</u> 1) Institute Medal
12	Computer Science & Engineering	192573CS007	GUNE PARIKSHIT NIRMALCHANDRA 1) Institute Medal
13	Computer Science & Engineering – Information Security	192621IS008	BHONGE HIMANSHU NARENDRA 1) Institute Medal
14	Power & Energy Systems	192564PS015	KALE BALAJI GOVINDRAO 1) Institute Medal
15	Communication Engineering and Networks	192442CN011	LEPURI JATHIN SRAVAN KUMAR 1) Institute Medal
16	VLSI Design	192020VL009	<u>KANCHARLA KEERTHI</u> 1) Institute Medal
		192220VL019	RAHUL NARYANI 1) Institute Medal
		192149VL027	TONDAPI VENKATESH 1) Institute Medal
17	Signal Processing and Machine Learning	192277SP016	PASUMARTHI MANINDRA KUMAR 1) Institute Medal
18	Information Technology	192542IT011	NAVEEN YADAV 1) Institute Medal

19	Computational and Data Science	192211CD012	MEKALA SAI NIKHIL 1) Institute Medal
20	Mechanical Design	192136MD015	ROHITH PRAKASH 1) Institute Medal
21	Manufacturing Engineering	192053MF004	BOBBILI SAI SUNEEL KUMAR 1) Institute Medal
		192731MF006	IAN ROBIN KUNDER 1) Institute Medal
22	Mechatronics Engineering	192523MC001	<u>AISHWARYA PILLAI</u> 1) Institute Medal
23	Thermal Engineering	192629TH007	LANKA SURESH 1) Institute Medal 2) Dr. B. S. Samaga Award
		192501TH008	MADDI SAI MADHAV 1) Institute Medal 2) Dr. B. S. Samaga Award
24	Materials Engineering	192467ML022	<u>SANTHRA KRISHNAN P</u> 1) Institute Medal 2) Prof. K R Hebbar Gold Medal 3) Prof. K. L. Bhat & Prof. P. Prasad Rao Gold Medal
25	Nanotechnology	192695NT004	MD IRFAN 1) Institute Medal
26	Process Metallurgy	192540PM010	MIDHUN P M 1) Institute Medal 2) Smt. Sarojini Pillay Gold Medal

**Master of Computer Applications - 2021**

Sl. No.	Branch	Reg. No.	Name of the Student
27	Master of Computer Applications	184080CA027	<u>JASLEEN KAUR</u> 1) Institute Medal 2) Dr. Saroja R Hebbar Gold Medal

**Master of Business Administration - 2021**

Sl. No.	Branch	Reg. No.	Name of the Student
28	Master of Business Administration	195010SM018	<u>NISHITA PEREIRA</u> 1) Institute Medal

**Master of Science - 2021**

Sl. No.	Branch	Reg. No.	Name of the Student
29	Chemistry	196011CY024	<u>VEDASHREE SOMADEVA MARATHE</u> 1) Institute Medal 2) Prof. G. H. Kulkarni Gold Medal
30	Physics	196001PH007	DHAWALIKAR SAEER MAHESH 1) Institute Medal 2) K. Subbarayappa Gold Medal

## 9. Ph.D.PROGRAMMES & DOCTORATES AWARDED

### PH.D. PROGRAMMES – EXISTING & PROPOSED

#### DEPARTMENT OF CIVIL ENGINEERING

##### EXISTING SPECIALIZATION:

Construction Technology and Management, Environmental Engineering, Geotechnical Engineering, Structural Engineering, Transportation Engineering, Earth Sciences.

#### DEPARTMENT OF CHEMICAL ENGINEERING

##### EXISTING SPECIALIZATION:

Chemical Engineering-Process Dynamics and Control, Process Modelling and Simulation, System Identification, Subspace Identification, Process Systems Engineering, Process Optimization, Renewable Energy

##### PROPOSED

Computational Fluid Dynamics (CFD), Multi Phase Flow, Microfluidics, Nano Technology, Bioenergy, Process Dynamics and Control.

#### DEPARTMENT OF CHEMISTRY

Corrosion science, Nanofluids, Electro chemistry, Nanocoating, Photocatalysis, Supercapacitors, Thermoelectrics, Materials for energy and environmental applications. Medicinal Chemistry, Organic electronics, Membrane technology, Materials Chemistry, Environmental Chemistry, Polymer composites, Perovskite solar cells, Organic Synthesis, Green Chemistry, Organometallic Chemistry, Renewable synthesis and catalysis, Porphyrin

Chemistry, Natural products and total synthesis. Dyes for optical applications.

##### PROPOSED SPECIALIZATION:-

Enzyme technology, Biosensors, Green hydrogen production, waste to fuel and hydrogen synthesis.

#### DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING:

##### EXISTING SPECIALIZATION:-

Computer Networks, Software Engineering, Distributed Computing, Data Management, Information Security, High Performance Computing, Computer Vision, Cloud Computing, Image Processing, Speech Processing, Mobile computing

##### PROPOSED SPECIALIZATION:

Graph Theory, Graph Algorithms, Big Data Analytics, Internet of Things (IoT), Network-on-Chip(NoC)-2D, 3D, Wireless and Photonic., Testing and Fault-Tolerance, Hardware Security, Formal Verification, and Cyber-Physical Systems, Computer Systems and Architecture, Computational Geometry, Machine Learning, and Distributed Systems, Cloud Computing, FOG Computing, Internet of Things (IoT) Security, Blockchain, Serverless

#### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

##### EXISTING SPECIALIZATION

Digital VLSI Design, Analog and Mixed Signal Design, Digital Signal Processing, Speech, Audio, Image and Video Processing, Digital Communication, Error Control Coding, Free Space Optics, RF MEMS, Microwave and RF Circuits,

Wireless Sensor Networks, High Frequency Electronics, Semiconductor Devices, Embedded Systems, Reconfigurable Computing.

## **DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

### **EXISTING SPECIALIZATION**

Power Systems, Distributed Generation, Energy Systems, Power Electronics & Drives, Renewable Energy, High Voltage Engineering, Flexible AC Transmission System (FACTS), Control Systems, Power System Protection, Smart Grid & Sensor Networks, Machine Learning.

## **DEPARTMENT OF INFORMATION TECHNOLOGY**

### **EXISTING SPECIALIZATION**

Affective Computing, Big Data Analytics, Blockchain Technologies, Cloud/Edge/Fog Computing, Cloud Security, Computer Networks, Cyber Security, Databases, Data Mining, Deep Learning Applications, Distributed Computing, Future Internet Architecture, Healthcare Informatics, High Performance Computing, Information Retrieval, Information Security, Internet of Things, Mobile Software Engineering, Natural Language Processing, Network Security, Semantic Web Technology, Social Multimedia/Social Network Analysis, Software Engineering, Web Services, Wireless Sensor Networks.

## **DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES**

### **EXISTING SPECIALIZATION**

Computer Stream: computer vision, Computer Network Security, Graph Algorithms, image Processing, Machine

learning, Cloud computing, Sryptography, Wireless Sensor Networks. Mathematics Stream: Computational Fluid Dynamics, Reliability Engineering, Graph Theory, Algebra, Number theory, Real Analysis, Dynamical Systems, Differential equations, Numerical Methods, Functional Analysis, spectral Analysis.

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **EXISTING SPECIALIZATION**

Thermal Engineering  
Manufacturing Engineering  
Design and Precision Engineering  
Mechatronics Engineering

## **DEPARTMENT OF MINING ENGINEERING**

### **EXISTING SPECIALIZATION**

Rock Mechanics and Ground Control, Drilling and Blasting, Mine Planning, Environmental Management, Waste Management, Reliability and Safety Engineering, Occupational Ergonomics.

## **DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING**

### **EXISTING SPECIALIZATION**

Process Metallurgy, Physical Metallurgy, Mechanical Metallurgy, Materials Engineering, Nanotechnology.

### **PROPOSED**

Biomaterials

## **DEPARTMENT OF PHYSICS**

### EXISTING SPECIALIZATION

Solid State Physics, Materials Science, Theoretical Physics, Electromagnetics, Photonics, Compound Semiconductor thin films.

### PROPOSED

Theoretical investigation of strongly correlated systems and solar cells, Cosmology and Early Universe

### SCHOOL OF MANAGEMENT

#### EXISTING SPECIALIZATION

Strategic Management, Marketing Management, Financial Management, Human Resources Management, Operations Management, Sustainable Development, Indian Coffee, Engineering Economics, Agricultural Economics, Economics of Technological Change, Energy Economics, Comparative Literature, Translation Studies, Indian Classical Music, Musical Cultures in India, Production and Operations Management, Information Systems and Analytics, Behavioral Sciences, Quantitative Techniques, International Business Management.

### DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING

#### EXISTING SPECIALIZATION

- (i) Coastal Engineering
- (ii) Water Resources Engineering
- (iii) Geoinformatics

#### DOCTORATES AWARDED

### DEPARTMENT OF CHEMICAL ENGINEERING

1. Mr. Pragadeesh K. "Thermophysical and Thermochemical Behaviour of Coal and Biomass During Chemical Looping Combustion", 2021, Dr. I. Regupathi & Dr. Ruben Sudhakar D..

2. Mr. Rohit P. Kalnake "Studies on Rotating Packed Disc Bioreactor", 2021, Dr. Keyur Raval & Dr. D.V.R Murthy.
3. Ms. Diksha Sharma "Hydrogel based Wound Dressing Material using Fish based Collagen and Silver Nanowires as Antimicrobial Agent", 2021, Dr. P.E. Jagadeeshbabu & Dr. Raj Mohan B.
4. Mr. Lister Herington Falleiro "Computational investigation of hydrodynamics, mixing and crystallization in a batch stirred vessel" 2021, Dr. Ashraf Ali B.
5. Mr. Anand Kumar N., "Synthesis, Characterization and Immunogenicity of Uricase from *Bacillus Fastidiousus* Conjugated with Water Soluble Polymers for Gout Therapeutics.", 2022, Dr. P.E. Jagadeeshbabu.
6. Ms. Vrushali Vinayak Kadam "Detection and Degradation of Endocrine Disruptors using ZnO Nanoparticles", 2022, Dr. Raj Mohan B.
7. Ms. Shwetha Karanth "Non- conventional Extraction of Lactoperoxidase from Whey", 2022, Dr. I. Regupathi.

### DEPARTMENT OF CIVIL ENGINEERING

**No. of PhD Awarded:\_\_\_ (including those for which viva has been successfully completed).**

1. Harsha M. M," Study on the Factors Governing the Travel Time Reliability of Public Bus Transport System", January 2022, Dr. Raviraj H. M
2. Marsh M. Bandi, "Calibration of Vehicle and Driver Characteristics for VISSIM Model, ANN-Based Sensitivity Analysis, Traffic Management, and Signal Design Using GA for Mangalore City", October, 2021, Prof. Varghese George.
3. Radhika M. Patel, "Numerical Analysis of Pile-Supported Geogrid-Reinforced Embankments on Soft Grounds", Jan 2022, Dr. B. R. Jayalekshmi & Dr. R Shivashankar

4. Rashma R. S. V, "Studies on the behavior of pervious concrete column improved ground subjected to static shear and seismic load", Sept 2021, Dr. B.R. Jayalekshmi and Dr. R. Shivashankar
5. Vibhoosha M P, "Performance evaluation of encased stone column supported embankments with geosynthetic materials as basal reinforcement", Dec 2021, Dr. Sitaram Nayak, NITK and Dr. Anjana Bhasi, NITC
6. Preetham H K, "Geotechnical studies on marine clay stabilized using quarry dust, granular blast furnace slag and cement and its applications", Sept 2021, Sitaram Nayak
7. Sarathchandra Pragada " Small Scale Decentralized Systems for Greywater Treatment and Recycling", March 2022, Dr. Arun Kumar Thalla
8. Adhirashree " Resource Recovery and Value-Added Products from Agricultural Waste", January 2022, Dr. Arun Kumar Thalla
9. Rashmi H R "An Experimental investigation on phosphorus removal and recovery using sludge conditioned with skeleton material", Oct 2021, Dr. C. P. Devatha
3. Marimuthu C (Reg. No. 155126CS15FV08) "Green and Sustainable ICT (Broad Area)", 15-06-2021, Prof. K. Chandrasekaran
4. Santhanam Raghavan (Reg. No. 155131CS15FV012) "Cloud Service selection and workflow scheduling using P systems", 01-07-2021, Prof. K. Chandrasekaran
5. Nikhil Chandrakant Mhala (Reg. No. CS16F03 ) "Analysis and design of secure visual secret sharing scheme with enhanced contrast", 11-08-2021, Dr. Alwyn Roshan Pais
6. Anil Kumar (Reg. No. 148005CS14F05) "Machine learning based design space exploration of Network-on-chips", 21-08-2021, Dr. Basavaraj Talawar
7. Anoop B N (Reg. No. 177150CO503) "Development of automated methods for retinal optical coherence tomography image analysis", 03-11-2021, Dr. Jeny Rajan
8. Alkha Mohan (Reg. No. 177072CO002) "Machine Learning Based Crop Yield Prediction Using Spectral Images", 10-01-2022, Dr. Venkatesan M.
9. Rathod Vishal Jitendrakumar (Reg. No. 155014CS15F11) "CoAP based Congestion Control Mechanisms for Internet of Things", 24-01-2022, Dr. Mohit P Tahiliani
10. Srinivasa K. (Reg. No. 177137CO006 ) "Generation of Crime Knowledge base from online news articles ", 09-03-2022, Prof. P. Santhi Thilagam.

## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

**UPTO 31<sup>ST</sup> MARCH 2022: 44**

**DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> March 2022:- No. Awarded: 10**

1. Christina Terese Joseph (Reg. No. CS16F02) "Cloud based Container Choreography for an ecosystem of Microservices", 07-06-2021, Prof. K. Chandrasekaran
2. Yelmewad Pramod Hanmantrao (Reg. No. CS16F04) "Parallel Metaheuristic Approaches to Solve Combinatorial Optimization Problems ",07-06-2021, Dr. Basavaraj Talawar

## DEPARTMENT OF CHEMISTRY

**NO. of PH.Ds AWARDED\_UPTO 31<sup>ST</sup> MARCH 2021: 101**

**DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> March 2022: 03**

1. Meenaketan Sethi, "Studies on porous graphene, oxides of nickel and their nanocomposites for supercapacitor application", 2021, Prof. D. Krishna Bhat.

2. Dilip H. N, "Effect of cosolvents and ions on the stability of amino acids, peptides and self-assembled peptide-based nanotubes", 2021, Dr. Debashree Chakraborty.
3. Kavyashree Sukad Keremane, "New Organic and Inorganic Functional Materials for Photovoltaic Applications: Synthesis, Characterization, and Device Performance Studies", 2022, Prof. A. V. Adhikari and Dr. Udaya Kumar D.
6. Kalpana G. Bhat, "Low Power Nonbinary Weighted Successive Approximation Register Analog to Digital Converters", 21st September 2021, Dr. Laxminidhi T. and Dr. M. S. Bhat.
7. Ragesh Rajan M, "Modeling of Gamakas for Karnatic Flute Music Synthesis", 8th October 2021, Dr. Deepu Vijayasanen.
8. Karthik R., "Leaky Wave Antennas for Multi-Functional Applications", 30th September 2021, Dr. Krishnamoorthy.

#### **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

##### **DETAILS OF PHDS AWARDED**

UPTO 31<sup>ST</sup> MARCH 2020:- No. Awarded (including those for which viva has been successfully completed):-**50**

DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> MARCH 2022:- No. Awarded (including those for which viva has been successfully completed):-**08**

##### **(FOR PERIOD OF REPORT ONLY)**

1. Ramavath Prasad Naik, "Design and Analysis of reliable wireless optical communication system for underwater channels", 9<sup>th</sup> June 2021, Dr. U. Shripathi Acharya.
2. Kalluri Shareef Babu, "Automatic Estimation of personal characteristics using speech data", 28<sup>th</sup> June 2021, Dr. Deepu Vijayasanen.
3. Santanu Roy, "Algorithms of Color Normalization and Segmentation of Histopathology Images", 30<sup>th</sup> June 2021, Dr. Shyam Lal.
4. Godkhindi Shrutkirthi S, " Investigation of Rank distance properties of cyclic, Abelian Codes and study of their applicability for error correction in wireless devices", 22<sup>nd</sup> July 2021, Dr. U. Shripathi Acharya.
5. Sreenivasulu Polineni, "Design of energy efficient, variable resolution, hybrid analog to digital converters for low frequency applications", 3<sup>rd</sup> September 2021, Dr. M.S.Bhat and Dr. Rekha S.
1. Ramesh B, "Development of Situational Awareness Platform for the Safety in Mining", 23<sup>rd</sup> June 2021, Dr. K. Panduranga Vittal.
2. Reddiprasad Reddivari, "Investigation and Control of Magnetically Coupled Impedance Source Inverters for PV Applications", 30<sup>th</sup> December 2021, Dr. Debashisha Jena.
3. Krishna Rao, "Performance Analysis and Improvement of Power Systems Ring-down Electromechanical Mode Identification Algorithms", 13<sup>th</sup> October 2021, Dr. Shubhanga K. N.
4. D.G. Abhilash Krishna, "Investigation of Control Strategies for Multimode Operation of Series Interfacing Converter", 1<sup>st</sup> January 2022, Dr. A. Karthikeyan.
5. Pavana, "Pulse Amplitude Modulation Control of Bldc Motor Using Bridgeless Sepic with Coupled Inductors", 1<sup>st</sup> July 2021, Dr. Vinatha U.
6. Saikrishna Gundluru, "Modelling and Simulation of Reconfiguration Strategies for Solar Photovoltaic Arrays to Reduce Partial Shadings and Improve Maximum Power Output", November 2021, Dr. Tukaram Moger
7. Sachin Angadi, "Effective Operation and Control of Hybrid Wind-PV Water Pumping System with Minimal Power Electronics Interface.", 6<sup>th</sup> March 2022,

#### **DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> March 2022: - No. Awarded: **12**

Dr. Udaykumar Yeragatti and Dr. Y. Suresh

8. Ragavendra Rao P, "Investigation of Control Algorithms for PV systems under partial Shading conditions and their effect on the efficiency of DC-DC Converter.", 16<sup>th</sup> March 2022, Dr. B. Venkatesaperumal and Dr. Vignesh Kumar V.
9. Sanath Saralaya, "Investigations on Performance Improvement of Electrical Power Distribution System with Incorporation of DSTATCOM and Distributed Energy Sources", August 2021, Dr. K. Manjunath Sharma.
10. Ravi Teja Arumalla, "Investigations on Low switching frequency Pulse-width modulation Techniques for Lower Order Harmonic Elimination and Switching loss reduction in voltage source inverter fed induction motor Drive Applications", August 2021, Dr. Nagendrappa H and Dr. Sheron Figarado (IIT Goa).
11. Uday Patil, "Investigations on High-frequency transformer Isolated CLL Resonant DC-DC power converter for renewable energy applications", September 2021, Dr. Nagendrappa H.
12. Vijaya Bhaskara Reddy G., "Analysis and Design of Fixed-frequency controlled LCL-T type DC-DC soft-switching power converter for renewable energy applications", June 2021, Dr. Nagendrappa H.

#### **DEPARTMENT OF INFORMATION TECHNOLOGY**

**UP TO 31<sup>ST</sup> MARCH 2021: 28**

**DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> MARCH 2022: 2**

1. Anusha R (IT16FV01) "Gait Features-Based Human Recognition Approaches" December 2021, Dr. Jaidhar C D.
2. Nagaraj Naik (IT16FV04) "Stock Price Forecasting Models during Crisis and High Volatility" December 2021, Dr. Biju R Mohan.

#### **DEPARTMENT OF MATHEMATICAL & COMPUTATIONAL SCIENCES**

**UPTO 31<sup>ST</sup> MARCH 2020:- 35**

**DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> MARCH 2022:- 7  
(FOR PERIOD OF REPORT ONLY)**

1. Mr. John Paul Martin, "Orchestration Mechanism for Enabling Distributed Processing in the Fog Computing Environment", June 2021, Prof. A Kandaswamy.
2. Ms. Shishira, SR., "Efficient Workload Optimization in Federated Cloud Environment", January 2022, Prof. A Kandaswamy.
3. Mahesh Krishna, "Metric, Schauder and Operator-Valued Frames", February 2022, Dr. P. Sam Johnson.
4. R. Palanivel, "Characterization of non-isolated forts and stability of an iterative functional equation", 2021, Dr. V. Murugan.

#### **DEPARTMENT OF MECHANICAL ENGINEERING**

**Number of Doctorates awarded (1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022) – 22**

1. Sriram Mukunda, "Influence of Heat-Treatment on Structure and Properties of Nickel-Titanium Alloy", Prof. Narendranath S and Dr. Mervin A Herbert, 2021.
2. Ritesh Kumar Parida, "Heat Transfer Studies of Flame Jet Impinging Over Wedge" Dr. Vasudeva M. 2021.
3. Avinash L, "The Effect of Dual Particle Size SiC Reinforcements and Heat Treatments on Microstructure, Mechanical and Tribological Properties of A357 Composites", Dr. Shrikanth Bontha, 2021.
4. Sushanlal Babu, "Aerodynamics Performance of Low Aspect Ratio Turbine Blade in the Presence of Purge Flow", Dr. Anish S, 2021.

5. Shaik Sharmas Vali, "Theoretical and Experimental Investigation on Room Air Conditioner with R22 and Its Alternatives for Sustainable Built Environment, Prof. Ashok Babu T P", 2021.
6. Suhas Upadhyaya, "Parametric Investigation and Off-Design Simulation of Low Temperature Organic Rankine Cycle for Residential Application", Dr. Veershetty Gumtapure, 2021.
7. Kiran Kumar D, "Experimental Studies on Intermediate Pyrolysis of Lignocellulosic Biomass Coconut Shells", Dr. Veershetty Gumtapure, 2021.
8. Nuthan Prasad B S, "Performance, Emission and Combustion analysis of a Hydrogen Enriched Methanol Fueled SI Engine", Dr. Kumar G N, 2021.
9. Rangaraj Madhavrao Desai, "Design, Synthesis and Evaluation of Twin-Tube Valve Mode Magneto-Rheological (MR) Damper for Semi-Automotive Suspension System", Dr. Hemantha Kumar and Dr. Sharnappa Joladarashi, 2021.
10. Bharath H S, "Characterization of 3D Printed Core and Sandwich Composite", Dr. Mrityunjay Doddamani, 2021.
11. Srikumar Biradar, "Investigation on Mechanical Properties of Filament Wound Composites for Pressure Vessel", Dr. Sharnappa Joladarashi and Prof. Kulkarni S.M., 2021.
12. Susheel Kumar, "Theoretical and Experimental Investigation of Intelligent Non-Linear Controls for Magnetorheological Elastomer Based Vibration Systems" 2021, S M Murigendrappa and Gangadharan K V.
13. Subash Acharya, "Synthesis and Characterization of Magnetorheological (MR) Fluid for Different Engineering Application" 2021, Dr. Hemantha Kumar.
14. Tak Radhe Shyam Saini, "Design, Fabrication and Characterization of an Optimal Magnetorheological (MR) Damper for Prosthetic Knee Application" 2021, Dr. Hemantha Kumar and Prof. C Sujatha.
15. Santosh Kumar B Y, "Synthesis and Biometric Reinforced Hydrogel Composites for Cartilage Tissue Implants" 2021, Prof. G C Mohan Kumar.
16. Mohith S, "Performance Enhancement of Disposable Chamber Valveless Micropump Through Annular Excitation for Biomedical Application" 2021, Dr. Navin Karanth and Kulkarni S M.
17. Shankar Kodate, "Effect of High Temperature Biodiesel Injection in Compression Ignition Engines", 2021, Dr. Ajay Kumar Yadav and Dr. Kumar G N.
18. Tabish Wahidi, "Flow Instability and Its Mitigation in Supercritical CO<sub>2</sub> Based Natural Circulation Loops: Numerical and Experimental Study", 2021, Dr. Ajay Kumar Yadav.
19. Ravikumar K N, "Condition Monitoring of Gearbox of An IC Engine Using Vibration Analysis Through Signal Processing and Machine Learning Techniques", 2022, Dr. Hemantha Kumar and Gangadharan K V.
20. Kathik Rao M C, "Development of A Hybrid Neural Network System for Prediction and Optimization of Process in Cryogenic Machining of 316 Series Stainless Steel" 2022, Prof. Shrikanth S Rao and Dr. Mervin A Herbert.
21. Sateeshkumar Kanakannavar, "Mechanical Behaviour of 3D Braided Natural Fibre Fabric Reinforced Biodegradable Composites" 2022, Dr. Jeyaraj P.
22. Vijay G, "Vibro-Acoustic Response of Aerospace Structure Under Non-Uniform Edge Loads an Analytical Investigation" 2022, Dr. Jeyaraj P.

## DEPARTMENT OF MINING ENGINEERING

**During the 1st April 2021 to 31st March 2022: No. Awarded -01**

1. Vijay Raghavan P, "Experimental Investigation on Assessment and Prediction of Specific Energy in Rock Cutting" July 2021.

**DEPARTMENT OF METALLURGICAL  
AND MATERIALS ENGINEERING**

No. awarded (including those for which viva has been successfully completed)  
Up to 31<sup>st</sup> March 2021:- 60

During period 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022:- 12.

1. Komalakrushna Hadagalli, (MT15F08) was awarded Ph.D. degree for his work on “Exploration of calcium rich marine benthos bio-waste to develop bio-genic hydroxyapatite for bone regeneration and UV protection”, 2021, Guide: Dr. Saumen Mandal.
2. Anjan B. N. (MT15F01) was awarded Ph.D. degree for his work on “Multi Directional Forging of Zinc Aluminium (ZA-27) Based Composites Reinforced with SiC and Al<sub>2</sub>O<sub>3</sub> Particles”, 2021 Guide: Dr. Preetham Kumar G. V.
3. Sanjay V. Tikale (MT15F06) was awarded Ph.D. degree for his work on “Performance and Reliability of Nanoparticles Reinforced Lead-Free Solder Joints – A Study”, 2021, Guide: Dr. K. Narayan Prabhu.
4. Manjunath G. (MT16F03) was awarded Ph.D. degree for his work on “Materials and Processes in the Fabrication of Particulate-Free and Particulate-Based Screen-Printed Metal and Metal Oxide Films for Electronic Applications”, 2021, Guide: Dr. Saumen Mandal.
5. R. Rajeshkumar (MT15F09) was awarded Ph.D. degree for his work on “Welding of dissimilar A5754-A5083 and A6061-A6082 aluminium alloys for automotive applications”, 2021, Guide: Dr. Kumkum Banerjee.
6. Ajmal T. S. (MT14F01) was awarded Ph.D. degree for his work on “Study of flow accelerated corrosion of carbon steel pipeline in oilfield environment”, 2021, Guide: Dr. Shashi Bhushan Arya.
7. Sunil (MT15F05) was awarded Ph.D. degree for his work on “Hydrothermally Synthesized Functional Nanomaterials for Dielectric, Triboelectric and Photocatalytic Applications”, 2021, Guide: Prof. Udaya Bhat K.

Annual Report 2021-22

8. Aruna M. N. (MT16F01) was awarded Ph.D. degree for his work on “A study on sedimentation issue in magnetorheological fluids”, 2021, Guide: Dr. M. Rizwanur Rahman.
9. Shivaram M. J. (MT14F08) was awarded Ph.D. degree for his work on “Development and Characterization of Biomedical Porous Ti-Nb-Ag alloy through Powder Metallurgy Method”, 2021, Guide: Dr. Shashi Bhushan Arya.
10. Prabukumar C. (MT14F04) was awarded Ph.D. degree for his work on “Synthesis and Characterization of Silver Nanowires and MoS<sub>2</sub>/Metal Oxide Hybrids for Electronics and Energy Applications”, 2021, Guide: Prof. Udaya Bhat K.
11. Swati Agarwala (MT16F08) was awarded Ph.D. degree for his work on “Development of Novel Thermal Analysis Techniques for Characterization of Salt Based Phase Change Materials for Thermal Energy Storage Applications”, 2021, Guide: Prof. K. Narayan Prabhu.
12. Sawan Shetty (MT16F06) was awarded Ph.D. degree for his work on “Development of Flexible Piezoelectric Nanogenerators from Electrospun Nanofabrics of Poly(vinylidene fluoride)/Nanosheets Composites”, 2021, Guide: Prof. S. Anandhan

**SCHOOL OF MANAGEMENT**

UPTO 31<sup>ST</sup> MARCH 2020:- No. Awarded (including those for which viva has been successfully completed):- 57

DURING PERIOD 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> March 2022:- No. Awarded (including those for which viva has been successfully completed):- 3  
(For Period Of Report Only)

1. Mr. Arjun R., “A Study on Indian Stock Market Modelling using Artificial Neural Networks”, 02.08.2021. Dr. Suprabha K.R.
2. Mr. Dittin Andrews, “Child Online Safety: A Select study in Indian Context”, 08.12.2021. Dr. Sreejith A.

3. Mr. Naganna Chetty, "Digital Content Regulations: A Select Study in the Indian Context", 08.03.2022. Dr. Sreejith A.

#### DEPARTMENT OF PHYSICS

No. awarded (including those for which viva has been successfully completed) Up to 31<sup>st</sup> March 2022:- 50  
During period 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022":-07

1. Manju M.S., Strain dependent properties, intercalation adsorption studies graphene like two dimensional SiC and SiB, 2021 August, Dr. Ajith K.M.
2. Naveenakumara A, Phase transitions and Microstructures of AdS Blackholes, 2021 August, Dr. Ajith K. M
3. Shreyas, Excitation Wave Dynamics and Their Interaction with External Fields, 2021, Dr. Shajahan T K
4. Sulakshana Shenoy, Photo-physical studies and bandgap engineering on transition metal chalcogenides for applications in photocatalysis., 2021, Dr. Kartick Tarafder.
5. Sruthi T, Theoretical study of functionalized two dimensional materials towards their application in supercapacitors, 2021, Dr. Kartick Tarafder.
6. Ahmed Rizwan C. L, Critical Phenomena in Anti-de Sitter Black holes, 2021, Dr. Deepak Vaid.
7. Brijesh K, Preparation and characterization of Zinc Tungstate and composite as anode, material for Lithium ion battery, 2021, Dr. H S Nagaraja.

#### DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING

Doctorate awarded : Upto 31<sup>st</sup> March 2021 : 99  
During period 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022 : 05

1. Sinan Nizar, Satellite Based Top-

Down approach for Modelling Aerosol Source Strength and its Application in discerning rainfall Trends, May 2021, Dr. B. M. Dodamani.

2. Mudesir Nesru Kebede, Integrated Water Resources Modelling for Improved Agricultural Productivity in OMO-GIBE basin Ethiopia, June, 2021, Dr. Amba Shetty, Dr. M. K. Nagaraj.
3. Srinivasula Reddy. I, Experimental Studies on Friction Coefficient of AL 6061-T6 Alloy contacts under full Sliding, July 2021, Dr. Vadivuchezhian K.
4. Abiot Ketema Demmsie, Simulation of the Hydrological Impacts of Climate and Land Use/Cover change on TIKUR WUHA Watershed in ETHIOPIA, August, 2021, Dr. G. S. Dwarakish.
5. Usha. A, Evaluation of Irrigation Induced Hydrological changes in the Malaprabha river basin, Karnataka, INDIA, December, 2021, Dr. Lakshman Nandagiri

## 10.0 HUMAN RESOURCES

### 10.1 STAFF POSITION

#### Teaching Staff Number

Professors	74
Associate Professors	70
Assistant Professors (REGULAR)	85
Other staff, A.P.D. & System Manager	02
Contract Faculty	
Asst. Professor Grade – II	41
	<u>272</u>

#### Non-Teaching Staff

Administrative Officers	22
Technical staff	47
Non-technical supporting staff	54
	<u>123</u>

#### THE STAFF

##### (A) Administrative Staff

##### Director: (Head of the Institution)

K Uma Maheshwar Rao, Ph.D. till  
16.2.2022  
Udayakumar R Y, Ph.D. from 17.02.2022

##### Dy. Director

Ananthanarayana V S, Ph.D. till  
28.11.2021

##### Dean (Academic)

A Nityananda Shetty, Ph.D. till  
30.09.2021  
Vidya Shetty K, Ph.D. from 1.10.2021

##### Associate Dean (Academic) -1

Ramesh Kini M, Ph.D. from 01.10.2021  
Manjunatha Sharman K, Ph.D. from  
15.07.2021

##### Dean (Planning and Development)

Subhash C Yaragal, Ph.D. till  
29.07.2021  
K S Babu Narayana, Ph.D. from  
30.07.2021

##### Dean (Faculty Welfare)

M S Bhat, Ph.D, till 15.03.2021  
G C Mohan Kumar, Ph.D. from  
16.03.2022.

##### Associate (Faculty Welfare) -1

P Sam Johnson, Ph.D. from 29.07.2021  
Harsha Vardhan, Ph.D. from 29.07.2021

##### Dean (Alumni Affairs & Institutional Relations)

K Panduranga Vittal, Ph.D, till  
31.08.2021  
Vijay Desai, Ph.D., from 1.09.2021

##### Associate (Dean AA & IR) -1

Navin Karanth P, Ph.D. 29.07.2021

##### Dean (Student Welfare)

Jagannatha Nayak,(Ph.D.) till  
17.10.2021  
Narendranath S, Ph.D. from 18.10.2021

##### Associate (Dean Students Welfare)

Alwyn Roshan Pais, Ph.D., from  
29.07.2021  
C P Devatha, Ph.D., from 29.07.2021

##### Dean (Research & Consultancy)

U. Shripathi Acharya, Ph.D. till  
(30.12.2021)  
S M Kulkarni, Ph.D. from 31.12.2021

##### Associate Dean (R&C)

Subhaschandra Kattimani, Ph.D.  
29.07.2021  
Hari Prasad Dasari, Ph.D. from  
29.07.2021

## **ACADEMIC STAFF (TEACHING)**

### **Department of Water Resources and Ocean Engineering**

#### **Professors:**

N. Lakshman, Ph.D., (I.I.Sc., Bangalore)  
Subba Rao, Ph.D. (Mangalore University),  
G.S. Dwarakish, Ph.D. (Anna University)  
Mahesh A, Ph.D. (IIT Bombay)  
Kiran G. Shirlal, Ph.D. (NITK),  
Amba Shetty, Ph.D. (NITK)  
B.M. Doddamani, Ph.D. (NITK) H.O.D.  
from 25.03.2021

#### **Associate Professors**

K Varija, Ph.D. (IISc. Bangalore)  
H.Ramesh, Ph.D. (NITK)  
Manu, (Ph.D. NITK)  
Nasar T, Ph.D. (IIT, Madras)

#### **Assistant Professors:**

K. Subrahmanya, Ph.D. NITK  
Pruthviraj U., Ph.D. (NITK)  
K. Vadivuchezhian, Ph.D. (IIT Madras)  
Debabrata Karmakar, Ph.D., (IIT Kharagpur)  
Shwetha Hassan Rangaswamy, Ph.D.  
(IISc, Bangalore) (Contractual)

### **Department of Chemical Engineering**

#### **Professors:**

Gopal Mugeraya, Ph.D. (I.I.Sc. Bangalore) on deputation to NIT Goa as Director from 15.07.2017  
M.B. Saidutta, Ph.D. (I.I.T. Bombay)  
B. Raj Mohan., Ph.D. (I.I.T., Kharagpur)  
K. Vidya Shetty, Ph.D. (NITK)

#### **Associate Professors:**

Hari Mahalingam, Ph.D. (Singapore)  
Prasanna B.D., M.E. (Ph.D. NITK) HOD till 02.09.2021  
I Regupathi, Ph.D., (Anna University, Chennai)  
P.E. Jagadeeshbabu, Ph.D. (Anna Univ. Chennai), HOD From 3.9.2021  
S. Gangamma, Ph.D. (IIT, Bombay)

Keyur Raval, Ph.D. (Aachen Den University)  
Hari Prasad Dasari, Ph.D. (Korea Institute of Science and Technology, Korea)

#### **Assistant Professors:**

Jitendra Pal S., Ph.D. (IIT Delhi)  
D.Ruben Sudhakar, Ph.D. (IIT Madras)  
B. Ashraf Ali, Ph.D. (IIT Madras)  
Jagannathan T K, Ph.D. (IIT Madras)

#### **Contractual**

Chinta Sarkar Rao, Ph.D. (IIT, Madras)  
Mahesh Kumar Poddar, Ph.D., (IIT Guwahati) (Contractual)  
Vaishakh Nair, Ph.D. (IIT, Madras)

### **Department of Civil Engineering Professors:**

R. Shivashankar, Ph.D. (A.I.T. Bangkok) retired on 31.05.2021  
K.N. Lokesh, Ph.D. (Geology) (Gulbarga University) retired on 31.05.2021  
M.C. Narasimhan, Ph.D. (IIT Madras)  
Katta Venkataramana, Dr.Eng. (Kyoto University, Japan)  
A.U. Ravi Shankar, Ph.D (Univ. of Roorkee)  
K. Swaminathan. Ph.D. (I.I.T. Bombay) HOD till 21.4.2022  
Varghese George, Ph.D. (I.I.T. Bombay)  
S. Shrihari, Ph.D. (Univ. of Roorkee)  
Sitaram Nayak, Ph.D. (I.I.Sc. Bangalore)  
Subhas C. Yaragal, Ph.D. (IISc. Bangalore)  
K.S. Babunarayan, Ph.D. (NITK)  
B.R. Jayalekshmi, Ph.D. (NITK) HOD from 22.4.2021

#### **Associate Professors:**

Sunil B.Malegole, Ph.D. (NITK)  
Basavaraj Manu, Ph.D. (IIT, Bombay)  
Suresha S N, Ph.D. (NITK)  
Arun Kumar Thalla (IIT Rourkee), Ph.D.  
Bibuti Bhushan Das, Ph.D., (IIT Bombay)  
Gangadhar Mahesh, Ph.D. (Hongkong)  
A. S Balu, Ph.D. (IIT Madras)  
C.P. Devatha, Ph.D. (IIT Roorkee)

### Assistant Professors:

Prashanth M.H., Ph.D. (IISc, Bangalore)  
Raviraj H. Mulangi, Ph.D., (IISc, Bangalore)  
C Rajasekaran, (IIT Madras)  
Adani Azhoni, Ph.D. (IIT, Delhi)  
T Palanisamy, Ph.D.  
Sreevalsa Kolathayar, Ph.D., (IISc, Bangalore)

### Contractual

Babloo Chaudhary, Ph.D., (Kyoto, Japan)  
Anupama Surejan, Ph.D., (IIT, Madras)  
J Vijaya Vengadesh kumar, Ph.D.(IIT, Madras)  
Sreekumar M, Ph.D. (IIT, Bombay)  
Vinoth S, Ph.D. (Anna University, Chennai)  
Mithun Mohan, Ph.D.(IIT Roorkee)  
Pavan G S, Ph.D. (IISc, Bangalore)  
Sridhar G, Ph.D. (IIT, Madras, & NUS. Singapore (Joint Degree)

### Department of Computer Science Engineering

#### Professors:

K. Chandrasekaran, Ph.D. (J.N.T.U.)  
P Santhi Thilagam, Ph.D. (NITK)  
Annappa, Ph.D (NITK, Surathkal)

#### Associate Professors

Vani M., M.Tech. (NITK, Surathkal)  
Alwyn Roshan Pais, Ph.D. (NITK) HOD till 14.02.2022  
Shashidhar G Koolagudi, Ph.D.(IIT Kharagpur) HOD -15.02.2021  
Manu Basavaraju, Ph.D. (IISc, Bangalore)

#### Assistant Professors:

Saumya A. Hegde, Ph.D. (NITK)  
B.R. Chandavarkar, Ph.D. (NITK)  
Mahendra Patap Singh, Ph.D. (I.I.T.Kharagpur)  
Jeny Rajan, Ph.D. (University of Antwerpen, Belgium)  
Mohit P. Tahiliani, Ph.D. (NITK)  
Basavaraj Talawar, Ph.D. (IISc Bangalore)  
M Venkatesan, Ph.D. (VIT University, Vellore) n lien 18.09.2021

### Contractual

Biswajit Bhowmik, Ph.D. (IIT Guwahati)  
Sourav Kumar Pandey, Ph.D. (NIT, Rourkela)

### Department of Chemistry

#### Professors:

A. Nityananda Shetty, Ph.D. (Mangalore Univ.)  
A. Chitharanjan Hegde, Ph.D. (Mangalore Univ.)  
B. Ramachandra Bhat, Ph.D. (Mangalore Univ.)  
Krishna Bhat, Ph.D. (Mangalore Univ.)  
Arun Mohan Isloor, Ph.D. (Mangalore University) tull 10.08.2021

#### Associate Professors:

Udaya Kumar D., Ph.D. (NITK, Surathkal), HOD from 11.08.2021  
Darshak R. Bhai Trivedi, Ph.D. (Bhavnagar University)

#### Assistant Professors:

Sib Sankar Mal, Ph.D. (JUB Germany)  
Beneesh P. B., Ph.D. (University of Kerala)  
Debashree Chakraborty, Ph.D. (IIT Kanpur)  
Saikat Dutta, Ph.D. (University of Iowa, USA)  
Vijayendra S Shetti, Ph.D. (IIT, Bombay)  
Lakshmi Vellanki, Ph.D. (IIT, Bombay)

### Department of Electronics And Communication Engineering

#### Professors:

S. Sumam David, Ph.D. (I.I.T. Madras)  
Muralidhar Kulkarni, Ph.D. (JMI – New Delhi)  
M. Shankarnarayan Bhat, Ph.D. (I.I.Sc., Bangalore)  
John D'Souza, Ph.D. (I.I.T.Kharagpur)  
U. Shripathi Acharya, Ph.D., (I.I.Sc., Bangalore)  
Laxminidhi T., Ph.D. (IIT, Madras) HOD till 15.4.2021

Ashvini Chathurvedi, Ph.D. (MUM Malaysia) HOD from 16.04.2021  
Neelavar Shekar Shet, Ph.D. (NITK)

**Associate Professors:**

M. Ramesh Kini, Ph.D. (NITK)  
Deepu Vijayasenan, Ph.D. (EPFL, Swizerland)

**Assistant Professors:**

Rekha S., Ph.D.  
Kalpana G. Bhat, Ph.D. (NITK)  
Aparna P., Ph.D. (NITK)  
B. Nagavel, M.Tech.  
Krishna Moorthy K., Ph.D. (IIT, Bombay)  
Prashantha Kumar H, Ph.D. (NITK)  
Raghavendra B S, Ph.D. (IISC, Bangalore)  
A V Narasimhadhan, Ph.D. (IISc), Bangalore  
Pathipati Srihari, Ph.D. (Andhra University)  
Shyam Lal, Ph.D. (BIT Ranchi)  
Ratnamala Rao, Ph.D. (IIT Madras)  
Prabhu K, Ph.D. (NIT, Tiruchirapalli)

**Contractual**

Sushil Kumar Pandey, Ph.D. (IIT, Indore)  
Sandeep Kumar, Ph.D. (Indian School of Mines Institute, Dhanbad)  
Mandeep Singh, Ph.D. (IIT, Roorkee)  
Nikhil K S, Ph.D. (IIT, Madras)

**Department of Electrical And Electronics Engineering Professors:**

Udayakumar R.Y., Ph.D. (IIT Bombay)  
K. Panduranga Vittal, Ph.D. (Mangalore Univ.)  
Shubhanga K.N., Ph.D. (IIT, Bombay), HOD till 07.06.2021  
Gururaj S. Punekar, Ph.D. (IIT, Kharagpur) HOD from 08.06.2021  
Venkatesa Perumal, Ph.D. (IIT Delhi)

**Associate Professors:**

Jora M. Gonda, Ph.D. (NITK)  
K. Rajagopal, M.Tech. (I.I.T. Kharagpur)  
Vinatha U., Ph.D. (NITK, Surathkal)

K. Manjunatha Sharma, Ph.D. (NITK)  
Dattatraya N. Goankar, Ph.D. (IIT, Roorkee)  
Debashisha Jena, Ph.D. (NIT Rourkela)  
Parthiban, Ph.D. (IIT, Roorkee)

**Assistant Professor :**

Iddya Raghavendra Rao M.Tech. (Mangalore Univ.)  
Nagendrappa H., Ph.D. (Canada)  
Tukaram Moger, Ph.D. (IISC, Bangalore)  
Girisha Navada, M.Tech. (University of Calicut)  
Karthikeyan, Ph.D. (NIT, Thiruchirapalli)  
R Kalpana S, Ph.D. (IIT, New Delhi)  
Y Suresh, Ph.D. (NIT Rourkela)  
Krishnan C M C, Ph.D. (Ghent University, Ghent, Belgium)  
Shashidhara Mecha Kotian, Ph.D. (NITK, Surathkal)

**Contractual**

Yashawanth Kashyap, Ph.D. (IIT, Mandi)  
B Dastagiri Reddy, Ph.D. (NIT, Tiruchirapalli)  
Arun Dominic D, Ph.D.(IIT Roorkee)  
Vignesh Kumar V, Ph.D. (NIT, Tiruchirapalli)  
Ravi Raushan, Ph.D. (IIT (ISM), Dhanbad)  
Dharavath Kishan, Ph.D. ((NIT, Tiruchirapalli)  
Md Waseem Ahmad, Ph.D. (IIT, Kanpur)  
Prajof P, Ph.D. (IIT, Bambay)

**School of Management Professors**

A.H. Sequeira, Ph.D., (Mysore University)  
K.B.Kiran, Ph.D. (Mangalore Univ.)  
Shashikantha K., Ph.D. (University of Hyderabad)

**Associate Professors:**

S. Pavan Kumar, Ph.D., (IIT Kharagpur) HOD till 01.09.2021  
Sheena, Ph.D., (University of Calicut)  
Ritanjali Majhi, Ph.D.(BIT, Mersay)  
Rajesh Acharya H, Ph.D., (University of Hyderabad)HOD from 02.09.2021

Dhishna P, Ph.D., (University of Pondicherry)  
Pradyot Ranjan Jena, Ph.D. (IIT Kanpur)

#### **Assistant Professors:**

Bijuna C. Mohan, Ph.D. (NITK, Surathkal)  
Rashmi Uchil, Ph.D. (NITK, Surathkal)  
Suprabha K. R, Ph.D., (VTU)  
Gopalakrishna B V, Ph.D., (University of Mysore)  
Sreejith A, Ph.D. (IIT, New Delhi) on lien from 17.12.2021  
Savita Bhat, Ph.D. (IIT, Bombay)

#### **Department of Information Technology Professors:**

Ananthanarayana V.S., Ph.D. (I.I.Sc. Bangalore)  
G. Ram Mohan Reddy, Ph.D. (Edinburgh, U.K.)

#### **Associate Professors:**

Jaidhar C D, Ph.D. (NIT, Tiruchirapalli), HOD from 19.08.2021

#### **Assistant Professors:**

Dinesh Naik, M.Tech. (VTU, Belgaum)  
Geetha V., Ph.D. (NITK)  
Biju R. Mohan, Ph.D. (NITK) HOD till 18.8.2021  
Sowmya Kamath S., Ph.D. (NITK)  
Nagamma Patil, Ph.D. (IIT, Roorkee)  
Anand Kumar M, Ph.D.

#### **Contractual**

Kiran M, Ph.D. (NITK, Surathkal)  
Bhawana Rudra, Ph.D. (IIT Allahabad)  
Shrutilipi Bhattacharjee, Ph.D. (IIT, Kharagpur)

#### **Department of Mathematical & Computational Sciences**

#### **Professors:**

A. Kandasamy, Ph.D. (I.I.T. Bombay)  
Suresh M. Hegde, Ph.D. (Delhi Univ.)

Santhosh George, Ph.D. (Goa University)  
Murulidhar N.N., Ph.D. (I.I.T. Bombay)  
Shyam Srinivas Kamath, Ph.D. (Karnataka Univ.)HOD till 15.08.2021  
B.R. Shankar, Ph.D. (I.I.Sc., Bangalore)

#### **Associate Professors:**

R. Madhusudhan., Ph.D. (IIT, Roorkee), HOD from 16.08.2021  
P. Sam Johnson, Ph.D. (Alagappa University)  
D. Pushparaj Shetty, Ph.D. (IIT Delhi)  
V. Murugan, Ph.D. (IIT, Madras)  
Chandhini G, Ph.D. (IIT, Madras)

#### **Assistant Professors:**

Vivek Sinha, Ph.D (IIT, Bombay)  
Jidesh P., Ph.D. (NITK) on lien from 07.09.2021  
Vishwanath Kadaba Puttanna, Ph.D., (NITK)  
Kedarnath Senapati, Ph.D.  
Srinivasa Rao Kola, Ph.D. (IIT, Kharagpur)  
A Senthil Thilak, Ph.D. (NIT, Tiruchirappalli)  
Jothi Ramalingam, Ph.D. (Queensland University of Technology, Brisbane, Australia)

#### **Contractual**

Falguni Roy, Ph.D. (IIT, Kharagpur)

#### **Department of Mechanical Engineering Professors:**

T.P. Ashok Babu, Ph.D. (I.I.T. Delhi) retired on 31.01.2022  
G.C. Mohan Kumar, Ph.D. (IIT, Chennai)  
H. Suresh Hebbar, Ph.D. (I.I.T. Delhi)  
Prasad Krishna, Ph.D., (Univ. of Michigan, Ann Arbor, USA) on lien Director at NIT Calicut 18.10.2021  
Satyabodh M Kulkarni, Ph.D. (I.I.Sc., Bangalore) HOD till 30.11.2021  
Gangadharan K.V., Ph.D. (I.I.T., Madras)  
Ravi Kiran Kadoli, Ph.D. (IIT, Madras)HOD from 1.12.2021  
Vijay Desai, M.E. (Ph.D. NITK)  
Narendranath S., Ph.D. (IIT, Kharagpur)  
Shrikantha S Rao, Ph.D. (NITK)

S.M. Murigendrappa, Ph.D. (I.I.T., Bombay)

### **Associate professors**

Mervin A. Herbert, Ph.D. (I.I.T., Kharagpur)  
Kumar G.N., Ph.D. (IIT, Delhi)  
Subhaschandra Kattimani, Ph.D. (IIT, Kharagpur)  
Jeyaraj P, Ph.D., (IIT Madras)  
Hemantha Kumar, Ph.D., (IIT, Madras)  
Ramesh M.R, Ph.D., (IIT, Roorkee)  
Sathyabhama A., Ph.D., (NITK)  
Shrikanth Bontha, Ph.D. (Wright State)  
Arun M, Ph.D. (University of Greenwich, London, UK)  
Guruprasad K.R., Ph.D. (I.I.Sc., Bangalore)  
Shivananda Nayak H., Ph.D. (IIT Roorkee)  
Veershetty Gumtapure, Ph.D. (IIT, Madras)  
Navin Karanth P., Ph.D. (NITK)  
Anish S, Ph.D. (IIT, Madras)  
Sharnappa Joladarashi, Ph.D. (IIT, Madras)

### **Assistant Professors**

Vasudeva M., Ph.D. (I.I.T. Bombay)  
Sudhakar Jambagi, M.Tech. (Persuing Ph.D. at IIT Kharagpur)  
Ajay Kumar Yadav, Ph.D. (I.I.T. Kharagpur)  
Mrityunjay R. Doddamani, Ph.D. (NITK, Surathkal)  
N. Gnanasekaran, Ph.D. (IIT, Madras)  
Arumuga Perumal D, Ph.D. ((IIT Guwahati)  
Somasekhara Rao Todeti, Ph.D., (IISc Bangalore)  
Ranjith M., Ph.D., Dong-A University, Busan, South Korea  
Poornesh Kumar Koorata, Ph.D.(Inha), Unioversity of Korea

### **Contractual**

Saurabh Chandraker, Ph.D. (NIT, Rourkela)  
Parthasarathy P, Ph.D. (Karlsruhe Institute of Technology, Germany)  
Arun Kumar Shettigar, Ph.D. (NITK)

Mruthyunjaya Swamy K B, Ph.D.(IIT, Kharagpur)  
Ranjeet Kumar Sahu, Ph.D. (IIT, Madras)  
A S S Balan, Ph.D. (IIT, Madras)  
P S Suvin, Ph.D. (IISc., Bangalore)  
Khyati Verma, Ph.D. (IIT, Delhi)

### **Department of Mining Engineering**

#### **Professors:**

V. Rama Sastry, Ph.D. (B.H.U. Varanasi)  
C.H. Suryanarayana Murthy, Ph.D. (IIT Kharagpur)  
M. Govinda Raj, Ph.D. (Mangalore University)  
Harsha Vardhan, Ph.D. (Indian School of Mines Dhanbad)

#### **Associate Professor:**

M. Aruna, Ph.D. (University of Dhanbad)  
HOD from 20.04.2021  
Karra Rama chandar, Ph.D. (NITK) HOD till 19.4.2021

#### **Assistant Professor:**

Anup Kumar Tripathi, Ph.D. (IIT, Madras)  
Bijay Mihir Kunar, Ph.D. (IIT, Kharagpur)  
Sandi Kumar Reddy, Ph.D. (NITK)

### **Department of Metallurgical & Materials Engineering**

#### **Professors:**

K. Narayan Prabhu, Ph.D. (Mangalore Univ.) HOD –till 12.01.2022  
Jagannatha Nayak, Ph.D. (NITK)  
Udaya Bhat, Ph.D. (I.I.Sc., Bangalore)  
Anandan Srinivasan, Ph.D. (I.I.T., Kharagpur)

#### **Associate Professor:**

Kumkum Banerjee, Ph.D. (IIT Kharagpur)  
Ravishankar K.S., Ph.D. (NITK) HOD from 13.01.2022

Mohammad Rizwanur Rahman, Ph.D.,  
(Keio University, Japan)  
Subray R. Hegde, Ph.D. (University of  
Canada)  
Preetham Kumar G V, Ph.D. (IIT,  
Madras)

**Assistant Professor:**

Shashi Bhushan Arya, Ph.D. (IIT,  
Bombay)  
Saumen Mandal, Ph.D. (IIT, Kanpur)  
Rajasekaran B, Ph.D. (IIT, Madras)

**Contractual**

Sumanth Govindarajan, Ph.D. (IISc,  
Bangalore)  
Selvakumar Murugesan, Ph.D. (IIT,  
Kharagpur)

**Department of Physics  
Professors:**

H.D. Shashikala Ph.D (Osmania Univ.)  
Udayashankar N.K., Ph.D. (I.I.Sc.  
Bangalore)  
M.N. Satyanarayan, Ph.D. (I.I.Sc.,  
Bangalore)

**Associate Professor:**

Nagaraj H.S., Ph.D. (Mangalore  
University),  
Ajith K. Madam, Ph.D. (University of  
Hyderabad) HOD from-11.03.2020

**Assistant Professors:**

Partha Pratim Das, Ph.D. (University of  
Cineinnati Elec Engg.)  
Deepak Vaid, Ph.D. (USA)  
T. K. Shajahan, Ph.D. (IISC, Bangalore)  
Kartick Tarafder, Ph.D. (Jadavpur  
University)

**Contractual**

Sreenath V, Ph.D. (IIT, Madras)

**ADMINISTRATIVE AND OTHER STAFF**

**Registrar:**

Ravindranath K., M.A. (Mangalore  
University)

**Joint Registrar:**

Ram Mohan Y, M.Com. (Mysore), LL.B.  
(Mangalore University)

**Assistant Registrars**

Bansod Pritam Ramesh, (M.Com, MBA)  
Gaurav Chowdhury, (MBA) on lien as  
Deputy Registrar at IISER, Berhmapur  
from 3.12.2021  
Priyanka Dattanand Amadalli, (M.Sc.)  
Harish M Shetty (Officiating)  
Sreekant R Lamani, (Ph.D. NITK) i/c  
Sandhya, M.Com., i/c

**Resident Engineer i/c:**

Mohamod Firoze Khaza

**Medical Officer:**

Dr. B. Srimathi, M.B.B.S. (Mysore Univ.)

**Medical Officer:**

Dr. M.L. Balabhaskara

**Professor Incharge Hostel Affairs:**

Rajmohan, Ph.D. from 14.07.2021

**NITK ENGG. COY N.C.C.**

**Officer Commanding:**

Col. MG HS Rajan in charge

**Associated NCC Officer Incharge  
(ANO):**

P Sam Johnson, Ph.D.  
Shivananda Nayak, Ph.D.

**Faculty in charge (Security)**

Rajesh Acharya, Ph.D. till 14.06.2018  
A S Balu, Ph.D. from 15.06.2021

**Security Officer on contract:**

Ramprasad Bhat

**Chief Vigilance Officer:**

S S Kamath, Ph.D. till 11.08.2021  
Jagannatha Nayak, Ph.D. from  
10.04.2022  
Kandasamy, Ph.D.

**Central Public Information Officer**

Dinesh K, Asst.Engg. SG- I

**(ACPIO):**

Yogeesha, Asst. (SG- I)

**OTHER SECTIONS**

**Career Development Centre**

**Professor:**

Shrihari, Ph.D.

**Centre for Innovation, IPR and Industrial Consultancy**

**Professor I/c.:**

Subray R Hegde, Ph.D. till 10.11.2021  
Pathipati Srihari, Ph.D. from 11.11.2021

**SC/ST Cell Laison Officer**

Veershetty Gumpature, till 14.06.2021  
Nagendrappa H, Ph.D. from 15.06.2021

**OBC Cell**

Annappa, Ph.D.(NITK) till 11.11.2020  
I Regupathi, Ph.D. from 12.11.2020

**Assistant Physical Director (Sr. Scale):**

A. Shivaram, M.P.Ed. (Mangalore Univ.)

**SAS Officer:**

Hem Prasad Nath, Ph.D. (Nagpur University)  
Manoj Kumar, Ph.D. (Techno Global University)

**Librarian:**

Mallikarjuna Angadi, Ph.D. (Gulbarga University).

**Asst. Librarian**

Anasuya Chakari, M.A. M.Lib.Sc.  
(Karnataka University)

Iranna M Shettar (M.Lisc. M. Phil) on lien  
as deputy Librarian at NIT, Warangal  
from 14.10.2021

**Central Computer Centre  
Chairman / System Manager:**

Ramesh Kini, Ph.D. till 01.08.2021

P Santhi Thilagam, Ph.D. from  
02.08.2021

**System Manager**

P G Mohanan, M.Tech. (Cochin University)

**Senior Scientific Officer:**

Vijayakumar Ghode, M.Tech.

**NITK - Science & Technology  
Entrepreneurs' Park**

**OSD :-**

Venkatesa Perumal, Ph.D. till  
29.08.2021

Arun M Isloor, Ph.D. form 30.08.2021

**R&D Centre on Roofing Tiles**

Faculty incharge – Dean (R&C)

**Centre for Continuing Education  
Chairman**

Neelavar Shekar Shet, Ph.D. (NITK)

**Dakshina Kannada Nirmithi Kendra  
Cordinator:**

K.S Babu Narayan, Ph.D.

**Project Manager:**

Kalbavi Rajendra Rao, B.E. (Mangalore Univ.)

**NON-ACADEMIC STAFF  
(NON-TEACHING) as on 31.3.2022**

<b>Sl. No</b>	<b>Name of the Posts</b>	<b>In Position</b>
1	Registrar	1
2	Librarian	1
3	Joint Registrar	1
4	Assistant Registrar (Admin)	1
5	Assistant Registrar (Accounts)	1
6	Assistant Registrar (Academic) (Officiating)	1
7	Assistant Registrar (A/cs) (Purchase)	1
8	Assistant Librarian	2
9	Technical Officer	8
10	SAS Officer	2
11	Senior Scientific Officer	1
12	Medical Officer	2
13	Executive Engineer	1
14	Senior Superintendent	2
15	Superintendent (SG – II)	2
16	Private Secretary	1
17	Assistant (SG -I)	7
18	Senior Assistant	3
19	Superintendent	2
20	Junior Assistant	8
21	Assistant (SG-II)	15
22	Stenographer (SG-I)	4
23	Assistant Engineer (SG-I)	12
24	Assistant Engineer (SG-II)	5
25	Technical Assistant	6
26	Technical Assistant (SG-I)	1
27	Technical Assistant (SG-II)	6
28	Technician (SG-I)	2
29	Technician (SG-II)	2
30	Technician	10
31	Office Attendant (SG-I)	1
32	Office Attendant (SG-II)	4
33	Senior Office Attendant	5
34	Senior Tech.	1
35	Senior Tech. Asst.	1
	<b>Total</b>	<b>123</b>

## 11.0 FACILITIES/AMENITIES

### 11.1 Hostels

National Institute of Technology Karnataka, Surathkal (NITKS) is an autonomous Institute of the Government of India under the Ministry of Education imparting technical education. National Institute of Technology Karnataka, Surathkal is one of the “Institutes of National Importance” declared under the NIT Act - 2007 (Act No. 29 of 2007). The NITK Hostel Trust looks after NITK Hostel activities.

Due to the continued ravage of ‘COVID-19 Pandemic’ across the country, the odd semester was conducted in online mode and hence, the NITK Hostels could not be opened for students during the odd semester of the academic year 2021-22.

The utmost care was taken to maintain the cleanliness and hygiene of the hostel premises during the pandemic. It was made sure that all the hostel employees were vaccinated against the Covid 19. The sanitizers and temperature scanning machines were installed at common places to restrict the entries of symptomatic students. A separate hostel (Thrishul Block) was reserved for quarantining the symptomatic students. Food and the basic necessary requirements were made sure to reach the quarantined students. A 24x7 core wardens team and medical team was formed as first responders during the emergency.

NITK Hostels are managed by NITK Surathkal Hostel Trust (NITKSH Trust), and it has to be self-maintained, other than the support of 50% salary of the Mess employees, by the Institute. Following to this adverse situation, as approved by the competent authority NITK Students Hostel Trust has decided to collect a nominal amount Rs. 9200/- (Rupees Nine Thousand Two Hundred only)

from each student for Odd semester, who are presently on the rolls of NITK Hostels and for new admission Rs. 9300/- (Rupees Nine thousand three Hundred only) Hostel fee collected from each student.

During this academic year the cable TV facility has been extended to all the hostels. All the Hostel Rooms (Boys and Girls) have continuous high speed uninterrupted internet facilities to carry out their studies and research. Apart from these facilities the following projects are also initiated for the benefit of the students.

1. Green Bike for the students in the campus
2. Medical Room facility in Girls Hostel Block for the first aid in case of emergency.
3. Oxy-Park - An initiative to implement a green park which can be used by the students for the multipurpose activities viz. meditation, study, walking etc.

All students including foreign students are accommodated in hostels as per the following details:

Total number of boy’ s hostel	=	12
Total number of girl’ s hostel	=	04
Total number of Rooms for boys	=	2893
Total number of rooms for girls	=	750

Block	No. of Students	No. of Rooms usable	Total Capacity
Karavali (I Hostel)	145	76	84
Aravali (II Hostel)	154	79	84
Vindhya (III Hostel)	256	131	132
Satpura (IV Hostel)	256	132	132
Nilgiri (V Hostel)	250	250	256
Pushpagiri (PG Hostel)	457	150	150
PG New Hostel	221	250	250

Sahyadri (VII Hostel)	134	157	162
Trishul (VIII Hostel)	257	160	162
Everest (Mega Tower- I)	499	503	504
Himalaya (Mega Tower- II)	502	502	504
Kailash (Mega Tower- III)	501	503	504
Ganga (GH 1 <sup>st</sup> Hostel )	35	33	34
Yamuna (GH 3 <sup>rd</sup> Hostel )	360	136	153
Sharavathi (GH 4 <sup>th</sup> Hostel)	302	330	333
Netravathi (GH 5 <sup>th</sup> Hostel)	250	251	258
<b>Total</b>	<b>4579</b> <b>(B- 3632</b> <b>, G- 947)</b>		

In order to accommodate the students, a new single room hostel viz PG New Hostel with the capacity of 250 (Tower 1 and 2) started functioning in this academic year. Further, in the near future Tower 3 will also start functioning soon.

There are 11 messes operating in various hostel blocks to cater the needs of inmates. Out of which one vegetarian and one non-vegetarian messes are running in the girl's hostel and four vegetarian messes and five non-vegetarian messes are running in the boy's hostel. All the messes are provided with necessary infrastructure to cater to the different food habits of the students drawn from various parts of the country.

### **Total number of messes**

<b>Name of the Mess</b>
Karavali (I Block-Non Veg)
Aravali (II Block- Non-Veg))
Vindhya (III Block- Non Veg-Outsource)
Satpura (IV Block -Non Veg-Outsource)
Nilgiri (V Block -Non Veg-Outsource)
Pushpagiri (PG Block -Veg -Outsource)
Sahyadri (VII Block-Veg )
Thrishul (VIII Block Mess -Veg-Outsource)

Mega Block Mess (Veg-Outsource)
GH I block Mess ,Ground Floor (Outsource)
GH II block Mess , First Floor (Outsource)

All messes are managed by Hostel Administrative, with active participation of the Student mess managers for preparation of the menu and other issues. Monthly mess bill accounts were audited by verifying the mess cards, stock sheets, purchase registers, mess membership issue register, mess bill calculation registers, petty cash book with vouchers and other records connected with monthly mess bill. Rationalization method is adopted to avoid the rate difference problem of various messes.

Total mess membership varies every month. Out of the 11 messes Vindhya (III Hostel), Satpura (IV Hostel) mess, Nilgiri (V Hostel) mess, Thrishul (VIII Hostel) mess, Pushpagiri (PG Hostel) mess, Mega Hostel Mess (Chaitanya) and Girls hostel messes are outsourced to managed by the contractors.

### **Crescendo Committee**

Crescendo, a committee which organizes co-curricular activities for the students, is managed by a group of elected students from the hostel representatives. The Crescendo has organized PANACHE, COLISEUM 2022 during March 27<sup>th</sup> 2022 and April 1<sup>st</sup> to 3<sup>rd</sup> 2022 which attracted many students from various branches for the competitions. The winners were awarded with attractive prizes and certificates.

### **Phoenix committee**

The Phoenix Committee is another students committee which looks after the sports activities for the residents of the hostels and provides indoor game facilities to them. Phoenix is managed by a group of elected students from the hostel representatives. The phoenix

recreation committee organized the Flood lights Tournament, COLISEUM 2022 (Inter Branch Tournament) during March 24<sup>th</sup> to 26<sup>th</sup> 2022 and April 1<sup>st</sup> to 3<sup>rd</sup> 2022. Both the events attracted many students from various branches for the competitions. The winners were awarded with attractive prizes and certificates.

### **Task Force**

Task Force is a platform for students to showcase their talent in administrative work at NITK Surathkal. It has been instituted in NITK Hostel Administration to serve the well-being of all students. Again, the members of the task force are elected by the hostel representatives.

### **Mess Concession**

Mess Concession is offered to students (Hostellers) who need financial assistance to continue their studies in the Institute. This financial assistance will be managed by the fund raised by the contribution from the hostellers i.e 10/- per semester along with hostel mess fees. The concessions are granted based on the information furnished by the individual applicants in the prescribed applications. The mess concession grantee must be regular in attendance and would have shown good performance in academics. The amount granted above will be credited to the mess bill account of the respective student, and will not be paid in cash.

### **Celebrations:**

Several festivals like Holi, Diwali and Ganesh Chaturthi are celebrated by hostellers. The expenses were managed by the fund raised by contribution i.e 40/- from the hostellers.

### **Medical Emergency:**

During the year under report, Medical Relief to the tune of ₹ 1,02,000/- has been sanctioned to students of the hostel blocks as per the recommendation of the Block Warden and Institute Resident Medical Officers, for their hospitalization in nearby Surathkal/Mangalore hospitals for treatment. This amount is met under “Self Sustaining Medicare Scheme”

### **Student Advisory Committee:**

A students advisory committee was formed in each hostel block for effective- interaction between the Wardens and students. Regarding the hostel activities and improvement in the hostel facilities the student advisory committee will be involved in the discussion and their suggestions and comments will be considered positively before implementing the actual.

### **Hostel Automation:**

To improve the accounting process, computerization of accounts in the hostel has already been initiated. A new website and hostel model has been developed for the room booking and mess selection for the students. Using this new hostel portal students can book the room and mess of their choice online. Students are not required to be physically present in the hostel office to get the rooms and mess as it was done previously.

To receive feedback related to messes and maintenance issues, online complaint registration system is also initiated.

### **Auditing:**

All the accounts of the hostels are duly audited by a Chartered Accountant every year.

**Blood Donation Camp for All Students and Staff on Campus:**

NITK organized a Blood Donation Camp in KARAVALI MESS (Block-1) of the boys' hostel on 7th December 2021. Everyone was made aware very well within the NITK Community about the camp by the Hostel Office and Students' Council.

The event being scheduled at 9am, Students' Council Members and 2 KAR ENGR COY NCC Cadets gathered much earlier to ensure a smooth run of the event and to receive the medical teams from Srinivasa and Wenlock hospitals.

The medical teams from both the hospitals arrived by 9 AM. The entire camp was organized and looked over by The Professor In charge Hostel Affairs Dr. Raj Mohan B along with the help of the hostel wardens and SAS officers. The entire process of volunteering was looked over by the President Sai Krishna Kachu, General Secretary Mani Pradeep of the Students' Council NITK and 2 KAR ENGR COY NCC cadets. The hospitals and the hostel office together arranged for refreshments to the donors and the volunteers. Many PhD, M.Tech and B.Tech students and Faculty members donated blood and joined their hands in the noble social cause. The Volunteers ensured that everyone was wearing masks and following COVID-19 appropriate behavior. They made sure of a hassle-free movement of the queues and also helped the hospital management in various aspects.

The Hostel Wardens and other dignitaries had also donated blood being a standing inspiration for the students and other staff.

At the end of the camp, **155** units of blood were collected and the two hospitals were very happy after an excellent response from the college amid the pandemic situation.

**Laundry Facility:**

A Laundry Facility was established in Mega Tower II (Himalaya) of the NITK

Hostels for the benefit of the students. The laundry facility was a total of 24 Lakh project which was funded by Karnataka State Minerals Corporation Limited, Bengaluru under the Project entitled "Laundry Facility in the Hostels of NITK Surathkal" .

**Hostel Office Bearers:**

Prof. Raj Mohan B is the Professor in-charge Hostel Affairs NITK Hostels.

Presently, the following faculty members are rendering their services as wardens in different Hostel Blocks as mentioned against their names:

1. Raj Mohan B, Ph.D. Professor In charge Hostel Affairs
2. Pushparaj Shetty D, Ph.D. :Finance Warden
3. Ramesh M. R. , Ph.D.Quality Monitoring
4. Ajay Kumar Yadav, Ph.D., Student Activity
5. Palanisamy T, Ph.D., Karavali (I Block)
6. Adani Azhoni, Ph.D., :Aravali (II Block)
7. Mandeep Singh, Ph.D. Vindhya (III Block)
8. Yashwant Kashyap, Ph.D., Satpura (IV Block)
9. P. S. Suvin, Ph.D. Nilgiri (V Block)
10. Beneesh P. B, Ph.D., Sahyadri (VI Block)
11. Pavan G. S, Ph.D. Trishul (VIII Block)
12. Gnanasekaran, Ph.D., Everest (MT-I)
13. Mrithyunjaya Swamy K B, Ph.D., Himalaya (MT-II)
14. Kiran M, Ph.D., Himalaya (MT-II)/Student's Welfare
15. Sandeep Kumar, Ph.D., Kailash (MTIII)
16. Ranjeet Kumar Sahu, Ph.D. Pushpagiri (PG Block)
17. Vinoth S, Ph.D., New PG Block

18. Kalpana R, Ph.D., Sharavathi (GH IV Block)
19. Bhawana Rudra, Ph.D.: Yamuna (GH III Block)
20. Shwetha H R, Ph.D. : Ganga (GH I Block)
21. Kalpana G Bhat, Ph.D.: Nethravathi (GH V Block)

Prof. Dr. Udaykumar R. Y, Director (In-charge), is Ex-Officio President of NITKS Hostels. He being the President for hostels will be giving guidance to the Council of Wardens from time to time for the smooth administration and function of the hostel activities.

### **11.2 CENTRAL COMPUTER CENTER**

CCC has contributed in designing, building and maintaining an IT infrastructure for the Institute adequate to the academic needs, by providing quality IT services to support teaching, learning, research and innovations. CCC maintains the campus network backbone connectivity and internet connections on 24x7 basis. The CCC occupies the building opposite to the Silver Jubilee Auditorium. CCC was established in 1995 as a service providing/supporting facility that augments to the computing facilities in the teaching departments.

CCC is currently headed by Prof P Santhi Thilagam (Dept of CSE). CCC has the following permanent staff associated to it. One Systems Manager, One Senior Scientific Officer, Two Technical Officers, Two Assistant Engineers (SGII), One Technical Assitant and One Junior Assistant. CCC also has an Office Clerk, 2 Helpers, One Sweeper and One House Keeper working on contract basis.

Chairperson, CCC seeks the guidance of the CCA Committee in important decisions.

NITK has a Campus wide LAN reaching academic buildings, residences and hostel rooms through wired and wireless networks. The campus backbone services are provided with about 20 kms of 12 core OFC using 1 Gbps and 10 Gbps backbone to the different buildings and broad band to the residences. Departments, Residences (through the broadband), Directorate (and administrative net), Guest houses and Hostels are individually connected to the core switch. The hostel networks are integrated into the academic network of NITK sharing the Internet bandwidth of the Institute.

The first stage of the campus network was done in 1999 and the second stage of expansion was done in 2006 with the TEQIP funds. The Third Stage including Core Network Expansion and the Campus WiFi is completed in 2016 at a total cost of about Rs 6.78 crores. The expanded network including the Core Switches, Firewall, Backbone switches and the Campus Wi-Fi equipments are under warranty and maintenance of BSNL for 5 years. 149 End of the Life switches are being replaced within the wired network.

The Wi-Fi network is provided as an extension of the wired networks in the different buildings. The WiFi expansion Phase 1 was carried out with 744 Ruckus R500 Indoor access points, 40 Ruckus T300 Outdoor access points, 5 Ruckus H500 wall switches, 89 Netgear 24 port 10/100/1000Mbps PoE switch with 4 SFP ports and other active and passive network components. Subsequent WiFi expansion (Phase 2) to the new CSE building and LHC-C were carried out with 97 Ruckus R510 Indoor Access Points, 4 Ruckus T300 Outdoor Access Points and 11 PoE switches.

NITK has 5Gbps Internet bandwidth - 1Gbps from National Knowledge Network and 4 Gbps from BSNL. The total cost (recurring) for the 4Gbps bandwidth and broadband facility to the campus is Rs.82,46,000/-. Currently, this is being upgraded to

10Gbps for an approximate cost of Rs 1.8 Crores. The WAN switch upgrade for this purpose is completed with two new Interconnect switches.

The NITK Data centre housed in the CCC Ground Floor acts as an integration hub of OFC/backbone. It houses Internet connections to BSNL & NKN, associated networking equipments and sufficient hardware to handle the critical backbone network services.

Main servers are connected to the data centre network. Critical services are accessible from inside and outside the network. CCC Uses Virtualisation with Blade Servers with VMWare, Dell /Lenovo Servers with Proxmox virtualisation environment / Ubuntu System containerisation environment. Eight new servers are being added to this environment.

NITK Website updates are entrusted with the CCC apart from the webserver maintenance. The domains of NITK (*nitk.ac.in* and *nitk.edu.in*) are also controlled by CCC.

CCC has coordinated the upgrade of Matlab license based on Total Academic Head Count. National Institute of Technology Karnataka Surathkal now offers 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 ground Floor of CCC is reserved for the upcoming Data Centre with Smart Racks. The second floor houses the Skill Development Centre with VDI (thin clients) and a backend server established by the NITK Alumnii. The first floor hall of CCC with about 90 Desktop computers is available for general purpose computing & browsing. The computers of CCC are used to support First year Computational Practice Labs, General

Purpose Learning & Internet access, On-Line tests (Training & Placement) & various co-curricular and other student activities.

The network infrastructure facility management of NITK is outsourced. Comprehensive onsite AMC is available for the Network switches. There is a helpdesk number 0824 2473085. There is also a rate contract with the firm to facilitate any immediate need of network alterations within a limit. The process of placing the Campus backbone and WiFi (first phase) for annual maintenance is underway.

The facility has appropriate MESCOM Power and Diesel generator backup power. Two 20KVA, one 15 KVA online UPS systems and one 10 KVA UPS, provide backup power during the changeover. One 15 KVA and one 5 KVA UPS systems provide the power backup to the CCC LAN. The battery bank of 40 Nos was upgraded this year.

The institute has been working in the online mode since March 2020. CCC ensured that the network and the devices are working round the clock to support this. Appropriate number of VPN logins and captive portal logins were provided as and when needed.

### **List of Laboratories in the Department**

1. CCC LAN with 100 Desktops
2. Skill Development Centre with 150 thin clients supported by a Server for Virtual Desktop
3. General Purpose Servers in the Data Centre and Virtual Servers on demand.
4. Matlab TAH based Licensing for the Campus

### **11.3 LIBRARY**

#### **About Central Library:**

Central Library, NITK Surathkal was established in the year 1960 which provides state of the art facilities and offers automated library services to its

clientele comprising of about 8000 users namely undergraduate and postgraduate students, research scholars, faculty members and supporting staff of various departments of the institute. The library also gives the facility of institution membership to educational institutes and industries located in and around Mangalore. This Library is located in an independent building with a carpet area of 2759 sq meters in the centre of the Campus and it can accommodate more than 1000 students/users at a time. The Central Library provides access to more than 1.39 Lakh print books, nearly 23,181 e-books, more than 100 print periodicals, 12,093 full-text e-journals, 32,806 Standards, 26 full-text online databases. Our library is core member of eShodhSindhu National Consortium of e-Resources initiated by Ministry of Education, GoI. Central library provides campus-wide IP-enabled access to all major databases like Science Direct, Springer Nature, IEEE, Taylor & Francis, RSC, APS, IOP, OUP, JSTOR, Emerald, etc. and bibliographic databases like Web of Science, Scopus, etc.

## 2. Digital Library:

The institute has established e-Library Complex in 2018 to provide digital library services and it has the State-of-the-Art digital infrastructural facilities like Digital Learning Centre for Lecture Recording & Live Streaming, Computer Labs to conduct hands-on training, Seminar Hall, Discussion Rooms, Laptop Zones etc. catering to more than 8000 on campus library users 24X7 along with in-housed cafeteria. As part of e-Library system, a dynamic library website (<http://library.nitk.ac.in>) has been developed by the library team to provide access all the e-resources from anywhere in the world and at any time using Remote Access facility. Institutional Digital Repository (<http://idr.nitk.ac.in>) provides access to all the publications of the NITK till

today including the full text Ph.D theses. IRINS (<http://nitk.irins.org>) a web based research information system provides faculty profiles and their research collaboration including their h-index and citation metrics.

Some of the services offered under Digital Library includes:

- Access to e-Resources (online databases/eBooks/e-Journals etc) through Cyber Library
- Online Library Catalogue
- Institutional Digital Repository
- Online Plagiarism Check through TURNITIN Software
- Access to Grammarly Software
- e-Studio facility to records faculty lectures and live streaming
- Digitisation and Archiving facility
- Library Website Management
- IRINS Faculty Profile Management Sysytem

## 3. Book Bank:

General Book-Bank for all students consists of multiple copies of textbooks. The books are lent to all students for home reading for 15 days. Every year multiple copies are added to the Book-Bank. In addition to this, there is a separate Book-Bank facility for SC/ST students also. There are 30,049 books available in all branches in Book-Banks of this Library. Automation of Book-Bank book is completed and the circulation of books is being done by using BARCODE System.

Special collection for SC/ST students - Students can borrow up to 5 books from Book-Bank for a period of one semester. The Library issues a circular in the beginning of every semester and the eligible students may apply to avail as per the schedule announced by the Library.

## 4. Library Timings:

Number of users (issue/return/renewal book ) per day	500
Number of users (reading space) per day	700

Timings: During working day, weekend, and vacation	Monday to Saturday 8.00 a.m. to 12.00 midnight Sunday: 8.00 a.m. to 4.00 p.m. Vacation: 08:00 a.m. to 5:30 p.m. General Holidays: 9.00 a.m. to 12.00 noon
Number of library staff	9 (Permanent Staff) 12 (Temporary Staff) 3 (Trainees)

### 5. Borrowing Privileges and Renewal:

Books may be renewed for further period provided no other reader has reserved for the book. The renewal request should come, before the expiry of due date. No more than three consecutive renewals shall be allowed. Librarian in the interest of the library service can demand the return of any library materials from any user before expiring the due date. Students have to return the books on or before the due date. A fine of Rs.1.00 per book per day will be levied, if the books are not returned within the expiry date.

User Types	Items	Period of loan
Teaching Faculty	15 books	1 semester
Research Scholars	5 books	1 semester
UG/PG students	6 books	30 days
Supporting Staff	4 books	30 days
Industries	5 books	30 days

### 6. Service provided by the library to its stakeholders:

- For fresher of U.G. and P.G. courses, Library conducting Orientation Classes in the beginning of the academic year.
- Library conducts hands-on training and User Awareness Programs regularly.
- The Library is compiles list of “New Arrivals” Monthly, shared with users through eMail and Website.
- The Library provides training programme to the LIS Graduates& Diploma Students of the Government Polytechnics for Women, Mangalore and Apprentice Training programme is also conducting.

- Library is also providing the SDI Service (Selective Dissemination of Information) on the various on-going Research Projects sponsored by the NITK, D.S.T., C.S.I.R. and other Research Organization etc. Under-Graduates, Post-Graduates and Research Scholars are also making use of these services for their project works. Seminars and Information Retrieval Services by using Computer.
- Services to Industries, Educational Institutions, Government Establishments, the neighboring Govt. Departments, Educational Institutions and Industries are using this Library services quite often.
- Membership fee of Rs.20.000/- (5 cards) introduced to the industries and several industries are members to this Library.
- The Library has an Inter Library Loan facility with leading Institutions and G.O.I. Establishment.

### 6. Awards & Recognitions:

- The Central Library has received “Highest User Award for IEL on-line (IEE Explore)” in 2015 amongst INDEST-AICTE Consortium Level 2 member’s category.
- The Library received Dr. L M Padhya Best Library Award from Indian Library Association for the year 2020 in recognition of its innovative library services and state of the art infrastructural facilities.

## 11.4 LABORATORIES

### DEPARTMENT OF CHEMICAL ENGINEERING:-

**Testing & Quality Control Lab :** Flame Photometer, Tinto meter, Turbidity meter, C.O.D. Digester, Brook Field Viscometer, Flue Gas Analyser, Trinocular microscope, Bomb calorimeter, Conductivity meter, Spectro photometer, B.O.D. incubator,

Noise Level Meter, Water Purification system.

**Project Lab I & IA:** Ultrasonic water Bath, Muffle furnace, Peristaltic pump, Ultrasonic Sonicator, UV Ozone Cleaner, Continuous homogeniser.

**Project Lab II:** Horizontal laminar flow work station, Gel document, spectro photo meter, Eppendorf centrifuge.

**COMPUTER SIMULATION LAB:** Ansys CFD, Aspenplus, MATLAB, Design Expert.

**Project Lab III:** Deep Freezer, Centrifuge, UV solid sampler, centrifuge, Microscope.

**HEAT TRANSFER LAB:** Jacketed vessels, Shell and tube heat exchanger, double pipe heat exchanger, Thermal conductivity of solids apparatus, High volume sampler, Portable gas sampler, Plate heat exchanger, Stack monitoring kit, Fluidized Bed Combustor (IIT Madras), Deep Freezer.

**PROJECT LAB IV :** Ultra Sonic water bath, Autoclave, Stirred Cell Membrane Unit, U V Irradiated membrane filtration Unit.

**PROJECT LAB V:** Flash point apparatus, Viscometer - (Redwood & Saybolt), Eddy current drive with motor & accessories, Ozone Generator, Jacketed vessels, Generator - 10 KVA, Ozone Monitor/TLA

**BIOTECHNOLOGY LAB :**Laboratory Centrifuge, Digital Refractometer, Orbital shaker, Hi-Anaerobic system, Autoclave (vertical), Compound Microscope, Microwave Oven, Lyophilizer, Gel Electrophoresis, Continuous Homogenizer, Lab Bioreactor with variable Volume Fixtures, Brook Field Viscometer, Tangentail Flow Filtration with ultrafiltration Module, Temp Controlled Digital Density Meter, Spectrophotometer, Incubator -

shaker, Horizontal laminar flow work station, ultrasonic processor,

**PROJECT LAB V :** Elgi Centrifuge, Electric oven, Muffle Furnace, Surface tension meter, Membrane testing System, Peristaltic pump, Incubator - shaker , Vortex Mixer, rotating disc contactor, Continuous membrane filtration unit, Ice Flaker.

**FERMENTATION LAB :** Colony Counter, CO<sub>2</sub> Incubator, Microwave Digestion System, Muffle furnace, Incubator - shaker, High speed cooling centrifuge, Freeze dryer, C.O.D Analyser, Pestle & Mortar, Pellet Press, Slow Speed Cutting Machine, Vacuum Cleaner, ionic conductivity source meter.

**ADVANCED INSTRUMENTS LAB:** Electrochemical Workstation, cell ,C-Electrode, Gel Electrophoresis, Bio Sensor, Mini Protean Tetra cell, Trinocular microscope tific, Spectrophotometer, Total organic carbon analyser, Graphite furnace and hydride generator, Ultrapure water generator, AAS, Electrophoresis, High Performance liquid Chromatograph, Gas chromatography-Mass spectrophotometer, Ion Chromotography, High speed refrigerated cooling centrifuge

**Immunology Lab:** Micro Centrifuge, Power Pack for southern & Northern blots, Automated microplate reader, Western Bolt unit, Photometer for PCR Work, Polymerase Chain Reaction Machine.

**Mass Transfer Lab:** Liquid Extraction in Packed Bed, Vertical Tube Evaporator, Packed Distillation Column, Absorption in Packed Tower, Spray Tower, Fluidized Bed Dryer (With air circulation) Model No.MT – 18, Wetted Wall Column (with air circulation), Batch Crystallizer, Forced Draft Tray Dryer, Diffusivity Measurement, Counter current leaching, Cross current leaching, Steam Distillation, Vapor liquid

equilibrium, Surface evaporation, Liquid Extraction in Packed Bed.

#### **PROCESS CONTROL & REACTION**

**ENGG:** Batch reactor, RTD in tubes plug flow reactor, RTD in packed bed, RTD in CSTR, Reactor combination of PFR and CSTR, Magnet pump, Multi range conductivity meter, Digital online, Process control loop trainers, Non-interacting tank, Time constant of Pressure Vessel & mercury meter, Constant temperature bath.

**HEAT TRANSFER LAB :** Shell and Tube Heat Exchanger, Electrically Heated Boiler, Parallel flow / counter flow/Double pipe heat exchanger, Pool Boiling Heat Transfer Apparatus Forced Convection Heat Transfer, Natural Convection Heat Transfer Model, Stefan Boltzmann apparatus, Thermal conductivity of insulating Powders, Thermal conductivity of liquids, Horizontal Condenser & Vertical Condenser Steam, Heat Transfer through coils, Natural and forced convection in air, Heat Transfer through packed bed apparatus, Transient heat conduction-constant heat flux, Transient heat conduction-constant temperature, Heat Transfer through vertical barre and finned tube heat exchanger, Plate heat exchanger, Spiral plate heat exchanger, Heat losses by combined convection and radiation (for cylinder & sphere).

**FLUID MECHANICS LAB:** Flow through pipes and fittings, Flow through orifice meter, Flow through rotameter, Flow through fluidized bed, Flow through Packed bed, Flow through venturi meter, Flow through Notches, Flow through coils, Characteristics of a centrifugal pump, Pitot tube, Open orifice, Annulus.

#### **PARTICULATE TECHNOLOGY**

**LABORATORY:** Ball mill, Sieve Shaking Machine, Screen effectiveness, Air permeability, Jaw crusher, Air elutriation, Batch sedimentation, Leaf filter, Drop weight crusher, Attrition mill, Jaw Crusher, Vibrator

**Environmental Immunology laboratory:** Kinetic plate reader, universal plate reader, deep freezer, cooling centrifuge, CO<sub>2</sub> incubator, hot air oven, Gel electrophoresis units, minivol samplers, microbial samplers.

**Systems and Control Laboratory:** Heating and Cooling Circulator, Crystallizer, Lab scale Wastewater Treatment Set up.

**Energy & Catalysis Materials Laboratory:** - Dilatometer, Ionic conductivity meter, Fume hood, Hot air Oven, Tubular and horizontal Muffle furnaces, High temperature Muffle furnace, Pellet presser, Low speed cutting machine, CO Gas analyzer. Electric Agate mortar and pestle.

**Particulate Technology Lab:** Screen Effectiveness, Air Permeability, Jaw Crusher, Air Elutriation, Batch Sedimentation, Ball Milling, Cyclone Efficiency, Drop weight Crusher

**Industrial Biotechnology Lab:** Gel swinger, Bioreactor, Autoclave, Centrifuge, Digital Microscope

**Environmental Sciences & Technology Lab :** Biospectrometer, BOD System, COD System, Respirable dust sampler, Ambient fine dust sampler, Stack Monitor kit

#### **DEPARTMENT OF CIVIL ENGINEERING**

##### **Transportation Engineering**

**Laboratory:** Marshall stability machine, Centrifuge extractor for bitumen, Servo controlled fatigue testing machine, Gyrotory compactor.

**Transportation Design Studio:** Video cameras, Radar Guns, Computing facility.

**Earthquake Engineering Laboratory:** Small shake Table and computing facility

**Concrete Materials Laboratory:** 2000 kN Compression Testing Machine, Accelerated Curing Tank, Pelletizer, Rebound Hammer, PUNDIT UPV-Tester, Setting Time of Concrete Apparatus, Equipment for testing rheological characteristics of SCC, Carbonation Chamber

**Structural Engineering Laboratory:** 100kN OHT (Manual), 200 kN Testing Frame, 50 kN Testing Frame, Column Testing M/c,

**Environmental Engineering Laboratory:** Gas Chromatography, HPLC, Atomic Absorption Spectrophotometer, High volume air sampler.

**Soil Mechanics Laboratory:** Compaction Test, Triaxial Testing Machine, Consolidation set up. CBR testing mould. Atterberg Limit apparatus, Rock Cutting machine.

**Advanced Asphalt Characterisation and Rheology Laboratory:** Modular Compact Rheometer system, Pressure Aging Vessel, Rolling Thin Film Oven, Rotational Viscometer, and Capillary Viscometer system.

**Geo-Disaster Prevention Laboratory:** Shake Table (2mx2m), Landslide Apparatus, Tsunami Flume, Submarine Landslide Apparatus, Wind Turbine Foundation Experimental facilities, Cyclic Loading System, Data Acquisition System, Dynamic Analyser, Accelerometers, Pore Water Pressure Transducers, Displacement Gauges, Hot Air Oven, Computing System.

**AutoCAD Lab:** 60 Desktop systems (2013 make) running on WINDOWS 7 OS.

**Bio - Concrete Laboratory,** spectrometer, encapsulates and concrete battery related equipments etc.,

**Geology lab:** Rock and mineral samples, Electrical Resistivity meter

(Hydrogeology Lab), Geological models (Structural Geology Lab)

**Bioprocesses-Engineering Lab.:** Automated Small scale decentralized Greywater treatment system 250 L/d Capacity, Portable Multiparameter analyzer, Digital ORP meter, Distillation unit, Bioreactor 10 L operating volume, Soxhlet apparatus, Deep Freezer, Peristaltic pumps-2 No., and other minor equipments.

## **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING:-**

### **UG lab-1**

- HP 80Compaq P-IV computers with TFT Monitors - 60
- Lenovo think center M93P - 1
- Dell OptiPlex 9010 - 17
- HP LaserJet 1010 -1
- Lenovo Think Centre M920t MT-01
- LAN - 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

### **UG lab -2**

- Dell OptiPlex 9010 - 02
- Canon LBP2900 -1
- LAN - 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

### **UG lab-3**

- Dell OptiPlex 5070 - 60
- Dell OptiPlex 5070 MT - 06
- Dell OptiPlex 9010 - 05
- Dell OptiPlex 9020 MT- 01
- Lenovo Think center M92T computer system - 02
- HP laser jet 1020 plus - 01
- HP Photo Flat Bed Scanner - 01
- LAN - 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

### **UG lab - 4**

- Dell OptiPlex 9010 - 01
- HP laser jet 1020 plus - 01
- LAN - 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

### **I M.Tech Lab**

- HP DeskJet Core i5 with accessories - 36

- Lenovo Think Centre M910T Tower Desk – 08
- Dell OptiPlex 9010 - 13
- Dell OptiPlex 9020 MT- 03
- HP 81Compaq P-IV computers with TFT Monitors -01
- HP Elitedesk 800G1 Tower – 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **PG Project Lab**

- Lenovo Think Centre M910T-Tower Desktop – 27
- Dell OptiPlex 9010 - 01
- Canon LBP2900 - 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **PG Project Lab (211)**

- Lenovo Think Centre M910T-Tower Desktop – 09
- HP Prodesk-01
- Dell OptiPlex 9010 - 14

#### **Research lab - 1**

- Dell OptiPlex 9020 MT with accessories(3342) – 04
- Dell OptiPlex 9020 MT with accessories(3745) – 04
- Lenovo Think Centre M910T-Tower Desktop – 01
- HP Elitedesk 800G1 Tower-02
- Dell OptiPlex 9010 – 05
- HP HPLJM1319-F – 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **Research lab – 2**

- Dell OptiPlex 9020 MT with accessories(3342) – 03
- Dell OptiPlex 9020 MT with accessories(3745) – 07
- Dell OptiPlex 9010 – 03
- Lenovo Think center M910T-Tower Desktop – 03
- HP Elitedesk 800G1 Tower-01
- HP LaserJet 1010 – 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **Image processing lab**

- Lenovo workstation (D3043) with accessories – 19
- Dell workstation T1910- 02

- Dell Workstation (7820 Tower Model ) – 01
- Dell OptiPlex 9010-01
- HP LaserJet 1010 – 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **ISEA lab**

- Dell High End Workstation (DT Precision 5820) - 02
- Dell Precision 5820 Workstation - 02
- Lenovo workstation(P700) – 07
- Lenovo think station S30 workstation with 24” LCD monitor - 01
- Lenovo Think Centre S-20 & D 20 workstation (2703) - 01
- Dell OptiPlex 9020MT Desktop – 04
- Dell OptiPlex 9010 – 01
- Canon LBP2900 – 01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **DATA CENTRE LAB: Server Class**

- IBM E Server with accessories – 01
- Dell High End Server T710 – 01
- Dell power Edge Server R420 - 02
- Dell power Edge Server R720 – 01
- Dell power edge server T630 – 03
- Dell Server PE 730XD – 01
- Dell Server (R740) – 01
- C-Boston Sys- 5038K-j-KNL Development Workstation – 01
- Dell R7 power edge R7404 rack server – 03
- Dell EMC Switch 54112T – 01
- KVM Switch 8 port VGA – 01
- C-NVIDIA DGX P2787 – 01
- C-NVIDIA DGXS -01
- LAN – 100/1000 Mbps , Seamless Wi-Fi connectivity with WAPs

#### **DEPARTMENT OF CHEMISTRY:-**

**UG Lab (02 Nos):** Fume hood, Deionizer plant, Electronic weighing balance, Magnetic stirrers, Hot plates.

**Instrumental Analysis lab:** Spectrophotometer, Turbidity meter, pH meter, Potentiometer, Conductometer, Refractometer.

**PG Labs:** Organic Chemistry Lab, Inorganic Chemistry Lab and Physical Chemistry Lab: Fume hood, Rotary evaporator with chiller and pump, UV Cabinets, Hot air ovens, Ice flaking machine, Melting point apparatus, Heating mantles and magnetic stirrers, Bomb calorimeter, Electronic weighing balance, Vacuum pumps.

**Research Labs:** Material Science lab (02), Electrochemistry lab, Catalysis and materials chemistry lab, Membrane and Separation Technology Lab, Organic and materials chemistry lab, Material Science and Catalysis Lab, Synthetic Organic Chemistry and Catalysis Lab, Biophysical and computational chemistry lab, Renewable Chemistry and Catalysis lab, Macrocyclic Synthesis Laboratory, Synthesis and Materials laboratory, Chemistry general lab.

**Major equipment/Facilities in research labs:-** Contact angle analyzer, Surpass Electrokinetic analyzer, Sonics Sonicator, Vacuum oven, Hot air ovens, Membrane distillation, membrane testing skids, Membrane Bioreactor, Membrane casting unit, Ultrasonicator, Thermostatic water bath, Photocatalytic reactor, Fume Hoods, Rotavapors, Vacuum Pumps Electronic Balance, High performance workstation for computational chemistry, Hastelloy-made high-pressure reactor

### **DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING:-**

**High Voltage Testing Laboratory-** 100 kV impulse generator, HV standard capacitor, 5 kV Insulation tester, Oil test kit

**Electric Machines and Drives Laboratory-** DSP based drive control unit's V/F controls, Machine design software (speed, motorpro), Filed analysis software (MAXWELL 3DFS Rexroth INDRAMAT drive unit with AC servo motors

**Power Electronics Laboratory -** DSPACE – rapid prototyping unit, Converter / Inverter modules, power Device (SCR, IGBT, GTO) modules

**Virtual Instrumentation Laboratory-** NIDAQ systems, PXI1010 units with High Voltage measurement unit, NI-ELVIS stations, LABVIEW softwares, dSPACE 32xx rapid prototyping platform

**Embedded Systems Laboratory-** OSEK RTOS, KEIL RTOS, KEIL IDE for 805x, ARM, CODEWARRIOR IDE for 68HCXX, TI DSC Code Composer Studio for 28XX MOTOROLA, INTEL, ARM, PIC DSC/MC units

**Industrial Automation Laboratory -** Distributed Control Systems [YOKOGAWA CS1000], PLC ROCKWELL RSLOGIX%), ABB RTU232.

**Digital System Design Lab -** BASYS2 and BASYS3 kits supporting XILINX SPARTAN 2/3e FPGA, Analog Discovery 2 Kits supporting MSO Functionalities

**Micro Grid Laboratory-** 10 kW wind solar hybrid system (2 wind turbines of 3.2 kW each and 3.6 photovoltaic system) capable of operating in grid connected and islanding mode of operation with charge controllers and Inverter. 1.2 kW fuel cell bases experimental system.

**Analog Electronics Laboratory -** Comprises of trainer kit-based systems to understand linear and nonlinear configuration of operational amplifier (IC 741) and Timer (IC 555) based circuits

**Digital Electronics Laboratory -** Comprises of trainer kit-based systems to understand functioning of basic and universal logic gates, Combinational circuits and sequential circuits.

**Signals & Systems Laboratory** - MathWorks based computational platform to model and characterize the continuous and discrete time signal and system characteristics in time and frequency domain.

**DSP Laboratory**- On using MathWorks based computational platform to write the code and to understand the need of sampling and the concept of aliasing. Spectral analysis is of signals and the concept of time and frequency resolution and the application of windowing and short time Fourier transform. Approximation of Ideal filter responses using FIR and IIR filters.

**Dept. Computer Lab.** - 60 desktop computers in the Dept. Computer Lab.

**Power Systems Laboratory** - Scale-down model of 4-machine power systems, NI-based ADC and DAC cards for real-time data acquisition, Industry grade packages: EMTDC/PSCAD, MATLAB, LabVIEW software's and in-house developed power system stability analysis package, MatSim.

**Electric Power Quality Laboratory** - Experiments based on MathWorks computational platform and uses SIMULINK to understand the nature of real time power quality events. Also, experiments based on hardware realization of loads that cause power quality problems and demonstration of operation of custom power device, Equipment: Power Quality analyzer

**Control Systems Laboratory**- Experiments related to DC motor speed control are carried out using trainer kits. Even simulation exercises are done to verify the experimental results.

**Machine Learning:** This Laboratory makes use of the Free and Open-Source software's and packages, and Hardware's like cloud computing. The Courses are offered, with the students making use of their laptops for the

practice, model building, and analysis exercises.

### **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**Analog Electronics Lab** :- Digital Storage Oscilloscope, Function Generator, DC Regulated Power Supply Analog/Digital IC Tester.

**Digital Electronics Lab** :- Digital Trainer Kits, Analog/Digital IC Tester.

**Research Lab for Ph. D. Students** :- Workstations, PCB Prototype Machine (LPKF), Chemical Free Through Hole Plating System,

Access to all design tools available in the department.

**Communication Lab**:- Digital Storage Oscilloscope, Function Generator, DC Regulated Power Supply, Microwave X band benches, Antenna Trainer , Outdoor FSO Link Setup (Lightpoint), Wireless Comm Trainer Kits (2 set ups), Workstations, LD Driver, LD Module, PD Module, Power Meter, Fibre Optic Power Source, Optical Fibre Trainer, LD Modulator (Transmitter), FORX-200m (Receiver), Fiber Optics Kits, Wireless Sensor Network Professional Kit with Tools, Qualnet Network Simulator, Qualnet Network Simulator Tools, Wireless digital communication training system, (Wi-Communication-T), Outdoor free space optic (FSO) link. RF Equipments, 3GHz Spectrum Analyzer, RF Training Kit, RF Signal Generator, Vector Network analyzer 40GHz & Accessories, 3GHz Network Analyzer, 100MHz Mixed Signal Oscilloscope, 80MHz Function/Arbitrary Waveform Generator, Digital Multimeter 6.5 digit Triple Output DC Regulator Power Supply, Electronic Instrumentation Training Kit, Digital Source meter with Safety universal Test Lead kit, Microwave experiment kits.

**Software:** ADS 10 User Licence, Optsim 5 User Licence.

**VLSI Lab:-** Workstations, Cadence Design suite,, Synopsys EDA Tools, Mentor Graphics Tools, Xilinx Tools, TCAD Tools, FPGA Boards.

**DSP Lab:-** Dell OptiPlex 9020 x64-based PC(s), MATLAB with various Toolboxes, ModelSim, XILINX Vivado Design Suite, SDSoC, Virtex VI Embedded Kits, Xilinx Virtex VI FPGA DSP Development Kit with High Speed Analog, Avnet Spartan – 6/O MAP Co-processing development kit, Avnet Digilent Zed Boards, Zynq-7000 EPP ZC702 Evaluation Kit, Digilent Nexys 4 Kits, Digilent Nexys Video Kit & accessories, Digilent Zybo Zynq™-7000 Development Boards, STM32F407 Discovery Kits, DE10 Standard Boards, DE1-SoC Altera Cyclone V SoC Development Kits, Digital & Analog Discovery Kits, MSP 430 Lunch Box Kits.

**Microprocessor & Embedded Systems Lab:-** Workstations, Cadence ORCAD PSPICE A/D, PCB design tools, Matlab, Simulink, ARM based code development tools, Microcontroller Kits, NETSIM SW.

**Network Management Lab:-** Foundry N/w's FastIron Edge X424 Switches.

**R&D Lab (Research Lab for Ph. D. Students):** Workstations, Access to all design tools available in the department.

**Wireless Sensor Networks Lab:-** Workstations, WSN Design kits, Sensors, Exata Software: Network Simulator/Emulator, E9000B – Special Product Configuration Total ADS Standard University License Bundles, W1450M Systemvue Media Systems Vue University License Bundles.

**Stochastic Modeling Imaging and Learning (SMILE) Lab:-** Workstations, Access to all design tools available in the department

## DEPARTMENT OF INFORMATION TECHNOLOGY

**Digital Design Lab-I:-** DIGITAL IC TRAINER Model -UDT 4004-20, DIGITAL IC TESTER MME-DIT 2040-1.

**Digital Design Lab – II:-**DIGITAL IC TRAINER Model – ML 555T-20, DIGITAL IC TESTER MME-DIT 2040-1, Dell Optiplex 5050-1.

**Research Lab-1:-** Desktops: HP Compaq 8300 Elite MT PC -2, Dell Optiplex 9020 MT core i7- 3, Dell Optiplex 5050 -2, HP Prodesk 600G5 MT-7, Dell Optiplex 5090-7, Cameras: Hikvision 2 MP-2.

**Research Lab-2:-** Desktops: HP Compaq 8300 Elite MT PC - 1, Dell Optiplex 9020 MT core i7- 3, HP Prodesk 600G5 MT-7, Dell Optiplex 5090-1, Cameras: Hikvision 2 MP-2.

**Research Lab-3:-** Dell Optiplex 5090-3

**Post Graduate Lab-I:-** Desktops: HP Elite Desk 800 G1 TWR -5, Dell Optiplex 9020 MT core i7- 7, Dell Optiplex 5050 -10, HP Prodesk 600G5 MT-14, Cameras: HIKVISION make 4 MP Dome IP Camera -2.

**Post Graduate Lab – II:-** Desktops: HP Elite Desk 800 G1 TWR -2, Dell Optiplex 9020 MT core i7-4, Dell Optiplex 5050-2, HP Prodesk 600G5 MT-23, Dell Optiplex 5090-6, Cameras: HIKVISION make 4 MP Dome IP Camera -2.

**Project Laboratory:-** Desktops: Dell Optiplex 5050- 34, HP Prodesk 600G5 MT-1, Dell Optiplex 5090-7, Cameras:Dlink DCS4602 VE (Vigilance Full HD Outdoor Vandal Proof POE) Dome Camera-2.

**Undergraduate Lab-I:** - Desktops: Dell Optiplex 5050 – 16, Lenovo Think M90(5498-PR1)-25, HP Prodesk 600G5 MT-28, Dell Optiplex 9020 MT core i7- 2, Dell Optiplex 5090-10, Cameras: HIKVISION make 4 MP Dome IP

Camera -3, Dlink DCS4602 EV Full HD-1, MIC Systems: KQ-SRS-1112 Infrared Sound Field Reinforcement System-1.

**Undergraduate Lab -II:-**Desktop: HP Compaq 8200 Elite MT PC-1, HP Compaq 8300 Elite MT PC-11, HP Elite Desk 800 G1 TWR -5, DELL Optiplex 9020-4, Dell Optiplex 5050-1, HP Prodesk 600G5 MT-27, Workstations: Dell Precision T1700-2, Cameras:Dlink DCS4602 VE (Vigilance Full HD Outdoor Vandal Proof POE) Dome Camera-2.

**Network Switch Room:-** Dell Optiplex 5050-3, Servers : NVIDIA DGS Station -1, TYRONE CAMARERO DS 400TG-1, Dell Power Edge R730XD 2U Rack server -2, Dell Power Edge R540-1, NETGEAR READY NAS RN316/6BAY 4TB Surveillance HDD, Hikvision 16 CH 2 SATA NVR-1.

**NITK RDL IoT & Data Analytics Lab:-** RDL & IoT Kit-30, Memsic Classroom Kit-1, Memsic WSN Professional Kit-1, PCI DIOT I/O Interface Kits-20

## DEPARTMENT OF MECHANICAL ENGINEERING

**Advanced Dynamics Lab:** Experimental Modal Analysis, Forced Vibration Analysis, Tuned Impulse Hammer, Minishaker with controller, Modal Analysis Software, Vibration Analyzer, Rotor test setup

**Wind tunnel laboratory:** subsonic wind tunnel, force balance

**Advanced Manufacturing Laboratory:** 3-D Printing, Fused Deposition Modeling based 3-D Printer, Material Extrusion, Single Screw Extruder.

**Additive Manufacturing Laboratory:**High Performance Workstation.

**Smart structures laboratory:** Free and forced vibration setup with

controller, Impact hammer, Tri-axial accelerometer, Electrodynamic shaker, Analyzer, closed loop controller, force sensor, impedance head.

**Refrigeration and Air-conditioning Research Laboratory:** Micro heat pipe test rig, Vapour pressure determination test rig, Thermoelectric refrigeration test rig, Condenser pressure variation VCR test rig, Vortex tube refrigeration test rig, Air engine test rig, Weather simulation chamber & Window air conditioner test rig, two Stage VCR test rig with intercooler

**Turbomachinery Laboratory:** Low speed compressor cascade test facility, Low speed turbine cascade test facility, Centrifugal blower test rig.

**Polymer composites lab:** vartm facility

**Advanced fluid mechanics Lab:** Desiccant analysis test rig, Bio 3D printer

**Tribology Laboratory:** Metallurgical Sample Saw, High Temperature Tubular furnace, Ball mill, Disc Polishing Machine, Microscope, Pin on Disc Tribometer. Nano indenter with AFM attachment, Microwave heat treatment setup. Tumbler Ball milling setup, Micro Oven Heat Treatment Setup.

**Advanced heat transfer lab:** Indoor Solar Simulator

**Aerospace Research Laboratory:** Rotor test setup.

**Mechanism Design Lab:** Portable Reconfigurable Input-Output Device.

**Manufacturing Technology Lab:** Ultrasonicator, Optical Microscope with Image Analyzer.

**List of Software in CAD/CAM Laboratory:**

- |                      |          |
|----------------------|----------|
| 1. Pro Engineer CREO | 50 Users |
| 2. Autocad           | 50 Users |
| 3. Ansys15.0         | 25 Users |

4.	AnsysV10.0	10 Users
5.	MSCAdams	50 Users
6.	MSCatran	50 Users
7.	MSCastran	50 Users
8.	MSCMarc	50 Users
9.	MSCytran	50 Users
10.	CatiaP3	10 Users
11.	CATIANovia	05 Users
12.	CATIADelmi	05 Users
13.	CATIAPLMExpress	05 Users
14.	LMS AMESim (Multi-domain system Simulation)	05 users
15.	Unigraphics with Advanced Machining Module	05 Users
16.	Deform (Design Environment For FORMing	01 User
17.	AutodeskMoldflow	25 Users
18.	SimPACK (MBD Software)	25 Users
19.	MasterCAM	02 Users
20.	HyperWorks	05 Users
21.	RobotKit	02 Nos.
22.	ANSYS research license (1 No)	

**Materials Characterization**

**Laboratory:** Vacuum Arc Melting Furnace, Image Analyzer, Universal Testing Machine, Wire Electro Discharge Machine, Vickers Hardness Tester, Double headed Rolling Machine, High Temperature Microwave Furnace

**Vibration and Condition Monitoring**

**Laboratory:** Electromagnetic shaker (100kgf, 50kgf, 25kgf), Horizontal slip table, VTS electro-dynamic shaker (25lbs), Gauss meter, Electro magnets (1.5 Tesla), Impact hammer, Single and tri-axial accelerometers, Data acquisition system(NI, HBM ), Microphone and SLM, MicroEpsilon Laser displacement pickups, ADAMS, NASTRAN, PATRON, MARC, DITRON, ANSYS, Devitron, Labview. Accelerometer (1+1)

**Robotics Laboratory:** Lego Robotic Kit, Firebird, Basic Electronic Components, DC Motors, Connecting Pins, Wires, LEDs Berg Strip, and Bread Board, Quadcopter kit, Wall Following Robot.

**Metrology Laboratory:**

**A. Linear Measurements**

1. Vernier Caliper
2. Vernier Depth Gauge
3. Vernier Height Gauge
4. Digital height gauge.

**B. Micrometer**

4. External Micrometer
5. Internal Micrometer
- A. Jaw Type Inside Micrometer
- B. Caliper Type Inside Micrometer
6. Depth Micrometer
7. Bench Micrometer
8. Digital Micrometer
9. Telescopic Gauge

**C. Measurement Using Slip Gauge**

10. Calibration of Micrometer, Vernier Caliper,
11. Calibration of Height Gauge, Snapgauge, Ring Gauge and Plug Gauge.
12. Measurement of Mean Distance between Surface and Spacing between Holes.
13. Measurement of Dovetail Angle and Checking the Taper Angle of Taper Plug Gauge.
14. Checking An Angle Plate.
15. Study On Limit And Position Gauges

**D. Linear and Angle Measurement**

16. Combination Set.

**E. Angle Measurement**

17. Universal Bevel Protractor
18. Sine Bar

**F. Flatness And Straightness Measurement**

19. Clinometer

**G. Screw Thread Measurement**

20. Screw Pitch Gauge
21. Screw Thread Micrometer
22. Effective Diameter Measurement Using Two Wire And Three Wire Method.

**H. Gear Tooth Measurement**

23. Vernier Gear Tooth Caliper
24. Tooth Span Micrometer

**I. Study On Opto-Mechanical Instruments**

25. Tool Makers Microscope
26. Measurement Using Comparator

## J. Surface Roughness Measurement

27. Surface Roughness Meter (SJ 301), Surface roughness tester.

**Microsystems Laboratory:** MEMS Sensors Scanning Tunneling Microscope, Self Build Kit, Atomic Force Microscope, Comsol and Intellisuite (Courtesy : NMDC), Sugar Toolbox and MATLAB (Institute Network)

**Heat Transfer Laboratory:** Free convection heat transfer, Heat transfer through composite walls, Water cooling tower, Shell and tube heat exchanger, Measurement of thermal conductivity of metal rod, Measurement of thermal conductivity of solids, Computerized vapour compression refrigeration test rig, Peristaltic pump model, Air conditioning test rig, Vapor compression refrigeration test rig, Heat pipe demonstrator, Heat transfer through extended surfaces, Measurement of emissivity of metal surfaces, Heat transfer through lagged pipe, Heat transfer through Forced convection, Computerized Air conditioning test rig, Boiling heat transfer apparatus, Film and Drop wise condensation, Ice plant tutor,. Parallel flow heat exchanger, Plate Heat exchanger, Heat pump setup, Fluidized Bed system, Refrigerator, Natural convection, Critical Heat flux apparatus, Humidifier-Dehumidifier

**Machine Dynamics and Vibration Laboratory:** Kinematics of Epicyclic Gear, Kinematics of Cam Mechanism, Kinematics of Gear Train, Kinematics of Slider Crank Mechanism, Spring Mass System, Transmissibility Apparatus, Free Vibration of beam, Experimental Modal Analysis.

**CNC, Pneumatic and Electro Pneumatic Laboratory:** Trainer Lathe, Trainer Milling Machine, Electro Pneumatic Trainer Kit with Cylinders and Control valves

## IC Engine Research Laboratory:

MMM Vertical 4- Stroke Diesel Engine, Textool 2- Stroke Vertical Diesel Engine, Textool 4- Stroke Vertical Diesel Engine, Valve and Port Timing Diagrams, (a) Compression Ratio of given IC Engines, (b) Morse Test, Computerized multi-cylinder MPFI Gasoline engine, Computerized Single cylinder DI Diesel Engine, Exhaust Gas Analyzer, Hydrogen fuelled SI Engine test rig, CRDI Diesel Engine test rig, Kirloskar Diesel Engine test rig, Five gas analyzer

**Fuels Laboratory:** Boys gas Calorimeter set(Calorimeter+ gas flow meter (0-1000ml), Redwood viscometer No.1, Saybolt Viscometer, TAR Viscometer(Redwood viscometer No.2, Instech Calorimeter,Flash point tester(Close-up), Barometer with room temperature no.597,. Digital weighing machine (0-10grams), Saybolt Viscometer(old), Bomb Calorimeter, Cleveland Flash & fire point apparatus, Weighing machine (0-2 kg), Flash and Fire point Tester

## Theory of Machines Laboratory:

Spring mass system, Whirling shaft apparatus, Motorised gyroscope apparatus, Digital weighing machine (0-50kgs), Physical balance, Dead weight tester(0-35kg), Digital dead weight tester(0-60kg), Digital dead weight tester(0-250kg), Planimeter set, Thermo-Hygraph H-10/100%, Computerised Emission test set up, Single stage spur gear, Single stage spur gear with intermediate, Two stage spur gear, Three stage spur gear, Three speed and reverse gear, Worm gear, Bevel gear, Rack and quadrant gear drive, Reversing gear, Epicyclic gear (sun & planet), Cycloidal motion, Internal rolling gear drive, Internal gear and pinion drive spur gear.

## Automotive Electronics Laboratory:

IRIS CAR (Lab Car), with Breakout

box, ECU, Injector Box, Wire harness, Communication Module, DC Power Supply, Function Generator, Oscilloscope, Cut Section Models.

### **Stress Analysis Laboratory**

Poloriscope, Strain measurement setup, Strain Indicator and Recorder.

### **Fracture and Fatigue Laboratory**

#### **Fatigue setup**

Applied Solid Mechanics: Workstation with GPU

**Solidification simulation laboratory:** Quick Cast casting simulation software

**Solar Energy Laboratory:** Solar Air Heater, Pyranometer And Pyrhelimeter

#### **Vehicle Dynamics Laboratory:**

Damper Testing Machine, Quarter Car Suspension Test Rig

## **DEPARTMENT OF MATHEMATICAL & COMPUTATIONAL SCIENCES**

### **1 Servers**

Dell PowerEdge R740 GPU Server : 2 x Intel Gold 6240R, 320 GB RAM, 4 x 1.2 TB SAS hard drive, Nvidia Tesla V100 32 GB GPU - 01

HP ML-350 G9 Server : Intel Xeon Processor 64 GB RAM, 4TB Storage Server with Windows 2016 Server and CLA - 01

HP ProLiant DL580 G5 Server Enterprise class Server-02

HP ProLiant ML570 G2 Server -02 IOMega i\*200 4TB NAS -01

### **Workstations**

Dell Precision High End Workstation T7920 -02

Dell Precision High End Workstation T5810 -04

Dell Precision High End Workstation T1700 -06

### **Desktops**

Dell Optiplex 5090 - 24

Dell Optiplex 9010 - 4

HP Compaq Elite 8300 Series - 179

HP Pro 3090 MicroTower - 65

### **Printers**

Ricoh Aficio 3035(Scan/Xerox/Print)

HP Color Laser Jet CP1515n

Epson L220 Inkjet

## **DEPARTMENT OF MINING ENGINEERING:-**

**Rock Mechanics Laboratory :-** Rock cutting machine, Compression testing machine, Schmidt hammer, Slake durability index apparatus, Point load strength index apparatus, P-wave velocity apparatus, Los angeles machine, Other rock testing facilities.

**Drilling Laboratory:** Jack hammer drilling set-up, Air compressor, Modified lathe machine for rock cutting, horizontal and vertical coring machines.

**Blasting Laboratory:** Minimates, Minimate plus, High speed video camera, VOD monitor, Laser profile, WIPFRAG software.

### **Mine Environmental Engineering**

**Laboratory:** Water pollution monitoring kit, Respirable dust sampler, Manometer, Crossing point temperature, Digital Methanometer, CO detector, Psychomotor, Sound level meter, Gas testing set up, Exhaust gas analyzer, Multi gas detector; High Volume sampler, Vibration Analyzer

### **Mineral Processing Laboratory :**

Jaw Crusher, Roller Crusher, Rod Mill, Ball Mill, Bond' Work Index Setup, Electro Magnetic Sieve Shaker, Riffle Sampler, Jigging Machine, Wilfly's Table, Automatic Mineral Separator, Spiral Classifier, Density Separator Hydro Cyclone, Davis Tube Tester, Electro Magnetic Drum Separator-Wet, Electro Magnetic Drum Separator-Dry, Froth Floatation Cell, Sampling / Crushing / Grinding - Integrated Unit, Turbo Mixer, Micro Mill, Vacuum Filtration Unit, Disc Mill, Pot Mill, Double Deck Vibratory Screen Model, Infrared Drier, Spiral Concentrate, Sieve Shaker

**Mine Surveying Laboratory:** Prismatic Compass, Surveyor Compass, Vernier Theodolite, Micro-Optic Theodolite, Dumpy level, Auto level, Digital level, Total station, Handheld GPS, DGPS

**Mine Planning and Design Laboratory:** Softwares - Surpac, Minex, Sirovision, Jk Sim blast, Rocscience.

**Mine Pollution Laboratory:** Water quality analyzer, High volume air

sampler, Respirable dust sampler, Sound level meter, Opacity meter, Point sampler, Beta attenuation meter, Weather monitoring station.

## **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

**Extractive Metallurgy Lab:** Crushers, Ball mill, Flootation cells, C&S analyzer, Sieve analyzer

**Testing of Materials Lab:** UTM, Instron, Wear testing machine, Hardness testers, NDT, Fatigue testing machine

**Physical Metallurgy Lab:** Metallography, Microhardness, Image Analyser, Dilatometer

**Ceramics & Polymer Lab:** Ceramics & Polymer Lab

**Heat treatment Lab:** Heat treatment furnaces, Thermal cycle furnaces

**Metal Finishing Lab:** Plating facilities

**Foundry lab:** Induction furnace, Permeability meter

**Scanning Electron Microscope Lab:** Scanning Electron Microscope with EDAX

**Casting Research Lab:** Data logger, Hot stage microscope, Contact Angle Analyser, Image analyzer, Instron tensile tester, Quenchometer, Stereo microscope, 2D Surface Profiler, Solid Cast Software, Ultrasonicator, Ultrasound velocity meter, Thermal property analyser, DAGE bond tester

**Powder Metallurgy & Nano technology Lab:** Thermolyne High Temperature Furnace, Density Measurement Kit, Incubators – Ecogain varies, Hot Air Oven.

**Transmission Electron Microscope Lab:** Transmission electron microscope, GATAN ion milling unit.

**Metal Processing Lab:** Rolling mill, Precision cutting machines, 250 ton Hydraulic press

**Corrosion Lab:** Potentiostat and Impedance analyser

**Coating lab:** PVD facility, electron beam deposition set up. DC sputtering setup

**FTIR Lab:** FTIR Spectrometer, Four probe resistivity measurement system, USB Oscilloscope

**XRD Lab:** X-ray Diffractometer

**Ceramic & Thin Film Lab:** UV Ozone Cleaner, Ultrasonic Atomizer, Scratch Tester, Spi Coater, Probe Sonicator, Vacuum Oven, Screen Printer, Stretching Machine with Compressor, Four Probe & Two Probe, Glass Cutter, Fume Hood

**Ceramics Processing Lab:** High temperature tubular furnace (max temp:1100 °C), High temperature tubular furnace (max temp:1400 °C), Density measurement kit, vacuum oven, hot air oven

## **DEPARTMENT OF PHYSICS**

Name of Laboratory	Major Equipment/Facilities
UG Laboratory	Experimental Kits (7 expt.s of 5 sets each)
PG Laboratory I	Experimental Kits (8 expt.s of 2 sets each)
PG Laboratory II	Experimental Kits (8 expt.s)
Thin Film Laboratory	Vacuum Coating Unit (2 no.s) <ul style="list-style-type: none"><li>• XRD</li><li>• Keithley Source Meter</li><li>• Keithley Multimeter</li><li>• Sputtering Unit</li><li>• Physical Deposition Unit</li><li>• Spray Pyrolysis Unit</li><li>• LCR Meter</li></ul>
Optoelectronics Laboratory	Vacuum coating system <ul style="list-style-type: none"><li>• Optics Inc SD2000 spectrometer (UV vis spectra)</li><li>• Lux meter (Lutron)</li><li>• UVC Ozone Cleaning Unit</li><li>• Thermal evaporator</li><li>• Clean air flowbench</li><li>• OLED measurement system</li><li>• Keithley Sourcemeter (model 2400).</li><li>• Jobin Yvon spectrometer with a CCD based detector or a silicon photodiode (SM1PD2A Mounted UV Enhanced Silicon Photodiode, 200-1100 nm Cathode Grounded)</li><li>• Optical power meter (Ophir Optronics, model NOVA II with PD300-</li></ul>

	<ul style="list-style-type: none"> <li>UVdetector)</li> <li>• Keithley 6485 Picoammeter</li> <li>• Tektronix DMM 4040 6-1/2 Digit Precision Multimeter</li> <li>• Agilent 34972A LXI Data Acquisition/ Switch unit</li> <li>• Multioutput DC power supply model LQ6324</li> <li>• Agilent E4980A Precision LCR meter 20 Hz to 2 MHz</li> <li>• Tektronix TDS 2002B Two channel Digital Storage Oscilloscope 60 MHz 1GS/s</li> <li>• DH-3 UV-Vis-NIR Calibrated Light Source (Ocean Optics)</li> <li>• RF Probe Station</li> <li>• ISO BRUKER Precision Cutting Machine</li> <li>Q-switched Nd-YAG laser; Model GCR -170 from Spectra – Physics, USA.</li> <li>• Solution growth system for crystal growth</li> <li>• High temperature furnace</li> <li>• Magnetron sputtering system</li> <li>• Thin film coating unit</li> <li>• Fume Head Vacuum deposition system- Thermal, DC, RF coating system</li> <li>• CLEMEX Microhardness Tester</li> <li>• Physical vapour deposition</li> <li>• Polishing Machine</li> <li>• Muffle furnace (Max Temp 1000°C)</li> <li>• Low speed Diamond saw cutting Blade</li> <li>• Abbe refractometer</li> <li>• Analytical balance and Density kit</li> <li>• High temperature furnace</li> <li>• P H Meter</li> <li>• U V Visible spectrometer</li> <li>• Incubator</li> <li>• Ultra sonicator</li> <li>• Computer Interfaced Microhardness Tester</li> <li>Density kit</li> <li>• Electrochemical Workstation (Bio-Logic SP150) (2 Nos)</li> <li>• Mbraun Glove Box</li> <li>• Neware battery analyzer</li> <li>• Kiethly 2 probe and 4 probe measurement systems</li> <li>• Ocean Optics UV-Vis spectrometer</li> <li>• DC Spectrum Analyzer</li> <li>• Muffle Furnace</li> <li>• Weighing Balance</li> <li>• Battery Crimper set up</li> <li>• Sputtering Unit</li> <li>• Spin Coater</li> <li>• Spray Pyrolysis unit</li> <li>• Vacuum Oven Hot air oven</li> <li>• Photoluminescence Spectrometer XRD</li> <li>• Dell server (power edge), Software: VASP, Mathematica, Gaussian and Maple</li> <li>Dell server power edge</li> <li>Sputtering, Impedance analyser, SMU, dc probe station, etc.</li> </ul>
Crystal Growth Laboratory & Nano materials Laboratory	
Material Processing Laboratory	
Materials Research Laboratory	
Computational Physics Laboratory	
Nonlinear dynamics and Biophysics Low Dimensional Physics Lab	

## SCHOOL OF MANAGEMENT

**Computer Lab:** 50 computers with latest softwares like SPSS, Palisade Decision Tools Suite, CMIE Prowess Database, STATA, Smart PLS, etc. One server to host the software.

**Orell Foreign Language Lab (Orell Talk):** With English and 7 other foreign languages for 500+1 users.

## DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING

### Hydraulics Laboratory:

Flow Measuring Units  
Pumps , Water meters  
Calibration Devices  
Turbines  
Hydraulic Machines  
Pressure Gauges  
Valves  
Tilting flume  
Pipe bursting unit  
Ultrasound flow meter

### Strength of Materials Laboratory:

Universal Testing Machine U.T.M 5 T, 40 T, 100 T, 200 T (Electronic)  
Hardness Testing M/c  
Torsion Testing M/c  
Hardness Testing M/c  
Fatigue Testing M/c  
Impact Testing M/c

### Marine – Geotechnical Laboratory:

Consolidation Apparatus  
Direct Shear Apparatus  
Photo Elastic Bench  
Corrosion Measurement Voltage system  
Optical Microscope

### Wave Mechanics Laboratory:

Regular Wave Flume [50 X 0.71 X 1.1 m] – 2 No.s  
Digital Storage Oscilloscope with software  
Wave probe with software

### Hydraulic Measurement Laboratory:

Ultrasonic Testing Kit  
Electronic Balance

Grandular Matrix Soil Moisture Sensors  
Digital Soil Moisture and Temperature Recorder  
Tipping bucket rain gauge  
Basic Hydrology Unit

#### **Geoinformatics :**

Computer systems : 20 No.s  
Printer, scanner  
Stereoscopes  
Ground truth Radiometer  
Digital Planimeters  
Aerial & Satellite Imagery  
ARCPAD GPS, Garmen GPS  
DGPS  
Total station  
Leaf Area Index meter  
Softwares : ERDAS- Imagine, ARCGIS, ENVI 5.4  
Open Source GIS  
R software

#### **Computer Laboratory:**

Computer systems: 10 Nos  
Ground water Modelling Software (GMS),  
Water Management Software (WMS);  
Aqua Chem software  
SWAT CUP  
MATLAB  
Scanner, Laser printer

#### **Computational Hydrodynamics Lab**

Computer systems: 10 Nos  
Open Source REEF 3D  
MIKE 21 software  
SACS software

#### **Advanced Structural Mechanics Lab**

Fretting Wear Testing Machine

#### **Structural Dynamics Lab**

Shake Table  
Building models  
Accelerometers  
LVDT  
Ship/sloshing tanks  
Load cells

#### **Experimental Stress Analysis Lab**

Strain Rosette  
Stress gauge  
Measurement of Shear number  
Temperature Compensation

Rectangular delta

#### **Marine Structure Monitoring Laboratory**

Underwater Remotely Operated Vehicle  
Marine Surface Vehicle for inspection  
Thermal and RGB Inspection Unit  
Open Source Fluid Structure Interaction Setup

#### **Unmanned Aerial Vehicle Laboratory**

3D Modelling with Aerial Imaging  
Octocopter with multispectral Imaging  
Open source Simulation for Design  
Wind Tunnel ( shared with SOM Lab)  
Smoke Tunnel for flow simulation

#### **Offshore Renewable Energy and Simulation Laboratory (Developed under project fund)**

HPC Server  
Desktop Computers (3 Nos)  
MATLAB  
Acceleration Sensors  
Pressure Sensors  
Anchor Load Sensors  
Tilting Sensors  
Wave Sensors  
Force Sensors

### **1.5 WORKSHOPS/MAJOR EQUIPMENTS IN THE DEPARTMENTS**

#### **DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING :-**

Lathe, Shearing machine, Drilling machine, Grinding machine.

#### **DEPARTMENT OF CIVIL ENGINEERING**

##### **Departmental Mini Workshop:-**

Lathe, shearing machine, drilling machine, Grinding machine.

#### **DEPARTMENT OF MECHANICAL ENGINEERING**

##### **Machine Shop - I:**

Center Lathe, Heavy duty Center Lathe Geared head Center Lathe, Shaping machine, Universal Milling Machine, Heavy duty pillar type drilling machine, Light duty pillar type drilling machine, Pedestal grinding machine, Capstan Lathe.

### **Machine Shop - II:**

Surface Grinding Machine, Cylindrical Grinding Machine, Capstan Lathe, Horizontal Milling Machine with Vertical attachment, Broaching Machine, Light Duty Shaper, Heavy Duty Shaper, Slotting Machine, Planner, Cutter Grinding Machine, Heavy Cylindrical Grinding Machine, CNC Milling Centre, CNC Turning Centre, Heavy Duty Shearing Machine, Hydraulic Press, Heavy Duty Radial Drilling Machine, Hydraulic Radial Drilling Machine, Universal Milling Machine, Centre Lathe, Hydraulic Compressor. High speed drilling machine, Shearing Machine.

**Carpentry Shop:** Wood turning lathe, Circular saw, Carpentry bench vice and table.

**Fitting Shop:** Bench vice with table, Surface plate, Anvil Power Tool, Drilling set and accessories, Saber saw, Jig saw, Hot air gun, Tappers, Nibbler, Shearing machine, Grinding machine, Circular saw, Impact wrench, Battery operated drill, Blower, Eccentric sander, Router machine, Wood planner, Jig saw, Hammer drilling, Core cutter drilling machine

**Sheet Metal Shop:** Soldering table, Bench vice, Shearing machine

**Welding laboratory:** Metal inert gas welding, Resistance spot welding, Tungsten inert gas welding

**Foundry laboratory:** Sand sieving machine, Aluminum melting furnace

### **MAJOR EQUIPMENTS IN THE DEPARTMENTS**

#### **DEPARTMENT OF CHEMICAL ENGINEERING**

Gas Chromatograph  
Refrigerated Centrifuge

Quartz Immersion well Reactor  
Electro Spinning equipment  
Bench Top Fermentor  
Particle Size Analyser  
Freeze Dryer  
Gel Documentation  
Thermogravimetric Analyser  
HPLC  
LC –MS  
ICP –OES  
FPLC  
Fermenter  
Real time Polymerize chain reaction machine  
biosafety cabinet level II

#### **Energy and Catalysis Materials Laboratory**

Solid Oxide Fuel/Electrolysis button cell Test Station.  
CH Instrument  
Gas Analyzers  
Electrospinning Unit  
Dilatometer  
Reducing atmosphere setup  
DC four probe Keithley 2450 source meter

#### **DEPARTMENT OF CHEMISTRY**

1. Advanced instruments lab
2. Sophisticated instruments facility

Single crystal XRD, UV-Vis absorption and fluorescence emission spectrophotometers, Solar Simulator with I-V measurement system for solar cells, FTIR spectrometer, Thermogravimetric analyzer, Contact angle analyzer, Surpass Electrokinetic analyzer, Potentiostat/ galvanostat.

#### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

- HP Desktop Computer Systems - Core I7, 8GB RAM, 500GB Hard disk
- HP Prodesk 600 G3MT Desktop Computers – Intel Core i5, 8GB RAM, 1TB Hard disk
- IBM E Server with accessories
- Dell High End Server T610
- Dell power Edge Server R420
- Dell power Edge Server R720
- Dell power edge server T630

- Dell Server PE 730XD
- Dell Server (R740)
- C-Boston Sys- 5038K-j-KNL Development Workstation
- Dell R7 power edge R7404 rack server
- Dell High End Workstation (DT Precision 5820)
- Dell Precision 5820 Workstation
- Lenovo workstation(P700)
- Lenovo think station S30 workstation with 24" LCD monitor
- Lenovo Think center S-20 & D 20 workstation

### **DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

1. Mixed Domain Oscilloscope with Accessories, 01 Number, 11 Lakh
2. HP Probook 450 G8 Notebok, 1 Number, 0.83 Lakh
3. HP ProDesk 600G6 Desktop Computers, 1 TB SSD, 16 GB RAM, 10 numbers, Rs. 7.54 Lakh
4. Work Station 2 X Intel xeon Silver 4100 Processor, 1 TB SSD, 32 Bit RAM, 1 Number, 2 Lakh.
5. Torque transducer & Universal torque transducer Interface, 1 Number, 2.6 Lakh.
6. Fluke Advanced Power Quality & Energy Analyzer, 1 Number, 5.5 Lakh.
7. HP Probook 440G8 Laptop, 1 Number, 0.82 Lakh.
8. 3 phase IGST Inverter Module, 4 Number, 2.72 Lakh.
9. Digital Multimeter 6.5digit Tektronix, 1 Number, 1.26 Lakh.
10. DAC Module & D10 Module, 1 Number, 0.63 Lakh.
11. 1 phase and 3 phase Auto transformer, 6 Number, 1.07 Lakh.
12. PQ Monitor Equipment, 1 Number, 5.49 Lakhs.
13. Real Time Control Box, 1 Number, 11.29 Lakhs.

### **MECHANICAL ENGINEERING:**

- Vacuum Arc Melting Furnace, Image Analyzer, Universal Testing Machine, Wire Electro Discharge Machine,

- Vickers Hardness Tester, Double headed Rolling Machine
- Electromagnetic shaker (100kgf, 50kgf, 25kgf), Horizontal slip table, VTS electro-dynamic shaker (25lbs), Gauss meter, Electro magnets (1.5 Tesla), Impact hammer, Single and tri-axial accelerometers, Data acquisition system (NI, HBM), Microphone and SLM, Micro-Epsilon Laser displacement pickups, ADAMS, NASTRAN, PATRON, MARC, DITRON, ANSYS, Devitron, LabVIEW
- Lego Robotic Kit, Firebird, Basic Electronic Components, DC Motors, Connecting Pins, Wires, LEDs Berg Strip, and Bread Board, Quadcopter kit, Wall Following Robot
- Micro heat pipe test rig, Vapour pressure determination test rig, Weather simulation chamber & Window air conditioner test rig, Thermoelectric refrigeration test rig, 2 Stage VCR test rig with intercooler, Condenser pressure variation VCR test rig, Vortex tube refrigeration test rig, Air engine test rig
- MEMS Sensors, Scanning Tunneling Microscope, Self Build Kit, Atomic Force Microscope, Comsol and Intellisuite (Courtesy : NMDC), Sugar Toolbox and MATLAB (Institute Network)
- Free convection heat transfer, Heat transfer through composite walls, Water cooling tower, Shell and tube heat exchanger, Measurement of thermal conductivity of metal rod, Measurement of thermal conductivity of solids, Computerized vapour compression refrigeration test rig, Peristaltic pump model, Air conditioning test rig, Vapor compression refrigeration test rig, Heat pipe demonstrator, Heat transfer through extended surfaces, Measurement of emissivity of metal surfaces, Heat transfer through lagged pipe, Heat transfer through Forced convection, Computerized Air conditioning test rig, Boiling heat transfer apparatus, Film and Drop wise condensation, Ice plant tutor, Parallel flow heat exchanger, Plate Heat exchanger, Heat pump setup,

Fluidized Bed system, Refrigerator, Natural convection, Critical Heat flux apparatus

- Kinematics of Epicyclic Gear, Kinematics of Cam Mechanism, Kinematics of Gear Train, Kinematics of Slider Crank Mechanism, Spring Mass System, Transmissibility Apparatus, Free Vibration of beam, Experimental Modal Analysis
- Trainer Lathe, Trainer Milling Machine, Electro Pneumatic Trainer Kit with Cylinders and Control valves
- MMM Vertical 4- Stroke Diesel Engine, Textool 2- Stroke Vertical Diesel Engine, Textool 4- Stroke Vertical Diesel Engine, Valve and Port Timing Diagrams, Compression Ratio of given IC Engines (b) Morse Test, Computerized multi-cylinder MPFI Gasoline engine, Computerized Single cylinder DI Diesel Engine, Exhaust Gas Analyzer, Hydrogen fuelled SI Engine test rig, CRDI Diesel Engine test rig, Kirloskar Diesel Engine test rig
- Boys gas Calorimeter set (Calorimeter+ gas flow meter (0-1000ml), Saybolt Viscometer, Redwood viscometer, TAR Viscometer (Redwood viscometer, Instech Calorimeter, Flash point tester (Close-up), Barometer with room, temperature no.597, Digital weighing machine (0-10grams), Saybolt Viscometer(old), Bomb Calorimeter, Cleveland Flash & fire point apparatus, Weighing machine (0-2 kg)
- Spring mass system, Whirling shaft apparatus, Motorised gyroscope apparatus, Digital weighing machine (0-50kgs), Physical balance, Dead weight tester(0-35kg), Digital dead weight tester(0-60kg), Digital dead weight tester(0-250kg), Planimeters set, Thermo-Hygrograph H-10/100%, Computerised Emission test set up, Single stage spur gear, Single stage spur gear with intermediate, Two stage spur gear, Three stage spur gear, Three speed and reverse gear, Wormgear, Bevelgear, Rack and quadrant gear drive, Reversing gear, epicyclic gear (sun & planet), Cycloidal motion, Internal rolling gear drive, Internal gear and pinion drive spur gear
- IRIS CAR (Lab Car), with Breakout box, ECU, Injector Box, Wire harness, Communication Module, DC Power Supply, Function Generator, Oscilloscope, Cut Section Models
- Center Lathe, Heavy duty Center Lathe, Geared head Center Lathe, Shaping machine, Universal Milling Machine, Heavy duty pillar type drilling machine, Light duty pillar type drilling machine, Pedestal grinding machine, Capstan Lathe
- Surface Grinding Machine, Cylindrical Grinding Machine, Capstan Lathe, Horizontal Milling Machine with Vertical attachment, Broaching Machine, Light Duty Shaper, Heavy Duty Shaper, Slotting Machine, Planner, Cutter, Grinding Machine, Heavy Cylindrical Grinding Machine, CNC Milling Centre, CNC Turning Centre, Heavy Duty Shearing Machine, Hydraulic Press, Heavy Duty Radial Drilling Machine, Hydraulic Radial Drilling Machine, Universal Milling Machine, Centre Lathe, Hydraulic Compressor
- Wood turning lathe, Circular saw, Carpentry bench vise and table
- Bench vise with table, Surface plate, Anvil, Power Tool, Drilling set and accessories, Saber saw, Jig saw, Hot air gun, Tappers, Nibbler, Shearing machine, Grinding machine, Circular saw, Impact wrench, Battery operated drill, Blower, Eccentric sander, Router machine, Wood planner, Jig saw, Hammer drilling, Core cutter drilling machine
- Soldering table, Bench vise, Shearing machine
- Subsonic wind tunnel
- Experimental Modal Analysis, Tuned Impulse Hammer, Modal Analysis Software, Forced Vibration Analysis, Minishaker with controller
- Moulding facility
- Pin on Disc Tribometer, Metallurgical Sample Saw, High Temperature Tubular furnace, Ball mill, Disc Polishing Machine, Microscope, sigma Z blade mixer

- Free and forced vibration setup with controller, Impact hammer, Tri-axial accelerometer, Electrodynamic shaker, Analyzer, closed loop controller, force sensor, impedance head
- Low speed compressor cascade test facility, Low speed turbine cascade test facility, Centrifugal blower test rig
- Desiccant analysis test rig  
3-D Printing, Material Extrusion, Fused Deposition Modeling based 3-D Printer, Single Screw Extruder.

### DEPARTMENT OF MINING ENGINEERING

Differential Global Positioning System (DGPS)

Total Station

Triaxial accelerometer SV 38 V along with a data logger SV106 (Manufacture: Svantech)

Permanent License for Virtual Nanolab with Quantum wish Toolkit for Nanotechnology Simulation (Software) (Manufacture: M/s. Integrated Microsystems)

### DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

#### Name of the Equipment

Dynamic Control Angle Analyzer

Form Talysurf Intra with Ultra Software with accessories

Digital Image Analysis System  
Camera Adopter

Heating Stage Temperature upto 1500°C (Furnace)

Jeol Model SEM

Tensile Testing Machine fully Computerized

Melt Flow Indexer

Dage 4000 Plus Bond Tester & Image Capture System

Joel High Resolution Transmission Electron Microscope (TEM)

EDS System for Jeol TEM

Bottom Mount Camera (TEM)

Jasco FTIR Spectrometer

Portable Quench Test System with Quench Probe &

Thermocouple Heating Furnace

Universal Testing Machine of 30

KN Capacity with Accessories

Salt Spray Bath

Shimadzu Micro Vickers Hardness Tester

Magnetic Sputtering PVD Unit

Scratch Hardness Tester Linear Tester

Low Temperature Ion Milling System with Accessories for TEM

Tensile Tester with Accessories

SP-150 Potentiostat Galvanostat

Chassis along with accessories

Trinocular Reflected Light

Microscope with Digital Camera

Differential Scanning Calorimeter

### 11.6 HOSPITAL, POST OFFICE, SHOPPING CENTRE

**Hospital:** One Health Care Center with the services of regular doctors and visiting expert doctors is available. Required medicines are also made available in the Health Care Centre.

**Post Office:** Post Office is available within the Campus.

**Banks:** Two banks (SBI and Canara Bank) are functioning within the Campus. Four ATMs (2 of SBI and 2 of Canara bank) are available at different locations within the campus.

**Shopping Centers:** Two Shopping Complexes are available within the campus accommodating about 15 shopping rooms which includes Saloon, Beauty Parlors, Printing and Photocopy, Vegetable outlet, Bakery, Tailoring, Cloth Shop, Milk parlors, food outlets etc.

**Physical education & Facilities:** Full-fledged Gymnasium facility, sports grounds for out-door games, Sports complex for in-door games are available within the campus.

### 11.7 PHYSICAL EDUCATION

**Physical Education and Sports:** Department of Physical Education and Sports of this Institute has got excellent Sports infrastructures and

facilities. Amenities provided here is considered as one of the best among all NITs as well as among other Institutions and Universities of this State. Standard, well maintained play fields for all major games like, Two 400Mts. Track for Athletics, One 75 Yards Boundary Cricket field with 3 playing pitches, One 70 yards boundary Cricket field with a matting wicket, 2 standard size Football fields, 2 Hockey fields with 2 pairs of goalposts & boards, 2 concrete Basketball courts with FG boards and Flood Light facilities, 1 Basketball concrete court at Girls Hostel with flood lights, 3 Volleyball courts with flood light facility, 4 Tennis courts, 2 Ball Badminton, 2 Throwball, 2 Kho-Kho, 2 Kabaddi, 2 Tennikoit courts are available for use. Provision is also there to put Two Handball court with goal posts and one Baseball field with all bases and other required amenities. An old Sports Complex is with 3 Badminton courts and 4 TT tables on cement flooring with proper Lighting system, kept open for 16 hours a day on all 365 days for students use. One Weight training hall with Multi Gym, Mini Gym, Individual stations for all sorts of exercises, Weight Lifting and Power Lifting Barbell sets, Fitness equipments like Treadmill Joggers, steppers, Rowing Machines, Exercise cycles, Peck Decks and Abdominal shapers are open for use of everyone even during early mornings and late evenings. New Sports complex is having a multipurpose hall with wooden flooring accommodating 3 Badminton courts or one Volleyball court, another multipurpose hall with synthetic flooring can accommodate one each Badminton and Volleyball courts or 2 Kabaddi Courts, another indoor games hall used as yoga and aerobic dance hall as well as Table tennis hall with 6 TT Tables, another indoor games hall to be used for Chess, Carom, Bridge like games, another hall is with 3 squash courts(Construction of playing fiber glass walls pending), another hall meant for Gym with sophisticated

fitness equipments like Multi Gym, Treadmill Joggers, mini gym, Exercise Cycles, Rowing machines, Hack squats, Cable cross, Smith Machines, Peck Decks, Cardio Gyms, weight lifting platform and Weight lifting/Power lifting Barbell sets. This Gym is equipped with separate equipments for exercising different parts of the body. Sports Complex also houses space for playing Kabaddi on already procured synthetic mat, 2 Indoor Cricket pitches with bowling machine, dressing rooms for different sports, Store rooms, Office rooms, Snooker and Billiards room with Tables, 2 stages of 20mts x 10mts size facing 2 large grounds for functions of any kind may accommodate thousands of spectators. Enough number of wash rooms are there on either side of the Sports Complex. Above all these, like a jewel on the Crown, an international standard Swimming Pool of 50 x 21 Mts., 8 lane with anti wave lane markers, Olympic type take off boards and diving facilities with 3 Platforms of 1, 3 and 5 meters height are ready for use in this Institute.

**Games & Sports facilities:** All students, staffs and residents in and around the campus are freely permitted to utilize all Play ground and Gym facilities available in the Institute. Admission to Swimming Pool is free to all students of this Institute. Staffs, residents of the Campus, family members of the staff and staff + students of the campus schools are charged with nominal fee to use the Pool. High quality and standard Sports/Games equipments/articles are provided to students and staffs of this Institute who use these play field facilities, except some personal articles like Tennis, Shuttle Badminton and TT Rackets. Opportunity to all students, staffs and other residents of the campus have been provided to participate in different level of competitive Sports and Games, by organizing Inter-Class, Inter-Branch, Inter Year and Campus open tournaments(Competitions) in all most

all games for both sections. Girls Block Hostel has been provided with a Basketball, Volleyball, Tennikoit, Kho-Kho and Badminton courts, 2 TT Tables, 4 Carom Boards and Gym with some fitness equipments including a Mini Gym. Arrangements have been made to provide TT Tables, Carrom Boards and a set of Cricket stumps and Bats to each Blocks of Boys Hostels. Volleyball, Throw ball and Badminton courts have been laid near Staff Recreation Club for the use of staff members. TT, carom and Chess like indoor games with required sports articles were also provided for staff club.

All those who get selected to represent the Institution and participate in any of the tournament will be provided with Institute Uniforms (Colors) and all expenditures during participation of that team will be met by the Institute. In addition, Football and Hockey team members will be provided with Stockings and Shin Guards, Cricket team members will be provided with white Pants, Shirts and Caps. All students and Officials who participate in Inter NIT/ University tournaments will be provided with Institute Track Suits. All students who represent this Institution in Sports and Games will be provided with Shoe subsidy of Rs.800-00 per year.

### **11.8 STAFF QUARTERS**

**Staff quarters:** 245 numbers of Faculty Quarters and 176 numbers of Non-faculty staff quarters are available in the Campus.

## 12. STUDENT ACTIVITIES

### GAMES AND SPORTS

#### STUDENTS ACTIVITIES:

All students, staff and community in and around the campus are free to use the playing, training and coaching facilities available in the DPES of this Institute. Staff of the DPES are ready to provide instruction, teaching, coaching and training facilities to all interested peoples in and around the campus. As this Institute is implementing NEP to first year BTech students from this year DPES is offering optional Credit courses in 6 sports subjects. All these courses are of physical mode and will be conducted only after students start attending classes physically. This year also the pandemic Covid – 19 had its own influence on the students activities. very few students were present in the campus (Only PhD Scholars and MTech) during early part of academic year. As days passed by and decrease of covid – 19 cases, more and more students started arriving to campus to stay.

All sporting facilities were kept open for students use and competitions were also held. Fresher's cup sports were conducted to II year students of BTech, MTech and other PG courses (Came to campus for the first time) in most of the games. RPL (Researcher's Premier League) Sports for research scholars, PG Sports Competition for all PG students were organized in most of the sporting events. Institute teams in all sporting events were selected from the students available in the campus, by conducting selection tournament/trials. Basketball (Men & Women), Football (Men) and Badminton (Men & Women) teams participated in some of the tournaments conducted. Since there were no tournaments held in other sports events, these teams could not participate in any of the tournaments. Sporting and Fitness activities were

permitted in the campus strictly following guidelines issued by GOI/GOK time to time.

## 13. RESEARCH, DEVELOPMENT & CONSULTANCY PROJECTS

### 13.1 R & D PROJECTS (ONGOING & SANCTIONED)

#### DEPARTMENT CHEMICAL ENGINEERING

Development of Electrospun Ceria-based Nanofibers for Diesel Soot Oxidation Activity. Principal Investigator- Dr Hari Prasad Dasari. Duration: 2020-2023 December Cost of the Project: 36.57 Lakhs

Development and Demonstration of solid oxide electrolysis cell technology for co electrolysis of CO<sub>2</sub> and H<sub>2</sub>O for the production of syngas. Principal Investigator- Dr Hari Prasad Dasari. Duration: 2019- 2022 March Cost of the Project: 95.45 Lakhs

Selective Extraction and purification of Commercially Valuable Pigment melanin from Cephalopod ink and its industrial effluent; PI: I. Regupathi; Co-PI: Dr.Prasanna BD; SERB -DST, Three Years (26/03/2019 to 26/03/2022); Grant: 49.78 Lakhs

Received a grant under SERB-TARE Scheme for the project titled "Algal Biorefinery using Spirulina Model to Integrate Wastewater Utilization and Biofuel Production" jointly by NMAMIT, Nitte (Dr. Venkatesh Kamath) and Dr. I Regupathi, NITK. Duration: Three years (Nov 2020 to Nov 2023)

A project proposal on 'Simultaneous Enrichment and selective Encapsulation of N-3 Polyunsaturated Fatty Acids (n-3 PUFA) from Sardine Oil using Reassembled Casein Micelles', COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR), PI : Dr. I Regupathi, Submission Date: 28/09/2020, Proposed Grant: 49.64Lakhs

Integrated Photocatalytic and Membrane Bioreactor Process for Effective Removal of Emerging Contaminants and Disinfection,

DST Joint Research Grant under Water Technology Initiative (WTI) sanctioned Prof. Vidya Shetty K. for collaborative Research Project with IIT Bombay., at the cost of 72.32 Lakhs, (Three years (Sanctioned in January 2021 and Started from 2<sup>nd</sup> March 2021).

Design and Development of Affinity Based Sensors for the Detection of Radiological Compounds in Point of CBRN Emergencies using ZnO NPs Functionalized by Amidoxine and Muginic Acid, DRDO project, PI : Dr. Raj Mohan B. , Co-PI: Dr. P.E. JagadeeshBabu, Chemical Engg at the cost of 54 Lakhs , 2020.

Particle Migration and Margination in bidispersed fluid flow through constricted channels, DST project, PI : Dr. Arun M. , Co-PI: Dr. P.E. JagadeeshBabu, Chemical Engg at the cost of 30 Lakhs , 2020

#### DEPARTMENT OF CIVIL ENGINEERING

Socio-Economic and Institutional Barriers of Climate Change Adaptation Sponsored by ICSSR under IMPRESS. Principal Investigator: Dr. Adani Azhoni (2019 - 2021)

Socio-Economic and Environmental Trade-offs in Managing the Land River Interface Sponsored by Department of Biotechnology, Govt. of India under TaSE. Principal Investigator: Dr. Adani Azhoni (2019 - 2022)

Development of Countermeasures to Mitigate Earthquake-induced Damage of RM Breakwater, Principal Investigator: Dr. Babloo Chaudhary (2020-2022)

Small Scale and Sustainable Household Wastewater Recycling S3HWR, Principal Investigator: Dr. Arun Kumar Thalla (2018-2022)

Strength, serviceability and hazard assessment of Global Vipassana Pagoda considering as-built information and in-situ material properties. Sponsored by Global Vipassana Foundation Trust, Mumbai. Principal Investigator: Dr. Pavan G S (2021 - 2024)

Development of an innovative marine bacteria-based cement-electrolyte battery for cathodic protection of reinforced concrete as a low power operator. Sponsored by DST – SERB, New Delhi. Principal Investigator: Dr. T Palanisman. (2020 - 2023)

Development of Trip Generation Manual for Indian Cities. Sponsored by CSIR-CRRI. Principal Investigator: Dr. Mithun Mohan at the cost of Rs. Eight Lakhs. (2021 - 2022)

Random verification of Hazardous and other Wastes sponsored by the Central Pollution Control Board at a total cost of ₹7.67 lakh (2021-2022).

Interaction of various environmental factors on the fracturing behavior and damage mechanism in rocks. Sponsored by DST-SERB under Startup Research Grant. Principal Investigator: Dr. Vinoth Srinivasan. Cost: 32.34 lakhs (2021-2023).

## **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

Information Security Education and awareness Phase-II-sponsored by DIT MCIT, PI: Dr. Alwyn Roshan Pais Co-PI: Dr. P. Santhi Thilagam, at the cost of 2.7 crore(Approx.), 2015-2022(June)

CP-ABE Scheme with Decryption Keys of Constant Size using ECC with Expensive Threshold Access – sponsored by DST. PI:Alwyn Roshan Pais, Co-PI(s): Dr. P. Santhi Thilagam & Mr. Mahendra Pratap Singh at the cost of 31.12 Lakhs, 2018-2021

Automatic detection and quantification of focal cortical dysplasia regions from

magnetic resonance brain images using machine Learning techniques sponsored by DST (CSRI).PI: Dr. Jeny Rajan at the cost of 33.09 Lakhs, 2018-2021.

Quantitative Understanding of Energy in NFV Frameworks (QUEEN) sponsored by Intel Technology India Pvt. Ltd. PI: Dr. Mohit P Tahiliani, Co-PI(s): Dr. Basavaraj Talawar at the cost of 48 Lakhs, 2018-2020

Multi Graph based Anomaly Detection Model for Social Network Analysis using Machine Learning sponsored by DST , PI: Dr. M. Venkatesan, at the cost 19.72 Lakhs, 2019-2022

CAMP 81, Prototype of a reliable ICN Router using Non-Volatile Memory sponsored by NITK Alumni' 81 batch, PI: Dr. Mohit P Tahiliani, CO-PI: Dr. Basavaraj Talawar at the cost of 1 Lakh, 2019-2021

Design and Implementation of Multi-Attribute Void-Aware Routing Algorithm for Software-Defined Underwater Acoustic Modems sponsored by SERB, PI: Dr. Beerappa Rama Chandavarkar at the cost of 44 Lakhs, 2019- 2022

Speaker Recognition System for Kannada Language in Emotional Environment Sponsored by DST, PI: Dr. Shashidhar G Koolagudi at the cost of 37 Lakhs, 2019-2022

Restricted Proper Edge Colorings of Graphs sponsored by Mathematical Research Impact Centric Support (MATRICS), SERB, DSTPI: Dr. Manu Basavaraju, at the cost of 6.6 Lakhs, 2020-2023

Speaker recognition system for Kannada language in emotional environments, CSRI, PI: Dr. Shashidhar G. Koolagudi, at the cost of 42.31 Lakhs, 2020-2023

Logical Correctness for Batteryless Internet of Things., SERB, Bharat

Sarkar, PI: Dr. Biswajit R. Bhowmik, at the cost of 20.01 Lakhs, 2022-2024

## DEPARTMENT OF CHEMISTRY

Design and Development of Non-Enzymatic Biosensors for Dengue Virus (DENV) Sponsored by International Multilateral Regional Cooperation Division (AISTDF) SERB, Department of Science and Technology. Principal Investigator: Prof. Badekai Ramachandra Bhat, Department of Chemistry, International collaborators are from Philippines Prof. Gil Nonato C. Santos (Co-PI) and Drunei Darussalam Minhaz Uddin Ahmed (Co-PI) at the cost of 48.29 lakhs. (11.06.2020 to 10.06.2022).

Development of low cost Haemodialysis cartridge supported by VGST Govt. of Karnataka at a cost of Rs 60 Lakhs March 2023. PI: Prof. Arun Isloor

Design and development of new lubricity improvers for ultra-low sulfur diesel sponsored by MRPL, India. Principal Investigator: Dr. Udaya Kumar D, Chemistry at the cost of Rs.12.88492 lakhs. (Period 16/09/2019 to 30/04/2022).

Molecular chromophores for highly efficient dye sensitized solar cells sponsored by NITK-KREC endowment fund. Principal Investigator: Dr. Udaya Kumar D, Chemistry at the cost of 1.2 lakhs. (Period 14/01/2019 to 31/03/2022).

Design and Development of Moisture Resistant, Dopant-free Hole-transporting Materials for Perovskite Solar Cells sponsored by DST, India under ASEAN-India collaborative R&D scheme.

Principal Investigator: Dr. Udaya Kumar D, Chemistry at the cost of Rs. 33.52 Lakhs. (period 11/08/2021 to 10/08/2023).

Synthesis of Carbo- and Heterocycle Based Novel Hybrid Polycycles and their Applications sponsored by SERB, DST India under CORE Research Grant. Principal Investigator: Dr. Beneesh P.B, Chemistry at the cost of 34.9 Lakhs. (Period November 2021 to November 2024).

Food Waste to hydrogen using Aqueous Phase Reforming sponsored by Maire Tecnimont S.p.A. Milan, Italy through Indian Subsidiary Tecnimont Private Limited, Mumbai, through Maire Tecnimont for research in Waste Management and Circular Economy NITK Surathkal-under NITK-KREC Endowment Fund. Principal investigator: Dr. Saikat Dutta; Chemistry at the cost of Rs. 6.8 L. (November 2021, 1 year)

Multiscale Modelling of Membrane Active pH-Dependent Delivery Peptides sponsored by DST, India. Principal Investigator: Dr. Debashree Chakraborty, Chemistry at the cost of Rs. 18 lakhs. (Period 2022 to 2025).

Effect of high density water, low density water on protein stability and biological functions sponsored by DST, India. Principal Investigator: Dr. Debashree Chakraborty, Chemistry at the cost Rs. 38.32 lakhs. (Period 2020-2023).

Synthesis of azulene-porphyrin conjugates and their exploration as anti-Kasha-active fluorophores sponsored by DST-SERB (under Core-Research Grant Scheme).

Principal investigator: Dr. Vijayendra S. Shetti; Chemistry, at the cost of Rs. 29.64764 lakhs. (Period: 30/11/2021 to 29/11/2024)

Olefin-Linked fluorescence enhanced Covalent organic framework by DST-SERB Principal investigator: Dr. Lakshmi Vellanki; Chemistry at the cost of Rs. Twenty six lakh seventy eight thousand. (Period 10/12/2021 to 09/12/2022)

### **DEPARTMENT ELECTRONICS AND COMMUNICATION ENGINEERING**

"Design, Development of Harmonically Tuned GaN HEMT Power Amplifier over Broadband" sponsored by SAC (ISRO), Principal Investigator: Dr. Sandeep Kumar: E&C Engg., at the cost of 14.9 Lakhs (2022-2024).

"Design and Development of Automated Software Tools for Early Forest Fire Detection and Burn Severity Analysis from Multi-sensor Satellite Imagery Data" sponsored by IIRS(ISRO), Principal Investigator: Dr. Shyam Lal: E&C Engg., at the cost of 37.9 Lakhs (2022-2025).

"Design and Development of Deep Learning based Automated Colon Cancer Detection System from H&E-stained CRC Histopathology Images" sponsored by Google Inc, USA, Principal Investigator: Dr. Shyam Lal: E&C Engg., at the cost of Rs.3.74 lakhs (2022-2023)

"Nanophotonic porous-silicon based nanostructures for ultra-fast methanol sensing at room temperature" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Mandeep Singh: E&C Engg. at the cost of Rs 35.58 Lakhs (2022-2025).

"Design and Development of Nanoscale Integrated System Along with Conformal Antenna as Capsule

Prototype for Wireless Capsule Endoscopy" sponsored by DST under the Programme of BDTD, DST, Govt. of India Principal Investigator: Dr. Sandeep Kumar: E&C Engg. at the cost of Rs. 74.00 lakhs (2021-2024).

"Investigation of photonic generation of microwave arbitrary waveform for sensing applications" sponsored by Manipal Academy of Higher Education, MIT – Manipal, Principal Investigator: Dr. Mandeep Singh: E&C Engg. at the cost of Rs. 6.00 lakhs (2019-2022).

"Programmable photonic microwave signal generation using on-chip spectral shaper for satellite communication" sponsored by Indian Space Research Organisation (ISRO) SAC-ISRO, Ahmedabad. Principal Investigator: Dr. Mandeep Singh: E&C Engg. at the cost of Rs. 22.51 lakhs (2022-2024).

"Algorithm to Reduce Measurement Errors Due to Sea Surface Multiupath and Sea Clutter-Funding" sponsored by Electronics and Radar Development Establishment(LRDE), Bangalore Principal Investigator: Dr. P Srihari : E&C Engg. at the cost of Rs. 9.44 lakhs (2021-2022).

"Engineering novel label free multi-layer plasmonic nano-biosensor for DNA hybridization" sponsored by Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India. Principal Investigator: Dr. Mandeep Singh: E&C Engg. at the cost of Rs. 57.49 lakhs (2021 to 2026).

"Design and Development of Ultra-low power CMOS IC for Wireless Neural Monitoring System" sponsored by International Division, DST, Govt of India. Principal Investigator: Dr. Sandeep Kumar: E&C Engg. Jointly with Prof. Hanjung Song, Centre of Nano-Manufacturing, Inje University, Busan, South Korea. at the cost of Rs. 1 Crore 20 Lakh Rupees (India Budget: 40 Lakh and South Korea: 80.20 Lakh) (December 2020 to December 2023).

"Design and Development of GaN HEMT Based LNA for L5 and S-Band IRNSS Receiver" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Sandeep Kumar: E&C Engg. at the cost of Rs. 30.00 lakhs (October 2020 to October 2023).

"Development of design essentials for Ga2O3 based FinFET for SOC in automotive applications" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Nikhil K. S.: E&C Engg. at the cost of Rs. 25.90 Lakhs (October 2020 to October 2022).

"Development of Highly Conductive Ultrathin VS2 Crystals for High-Performance Flexible Supercapacitors" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Sushil Kumar Pandey: E&C Engg. at the cost of Rs.27.73 lakhs (October 2020 to October 2023).

"Design and Development of Automated Kidney Cancer Detection System from H&E Stained Kidney Histopathological Images" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Shyam Lal; E&C Engg. at the cost of Rs. 27.96 lakhs. (2019-2022).

"Development of Automatic Land Cover Change Detection and Analysis System from High-Resolution Remote Sensing Images" sponsored by ISRO RESPOND Scheme. Principal Investigator: Dr. Shyam Lal; E&C Engg. at the cost of Rs. 19.44 lakhs. (January, 2020 to January, 2022).

"Development and deployment of a Speaker Diarization system for a multilingual set up for Indian Languages" sponsored by DST. Principal Investigators: Dr. Sriram Ganapathy, IISc Bangalore, Dr. Deepu Vijayaseenan, NITK Surathkal at the cost of Rs. 94.10 lakhs (2022-2025).

SPARC Project: "Exploring Applications of Radiomics in Brain Tumor

Assessment and Treatment" sponsored by MHRD. Principal Investigator: Prof. Sumam David: E&C Engg. (Indian Co-PI - Dr Deepu Vijayaseenan, Dr Girish Menon (KMC Manipal); International PI – Dr Mandava Pitchaiah, Dr Paul Litvak) jointly with Baylor College of Medicine, Houston, Texas at the cost of Rs 38.63 lakhs. (13<sup>th</sup> May 2019 to 13<sup>th</sup> May 2021).

"Performance Analysis and Enhancement of Radio over Free Space Optical Communication System for 5G Applications for Smart Cities" sponsored by SERB-DST, Govt. of India. Principal Investigator: Dr. Prabu K.; E&C Engg. at the cost of Rs. 28.06 lakhs. (2019-2021).

"Development of cost effective Radiofrequency ablation system and magnetic hyperthermia equipment for thermal therapies of cancerous tumors" sponsored by MHRD. Co-investigator(s): Prof. U Shripathi Acharya & Prof. Laxminidhi T; E&C Engg, at the cost of Rs. 45.94 lakhs. (2019 to 2021).

"Special Manpower Development Project on VLSI (SMDP-VLSI) phase-III – Chips-to-Systems" sponsored by (DIT) MCIT, Govt. of India. Principal Investigator: Prof. Ramesh Kini M. and Prof. T. Laxminidhi; E&C Engg. at the cost of Rs. 1.6 Crores. (December 2014 to December 2020).

## **DEPARTMENT ELECTRICAL AND ELECTRONICS ENGINEERING**

Bio Signal Processing System for the development of human-machine interaction sponsored by Ministry of Electronics & Information Technology, Meity, Government of India, PI: Dr Krishnan CMC, Rs. 25 Lakhs, 2019-2024.

Development of an Electric Systems for Automatic Control of Street Lights, Sponsored by Alumni NITK Mr. Ramachandra & Mr. Sukumar Hegde, PI: Dr. B. Venkatesaperumal, Rs. 0.25

Lakhs, 2019-2021.

A Novel Bidirectional Converter for Electric Vehicle to Grid Applications Sponsored by Alumni NITK Ms. Maitree.S, Ms. S. M Naik and Ms. Nischita Kaza, PI: Dr. B. Venkatesaperumal, Rs 0.4 Lakhs, 2019-2021.

Design and implementation of optimal controller for wide speed operation of SRM for EV application Sponsored by Department of Science and Technology, Government of Karnataka under VGST Scheme, PI: Dr. P. Parthiban, Rs. 5 Lakhs, 2019-2021.

High Gain Single Stage Micro Inverter Sponsored by Raptor Design Technology Pvt. Ltd. (Company), PI: Dr. B. Venkatesaperumal, Rs. 2 Lakhs, 2019-2021.

Theoretical Study and Design of High Efficiency wide band class D Power Amplifier for acoustic transducers Sponsored by Naval Research Board, DRDO, Govt. of India, PI: Dr. P. Parthiban Co-PI: Dr. Kalpana R., Rs. 33.69 Lakhs, 2019-2021.

Smart Electric Vehicle Supply Equipment with improve Reconfigurability, Economic, Availability and Performance (REAP), DST-SERB Core Research Grant, PI: Dr. B Dastagiri Reddy, Co PIs: Prof. B V Perumal, Dr. Y Suresh, Dr. Vignesh V, Dr. Arun (Mech.), Rs. 60 Lakhs, 2021-2024.

An affordable therapeutic solution for rehabilitation of cerebral palsy children with crouch gait, DST-SERB Core Research Grant, PI: Dr. Krishnan C. M. C. (Dept. of E&E) Co PIs: Dr. Deepu Vijayasenan (Dept of E&C), Dr. Ranjith M (Dept. ME), Prof. Sumam David (Dept of E&C), Dr. Sheron Figarado (School of Electrical Sciences, IIT Goa), Prof. Unnikrishnan B (Department of Community Medicine, KMC Hospital Mangalore), Rs. 59.4 Lakhs, 2021-2024.

Development of Integrated Health Monitoring Tools for Solar PV inverters, PI: Dr. Md. Waseem Ahmad, Rs. 20.57 Lakh, 2021-2023.

Design and Development of highly efficient and high voltage gain DC-DC converter for grid connected PV System, Sponsored by Ind Arka Energy Pvt. Ltd., Bangalore, PI: Dr. Vignesh Kumar V. Co-PI: Prof. B. Venkatesaperumal, Rs. 8.07 Lakhs, 2022-2023.

Extraction of Maximum Power Output from PV array using static reconfiguration scheme under non uniform irradiation conditions Sponsored by Vision Group of Science and Technology (VGST). PI: Dr. A. Karthikeyan Co-PI: Dr. Dattatraya N Gaonkar, Rs. 2.79 Lakhs, 2022.

Design and Development of Multi Input/Multi Output Power Converter Sponsored by Indian Space Research Organization (ISRO), PI: Dr. A. Karthikeyan SAC Co-PI(s)/ SAC Mentor(s): Mrs. Trapti Katiyar, Scientist/Engineer-SG, Shri Amit Kumar, Scientist/Engineer-SE, Space Applications Centre, ISRO, Ahmadabad, Rs. 26.13 Lakh, 2022 - 2024.

Laboratory scale demonstration of a Kite based wind power system Sponsored by Science and Engineering Research Board (SERB), PI: Dr. A. Karthikeyan Co-PI: Dr. Yashwanth Kashyap, Dr. K. Manjunatha Sharma and Dr. Debabrata Karmakar, Rs. 51.05 Lakh, 2022 - 2025.

Design and Development of a Novel Universal Motor Drive Cum Charging System with Advanced Features under DST-SERB Core Research Grant, PI: Dr. Prajof P. and Co-PI: Dr. Dastagiri Reddy, Rs. 38.5 Lakhs, 2022.

## **DEPARTMENT OF INFORMATION TECHNOLOGY**

### **ONGOING:**

Microsoft AI for Earth Grant for "Spatial Data Analytics for Environmental Modeling" PI: Dr. Sowmya Kamath & Dr. Shrutilipi Bhattacharjee Amount: US \$15,000, Grantee: Microsoft, Duration: 2022-23.

### **COMPLETED:**

Edge and Fog Computing Framework for Smart City Application, Principal Investigator: Prof. G. R. M. Reddy, Mr. Natesha B V, Rs. 25 Lakhs, July 2016-July 2021

Google Cloud COVID-19 Research Grant for "Multi-task Deep Neural Networks for Learning Disease Representations from Multimodal Patient Data", Principal Investigator: Dr. Sowmya Kamath S Grantee: Google Inc, Amount: US \$10,600, Duration: 2020-21

## **DEPARTMENT MATHEMATICAL AND COMPUTATIONAL SCIENCES**

A retinex inspired framework for intensity homogenization contrast upgradation and restoration of satellite and area images, Core Research Grant by SERB, Department of Science and Technology, Govt. of India, CRG/2020/000476., Principal Investigator: Dr. Jidesh P, Co-PI: Prof. Santhosh George. Ongoing, Rs. 2299264/-

A study on non-linear ill-posed equations under weak conditions with emphasis on Parameter Identification Problem and Applications to Imaging, Core Research Grant by SERB, Department of Science and Technology, Govt. of India, CRG/2021/004776. Principal Investigator: Prof. Santhosh George,

Co-PI: Dr. Jidesh P. Ongoing Rs.2123264/-

Outsourcing Large-Scale Computations to the (Google) Cloud sponsored by Google, USA. Principal Investigator: Dr. Jothi Ramalingam, Research Award: USD 5,000/- (₹ 400,964.89). (Period: 10th March 2022 to 9th March 2023)

## **DEPARTMENT MECHANICAL ENGINEERING**

Development Of Cost Effective Radiofrequency Ablation System And Magnetic Hyperthermia Equipment For Thermal Therapies Of Cancerous Tumors, Dr. Ajay Kumar Yadav, Prof. Laxminidhi T, Prof. Sripathi U Acharya, Prof. B. S Rao (MAHE), Prof. P. U Saxena (KMC), SERB, 48.94Lakhs, 8/03/ 2019-07/03/2022.

An Experimental And Theoretical Investigation On Narrow Thermal Hysteresis Of Cu-Al-Be Based Sma Actuator For Vibration Isolation, Prof. S.M. Murigendrappa & Dr. S Kattimani, SERB, 16Lakhs, 2022.

Investigation On Radiolucent Composite Sandwich Materials For Biomedical Imaging Systems Under Hygrothermal Environment, Dr. S Kattimani, DST- ASEAN -India Collaboration, 41 Lakhs, 2020-2022 (Approved).

An Investigation In To The Effects Of Induced Helicity In The Carotid Bifurcated Arteries On Patient Specific Models, Dr. Anish S and Dr. Mrityunjay Doddamani, SERB, 16.15Lakhs, 26/2/2020 to 25/2/2023.

Improvement In The Properties Of Thermally Sprayed Hydroxyapatite Bio-Ceramic Coating Reinforced With Nanostructured Materials, Dr Sudhakar C Jambagi, SERB, 38.4Lakhs, 18/3/2019 to 17/3/2022.

Ultrafine Grain Refinement Through Low Plasticity Burnishing On Waam Of Mg alloy For Aerospace And Automotive Applications, Dr.A.S.S.BALAN, SYST-SEED, 16.09Lakhs, Jan 2020 to Jan 2023.

Experimental Technique To Induce Surface Grain Refinement Through Laser Shock Peening On Ecap Processed Mg. Alloy, Dr. H Shivananda Nayaka, SERB, 41.02Lakhs, May 2019 to May 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, , 2020-2023.

Cost-Effective Enhanced Insulating Foams For Cold Storage Application, Dr. Mrityunjay Doddamani, ISHRAE, 30.62Lakhs, 2020-2023.

Development Of Brushless Dc (BlDc) Motors For An Automotive Power Window Application, Dr. K V Gangadharan (PI) + Mr. Srinivas (Co PI) . Ms/ Aditya Auto , Dept. of Heavy Industries , 375Lakhs, 2020-2022.

Origins Of Yielding In Polymer Electrolyte Membranes, KK Poornesh, DST-SERB, 50Lakhs, 2019-2022.

Interface Characteristics Of Membrane Electrode Assemblies, KK Poornesh, DST, 35Lakhs, 2018-2022.

Analytical And Numerical Investigations Of Mixed Convection Through Wire Mesh Porous Structure Filled In a Channel, Dr. N. Gnanasekaran, DST-SERB, 21Lakhs, 2019-2022.

Particle migration and margination in bidispersed fluid flow through constricted channels, DST-SERB, PI: Dr. Arun M and Co-PI: Dr. Jagadeeshbabu, 29.6 lakhs, 2021-2024.

Design and testing of robust, high efficient, low polluting LPG porous

burners for household applications, DST, PI: Dr. Parthasarathy P and Co-PI: Dr. Arun M, 33 lakhs, 2020-2023.

Design, analysis and demonstration of the porous injector concept for throttling of liquid rocket engine, ISRO, Dr. Parthasarathy P, 25 lakhs, 2021-2022.

Evaluation of macroscopic properties of ideal porous media for their use in solar reactors and low emission combustors with help of experiments and CFD simulations, DST-SERB, Dr. Parthasarathy P, 15 lakhs, 2021-2023.

Additive Manufacturing of Large Size Metal Components with Wire & Powder Hybrid Direct Energy Deposition (WP-DED) Process, DST-SERB (Exponential Technologies), PI: Prof. Surya Kumar, IIT Hyderabad and Co-PI: Dr. Srikanth Bontha, 76.88 Lakhs, 2021-2023.

Development of biodegradable microperforated panel with nonuniform cross section through 3D printing for sound absorption application, CRG-DST, PI: Dr. P Jeyaraj and Co-PI: Dr. Mrityunjay Doddamani, 36 Lakhs, 2021-2024.

Investigation On Radiolucent Composite Sandwich Materials For Biomedical Imaging Systems Under Hygrothermal Environment, AISTDF-SERB, PI: Dr. S. Kattimani, Co-PIs: Dr. N.T.Trung, Vietnam and Dr S. Mehdi, Malaysia, 37.08 lakhs, 2020-2022.

Ultrafine Grain Refinement Through Low Plasticity Burnishing on Waam of Mg alloy for Aerospace and Automotive Applications, DST-SEED, Dr. ASS Balan, 16.5 lakhs, 2020-2023.

Additive manufacturing of novel polymers and composites at industrial scale, NSF, PI: Dr. Nikhil Gupta, New York University, NY, USA, Co-PIs: Dr. Mrityunjay Doddamani, Dr. P. Jeyaraj and Dr. Anadan Srinivasan.

Experimental technique to induce surface grain refinement through laser Shock Penning on ECAP processed Mg alloy, DST-SERB, Dr. H Shivananda Nayaka, 41 Lakhs, 2019-2022.

Development of Brushless DC (BLDC) Motors for an Automotive Power Window Application, Dept. of Heavy Industries + M/s Aditya Auto, PI: Prof. Gangadharan K V, Co-PIs: Dr. Yaswanth Kayap (EE) and Pruthviraj U (WROE), 375 lakhs, 2020-2022.

Explore – Experiential Learning Reengineered, IITM Alumni Association (IITMAA), PI: Prof. Gangadharan K V, Co-PIs: Dr. Sheena (SOM) and Dr. Pruthviraj U (WROE), 24 lakhs, 2020-2024.

E Mobility, NITK+NITKAlumni, PI: Prof. Gangadharan K V and Co-PI: Dr. Pruthviraj U (WROE), 15 lakhs, 2020-2023.

Fight Against CoVID19 – Face Shield, ONGC, NMPT, OMPL, MRPL, Stratasy, PI: Prof. Gangadharan K V and Co-PI: Dr. Pruthviraj U (WROE), 44 lakhs, 2020-2022.

Design and development of Supercritical carbon dioxide based naturally circulated solar thermal collector, SERB, NEW DELHI, PI: Ajay Kumar Yadav, CO- PI: Ramesh M R, 23.81 Lakhs, 2022-25.

Development of Cost Effective Radiofrequency Ablation System and Magnetic Hyperthermia Equipment for Thermal Therapies of Cancerous Tumors, PI: Ajay Kumar Yadav, CO-PI: Laxminidhi T., U. Sripathi Acharya, Dr. Pu Saxena, Dr. B. Satish Rao, 48.94 Lakhs, 2019-23

Additive Manufacturing of Large Size Metal Components with Wire & Powder Hybrid Direct Energy Deposition (WPDED) Process, SERB, CO-PI: Srikanth Bontha, 17.34 Lakhs, 2021-23.

Investigation on radiolucent composite sandwich materials for biomedical imaging systems under hygrothermal environment, PI: Subhaschandra Kattimani, CO-PI: Nguyen-Thoi Trung and Mahdi Shariati, 37.08 Lakhs, 2020-22.

Semi-active damping using controllable orifice for four wheeler Automobile, SERB, NEW DELHI, PI: Hemantha Kumar, CO-PI: Debashisha Jena and Ranjeet Kumar Sahu, 28.18 Lakhs, 2022-25.

## **DEPARTMENT OF MINING ENGINEERING**

“Predictive Assessment of Postural Risk and Biomechanical Analysis of Musculoskeletal Disorder (MSD) Related Problems of Dump Truck Operators in Indian Opencast Metal Mines”, Sponsored by Science and Engineering Research Board, DST, Govt. of India, 2019-2022. (Sanction order no. CRG/2019/001940 dated 02-03-2020: Rs. 18,85,945/-)

“Investigations into the Reduction of Phosphorus in Iron Ore Using Microwave Technology for its Suitability to the Iron Ore and Steel Industries”; Sponsored by ERM Group, Bangalore, 2017-20. (Sanction order No. RPC/NITK/2017-18/170 dated 08th August, 2017: ₹10.06 Lakhs).

“Development of a New Type of Aero-cyclone for the Dry Separation of Minerals” Sponsored by The Hutti Gold Mines Co. Ltd, 2018-2021. (Sanction order No. 97/RO/2018 dated 20th June, 2018: ₹1.96 Lakhs).

“Development of a Communion Process for Improving the Ball Mill Efficiency and Selective Size Output Through Hydro-Squeezing”, Sponsored by M/s. HGML and KSMCL. 2018-2021. (Sanction order No. 115/Min/46/2018 dated 19th November, 2018 from HGML and dated 31st

December, 2018 from KSMCL; □9.7 Lakhs).

Application of Nano Membrane Technologies to Purify Mine Waste Water, Sponsored by Ministry of Mines, Govt. of India, 2019-2021. (□5 Lakhs).

### **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

“Development of Cost Effective Magneto-Rheological (MR) Fluid Damper in Two Wheelers and Four Wheelers Automobile to Improve Ride Comfort and Stability”, sponsored by IMPRINT, Dr. Hemanth Kumar (PI) – Mech. Dept. and Dr. M. Rizwanur Rahman (Co-PI)

“Augment the Research Facilities in the Department (i) X-Ray Diffractometer with Accessories, (ii) Field Emission Scanning Electron Microscope”, sponsored by DST - FIST, Principal Investigator: Prof. Udaya Bhat K., Dr. M. R. Rahman, & Dr. Ravishankar K. S., Dept. of Met & Matls. Engg. at the cost of Rs.297 lakhs (Period: 2018)

“Development of structural polymer composites from natural fiber/particulate reinforced materials”, sponsored by VGST, Govt. of Karnataka, Principal Investigator: Dr. Ravishankar K. S., Dept. of Met & Matls. Engg. at the cost of Rs.20 lakhs (Period: 2018-2020)

“Synthesis of Silver Nanoparticles at laboratory scale and further scaling up to pilot scale at HZL”, sponsored by Hindusthan Zinc Limited Principal Investigator: Dr. M. Rizwanur Rahman, Dept. of Met & Matls. Engg. at the cost of Rs. 9.96 lakhs (2018).

“Development of Metallic nanoparticles-enhanced phase change Materials for thermal energy storage”, sponsored by VGST, Principal Investigator: Dr. M. Rizwanur Rahman, Dept. of  
*Annual Report 2021-22*

Met & Matls. Engg. at the cost of Rs.5 lakhs (2019).

“Development of Antimicrobial Active Surfaces for Health Care Applications”, sponsored by VGST, Govt. of Karnataka, Principal Investigator: Prof. Udaya Bhat K., Dept. of Met & Matls. Engg. at the cost of Rs.60 lakhs (2018-2021)

“Mitigating Dendrite Growth Using Engineered Electrolyte Layers for the Development of High Energy Density, Long Cycle Life Lithium Batteries”, sponsored by DST, Principal Investigator: Prof. S. Anandhan, Dept. of Met & Matls. Engg., at the cost of Rs.64.43 lakhs (Period: 2019-22).

“To Study the Effect of Interfacial Heat Flux during Waam on the Micro-Structural, Distortion and Mechanical Properties of Aluminium Alloy”, sponsored by Science & Engineering Research Board (SERB), Mentor: Prof. K. Narayan Prabhu, Dept. of Met & Matls. Engg., at the cost of Rs.19,05,000/- (Duration: January 2021- December 2023).

“Prawn shell-derived natural protein – based highly efficient UV protection coating for drug products” sponsored by Science & Engineering Research Board (SERB), Principal Investigator: Dr. Saumen Mandal, Dept. of Met & Matls. Engg., Co-principal Investigator: Dr. Saikat Dutta, Dept. of Chemistry, at the cost of Rs.35,21,650/- (Duration: February, 2022 – February, 2025).

### **SCHOOL OF MANAGEMENT**

“EXPLORE – EXPERIENTIAL LEARNING ONLINE REENGINEERING” sanctioned by PALS (Alumni Association of IIT Madras) on Experiential Learning through Virtual Labs by granting a financial assistance of Rs.24,00,000/- for a period of four years (2020-2024). Principal Investigator: Dr. Sheena.

Impact of Soil Health Card Scheme on Productivity and Income of the Smallholder Farmers: A Randomized Control Trials Experiment in Eastern India. Principal Investigator: Dr. Pradyot Jena, Dr. Ritanjali Majhi. Funded by Asian Development Bank Institute. Amount: USD 80,000 Duration 2021-2023

Brand India: The Futuristic Medical Tourism Hub – A “Make in India Initiative” Principal Investigator - Dr. Sheena. Funding Agency - ICSSR-IMPRESS Year - 2019 to 2021.

Efficient Solutions for Management of Household Waste A multi-Stakeholder Approach. Principal Investigator: Dr.Ritanjali Majhi. Funding Agency: ICSSR, IMPRESS. Year: 2019- 21

Assessing the Impact of Climate Change on Agriculture and Exploring the Role of Technology in Adaptation’ Principal investigator: Dr. Rajesh Acharya H, funded under ICSSR Minor Research Project Scheme with a funding of Rs. 4,05,000. (Period : 2019 to 2021)

Assessing the Impact of Pradhan Mantri Fasal Bima Yojana (PMFBY) on Smallholder Farmers’ Principal investigator: Dr. Rajesh Acharya H, funded under ICSSR IMPRESS with a funding of Rs. 4,00,000. (Period : 2019 to 2021)

Governing Extreme and Exploitation Social Media Environment for PWD Rehabilitation, IMPRESS-ICSSR. Dr.Sreejith A, School of Management, Rs. 9030510/- (Period : 1 April 2019 to 31 March 2021)

## **DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING**

Environmental innocuous pile head breakwater for the Mitigation of coastal erosion Indian, Sponsored by SPARC, GoI, Period : 2019-21, Cost :48.29 Lakh,s Co-ordinators : Pruthviraj U (PI), Kiran G. Shirlal (CoPI), Hans Bihs , NTNU Norway (IPI), Øivind Asgeir Arntsen, NTNU Norway (ICoPI)

Design and Development of Lightweight Portable Oil Skimmer, Sponsored by MRPL, Mangaluru, Period : 2019-21, Cost : 44.15 Lakhs, co-ordinators : Pruthviraj U. (PI), K C Gangadharan, Mechanical Dept. (CoPI)

Design analysis and development of combined wave and wind energy multi-use platform, Sponsored by SERB, DST, New Delhi, Period : 2019-21, Cost : 43.30 Lakhs, Co-ordinator : Dr. Debabrata Karmakar

Renewable energies from Ocean: Adoptable and Sustainable technologies for Indian condition, Sponsored by : SPARC, GoI, Period : 2019-21, Cost : 78.08 Lakhs, Coordinators : Prof. Balaji Ramakrishnan, (PI), IIT Bombay, Prasad K Bhaskaran (Co-PI)- IIT Kharagpur, Basavaraj Veeranna Mudgal (Co-PI) - Anna University, Nasar Thuvanismail-(Co-PI) - NITK, Vengatesan Venugopal (IPI) -University of Edinburgh, David Mark Ingram (ICo-PI) - University of Edinburgh, Jonathan Shek (ICo-PI)- University of Edinburgh, Harry van der Weijde (ICo-PI) - University of Edinburgh

EUSOP (Evaluation of Uncertainties affecting estimations of Soil Properties by VNIR/SWIR remote sensing data), Sponsored by French National Centre for Scientific Research (CNRS), Period : 2019-2021, Cost : 9.0 Lakhs, Cordinators : PI : Cecile Gomez , Scientist IRD, France CoPIs : Dharumarajan scientist NBSSLUP, Surendra Kumar Singh , NBSSLUP and Amba Shetty NITK

Coastal reservoirs as a sustainable strategy for Water Security, Sponsored by SPARC, MHRD, Period : 2020-22, Cost : 64.79 Lakhs, Co-ordinators : PI : Dr. H.Ramesh (NITK), CoPI : Prof. Sitharam T G (IISc.), Dr. Sreevalsa Kolathayar (Amrita Vishwa Vidyapeetham) IPI : Prof. Muttucumaru Sivakumar (UNIVERSITY OF WOLLONGONG)

Design, analysis of development of hybrid offshore floating breakwater, Sponsored by Ministry of Ports, Shipping and Waterways, New Delhi, Period : 2021-23, Cost : 49.21 Lakhs, Co-ordinators : Dr. D. Karmakar (PI) and Dr. Manu (Co-PI)

### 13.2 PROPOSED PLAN FOR RESEARCH

#### DEPARTMENT OF CIVIL ENGINEERING

##### New Labs/Equipment:-

Geo-Energy and Rock Engineering Lab

##### Target for sponsored R&D projects:-

1. Board of Research in Nuclear Research (BRNS)

##### New areas of Research:-

1. Unconventional Energy and Induced Seismicity; Hydraulic Fracturing and Rock Damage

**Institutions/organizations for future collaborations:- Nil**

#### DEPARTMENT OF CHEMICAL ENGINEERING

##### New Labs/Equipment:-

SOEC Test Station

##### Target for sponsored R&D projects:-

SERB, DST Projects.

##### New areas of Research:-

Electrolysis/ Fuel Cells

**Institutions/organizations for future collaborations:-**

IIT Hyderabad, NIT Warangal and MIT Manipal.

#### DEPARTMENT OF CHEMISTRY

##### PROPOSED PLAN OF RESEARCH (IN NEXT YEARS)

Further research work in the field of Thermoelectrics, Photocatalysis, Supercapacitors, Nanofluids and Materials for energy and environmental applications, Fabrication of Hollow Fiber membranes for separation fluid & gas applications, Biomimetic organic reactions, Electroorganic Synthesis, C-

H Functionalization Reactions, Multi component Reactions, Green hydrogen production, waste to fuel and hydrogen synthesis.

##### **Institutions/organizations for future collaborations:-**

Universitas Muhamadiaha  
Palembang-Indonesia

#### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

##### New Labs/Equipment

##### Target for sponsored R&D projects

1. Voice Enabled EHR System with Automated Medicine Dispensing Robots and Scheduling System (Dr. Annappa)
2. TARE scheme of SERB, DST , GOI (Dr. Annappa)
3. ISRO Respond 2021 (Dr. Annappa)
4. Design and Development of AI based highly sensitive automated methods for early Detection of Lung Cancer from LDCT scans under CRG scheme of SERB (Dr. Annappa and Dr. Jeny Rajan)
5. Smart Clinical Decision Support System for Identification of Novel features from cancer Genomic Big Data Sets from Birmingham University, UK under VAJRA scheme of SERB. (Dr. Annappa)
6. Design and Prototype development of low power, wireless, intelligent digital Stethoscope under biomedical device and technology development of DST.(Dr. Annappa)
7. Development of Adrenaline auto-injector for patients with anaphylaxis under DST –BDTD (Dr. Shashidhar G. Koolagudi)
8. Character classification of Kannada inscription (Dr. Shashidhar G. Koolagudi)
9. Realization of Deterministic Network over Heterogeneous Communication Technologies and Develop Reliable Protocols for Internet of Things [REAP-IoT] (Dr. Mohit P. Tahiliani)
10. Logical Correctness for Batteryless Internet of Things under SERB (Dr. Biswajit R. Bhowmik )

11. Park Smart: A Real-time parking solution for occidental cities under SERB (Dr. Sourav Kanti Addya)
12. Development of Searchable Encryption System for Secure Storage and Retrieval of Encrypted Documents from Cloud Server, SERB (Prof. P. Santhi Thilagam and Dr. Alwyn R. Pais)
4. Big Data Analytics sponsored by DST Areas of Research is Big Data future collaborations is foreign universities and/or IITs/IISc
5. IBM Shared University Grant of 15 Lakhs and equipment donation boost the Open Power research infrastructure here at SPARK Lab. Further, faculty award from IBM will help in improving collaborations and the research profile.

### New areas of Research

Specific Area: Network-on-Chip (NoC) – 2D, 3D, Wireless, and Photonic, Internet of Things (IoT) Security

- Broad Area: Testing and Fault-Tolerance, Hardware Security, Formal Verification, and Cyber-Physical Systems.
- Expanded Area: Computer Systems and Architecture, Computational Geometry, Machine Learning, and Distributed Systems.
- Cloud Computing
- FOG Computing
- Internet of Things (IoT)
  - Blockchain
  - Serverless

### Institutions/organizations for future collaborations

#### MoU: 01

1. Intel India Pvt Ltd. and the National Institute of Technology Karnataka, Surathkal's Department of Computer Science and Engineering have signed a MoU to sponsor the candidate's research project according to the research plan. (Dr. Basavaraj Talawar)

### Future collaborations

1. Internet of Things sponsored by DST Areas of Research is Internet of things systems Architecture, future collaborations is foreign universities and/or IITs/IISc.
2. Cyber-Physical Systems sponsored by DST NRB Areas of Research is Resource Management future collaborations is foreign universities and/or IITs/IISc.
3. Cyber Security sponsored by MEITY Areas of Research is Multi-model visual Security future collaborations is foreign universities and/or IITs/IISc.

6. Spatial Data Science Research group is formed. The Research Scholars and M.Tech Students are assigned Research Project Related to Spatial Temporal Data. Planning to set up center of excellence in Data Science for Disaster Management and. Remote Sensing Applications The new project proposal are submitted to SERB, Meity and Ministry of Earth Sciences for funding.

### DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

#### New Labs/Equipment:-

UG Lab for DSD Lab, PG Labs for VLSI Design, Communication Engineering & Networks, and Signal Processing & Machine Learning Lab.  
IoT Lab, AI and ML Lab.

#### Target for Sponsored R&D projects:-

Projects from research organizations such as ISRO, DRDO and LRDE.

#### New Areas of Research:-

Bio-Mechanics

### Institutions/organizations for future collaborations:-

Any institution/organization having impetus about realizing Make in India initiatives.

### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Design and Development of a Novel On-Board Charger with Advanced Features for Electric Vehicles under DST (SERB), PI: Dr. Prajof P., Rs. 30 Lakhs, 2020-2022.

Design and Development of Optimal Control Technique for BESS based Grid-tied Solar PV system sponsored by VISION GROUP ON SCIENCE AND TECHNOLOGY (VGST), Karnataka Science and Technology Promotion Society, Department of Electronics, Information Technology, Biotechnology and Science & Technology. PI: Ravi Raushan Co-PI: Dr. B Dastagiri Reddy, 3 Lakhs, 2022.

Robotics assistance based on automated exoskeleton for lower limb paralyzed patients under VGST Karnataka, PI: Dr. Arun Dominic D., Rs. 3 Lakh, 2022.

Design and Development of Partial Processing Converter for Efficient Utilization of Solar PV System under VGST Karnataka, PI: Dr. Md. Waseem Ahmad, Rs. 3 Lakh, 2021-22.

Novel Circuit Topologies for Reconfiguration of EV Battery Pack with Voltage Balancing Features under VGST (Govt. of Karnataka) PI: Dr. Prajof P. Co-PI: Dr. Arun Dominic, Rs. 3 Lakhs, 2022.

Design and Development of Smart charging power supply for EV, under DST-Technology Development Programme Research Grant, PI: R Kalpana, Rs. 45 Lakhs, 2022.

A Novel Topology and Control Scheme for improved performance of switched Reluctance Motor Drive for Electric Vehicle Application under Core Research Grant (CRG), PI: Dr. Arun Domic D, Rs. 15 Lakhs, 2022-2025.

Design & Development of portable electrical in situ coconut inflorescence sap concentrator for the production of coconut sugar sponsored by Promoting Academic Research Conversion to Enterprises (PACE) Scheme, PI: Dr. B. Venkatesaperumal, Rs. 51.14 Lakh, 2022.

## **DEPARTMENT OF INFORMATION TECHNOLOGY**

### **Dr. Anand Kumar M**

Proposing MOOC COURSE

Mentoring teams to Smart India Hackathon

### **Target for Sponsored R&D projects:**

DAAD-DST

SIRE

DST-NCSTC

ISRO

### **Institutions / organizations for future collaborations:**

1. IIT-Palakat,
2. NIT Trichy
3. NIT-Puducherry,
4. Central University- Puducherry
5. NTE-Singapore
6. Uni-Hyd,
7. University of Moratuwa-Sri Lanka,
8. National University of Ireland, Galway
9. Trinity College Dublin, Ireland
10. Winnipeg University, Canada

### **Dr. Bhawana Rudra:**

**New Areas of Research:** Quantum Computing and Quantum Cryptography, blockchain Technology, Future Internet

Dr. Shrutilipi Bhattacharjee:  
New Areas of Research: GeoAI

## **DEPARTMENT OF MECHANICAL ENGINEERING**

Following Domains of Research have been identified:

- Wire Are Additive Manufacturing and 4D printing
- Alternative flues for automobiles
- Energy Harvesting and thermo magnetic materials
- Nanotribology and sustainable lubricants
- Metal Casting and Metal Forming
- Computational Methods and Thermal Energy Storage
- Computational modelling of microfluidic systems
- Assistive Technology
- Additive Friction Stir Deposition
- Low speed aerodynamics
- Computational Vibro-Acoustics
- Solar thermal and biomass energy conversion and utilization
- Smart Composite Structures

- 4D Printing, Cyber security in Additive Manufacturing, Machine Learning

**New Labs/Equipment: -**

- Smoke Meter
- Digital Height Gauge
- M112 Steel Gage Block
- Tool And Cutter Grindder
- Shaping Machine
- Loading Frame 5 Ton
- Load Cell 500 N, 1000 N, 5000 N
- Stress Freezing Owens
- Hydraulic Jacks 500 N, 1000 N, 5000
- Static And Dynamic Balancing
- Strain Gage Data Logger And Display
- E-Vehicle Test Rig
- Boundray Layer Mesasurement Test Rig
- Automatic Coating Machine

**DEPARTMENT OF MINING ENGINEERING**

**New Labs/Equipment:**

1. Mine Health and Safety Lab
2. Geotechnical Lab

**Target for sponsored R&D Projects:**

1. "Identification, Evaluation and Prediction of Slope Stability for Landslide Prone Regions in Kodagu District, Karnataka" - Submitted to 'National Disaster Management Authority, New Delhi'
2. "An Epidemiological Investigation of the Effect of Coal Dust on Coal Miners' Pneumoconiosis"- Submitted to IMPRESS, ICSSR, New Delhi
3. "Mapping and Modelling of Surface Coal Mine Fire Using Remote Sensing and GIS"-Submitted to ISRO.
4. "Role of Safety Leading Indicators and Individual Characteristics of Workers on Occupational Injuries in Coal Mines-A Machine Learning Approach"- Submitted to Scheme for Promotion of Academic and Research Collaboration (SPARC), MoE, Government of India (Collaborated research work with Curtin university Australia).
5. Development of India Specific Scientific Framework for Slope

Stability Risk Assessment and Management in Opencast Mines, Ministry of Mines, GOI.

6. Development of a Classification System for the Slope Stability Assessment of Opencast Mines in Southern India, SERB.
7. "Investigation on the utilization of Gold Mine Tailings" Submitted to M/s. The Hutti Gold Mine Company Limited.

**New Areas of Research:**

- Occupational Ergonomics
- Safety Data Analytics

Institutions/Organizations for further collabarations:

- 1) People Friendship University of Russia, Mascow.
- 2) Curtin University Australia.

**DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

**New Labs/Equipment:**

1. Surface Engineering Laboratory
2. Facility for assessment of health of quenchant
3. High performance workstation
4. Intel Fortran compilers
5. Functional Biomaterials
6. Floating one Crystal Growth and Characterization Lab
7. High temperature corrosion degradation

**Target for Sponsored R&D projects:**

1. To get at least one sponsored R&D project per year
2. DST Start up grant
3. BARC Young scientist start-up grant
4. Healthcare
5. DST- Core Grant (Applied)
6. ISRO/DRDO, Dept. of Atomic energy

**New Areas of Research:**

1. Surface Engg.
2. Smart Materials
3. Data base on liquid Quenchant
4. Wetting/ dewetting of liquids
5. Hydrodynamic stability
6. Shape Memory Alloys

7. Tissue Engineering
8. Strongly correlated system, Multiferroic single crystal
9. Coating for very temperature application
10. Intergranular Stress corrosion cracking (IG-SCC) at high temperature and pressure of materials

#### **Institutions/organizations for future collaborations**

1. Indira Gandhi Centre for atomic Research, Kalpakkam
2. Indian Institute of Science, Bangalore
3. National Aeronautics Ltd., Bangalore
4. Hindustan Aeronautics Ltd., Bangalore
5. Jindal South West, Vijayanagar
6. International Federation of Heat Treatment and Surface Engineering (IFHTSE), UK
7. Kennametal Ltd., Bangalore
8. Thermet Solutions (P) Ltd., Bangalore
9. Tata Institute of Fundamental Research, Hyderabad
10. IIT Hyderabad
11. University of Bayreuth, Germany
- George Mason University, USA
- Purdue University, USA
12. Physics Department, Jamia Millia University
13. DIAT, IIT Bombay
14. BARC, IGCAR

Bloomberg database, Commodity market database, Cubicles for research scholars room, AC for computer lab, adding software for the analytics lab.

#### **Target for sponsored R&D projects:-**

Applying for various Indian and foreign funding agencies for R&D funding.

**New areas of Research:-** Multi and interdisciplinary research involving humanities, social sciences and management to achieve the objectives of National Education Policy- 2020.

#### **Institutions/organizations for future collaborations:-**

1. Renewing the MOU with The School of Engineering and Management Vaud or the School of Business and Engineering Vaud is a public university in Yverdon-les-Bains, Switzerland.
2. Renewing the MOU with Wadhvani Foundation.

## **SCHOOL OF MANAGEMENT**

### **PROPOSED PLAN OF RESEARCH (IN NEXT YEARS)**

Creating a comprehensive finance lab.

#### **New Labs/Equipment:-**

**TECHNICAL PAPERS PUBLISHED IN REFEREED JOURNALS****Table: List of publications during the period under report**

<b>Sl. No.</b>	<b>Department</b>	<b>International Journal</b>	<b>National Journal</b>	<b>International Conference</b>	<b>National Conference</b>
1	Chemical Engineering	49	--	6	--
2	Civil Engineering	30	2	10	5
3	Computer Science and Engineering	44	--	30	--
4	Chemistry	63	--	3	2
5	Electrical & Electronics Engineering	38	--	33	--
6	Department of Electronics & Communication Engineering	61	--	33	1
7	Information Technology	25	--	68	--
8	Mathematical and Computational Sciences	54	--	2	--
9	Mechanical Engineering	214	--	--	17
10	Mining Engineering	4	1	--	10
11	Department of Metallurgical & Materials Engineering	50	--	13	--
12	School of Management	13	--	13	3
13	Physics	28	--	--	--
14	Department of water Resources and Ocean Engineering	24	--	16	--
	<b>Total</b>	<b>697</b>	<b>3</b>	<b>227</b>	<b>38</b>

**INTERNATIONAL JOURNAL :-**

**DEPARTMENT OF CHEMICAL ENGINEERING**

1. L Lakhanlal, HP Dasari, MB Saidutta, "Shrinkage Behavior, Thermal Expansion Behavior, and Electrical Conductivity Study of Samarium Doped Ceria Electrolytes", *ECS Transactions*, Vol 103, 2021. DOI:
2. Shweta Ganiger, Sunaina S Patil, Hari Prasad Dasari, R Priyanka, Shreya Kollimarla, "Printex-U Soot Oxidation Kinetic Behaviour over Alumina and Quartz", *Chemical Engineering Science*, Vol 247, 2022. DOI: <https://doi.org/10.1016/j.ces.2021.117016>
3. Sunaina S Patil, S Naik, MD Ramesh, H Dasari, HP Dasari, "A Negative Effect of Niobium Doped Ceria on Soot Oxidation Activity", *Chemical Engineering & Technology*, Vol 45, 2022. DOI: <https://doi.org/10.1002/ceat.202100523>
4. MP Akhil Vijay, Sunaina S Patil, DR Madhura, Anjana P Anantharaman, P Gouramma, Hari Prasad Dasari, SB Arya, Harshini Dasari, "Effect of morphology and oxidation state of nickel on diesel soot oxidation activity", *Materials Today: Proceedings*, 2022. DOI: <https://doi.org/10.1016/j.matpr.2022.01.119>
5. Pandurangappa Govardhan, Anjana Payyalore Anantharaman, Sunaina Shivasharanappa Patil, Hari Prasad Dasari, Harshini Dasari, Atmuri Shourya, "Effect of Ag loading on praseodymium doped ceria catalyst for soot oxidation activity", *Korean Journal of Chemical Engineering*, Vol 39, 2022. DOI: 10.1007/s11814-021-0933-y
6. Goutam Mohan Pawaskar, Keyur Raval, Prathibha Rohit, Revathi P Shenoy, Ritu Raval, "Cloning, expression, purification and characterization of chitin deacetylase extremozyme from halophilic *Bacillus aryabhatai* B8W22", 3 *Biotech*, DOI: 10.1007/s13205-021-03073-3, Vol 11 (12), 2021
7. Harsha Thaira, Ritu Raval, Keyur Raval, "Adsorptive Bioprocess Improves Yield of Melanin from *Pseudomonas stutzeri*", *Journal of Visualized Experiments*, DOI: 10.3791/63339, Vol 179, 2022
8. Arun Kumar Subramani, Ritu Raval, Subramaniam Sundareshan, Rashmi Sivasengh, Keyur Raval, "A marine chitinase from *Bacillus aryabhatai* with antifungal activity and broad specificity toward crystalline chitin degradation", *Preparative Biochemistry & Biotechnology*, DOI: 10.1080/10826068.2022.2033994, 2022
9. Aswathi Cheredath, Shubhashree Uppangala, Gitanjali Asampille, David Joseph, Keyur Raval, Nagana Gowda GA, Guruprasad Kalthur, Satish Kumar Adiga, "Duration of dry and humidified incubation of single-step embryo culture medium and oxygen tension during sham culture do not alter metabolomics signature", *F1000 Research*, DOI: 10.12688/f1000research.109895.1, Vol 11(242), 2022.
10. Pragadeesh, K.S., Regupathi, I.; Sudhakar, D.R (2021) *In situ* gasification – chemical looping combustion of large coal and biomass particles: Char conversion and comminution, *Fuel*, Volume 292, 15 May 2021, Article number 120201, DOI: 10.1016/j.fuel.2021.120201
11. Shwetha Karanth; Regupathi Iyyaswami (2021) Analysis of ionic and nonionic surfactants blends used for the reverse micellar extraction of Lactoperoxidase from whey; *Asia-Pacific Journal of Chemical Engineering*; 2021;16:e2590; DOI: 10.1002/apj.2590
12. Shwetha Karanth; Regupathi Iyyaswami (2021) Mixed Surfactant-Based Reverse Micellar Extraction Studies of Bovine Lactoperoxidase, *Journal of Surfactants and Detergents*, 2021, 24 (2), pp. 255–267; DOI: 10.1002/jsde.12489

13. Sumit Kumar Mishra, Prasanna D. Belur, Regupathi Iyyaswami, (2021) Use of antioxidants for enhancing oxidative stability of bulk edible oils: a review, *International Journal of Food Science & Technology*, 2021, 56(1), pp. 1–12; DOI:10.1111/ijfs.14716
14. Sivananth Murugesan, Regupathi Iyyaswami, & Palash J. Khandelwal, Nonionic surfactant-based cloud point extraction of polyhydroxyalkanoate from the fermentation crude in a rotating disc contactor, *Separation Science and Technology*, 2021-06-13 DOI: 10.1080/01496395.2020.1781895
15. Basavaraj S.Nainegali; Regupathi Iyyaswami; Prasanna D.Belur (2020) Alcohol-based aqueous biphasic system applied to partition four different natural bioactive compounds from *Garcinia indica* Choisy, *Separation Science and Technology*, 2021-07-24 DOI: 10.1080/01496395.2020.1802485
16. Purushottam Patil, Sanjith S. Anchan, Chinta Sankar Rao, Improved PID Controller Design for an Unstable Second Order Plus Time Delay Non-Minimum Phase Systems, *Results in Control and Optimization*, 2022. (Accepted)
17. Abdul Basith Ashraf, Chinta Sankar Rao, Multiobjective temperature trajectory optimization for unseeded batch cooling crystallization of aspirin, *Computers & Chemical Engineering*, 160, 107704, 2022. <https://doi.org/10.1016/j.compchemeng.2022.107704>.
18. Bharat Desikan, Pranav Krishna, Chinta Sankar Rao, Simultaneous separation of ternary mixture using modified dual compression middle vessel batch distillation column: control and dynamic optimization, *Journal of the Taiwan Institute of Chemical Engineers*, 131, 104206, 2022. <https://doi.org/10.1016/j.jtice.2022.104206>.
19. Sanjith S. Anchan, Chinta Sankar Rao, Centralized PI Controller design for Activated Sludge Process, *Chemical Engineering Technology*, 45(3), 467-478, 2022. <https://doi.org/10.1002/ceat.202100409>.
20. Dadi V. Suriapparao, Tanneru Hemanth Kumar, B. Rajasekhar Reddy, Attada Yerrayya, B. Abhinaya Srinivas, Pandian Sivakumar, S. Reddy Prakash, Chinta Sankar Rao, Veluru Sridevi, J. Desinghu, Role of ZSM5 catalyst and char susceptor on the synthesis of chemicals and hydrocarbons from microwave-assisted in-situ catalytic co-pyrolysis of algae and plastic wastes, *Renewable Energy*, 181, 990-999, 2022. DOI: <https://doi.org/10.1016/j.renene.2021.09.084>
21. Ishita Goyal, Supreetha Reddy R, Chinta Sankar Rao, A Simple Method to Design a Decoupler for a Proton Exchange Membrane Fuel Cell, *Chemical Engineering Technology*, 45(3), 432-440, 2022. DOI: 10.1002/ceat.202100467
22. Pranav Krishna, Bharat Desikan, Chinta Sankar Rao, Control and Dynamic Optimization of Middle Vessel Batch Distillation Column for the Separation of Ethanol/Propanol/Butanol Mixture, *Chemical Engineering Research and Design*, 176, 267-278, 2021. DOI: <https://doi.org/10.1016/j.cherd.2021.10.002>
23. Manjunatha, M., Chandewar, P.R., Mahalingam, H. Exploring the Synergy of B, Ce Dopants in Codoped Titanium Dioxide Multifunctional Photocatalysts for Antibiotic Degradation and Microbial Disinfection Under Solar Light (2022) *Physica Status Solidi (A) Applications and Materials Science*, 219 (3), art. no. 2100581, DOI: 10.1002/pssa.202100581
24. Sekar, P., Sadanand Joshi, D., Manjunatha, M., Mahalingam, H. Enhanced disinfection of *E. faecalis* and levofloxacin antibiotic degradation using tridoped B-Ce-Ag TiO<sub>2</sub> photocatalysts synthesized by ecofriendly citrate EDTA complexing method (2022) *Environmental*

- Science and Pollution Research, DOI: 10.1007/s11356-022-19268-x
25. Manasa, M., Chandewar, P.R., Mahalingam, H. Photocatalytic degradation of ciprofloxacin & norfloxacin and disinfection studies under solar light using boron & cerium doped TiO<sub>2</sub> catalysts synthesized by green EDTA-citrate method (2021) *Catalysis Today*, 375, pp. 522-536. DOI: 10.1016/j.cattod.2020.03.018
26. Mishra, S., Mandhan, M., Mahalingam, H. Highly efficient solar light-driven BiOX (X=Br/Cl/I) and BiOY heterojunction (Y=Br/Cl) nano photocatalysts in suspended and immobilised forms for malachite green dye wastewater treatment (2021) *Environmental Science and Pollution Research*. DOI: 10.1007/s11356-021-17636-7
27. Moni Philip Jacob Kizhakedathil, Prasanna D. Belur, Rungtiwa Wongsagonsup, Manop Supphantharika, Esperanza Maribel G. Agoo, and Jose Isagani B. Janairo (2021) Evaluation of enzymatic and chemical treatments to produce oxalate depleted starch from a novel variety of *Colocasia esculenta* grown in Joida, India. *Starch - Stärke* 2021, 2000231(1-10), DOI:10.1002/star.202000231
28. M.D. Dunn, P.D. Belur and A.P. Malan (2021) Effect of glucose, agar supplementation and bacterial cell density on the in vitro liquid culture of *Steinernema jeffreyense*. *African Entomology* 29(2), 423-434. DOI: 10.4001/003.029.0423
29. Rungtiwa Wongsagonsup, Thanupong Nateelerdpaisan, Chayapon Gross, Manop Supphantharika, Prasanna D. Belur, Esperanza Maribel G. Agoo, Jose Isagani Belen Janairo (2021) Physicochemical properties and in vitro digestibility of flours and starches from taro cultivated in different regions of Thailand, *International Journal of Food Science and Technology*, 56, 2395-2406. DOI:10.1111/ijfs.14865
30. Murray D. Dunn, Prasanna D. Belur, Antoinette P. Malan (2021) A review of the in vitro liquid mass culture of entomopathogenic nematodes, *Biocontrol Science and Technology*, 31(1), 1-21 DOI: 10.1080/09583157.2020.1837072
31. Sumit Kumar Mishra, Prasanna D Belur, Regupathi Iyyaswami (2021) Use of antioxidants for enhancing oxidative stability of bulk edible oils: A review, *International Journal of Food Science and Technology*, 56, 1-12. DOI: 10.1111/ijfs.14716
32. Basavaraj S. Nainegali, Regupathi Iyyaswami, Prasanna D Belur (2021) Alcohol-based aqueous biphasic system applied to partition four different natural bioactive compounds from *Garcinia indica* Choisy, *Separation Science and Technology*. 56 (11), 1882-1898, DOI:10.1080/01496395.2020.1802485
33. Moni Philip Jacob Kizhakedathil, Suraksha Suvarna, Prasanna D. Belur, Rungtiwa Wongsagonsup, Esperanza Maribel G. Agoo & Jose Isagani B. Janairo (2021) Optimization of oxalate-free starch production from Taro flour by oxalate oxidase assisted process, *Preparative Biochemistry & Biotechnology*, 51 (2), 105-111, DOI: 10.1080/10826068.2020.1795672
34. Murray D. Dunn . Prasanna D. Belur . Antoinette P. Malan (2020) In vitro liquid culture and optimization of *Steinernema jeffreyense* using shake flasks, *BioControl*, 65, 223-233, DOI: 10.1007/s10526-019-09977-7
35. Basavaraj S. Nainegali, Regupathi Iyyaswami, Prasanna D Belur (2020) Partitioning of bio-active compounds from rinds of *Garcinia indica* using aqueous two-phase system: Process evaluation and optimization, *Separation and Purification Technology*, 253, 117520 (1-14). DOI:10.1016/j.seppur.2020.117520
36. Prabhu Teja, K., Shetty Kodialbail, V (2022) Visible Light Mediated Photocatalytic Reduction of CO<sub>2</sub> to Non-fossil Fuel and Valuable Products by Polyaniline-TiO<sub>2</sub> Nanocomposites. *Arabian Journal of Science and Engineering* .

<https://doi.org/10.1007/s13369-021-06450-5>

37. Deekshita and Vidya Shetty K (2021), Solar light active biogenic titanium dioxide embedded silver oxide (AgO/Ag<sub>2</sub>O@ TiO<sub>2</sub>) nanocomposite structures for dye degradation by photocatalysis. *Materials Science in Semiconductor Processing* 132, 105923. <https://doi.org/10.1016/j.mssp.2021.105923>
38. Florence Ruth Noronha, Soumya Koippully Manikandan and Vaishakh Nair, Role of coconut shell biochar and earthworm (*Eudrilus euginea*) in bioremediation and palak spinach (*Spinacia oleracea* L.) growth in cadmium contaminated soil, *Journal of Environmental Management*, 2022, 302, 114057. [doi.org/10.1016/j.jenvman.2021.114057](https://doi.org/10.1016/j.jenvman.2021.114057)
39. K Ankita Rao, T P Krishna Murthy and Vaishakh Nair, Remediation Analysis of Azo and Anthraquinone dye by Modified Low Sulphonated Lignin, *Research Journal of Chemistry and Environment*, Vol. 26 (3) March (2022) 8-16
40. Dimitrios A. Giannakoudakis, Abdul Qayyum, Vaishakh Nair, Ayesha Khan, Swaraj R. Pradhan, Jovana Prekodravac, Kyriazis Rekos, Alec P. LaGrow, Oleksandr Bondarchuk, Dariusz Łomot, Konstantinos S. Triantafyllidis and Juan C. Colmenares, Ultrasound-assisted decoration of CuOx nanoclusters on TiO<sub>2</sub> nanoparticles for additives free photocatalytic hydrogen production and biomass valorization by selective oxidation, *Molecular Catalysis*, 2021, 514, 111664
41. Thivani Senathiraj, S. A. Lolla, Y. Singh, Smitha C K. and Raj Mohan Balakrishnan (2022) "Adsorption of selective fluoroquinolones by cysteine modified silane magnetic nanocomposite from the aqueous phase" *International Journal of Environmental Science and Technology* DOI: 10.1007/s13762-022-04043-9. Raj Mohan Balakrishnan, Anduaelem Mekonnen Hiruya, Ahmed Hussen Dekebo (2021) Clay, Hema Susmitha Maanyam, Mekonnen Maschal Tarekegn (2021) "Nano-clay and Iron impregnated clay nanocomposite for Copper (Cu<sup>2+</sup>) and Lead (Pb<sup>2+</sup>) Ions Removal from Aqueous Solutions". *Air, Soil and Water Research* 10.1177/11786221221094037
42. Mekonnen Maschal Tarekegn, Raj Mohan Balakrishnan, Anduaelem Mekonnen Hiruya, Ahmed Hussen Dekebo (2021) "Removal of Methylene Blue Dye using Nano Zerovalent Iron, Nanoclay and Iron Impregnated Nanoclay – A Comparative Study" *Royal Society of Chemistry Advances.*, 2021, 11, 30109–30131. [https://DOI: 10.1039/d1ra03918k](https://doi.org/10.1039/d1ra03918k)
43. Vrushali Vinayak Kadam, Raj Mohan Balakrishnan, Jagadeeshbabu Ponnann Ettiappan, Nithya Sarah Thomas, Shaun Aaron D, Souza Subin Parappa (2021). Sensing of p-nitrophenol in aqueous solution using zinc oxide quantum dots coated with APTES. *Environmental Nanotechnology, Monitoring & Management*. [doi.org/10.1016/j.enmm.2021.100474](https://doi.org/10.1016/j.enmm.2021.100474)
44. Giang Minh Hoang, Wannapawn Watsuntorn, Warawut Chulalaksananukul, Raj Mohan Balakrishnan, Eldon R. Rene (2021) "Energy and environment - An introduction" *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-021-12854-5>
45. Smitha C K. and Raj Mohan Balakrishnan (2021) "Adsorption of pharmaceuticals pollutants, Ibuprofen, Acetaminophen, and Streptomycin from the Aqueous Phase using Amine Functionalized Superparamagnetic Silica Nanocomposite". *Journal of Cleaner Production* DOI: 10.1007/s11356-018-3272-8
46. Dr. P.E. Jagadeesh Babu, Dr. Ruben Sudhakar D., Ms. Minimol, "Fabrication of visible-light assisted TiO<sub>2</sub>-WO<sub>3</sub>-PANI membrane for

- effective reduction of chromium (VI) in photocatalytic membrane reactor, 24, 2021, DOI: 10.1016/j.eti.2021.102023
47. Dr. P.E. Jagadeesh Babu, Ms. Deepika D., "Synthesis of silica hollow core shell nanoparticles by sacrificial nitrated polystyrene template approach for targeted drug delivery application", 45, 740-744, 2021, DOI: 10.1016/j.matpr.2020.02.799
48. Dr. P.E. Jagadeesh Babu, Dr. M.B. Saidutta, Mr. Mugunthan E., "Photocatalytic degradation of diclofenac using TiO<sub>2</sub>-CdS heterojunction catalysts under visible light irradiation" 28, 18186-18200, 2021,
49. Vrushali V Kadam, Raj Mohan Balakrishnan, Jagadeesh Babu Ponnann Ettiyappan (2020) "Photocatalytic Degradation of P-Nitrophenol using Biologically Synthesized ZnO Nanoparticles". *Environmental Science and Pollution Research* DOI: 10.1007/s11356-020-10833-w.
50. Likitha, K.N., Kundhena Srinivas, Gurudev, S.C., Nischith, G.D. and Rajasekaran, C., "Impact of pandemic crisis of COVID-19 on construction industry in India". Vol. 12 No. 1: Ahead of Print 3. Sustainability, Agri, Food and Environmental Research, <https://doi.org/10.7770/safer-V12N1-art2784>. Jan 2022.
51. Thanu, H.P., Rajasekaran, C. and Deepak, M D., "Developing a building performance score model for assessing the sustainability of buildings", *Smart and Sustainable Built Environment*, DOI:10.1108/SASBE-03-2020-0031., 11(1), pp. 143-161. March 2022.
52. Bellary, A., Suresha, S. N. "ANN Model to Predict Joint Stiffness of White-topped Pavements Using Falling Weight Deflectometer (FWD) Data". *Int. J. Pavement Res. Technol.* (2022). <https://doi.org/10.1007/s42947-021-00137-8>
53. Ashik Bellary, Suresha, S. N. "Influence of NMAS and groove depths on the static and fatigue shear performance of aggregate interlocking in PQC mixes". *International Journal of Pavement Engineering*, DOI: 10.1080/10298436.2021.1968392 (2021)
54. Chitrakar S.F., Shivayogimath C.B., Mulangi R. H "Study on strength and volume change behavior of stabilized black cotton soil with different pH of soil lime mixes for pavement subgrade". *International Journal of Pavement Research and Technology*, September 2021. DOI: 10.1007/s42947020-0117-x
55. Harsha M.M., Mulangi R.H," Impact of Side Friction on Travel Time Reliability of Urban Public Transit". *International Journal of Civil Engineering*, April 2021. DOI: 10.1007/s40999021-00622-y.
56. Harsha M.M., Mulangi R. H, "Probability distributions analysis of travel time variability for the public transit system". *International Journal of Transportation Science and Technology*, October 2021. DOI: 10.1016/j.ijtst.2021.10.006

#### DEPARTMENT OF CIVIL ENGINEERING

1. Mohan, Mithun and Chandra, Satish. "Investigating the Influence of Conflicting Flow's Composition on Critical Gap under Heterogeneous Traffic Conditions". *International Journal of Transportation Science and Technology*, DOI: <https://doi.org/10.1016/j.ijtst.2021.01.004>, Vol 10, Issue 4, pp. 393-401, 2021.
2. Nair, S., Manu, B., and Azhoni, A.: "Sustainable treatment of paint industry wastewater: Current techniques and challenges." *Journal of Environmental Management*. Vol 296, 15 October 2021, 113105.
3. Arpitha D. and Rajasekaran, C. "Study on Durability Properties of Sustainable Alternatives for Natural Fine Aggregate". *Journal of The Institution of Engineers (India): Series A*. Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1007/s40030-021-00580-7>. Sep 2021.

11. Sreya, M. V., Jayalekshmi, B. R., & Venkataramana, K. "Effect of Coir Reinforced Soil on the Seismic Response of RC Framed Buildings". *Indian Geotechnical Journal*, 1-22. doi.org/10.1007/s40098-021-00593-w, January 2022.
12. Sreya, M. V., Jayalekshmi, B. R., & Venkataramana, K. "Pore Water Pressure Analysis in Coir Mat-Reinforced Soil Incorporating Soil-Structure Interaction". *International Journal of Geosynthetics and Ground Engineering*, 8(1), 1-21. doi.org/10.1007/s40891-022-00354-6,30, January 2022
13. Kolathayar, S. (2021). "Recent seismicity in Delhi and population exposure to seismic hazard". *Natural Hazards*, 1-28.
14. Ramkrishnan, R., Kolathayar, S., & Sitharam, T. G. (2021). "Deterministic seismic hazard analysis of north and central Himalayas using region-specific ground motion prediction equations". *Journal of Earth System Science*, 130(4), 1-18.
15. Ramkrishnan, R., Kolathayar, S., & Sitharam, T. G. (2021). "Probabilistic seismic hazard analysis of North and Central Himalayas using regional ground motion prediction equations". *Bulletin of Engineering Geology and the Environment*, 80(10), 8137-8157.
16. Sarkar, R., Kolathayar, S., Drukpa, D., Choki, K., Rai, S., Tshering, S. T., & Yuden, K. (2021). "Near-surface seismic refraction tomography and MASW for site characterization in Phuentsholing, Bhutan Himalaya". *SN Applied Sciences*, 3(4), 1-18.
17. Kolathayar, S., Amala Krishnan, U. S., & Sitharam, T. G. (2021). "Appraisal of Thanneermukkom bund as a coastal reservoir in Kuttanad, Kerala". *Journal of Applied Water Engineering and Research*, 1-12.
18. Kolathayar, S., & Gadekari, R. S. (2022). Model Footing Tests and Analytical Studies on Clayey Soil Bed Reinforced with Coconut Shell Mat. *International Journal of Geosynthetics and Ground Engineering*, 8(2), 1-10.
19. Rashma, R. S. V., Jayalekshmi, B. R., & Shivashankar, R. "Liquefaction mitigation potential of the improved ground using pervious concrete columns". *Indian Geotechnical Journal*, 1-22. doi.org/10.1007/s40098-021-00536-5, May 2021.
20. Rashma, R. S. V., Jayalekshmi, B. R., & Shivashankar, R. "Shear Strength Behaviour of Pervious Concrete Column Improved Soft Clay Bed: A Numerical Study". *Transportation Infrastructure Geotechnology*, 1-20. doi.org/10.1007/s40515-021-00179-2,16 July 2021.
21. Rashma, R. S. V., Jayalekshmi, B. R., & Shivashankar, R. "Influence of Earthquake Characteristics on Pervious Concrete Column Improved Ground". *Geotechnical and Geological Engineering*, 1-16. doi.org/10.1007/s10706-022-02050-8, January 2022.
22. Patel, R. M., Jayalekshmi, B. R., & Shivashankar, R. "Effect of Reinforcement Width on Dynamic response of Basal Geosynthetic-Reinforced Embankment". *Transportation Infrastructure Geotechnology*, 1-27. doi.org/10.1007/s40515-021-00188-1, July 2021.
23. Shreyas, Alagundi and T. Palanisamy. "Neural network prediction of joint shear strength of exterior beam-column joint"., *International Journal of Structures* PP Structures 37 (2022) 1002–1018 <https://doi.org/10.1016/j.istruc.2022.01.013>,
24. Balaji and Sitaram Nayak "Experimental investigation and performance evaluation of lithomargic clay stabilized with granulated blast furnace slag and calcium chloride", *International Journal of Geosynthetics and Ground Engineering*. DOI:10.1007/s40891-022-00355-5, Jan 2022, Springer publication.
25. Teema Thomas and Arun Kumar Thalla "Nutmeg seed shell biochar as an effective adsorbent for removal of remazol brilliant blue reactive dye:

- kinetic, isotherm, and thermodynamic study", *Energy Sources Part A: Recovery, Utilization, and Environmental Effects* [Taylor & Francis], Vol. 44( 1), pp. 893–911, March, 2022
26. Adhirashree Vannarath and Arun Kumar Thalla "Synthesis and characterisation of an ultra-light, hydrophobic and flame-retardant robust lignin-carbon foam for oil-water separation", *Journal of Cleaner Production* (Elsevier), Vol. 325. October 6, 2021.
27. Sarath Chandra Pragada and Arun Kumar Thalla (2021) "Polymer-based immobilized Fe<sub>2</sub>O<sub>3</sub>-TiO<sub>2</sub>/PVP catalyst preparation method and the degradation of triclosan in treated greywater effluent by solar photocatalysis", *Journal of Environmental Management* [Elsevier], Vol. 296. July, 2021.
28. Sarath Chandra Pragada and Arun Kumar Thalla "Integrated Anaerobic-Aerobic Sequencing Batch Reactors for Unrestricted Reuse Using Greywater Treatment", *International Journal of Environmental Sciences & Development*, Vol. 12 (12), pp346-354, 2021.
29. Sateesh Kumar Kanakannavar, Jeyaraj Pitchaimani, Arun Kumar Thalla and M Rajesh (2021) "Biodegradation properties and thermogravimetric analysis of 3D braided flax PLA textile composites", *Journal of Industrial Textiles* [Sage], Vol. 0, April, 2021.
30. Rashmi H R and Devatha C P. "Dewatering performance of sludge using coconut shell biochar modified with ferric chloride (Sludge dewatering using bio-waste)", *International Journal of Environmental Science and Technology*, Springer, July 2021.
- DEPARTMENT OF COMPUTER ENGINEERING**
1. Sahu, P., Raghavan, S., Chandrasekaran, K., "Ensemble deep neural network based quality of service prediction for cloud service recommendation", (2021) *Neurocomputing*, 465, pp. 476-489, DOI: 10.1016/j.neucom.2021.08.110
2. Joseph, C.T., Chandrasekaran, K., "Nature-inspired resource management and dynamic rescheduling of microservices in Cloud datacenters", (2021) *Concurrency and Computation: Practice and Experience*, 33 (17), art. no. e6290, DOI: 10.1002/cpe.6290
3. Sarwesh, P., Chandrasekaran, K., Thamizharasan, S., "Network blueprint for maximizing the lifetime of smart devices in low power IOT networks" (2021) *International Journal of Grid and High Performance Computing*, 13 (2), pp. 21-38, DOI: 10.4018/IJGHPC.2021040102
4. Sarwesh, P., Chandrasekaran, K., Thamizharasan, S., "Network blueprint for maximizing the lifetime of smart devices in low power iot networks", (2021) *International Journal of Grid and High Performance Computing*, 13 (2), pp. 21-38, DOI: 10.4018/IJGHPC.2021040102
5. Marimuthu, C., Chandrasekaran, K., Chimalakonda, S. "Energy Diagnosis of Android Applications: A Thematic Taxonomy and Survey" (2021) *ACM Computing Surveys*, 53 (6), <https://doi.org/10.1145/3417986>
6. Praseed, A., Thilagam, P.S., "HTTP request pattern based signatures for early application layer DDoS detection: A firewall agnostic approach", (2022) *Journal of Information Security and Applications*, 65, art. no. 103090, DOI: 10.1016/j.jisa.2021.103090
7. Praseed, A., Thilagam, P.S., "Fuzzy Request Set Modelling for Detecting Multiplexed Asymmetric DDoS Attacks on HTTP/2 servers", (2021) *Expert Systems with Applications*, 186, art. no. 115697, DOI: 10.1016/j.eswa.2021.115697
8. K Srinivasa, PS Thilagam, "Clustering and Bootstrapping Based Framework for News Knowledge Base Completion", *Computing and Informatics* 40 (2), 318–340-318–340, Publication date: 2021/10/12, DOI: 10.31577/cai\_2021\_2\_318
9. KG Reddy, PS Thilagam, "A Survey on MAC Layer Security Challenges in

- WMNs”, New Approaches in Engineering Research Vol. 11, 157-166, Publication date : 2021/8/25, <https://doi.org/10.9734/bpi/naer/v11/8909D>
10. Shubham Dodia, Annappa Basava, Mahesh Padukudru Anand, “A novel receptive field- regularized V- net and nodule classification network for lung nodule detection”, 2021/7/29, International Journal of Imaging Systems and Technology, John Wiley & Sons, Inc., <https://doi.org/10.1002/ima.22636>
  11. Ashwin Kumar Kulkarni, B Annappa, “GPU-aware resource management in heterogeneous cloud data centers”, 2021/4/8, The Journal of Supercomputing, pp. 1-28, DOI:10.1007/s11227-021-03779-4
  12. Rao, R.S., Umarekar, A., Pais, A.R., “Application of word embedding and machine learning in detecting phishing websites”, (2022) Telecommunication Systems, 79 (1), pp. 33-45. DOI: 10.1007/s11235-021-00850-6
  13. M Raviraja Holla, Alwyn R Pais, “An Effective GPGPU Visual Secret Sharing by Contrast-Adaptive ConvNet Super-Resolution”, 2021/10/30, Wireless Personal Communications, pp. 1-25, DOI:10.1007/s11042-020-10065-7
  14. Rao, R.S., Pais, A.R., Anand, P., “A heuristic technique to detect phishing websites using TWSVM classifier”, (2021), Neural Computing and Applications, 33 (11), pp. 5733-5752. Cited 1 time, <https://doi.org/10.1007/s00521-020-05354-z>
  15. Holla, M.R., Pais, A.R., Suma, D., “An Accelerator-based Logistic Map Image Cryptosystems for Grayscale Images”, (2021) Journal of Cyber Security and Mobility, 10 (3), pp. 487-510, DOI: 10.13052/jcsm2245-1439.1031
  16. Kumar, A., Bansal, N., Pais, A.R., “A partial key pre-distribution based en-route filtering scheme for wireless sensor networks”, (2021), Journal of Ambient Intelligence and Humanized Computing, 12 (1), pp. 1471-1486, DOI:10.1007/s12652-020-02216-3
  17. Singh, M.P., Sural, S., Vaidya, J., Atluri, V., “A Role-Based Administrative Model for Administration of Heterogeneous Access Control Policies and its Security Analysis”, (2021), Information Systems Frontiers, DOI: 10.1007/s10796-021-10167-z
  18. Nazareth, P., Chandavarkar, B.R., “Location-Free Void Avoidance Routing Protocol for Underwater Acoustic Sensor Networks”, (2021), Wireless Personal Communications, DOI: 10.1007/s11277-021-09147-y
  19. Sushruth Venkatesha, K. Rahul Reddy, B. R. Chandavarkar, “Correction to: Social Engineering Attacks During the COVID-19 Pandemic”, (2021), SN Computer Science, DOI:10.1007/s42979-020-00443-1
  20. Sushruth Venkatesha, K. Rahul Reddy, B. R. Chandavarkar, “Social Engineering Attacks During the COVID-19 Pandemic”, (2021), SN Computer Science, doi: 10.1007/s42979-020-00443-1
  21. Mathew, T., Ajith, B., Kini, J.R., Rajan, J., “Deep learning-based automated mitosis detection in histopathology images for breast cancer grading (2022), International Journal of Imaging Systems and Technology, DOI: 10.1002/ima.22703
  22. Jeevan, G., Zacharias, G.C., Nair, M.S., Rajan, J., “An empirical study of the impact of masks on face recognition”, (2022), Pattern Recognition, 122, art. no. 108308 , DOI: 10.1016/j.patcog.2021.108308
  23. Niyas, S., Chethana Vaisali, S., Show, I., Chandrika, T.G., Vinayagamani, S., Kesavadas, C., Rajan, J., “Segmentation of focal cortical dysplasia lesions from magnetic resonance images using 3D convolutional neural networks”, (2021), Biomedical Signal Processing and Control, 70, art. no. 102951 , DOI: 10.1016/j.bspc.2021.102951
  24. SJ Pawan, Rishi Sharma, Hemanth Sai Ram Reddy, M Vani, Jeny Rajan, “WideCaps: A Wide Attention based Capsule Network for Image Classification”, 2021/8/8, arXiv preprint arXiv:2108.03627

25. Pawan, S.J., Sankar, R., Jain, A., Jain, M., Darshan, D.V., Anoop, B.N., Kothari, A.R., Venkatesan, M., Rajan, J. "Capsule Network-based architectures for the segmentation of sub-retinal serous fluid in optical coherence tomography images of central serous chorioretinopathy", (2021), *Medical and Biological Engineering and Computing*, 59 (6), pp. 1245-1259, DOI: 10.1007/s11517-021-02364-4
26. Thomas, E., Pawan, S.J., Kumar, S., Horo, A., Niyas, S., Vinayagamani, S., Kesavadas, C., Rajan, J., "Multi-Res-Attention UNet: A CNN Model for the Segmentation of Focal Cortical Dysplasia Lesions from Magnetic Resonance Images", (2021), *IEEE Journal of Biomedical and Health Informatics*, 25 (5), art. no. 9198063, pp. 1724-1734, DOI: 10.1109/JBHI.2020.3024188
27. SJ Pawan, Rahul Sankar, Amithash M Prabhudev, PA Mahesh, K Prakashini, Sudha Kiran Das, Jeny Rajan, "MobileCaps: A Lightweight Model for Screening and Severity Analysis of COVID-19 Chest X-Ray Images", 2021/8/19, arXiv preprint arXiv:2108.08775
28. Rani Oomman Panicker, SJ Pawan, Jeny Rajan, MK Sabu, "A Lightweight Convolutional Neural Network Model for Tuberculosis Bacilli Detection From Microscopic Sputum Smear Images", 2021/4/12, *Machine Learning for Healthcare Applications*, pp. 343-351, <https://doi.org/10.1002/9781119792611.ch22>
29. Ranjan, R., Vathsala, H., Koolagudi, S.G., "Profile generation from web sources: an information extraction system", (2022) *Social Network Analysis and Mining*, 12 (1), art. no. 2, . DOI: 10.1007/s13278-021-00827-y
30. Shashidhar G Koolagudi, "Identification of Palatal Fricative Fronting Using Shannon Entropy of Spectrogram", 2021/1/24, *Mining Intelligence and Knowledge Exploration: 7th International Conference, MIKE 2019, Goa, India, December 19-22, 2019, Proceedings*, 11987, pp. 234, DOI:10.1007/978-3-030-66187-8\_22
31. Shashidhar G Koolagudi, "Identification of Nasalization and Nasal Assimilation from Children's Speech", 2021/1/24, *Mining Intelligence and Knowledge Exploration: 7th International Conference, MIKE 2019, Goa, India, December 19-22, 2019, Proceedings*, 11987, pp. 244, DOI:10.1007/978-3-030-66187-8\_23
32. Chittaragi, N.B., Koolagudi, S.G., "Dialect Identification using Chroma-Spectral Shape Features with Ensemble Technique", (2021), *Computer Speech and Language*, 70, art. no. 101230, DOI: 10.1016/j.csl.2021.101230
33. Srinivasa Murthy, Y.V., Koolagudi, S.G., Jeshventh Raja, T.K., "Singer identification for Indian singers using convolutional neural networks", (2021), *International Journal of Speech Technology*, 24 (3), pp. 781-796, DOI: 10.1007/s10772-021-09849-5
34. Vathsala, H., Koolagudi, S.G., "Neuro-Fuzzy Model for Quantified Rainfall Prediction Using Data Mining and Soft Computing Approaches", (2021), *IETE Journal of Research*, DOI: 10.1080/03772063.2021.1912648
35. Imputato, Pasquale, Avallone, Stefano, Tahiliani, Mohit P., Ramakrishnan, Gautam, "Revisiting design choices in queue disciplines: The PIE case", *COMPUTER NETWORKS*, Volume: 171, Article Number: 107136, DOI: 10.1016/j.comnet.2020.107136
36. Yelmewad, P., Talawar, B., "Parallel Version of Local Search Heuristic Algorithm to Solve Capacitated Vehicle Routing Problem", (2021), *Cluster Computing*, DOI: 10.1007/s10586-021-03354-9
37. Swathi, P, Venkatesan, M, "Scalability improvement and analysis of permissioned-blockchain", *ICT EXPRESS*, Volume: 7, Issue: 3, Page: 283-289, DOI: 10.1016/j.ict.2021.08.015, SEP 2021
38. Alkha Mohan, Venkatesan Meenakshi Sundaram, "V3O2: hybrid deep

- learning model for hyperspectral image classification using vanilla-3D and octave-2D convolution”, (2021), Journal of Real-Time Image Processing, DOI:10.1007/s11554-020-00966-z
39. S Sarannya, M Venkatesan, Prabhavathy Panner, “Double Clustering Based Neural Feedback Method for Unstructured Text Data”, 2021/4/1, Journal of Computational and Theoretical Nanoscience, vol 18, issue 4, pp. 1306-1311, DOI: 10.1166/jctn.2021.9385
40. Nikhil Parafe, M Venkatesan, Prabhavathy Panner, “Hymenopteran Colony Stream Clustering Algorithm and Comparison with Particle Swarm Optimization and Genetic Optimization Clustering”, 2021/4/1, Journal of Computational and Theoretical Nanoscience, vol 18, issue 4, pp. 1336-1341, DOI:https://doi.org/10.1166/jctn.2021.9402
41. Pawan, S.J., Sankar, R., Jain, A., Jain, M., Darshan, D.V., Anoop, B.N., Kothari, A.R., Venkatesan, M., Rajan, J., “Capsule Network-based architectures for the segmentation of sub-retinal serous fluid in optical coherence tomography images of central serous chorioretinopathy”, (2021), Medical and Biological Engineering and Computing, 59 (6), pp. 1245-1259, DOI: 10.1007/s11517-021-02364-4
42. Bhowmik, B., Hazarika, P., Kale, P., Jain, S., “AI Technology for NoC Performance Evaluation”, (2021) IEEE Transactions on Circuits and Systems II: Express Briefs, 68 (12), pp. 3483-3487. DOI: 10.1109/TCSII.2021.3124297
43. Shubha Brata Nath, Subhrendu Chattopadhyay, Raja Karmakar, Sourav Kanti Addya, Sandip Chakraborty, Soumya K Ghosh, “Containerized deployment of micro-services in fog devices: a reinforcement learning-based approach”, 2021/10/27, The Journal of Supercomputing, pp. 1-29, DOI:10.1007/s11227-021-04135-2
44. Sourav Kanti Addya, Anurag Satpathy, Bishakh Chandra Ghosh, Sandip Chakraborty, Soumya K Ghosh, Sajal K Das, “CoM-CLOUD: Virtual Machine Coalition for Multi-Tier Applications over Multi-Cloud Environments”, 2021/10/26, IEEE Transactions on Cloud Computing, DOI: 10.1109/TCC.2021.3122445

#### DEPARTMENT OF CHEMISTRY

1. Virtual and experimental high throughput screening of substituted hydrazones on  $\beta$ -tubulin polymerization. Janet Sabina Xavier, Karthikeyan Jayabalan, V.Ragavendran, Muthu Tamizh Manoharan, A.Nityananda Shetty. Bioorganic Chemistry 114 (2021) 105094, doi: 10.1016/j.bioorg.2021.105094
2. Enhancement of supercapacitance of reduced graphene oxide, copper oxide and polyaniline using the mixture of methane sulphonic acid and sulphuric acid as electrolyte. Aranganathan Viswanathan, A. Nityananda Shetty, Chemical Engineering Science 229 (2021) 116020, doi: 10.1016/j.ces.2020.116020
3. Quick responsive and durable super capacitive performance of rGO/Zn(OH)<sub>2</sub>/PANI Nanocomposites. Aranganathan Viswanathan, Adka Nityananda Shetty, S P Bharath, K Mahendra. Bulletin of Materials Science, 44 (2021) 179. doi.org/10.1007/s12034-021-02474-7
4. Exploring the corrosion inhibition properties of an anionic Gemini surfactant based on an ethylenediaminetetraacetic acid derivative on AZ31 alloy. Gururaj M Acharya, A. Nityananda Shetty, Chemistry Select (2021), https://doi.org/10.1002/slct.202101912.
5. Influence of media pH on corrosion behaviour of AZ31 magnesium alloy in chloride and sulphate media, Gururaj M Acharya, A. Nityananda Shetty, Surface Engineering and Applied Electrochemistry, 57 (2021),

- 675–688. doi.org/10.1016/j.jma.2018.09.003
6. Influence of different dopants and redox forms of PANI in its crystal structure, morphology, electrochemical energy storage to variable extent, unique properties and kinetics. Aranganathan Viswanathan, A. Nityananda Shetty, Bull. Mater. Sci. (2022) 45:60, <https://doi.org/10.1007/s12034-021-02626-9>.
  7. Investigation of the inhibition effect of newly synthesized pyrazoline derivative on mild steel in hydrochloric acid medium by experimental and theoretical approach. Prathima Shekara, Jyothi Kudva, Rajitha Sadashiva, Damodara Naral, A. Nityananda Shetty, Chemical Data Collections 37(2022) 100808. <https://doi.org/10.1016/j.cdc.2021.100808>.
  8. Bhat, R.S., Munjunatha, K.B., Bhat, S.I and A Chitharanjan Hegde. Electrochemical Studies of Zn-Ni-Fe Alloy Coatings for Better Corrosion Resistance Applications. *J. of Mater Eng and Perform* (2022). <https://doi.org/10.1007/s11665-022-06700-z>
  9. Bhat, R.S., Munjunatha, K.B., Venkatakrisna, K and A Chitharanjan Hegde, Electrodeposition of Zn–Co Coating and its Electrochemical Performance. *Prot Met Phys Chem Surf* (2022). <https://doi.org/10.1134/S207020512201004X>
  10. M. Neethu Raveendran and A Chitharanjan Hegde Anomalous codeposition of NiCo alloy coatings and their corrosion behaviour *Materials Today: Proceedings*, (2022) <https://doi.org/10.1016/j.matpr.2022.02.361>.
  11. Cindrella N. Gonsalves & A. Chitharanjan Hegde Development of corrosion-resistant Ni–Mo coatings from low-concentration bath: effect of magneto convection *Materials Science and Technology*, 37:14, (2021) 1187-1198. DOI: 10.1080/02670836.2021.1987696.
  12. Raveendran, M.N., Hegde, A.C. Electrodeposition of multilayer NiW alloy coating for improved anticorrosion performance. *Bull Mater Sci* 44, 84 (2021). <https://doi.org/10.1007/s12034-021-02390-w>
  13. Neethu Raveendran, M., Chitharanjan Hegde, A Effect of Potassium Sodium Tartrate on Composition and Corrosion Performance of Ni–W Alloy Coatings. *Surf. Engin. Appl. Electrochem.* 57, 268–276 (2021). <https://doi.org/10.3103/S1068375521020071>.
  14. Madhu N Nimbalkar and Badekai Ramachandra Bhat, “Simultaneous adsorption of methylene blue and heavy metals from water using Zr-MOF having free carboxylic group”, *Journal of Environmental Chemical Engineering*, <https://doi.org/10.1016/j.jece.2021.106216>, Vol.9, 2021.
  15. Saroja Anuma, Praveen Mishra and Badekai Ramachandra Bhat , “Polypyrrole functionalized Cobalt oxide Graphene (COPYGO) nanocomposite for the efficient removal of dyes and heavy metal pollutants from aqueous effluents”, *Journal of Hazardous Materials*, <https://doi.org/10.1016/j.jhazmat.2021.125929>, Vol.416, 2021.
  16. S.K. Kihoi, U.S. Shenoy, J.N. Kahi, H. Kim, D.K. Bhat and H.S. Lee, “Ultra-low lattice thermal conductivity and enhanced mechanical properties of Cu and Sb co-doped SnTe thermoelectric material with a complex microstructure evolution.” *ACS Sustainable Chemistry and Engineering*, 2022, 10, 1367-72.
  17. U.S. Shenoy, D.K. Bhat, “Halide (X = I, Br, Cl) Doping to tune the electronic structure for conversion of Pb<sub>0.6</sub>Sn<sub>0.4</sub>Te into a high performing thermoelectric material.” *Energy Advances*, 2022, 1, 9-14.

18. U.S. Shenoy, D.K. Bhat, Shenoy S.U. and Bhat, D.K. "Molybdenum as a versatile dopant in SnTe: A promising material for thermoelectric application." *Energy Advances*, 2022, 1, 15-20.
19. U.S. Shenoy, D.K. Bhat, "Selective co-doping improves the thermoelectric performance of SnTe: An outcome of electronic structure engineering." *Journal of Alloys and Compounds*, 2021, 892, 162221.
20. R. Basu, S. Mandava, U.S. Shenoy, D.K. Bhat, B. Khasimsaheb, A.K. Debnath, A. Singh, S. Neeleshwar, "Synergistic manifestation of band and scattering engineering in single aliovalent Sb alloyed anharmonic SnTe alloy in concurrence with rule of parsimony." *Materials Advances*, 2021, 2, 7891 - 7906.
21. J.N. Kahi, U.S. Shenoy, S.K. Kihoi, H. Kim, S. Yi, D.K. Bhat, H.S. Lee, "Optimized electronic performance in half-Heusler Ti-doped NbFeSb materials by stoichiometric tuning at the Fe and Sb sites." *Journal of Alloys and Compounds*, 2021, 891, 162033.
22. U.S. Shenoy, D.K. Bhat, "Vanadium: A protean dopant in SnTe for augmenting its thermoelectric performance." *ACS Sustainable Chemistry and Engineering*, 2021, 9, 13033 - 13038.
23. U.S. Shenoy, D.K. Bhat, "Improving ZT of SnTe by electronic structure engineering: Unusual behaviour of Bi dopant in the presence of Pb as a co-dopant." *Materials Advances*, 2021, 2, 6267 - 6271.
24. H. Bantawal, U.S. Shenoy, D.K. Bhat, "Vanadium doped CaTiO<sub>3</sub> cuboids: Role of vanadium in improving the photocatalytic activity." *Nanoscale Advances*, 2021, 3, 5301 - 5311.
25. S.K. Kihoi, U.S. Shenoy, D.K. Bhat, H.S. Lee, "Complimentary effect of co-doping aliovalent elements Bi and Sb in self-compensated SnTe-based thermoelectric materials." *Journal of Materials Chemistry C*, 2021, 9, 9922 - 9931.
26. U.S. Shenoy, D.K. Bhat, "Electronic structure modulation of Pb<sub>0.6</sub>Sn<sub>0.4</sub>Te via zinc doping and its effect on the thermoelectric properties." *Journal of Alloys and Compounds*, 2021, 872, 159681.
27. Kumar, M., Isloor, A.M., Todeti, S.R., Ismail, A.F., Farnood, R., "Hydrophilic nano-aluminum oxide containing polyphenylsulfone hollow fiber membranes for the extraction of arsenic (As-V) from drinking water", *Journal of Water Process Engineering*, 2021.
28. Naik, N.S., Padaki, M., Isloor, A.M., Nagaraja, K.K., Vishnumurthy, K.A., "Poly(ionic liquid)-Based charge and size selective loose nanofiltration membrane for molecular separation", *Chemical Engineering Journal*, 418, 129372, 2021.
29. Jafri, N.N.M., Jaafar, J., Alias, N.H., Matsuura, T., Isloor, A.M., "Synthesis and characterization of titanium dioxide hollow nanofiber for photocatalytic degradation of methylene blue dye", *Membranes*, 11(8), 581, 2021.
30. Kumar, M., Isloor, A.M., Todeti, S.R., Ismail, A.F., Susanti, R., "Effect of binary zinc-magnesium oxides on polyphenylsulfone/cellulose acetate derivatives hollow fiber membranes for the decontamination of arsenic from drinking water", *Chemical Engineering Journal*, 405, 126809, 2021.
31. Vainrot, N., Li, M., Isloor, A.M., Eisen, M.S., "New preparation methods for pore formation on polysulfone membranes", *Membranes*, 11(4), 292, 2021.
32. Viprabha Kakekuchi, Da-Wei Kuob, Chin-Ti Chen, Ezequiel Wolcan, Chao-Tsen Chen, and Udaya Kumar Dalimba. A Tale of Two Organic Small Molecular Hole Transporting Materials: Showing Same Extended Shelf-Life but Very Different Efficiency of Inverted MAPbI<sub>3</sub> Perovskite Solar Cells. *Organic Electronics*, 2022, 102, 106428. <https://doi.org/10.1016/j.orgel.2021.106428>.

33. Nikhil Puthiya Purayill, Viprabha Kakekochi, Udaya Kumar Dalimba, Keloth Chandrasekharan. All-Optical Diode Action Through Enhanced Nonlinear Response from Polymeric Photonic Crystal Microcavity. *ACS Applied Electronic Materials*, 2022. 4, 1,138–148. <https://doi.org/10.1021/acsaelm.1c00896>
34. Govindaraju, Indira; Zhuo, Guan-Yu; Ishita, Chakraborty; Melanthota, Sindhoora K; Mal, Sib S; Sarmah, Bhaswati; Baruah, Vishwa J; Mahato, Krishna K; Mazumder Nirmal, “Investigation of structural and physico-chemical properties of rice starch with varied amylose content: A combined microscopy, spectroscopy, and thermal study”, *Food Hydrocolloids*, <https://doi.org/10.1016/j.foodhyd.2021.107093>, Vol 122, 2022
35. Chakraborty, Ishita; Pooja N., Mal, Sib S; Paul, Uttam C.; Rahman, Md. Hafizur, Mazumder, Nirmal, “An Insight into the Gelatinization Properties Influencing the Modified Starches Used in Food Industry: A Review” *Food and Bioprocess Technology*, <https://doi.org/10.1007/s11947-022-02761-z>, 2022.
36. Vannathan, Anjana A; Kella, Tatinaidu; Shee, Debaprasad and Mal Sib S “Asymmetric polyoxometalate-polypyrrole nanohybrid based electrode material for electrochemical energy storage supercapacitors. *Journal of Electroanalytical Chemistry*, 2021, DOI : 10.1016/j.jelechem.2021.115856, VOL 904, 2021
37. Maity, Sukanya; Chandewar, Pranay R.; Shee, Debaprasad; Das, Partha P.; Mal, Sib S., “Activated carbon and graphene oxide supported manganese (III) vanadate for energy storage application: A comparative study”, *Journal of Alloys and Compounds*, DOI: 10.1016/j.jallcom.2021.163239, 2021.
38. Vannathan, Anjana A.; Kella, Tatinaidu; Shee, Debaprasad; Mal\*, Sib S., “Polyaniline-vanadophosphomolybdate nanohybrid as advanced electrode materials for high energy density electrochemical supercapacitor” *Ionics*, <https://doi.org/10.1007/s11581-021-04390-6>, Vol 20, 2022.
39. Maity, Sukanya; J.E., Madhushree; Biradar, Bhimaraya R.; Kella, Tatinaidu; Shee, Debaprasad; Das, Partha P.; Mal\*, Sib S.; “Polyoxomolybdates-polypyrrole-graphene oxide nanohybrid electrode for symmetric supercapacitor”, *Energy & Fuels*, <https://doi.org/10.1021/acs.energyfuels.1c03300>, Vol 35, 2021.
40. Kella, Tatinaidu; Vannathan, Anjana A.; Dutta, Saikat; Mal, Sib S.; Shee\*, Debaprasad, “Selective dehydration of 1-butanol to butenes over silica supported heteropolyacid catalysts: Mechanistic aspect” *Molecular Catalysis*, <https://doi.org/10.1016/j.mcat.2021.111975>, Vol 516, 2021.
41. Vannathan, Anjana A.; Thakre, Dewendra; Ali, Sk Rajab; De, Mrinmoy; Banerjee, Abhishek; Mal\*, Sib S.; “Investigations into the Supercapacitor activity of bisphosphonate-polyoxovanadate compounds”, *Journal of Solid State Chemistry*, <https://doi.org/10.1016/j.jssc.2021.122566>, Vol 304, 2021.
42. P. K., Muhammed A.; Vannathan, Anjana A.; Kella, Tatinaidu; Shee, Debaprasad; Mal\*, Sib S.; “Organic Cation Linkers Polyoxomolybdate-Polypyrrole nanocomposite based supercapacitors” <https://doi.org/10.1007/s11581-021-04114-w>, *Ionics*, Vol 27, 2021.
43. Maity, Sukanya; Vannathan, Anjana A.; Kella, Tatinaidu; Shee, Debaprasad; Das\* Partha P. and Mal\*, Sib S., “Electrochemical performance of activated carbon-supported polyoxomolybdates electrodes for energy conversion” *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2021.11581-021-04114-w>

- 6/j.ceramint.2021.06.128, Vol 47, 2021.
44. Maity, Sukanya; B. M., Neethu; Kella, Tatinaidu; Shee, Debaprasad; Das,\* Partha P. and Mal\*, Sib S.; “Activated Carbon-Supported Vanado-Nickelate (IV) Based Hybrid Materials for Energy Application” *Journal of Energy Storage*, <https://doi.org/10.1016/j.est.2021.102727>, Vol 40, 2021.
45. Anjana, Anandan V., Kella, Tatinaidu; Shee,; Debaprasad Mal\*, Sib S., “One-pot synthesis of Polyoxometalate decorated polyindole for the high energy storage supercapacitors” *ACS Omega*, <https://doi.org/10.1021/acsomega.0c05967>, Vol 6, 2021.
46. Bhat, Navya S; Mal, Sib S.; Dutta\*, Saikat, “Recent advances in the preparation of levulinic esters from biomass-derived furanic and levulinic chemical platforms using heteropoly acid (HPA) catalysts” *Molecular Catalysis*, <https://doi.org/10.1016/j.mcat.2021.111484>, Vol 505, 2021.
47. Bhaskaran, R. P., Nayak, K. H., and Babu, B. P. (2021). “Synthesis of functionalized benzo[1,3]dioxin-4-ones from salicylic acid and acetylenic esters and their direct amidation.” *RSC Adv.*, 11(40), 24570–24574.
48. Temperature-dependent conformational Evolution of SARS CoV-2 RNA Genome Using Network Analysis. Omkar Singh, Pushyaraga P Venugopal, Apoorva Mathur and D. Chakraborty, *J. Phys. Chem. B*, 125, 10672 (2021).
49. Preferential binding affinity of ions and their effect on structure and dynamics of water near antimicrobial peptide. Omkar Singh and D. Chakraborty, *J. Mol. Liq.*, 344, 117789 (2021).
50. Exploring the potential role of quercetin in corrosion inhibition of aluminium alloy 6063 in hydrochloric acid solution by experimental and theoretical studies. D. Kumari, Pushyaraga P Venugopal; Reena Kumari P D, D. Chakraborty. *J Adhes Sci Technol* (accepted). DOI: <https://doi.org/10.1080/>
51. Deciphering the Competitive Inhibition of Dihydropteroate Synthase by 8 Mercaptoguanine Analogues: Enhanced Potency in Phenylsulfonyl fragments. B. K. Das and D. Chakraborty, *J. Biomol. Struct. Dyn.*, accepted, (2021). DOI: 10.1080/07391102.2021.1981452.
52. Theoretical Insights into Molecular Mechanism and Energy Criteria of PARP-2 Enzyme Inhibition by Benzimidazole Analogues. Pushyaraga P Venugopal, M Shilpa and D. Chakraborty, *Proteins*, 89, 988 (2021).
53. Anti-corrosion investigation of a new Nitro Veratraldehyde substituted Imidazopyridine derivative Schiff base on Mild Steel surface in Hydrochloric acid medium: Experimental, Computational, Surface morphological analysis. V. K. Shenoy, P. Venugopal, Reena Kumari P. D., D. Chakraborty, *Mater. Chem. Phys.*, 281, 125855, (2022).
54. Dutta, Saikat; Bhat, Navya Subray, “Chemocatalytic value addition of glucose without carbon-carbon bond cleavage/formation reactions: Overview”, *RSC Advances*, DOI: 10.1039/D1RA09196D, vol 12, pp 4891-4912, 2022.
55. Dutta, Saikat; Bhat, Navya Subray, “Catalytic transformation of biomass-derived furfurals to cyclopentanones and their derivatives: A review,” *ACS Omega*, DOI: 10.1021/acsomega.1c05861, vol 6, pp 35145-35172, 2021.
56. Dutta, Saikat, “Valorization of biomass-derived furfurals: reactivity patterns, synthetic strategies, and applications,” *Biomass Conversion and Biorefinery*, DOI: 10.1007/s13399-021-01924-w, 2021.
57. Vinod, Nivedha; Dutta, Saikat, “Energy Densification of Biomass-

- Derived Furfurals to Furanic Biofuels by Catalytic Hydrogenation and Hydrodeoxygenation Reactions,” *Sustainable Chemistry*, DOI: 10.3390/suschem2030029, vol 2, pp 521-549, 2021.
58. Saska, Jan; Dutta, Saikat; Kindler, Alois; Zuend, Stephen; Mascall, Mascall, “Efficient and Scalable Production of Isoindole from Isoindoline,” *ACS Sustainable Chemistry and Engineering*, DOI: 10.1021/acssuschemeng.1c04141, vol 9, pp 11565-11570, 2021.
59. Aravind Kumar, Jagadeeshan; Krithiga, T; Vijai Anand, K; Sathish, S.; Karthick Raja Namasivayam, S.; Renita, A. A.; Hosseini-Bandegharai, A.; Praveenkumar, T. R.; Rajasimman, M., Bhat, Navya Subray; Dutta, Saikat, “Kinetics and regression analysis of phenanthrene adsorption on the nanocomposite of CaO and activated carbon: Characterization, regeneration, and mechanistic approach,” *Journal of Molecular Liquids*, DOI: 10.1016/j.molliq. 2021.116080, 2021, vol 334, pp 116080.
60. Santhra, Krishna P.; Salin, Ashritha; Dutta, Saikat; Mandal, Saumen, “A roadmap to UV-protective natural resources: classification, characteristics, and applications,” *Materials Chemistry Frontiers*, DOI: 10.1039/D1QM00741F, vol 5, pp 7696-7723, 2021.
61. Dutta, Saikat; Bhat, Navya Subray, “Recent advances in the value addition of biomass-derived levulinic acid: A review focusing on its chemical reactivity patterns,” *ChemCatChem*, DOI: 10.1002/cctc. 202100032, vol 13, pp 3202-3222, 2021.
62. Mohan, Akhil; Dutta, Saikat; Balusamy, S.; Madav, Vasudeva, “Liquid fuel from waste tires: novel refining, advanced characterization and utilization in engines with ethyl levulinate as an additive,” *RSC Advances*, DOI: 10.1039/D0RA08803J, vol 11, pp 9807-9826, 2021.
63. Shetti, V. S., “Chemical syntheses and salient features of azulene-containing homo- and copolymers”, *Beilstein J. Org. Chem.*, DOI: <https://doi.org/10.3762/bjoc.17.139>, Vol. 17, page: 2164–2185, 2021.

### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

1. T. N. Gautam, R. Reddivari and Debashisha Jena, “A cost-effective single-phase semi flipped gamma type magnetically coupled impedance source inverters”, *International Journal of Circuit Theory and Applications* PISSN: 00989886, VOL 49, April 2021, 1078-1102, 10.1002/cta.2.
2. Gaurav Ranjan, B Rajanarayan Prusty and Debashisha Jena, “Review of preprocessing methods for univariate volatile time-series in power system applications”, *Electric Power Systems Research* PISSN: 03787796, VOL 191, April 2021, 1-17, 10.1016/j.epsr
3. Karan and R Kalpana, “Design and Development of Modular Dual-Input DC-DC Step-Up Converter for Telecom Power Supply”, *IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS* PISSN: 00939994 VOL 57, May 2021, 2591-2601, 10.1109/TIA.2021.305.
4. S. Adarsh and H. Nagendrappa “Duty ratio control of three port isolated bidirectional asymmetrical triple active bridge DC-DC converter”, *International Journal of Power Electronics and Drive Systems* PISSN: 20888694, VOL 9, June 2021, 943-956, 10.11591/ijpeds.v12.i2.pp943-956.
5. Kodari Rajkumar, P. Parthiban and Nalla Lokesh, “Control of transformerless T-type DVR using

- multiple delayed signal cancellation PLL under unbalanced and distorted grid condition”, Engineering Science and Technology, an International Journal PISSN: 22150986, Vol 24, August , 2021, 925-935, 10.1016/j.jestch.2021.01.013.
6. G. S. Krishna and Tukaram Moger, “A novel adaptive dynamic photovoltaic reconfiguration system to mitigate mismatch effects”, Renewable and Sustainable Energy Reviews PISSN: 13640321, VOL 141, May 2021, 1-11, 10.1016/j.rser.2021.1107.
7. Mir Khadim Aalam and K.N. Shubhanga, “An integrated PMU architecture for Power Systems Applications”, International Journal of Emerging Electric Power Systems, 9th September 2021, <https://doi.org/10.1515/ijeeps-2021-0151>
8. A. M. Joshua and K. P. Vittal, “Protection schemes for a battery energy storage system based microgrid”, Electric Power Systems Research, March 2022, 204.107701.10.1016/j.epwr.2021.107701.
9. A. M. Joshua and K. P. Vittal, “Incremental transient power-based protection scheme for a DC microgrid”, Electrical Engineering, January 2022, 10.1007/s00202-021-01461-9.
10. Nisha K. S. and Dattatraya N. Gaonkar, “Model Predictive Controlled Three Level Bidirectional Converter with Voltage Balancing Capability for Setting up EV Fast Charging Stations in Bipolar DC Microgrid”, Electrical Engineering, February 2022, <https://doi.org/10.1007/s00202-022-01492-w>.
11. Shreeram V Kulkarni and Dattatraya N. Gaonkar, “Improved droop control strategy for parallel connected power electronic converter based distributed generation sources in an islanded microgrid”, Electric Power Systems Research, VOL 201, December 2021, 107531, 10.1016/j.epwr.2021.107531.
12. Shreeram V Kulkarni, Dattatraya N. Gaonkar and Josep M Guerrero, “Operation of the microgrid with improved droop control strategy and an effective islanding detection technique for automatic mode switching”, Electric Power Components and Systems, October 2021, 1-15, 10.1080/15325008.2021.1970289
13. Shreeram V Kulkarni, Vasudha Hegde and Dattatraya N. Gaonkar, “A Novel Islanding Detection Technique Based on Piezoelectric Sensors for Grid-Integrated DG Systems”, IETE Journal of Research, November 2021, 1-16, 10.1080/03772063.2021.1999336
14. Swathi Tangi and D. N. Gaonkar, Voltage Estimation of Active Distribution Network Using PMU Technology”, IEEE Access, VOL 9, July 2021, 100436-100446, 10.1109/ACCESS.2021.3097001
15. Shreeram V Kulkarni and Dattatraya N. Gaonkar, “HIL Implementation of an Islanding Detection and an Automatic Mode Switching for Droop Based Microgrid” (Scopus), International Journal of Power Electronics, VOL 15, December 2021, 37-54.
16. Ravikiran Hiremath and Tukaram Moger, “Improving the DC-Link Voltage of DFIG Driven Wind System using Modified Sliding Mode Control” (Scopus), Distributed Generation & Alternative Energy Journal, 2022 (Article in Press).
17. Ravikiran Hiremath and Tukaram Moger, “Modified Super Twisting Algorithm based Sliding Mode

- Control for LVRT Enhancement of DFIG Driven Wind System”, Energy Report, VOL 8, 2022, 3600-3613,  
<https://doi.org/10.1016/j.egy.2022.02.235>
18. Vikas Singh, Tukaram Moger and Debashisha Jena, “Uncertainty handling techniques in power systems: A critical review”, Electric Power Systems Research, VOL 203, 25th October 2021, 1-2,  
<https://doi.org/10.1016/j.epsr.2021.107633>
19. Ravikiran Hiremath and Tukaram Moger, “LVRT enhancement of DFIG-driven wind system using feed-forward neuro-sliding mode control” (Scopus), Open Engineering (formerly Central European Journal of Engineering), VOL 11, No. 1, 21st October 2021, 1000-1014,  
<https://doi.org/10.1515/eng-2021-0100>
20. G. S. Krishna and Tukaram Moger, “Investigation of Power losses on Solar Photovoltaic Array Interconnections Under Mismatch Conditions” (Scopus), Technology and Economics of Smart Grids and Sustainable Energy, VOL 6, No. 22, 14th October 2021,  
<https://doi.org/10.1007/s40866-021-00117-8>
21. Reddivari, Reddyprasad & Debashisha Jena, “A low voltage harvesting in photovoltaic generation systems using negative embedded Z- source inverter”, International Transactions on Electrical Energy Systems, VOL 31, No. 9, 2021, 1- 22,  
[doi.org/10.1002/2050-7038.13018](https://doi.org/10.1002/2050-7038.13018)
22. A. Kumar Singh, R. Kumar Mandal, R. Raushan, and R. Anand, “Five-level Switched Capacitor Inverter for Photovoltaic Applications”, IETE technical review, 2022, 1-8,  
[10.1080/02564602.2021.2016074](https://doi.org/10.1080/02564602.2021.2016074)
23. Febin Daya John Lionel, Jacintha Dias, Mohan Krishna Srinivasan, Balamurugan Parandhaman, and Prajof Prabhakaran, “A novel non-isolated dual-input DC-DC boost converter for hybrid electric vehicle application”, International Journal of Emerging Electric Power Systems, Vol 22, No. 2, 2021, 191-204,  
<https://doi.org/10.1515/ijeeps-2020-0229>
24. Febin Daya John Lionel, Jestin Jayan, Mohan Krishna Srinivasan, and Prajof Prabhakaran, “DC-link current based position estimation and speed sensorless control of a BLDC motor used for electric vehicle applications”, International Journal of Emerging Electric Power Systems, VOL 22, No. 3, 2021, 269-284,  
<https://doi.org/10.1515/ijeeps-2020-0235>
25. Pramod Bhat Nempu, Jayalakshmi Narayana Sabhahit, Dattatraya Narayan Gaonkar and Vidya Sudarshan Rao, “Novel Power Smoothing Technique for a Hybrid AC-DC Microgrid Operating with Multiple Alternative Energy Sources”, Advances in Electrical and Computer Engineering, VOL 21, No. 3, May 2021, 99-106,  
[10.4316/AECE.2021.02011](https://doi.org/10.4316/AECE.2021.02011)
26. T. N. Gautam, R. Reddivari and D. Jena, “A cost-effective single-phase semi flipped gamma type magnetically coupled impedance source inverters”, International Journal of Circuit Theory and Applications, Vol 49, No. 4, April 2021, 1078-1102,  
[org/10.1002/cta.2865](https://doi.org/10.1002/cta.2865)
27. Keshava Ajeya and Vinatha U, “Control of zeta converter and Hybrid Energy Storage System (HESS) using small signal analysis with state feedback”, 2021, 6th International Conference for Convergence in Technology (I2CT), Pune, India, 2021.
28. Ravikiran Hiremath and Tukaram Moger, “Transient Analysis of LCC based HVDC Offshore Wind Farms using DIGSILENT PowerFactory” International 7th Iran Wind Energy Conference (IWEC2021) under a

- cooperation between Iranian Wind Energy Association (IRWEA) and Shahrood University of Technology, Iran., 17th & 18th May 2021, <https://doi.org/10.1109/IWEC52400.2021.9467031>
29. Vikas Singh, Tukaram Moger and Debashisha Jena, "Comparative Evaluation of Basic Probabilistic Load Flow Methods with Wind Power Integration", 2020 3rd International Conference on Energy, Power and Environment: Towards Clean Energy Technologies at Department of Electrical Engineering, NIT Meghalaya, Shillong, India., 21st April 2021, <https://doi.org/10.1109/ICEPE50861.2021.9404524>
30. Rajesh Kanna R., Raja Singh R and Arun Dominic D, "Impact Analysis of Single Line to Ground Fault on Industrial Loads Using Typhoon HIL", Innovations in Electrical and Electronic Engineering. Lecture Notes in Electrical Engineering, VOL 756. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0749-3\\_5](https://doi.org/10.1007/978-981-16-0749-3_5). (Scopus)
31. Ritik Argawal, Dattatraya Kalel, M Harshit, Arun D Domnic and R Raja Singh, "Sensor Fault Detection using Machine Learning Technique for Automobile Drive Applications", National Power Electronics Conference (NPEC), 15-17 Dec. 2021, Bhubaneswar, India. DOI: 10.1109/NPEC52100.2021.9672546 (Scopus).
32. Raghavendra Rao P, Vignesh Kumar V, B. Venkatesaperumal. Balasubramanian and V. V. Ramana, "Modified Current Control for Tracking Global Peak under fast changing Partial Shading Conditions", IEEE Transactions on Energy Conversion, (early access) 2021. DOI: 10.1109/TEC.2021.3122550.
33. Malik, H., Ahmad, M. W., Alotaibi, M. A. and Almutairi, A., "Development of wide area monitoring system for smart grid application". Journal of Intelligent & Fuzzy Systems, 42(2), 827-839, *Annual Report 2021-22*
- 2022, DOI:10.3233/JIFS-189752.
34. Ahmad Md Waseem, Naga Brahmendra Yadav Gorla, Hasmat Malik and Sanjib Kumar Panda, "Noninvasive Model-Based Open-Circuit Switch Fault Detection of AC-Bypass Leg Switches in Transformerless PV Inverter", IEEE Journal of Emerging and Selected Topics in Power Electronics 9, No. 6, 6671-6680, 2021, DOI: 10.1109/JESTPE.2021.3098195
35. C. Shah and I. R. Rao, "Wye-Delta and Delta-Wye Transformations of Proximally-Coupled Inductor Triads", 2021 International Conference on Intelligent Technologies (CONIT), 1-6, 2021, DOI: 10.1109/CONIT51480.2021.9498558.
36. I. R. Rao, Jora M. Gonda and S. T. Surampudi, "A Matrix Inversion-Based Algorithm for Economic Scheduling of Power Outputs of Thermal Units in an Electric Power System Without Losses", 2021 Ural-Siberian Smart Energy Conference (USSEC), 1-6, 2021, DOI: 10.1109/USSEC53120.2021.9655717.
37. Raghavendra Rao P, Vignesh kumar V and Venkatesaperumal B, "Loss Analysis of Conventional and Three Level Boost DC-DC Converters Employed for MPPT in PV Systems", IEEE DELCON, NewDelhi. ,11th - 13th February, 2022.
38. Aditya Chandrasekar, Dhanush D Shekar, Abhishek C Hiremath, Krishnan Chemmanga, "Detection of arrhythmia from electrocardiogram signals using a novel gaussian assisted signal smoothing and pattern recognition", Biomedical Signal Processing and Control, <https://doi.org/10.1016/j.bspc.2021.103469>, 2022.

**DEPARTMENT OF ELECTRONICS  
& COMMUNICATION  
ENGINEERING**

1. Ravikumar, K.N., Yadav, A., Kumar, H., Gangadharan, K.V., Narasimhadhan, A.V., "Gearbox fault diagnosis based on Multi-Scale deep residual learning and stacked LSTM model", Measurement: Journal of the International Measurement Confederation 186,110099.
2. Pardhasaradhi, B., Srinath, G., Vandana, G.S., Srihari, P., Aparna, P., "GNSS Spoofing Detection and Mitigation in Multi-receiver configuration via Tracklets and Spoofer Localization", IEEE Access, 2022.
3. Poola, L., Aparna, P., "An efficient parallel-pipelined intra prediction architecture to support DCT/DST engine of HEVC encoder", Journal of Real-Time Image Processing, 2022.
4. Pardhasaradhi, B., Srihari, P., Aparna, P., "Spoofer-to-Target Association in Multi-Spoofing Multi-Target Scenario for Stealthy GPS Spoofing", IEEE Access, 2021, 9, pp. 108675–108688, 9495815.
5. Dhruvakumar, T., Chaturvedi, A., "Intelligent Reflecting Surface assisted millimeter wave communication for achievable rate and coverage enhancement", Vehicular Communications, 2022, 33, 100431.
6. Rajesh, G., Chaturvedi, A., "Data Reconstruction in Heterogeneous Environmental Wireless Sensor Networks Using Robust Tensor Principal Component Analysis", IEEE Transactions on Signal and Information Processing over Networks, 2021, 7, pp. 539–550, 9517019.
7. Hagargund, A.G., Kulkarni, M., Satheesh, H.S., "Performance analysis of cost effective multi-hop Time Sensitive Network for IEEE 802.1Qbv and IEEE 802.1Qbu standards", Journal of Physics: Conference Series, 2022, 2161(1), 012002.
8. Kharat, P., Kulkarni, M., "Modified QUIC protocol with congestion control for improved network performance", IET Communications, 2021, 15(9), pp. 1210–1222.
9. Polaiiah, G., Krishnamoorthy, K., Kulkarni, M., "Compact high-efficiency pentahedron and quatrefoil shape antennas with enhanced gain for GSM1800, 3G, 4G-LTE energy harvesting applications", International Journal of Microwave and Wireless Technologies, 2021, 13(3), pp. 274–281045.
10. Kharat, P., Kulkarni, M., "ModQUIC protocol performance verification with CUBIC and BBR congestion control mechanisms", International Journal of Internet Protocol Technology 2021, 14(3), pp. 177–187.
11. Polaiiah, G., Kandasamy, K., Kulkarni, M., "An Autonomous Frequency Reconfigurable Antenna Using Slotline Open-Loop Resonators" IEEE Access, 2021.
12. Bellary, A., Kandasamy, K., Rao, P.H., "Analysis of Wave Propagation Models with Radio Network Planning using Dual Polarized MIMO Antenna for 5G Base Station Applications", IEEE Access, 2022.
13. Arun Kumar, D., Puneeth Kumar, T., Krishnamoorthy, K., Devadas Bhat, P., Rahman, M.R., "Flexible Electromagnetic Shielding Material Using Multi-Walled Carbon Nanotube Coated Cotton Fabric", IEEE Transactions on Components, Packaging and Manufacturing Technology, 2022.
14. Usha, L., Kandasamy, K., "Circularly polarized rectangular dielectric resonator antenna with elliptical aperture feed for 5 GHz ISM band", International Journal of RF and Microwave Computer-Aided Engineering, 2021, 31(12), e22882.
15. Rudramuni, K., Majumder, B., Rajanna, P.K.T., Kandasamy, K., Zhang, Q., "Dual-Band Asymmetric Leaky-Wave Antennas for Circular Polarization and

- Simultaneous Dual Beam Scanning", IEEE Transactions on Antennas and Propagation, 2021, 69(4), pp. 1843–1852, 9210816.
16. Anudeep, B., Krishnamoorthy, K., Rao, P.H., "Low-profile, wideband dual-polarized  $1 \times 2$  MIMO antenna with FSS decoupling technique", International Journal of Microwave and Wireless Technologies, 2021.
  17. Reddy, S.K., Singh, M., "Porous-Silicon Assisted Hybrid Plasmonic Slot Waveguide Based On-Chip Ethanol Sensor" IEEE Sensors Journal, 2022, 22(3), pp. 2062–2069.
  18. Reddy, S.K., Sahu, S.K., Khoja, R., Kanu, S., Singh, M., "Theoretical Analysis of On-Chip Vertical Hybrid Plasmonic Nanograting", Plasmonics, 2022, 17(1), pp. 257–263.
  19. Ratnesh, R.K., Goel, A., Kaushik, G., ...Singh, M., Prasad, B., "Advancement and challenges in MOSFET scaling", Materials Science in Semiconductor Processing, 2021, 134, 106002.
  20. Reddy, S.K., Singh, M., "Nanoscale Tapered Hybrid Plasmonic Waveguide for On-Chip Silicon Photonics" Silicon, 2021.
  21. S K, N., Das, A., Kumar P, M., Bhagavathiachari, M., Nair, R.G., "Effect of aspect ratio of c-axis oriented ZnO nanorods on photoelectrochemical performance and photoconversion efficiency" Optical Materials, 2021, 121, 111551.
  22. Srinath, G., Pardhasaradhi, B., Prashantha Kumar, H., Srihari, P., "Tracking of Radar Targets with In-band Wireless Communication Interference in RadComm Spectrum Sharing", IEEE Access, 2022.
  23. Srinath, G., Kumar, H.P., Srihari, P., Tharmarasa, R., Kirubarajan, T., "Coherent Radar Target Detection With In-Band Cyclostationary Wireless Interference", IEEE Access, 2022, 10, pp. 11173–11190.
  24. Ratnam, V., Krishnan, P., "Bit error rate analysis of ground-to-high altitude platform free-space optical communications using coded polarization shift keying in various weather conditions" Optical and Quantum Electronics, 2022, 54(1), 27.
  25. Kumar, A., Krishnan, P., "RoFSO system based on BCH and RS coded BPSK OFDM for 5G applications in smart cities" Optical and Quantum Electronics, 2022, 54(1), 18.
  26. Mohamed Nizar, S., Caroline, E., Krishnan, P., "Design and Investigation of a High-Sensitivity PCF Sensor for the Detection of Sulfur Dioxide" Plasmonics, 2021, 16(6), pp. 2155–2165.
  27. Berry, A., Anand, N., Anandan, S., Krishnan, P., "High-Performance Eight-Channel Photonic Crystal Ring Resonator-Based Optical Demultiplexer for DWDM Applications", Plasmonics, 2021, 16(6), pp. 2073–2080.
  28. Naik, R.P., Simha, G.D.G., Krishnan, P., "Wireless-optical-communication-based cooperative IoT and IoUT system for ocean monitoring applications" Applied Optics, 2021, 60(29), pp. 9067–9073.
  29. Levidala, B.K., Ramavath, P.N., Krishnan, P., "Performance enhancement using multiple input multiple output in dual-hop convergent underwater wireless optical communication-free-space optical communication system under strong turbulence with pointing errors", Optical Engineering, 2021, 60(10), 106106.
  30. Nallagonda, V.R., Krishnan, P., "Bit error rate analysis of polarization shift keying based free space optical link over different weather conditions for inter unmanned aerial vehicles communications", Optical and Quantum Electronics, 2021, 53(9), 538.
  31. Nallagonda, V.R., Krishnan, P., "Performance analysis of FSO based inter-UAV communication

- systems" *Optical and Quantum Electronics*, 2021, 53(4), 192.
32. Senthil, R., Anand, U., Krishnan, P., "Hollow-core high-sensitive photonic crystal fiber for liquid-/gas-sensing applications", *Applied Physics A: Materials Science and Processing*, 2021, 127(4), 282.
33. Srinath, G., Pardhasaradhi, B., Prashantha Kumar, H., Srihari, P., "Tracking of Radar Targets with In-band Wireless Communication Interference in RadComm Spectrum Sharing", *IEEE Access*, 2022.
34. Aatresh, A.A., Yatgiri, R.P., Chanchal, A.K., ...Lal, S., Kini, J., "Efficient deep learning architecture with dimension-wise pyramid pooling for nuclei segmentation of histopathology images", *Computerized Medical Imaging and Graphics*, 2021, 93, 101975.
35. Puninchathaya, P.D., Rao, M., Rao, R., Kumar, S., Ahmed, R.M., "Experimental investigations on flexurally amplified piezoactuator based active vibration isolation system using PID controller", *Mechatronic Systems and Control*, 2021, 49(3), pp. 132–141.
36. Veerasha, R.K., Muralidhara, Rao, R., Sushith, K., Shilpa, M.K., "Damage Analysis of Tool-Based Micromachining Setup Using Electrical Continuity-Based Contact Detection System", *Journal of Failure Analysis and Prevention*, 2021, 21(2), pp. 588–594.
37. Keremane, K.S., Rao, R., Adhikari, A.V., "Simple 3,6-disubstituted Carbazoles as Potential Hole Transport Materials: Photophysical, Electrochemical and Theoretical Studies", *Photochemistry and Photobiology*, 2021, 97(2), pp. 289–300.
38. Lad Kirankumar, H., Rekha, S., Laxminidhi, T., "Low mismatch high-speed charge pump for high bandwidth phase locked loops", *Microelectronics Journal*, 2021, 114, 105156
39. Gupta, S., Rawat, S., Kumar, S., "A Compact Design of UWB Monopole Antenna with Dual Notched Bands for WiMAX Applications", *Journal of Nano- and Electronic Physics*, 2022, 14(1), 01006
40. Vignesh, R., Gorre, P., Kumar S. "A novel wide bandwidth FBSSIR integrated low noise amplifier for satellite navigational receiver system", *Microelectronics Journal*, 2021, 117, 105288.
41. Sharma, V., Arya, R., Kumar, S., "Robust transmission using channel encoding towards 5G New Radio: A telemetry approach", *Computers and Electrical Engineering*, 2021, 95, 107377.
42. Vignesh, R., Gorre, P., Song, H., Kumar, S., "Highly robust X-band quasi circulator-integrated low-noise amplifier for high survivability of radio frequency front-end systems", *International Journal of Circuit Theory and Applications*, 2021, 49(7), pp. 2170–2182.
43. Kumar, R., Dwari, S., Kanaujia, B.K., Kumar, S., Song, H., "A 8–12 GHz, 44.3 dBm RF output class FF<sup>-1</sup> DPA using quad-mode coupled technique for new configurable front-end 5G transmitters", *Analog Integrated Circuits and Signal Processing*, 2021, 107(3), pp. 497–510.
44. Roy, G.M., Dwari, S., Kanaujia, B.K., Kumar, S., Song, H., "Active feedback supported CMOS LNA blended with coplanar waveguide-fed antenna for Wi-Fi networks", *IET Microwaves, Antennas and Propagation*, 2021, 15(6), pp. 537–546.
45. Gorre, P., Vignesh, R., Song, H., Kumar, S., "A 64 dB $\Omega$ , 25 Gb/s GFET based transimpedance amplifier with UWB resonator for optical radar detection in medical applications", *Microelectronics Journal*, 2021, 111, 105026.
46. Gorre, P., Vignesh, R., Song, H., Kumar, S., "A 61.2-dB $\Omega$ , 100 Gb/s Ultra-Low Noise Graphene TIA over D-Band Performance for 5G Optical

- Front-End Receiver", *Journal of Infrared, Millimeter, and Terahertz Waves*, 2021, 42(3), pp. 239–259.
47. Priyanka, Sravya, N., Lal, S., ...Reddy, C.S., Dell'Acqua, F., "DIResUNet: Architecture for multiclass semantic segmentation of high resolution remote sensing imagery data", *Applied Intelligence*, 2022.
  48. Chanchal, A.K., Lal, S., Kini, J., "Deep structured residual encoder-decoder network with a novel loss function for nuclei segmentation of kidney and breast histopathology images", *Multimedia Tools and Applications*, 2022.
  49. Chanchal, A.K., Lal, S., Kini, J., "High-resolution deep transferred ASPPU-Net for nuclei segmentation of histopathology images", *International Journal of Computer Assisted Radiology and Surgery*, 2021, 16(12), pp. 2159–2175.
  50. Aatresh, A.A., Yatgiri, R.P., Chanchal, A.K., ...Lal, S., Kini, J., "Efficient deep learning architecture with dimension-wise pyramid pooling for nuclei segmentation of histopathology images", *Computerized Medical Imaging and Graphics*, 2021, 93, 101975.
  51. Aatresh, A.A., Alabhya, K., Lal, S., Kini, J., Saxena, P.P., "LiverNet: efficient and robust deep learning model for automatic diagnosis of subtypes of liver hepatocellular carcinoma cancer from H&E stained liver histopathology images", *International Journal of Computer Assisted Radiology and Surgery*, 2021, 16(9), pp. 1549–1563.
  52. Iyer, P., A, S., Lal, S., "Deep learning ensemble method for classification of satellite hyperspectral images", *Remote Sensing Applications: Society and Environment*, 2021, 23, 100580.
  53. Chanchal, A.K., Kumar, A., Lal, S., Kini, J., "Efficient and robust deep learning architecture for segmentation of kidney and breast histopathology images", *Computers and Electrical Engineering*, 2021, 92, 107177.
  54. Roy, S., Das, D., Lal, S., Kini, J., "Novel edge detection method for nuclei segmentation of liver cancer histopathology images" *Journal of Ambient Intelligence and Humanized Computing*, 2021.
  55. Bindu S., Sumam David S., Vinod V. Thomas, Characterization of Fault Signature Due to Combined Air-Gap Eccentricity and Rotor Faults in Induction Motors, *International Review on Modeling and Simulations*, Vol 14, No 5, pp. 345-358, October 2021.
  56. Pandey, H., Kumar, M., Tripathi, D., Pandey, S., "A novel approach to enhance the superconducting properties of  $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_4$  by inserting Mott insulator  $\text{Sr}_2\text{IrO}_4$ ", *Materials Today Communications*, 2021, 29, 102936.
  57. Sushama, S., Murkute, P., Ghadi, H., Pandey, S.K., Chakrabarti, S., "Enhancement in structural, elemental and optical properties of boron-phosphorus Co-doped ZnO thin films by high-temperature annealing", *Journal of Luminescence*, 2021, 238, 118221.
  58. Prabhu, S., Pandey, S.K., Chakrabarti, S., "Theoretical investigations of band alignments and SnSe BSF layer for low-cost, non-toxic, high-efficiency CZTSSe solar cell", *Solar Energy*, 2021, 226, pp. 288–296.
  59. Sengar, B.S., Garg, V., Siddharth, G., ...Kumar, S., Mukherjee, S., "Improving the  $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ -Based Photovoltaic Conversion Efficiency by Back-Contact Modification", *IEEE Transactions on Electron Devices*, 2021, 68(6), pp. 2748–2752, 9410338.
  60. Mishra, M., Sushama, S., Pandey, S.K., Chakrabarti, S., "Phosphorus doping of ZnO using spin-on dopant process: A better choice than costly and destructive ion-implantation technique", *Journal of Luminescence*, 2021, 233, 117921.
  61. Shashikant, S.G., Simha, G.D.G., Acharya, U.S., "Generalized designs for precoded receive spatial modulation derived from non-orthogonal space time block codes", *Telecommunication Systems*, 2022, 79(3), pp. 405–416.

**DEPARTMENT OF INFORMATION TECHNOLOGY**

1. Natesha B V and Ram Mohana Reddy Guddeti, "Meta-Heuristic based Hybrid Service Placement Strategies for Two-level Fog Computing Architecture", Accepted for Publication dated 24 March 2022, Springer Journal of Network and System Management **(SCI/Scopus)**.
2. Rashmi M and Ram Mohana Reddy Guddeti, "Human Identification System Using 3D Skeleton-Based Gait Features and LSTM Model", Elsevier Journal of Visual Communication and Image Representation, Vol. 82, January 2022, 103416 (First Online Jan. 4, 2022) <https://doi.org/10.1016/j.jvcir.2021.103416> **(SCI/Scopus)**.
3. Hafeez Ali A, Sanjeev U Rao, Swaroop Ranganath, Ashwin T S, and Ram Mohana Reddy Guddeti, "A Google Glass Based Real-Time Scene Analysis for the Visually Impaired", IEEE Access, Vol. 9, pp. 166351-166369, First Publication Dated December 13, 2021, DOI: [10.1109/ACCESS.2021.3135024](https://doi.org/10.1109/ACCESS.2021.3135024) **(SCI/Scopus)**.
4. Saurabh Agarwala, Aniketh Anagawadi and Ram Mohana Reddy Guddeti, "Detecting Semantic Similarity Of Documents Using Natural Language Processing", Elsevier Procedia Computer Science, Vol 189 (2021), pp. 128-135. DOI: <https://doi.org/10.1016/j.procs.2021.05.076>
5. Karthik K and Sowmya Kamath S, "MSDNet: A Deep Neural Ensemble Model for Abnormality Detection and Classification from Plain Radiographs" Journal of Ambient Intelligence and Humanized Computing, Springer Hiedelberg, ISSN: 1868-5145 (SCI, IF 7.104)
6. Veena Mayya; Sowmya Kamath S; Uma Kulkarni; Divyalakshmi Kaiyoor Surya; U Rajendra Acharya, "Application of Novel Preprocessing Techniques with Convolutional Neural Networks for Accurate Detection of Chronic Ocular Diseases using Fundus Images, Springer Applied Intelligence, ISSN: 1573-7497 , (SCI, IF 5.086)
7. Sujan Reddy, Akashdeep S, Harshvardhan A, Sowmya Kamath S, "Stacking Deep learning and Machine Learning models for Short-term Energy Consumption Forecasting", Advanced Engineering Informatics. Elsevier, ISSN: 0167-947, IF 5.603 (SCIE, Scopus)
8. Mayya, Veena, Sowmya Kamath Shevgoor, Uma Kulkarni, Manali Hazarika, Prabal Datta Barua, and U. Rajendra Acharya. "Multi-Scale Convolutional Neural Network for Accurate Corneal Segmentation in Early Detection of Fungal Keratitis." Journal of Fungi 7, no. 10 (2021): 850, [DOI:10.3390/jof7100850] [SCI, IF: 5.816]
9. Veena Mayya, Gokul S Krishnan, Sowmya Kamath S and Tushaar Gangavarapu, "Multi-channel, Convolutional Attention based Neural Model for Automated Diagnostic Coding of Unstructured Patient Discharge Summaries", Future Generation Computer Systems, Elsevier, 2021 [SCI, IF: 7.187] [DOI: 10.1016/j.future.2021.01.013]
10. Veena Mayya, Sowmya Kamath S, Uma Kulkarni, "Automated Microaneurysms Detection for Early Diagnosis of Diabetic Retinopathy: A Comprehensive Review", Computer Methods and Programs in Biomedicine, Elsevier, ISSN: 0169-2607 (10.1016/j.cmpbup.2021.100013)
11. Karthik K and Sowmya Kamath S, "Deep Neural Models for Automated Multi-task Diagnostic Scan Management - Quality Enhancement, View Classification and Report Generation", Biomedical Physics & Engineering Express, Springer, 2022 (Scopus, ESCI)
12. Karthik K, Sowmya Kamath S, "Swarm Optimization Based Bag of Visual Words Model for Content-Based X-Ray Scan Retrieval", International Journal of Biomedical Engineering and Technology (IJBET), Inderscience., ISSN: 1752-6418, 2022 (ESCI & Scopus)

13. Veena Mayya, Karthik K, Krishnananda Karadka, Sowmya Kamath S, "Multi-task Deep Neural Network Models for Learning COVID-19 Disease Representations from Multimodal Data", Int. J. of Medical Engineering and Informatics, Vol 14, 2021, ISSN: 1755-0661
14. Naik D., Jaidhar C.D. "Semantic context driven language descriptions of videos using deep neural network" Journal of Big Data, Feb. 2022.
15. Sunil, C.K., Jaidhar, C.D., Patil, N., " Cardamom Plant Disease Detection Approach Using EfficientNetV2," IEEE Access 10, pp. 789-804, 2021, DOI: 10.1109/ACCESS.2021.3138920.
16. Jayasimha, A., Mudambi, R., Pavan, P., B. M Lokaksha, Bankapur, S., Patil, N. " An effective feature extraction with deep neural network architecture for protein-secondary-structure prediction", Network Modeling Analysis in Health Informatics and Bioinformatics 10(1),58, 2021, Springer journal, DOI: doi.org/10.1007/s13721-021-00340-4
17. Madasamy, Anand Kumar., Padannayil, S.K. Transfer learning based code-mixed part-of-speech tagging using character level representations for Indian languages (2021) Journal of Ambient Intelligence and Humanized Computing,
18. Radarapu, R., Gopal, A.S.S., Nh, M., Anand Kumar, M. Video summarization and captioning using dynamic mode decomposition for surveillance (2021) International Journal of Information Technology (Singapore), 13 (5), pp. 1927-1936.
19. Meshram, S., Anand Kumar, M. Long short-term memory network for learning sentences similarity using deep contextual embeddings (2021) International Journal of Information Technology (Singapore), 13 (4), pp. 1633-1641
20. Swathi. M And Bhawana Rudra, "An Efficient Approach For Quantum Entanglement Purification" International Journal Of Quantum Information, 2022
21. Sujan Reddy, Bhawana Rudra. Detection Of Injections In Api Requests Using Recurrent Neural Networks And Transformers. In International Journal Of Electronic Security And Digital Forensics (Accepted) 2021
22. Satish Y C, Praveen M Naik, Bhawana Rudra. Prevention Of Webshell Attack Using Machine Learning Techniques. In Grenze International Journal Of Engineering And Technology 7(1), June 2021 Pages:432-441, Grenze Id:01.Gijet.7.1.5.
23. Madhuparna Bhowmik, Aastha Chowdhary, And Dr. Bhawana Rudra. Software Verification Using State Diagrams. In Grenze International Journal Of Engineering And Technology V(1)
24. Madhuparna Bhowmik, Aastha Chowdhary And Dr. Bhawana Rudra. Fqdn Similarity And Cache-Miss Property Based Dns Tunneling Detection Technique. In Grenze International Journal Of Engineering And Technology
25. Vigneshkumar Balamurugan, Jia Chen, Zhen Qu, Xiao Bi, Johannes Gensheimer, Ankit Shekhar, Shrutilipi Bhattacharjee and Frank Keutsch, "Tropospheric NO2 and O3 Response to COVID-19 Lockdown Restrictions at the National and Urban Scales in Germany", Journal of Geophysical Research-Atmospheres, AGU Journals, Wiley, vol: 126, no: 19, pp: e2021JD035440, September 2021

#### **DEPARTMENT OF MATHEMATICAL & COMPUTATIONAL SCIENCES**

1. Shishira S.R. and A.Kandasamy, "A Novel Feature Extraction Model for Large-Scale Workload Prediction in Cloud Environment", SN Computer Science (Springer Nature) Vol.5 (2021).
2. K. S. Suvidha, Jothi Rangasamy, Shyam S. Kamath, Cheng-Chi Lee: ES-HAS: ECC-Based Secure Handover Authentication Scheme for Roaming Mobile Users in Global Mobility Networks. *Cryptography*. 5(4): 35 (2021).
3. Jothi Rangasamy: On "Practical and secure outsourcing algorithms for solving quadratic congruences in

- IoTs" from IEEE IoT journal. *Discret. Appl. Math.* 302: 139-146 (2021).
4. I.K.Argyros,S. George, Extending the solvability of equations using secant-type methods in Banach space, . *Numer. Anal. Approx. Theory*, vol. 50 (2021) no. 2, pp. 97-107.
  5. I.K.Argyros,S. George, Multi-step high convergence order methods for solving equations, *Serdica Mathematical Journal*, *Serdica Math. J.* 47(2021), 1-12.
  6. I. K. Argyros, S. George, Ball analysis for an efficient sixth convergence order-scheme under weaker conditions, *Advances in the Theory of Nonlinear Analysis and its Applications* 5(2021) No. 3, 445-453., <https://doi.org/10.31197/atnaa.746959>
  7. I.K.Argyros,S. George, K. Senapati, Extended local convergence for Newton-type solver under weak conditions, *Stud. Univ. Babeş-Bolyai Math.* 66(2021), No. 4, 757--768, DOI: 10.24193/subbmath.2021.4.12.
  8. I. K. Argyros, S. George, Christopher Argyros, Extending the convergence of two similar sixth order schemes for solving equations under generalized conditions, *Contemporary Mathematics* <http://ojs.wiserpub.com/index.php/CM/>, DOI: <https://doi.org/10.37256/cm.242021991>.
  9. Samundra Regmi, Ioannis K. Argyros, Santhosh George, Christopher I. Argyros, On the local convergence and comparison between two novel eighth convergence order schemes for solving nonlinear equations, *Nonlinear Studies* 28 (4),(2021), 1107-1116.
  - 10.Regmi, S.; Argyros, I.K.; George, S.; Magre~n'an, Á.A.; Argyros, M.I. Extended Kung–Traub Methods for Solving Equations with Applications, *Mathematics* 2021, 9, 2635. <https://doi.org/10.3390/math9202635>
  - 11.Regmi, S.; Argyros, C.I.;Argyros, I.K.; George, S. Convergence Criteria of Three Step Schemes for Solving Equations. *Mathematics* 2021,9, 3106. <https://doi.org/10.3390/math9233106>
  - 12.Samundra Regmi,Ioannis K. Argyros, Santhosh George, Convergence analysis for a fast class of multi-step Chebyshev-Halley-type methods under weak conditions, *Open Journal of Mathematical Sciences* 4(1):34-43, DOI: 10.30538/oms2021.0143
  - 13.Argyros, C.I.; Argyros, I.K.; Joshi, J.; Regmi, S.; George, S. On the Semi-Local Convergence of an Ostrowski-Type Method for Solving Equations. *Symmetry* 2021, 13, 2281. <https://doi.org/10.3390/sym13122281>
  - 14.Ioannis K. Argyros and S. George, Ball convergence of Potra-Ptak-type method with optimal fourth order of convergence, *J. Numer. Anal. Approx. Theory*, vol. 50 (2021) no. 1, pp. 44-51.
  - 15.Ioannis K. Argyros and S. George, Extended Kung-Traub-type method for solving equations, *TWMS J. Pure Appl. Math.* V.12, N.2, 2021, pp.193-198.
  - 16.I. K. Argyros, S. George, Christopher Argyros, On the local convergence of two novel schemes of convergence order eight for solving equations: An extension, *PanAmerican Mathematical Journal* Volume 31(2021), Number 4, 61 - 72.
  - 17.Christopher I. Argyros1, Michael Argyros, Ioannis K. Argyros and Santhosh George, Local convergence for a family of sixth order methods with parameters, *Open J. Math. Sci.* 2021, 5, 300-305; doi:10.30538/oms2021.0166 .
  - 18.G. Argyros, M. Argyros, I. K. Argyros and S. George, Extended local convergence analysis of a three-step method of a parameter of convergence order six, *Annales Univ. Sci. Budapest., Sect. Comp.*, 52 (2021) 45-55.
  - 19.I. K. Argyros, S. George, Christopher Argyros, Extended iterative schemes for solving generalized equations, *PanAmerican Mathematical Journal*,Volume 31,(2021), Number 3, 95 - 102.
  - 20.Samundra Regmi, Christopher I. Argyros, Ioannis K. Argyros and Santhosh George, Ball convergence of

- a parametric efficient family of iterative methods for solving nonlinear equations, Foundations 2021, 1, 23--31.,<https://doi.org/10.3390/>
21. C. Mekoth, S. George, P. Jidesh, S. M. Erappa, Finite dimensional realization offractional Tikhonov regularization method in Hilbert scales, Partial Differential Equations in Applied Mathematics(2021), doi: <https://doi.org/10.1016/j.padiff.2021.100246>.
  22. I. K. Argyros, S. George, Christopher Argyros,, Extended Newton Algorithm for conic inequalities, PanAmerican Mathematical Journal, Volume 31 (2021), Number 3, 63 - 70.
  23. I. K. Argyros, S. George, Ball analysis for an efficient sixth convergence order-scheme under weaker conditions , Advances in the Theory of Nonlinear Analysis and its Applications 5(2021) No. 3, 445-453., <https://doi.org/10.31197/atnaa.746959>
  24. I.K.Argyros,S. George, Extended local convergence for multistep Jarratt-type method using the restricted region and weak hypotheses, Communications on Applied Nonlinear Analysis Volume 28 (2021), Number 3, 59- 70.
  25. Gus Aryros, Michael Argyros I. K. Argyros, S. George, Semilocal convergence of of a derivative free method for solving equations, Probl. Anal. Issues Anal. Vol. 10 (28), No 2, 2021, 18-26.
  26. I.K.Argyros, S. George and M.E. Shobha, Ball Convergence Of Mulipoint Iterative Methods For Solving Non-Linear Systems, International Conference on Computational Sciences-Modelling, Computing and Soft Computing "AIP Conference Proceedings,A. Awasthi et al. (Eds.): CSMCS 2020, CCIS 1345, pp. 260–269, 2021.
  27. Samundra Regmi, Christopher I. Argyros, I. K. Argyros, S. George, Efficient Fifth Convergence Order Methods for Solving Equations, Transactions on Mathematical Programming and Applications, Volume 9 (2021), Number 1, 23 – 34
  28. Shobha M Erappa and Santhosh George, Derivative Free Iterative Scheme for Monotone Nonlinear Ill-posed Hammerstein-Type Equations, IAENG International Journal of Applied Mathematics, 51:1, \$IJAM 51- 1- 18.\$
  29. Samundra Regmi, I.K.Argyros,S. George, Convergence analysis for a fast class of multi-step Chebyshev-Halley-type methods under weak conditions, Open J. Math. Sci.2021,5, 34-43.
  30. I. K. Argyros, S. George, Local comparison between two-step methods under the same conditions, Afrika Matematika <https://doi.org/10.1007/s13370-021-00883-9>.
  31. K. Argyros, S. George, Extended domain for fifth convergence order schemes, CUBO, A Mathematical Journal, 23, 01, 97-108, (2021).
  32. Gus Aryros, Michael Argyros I. K. Argyros, S. George, Extended Newton's method for solving generalized equations using the second derivative: Kantorovich approach, Advances in Nonlinear Variational Inequalities, Volume 24 (2021), Number 2, 1 - 10.
  33. Gus Aryros, Michael Argyros I. K. Argyros, S. George, Extended solution for cone inclusion problems using Newton's algorithm, PanAmerican Mathematical Journal, Volume 31(2021), Number 1, 45- 52.
  34. S.George. I. K. Argyros, P. Jidesh, M. Mahapatra and M. Saeed, Convergence analysis of a fifth order iterative method using recurrence relations and conditions on the first derivative, Mediterr. J. Math. (2021) 18:57, <https://doi.org/10.1007/s00009-021-01697-6>.
  35. Gus Aryros, Michael Argyros I. K. Argyros, S. George, A comparison between two competing sixth convergence order algorithms under the same set of conditions ,CREAT. MATH. INFORM.30 (2021), No. 1, 19-28.

36. I. K. Argyros, S. George, Ball comparison between four fourth convergence order methods under the same set of hypotheses for solving equations, *Int. J. Appl. Comput. Math* (2021) 7:9 <https://doi.org/10.1007/s40819-020-00946-8>.
37. M. Chitra, S. George, P. Jidesh, Fractional Tikhonov regularization method in Hilbert scales, *Applied Mathematics and Computation* 392 (2021) 125701.
38. I. K. Argyros, S. George and M. E. Shobha, Extending the applicability of Newton's and Secant methods under regular smoothness, *Bol. Soc. Paran. Mat.*, 39(6), (2021): 195--210.
39. I. K. Argyros, S. George, Extended convergence of a two step-Secant-type method under a restricted convergence domain, *Kragujevac Journal of Mathematics*, Volume 45(1) (2021), Pages 155--164.
40. I. K. Argyros, S. George, Extended convergence of Jarratt type methods, *Applied Mathematics E-Notes*, 21(2021), 89-96.
41. Gus Argyros, Michael Argyros, Ioannis K. Argyros, Santhosh George, Unified ball convergence of third and fourth convergence order algorithms under  $\omega$ -continuity conditions, *Journal of Mathematical Modeling* Vol. 9, No. 2, 2021, pp. 173-183.
42. I. K. Argyros and S. George, Expanding the applicability of Newton's method and of a robust modified Newton's method, *Applicationes Mathematicae*, 48,1 (2021), pp. 89--100, DOI: 10.4064/am2289-4-2016
43. I. K. Argyros, S. George, Highly efficient solvers for nonlinear equations in Banach space, *Appl. Math.*, 48,2 (2021), pp. 209-220, DOI: 10.4064/am2392-1-2020
44. K. Mahesh Krishna, P. Sam Johnson and R. N. Mohapatra, "Multipliers for Operator-Valued Bessel Sequences and Generalized Hilbert-Schmidt Classes", <https://doi.org/10.14317/jami.2022.153>, *Journal of Applied Mathematics and Informatics*, Vol. 40(2022), No. 1-2, pp. 153-171.
45. K. Mahesh Krishna and P. Sam Johnson, "Frames for Metric Spaces", *Results in Mathematics*, <https://doi.org/10.1007/s00025-021-01583-3>, Vol. 77, Issue 1, February 2022, Article 49, 30 pages.
46. K. Mahesh Krishna and P. Sam Johnson, "Factorable Weak Operator-Valued Frames", *Annals of Functional Analysis*, <https://doi.org/10.1007/s43034-021-00155-4>, Vol. 13 (2022) No.1, Article 11, 36 pages.
47. K. Mahesh Krishna and P. Sam Johnson, "Perturbation of p-Approximate Schauder Frames for Separable Banach Spaces", [https://doi.org/10.33786/pjaa.2021.v08i01\(ii\).002](https://doi.org/10.33786/pjaa.2021.v08i01(ii).002), *Poincare Journal of Analysis and Applications*, Vol.8, No.1(II) (2021), 15-24.
48. K. Mahesh Krishna and P. Sam Johnson, "New Identity on Parseval p-Approximate Schauder Frames and Applications", <https://doi.org/10.1080/09720502.2021.1891698>, *Journal of Interdisciplinary Mathematics*, Vol. 24 (2021), No. 7, 1751-1760.
49. P. Sam Johnson, Vinoth A and K. Kamaraj, "Fuglede-Putnam Type Commutativity Theorems for EP Operators", <https://doi.org/10.26637/MJM0901/0124>, *Malaya J. Mat.* 9 (2021), No. 1, 709-714.
50. K. Mahesh Krishna and P. Sam Johnson, "Towards Characterizations of Approximate Schauder Frame and Its Duals for Banach Spaces", <https://doi.org/10.1007/s11868-021-00379-x>, *J. Pseudo-Differ. Oper. Appl.*, 12(1), 2021, Article 9, 13 pages.
51. Veerapazham Murugan, Rajendran Palanivel, Non-isolated, non-strictly monotone points of iterates of continuous functions, *Real Anal.*

- Exchange 46(1):51-82 (2021). DOI: 10.14321/realanalexch.46.1.0051
52. Murugan Veerapazham, Chaitanya Gopalakrishna and Weinian Zhang, Dynamics of the iteration operator on the space of continuous self-maps, Proc. Amer. Math. Soc. **149** (2021), 217-229 <https://doi.org/10.1090/proc/15178>
53. Murugan, V., Palanivel, R. Iterative roots of continuous functions and Hyers-Ulam stability. *Aequat. Math.* 95, 107-124 (2021). <https://doi.org/10.1007/s00010-020-00739-w>
54. Madhusudhan, R, and KS, Suvidha. "Robust and secure authentication protocol protecting privacy for roaming mobile user in global mobility networks". *International Journal of Grid and Utility Computing* 12, no.1 (2021): 94-111.
- Corrosion, DOI: 10.1007/s40735-021-00506-7, vol 7, no 69,2021.
4. Nidhul K; Yadav A.K; Anish S; and Kumar S, "Critical review of ribbed solar air heater and performance evaluation of various V-rib configuration", *Renewable and Sustainable Energy Reviews*, DOI: 10.1016/j.rser.2021.110871, vol 142, no 110871, 2021.
5. H.S; Bonthu D; Gururaja S; Prabhakar P; and Doddamani M, "Flexural response of 3D printed sandwich composite", *Composite Structures*, DOI: 10.1016/j.compstruct.2021.113732, vol 263, no 113732,2021.
6. Bhopalam S.R; Perumal D.A; and Yadav A.K, "computational appraisal of fluid flow behavior in two-sided oscillating lid-driven cavities", *International Journal of Mechanical Sciences*, DOI: 10.1016/j.ijmecsci.2021.106303, vol 196, no 106303, 2021.
7. Maniyeri R, "Numerical simulation of sperm motility under shear flow", *AIP Conference Proceedings*, DOI:10.1063/5.0045739, vol 2336, no 30003, 2021.
8. Allien V; Kumar H; and Desai V, "Free vibration analysis and selection of composite for high strength and stiffness using multi-attribute decision making", *International Journal of Materials Research*, DOI:10.3139/146.111879, vol 112, pp 189-197, 2021.
9. C.M. T, and Pitchaimani J, "Free vibration and stability of graphene platelet reinforced porous nano-composite cylindrical panel: Influence of grading, porosity and non-uniform edge loads", *Engineering Structures*, DOI: 10.1016/j.engstruct.2020.111670, vol 230, no 111670, 2021.
10. Raju V; Koorata P.K; and Kamat Y, "Case study for contact pressure improvisation with graded implant

## **DEPARTMENT OF MECHANICAL ENGINEERING**

1. Aruna M.N; Rahman M.R; Joladarashi S; Kumar H; and Devadas Bhat P, "Influence of different fumed silica as thixotropic additive on carbonyl particles magnetorheological fluids for sedimentation effects", *Journal of Magnetism and Magnetic Materials*, DOI: 10.1016/j.jmmm.2021.167910, vol 529, no 167910, 2021.
2. Gunasekaran V; Pitchaimani J; and Mailan Chinnapandi L.B, "Acoustic radiation and transmission loss of FG-Graphene composite plate under nonuniform edge loading", *European Journal of Mechanics, A/Solids*, DOI: 10.1016/j.euromechsol.2021.104249, vol 88, no 104249,2021.
3. Ramesh S; Kumar G; Jagadeesh C; Anne G; and Nayaka H.S, "Effect of Equal Channel Angular Pressing on Properties Evaluation of Biodegradable Mg-Zn-Mn Alloy", *Journal of Bio- and Tribo-*

- material in articular cartilages of knee joint”, *Journal of Mechanical Science and Technology*, DOI: 10.1007/s12206-021-0218-8, vol 35, pp 1049-1054, 2021.
11. Rao M; Malghan R.L; Shettigar A.K; and Herbert M.A, “Rao S.S. Advantages of cryogenic machining technique over without-coolant and with-coolant machining on SS316”, *Engineering Research Express*, DOI: 10.1088/2631-8695/abcd6, vol 3, no 15040, 2021.
  12. Manoj I.V; and Narendranath S, “Machining and forecasting of square profile areas using artificial neural modelling at different slant angles by WEDM”, *IOP Conference Series: Materials Science and Engineering*, DOI:10.1088/1757-899X/1065/1/012011, vol 1065, no 12011, 2021.
  13. Kanakannavar S; and Pitchaimani J, “Compressive properties of 3D braided flax fiber textile fabric reinforced PLA composites”, *IOP Conference Series: Materials Science and Engineering*, DOI:10.1088/1757-899X/1065/1/012021, vol 1065, no 12021, 2021.
  14. Lamani V.T; Baliga M. A.U; Yadav A.K; Kumar G.N; Naik R; and Arya B, “Optimum injection timings for bioethanol-diesel blends and its effect on tail pipe emission in common rail diesel engine”, *AIP Conference Proceedings*, DOI:10.1063/5.0036569, vol 2316, no 30031, 2021.
  15. Shashikumar C.M; Hindasageri V; and Madav V, “CFD investigation of unsteady three-dimensional savonius hydrokinetic turbine in irrigation channel with varying positions for hydro power application”, *AIP Conference Proceedings*, DOI:10.1063/5.0036472, vol 2316, no 30028, 2021.
  16. Ravi A.M; and Murigendrappa S.M, “Comparative Study of Carbide Tools in Turning of High-Chrome White Cast Iron using Hard Turning Methods”, *IOP Conference Series: Materials Science and Engineering*, DOI:10.1088/1757-899X/1065/1/012032, vol 1065, no 12032, 2021.
  17. Chitragar P.R; Shivaprasad K.V; Gaikwad M.S; and Kumar G.N, “Investigation on performance, combustion and emission characteristics of 4-stroke four-cylinder hydrogen fuelled SI engine”, *AIP Conference Proceedings*, DOI:10.1063/5.0036584, vol 2316, no 30029, 2021.
  18. Mohan A; Dutta S; Balusamy S; and Madav V, “Liquid fuel from waste tires: novel refining, advanced characterization and utilization in engines with ethyl levulinate as an additive”, *RSC Advances*, DOI:10.1039/d0ra08803j, vol 11, pp 9807-9826, 2021.
  19. Shashikumar C.M; Vijaykumar H; and Vasudeva M, “Numerical investigation of conventional and tapered Savonius hydrokinetic turbines for low-velocity hydropower application in an irrigation channel”, *Sustainable Energy Technologies and Assessments*, DOI: 10.1016/j.seta.2020.100871, vol 43, no 100871, 2021.
  20. Mahesh V; Joladarashi S; and Kulkarni S.M, “A comprehensive review on material selection for polymer matrix composites subjected to impact load”, *Defence Technology*, DOI:10.1016/j.dt.2020.04.002, vol 17, pp 257-277, 2021.
  21. Mahesh V; Joladarashi S; and Kulkarni S.M, “Damage mechanics and energy absorption capabilities of natural fiber reinforced elastomeric based bio composite for

- sacrificial structural applications”, Defence Technology, DOI: 10.1016/j.dt.2020.02.013, vol 17, pp 161-176, 2021.
22. Mahesh V; Nilabh A; and Joladarashi S, “Kulkarni S.M. Analysis of impact behaviour of sisal-epoxy composites under low velocity regime”, Revue des Composites et des Materiaux Avances, DOI: 10.18280/rcma.310108, vol 31, pp 57-63, 2021.
23. Mahesh V; Joladarashi S; and Kulkarni S.M, “Influence of thickness and projectile shape on penetration resistance of the compliant composite”, Defence Technology, DOI:10.1016/j.dt.2020.03.006, vol 17, pp 245-246, 2021.
24. Singh V; Sharma A.K; Sahu R.K; and Katiyar J.K, “Novel application of graphite-talc hybrid nanoparticle enriched cutting fluid in turning operation”, Journal of Manufacturing Processes, DOI: 10.1016/j.jmapro.2020.12.017, vol 62, pp 378-387, 2021.
25. Manoj I.V; and Narendranath S, “Influence of machining parameters on taper square areas during slant type taper profiling using wire electric discharge machining”, IOP Conference Series: Materials Science and Engineering, DOI:10.1088/1757-899X/1017/1/012012, vol 1017, no 12012, 2021.
26. Rudra Murthy B.V; Nidhul K; and Gumtapure V, “Performance evaluation of novel tapered shell and tube cascaded latent heat thermal energy storage”, Solar Energy, DOI: 10.1016/j.solener.2020.11.069, vol 214, pp 377-392, 2021.
27. Acharya S; Allien V.J; N P P; and Kumar H, “Dynamic behavior of sandwich beams with different compositions of magnetorheological fluid core”, International Journal of Smart and Nano Materials, DOI:10.1080/19475411.2020.1871104, vol 12, pp 88-106, 2021.
28. Yashas M; Do Rosario Carvalho A.D; and Navin Karanth P, “Desai V. Design and Fabrication of a Test Rig for Performance Analysis of a Pneumatic Muscle Actuator”, Lecture Notes in Mechanical Engineering, DOI: 10.1007/978-981-15-4739-3\_3, vol 23, pp 33-45, 2021.
29. Manoj I.V; and Narendranath S, “Slant type taper profiling and prediction of profiling speed for a circular profile during in wire electric discharge machining using Hastelloy-X”, Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, DOI:10.1177/0954406221992398, 2021.
30. Jadhav P.H; and Gnanasekaran N, Perumal D.A. Numerical consideration of LTNE and darcy extended forchheimer models for the analysis of forced convection in a horizontal pipe in the presence of metal foam”, Journal of Heat Transfer, DOI:10.1115/1.4048622, vol 143, no 12702, 2021.
31. Subba Rao M; and Ramesh M.R; and Ravikiran K, “Solid Particle Erosion Behavior of Partially Oxidized Al with NiCr Composite Coating at Elevated Temperature”, Journal of Materials Engineering and Performance, DOI:10.1007/s11665-021-05668-6, 2021.
32. Gonsalves T.H; Garje Channabasappa M.K; and Motagondanahalli Rangarasaiah R, “Hybrid composite shaft of High-Speed Rotor-Bearing System - A rotor dynamics preview”, Mechanics Based Design of Structures and Machines, DOI:10.1080/15397734.2020.1841003, vol 49, pp 440-462, 2021.

33. C M S; Honnasiddaiah R; Hindasageri V; and Madav V, "Studies on application of vertical axis hydro turbine for sustainable power generation in irrigation channels with different bed slopes", *Renewable Energy*, DOI: 10.1016/j.renene.2020.09.015, vol 163, pp 845-857, 2021.
34. Shinde U; and Koorata P.K, "Numerical investigation on the sensitivity of endplate design and gas diffusion material models in quantifying localized interface and bulk electrical resistance", *International Journal of Hydrogen Energy*, DOI: 10.1016/j.ijhydene.2021.02.142, 2021.
35. Karki P; Perumal D.A; and Yadav A.K, "Comparative studies on air, water and nanofluids based Rayleigh–Benard natural convection using lattice Boltzmann method: CFD and exergy analysis", *Journal of Thermal Analysis and Calorimetry*, DOI:10.1007/s10973-020-10496-2, 2021.
36. Mohith S; Upadhyaya A.R; Navin K.P; Kulkarni S.M; and Rao M, "Recent trends in piezoelectric actuators for precision motion and their applications: a review", *Smart Materials and Structures*, DOI:10.1088/1361-665X/abc6b9, vol 30, no 13002, 2021.
37. Chavan S; Gumtapure V; and Arumuga Perumal D, "Computational investigation on the effect of geometrical parameters on thermal energy storage systems", *Computational Thermal Sciences*, DOI:10.1615/ComputThermalScien.2020033738, vol 13, pp 57-71, 2021.
38. Kubasad P.R; Todeti S.R; and Kamat Y.D, "A Review on Designs of Various Ankle Foot Orthosis (AFO) Used to Treat Drop Foot Disease", *Lecture Notes in Mechanical Engineering*, DOI:10.1007/978-981-15-5701-9\_3, 29-38, 2021.
39. Shetty R.P; Sathyabhama A; and Pai P.S, "An efficient online sequential extreme learning machine model based on feature selection and parameter optimization using cuckoo search algorithm for multi-step wind speed forecasting", *Soft Computing*, DOI:10.1007/s00500-020-05222-x, vol 25, pp 1277-1295, 2021.
40. Sachinkumar; Chakradhar D; and Narendranath S, "Analysis of the Effect of Friction Stir Welding Parameters on Characteristics of AA6061 Composites using Response Surface Methodology", *Transactions of the Indian Institute of Metals*, DOI:10.1007/s12666-021-02214-9, 2021.
41. Oommen L.P; and Narayanappa K.G, "Assimilative capacity approach for air pollution control in automotive engines through magnetic field-assisted combustion of hydrocarbons", *Environmental Science and Pollution Research*, DOI:10.1007/s11356-020-11923-5, 2021.
42. Chalageri G.R; Bekinal S.I; and Doddamani M, "Evaluation of Dynamic Characteristics of a VMC Spindle System Through Modal and Harmonic Response. Part 1: Spindle Supported by Angular Contact Ball Bearings", *Lecture Notes in Mechanical Engineering*, DOI:10.1007/978-981-15-5701-9\_3, 29-38, 2021.
43. Chalageri G.R; Bekinal S.I; and Doddamani M, "Evaluation of Dynamic Characteristics of a VMC Spindle System Through Modal and Harmonic Response—Part 2: Spindle Supported by Hybrid Bearing Set", *Lecture Notes in Mechanical Engineering*, DOI:10.1007/978-981-15-5701-9\_4, 39-50, 2021.

44. Shaik S.V; Ashok Babu T.P; Mahapatra D; Shaik S; and Gorantla K.K, "Sai Siva Subramanyam V. Analytical computation of thermodynamic performance of various new eco-friendly alternative refrigerants applicable for air conditioners", Lecture Notes in Mechanical Engineering, DOI:10.1007/978-981-15-6360-7\_29, pp 317-327, 2021.
45. Koneri R; Mulye S; Ananthakrishna K; Hota R; Khatei B; and Bontha S, "Additive Manufacturing of Lattice Structures for Heat Transfer Enhancement in Pipe Flow", Lecture Notes in Mechanical Engineering, DOI:10.1007/978-981-15-5689-0\_21, pp 233-246, 2021.
46. S. V. Shaik, T. P. Ashok Babu, D. Mahapatra, S. Shaik, K. K. Gorantla, and V. Sai Siva Subramanyam, Analytical computation of thermodynamic performance of various new eco-friendly alternative refrigerants applicable for air conditioners. 2021. doi: 10.1007/978-981-15-6360-7\_29.
47. S. Chavan, V. Gumtapure, and D. Arumuga Perumal, "Computational investigation on the effect of geometrical parameters on thermal energy storage systems," Computational Thermal Sciences, vol. 13, no. 1, pp. 55–71, 2021, doi:10.1615/ComputThermalScien.2020033738.
48. P. R. Kubasad, S. R. Todeti, and Y. D. Kamat, A Review on Designs of Various Ankle Foot Orthosis (AFO) Used to Treat Drop Foot Disease. 2021. doi: 10.1007/978-981-15-4477-4\_56.
49. I. V. Manoj, S. Narendranath, and A. Pramanik, Optimization and prediction of machining responses using response surface methodology and adaptive neural network by wire electric discharge machining of alloy-x, vol. 1026 MSF. 2021. doi: 10.4028/www.scientific.net/MSF.1026.28.
50. S. C M, R. Honnasiddaiah, V. Hindasageri, and V. Madav, "Studies on application of vertical axis hydro turbine for sustainable power generation in irrigation channels with different bed slopes," Renewable Energy, vol. 163, pp. 845–857, 2021, doi: 10.1016/j.renene.2020.09.015.
51. R. P. Shetty, A. Sathyabhama, and P. S. Pai, "An efficient online sequential extreme learning machine model based on feature selection and parameter optimization using cuckoo search algorithm for multi-step wind speed forecasting," Soft Computing, vol. 25, no. 2, pp. 1277–1295, 2021, doi: 10.1007/s00500-020-05222-x.
52. G. R. Chalageri, S. I. Bekinal, and M. Doddamani, Evaluation of Dynamic Characteristics of a VMC Spindle System Through Modal and Harmonic Response. Part 1: Spindle Supported by Angular Contact Ball Bearings. 2021. doi: 10.1007/978-981-15-5701-9\_3.
53. M. Yashas, A. D. do Rosario Carvalho, P. Navin Karanth, and V. Desai, Design and Fabrication of a Test Rig for Performance Analysis of a Pneumatic Muscle Actuator, vol. 23. 2021. doi:10.1007/978-981-15-4739-3\_3.
54. R. Koneri, S. Mulye, K. Ananthakrishna, R. Hota, B. Khatei, and S. Bontha, Additive Manufacturing of Lattice Structures for Heat Transfer Enhancement in Pipe Flow. 2021. doi:10.1007/978-981-15-5689-0\_21.
55. S. S. Sutar, G. C. M. Kumar, and M. R. Doddamani, "Gear stress reduction using stress relief features: A review," in Materials Today: Proceedings, 2021, vol. 46, pp. 190–193. doi:10.1016/j.matpr.2020.07.350.
56. S. Mohith, A. R. Upadhya, K. P. Navin, S. M. Kulkarni, and M. Rao, "Recent trends in piezoelectric actuators for precision motion and their applications: a review," Smart

- Materials and Structures, vol. 30, no. 1, 2021, doi: 10.1088/1361-665X/abc6b9.
57. P. H. Jadhav, N. Gnanasekaran, and D. A. Perumal, "Numerical consideration of LTNE and darcy extended forchheimer models for the analysis of forced convection in a horizontal pipe in the presence of metal foam," *Journal of Heat Transfer*, vol. 143, no. 1, 2021, doi:10.1115/1.4048622.
58. A. Boche and R. Kadoli, *Experimental Transient Analysis of Radial Flow Clay Desiccant Packed Bed*, vol. 213 SIST. 2021. doi: 10.1007/978-981-33-4443-3\_58.
59. U. Shinde and P. K. Koorata, "Numerical investigation on the sensitivity of endplate design and gas diffusion material models in quantifying localized interface and bulk electrical resistance," *International Journal of Hydrogen Energy*, 2021, doi: 10.1016/j.ijhydene.2021.02.142.
60. S. S. Naik, B. P. Bonthala, and A. K. Yadav, *Three-Dimensional FEM Analysis of Nanoparticle-Assisted Radiofrequency Ablation of Tissue-Mimicking Phantom*, vol. 213 SIST. 2021. doi:10.1007/978-981-33-4443-3\_3.
61. B. Kotresha, P. H. Jadhav, and N. Gnanasekaran, *Natural Convection Through High Porosity Metal Foams—A Numerical Study*. 2021. doi:10.1007/978-981-16-0698-4\_80.
62. G. R. Chalageri, S. I. Bekinal, and M. Doddamani, *Evaluation of Dynamic Characteristics of a VMC Spindle System Through Modal and Harmonic Response—Part 2: Spindle Supported by Hybrid Bearing Set*. 2021. doi: 10.1007/978-981-15-5701-9\_4.
63. S. Kanakannavar, J. Pitchaimani, A. Thalla, and M. Rajesh, "Biodegradation properties and thermogravimetric analysis of 3D braided flax PLA textile composites," *Journal of Industrial Textiles*, 2021, doi:10.1177/15280837211010666.
64. U. Rokkala, S. Bontha, M. R. Ramesh, V. K. Balla, A. Srinivasan, and S. V. Kailas, "Tailoring surface characteristics of bioabsorbable Mg-Zn-Dy alloy using friction stir processing for improved wettability and degradation behavior," *Journal of Materials Research and Technology*, vol. 12, pp. 1530–1542, 2021, doi: 10.1016/j.jmrt.2021.03.057.
65. D. L. Kamble, R. Kumar Sahu, S. Narendranath, and R. I. Badiger, "Effect of input power and interfacial powder size on microwave joining of different materials: A review," in *Materials Today: Proceedings*, 2021, vol. 46, pp. 194–197. doi: 10.1016/j.matpr.2020.07.351.
66. A. Lakshmikanthan, V. Mahesh, R. T. Prabhu, M. G. C. Patel, and S. Bontha, "Free vibration analysis of A357 alloy reinforced with dual particle size silicon carbide metal matrix composite plates using finite element method," *Archives of Foundry Engineering*, vol. 21, no. 1, pp.101–112, 2021, doi: 10.24425/afe.2021.136085.
67. I. S. Patil, A. A. S. S. Rao, M. A. Herbert, and D. M. Goudar, "Experimental Investigation and Optimisation of Mechanical and Microstructure Behaviour of Stir Cast and Hot-Pressed Al-12.5%Si-ZrO<sub>2</sub> Composites: Taguchi and Super Ranking Concept," *Advances in Materials and Processing Technologies*, 2021, doi: 10.1080/2374068X.2021.1927648.
68. S. Acharya, V. J. Allien, P. N P, and H. Kumar, "Dynamic behavior of sandwich beams with different compositions of magnetorheological fluid core," *International Journal of Smart and Nano Materials*, vol. 12, no. 1, pp. 88–106, 2021, doi: 10.1080/19475411.2020.1871104.
69. P. K. Diljith, A. N. Jinoop, C. P. Paul, P. Krishna, S. Bontha, and K. S. Bindra, *Elucidating Corrosion Behavior of Hastelloy-X Built Using Laser Directed Energy Deposition-*

- Based Additive Manufacturing in Acidic Environments. 2021. doi: 10.1007/978-981-16-0673-1\_28.
70. S. Ramesh, G. Anne, G. M. Naik, C. Jagadeesh, and H. S. Nayaka, "Microstructural and mechanical characterisation of Al-Zn-Mg-Cu alloy processed by multi-directional cryo-forging," in *Materials Today: Proceedings*, 2021, vol. 46, pp. 5752–5756. doi:10.1016/j.matpr.2021.02.709.
71. T. H. Gonsalves, M. K. Garje Channabasappa, and R. Motagondanahalli Rangarasaiah, "Hybrid composite shaft of High-Speed Rotor-Bearing System - A rotor dynamics preview," *Mechanics Based Design of Structures and Machines*, vol. 49, no. 3, pp. 440–462, 2021, doi:10.1080/15397734.2020.1841003.
72. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "Comparative study on kevlar/carbon epoxy face sheets with rubber core sandwich composite for low velocity impact response: FE approach," in *Materials Today: Proceedings*, 2021, vol. 44, pp. 1495–1499. doi: 10.1016/j.matpr.2020.11.688.
73. V. Manohar and R. Maniyeri, Numerical Study of Effect of Asymmetry on Performance of Bio-mimetic Caudal Fin Shapes. 2021. doi: 10.1007/978-981-16-0698-4\_59.
74. V. Kallannavar and S. Kattimani, "Effect of temperature on the performance of active constrained layer damping of skew sandwich plate with CNT reinforced composite core," *Mechanics of Advanced Materials and Structures*, 2021, doi:10.1080/15376494.2021.1955315.
75. M. P. Neeraj and R. Maniyeri, Mixing in Oscillating Lid Driven Cavity—A Numerical Study, 2021. doi: 10.1007/978-981-16-0698-4\_14.
76. C. Durga Prasad, M. Shashank Lingappa, S. Joladarashi, M. R. Ramesh, and B. Sachin, "Characterization and sliding wear behavior of CoMoCrSi+Flyash composite cladding processed by microwave irradiation," in *Materials Today: Proceedings*, 2021, vol. 46, pp. 2387–2391. doi:10.1016/j.matpr.2021.01.156.
77. G. A. Srinivasa, S. Srivastava, and S. Chandraker, Design Analysis and Experimental Validation of Modular Handling System for Satellite Ground Application. 2021. doi: 10.1007/978-981-16-1769-0\_52.
78. D. Rajkumar, V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "Parametric study on impact behaviour of sisal and cenosphere reinforced natural rubber-based hybrid composites: FE approach," in *Materials Today: Proceedings*, 2021, vol. 46, pp. 8767–8771. doi:10.1016/j.matpr.2021.04.090.
79. J. Joseph and A. Sathyabhama, "Experimental Study on the Effect of Tubercle on Aerodynamic Characteristics of Swept Wings at low Reynolds Number," *Iranian Journal of Science and Technology - Transactions of Mechanical Engineering*, 2021, doi: 10.1007/s40997-021-00455-z.
80. D. M. Goudar, I. S. Patil, V. T. Magalad, S. S. Rao, and M. A. Herbert, "A comparative study of tensile properties of eutectic Al-Si / ZrO<sub>2</sub> composites fabricated by spray forming and stir casting methods," *Advances in Materials and Processing Technologies*, 2021, doi:10.1080/2374068X.2021.1939551.
81. B. C. Anilkumar, R. Maniyeri, and S. Anish, Numerical Investigation on the Effect of Various Geometries in a Solar Box-Type Cooker: A Comparative Study. 2021. doi: 10.1007/978-981-16-0698-4\_9.
82. S. R. Prabhu B, A. Shettigar, M. A. Herbert, and S. S. Rao, "Experimental investigation of joint properties of friction stir welded aluminium matrix composite," in

- Materials Today: Proceedings, 2021, vol. 46, pp. 8917–8920. doi: 10.1016/j.matpr.2021.05.361.
83. S. Kumawat, S. Bhaktha, and K. V. Gangadharan, “Enhancing Torque performance with Dual Teeth Switched Reluctance Motor: A Novel Approach,” 2021. doi:10.1109/IPRECON52453.2021.9640842.
84. A. K. Saw, G. Channagoudra, T. Pethker, K. V. Gangadharan, and V. Dayal, “Automated low-temperature resistivity measurement setup: Design and fabrication,” in Materials Today: Proceedings, 2021, vol. 47, pp. 1670–1675. doi: 10.1016/j.matpr.2021.05.341.
85. S. Chandraker et al., “Development and Characterization of Epoxy-Based Polymeric Composite with Bio-particulates as Filler Material,” Arabian Journal for Science and Engineering, 2021, doi: 10.1007/s13369-021-06221-2.
86. V. S. Bhagat, N. George, M. P. Arunkumar, J. Pitchaimani, and M. C. L. Babu, “Numerical Analysis on Vibro-Acoustic Behavior of Honeycomb Core Sandwich Structure with FG-CNT-Reinforced Polymer Composite Facings,” Iranian Journal of Science and Technology - Transactions of Mechanical Engineering, 2021, doi: 10.1007/s40997-021-00462-0.
87. P. H. Jadhav, B. Kotresha, N. Gnanasekaran, and D. Arumuga Perumal, “Forced Convection Analysis in a Horizontal Pipe in the Presence of Aluminium Metal Foam—A Numerical Study. 2021. doi: 10.1007/978-981-16-0698-4\_53.
88. H. R. Tewani, D. Bonthu, H. S. Bharath, M. Doddamani, and P. Prabhakar, “Dynamic impact resistance of composite sandwich panels with 3-D printed polymer syntactic foam cores,” in 36<sup>th</sup> Technical Conference of the American Society for Composites 2021: Composites Ingenuity Taking on Challenges in Environment-Energy-Economy, ASC 2021, 2021, vol. 2, pp. 762–780.
89. S. Kanakannavar and J. Pitchaimani, “Free Vibration of Flax Braided Fabric PLA Beam under Edge Compression,” Journal of Natural Fibers, 2021, doi:10.1080/15440478.2021.2009405.
90. V. Gunasekaran, J. Pitchaimani, and L. B. Mailan Chinnapandi, “Free vibration and inherent material damping characteristics of boron-FRP plate: Influence of non-uniform uniaxial edge loads,” International Journal for Simulation and Multidisciplinary Design Optimization, vol. 12, 2021, doi: 10.1051/smdo/2021017.
91. C. R. Kamath, R. Bhat, S. I. Bekinal, G. S. Vijay, T. S. Shetty, and M. Doddamani, “Design and Optimization of Multi-ring Permanent Magnet Bearings for High-speed Rotors – A Computational Framework,” Engineered Science, vol. 16, pp. 194–202, 2021, doi:10.30919/es8e536.
92. G. Suresh, M. R. Ramesh, and M. S. Srinath, “Development of Self-lubricating Nickel Based Composite Clad using Microwave Heating in Improving Resistance to Wear at Elevated Temperatures,” Metals and Materials International, 2021, doi: 10.1007/s12540-021-01078-4.
93. I. V. Manoj and S. Narendranath, “Influence of machining parameters on taper square areas during slant type taper profiling using wire electric discharge machining,” in IOP Conference Series: Materials Science and Engineering, 2021, vol. 1017, no. 1. doi: 10.1088/1757-899X/1017/1/012012.
94. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, “Influence of thickness and projectile shape on penetration resistance of the compliant composite,” Defence Technology, vol. 17, no. 1, pp.245–

- 256,2021,doi:  
10.1016/j.dt.2020.03.006.
95. K. N. Ravikumar, S. S. Aralikatti, H. Kumar, G. N. Kumar, and K. V. Gangadharan, "Fault diagnosis of antifriction bearing in internal combustion engine gearbox using data mining techniques," *International Journal of Systems Assurance Engineering and Management*, 2021, doi: 10.1007/s13198-021-01407-1.
96. C. M. Shashikumar, H. Vijaykumar, and M. Vasudeva, "Numerical investigation of conventional and tapered Savonius hydrokinetic turbines for low-velocity hydropower application in an irrigation channel," *Sustainable Energy Technologies and Assessments*, vol. 43, 2021, doi:10.1016/j.seta.2020.100871.
97. P. R. Chitrakar, K. V. Shivaprasad, M. S. Gaikwad, and G. N. Kumar, "Investigation on performance, combustion and emission characteristics of 4-stroke four cylinder hydrogen fuelled SI engine," in *AIP Conference Proceedings*, 2021, vol. 2316, doi:10.1063/5.0036584.
98. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "A comprehensive review on material selection for polymer matrix composites subjected to impact load," *Defence Technology*, vol. 17, no. 1, pp. 257–277, 2021, doi: 10.1016/j.dt.2020.04.002.
99. V. Mahesh, A. Nilabh, S. Joladarashi, and S. M. Kulkarni, "Analysis of impact behaviour of sisal-epoxy composites under low velocity regime," *Revue des Composites et des Materiaux Avances*, vol. 31, no. 1, pp. 57–63, 2021, doi: 10.18280/rcma.310108.
100. I. V. Manoj and S. Narendranath, "Machining and forecasting of square profile areas using artificial neural modelling at different slant angles by WEDM.," in *IOP Conference Series: Materials Science and Engineering*, 2021, vol. 1065, no. 1, doi: 10.1088/1757-899X/1065/1/012011.
101. K. Madrahalli Chidanandamurthy, W. Wang, C. Fang, and S. Kattimani, "Static, buckling, and free vibration characteristics of porous skew partially functionally graded magneto-electro-elastic plate," *Mechanics Based Design of Structures and Machines*, 2021, doi:10.1080/15397734.2021.2008257.
102. S. Kanakannavar and J. Pitchaimani, "Compressive properties of 3D braided flax fiber textile fabric reinforced PLA composites," in *IOP Conference Series: Materials Science and Engineering*, 2021, vol. 1065, no. 1, doi: 10.1088/1757-899X/1065/1/012021.
103. A. M. Ravi and S. M. Murigendrappa, "Comparative Study of Carbide Tools in Turning of High-Chrome White Cast Iron using Hard Turning Methods," in *IOP Conference Series: Materials Science and Engineering*, 2021, vol. 1065, no. 1, doi: 10.1088/1757-899X/1065/1/012032.
104. C. M. Twinkle, C. Nithun, J. Pitchaimani, and V. Rajamohan, "Modal analysis of cylindrical panels at elevated temperatures under nonuniform heating conditions: Experimental investigation," *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, vol. 235, no. 5, pp. 812–828, 2021, doi:10.1177/0954406220936738.
105. M. Rao, R. L. Malghan, A. K. Shettigar, M. A. Herbert, and S. S. Rao, "Advantages of cryogenic machining technique over without-coolant and with-coolant machining on SS316," *Engineering Research Express*, vol. 3, no. 1, 2021, doi: 10.1088/2631-8695/abecd6.
106. V. Raju, P. K. Koorata, and Y. Kamat, "Case study for contact pressure improvisation

- with graded implant material in articular cartilages of knee joint,” *Journal of Mechanical Science and Technology*, vol. 35, no. 3, pp. 1049–1054, 2021, doi: 10.1007/s12206-021-0218-8.
107. V. T. Lamani, A. U. Baliga M., A. K. Yadav, G. N. Kumar, R. Naik, and B. Arya, “Optimum injection timings for bioethanol-diesel blends and its effect on tail pipe emission in common rail diesel engine,” in *AIP Conference Proceedings*, 2021, vol. 2316. doi: 10.1063/5.0036569.
108. C. M. Shashikumar, V. Hindasageri, and V. Madav, “CFD investigation of unsteady three-dimensional savonius hydrokinetic turbine in irrigation channel with varying positions for hydro power application,” in *AIP Conference Proceedings*, 2021, vol. 2316. doi: 10.1063/5.0036472.
109. S. Badakere Gopalakrishna, R. Lakkanna, and S. Alangar, “Investigation of forced convective and subcooled flow boiling heat transfer coefficients of water-ethanol mixture: numerical study,” *International Journal of Heat and Technology*, vol. 39, no. 2, pp. 512–520, 2021, doi:10.18280/ijht.390221.
110. A. Mohan, S. Dutta, S. Balusamy, and V. Madav, “Liquid fuel from waste tires: novel refining, advanced characterization and utilization in engines with ethyl levulinate as an additive,” *RSC Advances*, vol. 11, no. 17, pp. 9807–9826, 2021, doi: 10.1039/d0ra08803j.
111. V. Allien, H. Kumar, and V. Desai, “Free vibration analysis and selection of composite for high strength and stiffness using multi-attribute decision making,” *International Journal of Materials Research*, vol. 112, no. 3, pp. 189–197, 2021, doi: 10.3139/146.111879.
112. S. Ramesh, G. Anne, G. Kumar, C. Jagadeesh, and H. S. Nayaka, “Influence of Ball Burnishing Process on Equal Channel Angular Pressed Mg-Zn-Si Alloy on the Evolution of Microstructure and Corrosion Properties,” *Silicon*, vol. 13, no. 5, pp. 1549–1560, 2021, doi: 10.1007/s12633-020-00541-y.
113. M. Subba Rao, M. R. Ramesh, and K. Ravikiran, “Solid Particle Erosion Behavior of Partially Oxidized Al with NiCr Composite Coating at Elevated Temperature,” *Journal of Materials Engineering and Performance*, vol. 30, no. 5, pp. 3749–3760, 2021, doi: 10.1007/s11665-021-05668-6.
114. T. C.M. and J. Pitchaimani, “Free vibration and stability of graphene platelet reinforced porous nano-composite cylindrical panel: Influence of grading, porosity and non-uniform edge loads,” *Engineering Structures*, vol. 230, 2021, doi: 10.1016/j.engstruct.2020.111670.
115. S. R. Bhopalam, D. A. Perumal, and A. K. Yadav, “Computational appraisal of fluid flow behavior in two-sided oscillating lid-driven cavities,” *International Journal of Mechanical Sciences*, vol. 196, 2021, doi:10.1016/j.ijmecsci.2021.106303.
116. S. Chandrakar, A. Agrawal, P. Prakash, I. A. Khan, and A. Sharma, “Physical and mechanical properties of epoxy reinforced with pistachio shell particulates,” in *AIP Conference Proceedings*, 2021, vol. 2341. doi: 10.1063/5.0049949.
117. P. H. Jadhav, G. Nagarajan, and D. A. Perumal, “Conjugate heat transfer study comprising the effect of thermal conductivity and irreversibility in a pipe filled with metallic foams,” *Heat and Mass Transfer/Waerme- und Stoffuebertragung*, vol. 57, no. 6, pp. 911–930, 2021, doi:10.1007/s00231-020-03000-x.
118. K. Nidhul, A. K. Yadav, S. Anish, and S. Kumar, “Critical review of ribbed solar air heater and performance evaluation of

- various V-rib configuration,” *Renewable and Sustainable Energy Reviews*, vol.142, 2021, doi: 10.1016/j.rser.2021.110871.
119. S. Ramesh, G. Kumar, C. Jagadeesh, G. Anne, and H. S. Nayaka, “Effect of Equal Channel Angular Pressing on Properties Evaluation of Biodegradable Mg-Zn-Mn Alloy,” *Journal of Bio-and Tribo-Corrosion*, vol. 7, no. 2, 2021, doi: 10.1007/s40735-021-00506-7.
120. L. R. Thippeswamy and A. K. Yadav, “Effect of loop tilting on the heat transfer and pressure drop in two-phase CO<sub>2</sub> based natural circulation loop: An experimental study,” *Journal of Thermal Science and Engineering Applications*, vol. 13, no. 2, 2021, doi: 10.1115/1.4047820.
121. R. B. Sreesh, D. Kumar, S. Chandraker, and A. Agrawal, “Room temperature sliding wear behavior of Ti6Al4V: A review,” in *AIP Conference Proceedings*, 2021, vol. 2341. doi: 10.1063/5.0049962.
122. B. S. Manohar Shankar and S. M. Kulkarni, “Modelling the electromechanical sensitivity of silicone composites using response surface methodology,” in *Journal of Physics: Conference Series*, 2021, vol. 1921, no. 1. doi: 10.1088/1742-6596/1921/1/012086.
123. S. Prithvirajan, M. B. Nyahale, G. M. Naik, S. Narendranath, A. Prabhu, and P. D. Rekha, “Bio-corrosion impacts on mechanical integrity of ZM21 Mg for orthopaedic implant application processed by equal channel angular pressing,” *Journal of Materials Science: Materials in Medicine*, vol. 32, no. 6, 2021, doi: 10.1007/s10856-021-06535-5.
124. Sachinkumar, D. Chakradhar, and S. Narendranath, “Analysis of the Effect of Friction Stir Welding Parameters on Characteristics of AA6061 Composites using Response Surface Methodology,” *Transactions of the Indian Institute of Metals*, vol. 74, no. 6, pp. 1303–1319, 2021, doi: 10.1007/s12666-021-02214-9.
125. V. Gunasekaran, J. Pitchaimani, L. B. M. Chinnapandi, and A. Kumar, “Analytical Solution for Sound Radiation Characteristics of Graphene Nanocomposites Plate: Effect of Porosity and Variable Edge Load,” *International Journal of Structural Stability and Dynamics*, vol. 21, no. 6, 2021, doi: 10.1142/S0219455421500875.
126. K. R. Guruprasad and T. D. Ranjitha, “CPC Algorithm: Exact Area Coverage by a Mobile Robot Using Approximate Cellular Decomposition,” *Robotica*, vol. 39, no. 7, pp. 1141–1162, 2021, doi:10.1017/S026357472000096X.
127. H. S. Bharath, D. Bonthu, S. Gururaja, P. Prabhakar, and M. Doddamani, “Flexural response of 3D printed sandwich composite,” *Composite Structures*, vol. 263, 2021, doi:10.1016/j.compstruct.2021.113732.
128. J. Majdoubi D Arumuga Perumal., “Estimation of tumor parameters using neural networks for inverse bioheat problem,” *Computer Methods and Programs in Biomedicine*, vol. 205, 2021, doi:10.1016/j.cmpb.2021.106092.
129. S. Kanakannavar, J. Pitchaimani, and M. R. Ramesh, “Tribological behaviour of natural fibre 3D braided woven fabric reinforced PLA composites,” *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, vol. 235, no. 7, pp. 1353–1364, 2021, doi:10.1177/1350650120954949.
130. P. H. Jadhav and N. Gnanasekaran, “Optimum design of heat exchanging device for efficient heat absorption using high porosity metal foams,” *International Communications in Heat and Mass Transfer*, vol. 126, 2021, doi:

- 10.1016/j.icheatmasstransfer.2021.105475.
131. S. Hanumanthlal, C. Siddaraju, and M. R. Ramesh, "High-Temperature Solid-Particle Erosion Behaviour of Plasma-Sprayed Fe17Cr2Ni0.18C/Cenosphere-Based Composite Coating," *Journal of Bio- and Tribo-Corrosion*, vol. 7, no. 2, 2021, doi: 10.1007/s40735-021-00503-w.
132. V. Gunasekaran, J. Pitchaimani, and L. B. Mailan Chinnapandi, "Acoustic radiation and transmission loss of FG-Graphene composite plate under nonuniform edge loading," *European Journal of Mechanics, A/Solids*, vol. 88, 2021, doi:10.1016/j.euromechso.1.2021.104249.
133. B. S. Nuthan Prasad, J. K. Pandey, and G. N. Kumar, "Effect of hydrogen enrichment on performance, combustion, and emission of a methanol fueled SI engine," *International Journal of Hydrogen Energy*, vol. 46, no. 49, pp. 25294–25307, 2021, doi:10.1016/j.ijhydene.2021.05.039
134. M. N. Aruna, M. R. Rahman, S. Joladarashi, H. Kumar, and P. Devadas Bhat, "Influence of different fumed silica as thixotropic additive on carbonyl particles magnetorheological fluids for sedimentation effects," *Journal of Magnetism and Magnetic Materials*, vol. 529, 2021, doi: 10.1016/j.jmmm.2021.167910.
135. Kausthubharam, P. K. Koorata, and N. Chandrasekaran, "Numerical investigation of cooling performance of a novel air-cooled thermal management system for cylindrical Li-ion battery module," *Applied Thermal Engineering*, vol. 193, 2021, doi:10.1016/j.applthermaleng.2021.116961.
136. P. Sharma, D. Chakradhar, and S. Narendranath, "Measurement of WEDM performance characteristics of aero-engine alloy using RSM-based TLBO algorithm," *Measurement: Journal of the International Measurement Confederation*, vol. 179, 2021, doi:10.1016/j.measurement.2021.109483.
137. P. H. Jadhav, N. Gnanasekaran, D. A. Perumal, and M. Mobedi, "Performance evaluation of partially filled high porosity metal foam configurations in a pipe," *Applied Thermal Engineering*, vol. 194, 2021, doi: 10.1016/j.applthermaleng.2021.117081.
138. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "Comparative study on ballistic impact response of neat fabric, compliant, hybrid compliant and stiff composite," *Thin-Walled Structures*, vol. 165, 2021, doi: 10.1016/j.tws.2021.107986.
139. V. Kallannavar, S. Kattimani, M. E. M. Soudagar, M. A. Mujtaba, S. Alshahrani, and M. Imran, "Neural network-based prediction model to investigate the influence of temperature and moisture on vibration characteristics of skew laminated composite sandwich plates," *Materials*, vol. 14, no. 12, 2021, doi: 10.3390/ma14123170.
140. M. L. J. Suman, S. M. Murigendrappa, and S. Kattimani, "Effect of similar and dissimilar interface layers on delamination in hybrid plain woven glass/carbon epoxy laminated composite double cantilever beam under Mode-I loading," *Theoretical and Applied Fracture Mechanics*, vol. 114, 2021, doi: 10.1016/j.tafmec.2021.102988.
141. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "Development and mechanical characterization of novel polymer-based flexible composite and

- optimization of stacking sequences using VIKOR and PSI techniques,” *Journal of Thermoplastic Composite Materials*, vol. 34, no. 8, pp.1080–1102, 2021, doi: 10.1177/0892705719864619.
142. P. S. Suvin, P. Gupta, J.-H. Horng, and S. V. Kailas, “Evaluation of a comprehensive non-toxic, biodegradable and sustainable cutting fluid developed from coconut oil,” *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, vol. 235, no. 9, pp. 1842–1850, 2021, doi: 10.1177/1350650120975518.
143. T. Kalinga, S. M. Murigendrappa, and S. Kattimani, “Pseudoelastic Behavior of Boron-Doped  $\beta$ -Type Cu-Al-Be Shape Memory Alloys,” *Journal of Materials Engineering and Performance*, vol. 30, no. 8, pp. 6068–6078, 2021, doi: 10.1007/s11665-021-05825-x.
144. Kausthubharam, P. K. Koorata, and N. Chandrasekaran, “Impact of mechanical stiffening and softening on the spatial distribution of lithium ions in spherical electrode particle under galvanostatic charging,” *International Journal of Energy Research*, vol. 45, no. 10, pp.15569–15576, 2021, doi: 10.1002/er.6723.
145. S. Ramesh, G. Anne, N. Bhat, G. Aithal, H. Shivananda Nayaka, and S. Arya, “Surface modification of multi-directional forged biodegradable Mg-Zn alloy by ball burnishing process: Modeling and analysis using deep neural network,” *Journal of Manufacturing Processes*, vol. 68, pp. 423–434, 2021, doi: 10.1016/j.jmapro.2021.05.049.
146. R. K. Parida, A. R. Kadam, M. Vasudeva, and V. Hindasageri, “Heat transfer characterisation of impinging flame jet over a wedge,” *Applied Thermal Engineering*, vol. 196, 2021, doi: 10.1016/j.applthermaleng.2021.117277.
147. S. Upadhyaya and V. Gumtapure, “Parametric investigation of open-drive scroll expander for micro organic rankine cycle applications,” *Journal of Thermal Engineering*, vol. 7, no. 5, pp.1110–1120, 2021, doi: 10.18186/thermal.977975.
148. U. H. Babu, N. V. Sai, and R. K. Sahu, “Artificial Intelligence System Approach for Optimization of Drilling Parameters of Glass-Carbon Fiber/Polymer Composites,” *Silicon*, vol.13, no. 9, pp. 2943–2957, 2021, doi: 10.1007/s12633-020-00637-5.
149. P. Jeyachandran, S. Bontha, S. Bodhak, V. K. Balla, and M. Doddamani, “Material extrusion additive manufacturing of bioactive glass/high density polyethylene composites,” *Composites Science and Technology*, vol. 213, 2021, doi: 10.1016/j.compscitech.2021.108966.
150. S. Turaka, K. V. K. Reddy, R. K. Sahu, and J. K. Katiyar, “Mechanical properties of MWCNTs and graphene nanoparticles modified glass fibre-reinforced polymer nanocomposite,” *Bulletin of Materials Science*, vol. 44, no. 3, 2021, doi: 10.1007/s12034-021-02444-z.
151. M. Doddamani, “Mechanical behaviour of 3D printed lightweight nanocomposites,” *Current Nanomaterials*, vol. 6, no. 2, pp. 151–160, 2021, doi:10.2174/240546150666210428105451.
152. B. N. Guniputi and M. S.M., “Effect of manganese and homogenization on the phase stability and properties of Cu–Al–Be shape memory alloys,” *Journal of Materials Research and Technology*, vol. 14, pp. 1551–1558, 2021, doi: 10.1016/j.jmrt.2021.07.027.

153. U. R. Poojary and K. V. Gangadharan, "Material modeling of frequency, magnetic field and strain dependent response of magnetorheological elastomer," *Journal of Materials Science*, vol. 56, no. 28, pp. 15752-15766, 2021, doi: 10.1007/s10853-021-06307-0.
154. V. G. Nair and K. R. Guruprasad, "2D-VPC: An Efficient Coverage Algorithm for Multiple Autonomous Vehicles," *International Journal of Control, Automation and Systems*, vol. 19, no.8, pp. 2891-2901, 2021, doi: 10.1007/s12555-020-0389-6.
155. S. R. Prabhu, A. Shettigar, M. A. Herbert, and S. S. Rao, "Experimental assessment of FSW process to join AA6061/Rutile composite and parametric optimization using TGRA," *Engineering Research Express*, vol. 3, no. 3, 2021, doi: 10.1088/2631-8695/ac21b5.
156. H. S. Ashrith and M. Doddamani, "Point angle effect in drilling of syntactic foams," *Composites Part C: Open Access*, vol. 6, 2021, doi: 10.1016/j.jcomc.2021.100179.
157. B. S. Manohar Shankar, S. Hiremath, and S. M. Kulkarni, "Effect of ketjenblack and barium titanate on the piezoresistive behaviour of silicone rubber particulate composites," *Engineering Research Express*, vol. 3, no. 3, 2021, doi: 10.1088/2631-8695/ac1ef5.
158. K. A. Mathias, S. Hiremath, and S. M. Kulkarni, "Experimental studies on mechanical and dielectric behavior of Glycerol filled Silicone rubber composites," *Engineering Research Express*, vol. 3, no. 3, 2021, doi: 10.1088/2631-8695/ac1450.
159. B. Dileep and M. Doddamani, "Compressive response of 3D printed graded foams," *Composites Part C: Open Access*, vol. 6, 2021, doi: 10.1016/j.jcomc.2021.100181.
160. S. Acharya, T. R. S. Saini, V. Sundaram, and H. Kumar, "Selection of optimal composition of MR fluid for a brake designed using MOGA optimization coupled with magnetic FEA analysis," *Journal of Intelligent Material Systems and Structures*, vol. 32, no. 16, pp. 1831-1854, 2021, doi:10.1177/1045389X20977905.
161. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "Three body abrasive wear assessment of novel jute/natural rubber flexible green composite," *Journal of Thermoplastic Composite Materials*, vol. 34, no. 11, pp. 1566-1576, 2021, doi: 10.1177/08927057211017185.
162. M. Danish and ASS Balan., "4D printed stereolithography printed plant-based sustainable polymers: Preliminary investigation and optimization," *Journal of Applied Polymer Science*, vol. 138, no.36, 2021, doi: 10.1002/app.50903.
163. S. C M and V. Madav, "Numerical and experimental investigation of modified V-shaped turbine blades for hydrokinetic energy generation," *Renewable Energy*, vol. 177, pp. 1170-1197, 2021, doi:10.1016/j.renene.2021.05.086.
164. J. K. Chaurasia, A. N. Jinoop, P. P. C. P. Paul, K. S. Bindra, and S. Bontha, "Study of melt pool geometry and solidification microstructure during laser surface melting of Inconel 625 alloy," *Optik (Stuttg)*, vol. 246, 2021, doi: 10.1016/j.ijleo.2021.167766.
165. G. Madhu Sudana Reddy, C. Durga Prasad, G. Shetty, M. R. Ramesh, T. N. Rao, and P. Patil, "High-Temperature Oxidation Studies of Plasma-Sprayed NiCrAlY/TiO<sub>2</sub> and NiCrAlY/Cr<sub>2</sub>O<sub>3</sub>/YSZ Cermet Composite Coatings on MDN-420 Special Steel Alloy," *Metallography, Microstructure, and Analysis*, vol. 10, no. 5, pp. 642-651, 2021, doi:10.1007/s13632-021-00784-0.

166. J. Pitchaimani, P. Gupta, V. Rajamohan, O. Polit, and G. Manickam, "Acoustic fluid-structure study of 2D cavity with composite curved flexible walls using graphene platelets reinforcement by higher-order finite element approach," *Composite Structures*, vol. 272, 2021, doi:10.1016/j.compstruct.2021.114180.
167. S. Mohith, N. Karanth P, S. M. Kulkarni, V. Desai, and S. S. Patil, "Performance comparison of piezo actuated valveless micropump with central excitation and annular excitation for biomedical applications," *Smart Materials and Structures*, vol. 30, no. 10, 2021, doi: 10.1088/1361-665X/ac1dbe.
168. I. V. Manoj and S. Narendranath, "Slant type taper profiling and prediction of profiling speed for a circular profile during in wire electric discharge machining using Hastelloy-X," *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, vol.235, no. 21, pp. 5511–5524, 2021, doi: 10.1177/0954406221992398.
169. P. Padavu, P. K. Koorata, and S. D. Bhat, "Numerical investigation on the improved reactant mass transport with depth-dependent flow fields in polymer electrolyte fuel cell under inhomogeneous gas diffusion layer compression," *International Journal of Heat and Mass Transfer*, vol. 180, 2021, doi: 10.1016/j.ijheatmasstransfer.2021.121796.
170. H. Shivashankar, K. A. Mathias, P. R. Sondar, M. H. Shrishail, and S. M. Kulkarni, "Study on low-frequency dielectric behavior of the carbon black/polymer nanocomposite," *Journal of Materials Science: Materials in Electronics*, vol. 32, no. 24, pp. 28674–28686, 2021, doi:10.1007/s10854-021-07242-1.
171. A. S. S. Balan et al., "Numerical modelling and analytical comparison of delamination during cryogenic drilling of cfrp," *Polymers (Basel)*, vol. 13, no. 22, 2021, doi:10.3390/polym13223995.
172. I. V. Manoj and S. Narendranath, "Effect of Profile Geometry and Cutting Speed Override Parameter on Profiling Speed During Tapering Using Wire Electric Discharge Machining." 2022.doi: 10.1007/978-981-16-2278-6\_10.
173. K. K. Gajrani, P. S. Suvin, S. V. Kailas, K. P. Rajurkar, and M. R. Sankar, "Machining of hard materials using textured tool with minimum quantity nano-green cutting fluid," *CIRP Journal of Manufacturing Science and Technology*, vol. 35, pp. 410–421, 2021, doi:10.1016/j.cirpj.2021.06.018.
174. B. Dileep, R. Prakash, H. S. Bharath, P. Jeyaraj, and M. Doddamani, "Dynamic behavior of concurrently printed functionally graded closed cell foams," *Composite Structures*, vol. 275,2021,doi:10.1016/j.compstruct.2021.114449.
175. P. Karki, D. A. Perumal, and A. K. Yadav, "Comparative studies on air, water and nanofluids based Rayleigh–Benard natural convection using lattice Boltzmann method: CFD and exergy analysis," *Journal of Thermal Analysis and Calorimetry*, vol. 147, no. 2, pp. 1487–1503,2022, doi: 10.1007/s10973-020-10496-2.
176. J. Chowdhury and ASS Balan., "4D printing of smart polymer nanocomposites: Integrating graphene and acrylate based shape memory polymers," *Polymers (Basel)*, vol. 13, no. 21, 2021, doi: 10.3390/polym13213660.
177. S. Gudala, M. R. Ramesh, and S. S. Nallathambi, "Evolution

- of Microstructure and High-Temperature Tribological Performance of Self-Lubricating Nickel-Based Composite Tungsten Inert Gas Coatings,” *Journal of Materials Engineering and Performance*, vol. 30, no. 11, pp.8080–8094, 2021, doi: 10.1007/s11665-021-06008-4.
178. S. Thimmaiah, T. Wahidi, A. K. Yadav, and M. Arun, Numerical Instability Assessment of Natural Circulation Loop Subjected to Different Heating Conditions. 2022. doi: 10.1007/978-981-16-6928-6\_21.
179. S. C. Jambagi and V. R. Malik, “A Review on Surface Engineering Perspective of Metallic Implants for Orthopaedic Applications,” *JOM*, vol. 73, no. 12, pp. 4349–4364, 2021, doi:10.1007/s11837-021-04924-3.
180. M. Kumar, A. M. Isloor, S. R. Todeti, A. F. Ismail, and R. Farnood, “Hydrophilic nano-aluminum oxide containing polyphenylsulfone hollow fiber membranes for the extraction of arsenic (As-V) from drinking water,” *Journal of Water Process Engineering*, vol. 44, 2021, doi: 10.1016/j.jwpe.2021.102357.
181. G. M. S. Reddy, C. D. Prasad, G. Shetty, M. R. Ramesh, T. N. Rao, and P. Patil, “High-temperature oxidation behavior of plasma-sprayed NiCrAlY/TiO<sub>2</sub> and NiCrAlY/Cr<sub>2</sub>O<sub>3</sub>/YSZ coatings on titanium alloy,” *Welding in the World*, 2022, doi: 10.1007/s40194-022-01268-7.
182. M. P. Neeraj, R. Maniyeri, and S. Kang, Inertial Migration of Cylindrical Particle in Stepped Channel—A Numerical Study. 2022. doi: 10.1007/978-981-16-6928-6\_4.
183. A. Pramanik, A. K. Basak, C. Prakash, S. Shankar, S. Sharma, and S. Narendranath, “Recast Layer Formation during Wire Electrical Discharge Machining of Titanium (Ti-Al6-V4) Alloy,” *Journal of Materials Engineering and Performance*, vol. 30, no. 12, pp. 8926–8935, 2021, doi:10.1007/s11665-021-06116-1.
184. G. Trilok, N. Gnanasekaran, and M. Mobedi, “Various trade-off scenarios in thermo-hydrodynamic performance of metal foams due to variations in their thickness and structural conditions,” *Energies (Basel)*, vol. 14, no. 24, 2021, doi: 10.3390/en14248343.
185. P. H. Jadhav, T. G. N. Gnanasekaran, and M. Mobedi, “Performance score based multi-objective optimization for thermal design of partially filled high porosity metal foam pipes under forced convection,” *International Journal of Heat and Mass Transfer*, vol. 182, 2022, doi:10.1016/j.ijheatmasstransfer.2021.121911.
186. D. Rajkumar, V. Mahesh, S. Joladarashi, and S. M. Kulkarni, “A Novel Flexible Green Composite with Sisal and Natural Rubber: Investigation under Low-Velocity Impact,” *Journal of Natural Fibers*, 2022, doi: 10.1080/15440478.2022.2036292.
187. V. Manakari, G. Parande, M. Doddamani, T. S. Srivatsan, and M. Gupta, Tribological Response of Magnesium/Glass Microballoon Syntactic Foams. 2022. doi: 10.1007/978-3-030-92567-3\_19.
188. I. V. Manoj and S. Narendranath, Parametric Analysis and Response Surface Optimization of Surface Roughness and Cutting Rate in the Machining Using WEDM. 2022. doi: 10.1007/978-981-16-4138-1\_14.
189. K. V. S. Moudgalya, P. Sekar, H. S. Hebbar, and M. R. Rahman, “Effect of Zinc and Bio-Glass Addition on Mechanical Properties and Corrosion Behavior of Magnesium-Based Composites for Orthopedic Application: A Preliminary Study,” *Journal of Materials Engineering and*

- Performance, 2022, doi: 10.1007/s11665-022-06774-9.
190. G. Bala Narasimha and S. M. Murigendrappa, "Effect of Cerium and Aluminium on the phase stability and properties of polycrystalline Cu-Al-Be shape memory alloys," *Materials Characterization*, vol. 183, 2022, doi: 10.1016/j.matchar.2021.111590.
191. I. V. Manoj and S. Narendranath, "Wire Electric Discharge Machining at Different Slant Angles during Slant Type Taper Profiling of Microfer 4722 Superalloy," *Journal of Materials Engineering and Performance*, vol. 31, no. 1, pp. 697–708, 2022, doi: 10.1007/s11665-021-06168-3.
192. K. Kiran, U. R. Poojary, and K. V. Gangadharan, "Fractional-order viscoelastic modeling of the magnetic field dependent transmissibility response of MRE isolator," *Journal of Intelligent Material Systems and Structures*, 2022, doi:10.1177/1045389X221087172.
193. R. Sailesh, L. Yuvaraj, M. Doddamani, L. Babu Mailan Chinnapandi, and J. Pitchaimani, "Sound absorption and transmission loss characteristics of 3D printed bio-degradable material with graded spherical perforations," *Applied Acoustics*, vol. 186, 2022, doi:10.1016/j.apacoust.2021.108457.
194. I. V. Manoj, H. Soni, S. Narendranath, P. M. Mashinini, and F. Kara, "Examination of Machining Parameters and Prediction of Cutting Velocity and Surface Roughness Using RSM and ANN Using WEDM of Altemp HX," *Advances in Materials Science and Engineering*, vol. 2022, 2022, doi: 10.1155/2022/5192981.
195. V. Singh, A. K. Sharma, R. K. Sahu, and J. K. Katiyar, "State of the art on sustainable manufacturing using mono/hybrid nano-cutting fluids with minimum quantity lubrication," *Materials and Manufacturing Processes*, 2022, doi: 10.1080/10426914.2022.2032147.
196. S. N. Addepalli, S. Joladarashi, M. R. Ramesh, and S. B. Arya, "Effect of Mechanical Alloying on the Microstructure of CoCrNiTiMo<sub>x</sub> High Entropy Alloy," *Journal of Thermal Spray Technology*, 2022, doi: 10.1007/s11666-021-01317-5.
197. T. Wahidi and A. K. Yadav, "Comparative Numerical Appraisal of Subcritical and Supercritical CO<sub>2</sub>-Based Natural Circulation Loop." 2022. doi: 10.1007/978-981-16-6928-6\_22.
198. M. B. V. Rudra and V. Gumtapure, "T-HISTORY ANALYSIS OF ASPECT RATIO EFFECT ON SUBCOOLING AND SOLIDIFICATION BEHAVIOUR OF PHASE CHANGE MATERIAL IN VERTICAL GLASS TUBES," *Thermal Science*, vol. 26, no. 1, pp. 37–47, 2022, doi:10.2298/TSCI200509326M.
199. P. Prabhakar, H. Feng, S. P. Subramaniyan, and M. Doddamani, "Densification mechanics of polymeric syntactic foams," *Composites Part B: Engineering*, vol. 232, 2022, doi:10.1016/j.compositesb.2021.109597.
200. L. Yuvaraj, S. Jeyanthi, L. B. Mailan Chinnapandi, and J. Pitchaimani, "Experimental and numerical investigation on sound absorption characteristics of 3D printed coupled-cavity integrated passive element systems," *Journal of Low Frequency Noise Vibration and Active Control*, vol. 41, no. 1, pp. 60–73, 2022, doi: 10.1177/14613484211042157.
201. E. L. Sh, S. Kattimani, and M. Vinyas, "Nonlinear free vibration and transient responses of porous functionally graded magneto-electro-elastic plates," *Archives of Civil and Mechanical Engineering*, vol. 22, no. 1, 2022, doi: 10.1007/s43452-021-00357-6.

202. S. D. K, S. I. Bekinal, S. R. C, and M. Doddamani, "A Review of Superconducting Magnetic Bearings and Their Application," *IEEE Transactions on Applied Superconductivity*, 2022, doi:10.1109/TASC.2022.3156813.
203. P. Waghare and A. Sathyabhama, "Performance analysis of ammonia-based vapour absorption refrigeration system," *Materials Today: Proceedings*, vol. 51, pp. 1503–1509, 2022, doi:10.1016/j.matpr.2021.10.279.
204. V. Kallannavar, S. Kattimani, and H. Ramesh, "Influence of Temperature and Moisture on Free Vibration Behavior of Skew Laminated Composite Sandwich Panels with CNTRC Core," *International Journal of Structural Stability and Dynamics*, 2022, doi:10.1142/S0219455422500833.
205. P. H. Jadhav, N. Gnanasekaran, and D. A. Perumal, "Thermodynamic analysis of entropy generation in a horizontal pipe filled with high porosity metal foams," *Materials Today: Proceedings*, vol. 51, pp. 1598–1603, 2022, doi:10.1016/j.matpr.2021.10.451.
206. H. Shivashankar, S. Rajole, P. Sondar, K. A. Mathias, and S. M. Kulkarni, "Physico-mechanical behavior of carbon black-infused polymer composite," *Bulletin of Materials Science*, vol. 45, no.1, 2022, doi:10.1007/s12034-021-02586-0.
207. V. Mahesh, S. Joladarashi, and S. M. Kulkarni, "An experimental study on adhesion, flexibility, interlaminar shear strength, and damage mechanism of jute/rubber-based flexible 'green' composite," *Journal of Thermoplastic Composite Materials*, vol. 35, no. 2, pp. 149–176, 2022, doi:10.1177/0892705719882074.
208. C. M. Twinkle and J. Pitchaimani, "Static stability and vibration behavior of graphene platelets reinforced porous sandwich cylindrical panel under non-uniform edge loads using semi-analytical approach," *Composite Structures*, vol. 280, 2022, doi:10.1016/j.compstruct.2021.114837.
209. C. M. Twinkle and J. Pitchaimani, "A semi-analytical nonlocal elasticity model for static stability and vibration behaviour of agglomerated CNTs reinforced nano cylindrical panel under non-uniform edge loads," *Applied Mathematical Modelling*, vol. 103, pp. 68–90, 2022, doi:10.1016/j.apm.2021.10.027.
210. K. N. Ravikumar, C. K. Madhusudana, H. Kumar, and K. V. Gangadharan, "Classification of gear faults in internal combustion (IC) engine gearbox using discrete wavelet transform features and K star algorithm," *Engineering Science and Technology, an International Journal*, vol. 30, 2022, doi:10.1016/j.jestch.2021.08.005.
211. J. Joseph and A. Sathyabhama, "Leading edge tubercle on wind turbine blade to mitigate problems of stall, hysteresis, and laminar separation bubble," *Energy Conversion and Management*, vol. 255, 2022, doi:10.1016/j.enconman.2022.115337.
212. M. S, N. K. P, and S. M. Kulkarni, "Analysis of annularly excited bossed diaphragm for performance enhancement of mechanical micropump," *Sensors and Actuators A: Physical*, vol. 335, 2022, doi:10.1016/j.sna.2022.113381.
213. P. Jeyachandran, S. Bontha, S. Bodhak, V. Krishna Balla, and M. Doddamani, "Quasi-static compressive behavior of bioactive glass reinforced high density polyethylene composites," *Materials Letters*, vol. 311, 2022,

doi:

10.1016/j.matlet.2021.131557.

214. G. M. S. Reddy, S. Ramesh, G. Anne, M. R. Ramesh, T. N. Rao, and P. Patil, "Solid Particle Erosion Behaviour of Plasma-Sprayed (WC-Co)/(Cr 3 C 2 -NiCr) Coatings," *Journal of Bio- and Tribo-Corrosion*, vol. 8, no. 2, 2022, doi: 10.1007/s40735-022-00629-5.

#### **DEPARTMENT OF MINING ENGINEERING**

1. Bharath Kumar Shanmugam, Harsha Vardhan, M. Govinda Raj, Marutiram Kaza, Rameshwar Sah & Harish Hanumanthappa (2022) Comparison of the predictive model performance of Taguchi's L27 and Box Behnken design optimization method for separating coal in vibrating screen, *International Journal of Coal Preparation and Utilization*, DOI: 10.1080/19392699.2022.2051700
2. Bharath Kumar Shanmugam, Harsha Vardhan, M. Govinda Raj, Marutiram Kaza, Rameshwar Sah & Harish Hanumanthappa (2021) Investigation on the operational parameters of screening coal in the vibrating screen using Taguchi L27 technique, *International Journal of Coal Preparation and Utilization*, DOI: 10.1080/19392699.2021.1957854
3. Bharath Kumar Shanmugam, Harsha Vardhan, M. Govinda Raj, Marutiram Kaza, Rameshwar Sah & Harish Hanumanthappa (2021) Application of fractional factorial design for evaluating the separation performance of the screening machine, *International Journal of Coal Preparation and Utilization*, DOI: 10.1080/19392699.2021.1962312
4. Bharath Kumar Shanmugam, Harsha Vardhan, M. Govinda Raj, Marutiram Kaza, Rameshwar Sah & Harish Hanumanthappa (2022) Comparison of the prediction performance of separating coal in

separation equipment using machine learning based cubic regression modelling and cascade neural network modelling, *International Journal of Coal Preparation and Utilization*, DOI: 10.1080/19392699.2022.2040492.

#### **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

1. Pathumudy, R.D., Prabhu, K.N., 'Thermal interface materials for cooling microelectronic systems: present status and future challenges'. *J Mater Sci: Mater Electron* 32, 11339–11366 (2021)
2. Rao, K.M.P., Prabhu, K.N., 'Numerical Simulation to Predict the Effect of Process Parameters on Hardness during Martempering of AISI4140 Steel'. *J. of Materi Eng and Perform* 30, 3416–3435 (2021). <https://doi.org/10.1007/s11665-021-05630-6>
3. Swathi Agarwala and Prabhu, K.N., A quantitative approach for thermal characterization of phase change materials, *Materials Performance and Characterization* 10, no. 1 (2021): 166-172.
4. Vijeesh Vijayan and Prabhu, K.N., 'Effect of Ni and Sr additions on the microstructure, mechanical properties, and coefficient of thermal expansion of Al-23%Si alloy', *Materials Today: Proceedings* Volume:46 (2021), 2732-2736
5. Sadgun Reddy, Prabhu, K. N. and Vignesh Nayak, 'The Effect of Nanocoatings on Critical Heat Flux (CHF) under Pool Boiling Conditions', October 2021, *Materials Performance and Characterization* 10(1):532-537
6. Nathan, D.K., Prabhu, K.N., 'Thermal Resistance at the Polymer/Mold Interface in Injection Molding'. *Trans Indian Inst Met* 75, 307–326 (2022). <https://doi.org/10.1007/s12666-021-02420-5>
7. R. Sudheer, Prabhu, K.N., 'Understanding Solidification Behavior of Salt Phase Change Material with Added Carbon

- Nanoparticles Using Computer-Aided Cooling Curve Analysis'. *J. of Materi Eng and Perform* 31, 383–389(2022).  
<https://doi.org/10.1007/s11665-021-06139-8>
8. Swati Agarwala and Prabhu, K.N., 'Review of thermal characterization techniques for salt-based phase change materials', *Journal of Energy Storage*, Volume 46, February 2022, 103865, <https://doi.org/10.1016/j.est.2021.103865>.
  9. Samuel, A., Prabhu, K.N., 'Residual Stress and Distortion during Quench Hardening of Steels: A Review'. *J. of Materi Eng and Perform* (2022).  
<https://doi.org/10.1007/s11665-022-06667-x>
  10. Samuel, A., Prabhu, K.N., 'Assessment of Heat Transfer Characteristics of Trans-esterified Waste Sunflower Cooking Oil Blends for Quench Hardening'. *J. of Materi Eng and Perform* (2022).  
<https://doi.org/10.1007/s11665-022-06668-w>
  11. B. Shivamurthy, S. Anandhan, K. U. Bhat, B.H.S. Thimmappa, 'Thermal and Flammability Properties of Glass Fabric/MWCNT/Epoxy Multilayered Laminates', *Transactions on Electrical and Electronic Materials*, 22, 889–892., 2021.
  12. G. George, A. Mahendran, M. Selvakumar, S. Anandhan, 'Influence of MWCNTs on the structure and properties of poly(ethylene-co-vinyl acetate-co-carbon monoxide) nanocomposite', *Polymer Composites*, 42, 4412–4423, 2021.
  13. M. Khalifa, S. Anandhan, 'Highly sensitive and wearable NO<sub>2</sub> gas sensor based on PVDF nanofabric containing embedded polyaniline/g-C<sub>3</sub>N<sub>4</sub> nanosheet composites', *Nanotechnology*, 32, 485504, 2021.
  14. B. Sachin Kumar, C. Dhana Sekhar, S. Anandhan, S.K. Kalpathy, 'Magnetic Behaviour of Polymorph Composite Nickel Titanate Nanofibers', *New Journal of Chemistry*, 45, 17438-17446, 2021.
  15. Shetty, A.M. Shanmugaraj, S. Anandhan, 'Physico-chemical and piezoelectric characterization of electroactive nanofabrics based on functionalized graphene/talc nanolayers/PVDF for energy harvesting', *Journal of Polymer Research*, 28, 419, 2021.
  16. M. Khalifa, E. Schoeffmann, H. Lammer, A. Mahendran, G. Wuzella, S. Anandhan, "A study on electroactive PVDF/mica nanosheet composites with enhanced  $\gamma$ -phase for capacitive and piezoelectric force sensing', *Soft Matter*, 17, 10891-10902, 2021.
  17. Merbin John, Orlando Diaz, Andres Esparza, Aaron Fliegler, Derek Ocenosak, Carson Van Dorn, Udaya Bhat K., Pradeep L Menezes, 'Welding techniques for high entropy alloys, Processes, properties, characterization, and Challenges', *materials*, 2022, 15, 2273,  
<https://doi.org/10.3390/ma15062273>
  18. Sudhish.R and Udaya Bhat K., 'Microstructure evolution in Al 6061 coating deposited on Al 2024 substrate by friction surfacing', *Materials Today Communications*, 2022, 31, 103354,  
<https://doi.org/10.1016/j.mtcomm.2022.103354>
  19. D Satish Kumar, S Manjini, Udaya Bhat K., 'Optimisation of annealing parameters for ferritic hot rolled IF grade steel', *Metallography, microstructure and analysis*, 2022, 1-9  
<https://doi.org/10.1007/s13632-022-00821-6>.
  20. Naveen Bharadishettar and Udaya Bhat K., 'Degradation response and bioactivity assessment of antimicrobial copper coatings in simulated hand sweat environment', *Materials Letters*,

- 2022, 314, 131850, <https://doi.org/10.1016/j.matlet.2022.131850>
21. Udaya Bhat K., Devadas Bhat P, Spandana Bhat K, Merbin John, Pradeep L Menezes, 'Surface modification of 6xxx series Al alloys', *Coatings*, 2022, 12, 180, <https://doi.org/10.3390/coatings12020180>
22. Prabukumar C, Sunil Meti, Udaya Bhat K., 'Enhancing the electrochemical performance of ZnO anode by novel additive of MoS<sub>2</sub>-SnO<sub>2</sub> nanocomposite for the zinc alkaline battery applications', *J Mater Sci, Mater Electr*, 2022, <https://doi.org/10.1007/s10854-021-07460-7>.
23. Vikas Marakini, Srinivasa Pai P, Udaya Bhat K., Dinesh Singh Thakur, Bhaskar P Achar, 'High speed machining for enhancing the AZ91 magnesium alloy surface characteristics: Influence and optimization of machining parameters', *Defence Science Journal*, Jan 2022, v 72 (1), 105-113, doi:10.14428/dsj.72.17049.
24. Merbin John, Alessandro M Ralls, Scott C Dooley, Akhil Kishore V T, Ashok Kumar P, Udaya Bhat K., Pradeep L Menezes, 'Ultrasonic surface rolling process: Properties, characterization and applications', *applied sciences*, 2021, 11, 10986, <https://doi.org/10.3390/app112210986>.
25. Sunil Meti, H P Sagar, M R Rahman, Udaya Bhat K., 'Assessment of triboelectricity in colossal surface area lanthanum oxide nanocrystals synthesized via low temperature hydrothermal process', *Journal of Materials Science Materials in Electronics*, 2021, 32, 20351-20361, doi:10.1007/s10854-021-06545-7
26. Satish Kumar D, Manjini S, Udaya Bhat K., 'Thermomechanical simulation of ferritic rolling of Ti-Nb interstitial free steel', *Materials Performance and Characterisation*, 2021, 10 (1), 569-584, <https://doi.org/10.1520/MPC20210040>.
27. Naveen Bharadishettar, Udaya Bhat K., Devadas Bhat P, 'Coating technologies for copper based antimicrobial active surfaces-A perspective review', *Metals* 2021, 11, 711, p1-27, <https://doi.org/10.3390/met11050711>.
28. Pravan Omprakash, Udaya Bhat K., Devadas Bhat P., 'Carbon and metallic based nanomaterials for strain sensors – a review', *Current Nanomaterials*, v 6, 2021.
29. Sagar H Prutvi, Sunil Meti, K Udaya Bhat, Deepti Gupta, 'Triboelectric effect based self powered compact vibration sensor for predictive maintenance of industrial machines', *Measurement Science and Technology*, 2021, <https://doi.org/10.1088/1361-6501/abe6d2>
30. Aruna, M. N., Rahman, M. R., Joladarashi, S., Kumar, H., & Bhat, P. D. (2021). Influence of Different Fumed Silica as Thixotropic Additive on Carbonyl Particles Magnetorheological Fluids for Sedimentation Effects. *Journal of Magnetism and Magnetic Materials*, 167910. IF 2.19. <https://doi.org/10.1016/j.jmmm.2021.167910>
31. Mohanraj, G.T., Rahman, M.R., Joladarashi, S., Hanumanthappa, H., Shanmugam, B.K., Vardhan, H. and Rabbani, S.A., 2021. Design and fabrication of optimized magnetic roller for permanent roll magnetic separator (PRMS): Finite element method magnetics (FEMM) approach. *Advanced Powder Technology*, 32(2), pp.546-564.
32. Ramteke, R., Kumari, K., Bhattacharya, S., Sharma, S. K., & Rahman, M. R. (2021). Impedance spectroscopy study of zinc oxide incorporated iron borate glass-ceramic. *Current Applied Physics*,

- 22, 84–93.  
<https://doi.org/10.1016/j.cap.2020.12.017>
33. Mohanraj, G.T., Rahman, M.R., Arya, S.B., Barman, R., Krishnendu, P. and Meena, S.S., 2022. Characterization study and recovery of copper from low grade copper ore through hydrometallurgical route. *Advanced Powder Technology*, 33(1), p.103382.
34. Kumar, D.A., Kumar, T.P., Krishnamoorthy, K., Bhat, P.D. and Rahman, M.R., 2022. Flexible Electromagnetic Shielding Material Using Multi-Walled Carbon Nanotube Coated Cotton Fabric. *IEEE Transactions on Components, Packaging and Manufacturing Technology*.
35. Moudgalya, K.V., Sekar, P., Hebbar, H.S. and Rahman, M.R., 2022. Effect of Zinc and Bio-Glass Addition on Mechanical Properties and Corrosion Behavior of Magnesium-Based Composites for Orthopedic Application: A Preliminary Study. *Journal of Materials Engineering and Performance*, pp.1-25.
36. Shivaram M. J, S.B. Arya, Jagannatha Nayak and B B. Panigrahi (2021) "Tribo-corrosion behaviour of biomedical porous Ti-20Nb-5Ag alloy in simulated body fluid" *Journal of Bio- and TriboCorrosion* (Springer), 7 (2), 1-9.
37. Syam N, Addepalli, Sharnappa J, Ramesh MR, S.B. Arya (2021). "Effect of Mechanical Alloying on the Microstructure of CoCrNiTiMox High Entropy Alloy" *J. of Thermal Spray Tech.* (accepted).
38. K. Trivedi, R. Rane, A. Joseph and S.B. Arya (2021) "Deposition of TiN and TiAlN thin films on stainless steel tube by cylindrical magnetron sputtering method" *Materials Performance and Characterization* 10 (1), 473-488.
39. Anuj K, S.B. Arya, B Majumdar, Jatin B, AK Srivastava (2021) "Corrosion studies of Hf64Cu18Ni18 metallic glass in acidic and alkaline media" *Trans. Ind. Inst. Met. (Springer)* Vol. 74 (4), 949-956.
40. Shivaram M. J, S.B. Arya, Jagannatha Nayak and B B. Panigrahi (2021) "Development and characterization of biomedical porous Ti-20Nb-5Ag alloy: Microstructure, mechanical properties, Surface bioactivity and cell viability studies" *Metals and Materials Int. (Springer)*: (<https://doi.org/10.1007/s12540-020-00915-2>).
41. C.Sundaresan, B. Rajasekaran, S.Varalakshmi, K.Santhy, D. SrinivasaRao, G.Sivakumar, 'Comparative hot corrosion performance of APS and Detonation sprayed CoCrAlY, NiCoCrAlY and NiCr coatings on T91 boiler steel', *Corrosion Science*, Volume 189, 15 August 2021, 109556.
42. Preethi Shetty, Preetish Dsilva, Pavankumar Sondar, Kumar B. Ganesh, and Subray Hegde, *Biodegradation of PEEK Piston Rings, Polymer Degradation and Stability*, Vol. 191 P.No. 109666, September 2021
43. Pavankumar R Sondar, Gurudath, B., Ahirwar, V., and Subray R Hegde, *Failure of Hydraulic Lathe Chuck Assembly, Engineering Failure Analysis*, Vol. 133, P. No. 10600, March 2022.
44. Robbi Vivek Vardhan, Subodh Kumar, Saumen Mandal, 'Fabrication of minimal capital-intensive scratch-resistant and hydrophobic tungsten oxide film on stainless steel through spray pyrolysis', *Surface and Interface Analysis* 1-14.
45. Ashritha Salian and Saumen Mandal, 'Review on the deposition, structure and properties of high entropy oxide films: current and future perspectives', *Bulletin of Materials Science*, 45, 49.
46. Santhra Krishnan P, Ashritha Salian, Saikat Dutta and Saumen Mandal, 'A roadmap to UV-

protective natural resources: classification, characteristics, and applications’,

- 47.G. Manjunath, Robbi Vivek Vardhan, Lakkimsetti Lakshmi Praveen, P Nagaraju, Saumen Mandal, ‘Room- temperature detection of ammonia and formaldehyde gases by  $\text{LaBa}_{1-x}\text{SnO}_3$  ( $x=0$  and  $0.05$ ) screen printed sensors: effect of ceria and ruthenate sensitization’, *Applied Physics A*, 127, 116.
- 48.Vinod V. T. Padil, K. P. Akshay Kumar, Selvakumar Murugesan, Rafael Torres-Mendieta, Stanisław Waclawek, Jun Young Cheong, Miroslav Černík and Rajender S. Varma, ‘Sustainable and safer nanoclay composites for multifaceted applications’ 2022
- 49.Selvakumar Murugesan and Thomas Scheibel, ‘Chitosan-based nanocomposites for medical applications’, Volume59, Issue15, 1610-1642, 2021.
50. S. Govindarajan, K. Syamkumar, N. Lamture, S. S. Kale, T. Ram Prabhu, Synergistic effects of iron and hexagonal – Boron Nitride additions in copper based composites for braking application. Proceedings of the Institution of Mechanical Engineers, Journal of Engineering Tribology
3. Narasimha, P.T., Jena, P.R., Majhi, R, Impact of COVID-19 on the Indian seaport transportation and maritime supply chain, *Transport Policy* PISSN: 0967070X, May 2021, pages 191-203.
4. Jena, P.R., Majhi, R., Kalli, R., Managi, S., Majhi, B. Impact of COVID-19 on GDP of major economies: Application of the artificial neural network forecaster, *Economic Analysis and Policy* PISSN: 03135926 april 69,2021, pp 324-339.
5. R Majhi, R Thangeda, RP Sugasi, N Kumar, Analysis and prediction of COVID- 19 trajectory: A machine learning approach, *Journal of Public Affairs* 21 (4), e2537
6. R Majhi, RP Sugasi, A machine-learning approach for classifying Indian internet shoppers, *Applied Marketing Analytics* 7 (3), 288-298
7. Goud, V.M., & Sheena, (2021). Exploring the nexus between internal branding and front line employees’ performance in Indian public sector banks: serial mediation approach published in *Vision: The Journal of Business Perspective*, Sage publishers (indexed in ABS, ABDC, ESCI, Scopus) DOI: 10.1177/09722629211039348
8. Goud, V.M., & Sheena, (2021). Unraveling the relationship between internal branding and job outcomes: front line employees’ perspective, manuscript accepted for publication in *Turkish Online Journal of Qualitative Inquiry* (Scopus indexed).
9. Sadath, A. C., & Acharya, R. H. (2021). Access to Modern Energy Services and Human Development in India: Has Government Policies Paid off?. *International Journal of Energy Economics and Policy*, 11(3), 432.
10. Sadath, A. C., & Acharya, R. H. (2021). The macroeconomic effects of increase and decrease in oil prices: evidences of asymmetric effects from India. *International*

### **SCHOOL OF MANAGEMENT**

1. Ramath, Amritha Koiloth & Shashikantha Koudur, “Of Dictionaries and Dialectics: Locating the Vernacular and the Making of Modern Malayalam”, *Rupkatha Journal on Interdisciplinary Studies in Humanities*, DOI: <https://dx.doi.org/10.21659/rupkatha.v13n2.18>, Vol. 13, 2021
2. Dhaigude, S. A., & Mohan, B. C. (2021). Logistics Service Quality in Online Shopping: A Bibliometric Analysis. *Journal of Internet Commerce*, 1-32. <https://doi.org/10.1080/15332861.2021.2011598>

- Journal of Energy Sector Management.
11. Chandrasekaran, B., & Acharya, R. H. (2021). An analysis of pricing efficiency of exchange traded funds in India using ARDL bounds test approach. *Afro-Asian Journal of Finance and Accounting*, 11(4), 607-633.
  12. Kumar, S.P., Saha, S. & Anand, A. (2021), "A green human resource management approach of participation in decision-making and behavioural outcomes – a moderated mediated model", *International Journal of Organizational Analysis*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJOA-09-2021-2954>.
  13. Kumar, S. P. (2022). Influence of University teachers' job satisfaction on subjective well-being and job performance. *Journal of Engineering Education Transformations*, 35 (Special Issue), 160-167.

#### DEPARTMENT OF PHYSICS

1. Development of titanium nitride thin film microheaters using laser micromachining, *Vacuum* 197, 110795, 2022, MA Jithin, KL Ganapathi, M Ambresh, P Nukala, NK Udayashankar.
2. Understanding the coexistence of two bipolar resistive switching modes with opposite polarity in  $Cu_xO$  ( $1 \leq x \leq 2$ )-based two-terminal devices, *Journal of Materials Science: Materials in Electronics* Pages, 1-15, NS Sterin, T Nivedya, Sib Sankar Mal, Partha Pratim Das.
3. Polyoxomolybdate–Polypyrrole–Graphene Oxide Nanohybrid Electrode for High-Power Symmetric Supercapacitors, *Energy & Fuels*, Volume 35, Issue 22, Pages 18824-18832, Sukanya Maity, Madhusree JE, Bhimaraya R Biradar, Pranay R Chandewar, Debaprasad Shee, Partha Pratim Das, Sib Sankar Mal
4. Electrochemical performance of activated carbon-supported vanadomolybdates electrodes for energy conversion, *Ceramics International*, Volume 47, Issue 19, Pages 27132-27141, Sukanya Maity, Anjana Anandan Vannathan, Tatinaidu Kella, Debaprasad Shee, Partha Pratim Das, Sib Sankar Mal.
5. Activated carbon-supported Vanadonickelate (IV) based hybrid materials for energy application, *Journal of Energy Storage*, Volume 40, Pages 102727, Sukanya Maity, BM Neethu, Tatinaidu Kella, Debaprasad Shee, Partha Pratim Das, Sib Sankar Mal.
6. Decavanadate-graphene oxide nanocomposite as an electrode material for electrochemical capacitor, *Materials Technology*, Pages 1-11, Sukanya Maity, Partha Pratim Das, Sib Sankar Mal.
7. Generation of microdroplets in T-junction devices by pulsed fluid flow: Simulation Studies, *ISSS J. Micro and Smart Systems* Vol 10 No. 2, 103-117 (Nov. 2021), K. Sripadaraja, M.N. Satyanarayan and G. Umesh.
8. Imidazole-Pyrene Hybrid Luminescent Materials for Organic LEDs: Synthesis, Characterization and Luminescent Properties, *J. Molecular Structure* Vol. 1236, 130306-130317 (July 2021), G. Umasankar, Hidayath Ulla, Chakali Madhu, G.R. Reddy, B. Shanigaram, N. Jagadeesh Babu, K. Bhanuprakash, G.V. Karunakar, M.N. Satyanarayan, V. J. Rao,
9. Numerical investigations on alternate droplet formation in microfluidic devices, *Microgravity Sci and Technol.* 33, Article Number 71 (December 2021), K. Sripadaraja, M.N. Satyanarayan, G. Umesh and Gopalakrishna Hegde  
Aggregation Induced Emission in thiophene derivatives, *ISSS J. Micro and Smart Systems* (2022)
10. DOI: <https://doi.org/10.1007/s41683-022-00091-y>, M.N. Satyanarayan, Darshak R. Trivedi, MaKesh Mohan, Srikala Pangannaya.
11. From fundamental to CO<sub>2</sub> and COCl<sub>2</sub> gas sensing properties of pristine and defective Si<sub>2</sub>BN monolayers, February 2022 *Physical Chemistry Chemical Physics* 24(9) Phys. Chem. Chem.

- Phys., 2022,24, 4394-4406, Siby Thomas, Ajith Kulangara Madam and Mohsen Asle Zaeem
12. Microstructure and continuous phase transition of a regular Hayward black hole in anti-de Sitter spacetime, *Progress of Theoretical and Experimental Physics*, Volume 2021, Issue 7, July 2021, 073E01, <https://doi.org/10.1093/ptep/ptab065>, A Naveena Kumara, C L Ahmed Rizwan, Kartheek Hegde, Md Sabir Ali, K M Ajith
  13. The Role of Global Monopole in Joule–Thomson Effect of AdS Black Hole, In: Behera, P.K., Bhatnagar, V., Shukla, P., Sinha, R. (eds) XXIII DAE High Energy Physics Symposium. Springer Proceedings in Physics, vol 261. Springer, Singapore. [https://doi.org/10.1007/978-981-33-4408-2\\_58](https://doi.org/10.1007/978-981-33-4408-2_58) (May 2021), Naveena Kumara, A., Ahmed Rizwan, C.L., Ajith, K.M.
  14. Rotating 4D Gauss–Bonnet black hole as a particle accelerator, *Annals of Physics* Volume 434, November 2021, 168599 ISSN 0003-4916, <https://doi.org/10.1016/j.aop.2021.168599>, A Naveena Kumara, C L Ahmed Rizwan, Kartheek Hegde, Md Sabir Ali, K M Ajith.
  15. Null geodesics and thermodynamic phase transition of four-dimensional Gauss–Bonnet AdS black hole, *Annals of Physics*, Volume 429,2021, 168461, ISSN 0003-4916, <https://doi.org/10.1016/j.aop.2021.168461>. (<https://www.sciencedirect.com/science/article/pii/S0003491621000671>), Kartheek Hegde, A. Naveena Kumara, C.L. Ahmed Rizwan, Md Sabir Ali, K.M. Ajith.
  16. Pressure driven structural and spin-state transition in a Hoffman clathrate coordination polymer, *Journal of magnetism and magnetic materials*, vol. 524, Indukuru R Reddy, Kartick Tarafder, Peter M Oppeneer.
  17. Understanding and tuning of spinterface for chemisorbed Ni-dinuclear quinonoid on Co(001) substrate, *Journal of Physics: Condensed Matter*, Volume 33, Number 35, Indukuru R Reddy, Kartick Tarafder.
  18. Theoretical investigation of quantum capacitance in the functionalized MoS<sub>2</sub>-monolayer, *Electronic Structures* 3(2), 025003, 2021, Sruthi T, Nayana Devraj, Kartick Tarafder.
  19. Unprecedented electroreduction of CO<sub>2</sub> over metal organic framework derived intermetallic nano-alloy Cu(0.85)Ni(0.15)/C, *ACS Applied energy materials*,2022, Nayana Devraj Kartick Tarafder.
  20. The role of synthesis vis-a-vis the oxygen vacancies of Co<sub>3</sub>O<sub>4</sub> in the oxygen evolution reaction, *New Journal of chemistry* 46(14), 6539-6548, 2022, Nayana Devraj Kartick Tarafder
  21. Connecting loop quantum gravity and string theory via quantum geometry, XXIII DAE High Energy Physics Symposium, Pages 391-399, Deepak Vaid
  22. Thermodynamic Geometry of Regular Black Hole Surrounded by Quintessence, XXIII DAE High Energy Physics Symposium Pages 937-941, CL Ahmed Rizwan, A Naveena Kumara, Deepak Vaid
  23. Comparative Study of Bulk and Surface Pressure of Charged AdS Black Hole, XXIII DAE High Energy Physics Symposium Pages 913-917, KV Rajani, Deepak Vaid
  24. Joule–Thomson expansion of regular Bardeen AdS black hole surrounded by static anisotropic matter field, *Physics of the Dark Universe*, Volume 32, Pages 100825, KV Rajani, CL Ahmed Rizwan, A Naveena Kumara, Md Sabir Ali, Deepak Vaid.
  25. Cosmic tango between the very small and the very large: Addressing CMB anomalies through Loop Quantum Cosmology, *Frontiers in Astronomy and Space Sciences*, Volume 8, Pages 76, Abhay Ashtekar, Brajesh Gupta, V Sreenath.
  26. Anomalies in the Cosmic Microwave Background and their Non-Gaussian Origin in Loop Quantum Cosmology, *Frontiers in Astronomy and Space Sciences* Pages 130, Ivan Agullo, Dimitrios Kranas, V Sreenath.

27. Anomalies in the CMB from a cosmic bounce, Bulletin of the American Physical Society Volume 66, Dimitrios Kranas, Ivan Agullo, Vijayakumar Sreenath.
28. Quantum-to-classical transition and imprints of continuous spontaneous localization in classical bouncing universes, International Journal of Modern Physics D Pages 2150049, D Jaffino Stargen, V Sreenath, L Sriramkumar

**DEPARTMENT OF WATER  
RESOURCES AND OCEAN  
ENGINEERING**

1. Kumaran V, Manu and Subba Rao (2021), "Assessment of dynamic pressure and wave forces on vertical-caisson type breakwater" Marine Georesources & Geotechnology, Taylor & Francis online publication, pp 1-12, <https://doi.org/10.1080/1064119X.2021.1873469>, March 2021.
2. Sandesh Upadhyaya K., Subba Rao, and Manu (2021), "Prediction of wind-wave climate along Karnataka coast", Journal of Earth System Science, Vol. 130, Article number: 210 (2021), pp 01-14, Indian Academy of Sciences, <https://doi.org/10.1007/s12040-021-01704-0>
3. Kumaran V, Manu and Subba Rao (2021), "Damage Analysis of Toe for Wall Type Breakwaters", Journal of The Institute of Engineers India, Series A, Springer publications, pp 1-9, <https://doi.org/10.1007/s40030-021-00591-4>, November 2021.
4. Kumaran V, Manu, Subba Rao and Srinivasula Reddy I (2021), "Hydrodynamic performances of wall type breakwater - a physical and numerical approach" Journal of Naval Architecture and Marine Engineering, ANAME Publication, Vol. 18(2), pp 141-154, ISSN : 1813-8535 (Print), ISSN: 2070-8998 (Online), <https://dx.doi.org/10.3329/jname.v18i2.52134> December 2021.
5. Anjali Vijay, Sruthi D. Sivan, Amogh Mudbhatkal, and Amai Mahesha (2021). "Long-Term Climate Variability and Drought Characteristics in Tropical Region of India", *J. Hydrologic Engg., ASCE*, 26(4), 05021003-1-13. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0002070](https://doi.org/10.1061/(ASCE)HE.1943-5584.0002070)
6. Dineshkumar, M. and Amai Mahesha (2021). "Copula-based frequency and coincidence risk analysis of floods in tropical, seasonal rivers". *J. Hydrologic Engg., ASCE*, 26 (5), 05021007-1-17. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0002061](https://doi.org/10.1061/(ASCE)HE.1943-5584.0002061)
7. Dineshkumar, M. and Amai Mahesha (2021). "Spatio-metric analysis of compound agrometeorological drought and hot events in India using standardized index". *J. Hydrologic Engg., ASCE*, 26(7), 04021022-1-15. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0002101](https://doi.org/10.1061/(ASCE)HE.1943-5584.0002101)
8. Dinesh Kumar M. and Amai Mahesha (2021). "Multivariate analysis of concurrent droughts and their effects on Kharif crops - A Copula-based approach". *International J. Climatology*, 1-22. <http://onlinelibrary.wiley.com/doi/10.1002/joc.7390>
9. Sharannya T.M., Venkatesh, Amogh Mudbhatkal, M. Dinesh Kumar and Amai Mahesha (2021). "Effects of land use and climate change on water scarcity in rivers of the Western Ghats of India", *Environmental Monitoring & Assessment*, Springer, 193:820. <https://doi.org/10.1007/s10661-021-09598-7>
10. A Garkoti, S Kundapura Deriving water level and discharge estimation using satellite altimetry for Krishna River, Karnataka - Volume 22, April 2021, 100487 <https://www.sciencedirect.com/journal/remote-sensing-applications-society-and-environment>. <https://doi.org/10.1016/j.rsase.2021.100487>
11. Tamburi, V., Shetty, A., & Shrihari, S. (2021). Spatial variability of vertisols nutrients in the Deccan plateau region of north Karnataka, India. *Environment, Development and Sustainability*, 23(2), 2910-2923
12. Gururaj, P., Umesh, P. & Shetty, A. (2021), "Modeling of surface soil

- moisture using C-band SAR data over bare fields in the tropical semi-arid region of India". *Appl Geomat.* 13, 555–564.  
<https://doi.org/10.1007/s12518-021-00370-7>.
13. Gururaj, P., Umesh, P. & Shetty, A. (2021), "Assessment of surface soil moisture from ALOS PALSAR-2 in small-scale maize fields using polarimetric decomposition technique. *Acta Geophys.* 69, 579–588.  
<https://doi.org/10.1007/s11600-021-00557-x>.
14. Swathi Shetty, Vaishnavi P.C, Pruthviraj Umesh, and Amba Shetty (2021) "Vertical Accuracy Assessment of Open Source Digital Elevation Models under varying Elevation and Land Cover in Western Ghats of India". *Modeling Earth Systems and Environment*, 8, pp.883-895.
15. Sintayehu Yadete Tola and Amba Shetty (2021) "Land cover change and its implication to hydrological regimes and soil erosion in Awash River basin, Ethiopia: a systematic review" *Environmental Monitoring and Assessment (Springer) Environmental Monitoring and Assessment* 193(12).  
<https://doi.org/10.1007/s10661-021-09599-6>
16. Abhishek A Pathak, Basavanada M Dodamani, Connection between Meteorological and Groundwater Drought with Copula-Based Bivariate Frequency Analysis. *Journal of Hydrologic Engineering* Volume 26, Issue 7 (July 2021) DOI:[https://doi.org/10.1061/\(ASCE\)H E.1943-5584.0002089](https://doi.org/10.1061/(ASCE)H E.1943-5584.0002089)
17. S Niranjana, L Nandagiri, Effect of local calibration on the performance of the Hargreaves reference crop evapotranspiration equation - *Journal of Water and Climate Change* (2021) 12 (6): 2654– 2673. [iwaponline.com](http://iwaponline.com) (May 2021) <https://doi.org/10.2166/wc.c.2021.360>.
18. T Nasar, SA Sannasiraj, V Sundar: Performance assessment of porous baffle on liquid sloshing dynamics in a barge carrying liquid tank: *Ships and Offshore Structures Journal* - Volume 16, 2021 - Issue 7  
<https://doi.org/10.1080/17445302.2020.1781746>
19. DM Jose, GS Dwarakish - Bias Correction and Trend Analysis of Temperature Data by a High-Resolution CMIP6 Model over a Tropical River Basin. *Asia-Pacific Journal of Atmospheric Sciences* volume 58, pages 97–115 (2022)-Springer. DOI: <https://doi.org/10.1007/s13143-021-00240-7>
20. DM Jose, GS Dwarakish - Ranking of downscaled CMIP5 and CMIP6 GCMs at a basin scale: case study of a tropical river basin on the South West coast of India- *Arabian Journal of Geosciences* volume 15, Article number: 120 (2022) – Springer DOI: <https://doi.org/10.1007/s12517-021-09289-0>
21. Gururaj, P., Umesh, P. & Shetty, A. (2022), "Evaluation of surface soil moisture models over heterogeneous agricultural plots using L-band SAR observations". *Geocarto International*, Taylor and Francis. <https://doi.org/10.1080/10106049.2022.2032398>.
22. Swathi Shetty, Pruthviraj Umesh and Amba Shetty (2022) "Dependability of Rainfall to Topography and Micro-Climates: an Observation using Geographically Weighted Regression". *Theoretical and Applied Climatology*, 147(1), pp.217–237.
23. Sintayehu Yadete Tola and Amba Shetty (2022) "Flood susceptibility modeling based on morphometric parameters in Upper Awash River basin, Ethiopia using geospatial techniques" *Sustainable Water Resources Management* 49 (2022) <https://doi.org/10.1007/s40899-022-00642-z>
24. V Kallannavar, S Kattimani, H Ramesh, Influence of Temperature and Moisture on Free Vibration Behavior of Skew, Laminated Composite Sandwich Panels with CNTRC Core. *International Journal of Structural Stability and Dynamics*, 2250083, SSN (print): 0219-

4554 | ISSN (online): 1793-6764  
<https://doi.org/10.1142/S0219455422500833>

## NATIONAL JOURNALS

### DEPARTMENT OF CIVIL ENGINEERING

1. Resmy V.R. and Rajasekaran, C. Stiffness maximization of concrete structures using topology optimization in static and dynamic problems. *Journal of Structural Engineering (Madras)*, Vol. 48 (1), 51-60. 2021
2. Rajeshwari, R., Sukomal Mandal and Rajasekaran C. (2021) Compressive strength prediction of SCC containing fly ash using SVM and PSO-SVM models. *Journal of Structural Engineering (Madras)*, Vol. 48 (1), 1-11. 2021.

### DEPARTMENT OF MINING ENGINEERING

Bijay Mihir Kunar, Mangalpady Aruna & Mohi Bekal Kar (2021), Postural analysis of dumper operators and construction workers – A case study, *Journal of Mines, Metals and Fuels*, Vol. 69, Issue. 6, June 2021, doi:<https://doi.org/10.18311/jmmf/2021/28525>

## INTERNATIONAL CONFERENCES

### DEPARTMENT OF CHEMICAL ENGINEERING

1. SS Patil, S Naik, MD Ramesh, H Dasari, HP Dasari, “A Negative Effect of Niobium Doped Ceria on Soot Oxidation Activity”, *Chemical Engineering & Technology*, Vol 45, 2022. DOI:<https://doi.org/10.1002/ceat.202100523>
2. MP Akhil Vijay, Sunaina S Patil, DR Madhura, Anjana P Anantharaman, P Gouramma, Hari Prasad Dasari, SB Arya, Harshini Dasari, “Effect of morphology and oxidation state of nickel on diesel soot oxidation activity”, *Materials Today: Proceedings*, 2022. DOI:<https://doi.org/10.1016/j.matpr.2022.01.119>

Annual Report 2021-22

3. Mishra, Sukriti, Manasa, M. and Mahalingam, Hari\*, “Highly efficient solar light-driven BiOX (X=Br/Cl/I) and BiOY heterojunction (Y=Br/Cl) nano photocatalysts in suspended and immobilized forms for malachite green dye wastewater treatment”, International Conference on Advances in Sustainable research for energy and environment management (ASREEM 2021), SVNIT Surat, India, Aug 6-8, 2021
4. Minimol M, Vidya Shetty K and Saidutta M.B. “Bioleaching of Zinc from E-waste,” in Indian Chemical Engineering Congress & 74<sup>th</sup> Annual Session of Indian Institute of Chemical Engineers (CHEMCON-2021) held during 26-30 December 2021 at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, India
5. Krishan Shetty, Banshi Gandhi, Amit Kumar Singh and Vaishakh Nair, Photodegradation of 2, 4-Dichlorophenoxyacetic Acid using TiO<sub>2</sub> - Lignin-based Biochar as Nanophotocatalyst, International e-conference on Nanomaterials and Nanoengineering APA Nanoforum 2022, February 24-26, 2022
6. K Ankita Rao, T P Krishna Murthy and Vaishakh Nair, “Docking and Experimental Studies for Removal of Anthraquinone dye by Modified Low Sulphonated Lignin”, International Conference on Green Chemistry and Engineering towards Sustainable Development – An Industrial Perspective, June 16-18, 2021, SVNIT Surat, India.

### DEPARTMENT OF CIVIL ENGINEERING:

1. Azhoni, A., Holman, I., Gabrowski, R., Shankar, V. and Bala, B. “Regulation of Human Impacts on the Riverine Ecosystem: Perspectives of Indian Parliamentarians” Paper ID#H42H-04. American Geophysical Union. New Orleans 12-17 December 2021.
2. Azhoni, A., and Rupa, T. “When Drought Happens: Practices and Prospects for Climate Change

- Adaptation in Northeast India, Arunachal” Paper ID#GC35H-0779. American Geophysical Union. New Orleans 12-17 December 2021.
3. Shreyas Alagundi and T. Palanisamy “ANN Model for Joint Shear Strength of RC Interior Beam-Column Joint” , Emerging Technologies and Applications for Green Infrastructure, Lecture Notes in Civil Engineering 203, [https://doi.org/10.1007/978-981-16-7160-9\\_125](https://doi.org/10.1007/978-981-16-7160-9_125)
  4. Sitaram Nayak., Preetham H K., and Surya E V. Studies on the Effect of Surcharge on Stability of Soil Slopes. Advances in Construction Technology and Management, ACTM, International conference, College of Engineering, Pune, 12th, December, 2021 (ASCE Conference).
  5. Teema Thomas and Arun Kumar Thalla "Green synthesis of silver nanoparticles using nutmeg seed shell extract", International Conference on Biotechnology for Resource Efficiency, Energy, Environment, Chemicals and Health, Dehradun, INDIA, December 1-4, 2021
  6. Bincy B, C.P. Devatha C, Arun Kumar Thalla. "Numerical Simulation of Contaminant Transport in Subsurface Soil Using Modflow Software", Mediterranean Geosciences Union, Istanbul, November 25-29, 2021
  7. Rashmi H R and C P Devatha “ Review on solid-liquid separation using various conditioning methods”, IOP Conf. Series: Materials Science and Engineering, 08 - 09, April 2021.
  8. Mahindra Kothuri and C P Devatha “Statistical modeling of bacterial culture medium composition affecting mineralization in ferrochrome ash” 3rd Euro-Mediterranean Conference for Environmental Integration (EMCEI),10–13 June 2021
  9. Jayalatha N A and C P Devatha “Application of *Pseudomonas aeruginosa* for the Removal of Triclosan and Ibuprofen from Contaminated Domestic Wastewater” International Conference on Environmental Science and Engineering, 20-22nd January 2022
  10. Arpitha, D., Rajasekaran, C., Pramodkumar Kappadi. Study on Processed granulated blast furnace slag as a replacement for fine aggregate for the greener global construction. Third International Conference on “Civil Engineering Trends and Challenges for Sustainability (CTCS 2021). Mangalore. Oct 2021.

#### **DEPARTMENT OF CHEMISTRY**

1. Panchami H.R, Arun M. Isloor and Ahmad Fauzi Ismail, “Improved hydrophilic and antifouling performance of nanocomposite ultrafiltration Membranes, 5<sup>th</sup> International Symposium on Advanced Materials and Nanotechnology, Universiti Putra Malaysia 9-10 December 2021.
2. Arun M. Isloor, “Tailor made nanomaterials for membrane applications” 2<sup>nd</sup> International Conference on Sustainable Technologies for Water Treatment and Desalination, 28-29 January 2022.
3. Arun M. Isloor, “Basics in Membrane Technology & Advanced materials for membranes” International Membrane Technology Webinar, Universiti Putra Malaysia 27<sup>th</sup> July 2021.

#### **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING**

1. Martin, J.P., Joseph, C.T., Chandrasekaran, K., Kandasamy, A., “Machine Learning Powered Autoscaling for Blockchain-Based Fog Environments”, (2022) Lecture Notes in Networks and Systems, 320 LNNS, pp. 281-291., DOI: 10.1007/978-3-030-86162-9\_28
2. Srinath, A., Chandrasekaran, K., “Distributed Data Management Ecosystem for Intelligent Transportation Systems using Blockchain Technology”, (2021) 2021 Asian Conference on Innovation in Technology, ASIANCON 2021., DOI: 10.1109/ASIANCON51346.2021.9544933

3. Baker, F., Chandrasekaran, K., "Parallel Data Systems with Self-Generating Analytics: Demo of self-generating analytics on the hospital supply chain ecosystem" (2021) TENSYP 2021 - 2021 IEEE Region 10 Symposium., DOI: 10.1109/TENSYP52854.2021.9550910
4. Bhagtya, P., Raghavan, S., Chandrasekaran, K., D., U., "Workload classification in multi-vm cloud environment using deep neural network model", (2021) Proceedings of the ACM Symposium on Applied Computing, pp. 79-82., DOI: 10.1145/3412841.3442068
5. Marimuthu, C., Chandrasekaran, K., Chimalakonda, S., "Energy Diagnosis of Android Applications: A Thematic Taxonomy and Survey", (2021) ACM Computing Surveys, 53 (6), art. no. 117., DOI: 10.1145/3417986
6. Prabhu, O.S., Gupta, P.K., Shashank, P., Chandrasekaran, K., Usha, D., "Towards a Federated Learning Approach for NLP Applications" (2021) Lecture Notes in Electrical Engineering, 778, pp. 157-167, DOI: 10.1007/978-981-16-3067-5\_13
7. P Sahu, S Raghavan, K Chandrasekaran, D Usha, "Time-Aware Online QoS Prediction Using LSTM and Non-negative Matrix Factorization", Intelligent Systems, 369-376, DOI: 10.1007/978-981-16-2248-9\_35
8. Marimuthu, C., Chimalakonda, S., Chandrasekaran, K., "How do open source app developers perceive API changes related to Android battery optimization? An empirical study", (2021) Software - Practice and Experience, 51 (4), pp. 691-710, DOI: 10.1002/spe.2928
9. DVNS Kumar, PS Thilagam, "Preserving Privacy of Co-occurring Keywords over Encrypted Data", IFIP Annual Conference on Data and Applications Security and Privacy, 157-168, Publication date: 2021/7/19, DOI: 10.1007/978-3-030-81242-3\_9
10. BS Prashanth, Manoj Kumar, Likewin Thomas, Ajay Kumar, Dinghao Wu, B Annappa, Anirudh Hebbar, YV Srinivasa Murthy, "Deep Learning for COVID-19", Understanding COVID-19: The Role of Computational Intelligence, 531-569, Publication date: 2022, <https://doi.org/10.1155/2021/6677314>
11. Koppad, S., B, A., Gkoutos, G.V., Acharjee, A., "Cloud Computing Enabled Big Multi-Omics Data Analytics", (2021), Bioinformatics and Biology Insights, 15, DOI: 10.1177/11779322211035921
12. Sharanya Kamath, Palak Singhal, Govind Jeevan, B Annappa, "Engagement Analysis of Students in Online Learning Environments", 2021/3/29, International Conference on Machine Learning and Big Data Analytics, pp. 34-47, DOI: 10.1007/978-3-030-82469-3\_4
13. B Annappa, MV Manoj Kumar, Likewin Thomas, "Foundations of healthcare informatics", 2021/1/1, Demystifying Big Data, Machine Learning, and Deep Learning for Healthcare Analytics, 3-15, DOI:10.1016/B978-0-12-821633-0.00008-8
14. S Kumar, E Thomas, A Horo, B Annappa, "Distributed Cloud Deep Learning Architecture for Complex Image Analysis and Run-time Prediction Tool", 2021, Lecture Notes on Data Engineering and Communications Technologies, 62, pp. 515 - 526, DOI:10.1007/978-981-33-4968-1\_40
15. Kittur, L.J., Pais, A.R., "Key Pre-distribution Scheme for Wireless Sensor Networks Using Combinatorial Design", (2022) Lecture Notes in Networks and Systems, 329, pp. 635-644. DOI: 10.1007/978-981-16-6246-1\_54
16. M Raviraja Holla, Alwyn R Pais, "Random Grid-Based Visual Cryptography for Grayscale and Colour Images on a Many-Core

- System”, 2021, Computational Vision and Bio-Inspired Computing, pp. 287-302, DOI:10.1007/978-981-33-6862-0\_25
17. V. Spoorthy., Mulimani, M., Koolagudi, S.G., “Acoustic Scene Classification using Deep Learning Architectures”, (2021), 2021 6th International Conference for Convergence in Technology, I2CT 2021, art. no. 9418177, DOI: 10.1109/I2CT51068.2021.9418177
  18. Aditya Dhall, YV Srinivasa Murthy, Shashidhar G Koolagudi, “Music Genre Classification with Convolutional Neural Networks and Comparison with F, Q, and Mel Spectrogram-Based Images”, 2021, Advances in Speech and Music Technology, pp. 235-248
  19. Urvesh Rathod, S. Sreenivas, B. R. Chandavarkar, “Comparative Study Between RSA Algorithm and Its Variants: Inception to Date”, (2021), ICCCE 2020, DOI:10.1007/978-981-15-7961-5\_14
  20. Gupta, S.P., Gupta, K., Chandavarkar, B.R., “The Role of Cryptography in Cryptocurrency”, (2021), ICSCCC 2021 - International Conference on Secure Cyber Computing and Communications, art. no. 9478099, pp. 273-278, DOI: 10.1109/ICSCCC51823.2021.947809
  21. Thawre, A., Hariyale, A., Chandavarkar, B.R., “Survey on security of biometric data using cryptography”, (2021), ICSCCC 2021 - International Conference on Secure Cyber Computing and Communications, art. no. 9478120, pp. 90-95, DOI: 10.1109/ICSCCC51823.2021.947812
  22. Sandeep, M., Chandavarkar, B.R. “IoT's Communication Technologies, Data Formats, and Protocols-A survey”, (2021), ICSCCC 2021 - International Conference on Secure Cyber Computing and Communications, art. no. 9478093, pp. 483-488, DOI: 10.1109/ICSCCC51823.2021.947809
  23. Madwana, Y., Khadse, M., Chandavarkar, B.R., “Security Issues of Unified Payments Interface and Challenges: Case Study”, (2021), ICSCCC 2021 - International Conference on Secure Cyber Computing and Communications, art. no. 9478078, pp. 150-154, DOI: 10.1109/ICSCCC51823.2021.947807
  24. Khan, H.K., Pradhan, R., Chandavarkar, B.R., “Hybrid cryptography for cloud computing”, (2021), 2nd International Conference for Emerging Technology, INCET 2021, art. no. 9456210, DOI: 10.1109/INCET51464.2021.9456210
  25. S Niyas, SJ Pawan, M Anand Kumar, Jeny Rajan, “Medical Image Segmentation using 3D Convolutional Neural Networks: A Review”, 2021/8/19, source: arXiv preprint arXiv:2108.08467
  26. Mathew, T., Kini, J.R., Rajan, J., “Computational methods for automated mitosis detection in histopathology images: A review”, (2021) Biocybernetics and Biomedical Engineering, 41 (1), pp. 64-82. DOI: 10.1016/j.bbe.2020.11.005
  27. M Venkatesan, “Robust graph based deep anomaly detection on attributed networks”, 2021, DOI: 10.1109/Confluence51648.2021.9376881
  28. Bhowmik, B., Varna, S.A., Kumar, A., Kumar, R., “Reducing False Prediction on COVID-19 Detection Using Deep Learning”, (2021), Midwest Symposium on Circuits and Systems, 2021-August, pp. 404-407, DOI: 10.1109/MWSCAS47672.2021.9531825
  29. Ghosh, B.C., Bhartia, T., Addya, S.K., Chakraborty, S., “Leveraging public-private blockchain interoperability for closed

consortium interfacing”, (2021), Proceedings - IEEE INFOCOM, 2021-May, art. no. 9488683, DOI: 10.1109/INFOCOM42981.2021.9488683

30. Das, J., Addya, S.K., Ghosh, S.K., Buyya, R., “Optimal Geospatial Query Placement in Cloud”, (2021), Smart Innovation, Systems and Technologies, 194, pp. 335-344, DOI: 10.1007/978-981-15-5971-6\_37

### **DEPARTMENT OF ELECTRONICS AND COMMUNICAION ENGINEERING**

1. Shivaraj Hublikar, Shet N.S.V, "Hybrid Machine learning-based Malicious Encrypted Network Traffic Flow Detection Framework with Weighted Feature Extraction" in 5th International Conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2022) held on 01 and 02 April,2022.Springer.
2. Shivaraj Hublikar, Vishal B. Pattanashetty, Venkatesh Mane, Preeti S. Pillai, Manjunath Lakkannavar, Shet N.S.V, "Biometric Based Authentication in on line banking in 6th international conference on Information and Communication Technology for Competitive Strategies" held during 17-18 December 2021.Springer.
3. Biradher, S., Aparna, P., "Classification of Capsule Endoscopy Images based on Feature Concatenation of Deep Neural Networks", 2021 4th International Conference on Electrical, Computer and Communication Technologies, ICECCT 2021.
4. Divya, B., Nair, R.P., Prakashini, K., ...Vijayasenan, D., Sumam David, S., "A more generalizable DNN based Automatic Segmentation of Brain Tumors from Multimodal low-resolution 2D MRI", Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
5. Ritwik,K.V.S., Kalluri,S.B., Vijayasenan, D., "COVID-19 detection from spectral features on the DiCOVA dataset", Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH, 2021, 6, pp. 4266–4270.
6. Kalluri, S.B., Vijayasenan, D., Ganapathy, S., Ragesh Rajan, M., Krishnan, P., "Nisp: A multi-lingual multi-accent dataset for speaker profiling", ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings, 2021, 2021-June, pp. 6953–6957.
7. Deeksha, M., Patil, A., Kulkarni, M., Shet,N.V.S., Muthuchidambaranath, P., "Multistate Active Combined Power and Message/Data Rate Adaptive Decentralized Congestion Control Mechanisms for Vehicular Ad Hoc Networks" Journal of Physics: Conference Series, 2022, 2161(1), 012018.
8. Polaiiah, G., Krishnamoorthy, K., Kulkarni, M., "Triple-Band Modified Square Slotted Antenna with Enhanced Gain for RF Energy Harvesting", Proceedings of the IEEE Madras Section International Conference 2021, MASCON 2021.
9. Polaiiah, G., Kandasamy, K., Kulkarni, M., "Differential Frequency-Reconfigurable Rectifier for Efficient Microwave Energy Harvesting Applications", Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021.
10. Mahipathi,A.C., Gunnery,S., Pathipati, S., D'Souza, J., Jena, P., "Nonlinear Frequency Modulated Waveform Optimization for a Cooperative Radar-Communication System", Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021.
11. Puneeth Kumar, T.R., Karthik, R., Krishnamoorthy, K., "A Zero-Index Based Metasurface Antenna with Improved Gain and Circular Polarization Characteristics", Proceedings of the 2021 IEEE Texas Symposium on Wireless and

- Microwave Circuits and Systems: Making Waves in Texas, WMCS 2021, 2021, 9493283.
12. Shashidhara, K.S., Dakulagi, V., Kaur, J., ...Singh, M., Ratnesh, R.K., "A New Kaiser-Bessel Constant Modulus Technique for Smart Antenna Beamforming", Lecture Notes in Electrical Engineering, 2022, 790, pp. 723–730.
  13. Reddy, B.B.N., Gunnery, S., Bethi, P., Pathipati, S., "Quantized Directional Cosine measurements based Localization", Proceedings - 2021 IEEE 10th International Conference on Communication Systems and Network Technologies, CSNT 2021, 2021, pp. 99–104.
  14. Praharshita, D.S.L., Pardhasaradhi, B., Srihari, P., Acharya, U.S., Sharma, G.V.K., "High-Frequency and Low-Latency DSP Architecture for Information Matrix Fusion", Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021.
  15. Kumuda, D.K., K Shetty, A., Srihari, P., ...Mahajan, V., Joseph, P., "Multiple Target Detection using  $\Sigma\Delta$ -STAP in the Presence of Airborne Clutter", Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021.
  16. Lingadevaru, P., Srihari, P., Pardhasaradhi, B., Srinath, G., "A Conceptual Framework for Knowledge Aided Passive Radar System" Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021. Srihari, P., Vandana, G.S., "Experimental Study of 24GHz Sense2Gol Pulse Radar Sensor for Human Vital Sign Measurement" Proceedings of CONECCT 2021: 7th IEEE International Conference on Electronics, Computing and Communication Technologies, 2021.
  17. Gopala Swamy, B., Sripati Acharya, U., Srihari, P., Pardhasaradhi, B., "Systolic-Architecture-Based Matrix Multiplications and Its Realization for Multi-Sensor Bias Estimation Algorithms" Lecture Notes in Electrical Engineering, 2021, 722 LNEE, pp. 263–272.
  18. Purushottama, T.L., Srihari, P., "Comparative Analysis on Diverse Heuristic-Based Joint Probabilistic Data Association for Multi-target Tracking in a Cluttered Environment", Lecture Notes in Networks and Systems, 2022, 329, pp. 259–270.
  19. Srihari, P., Vandana, G.S., Raghavendra, B.S., "Measurement and Evaluation of Human Vital Sign using 77GHz AWR1642 FMCW Radar Sensor", Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
  20. Jena, P., Vengadarajan, A., Srihari, P., "Design of Unimodular Long Length Polyphase Code for CW Radar for Doppler Tolerance", Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
  21. Srihari, P., Dewangan, V.K., Anvith, M., ...Anurag, M., Pardhasaradhi, B., "Knowledge Aided Track Management: Multi-Target Tracking in the Presence of Electromagnetic Absorbers Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
  22. Pardhasaradhi, B., Srihari, P., "Stealthy GPS Spoofer Design by Incorporating Processing Time and Clock Offsets" Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
  23. Gunnery, S., Bethi, P., Prashantha Kumar, H., Pathipati, S., "Target Estimation Performance Improvement in Cooperative Radar and Communication system Spectrum Sharing", 2021 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021.
  24. Saxena, G., Prajapati, V., Gupta, V., Kumar, S., "High Isolation with Mushroom Shaped EBG Super Wide Band MIMO Antenna", 2021 International Conference on Advance Computing and Innovative

- Technologies in Engineering, ICACITE 2021, 2021, pp. 920–926, 9404651.
25. Goel, R., Kumar, A., Kumar, M., Kumar, S., "Design of High Gain 2-11 GHz Wideband Common Gate LNA Using Shunt Series Peaking Technique for Wireless Applications" 2021 7th IEEE International Conference on Advances in Computing, Communication and Control, ICAC3 2021.
  26. Surve, V., Kumar, S., Gorre, P., "High Efficiency Broadband Mixed Mode Power Amplifier for Patient Monitoring", 2021 7th International Conference on Signal Processing and Communication, ICSC 2021, pp. 325–329.
  27. Pottem, S.K., Kabade, R.D., Nikith, T.N., Mondal, S., Kumar, S., "Performance of X-Band CMOS LNA with Broadband Approach for 5G Wireless Networks", Lecture Notes in Electrical Engineering, 2021, 721 LNEE, pp. 591–601.
  28. Naik, J.D., Gorre, P., Kumar, R., Kumar, S., Song, H., "A 73% PAE, Highly Gain Inverse Class-F Power Amplifier for S-Band Applications", Lecture Notes in Electrical Engineering, 2021, 721 LNEE, pp. 467–474.
  29. Manan Sharma, Rahul R, Madhusudan S, Deepu S.P., Sumam David S., Hardware Accelerator for Object Detection using Tiny YOLO-v3, 2021 IEEE 18th India Council International Conference (INDICON), Guwahati, pp. 1-6, December 2021.
  30. Reddy, P.S., Raghavendra, B.S., Narasimhadhan, A.V., "Magnetic resonance image reconstruction by nullspace based finite rate of innovation framework", ACM International Conference Proceeding Series 3490294.
  31. Narasimhadhan, A., Putluru, S.P.R., Merugu, V.R., "VesselXnet - A lightweight and efficient encoder-decoder based model for Retinal Vessel Segmentation", Proceedings of the 2021 IEEE 18th India Council International Conference, INDICON 2021.
  32. Yadav, P.P., Shetty, A., Raghavendra, B.S., Narasimhadhan, A.V., "Influence of the Darkest Pixel on Endmembers Initialization", International Geoscience and Remote Sensing Symposium (IGARSS) 2021-July, pp. 3845-3848.
  33. B C, B., Deshmukh, A., Rupa, M.V., (...), Vankayala, S.K., Narasimhadhan, A.V., "Deep Learning Approach for Wireless Signal and Modulation Classification", IEEE Vehicular Technology Conference 2021-September.

### **DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

1. Roopa Viswadev, B. Dastagiri Reddy and B. Venkatesaperumal, "A novel AC module with high gain Z- Source converter and pseudo DC-link inverter", 9th IEEE International Conference on Power Electronics, Drives and Energy Systems, PEDES 2020, Jaipur, India, 26th July 2021, 1-6.
2. Kumbale, S., Pius, J., Reddivari, R., Debashisha Jena, "Component level reliability evaluation of boost converter, Z-Source, and improved gamma type source inverters", 2020 IEEE International Conference on Power Systems Technology, POWERCON2020, 14th September 2021 to 16th September 2021.
3. Sheeja and R Kalpana, "A New Three Port Converter with Power Flow Management Control for Solar PV fed Telecom Load", 2020 IEEE International Conference on Power Electronics and Renewable Energy Applications, PEREA 2020, 24th July 2021.
4. Chandan Pulavarthi, R Kalpana and P. Parthiban, "State of Charge estimation in Lithium-Ion Battery using model-based method in conjunction with Extended and Unscented Kalman Filter", 2020 IEEE International Conference on Power Electronics and Renewable Energy Applications, PEREA 2020, 24th July 2021.
5. Md Waseem Ahmad, Naga Brahmendra Yadav Gorla, Hasmat Malik, and anjib Kumar Panda, "A

- Fault Diagnosis and Postfault Reconfiguration Scheme for Interleaved Boost Converter in PV-Based System”, IEEE TRANSACTIONS ON POWER ELECTRONICS PISSN: 08858993, VOL 36, No. 4, April 2021, 3769-3780, 10.1109/TPEL.2020.301854
- 6.K Rajkumar and Parthiban P, “Performance Investigation of Transformerless DVR Based on T-type Multilevel Inverter with Reduced Switch Count”, 1st IEEE International Conference on Sustainable Energy Technologies and Systems, ICSETS 2019, Bhubaneswar, 4th August 2021.
  - 7.Ashutosh Kumar Singh, Ravi Raushan and Pratyush Gauri, “A Single-Phase Multi-Level Inverter Using a Lesser Number of Switching Devices”, Advances in Intelligent Systems and Computing PISSN: 21945357, Patna, 15th August 2021.
  - 8.Ashutosh Kumar, R.K. Mandal, Ravi Raushan and Pratyush Gauri, “Grid Connected Photovoltaic Systems with Multilevel Inverter”, 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies, ICEFEET 2020, Patna, 15th August 2021.
  - 9.A. Kumar, R. K. Mandal, R. Raushan and P. Gauri, “Design and Analysis of the Gate Driver Circuit for Power Semiconductor Switches”, 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies, ICEFEET 2020, Patna, 15th August 2021.
  - 10.Shaik Mahmmadsufiyan and Dattatraya N. Gaonkar, “Probabilistic Optimal Power Flow in The Presence of Uncertainties Related with Load Wind and PV Considering Different Load Models”, IEEE International conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE 2022) Trivandrum, Kerala, India, 2<sup>nd</sup> January to 5<sup>th</sup> January 2022.
  - 11.Shaik Mahmmadsufiyan and Dattatraya N. Gaonkar, “The probabilistic reactive power reserve assessment in the presence of load and wind uncertainties considering correlation”, 2nd IEEE International Conference on Smart Technologies for Power, Energy and Control (STPEC 2021) Houksey Engineering College (CEC), Bilaspur, Chhattisgarh, India, 19th December to 22nd December 2021.
  - 12.Biji Varghese K.V and D.N. Gaonkar, “Matching Theory for Optimal Power Exchange in Distribution Networks”, IBSSC-2021 IEEE Bombay Section Signature Conference Hybrid Event, 18th November to 20th November 2021.
  - 13.Ganesh Kudva, Kumar Shivam, Smita Prabhat, NS Jayalakshmi, DN Gaonkar and Vinay Kumar Jadoun, “Fuzzy logic-based Inverter controller for stand-alone operation of PV/Battery system”, 2021 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT), Bangalore India, July 2021, 1-6.
  - 14.Swathi Tangi, Dattatraya N Gaonkar and Singuluri Bhargav, “Voltage Regulation of Smart Distribution Network using Sensitivity Analysis based DG placement”, 2021 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT), Bangalore India, July 2021, 1-6.
  - 15.Teena Johnson and Tukaram Moger, “Latest Trends in Electromechanical Dynamic State Estimation for Electric Power Grid”, 3rd IEEE International Conference of Emerging Technologies (INCET-2022) organized by Jain College of Engineering, Belgaum, Karnataka., virtually held during 27th to 29th May 2022, Accepted.
  - 16.Vikas Singh, Tukaram Moger and Debashisha Jena, “Modified Cumulant based Probabilistic Load Flow Considering Correction between Loads and Wind Power Generations”, 2022 IEEE IAS Global Conference on Emerging Technologies (GlobConET), virtually

- in Dubai during 20th to 21st May 2022, Accepted.
17. Vikas Singh, Tukaram Moger and Debashisha Jena, "Probabilistic Load Flow Considering Load and Wind Power Uncertainties using Modified Point Estimation Method", 2022 3rd International Conference on Smart Grid and Renewable Energy (SGRE-2022) jointly organized by Texas A & M University, Qatar and Smart Grid Centre (SGC), virtually held during 20th to 22nd March 2022, Accepted.
  18. Ravikiran Hiremath and Tukaram Moger, "Comparative Analysis of Different Controllers for Enhancing the LVRT of DFIG system", 2021 9th International Renewable and Sustainable Energy Conference (IRSEC 2021) organized by Abdelmalek Essaadi University, Morocco, virtually held during 23rd to 27th November 2021.
  19. Ravikiran Hiremath and Tukaram Moger, "Performance of DFIG-Wind Turbine Generator System for LVRT Enhancement using Proportion-Resonant Controller", 2021 9th International Renewable and Sustainable Energy Conference (IRSEC 2021) and organized by Abdelmalek Essaadi University, Morocco, virtually held during 23rd to 27th November 2021.
  20. Teena Johnson, Abhinandan Pathak, Shantanu Ajay Arya, Sagar Dipesh Dahanuwala, Prathamesh Gachhi and Tukaram Moger, "Case Studies of Event Detection for Indian Power System using Signal Processing Methods", 2021 Australasian Universities Power Engineering Conference (AUPEC 2021) organized by Curtin University and University of Western Australia Perth, Australia, virtually held during 26th to 30th September 2021, <https://doi.org/10.1109/AUPEC52110.2021.9597799>
  21. Sofia Banu, Teena Johnson and Tukaram Moger, "A Comparative Analysis of Speed Estimation of Induction Motor Drive using Non-linear Kalman Filters", 2021 Australasian Universities Power Engineering Conference (AUPEC 2021) and organized by Curtin University and University of Western Australia Perth, Australia, virtually held during 26th to 30th September 2021, <https://doi.org/10.1109/AUPEC52110.2021.9597814>.
  22. Ravikiran Hiremath and Tukaram Moger, "Direct Current Analysis of LCC based HVDC System during Fault using DIgSILENT PowerFactory", 56th International Universities Power Engineering Conference (UPEC 2021) hosted by Teesside University, UK", virtually held during 31st August to 3rd September 2021, <https://doi.org/10.1109/UPEC50034.2021.9548167>
  23. Sofia Banu, Teena Johnson and Tukaram Moger, "A Comparative Study of Bayesian based Filters for Dynamic State Estimation in Power Systems", 2021 IEEE International Power and Renewable Energy Conference (IPRECON 2021) hosted by College of Engineering Karunagappally, Karunagappally, Kerala, India, virtually held during 24th to 26th September 2021, <https://doi.org/10.1109/IPRECON52453.2021.9640771>.
  24. Sai Krishna G. and Tukaram Moger, "Modelling and Analysis of PV array Connections Under Non-Uniform Irradiance Conditions", 2021 IEEE International Power and Renewable Energy Conference (IPRECON 2021) hosted by College of Engineering Karunagappally, Karunagappally, Kerala, India., virtually held during 24th to 26th September 2021, <https://doi.org/10.1109/IPRECON52453.2021.9640637>
  25. D. R. Karthik, Shashidhara Mecha Kotian and Narayan S Manjarekar, "Steady-state Initialization of Doubly Fed Induction Generator Based Wind Turbine Considering Grid Side Filter", 13th IEEE PES Asia Pacific Power & Energy

- Engineering Conference (APPEEC), Trivandrum, Kerala, 21st to 23rd November 2021, 1-6, <https://doi.org/10.1109/APPEEC50844.2021.9687687>.
26. D. R. Karthik, Shashidhara Mecha Kotian and Narayan S Manjarekar, "A Direct Method for Calculation of Steady-state Operating Conditions of a Doubly Fed Induction Generator", 9th IEEE International Conference on Power Systems (ICPS), 16th to 18th December 2021, 1-6, <https://doi.org/10.1109/ICPS52420.2021.9670376>
27. D. R. Karthik, Shashidhara Mecha Kotian and Narayan S Manjarekar, "An Accurate Method for Steady State Initialization of Doubly Fed Induction Generator", IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE) Trivandrum, Kerala, 2nd to 5th January 2022, 1-6, <https://doi.org/10.1109/PESGRE52268.2022.9715802>
28. A. Ghatak and D. Kishan, "A Time-Frequency Transform based Fault Detection and Classification Methodology for Transmission Lines", 2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy and Control (STPEC), 2021, 1-6, 10.1109/STPEC52385.2021.9718639.
29. K. Bathala, D. Kishan and H. Nagendrappa, "Current Source Isolated Bidirectional Series Resonant DC-DC Converter for Solar Power/Fuel Cell and Energy Storage Application", ECON 2021 – 47th Annual Conference of the IEEE Industrial Electronics Society, 2021, 1-6, 10.1109/IECON48115.2021.9589693
30. M. Vinod, D. Kishan, N. Harishchandruppa and B. D. Reddy, "Comparative Analysis of Symmetrical and Asymmetrical Phase Shift Control Strategy for Resonant Wireless Inductive Charging System", 2021 IEEE International Power and Renewable Energy Conference (IPRECON), 2021, 1-6, 10.1109/IPRECON52453.2021.9640965
31. M. Vinod, Dharavath Kishan, Nagendrappa. H and R. Kannan, "Design of Spiral Square Inductive Power Pads with Misalignment for Wireless Power Transfer System", 2021 Emerging Trends in Industry 4.0 (ETI 4.0), 2021, 1-5, 10.1109/ETI4.051663.2021.9619341.
32. P. Prabhakaran, S. M. Krishna, D. J. L. Febin and T. Perumal, "A Novel PR Controller with Improved Performance for Single-Phase UPS Inverter", 2021 4th Biennial International Conference on Nascent Technologies in Engineering (ICNTE), 2021, 1-6, 10.1109/ICNTE51185.2021.9487688.
33. Mir Khadim Aalam and K.N. Shubhanga, "EMD-based Detrending of Non-linear and Non-Stationary Power System Signals", Proceedings of 18th the IEEE India conference, INDICON-2021, held at Guwahati., INDIA, 19-21, December 2021, DOI:10.1109\_INDICON52576.2021.9691539.

## DEPARTMENT OF INFORMATION TECHNOLOGY

1. Nikitha K M, Ryan Rozario, Chinmayan Pradeep, Ananthanarayana V S "Fake News Detection using Genetic Algorithm based Feature Selection and Ensemble Learning" 3<sup>rd</sup> International Conference of Machine Intelligence and Signal Processing (MIPS -2021), 23 – 25, September 2021, NIT Arunachal Pradesh.
2. Rajat Aayush Jha, Ananthanarayana V. S "Gaining Actionable Insights in COVID-19 Dataset using Word-Embeddings" 3<sup>rd</sup> International Conference of

- Machine Intelligence and Signal Processing (MIPS -2021), 23 – 25, September 2021, NIT Arunachal Pradesh.
3. Reshma Unnikrishnan, Sowmya S Kamath and Ananthanarayana VS "Benchmarking Shallow and Deep Neural Networks for Contextual Representation of Social Data" INDICON 2021, 19-21 December, 2021, IIT Guwahati, India
  4. Reshma Unnikrishnan, Sowmya Kamath, V S Ananthanarayana "Population-centric Profiling with Social Data for Large-scale Epidemiological studies" 9th ACM IKDD CODS and 27th COMAD, 5th Joint International Conference on Data Science & Management of Data, January 8 - 10, 2022, (CODS-COMAD 2022) Bangalore, India.
  5. Vijay Mohan Reddy Anakala, Rashmi M, Natesha B and Ram Mohana Reddy Guddeti, "Fall Detection and Elderly Monitoring System Using the CNN", Springer 4th International Conference on Machine Intelligence and Signal Processing (MISP 2022), March 12-14, 2022, NIT Raipur, India.
  6. Niranjan, Natesha B V, Rashmi M and Ram Mohana Reddy Guddeti, "An Effective Real-time Surveillance System for Fire and Smoke Detection Using CNN", 9<sup>th</sup> Int. Conf. on Pattern Recognition and Machine Intelligence (**PRMI'21**), Dec. 15-18, 2021, Indian Statistical Institute Kolkata.
  7. Gagandeep KN, Atharv R Belagali, Rashmi M and Ram Mohana Reddy Guddeti, "Interactive System for Toddlers using Doodle Recognition", 9<sup>th</sup> International Conf. on Pattern Recognition and Machine Intelligence (**PRMI'21**), December 15-18, 2021, Indian Statistical Institute Kolkata, India.
  8. Sampat Kr Ghosh, Rashmi M, Biju R Mohan and Ram Mohana Reddy Guddeti, "Skeleton Based Human Action Recognition Using Motion and Orientation of Joints", Springer 3rd International Conference on Machine Intelligence and Signal Processing (MISP 2021), Sept. 23-25, NIT Arunachal Pradesh, India.
  9. Saurabh Agarwala, Aniketh Anagawadi and Ram Mohana Reddy Guddeti, "Detecting Semantic Similarity Of Documents Using Natural Language Processing", Elsevier 5th International Conference of AI in Computational Linguistics (ACLing 2021), June 4-5, 2021, The British University in Dubai.
  10. Shankarnarayana N and Sowmya Kamath S, "A Novel Approach for Real-time Vehicle Re-identification using Content-based Image Retrieval with Relevance Feedback", IEEE International Conference on Machine Learning and Big Data Analytics 2022 (ICMLBDA2022), IIT Patna, March 12-13, 2022.
  11. Nikhil Kumsetty, Amith Nekkare, Sowmya Kamath and Anand Kumar M, "An Approach for Waste Classification using Data Augmentation and Transfer Learning Models", International Conference on Machine Vision and Augmented Intelligence 2022 (MAI 2022), NIT Jamshedpur, Jharkhand.
  12. Akshara P, Shidarth S, Sowmya Kamath S, "Neural Language Modeling of Unstructured Clinical Notes for Automated Patient Phenotyping" 2022 56th Annual Conference on Information Sciences and Systems (CISS), March 11-13, 2022, Princeton University (CORE A ranked)
  13. Prajna Hebbar and Sowmya Kamath S, "Genomic Variant Annotation Tools and Techniques: A Comprehensive Review", 21st International Conference on Intelligent Systems Design and Applications (ISDA 2021), December 13-15, 2021, Seattle, USA. (CORE C ranked)
  14. Sujana Reddy A, Akashdeep S, Sowmya Kamath S and Bhawana

- Rudra, “Designing Scalable Intrusion Detection Systems with Stacking based Ensemble Learning”, 21st International Conference on Intelligent Systems Design and Applications (ISDA 2021), December 13-15, 2021, Seattle, USA. (CORE C ranked)
15. Reshma Unnikrishnan, Sowmya Kamath and V S Ananthanarayana, “Population-centric Profiling with Social Data for Large-scale Epidemiological studies” ACM India Joint International Conference on Data Science & Management of Data (9th ACM IKDD CODS and 27th COMAD), Jan 8-10, 2022. (CORE A ranked)
16. Sujan Reddy A, Akashdeep S, Harshvardhan R and Sowmya Kamath S, “Ensemble Learning Approach for Short-term Energy Consumption Prediction”, ACM India Joint International Conference on Data Science & Management of Data (9th ACM IKDD CODS and 27th COMAD), Jan 8-10, 2022. (CORE A ranked)
17. Reshma Unnikrishnan, Sowmya Kamath S and Ananthanarayana V S, “Benchmarking Shallow and Deep Neural Networks for Contextual Representation of Social Data”, 18<sup>th</sup> IEEE India Council International Conference (INDICON), Dec 19-21, 2021, IIT Guwahati, India
18. Akshara P, Shidharth S, Gokul S Krishnan and Sowmya Kamath S, “Automated Diagnostic Coding by Integrating Structured and Unstructured Clinical Data”, Ninth International Conference On Big Data Analytics 2021 (BDA 2021), December 15-18, 2021, Indian Institute Of Information Technology Allahabad (IIITA), Prayagraj, India
19. Gurdeep Saini, Naveen Yadav and Sowmya Kamath S, “Ensemble Neural Models for Depressive Tendency Prediction based on Social Media Activity of Twitter Users”, IEEE International conference on Security, Privacy and Data Analytics (ISPDA 2021), December 13-15, 2021
20. Veena Mayya, Sowmya Kamath S. and Vijayan Sugumaran, “LATA - Label Attention Transformer Architectures for ICD-10 Coding of Unstructured Clinical Notes”, 18th IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology, October 13-15, 2021 - Melbourne, Australia (CORE C ranked)
21. Sailikitha L and Sowmya Kamath S, “ML based QSAR Models for Prediction of Pharmacological Permeability of Caco-2 Cell”, 2021 IEEE International Conference on Computing, Power and Communication Technologies (IEEE GUCON 2021), Kuala Lumpur, Malaysia, Sep 24-26, 2021.
22. Kushal Mondal and Sowmya Kamath S, “QSAR Classification Models for Predicting 3CLProtease Inhibitor Activity”, 2021 IEEE International Conference on Computing, Power and Communication Technologies (IEEE GUCON 2021), Kuala Lumpur, Malaysia, Sep 24-26, 2021.
23. Sony Bachina, Spandana Balamuri and Sowmya Kamath S, “Ensemble ALBERT and RoBERTa for Span Prediction in Question Answering”, 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021), ACL-IJCNLP 2021, August 1-6, 2021 (CORE A\* ranked)
24. Sowmya Kamath S., Veena Mayya and Priyadarshini R, “A Probabilistic Precision Information Retrieval Model for Personalized Clinical Trial Recommendation based on Heterogeneous Data”, 12th International Conference on Computing Communication and Networking Technologies (ICCCNT

- 2021), IIT Kharagpur, July 16-18, 2021
25. Ashwin Nayak U, Nachiket Naganure and Sowmya Kamath S, "Semantic Segmentation based BEV Detection and Localization in Autonomous Driving Systems", 7th International Conference International Conference on Electronics, Computing and Communication Technologies IEEE CONECCT 2021, July 9-11, 2021, Bangalore (Virtual)
26. Tanmai H, Mukesh B R, Veena Mayya, Sowmya Kamath S, "Deep Learning based detection of Diabetic Retinopathy from Inexpensive fundus imaging techniques", 7th International Conference International Conference on Electronics, Computing and Communication Technologies IEEE CONECCT 2021, July 9-11, 2021, Bangalore (Virtual)
27. Yuvraj Dalia, Adikar Bharath, Veena Mayya and Sowmya Kamath S, "DeepOA: Clinical Decision Support System for Early Detection and Severity Grading of Knee Osteoarthritis", 5<sup>th</sup> IEEE International Conference on Computer, Communication and Signal Processing 2021 (ICCCSP 2021), May 24-25, 2021, Tamil Nadu, India
28. Spandana Balumuri, Sony Bachina and Sowmya Kamath S, "SB\_NITK at MEDIQA 2021: Pre-Trained Transformer Models for Question Summarization in Medical Domain", 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics, June 6-11, 2021 (CORE A\* ranked)
29. Gokul S Krishnan, Sowmya Kamath S and Vijayan Sugumaran, "Predicting Vaccine Hesitancy and Vaccine Sentiment using Topic Modeling and Evolutionary Optimization", 26<sup>th</sup> International Conference on Natural Language & Information Systems, June 23-25, 2021, Salsburg, Germany (CORE C ranked)
30. Ishan Nedumkunnel, Linu George, Sowmya Kamath S and Veena Mayya, "Explainable Deep Neural Models for COVID-19 Prediction from Chest X-Rays with Region of Interest Visualization", IEEE International Conference On Secure Cyber Computing & Communications (ICSCCC-2021), 21-23 May 2021, Dr. B R Ambedkar National Institute of Technology, Jalandhar, India
31. Khaishagi M.A.K., Kumar P., Naik D. "Dense Optical Flow using RAFT" Feb. 2022, 4th International Conference on Advances in Electronics, Computers and Communications, ICAECC 2022
32. Mule H., Kadam N., Naik D. "Handwritten Text Recognition from an Image with Android Application" Feb. 2022, 4th International Conference on Advances in Electronics, Computers and Communications, ICAECC 2022
33. Naik D., Jaidhar C.D. "Weaklier-Supervised Semantic Segmentation with Pyramid Scene Parsing Network" July 2021, ICSCCC 2021 - International Conference on Secure Cyber Computing and Communications
34. Yv S.S., Choubey Y., Naik D. "Image Captioning with Attention Based Model" May 2021, 5th International Conference on Computing Methodologies and Communication, ICCMC 2021
35. Maru H., Chandana T.S.S., Naik D. "Comparison of Image Encoder Architectures for Image Captioning" May 2021, 5th International Conference on Computing Methodologies and Communication, ICCMC 2021
36. Patwari N., Naik D. "En-De-Cap: An Encoder Decoder model for Image Captioning" May 2021, 5th International Conference on Computing Methodologies and Communication, ICCMC 2021

37. Sarathi V., Mujumdar A., Naik D. "Effect of Batch Normalization and Stacked LSTMs on Video Captioning" May 2021, 5th International Conference on Computing Methodologies and Communication, ICCMC 2021
38. Mallick V.R., Naik D. "Describing Image with Attention based GRU" May 2021, 6th International Conference for Convergence in Technology, I2CT 2021
39. Yadav N., Naik D. "Generating Short Video Description using Deep-LSTM and Attention Mechanism" May 2021, 6th International Conference for Convergence in Technology, I2CT 2021
40. Muhammad S., Ahmed S., Naik D. "Real Time Emotion Based Music Player Using CNN Architectures" May 2021, 6th International Conference for Convergence in Technology, I2CT 2021
41. Yadav N., Naik D. "Loss Optimised Video Captioning using Deep-LSTM, Attention Mechanism and Weighted Loss Metrics" November 2021, 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021
42. Naik D., Jaidhar C.D. "Weakly Supervised Image Annotation and Segmentation" November 2021, 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021
43. Maru H., Chandana T.S.S., Naik D. "Comparitive Study of GRU and LSTM Cells Based Video Captioning Models" November 2021, 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021
44. Mallick V.R., Naik D. "Attention based Image Captioning using Depth-wise Separable Convolution" November 2021, 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021
45. Kumar A., Sharma N., Naik D. "COVID-19 Prediction Using Chest X-rays Images" November 2021, 2nd International Conference on Smart Electronics and Communication, ICOSEC 2021
46. Pavan, R., Nara, M., Gopinath, S., Patil, N. "Bayesian optimization and gradient boosting to detect phishing websites" 55th Annual Conference on Information Sciences and Systems, CISS 2021, art. no. 9400317
47. Praveen, K., Patil, N., Srikanth, C.S., Vikas, J, " M-CAD: Towards Multi-Categorical Auto Diagnosis of Varied Diseases using Deep Learning", IEEE 22<sup>nd</sup> International Conference on Information Reuse and Integration for Data Science, IRI 2021, pp. 223-227
48. Saini, G., Patil, N, "CNN-GRU: Transforming image into sentence using GRU and attention mechanism", 12th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2021, August, pp. 487-493.
49. Kumaresan, P.K., Premjith, Sakuntharaj, R., Thavareesan, S., Navaneethakrishnan, S., Madasamy, A.K., Chakravarthi, B.R., McCrae, J.P. Findings of Shared Task on Offensive Language Identification in Tamil and Malayalam (2021) ACM International Conference Proceeding Series, pp. 16-18.
50. Nayak, P., Praueeth, G., Kulkarni, R., Anand Kumar, M. Long Short Term Memory Networks for Lexical Normalization of Tweets (2021) 2021 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021,
51. Surendran, P., Navyasree, B., Kambham, H., Anand Kumar, M. Covid-19 Fake News Detector using Hybrid Convolutional and Bi-LSTM Model (2021) 2021 12th International Conference on

- Computing Communication and Networking Technologies, ICCCNT 2021.
52. Mangukia, A., Ibrahim, M., Golamudi, S., Kumar, N., Anand Kumar, M. Improved Variable Round Robin Scheduling Algorithm (2021) 2021 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021, .
53. Gorti, S.S., Khalifa, A., Thirunavukkarasan, H., Nisha, G., Anand Kumar, M. Smart Traffic Management System Using Multithreading and Inter-process Communication (2021) 2021 12th International Conference on Computing Communication and Networking Technologies, ICCCNT 2021, .
54. Chakravarthi, B.R., Priyadharshini, R., Banerjee, S., Saldanha, R., McCrae, J.P., Kumar, A.M., Krishnamurthy, P., Johnson, M. Findings of the Shared Task on Machine Translation in Dravidian languages (2021) Proceedings of the 1st Workshop on Speech and Language Technologies for Dravidian Languages, DravidianLangTech 2021 at 16th Conference of the European Chapter of the Association for Computational Linguistics, EACL 2021, pp. 119-125.
55. Chakravarthi, B.R., Priyadharshini, R., Jose, N., Kumar, Anand .M., Mandl, T., Kumaresan, P.K., Ponnusamy, R., Hariharan, R.L., McCrae, J.P., Sherly, E. Findings of the Shared Task on Offensive Language Identification in Tamil, Malayalam, and Kannada (2021) Proceedings of the 1st Workshop on Speech and Language Technologies for Dravidian Languages, DravidianLangTech 2021 at 16th Conference of the European Chapter of the Association for Computational Linguistics, EACL 2021, pp. 133-145.
56. LekshmiAmmal, H.R., Madasamy, Anand Kumar. NITK\_NLP at CheckThat! 2021: Ensemble transformer model for fake news classification (2021) CEUR Workshop Proceedings, 2936, pp. 603-611.
57. Mummadi Swathi and Bhawana Rudra. Novel Encoding method for Quantum syndrome Error correction. In 12th Annual Computing and Communication Workshop and Conference (CCWC 2022) 26-29th January 2022.
58. Manaswita Datta and Bhawana Rudra. Prediction of Credibility of Football Player rating using Data Analytics. In 21st International Conference on Intelligent Systems Design and Applications Dec 13-15 2021.(CORE-C)
59. Rohit Sahu, Sunil and Bhawana Rudra. DDoS Attack Detection on IoT Devices using Machine Learning Technique. In 21st International Conference on Intelligent Systems Design and Applications Dec 13-15 2021.(CORE-C)
60. Sujan Reddy A, Akashdeep S, Sowmya Kamath S and Bhawana Rudra. Designing Scalable Intrusion Detection Systems with Stacking based Ensemble Learning. In 21st International Conference on Intelligent Systems Design and Applications Dec 13-15 2021.(CORE-C)
61. Aastha Chowdhary, Shubham Agrawal and Dr. Bhawana Rudra. Blockchain based Framework for Student Identity and Educational Certificate Verification. In 2nd International Conference on. Electronics and Sustainable Communication Systems ICESC 2021. 4-6, August 2021. IEEE XPLORE ISBN : 978-1-6654-2867
62. A. Chowdhary, M. Bhowmik and B. Rudra, "DNS Tunneling Detection using Machine Learning and Cache Miss Properties," 2021 5th International Conference on Intelligent Computing and Control Systems (ICICCS), 2021, pp. 1225-1229, doi:10.1109/ICICCS51141.2021.9432279. 6-8

May

Link: <https://ieeexplore.ieee.org/document/9432279>

63. Bhowmik, M., Sai Siri Chandana, T., Rudra, B. Comparative Study of Machine Learning Algorithms for Fraud Detection in Blockchain. In (2021) Proceedings - 5th International Conference on Computing Methodologies and Communication, ICCMC 2021, art. no. 9418470, pp. 539-541. DOI: 10.1109/ICCMC51019.2021.9418470
64. Udbhav Bisarya, Vishwas Parekh, Shrutilipi Bhattacharjee, "Stock Price Prediction Using Corporation Network and LSTM", 2022 International Conference on Intelligent Technologies (CONIT 2022), Hubli, India, June 24-26, 2022 (accepted)
65. V. Geetha, C. Kiran, M. Sharma and J. Rakshith Kumar, Deployment of Computer Vision Application on Edge Platform, 2021 IEEE 18th India Council International Conference (INDICON), 2021, pp. 1-8, doi: 10.1109/INDICON52576.2021.9691632.
66. Niteesh Kumar, Pranav P, Vishal Nirney, Geetha V, Deepfake Image Detection using CNNs and Transfer Learning, 1st IEEE International conference on Computing, Communication and Green Engineering -2021 (CCGE21) Organised by JSPM's Rajarshi Shahu college of Engineering (RSCOE), Pune Sponsored by IEEE Pune Section, September 2021
67. V. Geetha, Sanket Salvi, Pulak Sahoo, Mitika Dodiya and Shreya Gupta, A shadow based Low-Cost Hand Movement Recognition System for Human Computer Interaction, 6th International Conference for Convergence in Technology (I2CT), 2nd-4th April 2021.
68. Geetha V and Bavya Balakrishnan, A User Authentication and Access Control Scheme for IoT-Based

Healthcare Using Blockchain, 12th International Conference on Computing, Communication and Net-working Technologies (ICCCNT 21) July 6-8, 2021, IIT - Kharagpur, West Bengal, India.

#### **DEPARTMENT OF MATHEMATICAL & COMPUTATIONAL SCIENCES**

1. Vinoth A and P. Sam Johnson, "Factorization of EP Operators in Krein Spaces", Mathematical Analysis and Computing, Springer Proceedings in Mathematics and Statistics, [https://doi.org/10.1007/978-981-33-4646-8\\_30](https://doi.org/10.1007/978-981-33-4646-8_30), 344, pp. 359-364, 2021, ISBN978-981-33-4645-1
2. Niranjan P K and Srinivasa Rao Kola, "The radio number for some classes of the Cartesian product of complete graphs and cycles". In the Proceedings of 2nd International Conference on Mathematical Modeling and Computational Methods in Sciences and Engineering-2020, IOP Journal of Physics Conference Series, DOI: 10.1088/17426596/1850/1/012014, 1850: 1-11, 2021. ISSN: 1742-6596,

#### **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

1. Sridhin S Roy, Augustine Samuel and Prabhu, K.N., Heat Transfer Characteristics and Cooling Performance of Treated Kitchen Coconut Oil, ASM Heat Treating Conference Proceedings, Paper No: ht2021p0302, pp. 302-308; <https://doi.org/10.31399/asm.cp.ht2021p0302>
2. Prabhu, K.N., Invited Talk, Materials for Thermal Energy Storage, International Conference on Recent Advances in Engineering Materials (ICRAEM - 2022, Online) during 03 - 05, March 2022.
3. S. Anandhan, 'Self-powered nanogenerators based on PVDF nanotextiles for piezoelectric energy harvesting (Invited paper)', International Conference on

- Advances in Polymer Technology APT-2021', Department of Polymer Science & Rubber Technology, Cochin University of Science and Technology, India, 27-29 May 2021.
4. S. Anandhan, PVDF Nanocomposite-based Electrospun Fabrics for Various Applications (Keynote paper), International e-Conference on 'Advancements in Polymeric Materials APM-2022', CIPET-Chennai, India, March 2022.
  5. GK Manjunath, Udaya Bhat K., G V Preetham Kumar, Effect of zinc content on the microstructure and mechanical properties of Al-Zn-Mg alloy, 2021, 5th International Conference on Advanced Research in Mechanical, Materials and Manufacturing Engineering-2021, <https://doi.org/10.1016/j.matpr.2021.08.301>.
  6. Merbin John, P Ashok Kumar, Udaya Bhat K., Effect of filler wire strength on high strength low alloy steels, Materials Today Proceed, 2021, <https://doi.org/10.1016/j.matpr.2021.06.376>
  7. Merbin John, Ashok Kumar, Udaya Bhat K., AHSS welding using undermatching filler wires and process advantages with P-GMAW, Materials Today Proceed: 2021, <https://doi.org/10.1016/j.matpr.2021.06.0388>
  8. Merbin John, P Ashok Kumar, Udaya Bhat K., Effect of wire feed rate on microstructure development during bead on plate welding of microalloyed steel using P-GMAW, Materials Today Proceed, v42, 2021, 423-428.
  9. Merbin John, P Ashok Kumar, Udaya Bhat K., P Devadas Bhat, A study on HAZ behaviour in 800 MPa cold rolled and hot rolled steel weld, Materials Today Proceed, v 4, No2, 2021, 26/02/2021, 2985-2992, <https://doi.org/10.1016/j.matpr.2021.02.124>
  10. Lakkimsetti Lakshmi Praveen, Mahin Saif Nowl, Saumen Mandal, 'Time and Temperature variant Progressive Growth of Solvent-assisted Hydrothermal Synthesis of Cobalt Hydroxide Micro-roses', International Conference on Energy and Advanced Materials (ICEAM-2021)", 21st – 23<sup>rd</sup>, 10/2021.
  11. Robbi Vivek Vardhan, Subodh Kumar, Saumen Mandal, 'Low temperature solution processed tungsten oxide based robust and water repellent coating on stainless steel', 2nd International Conference on "Metallurgy & Materials Technology – Emerging trends, Development & Applications", 29th – 30<sup>th</sup>, 06/2021.
  12. Selvakumar Murugesan, R.Lakshmi, S.Ramachandran, L.Rajaramanathan, P. Ramachandran and Sriram Ramdass, 'Development of Sustainable Rubber Composites using Tapioca Flour as filler for Automobile Applications', 2022 Spring Meeting, ACS Rubber Division, April 26-29, Cleveland, USA.
  13. VU Mirashi, S. Johnson, S. R. Hegde, V. Vijayan, S. Govindarajan, Failures Investigation of Marine Propellers in Corrosive Environments, Processing and Characterization of Materials, 37-46.

### **SCHOOL OF MANAGEMENT**

1. Kumar, S. P (2022). Influence of University teachers' job satisfaction on subjective well-being and job performance. Ninth International Conference on Transformations in Engineering Education (ICTIEE 2022) organized by IUCEE, held online during 7th – 9th January 2022.
2. Poonam, Sahoo., Kumar, S. Pavan & Rashmi, Uchil (2021). Planning for the worst-case scenario With Industry4.0 Technologies: A Managerial perspective conducted by Taylor's University and University of Kelaniya, held online on 11th September 2021.
3. Poonam, Sahoo., Steevan, Pinto., Kumar, S. Pavan & Rashmi Uchil (2021). Branding the skills to work with Industry 4.0 era: A systematic literature review using prisma protocol conducted by Taylor's

- University and University of Kelaniya, held online on 11th September 2021.
4. Raju, Sarin., T.M, Rofin & Kumar, S. Pavan. (2021). Influence of COVID-19 Induced Panic Buying and Lock-Down on Dual-Channel Supply Chain Performance: A Game-theoretic study. Conference on Excellence in Research and Education conducted through online by IIM Indore during 18-20th June 2021.
  5. Raju, Sarin., T.M, Rofin & Kumar, S. Pavan. (2021). Effect of COVID-19 Induced Panic Buying on The Dual-Channel Supply Chain Under Channel Power Structure: A Game-Theoretic Analysis. Global Conference on Innovations in Management and Business (GCIMB) conducted through online mode by Chapman University (USA), Howard University (USA) and NIT Warangal during 27-28th July 2021.
  6. Joseph, Sunu Rose and Shashikantha Koudur, "Development vis-a-vis Degrowth: Stories of Resistance, Struggle and Survival from the Western Ghats", International Conference on Decolonizing Degrowth Conference: From Sustainability to Climate Justice, Durham University, 24-25 June 2021
  7. Padhan, Lakshmana and **Bhat, Savita**, "Carbon Emission and Foreign Direct Investment: A Bibliometric Analysis Using Scopus", International Conference on Sustainable Development: Challenges, Opportunities and the Future, Kochi, India, April 9-10 2021.
  8. Komal Anand and Sheena , An Empirical Examination of AR Technology Adoption Extending UTAUT with Trust, presented at the ISDSI-Global Conference 2021: Leading business in a FLUID world held at IIM Nagpur, December 27-30,2021.
  9. Komal Anand and Sheena , An Empirical Investigation on the acceptance of Augmented Reality on online shopping apps, presented at the Management Doctoral Colloquium (SHODH SAMAGAM) of IIM Visakhapatnam, December 09-19, 2021.
  10. Rajesh Acharya H, " Assessing the Impact of Climate Change on Agriculture in Coastal and Western Ghats Regions of Karnataka". International Conference on "Tackling Climate Change through Urban Resilience: Role of Institutions and Public Policies in Canada and India" 24th -25th March 2022. Organized by Department of Humanities and Social Sciences, Indian Institute of Technology Tirupati, Yerpedu - 517619, Andhra Pradesh, India
  11. Soma Amol Dhaigude and Bijuna C Mohan. "Modelling the CSF of Social Commerce Adoption in India: ISM and MICMAC Approach". 2nd International Conclave on Globalizing Indian Thoughts 2021, Indian Institute of Management Kozhikode, Kerala, IN, December 16-18, 2021.
  12. Soma Amol Dhaigude and Bijuna C Mohan. "Delivering Smiles Along With Products: E-fulfilment And Customer Satisfaction In Social Commerce". POMS India International Conference, S P Jain Institute of Management Research, Mumbai, IN, December 22-24, 2021.
  13. Soma Amol Dhaigude and Bijuna C Mohan. "Meesho Inc: Revamping the Social Commerce Logistics". International Society for Data Sciences and Innovation - Global (ISDSI-G), Indian Institute of Management Nagpur, IN, December 27-30, 2021.

**DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING**

1. Archana, Vishwanatha Mane and Subba Rao (2021) "Studies on the effect of water depth and perforation on the wave overtopping characteristics of Quarter circle Breakwater", International Conference on "Water and Environment" (ICWE-2021),NIT Bhopal, India, 22-23<sup>rd</sup> March 2021.
2. Haritha Sasikumar, Vishwanatha Mane and Subba Rao (2021)

- “Estimation of Wave Overtopping Discharge at Quarter Circle Breakwater Using Lssvm”, 2<sup>nd</sup> International Conference on Artificial Intelligence: Advances and Applications (ICAIAA 2021), Rajasthan Technical University, Kota, India, 27-28<sup>th</sup> March 2021.
3. Shankara Krishna, Vishwanatha Mane and Subba Rao (2021) “Estimation of Reflection Coefficient of Quarter Circle Breakwater Using Artificial Neural Network”, 2<sup>nd</sup> International Conference on Artificial Intelligence: Advances and Applications (ICAIAA 2021), Rajasthan Technical University, Kota, India, 27-28<sup>th</sup> March 2021.
  4. Surakshitha, Manu, Subba Rao (2021) “Innovative soft option of coastal protection by floating seaweed farm - a review”, 25<sup>th</sup> International Conference (Hydraulics, Water Resources, and Coastal Engineering),-Hydro 2020 at NIT, Rourkela (26<sup>th</sup> -28<sup>th</sup> March 2021), Under the aegis of The Indian Society for Hydraulics (ISH), Pune
  5. Vishwanatha Mane, Subba Rao and A.Vittal Hedge (2021) “Effect of wave steepness on wave overtopping discharge of an emerged quarter-circle breakwater”, 25<sup>th</sup> International Conference (Hydraulics, Water Resources, and Coastal Engineering),-Hydro 2020 at NIT, Rourkela (26<sup>th</sup> -28<sup>th</sup> March 2021), Under the aegis of The Indian Society for Hydraulics (ISH), Pune
  6. Kumaran. V, Sajid K, Subba Rao, Manu (2021) "Experimental Investigation of Dynamic Pressure on Wall Type Breakwater with Slotted Barrier," First International Conference on Recent Advances in Civil Engineering (ICRACE - 2021), held at National Institute of Technology, Silchar 2021 and has been honoured with BEST PAPER AWARD
  7. Sreelakshmy Madhusoodhanan, Subba Rao (2021), "Performance Analysis of Effect of Coastal vegetation on Wave Attenuation using Artificial Neural Network", International Conference on advances in Naval and Ocean Engineering (iCANOE'21), held at Department of Ship technology, Cochin university of Science and Technology (19-20 November 2021) and has been honoured with BEST PAPER AWARD.
  8. Sreelakshmy Madhusoodhanan, Subba Rao (2021), “Stability of Emerged Seaside Perforated Quarter Circle Breakwater using ANN, SVM and AdaBoost models”, 2<sup>nd</sup> Congress on Intelligent System CIS 2021, organized by Christ university Banagalore, during 04-05 September 2021.
  9. Surakshitha, Manu, Subba Rao (2021) “Physical model study on soft options of coastal protection work by Vegetation meadow - a review”, 26<sup>th</sup> International Conference on Hydraulics, Water Resources and Coastal Engineering (HYDRO 2021 INTERNATIONAL) at SVNIT Surat, Gujarat, India during December 23-25, 2021 and has been honoured with Best Paper Presentation Award.
  10. Swathi Shetty, Pruthviraj Umesh and Amba Shetty (2021) " Lineament Extraction from Open-source Digital Elevation Models - a Comparative Analysis". IEEE International Conference on Distributed Computing, VLSI, Electrical Circuits and Robotics (DISCOVER). IEEE, 2021, pp.66-71.
  11. Yadav Palla Parasuram, Amba Shetty, B. S. Raghavendra, and A. V. Narasimhadhan. "Influence of the Darkest Pixel on Endmembers Initialization." In *2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, pp. 3845-3848. IEEE, 2021.
  12. Yadav Palla Parasuram, Amba Shetty, B. S. Raghavendra, and A. V. Narasimhadhan. “Gradient based Spectral Similarity Measure for Hyperspectral Image Analysis “In *2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, pp. 3849-3854. IEEE, 2021.
  13. R Kommu, S Kundapura, V Kolluru - Springer: A Statistical

Approach for Comparison of Secondary Precipitation Products-Trends in Civil Engineering and Challenges for Sustainability pp 753-763.

[https://doi.org/10.1007/978-981-15-6828-2\\_55](https://doi.org/10.1007/978-981-15-6828-2_55).

14. CG Hiremath, L Nandagiri - Springe Regionalization of Flow Duration Curves for West Flowing Rivers of India. (Number of Pages XXIV, 1093) , Sustainability Trends and Challenges in Civil-2022 - Sept 2021, DOI <https://doi.org/10.1007/978-981-16-2826-9>

15. Chandrashekarayya G. Hiremath and Lakshman Nandagiri, Regionalization of Flow Duration Curves for West Flowing Rivers of India, Sustainability Trends and Challenges in Civil and Challenges for Sustainability pp 657-668. Springer-2022 .DOI-[https://doi.org/10.1007/978-981-16-2826-9\\_42](https://doi.org/10.1007/978-981-16-2826-9_42)

16. S Ashish, S Kundapura, V Kaliveeran, Hydrological modeling of stream flow over netravathi river basin Trends in Civil Engineering and Challenges for Sustainability pp 695-713 - Springer [https://doi.org/10.1007/978-981-15-6828-2\\_52](https://doi.org/10.1007/978-981-15-6828-2_52)

## **NATIONAL CONFERENCE**

### **DEPARTMENT OF CIVIL ENGINEERING**

1. Arathi. A. R., Madhavan, Hari Krishnan and Mohan, Mithun. "Machine Learning-Based Gap Acceptance Model for Uncontrolled Intersections under Mixed Traffic Conditions". 6th Conference of Transportation Research Group of India, Trichy, Paper No. 21, 2021.
2. Arathi. A. R., Madhavan, Hari Krishnan and Mohan, Mithun. "Machine Learning-Based Lag Acceptance Model and Safety Thresholds for Lag Time at Uncontrolled Intersections under Mixed Traffic Conditions". 8th Online International Conference on *Annual Report 2021-22*

Transportation Systems Engineering and Management, NIT Calicut, Paper No. 133, 2021.

3. Ansarsha. A. and Mohan, Mithun. "Investigating Accidents at a Newly Opened Highway: A Case Study from Kerala". Online National Conference on Traffic Technologies, organized by Central Academy for Police Training (CAPT) Bhopal, March 3-4, 2022.
4. Kasyap Vasudevan, A S and Sridhar, G. "Finite Element Modeling of Laboratory One Dimensional Consolidation of Soft Clays". Indian Geotechnical Conference- Trichy, 2021.
5. Athira, S and Sridhar, G. "A Critical Review on Potential Use of Iron Ore Tailings as Backfill Material". Indian Geotechnical Conference- Trichy, 2021.

## **DEPARTMENT OF CHEMISTRY**

1. Arun M. Isloor, "tailor made nanomaterials for membrane applications", 4<sup>th</sup> National Conference on Emerging Trends in Chemistry and Materials Science, GIT Belagavi, March 24-26, 2022.
2. Indira Govindaraju\*, Mridula Sunder, Ishita Chakraborty, Kamallesh D. Mumbrekar, Sib Sankar Mal, Nirmal Mazumder\*, "Investigation of physico-chemical properties of native and gamma irradiated starches" *Materials Today: Proceedings*, 2021, <https://doi.org/10.1016/j.matpr.2021.11.641>

## **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

1. Lingadevaru, P., Pardhasaradhi, B., Srihari, P., Sharma, G.V.K., "Analysis of 5G new radio waveform as an illuminator of opportunity for passive bistatic radar", 2021 National Conference on Communications, NCC 2021.

## **DEPARTMENT OF MECHANICAL ENGINEERING**

1. Tabish Wahidi, Ajay Kumar Yadav, Comparative Numerical Appraisal of

- Subcritical and Supercritical CO<sub>2</sub> based Natural Circulation Loop, Recent Trends in Fluid Dynamics Research (RTFDR-21), NIT Rourkela, India, April 2-4, 2021(3 days), Lecture Notes in Mechanical Engineering, 2022, 263-275, DOI:10.1007/978-981-16-6928-6\_22
2. Srivatsa Thimmaiah, Tabish Wahidi, Ajay Kumar Yadav, Arun M, Numerical Instability Assessment of Natural Circulation Loop Subjected to Different Heating Conditions, Recent Trends in Fluid Dynamics Research (RTFDR-21), NIT Rourkela, India April 2-4, 2021(3 days), Lecture Notes in Mechanical Engineering, 2022, 249-262, DOI:10.1007/978-981-16-6928-6\_21
  3. Raja S. Thanumoorthy, Jitender K. Chaurasia, Srikanth Bontha, A.S.S. Balan, V. Anil Kumar, Integrated Numerical Modeling and Machine Learning Approaches to Predict Melt Pool Dimensions during Deposition of SS316L Single Tracks using Laser Powder Bed Fusion Process, 8th International Conference on Product Life Cycle Modelling, Simulation and Synthesis (PLMSS), VSST and IIST, Trivandrum, December 17-18, 2021(2 days).
  4. T Kalinga, Guniputi Bala Narasimha, SM Murigendrappa, S Kattimani, Role of alloying additions on phase transformations, mechanical and pseudoelastic behavior of Cu-Al-Be shape memory alloys, Third International Conference on Recent Advances in Materials and Manufacturing, Kolhapur, India, 25 to 26, November 2021, Materials Today: Proceedings, 2021/12/18 <https://doi.org/10.1016/j.matpr.2021.12.092>
  5. Abhived S. Nair, Devan Rajendran, Joel C. Jacob, Nikhil S. Varghese, P S Suvin, Articulated Robotic Arm for Feeding, 2nd International Conference on Industry 4.0 and Advanced Manufacturing (I-4AM 2022) during, Indian Institute of Science (IISc), Bengaluru, 10-11 January 2022, Distinguished Paper award.
  6. Mukund A. Patil and Ravikiran Kadoli, Terfenol-D Composite Actuator for Vibration Suppression Applications: A Review, 2nd International Congress on Advances in Mechanical and System Engineering (CAMSE-2021), NIT Jalandhar, Punjab, India, 14th-16th July 2021, Lecture Notes in Mechanical Engineering.
  7. Rakesh Patil, Sharanappa Joladarashi and Ravikiran Kadoli, Finite Element Formulation for Static and Time Dependent Transverse Deflection of Functionally Graded Sandwich Beam with Viscoelastic Core, 2nd International Congress on Advances in Mechanical and System Engineering (CAMSE-2021), NIT Jalandhar, Punjab, India, 14th-16th July 2021, Lecture Notes in Mechanical Engineering
  8. Mukund A. Patil and Ravikiran Kadoli, Effect of Porosity and Gradation of Galfenol-D of Bidirectionally Functionally Graded Beam, International Conference on Recent Advances in Engineering Materials (ICRAEM-2022), Alva's Institute of Engineering & Technology Moodbidri, Mangalore, India, 03-05 March 2022, Materials Today Proceedings
  9. Ashwani Kumar, Ravikiran Kadoli and Sharnappa Joladarashi, Bifurcation Buckling of Isotropic Annular Disc Using Conforming and Non-Conforming Finite Element, International Conference on Recent Advances in Engineering Materials (ICRAEM-2022), Alva's Institute of Engineering & Technology Moodbidri, Mangalore, India, 03-05 March 2022, Materials Today Proceedings.
  10. Ashwani Kumar, Ravikiran Kadoli and Sharnappa Joladarashi, Sector Finite Element for Thermal Buckling Analysis of Isotropic Annular Disc, 3rd International Conference on Recent Advancement in Mechanical Engineering, (ICRAME-2022), NIT Silchar, Assam, India, 04-06th February 2022.
  11. Erin Sam Joe and D.Arumuga Perumal, Computational Analysis of Harmonically Oscillating Lid-Driven Incompressible Fluid in L-Shaped

- Cavity using Lattice Boltzmann Method, 48th National Conference on Fluid Mechanical and Fluid Power 2021 (FMFP 2021), BITS PILANI, Pilani Campus, India, 27-29 December 2021, Vol. 1, Submitted to Springer .
12. Mayuresh D and D.Arumuga Perumal, A Computational study on B-Splines based design parameterization strategy for modification of axial compressor annulus geometry for throughflow analysis, International Conference on Future Technologies 2021 (ICOFT 2021), NIT Puducherry, Puducherry, December 16-18, 2021, Vol.1, Submitted to Springer
  13. Tirthraj Bhatt, Arumuga Perumal D, Sasithradevi. A, Numerical Investigations of Free and Forced Convection with various features using Mesoscopic Lattice Boltzmann Method, 4th International Conference on Advances in Mechanical Engineering (ICAME 2022), SRM Institute of Science & Technology (SRM IST) Kattankulathur Campus, Tamil Nadu, March 24-26, 2022, Vol. 1, Submitted to Materials Today Proceedings.
  14. Vedant Umang Patel, Karan Panchal, Shreeranjita Kowshik, Sudhanva Nadigera, Arumuga Perumal D, Numerical Analysis of 2D incompressible flows in U-shaped cavity using Lattice Boltzmann Method, 4th International Conference on Advances in Mechanical Engineering (ICAME 2022), SRM Institute of Science & Technology (SRM IST) Kattankulathur Campus, Tamil Nadu, March 24-26, 2022, Vol. 1, Submitted to Materials Today Proceedings.
  15. Muhammad Afsal and Arumuga Perumal D, Predicting the fluid flow Characteristics of 2D and 3D Lid-Driven Cavities induced by a centrally placed circle using CFD, 2nd INTERNATIONAL MODERN SCIENTIFIC RESEARCH, Institute of Economic Development and Social Research of Turkey, December 23-25, 2021, Vol. 1, 94
  16. KVJ Bhargav, PS Balaji and Ranjeet Kumar Sahu, Generation of micro channels on PMMA using an in-house fabricated  $\mu$ -ECDM system, 3rd International Conference on Processing and Characterization of Materials, NIT Rourkela, Odisha, December 7-8, 2021, Submitted to International Journal of Materials Research, DeGruyter-SCIE (Under Review)
  17. KVJ Bhargav, Shanthan P, PS Balaji and Ranjeet Kumar Sahu, MOJAYA Optimization of machining parameters coupled with R-method for the generation of micro holes on GFRP composite using an in-house developed  $\mu$ -ECDM system, International Conference on Advanced Engineering Optimization through Intelligent Techniques, SVNIT Surat, Gujarat, January 28-30, 2022, Submitted to Lecture Notes in Mechanical Engineering, Springer (Volume and Page No. yet to be received)

#### **DEPARTMENT OF MINING ENGINEERING**

1. Kumar Reddy. S. (2021). Introduction to Planning in Surface Mine Projects, ATAL-AICTE FDP on Planning of Surface Mining Projects, 23<sup>rd</sup> August, 2021, NITK-Surathkal.
2. Kumar Reddy. S. (2021). Drilling in Surface Mine Projects, ATAL-AICTE FDP on Planning of Surface Mining Projects, 24<sup>th</sup> August, 2021, NITK-Surathkal.
3. Kumar Reddy. S. (2021). Slope Design in Surface Mine Projects, ATAL-AICTE FDP on Planning of Surface Mining Projects, 25<sup>th</sup> August, 2021, NITK-Surathkal.
4. Kumar Reddy. S. (2021). Slope Stabilization in Surface Mine Projects, ATAL-AICTE FDP on Planning of Surface Mining Projects, 25<sup>th</sup> August, 2021, NITK-Surathkal.
5. Kumar Reddy. S. (2021). Safety in Surface Mine Projects, ATAL-AICTE FDP on Planning of Surface Mining Projects, 26<sup>th</sup> August, 2021, NITK-Surathkal.
6. Kumar Reddy. S. (2021). Introduction to slope stability in mining & infrastructure projects, PDP on Design & monitoring of slope stabilization

- Mining & infrastructure projects, 15<sup>th</sup> September, 2021, ESCI -Hyderabad.
7. Kumar Reddy. S. (2021). Slope failures and socio-economic influence on mining & infrastructure projects, PDP on Design & monitoring of slope stabilization Mining & infrastructure projects, 15<sup>th</sup> September, 2021, ESCI -Hyderabad.
  8. Kumar Reddy. S. and Anil S Naik (2022). Application of Internet of Things in environmental monitoring for Underground Mining : A Systematic Review, National conference on 'Recent Trends in Intelligent Control Communications and Computing Technologies in Mining (RTIC3TM - 2022)' 27<sup>th</sup> March 2022, University College of Engineering, Kakatiya University, Kothagudem.
  9. RM Perumulla, G Mandela & S Kumar Reddy (2022). A critical review on scope of smart pore water pressure sensors for Slope stability studies, National conference on 'Recent Trends in Intelligent Control Communications and Computing Technologies in Mining (RTIC3TM -2022)' 27<sup>th</sup> March 2022, University College of Engineering, Kakatiya University, Kothagudem.
  10. Kumar Reddy. S. (2022). Slope stability and stabilization in opencast mines, keynote for Opencast mining, 28<sup>th</sup> March 2022, KSMCL -Bengaluru.
3. Koudur, Shashikantha, "Intermediality of Sensibilities: Reinforcement of Navodaya Poetry/Song in Kannada", One-day National Conference on Futures of Comparative Literature and Translation Studies, 11 March 2022, University of Hyderabad

### **SCHOOL OF MANAGEMENT**

1. Dr Dhishna P was the resource Person on 28<sup>th</sup> January 2022 and delivered an online session on "Conceptualizing Literary Concerns in Travel Writing" in a National webinar "El Viage: Discourses on Travel Writing and Theory", organized by the Department of English, St Joseph's College, Irinjalakuda, Kerala."
2. Dr Dhishna P was the resource Person on 5<sup>th</sup> July 2021 and delivered an online session on "Corporate Communication", for the FDP on "Organizational Behaviour Dynamics & Professional Ethics" held from 1-5 July 2021 organized by the Department of

## 14. TECHNICAL EVENTS

### DEPARTMENT OF CHEMICAL ENGINEERING

#### Book Chapters:-

1. Saswata Goswami, Keyur Raval, Priyanka Bhat, "Recent Trends in Conventional and Nonconventional Bioprocessing", IN, Bioprospecting of Microorganism- Based Industrial Molecules, doi: 10.1002/9781119717317.ch20, John Wiley & Sons, 2021, pp 404-417, online ISBN:9781119717317.
2. Vishnupriya Govindaraj, Keyur Raval, Ritu Raval, "Immunomodulatory Effects of Chitooligosaccharides", in Chitooligosaccharides Prevention and Control of Diseases, DOI: 10.1007/978-3-030-92806-3\_7, Springer Chem, pp 99-119, ISBN: 978-3-030-92806-3
3. Das, Suman and Mahalingam, Hari, "Multiphase Reactors in Photocatalytic Treatment of Dye Wastewaters: Design and Scale-Up Considerations.", in *Advanced Oxidation Processes in Dye-containing wastewater Volume 1*, DOI: 10.1007/978-981-19-0987-0\_10, Springer Nature, in press. ISBN: 978-981-19-0986-3.
4. Poddar, M.K.; Prabhakar, Priyanka and Mahalingam, Hari, "Operational Parameters in Dye Decolorization via Sonochemical and Sonoenzymatic Treatment Processes", in *Advanced Oxidation Processes in Dye-containing wastewater Volume 2*, DOI: 10.1007/978-981-19-0882-8\_9, Springer Nature, in press. ISBN: 978-981-19-0881-1.
5. M Minimol, Vidya Shetty K, MB Saidutta, Biohydrometallurgical methods and the processes involved in the bioleaching of WEEE, in book: Environmental Management of Waste Electrical and Electronic Equipment, Ed: Chaudhery Hussain pp89-107.Elsevier. DOI:10.1016/B978-0-12-822474-8.00005-2
6. Jovana R. Prekodravac, Vaishakh Nair, Dimitrios A. Giannakoudakis, Hsien-Yi Hsu, Juan C. Colmenares, Homogeneous photocatalysts

immobilized on polymeric supports: Environmental and chemical synthesis applications, *Materials Science in Photocatalysis*, 2021, Elsevier, 575-588, DOI: 10.1016/B978-0-12-821859-4.00002-

#### EDITORIALS: -

Juan Carlos Colmenares, Dimitrios Giannakoudakis, Vaishakh Nair and Jovana Prekodravac, "Special issue - Materials' Supports in Catalysis: Advantages, Synthesis and Applications", *Molecules, Open Access Journal by MDPI, Impact Factor 4.412*

#### PATENTS

1. Dr. Hari Prasad Dasari, Chaithra Shenoy, Atmuri Shourya, "A Method and Composition for Soot Oxidation in a Diesel Particulate Filter", Indian Patent, Patent No: 375403, Application No: 201841046271, 25<sup>th</sup> August 2021.
2. Rajmohan B, Keyur Raval, Vishnu M., "Method, system and apparatus for arsenic removal from water using functionalized melanin", Indian patent office, Patent application number: 201841047554 dated 15.12.2018
3. Prasanna Belur D & Moni Philip Jacob K. "A composition for reducing acidity in edible aroid corms and a method of preparing edible aroid corms with reduced acidity" Indian Patent office, Patent application number: 202141016581, 08.04.2021

#### POSTERS PRESENTED

1. Krishan Shetty, Banshi Gandhi, Amit Kumar Singh and Vaishakh Nair, Photodegradation of 2, 4-Dichlorophenoxyacetic Acid using TiO<sub>2</sub> - Lignin-based Biochar as Nanophotocatalyst, International e-conference on Nanomaterials and Nanoengineering APA Nanoforum 2022, February 24-26, 2022

## REVIEWS :-

1. Dr. Keyur Raval - Review of the research article titled, "Screening & Production of chitosan from Bacillus sp. by batch fermentation method", Biotechnology Reports, May 2021
2. Dr. Keyur Raval - Review of the research article titled, "Production of ginsenosides by Chaetomium sp. and its effect on enhancing the contents of ginsenosides in Panax ginseng adventitious roots", Biochemical Engineering Journal, April 2021.
3. Dr. Keyur Raval- Review of the research article titled, "High BPA removal by immobilized laccase in a fluidized-bed bioreactor", Biochemical Engineering journal, Feb 2022.

## DEPARTMENT OF CIVIL ENGINEERING BOOK CHAPTERS

1. Bellary A. and Suresha S. N. "Influence of Coarse Aggregate Size and Type on the Design Thickness of Rigid Pavements for Indian Conditions". In: Pasindu H.R., Bandara S., Mampearachchi W.K., Fwa T.F. (eds) Road and Airfield Pavement Technology. Lecture Notes in Civil Engineering, vol 193. 2022, Springer, Cham. [https://doi.org/10.1007/978-3-030-87379-0\\_31](https://doi.org/10.1007/978-3-030-87379-0_31)
2. S. N. Suresha and V. Hemanth Kumar, "Characterization of asphalt binder using tackiness properties" Liu, X., Anupam, K., Erkens, S., Sun, L., & Ling, J. (Eds.). Green and Intelligent Technologies for Sustainable and Smart Asphalt Pavements: Proceedings of the 5th International Symposium on Frontiers of Road and Airport Engineering, 12-14 July, 2021, Delft, Netherlands (IFRAE) (1st ed.). CRC Press. <https://doi.org/10.1201/9781003251125>
3. S. Bhat and S. N. Suresha "Big data in roads and pavements: Insights from a bibliometric study and a critical review of recent publications", Liu, X., Anupam, K., Erkens, S., Sun, L., & Ling, J. (Eds.). Green and Intelligent Technologies for Sustainable and

- Smart Asphalt Pavements: Proceedings of the 5th International Symposium on Frontiers of Road and Airport Engineering, 12-14 July, 2021, Delft, Netherlands (IFRAE) (1st ed.). CRC Press. <https://doi.org/10.1201/9781003251125>
4. Kumar, Praveen P., George, Varghese, and Mulangi, Raviraj H "Exploring the Application of Data Envelopment Analysis in the Evaluation of Public Transport Organizations". In Nandagiri, L., Narasimhan M.C., Marathe S., Dinesh, S. (eds.) Sustainability Trends in Civil Engineering, Lecture Notes on Civil Engineering, 2021, Vol. 162, pp. 431-457. Springer Nature, Singapore, ISBN 978-981-16-2825-2 (print) 978-981-16-2826-9 (online). Scopus Indexed. [https://link.springer.com/chapter/10.1007/978-981-16-2826-9\\_28](https://link.springer.com/chapter/10.1007/978-981-16-2826-9_28). DOI.org/10.1007/978-981-16-2826-9\_28.
  5. Shreyasvi C and Venkataramana K. "Nonlinear soil amplification models for a moderately active seismic zone in India", Local Site Effects and Ground Failures (T G Sitharam et al (eds.)), Lecture Notes in Civil Engineering, 2021, 117, Springer Nature Singapore, pp. 39-50. [https://doi.org/10.1007/978-981-15-9984-2\\_4](https://doi.org/10.1007/978-981-15-9984-2_4)
  6. Sridhar, G. "Numerical Modeling of Centrifuge Experiment on Vacuum Consolidation of Soft Clay". In: Choudhary, A.K., Mondal, S., Metya, S., Babu, G.L.S. (eds) Advances in Geo-Science and Geo-Structures. Lecture Notes in Civil Engineering, 2022, vol 154. Springer, Singapore. [https://doi.org/10.1007/978-981-16-1993-9\\_16](https://doi.org/10.1007/978-981-16-1993-9_16)
  7. Reshma, P. R. and Sridhar, G. "Numerical Modelling of Mechanically Stabilized Earth Walls for Slope Protection". In: Adhikari, B.R., Kolathayar, S. (eds) Geohazard Mitigation. Lecture Notes in Civil Engineering, 2022, vol 192. Springer, Singapore. [https://doi.org/10.1007/978-981-16-6140-2\\_21](https://doi.org/10.1007/978-981-16-6140-2_21)

8. Gadekari, R. S., Kolathayar, S., & Chitrachedu, R. K. "Experimental Studies on the Suitability of Coconut Shell as a Filler Material in Concrete Cubes". In *Smart Technologies for Sustainable Development*, 2021, pp. 45-53, Springer, Singapore.
9. Kolathayar, S., Priyatham, K., Karan Kumar, V., Rohith, V. R., & Nikil, S. "Understanding Disaster Preparedness Level in the South Indian City of Chennai". In *A System Engineering Approach to Disaster Resilience*, 2022 pp. 101-108, Springer, Singapore.
10. Vasavi, G.S., Mourougane, R., Pavan, G.S. "Strength and Durability Properties of Alkali-Activated Fly Ash Earth Bricks". In: Pal, I., Kolathayar, S. (eds) *Sustainable Cities and Resilience. Lecture Notes in Civil Engineering*, 2022, vol 183. Springer, Singapore.  
[https://doi.org/10.1007/978-981-16-5543-2\\_12](https://doi.org/10.1007/978-981-16-5543-2_12)
11. Wasnik, S., Pavan, G.S., Padhi, S. Replacement of River Sand with Coal Bottom Ash as Fine Aggregate in Cement Mortar. In: Pal, I., Kolathayar, S. (eds) *Sustainable Cities and Resilience. Lecture Notes in Civil Engineering*, 2022, vol 183. Springer, Singapore.  
[https://doi.org/10.1007/978-981-16-5543-2\\_11](https://doi.org/10.1007/978-981-16-5543-2_11)
12. Rashma, R. S. V., Jayalekshmi, B. R., & Shivashankar, R. "Efficacy of Pervious Concrete Columns Vis-A-Vis Stone Columns in Sandy Strata in Mitigating Liquefaction". Virtual Conference on Disaster Risk Reduction-Civil Engineering for a Disaster Resilient Society (VCDRR-21), 15-20 March 2021, NITK. In *Geohazard Mitigation* (pp. 473-482). Springer, Singapore, doi.10.1007/978-981-16-6140-2\_37, November 2021.
13. Krishna, S. V., & Jayalekshmi, B. R. A "Study on Settlement Variation in Piled Raft Foundation Under Seismic Loads". Virtual Conference on Disaster Risk Reduction-Civil Engineering for a Disaster Resilient Society (VCDRR-21), 15-20 March 2021, NITK. In *Recent Advances in Earthquake Engineering* (pp. 249-257). Springer, Singapore. doi: 10.1007/978-981-16-4617-1\_20. 21, September 2021.
14. Sreya, M. V., Jayalekshmi, B. R., & Venkataramana, K. "Seismic Response of Buildings Resting on Raft Foundation with EPS Geofoam Buffer". 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics (7ICRAGEE), 12-15 July 2021 at IISC Bangalore, Lecture Notes in Civil Engineering, vol 120. In *Soil Dynamics* (pp. 417-425). Springer, Singapore. doi.org/10.1007/978-981-33-4001-5\_37, April 2021.
15. Jogi, P., Jayalekshmi, B. R. "Effect of Soil-Structure Interaction on the Seismic Response of Elevated Water Tank". Virtual Conference on Disaster Risk Reduction-Civil Engineering for a Disaster Resilient Society (VCDRR-21), 15-20 March 2021, NITK. In *Recent Advances in Earthquake Engineering* (pp. 237-248). Springer, Singapore. doi.org/10.1007/978-981-16-4617-1\_19, September 2021.
16. Pranitha, J., Jayalekshmi, B. R. "Sloshing Response of Water Tanks Under Seismic Excitation". 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, 12-15 July 2021 at IISC Bangalore. In *Earthquakes and Structures* (pp. 265-276). Springer, Singapore. doi.org/10.1007/978-981-16-5673-6\_21, November 2021.
17. Amalu, P. A., Jayalekshmi, B. R. "A Review on Behavior of Piled Raft Foundations Under Various Loads". 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, 12-15 July 2021 at IISC Bangalore. In *Earthquake Geotechnics* (pp. 307-316). Springer, Singapore. doi.org/10.1007/978-981-16-5669-9\_26, January 2022
18. Amalu, P. A., Jayalekshmi, B. R. "Analysis of Cushion Effects in Unconnected Piled Raft Foundation". Virtual Conference on Disaster Risk Reduction-Civil Engineering for a Disaster Resilient Society (VCDRR-21) jointly organized by National Institute

- of Technology Karnataka (NITK), Asian Disaster Reduction and Response Network (ADRRN), and Institute of Himalayan Risk Reduction (IHRR), 15-20 March 2021, NITK. In *Geohazard Mitigation* (pp. 447-458). V Springer, Singapore. doi.org/10.1007/978-981-16-6140-2\_35, November 2021.
19. Shettigar, S., Jayalekshmi, B. R., & Venkataramana, K. "Response Analysis of Berthing Structure with Soil-Structure Interaction". In *Sustainability Trends and Challenges in Civil Engineering* (pp. 949-962). LNCE, volume 162. Springer, Singapore., doi:10.1007/978-981-16-2826-9\_59, September 2021.
20. Nayak, S., Preetham, H.K., Prakash, S.D. "Assessment of the Geotechnical Properties of Red Earth Stabilized Using Quarry Dust and Cement" *Lecture Notes in Civil Engineering*, 2022, 154, pp. 57-64
21. Preetham, H.K., Nayak, S., Jagapur, P. "Improvement in the Properties of Red Soil Using Granulated Blast Furnace Slag", *Lecture Notes in Civil Engineering*, 2022, 154, pp. 65-72
22. Babu, A., Nayak, S. "A Review on Methods for Analysis of Laterally Loaded Piles" *Lecture Notes in Civil Engineering*, 2022, 183, pp. 407-418
2. Narasimhan, M.C., George, Varghese, Udaykumar, G., Kumar, Anil (eds.) "Trends in Civil Engineering and Challenges for Sustainability", *Lecture Notes on Civil Engineering*, 2021, Vol.99. Springer Nature, Singapore, <https://doi.org/10.1007/978-981-15-68282>. <https://www.springer.com/gp/book/9789811568275>.

#### FACULTY DEVELOPMENT PROGRAMME

ATAL Online Faculty Development Programme "India's Strategic Transport Infrastructure Development Projects and Programs" by Dr. Suresha S. N. sponsored by the AICTE, New Delhi, 16-20, Aug., 2021.

#### VISIT TO ABROAD (By Faculty)

Dr. Adani Azhoni visited New Orleans, United States, to present two papers at the American Geophysical Union Annual Conference Fall Meeting during 12-17 December 2021.

#### DEPARTMENT OF CHEMISTRY

##### Book Chapters

Gonsalves, C.N., Sneha, I.M., Hegde, A.C. (2022). Effect of pH on Electrodeposition of Ni-Cd Alloy Coatings and Their Anticorrosion Performance. In: Mudali, U.K., Aruna, S.T., Nagaswarupa, H.P., Rangappa, D. (eds) *Recent Trends in Electrochemical Science and Technology*. Springer Proceedings in Materials, vol 15. Springer, Singapore. [https://doi.org/10.1007/978-981-16-7554-6\\_6](https://doi.org/10.1007/978-981-16-7554-6_6)

G.P.S. Ibrahim and Isloor, A.M, "Ammonia recovery from water, wastewater and radioactive wastewater. Membrane technology for ammonia production and separation". Elsevier, September 2021-Accepted.

G.P.S. Ibrahim and Isloor, A.M,

#### BOOKS EDITED

1. Civil Engineering for Disaster Risk Reduction. **Kolathayar S**, Pal I, SC Chian, Mondal A, Springer. 2021, <https://link.springer.com/book/10.1007/978-981-16-5312-4>
2. Latest Developments in Geotechnical Earthquake Engineering and Soil Dynamics, Sitharam, T.G., Jakka, Ravi, Kolathayar, Sreevalsa (Eds.), Springer, ISBN: 978-981-16-1467-5

#### EDITORIALS

1. Sivakumar Naganathan, kamal Nasharuddin Mustapha and Thangaraj Palanisamy ( eds.) (2022) "Lecture Notes in Civil Engineering - Sustainable Practices and innovations in Civil Engineering", 2022 Volume 179. Springer Nature. <https://link.springer.com/book/10.1007/978-981-16-5041-3#editorsandaffiliations>.

“Carbon dioxide capture by aqueous ammonia with membrane. Membrane technology for improving ammonia decomposition”. Elsevier, September 2021-Accepted.

## **PATENTS**

Arun M. Isloor and Syed Ibrahim G.P, “A process for synthesizing ionic polymer nanoparticles and a hydrophilic nanocomposite ultrafiltration (UF) membrane”, Indian Patent office, Patent Application No 202241003127, 21 January 2022.

Arun M. Isloor and Syed Ibrahim G.P, “A Hollow Fiber Nanocomposite Ultrafiltration Membrane and a Water Purifier Comprising Thereof”, Indian Patent office, Patent Application No 202141042588, 20<sup>th</sup> September 2021.

Arun M. Isloor and Panchami H.R, “An Ultrafiltration Membrane Comprising Hydrophilic Polymeric Microspheres For Protein Rejection”, Indian Patent office, Patent Application No 202141048958, 24<sup>th</sup> January 2022.

Arun M. Isloor and M. Chandrasekhar Nayak, Mithun Kumar “Ultrafiltration membrane”, Indian Patent office, Patent Application No 202241012215, 7<sup>th</sup> March 2022.

Mal\*, Sib S.; Dutta, Saikat; Vannathan, Anjana A.; P K., Muhammed A.; “A high-performance supercapacitor device of polyaniline-triethyl amine ionic liquid combined phosphomolybdate electrode and method thereof” Filed India patent application no. 202141007885 dated 24/02/2021.

Mal\*, Sib S.; Vannathan, Anjana A.; “Method of preparation of high energy density conducting polyaniline-phosphovanadomolybdate nanohybrid electrode for supercapacitor device application” Filed India patent application no. 202041047069 dated 03/11/2020.

Mal\*, Sib S.; Das, Partha P.; Maity, Sukanya and B M., Neetu; “Method of preparation of activated carbon-supported vanado-nickelate (IV) nanohybrid -electrode for high-performance supercapacitors device application” Filed India patent application no. 202041047070 dated 03/11/2020.

Mascal, Mark, Saska, Jan; Kindler, Alois; Zuend, Stephen; Dutta, Saikat, “Method of making and/or isolating isoidide, comprising selective esterification of a mixture of dianhydroxitol isomers,” WO2021058425A1, 2021 (published).

Dutta, Saikat; Bhat, Navya Subray; Mal, Sib Sankar; Onkarappa, Sharath B., “Efficient production of furanics and levulinic acid from carbohydrates in aqueous hydrochloric acid using quaternary ammonium salt as surfactant,” Indian Patent, Published, Application Number 2020041007329, 2021 (published).

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **Book Chapters: 02**

01. Kumar, P.V., Chandrashekar, A., Chandrasekaran, K., “Machine Learning Based Data Quality Model for COVID-19 Related Big Data”, (2022) Lecture Notes on Data Engineering and Communications Technologies, 91, pp. 561-571. DOI: 10.1007/978-981-16-6285-0\_44
02. John Paul Martin, Vipin Singh, K Chandrasekaran, A Kandasamy, “Explicating Fog Computing Key Research Challenges and Solutions”, Publication date: 2021/5/25, Book: Cloud Security, Pages: 46-63, Publisher: CRC Press, DOI:10.1201/9780367821555-4

### **WORKSHOPS: 01**

7 days Workshop on “High End Workshop on AI/ML for cyber security” held during 14th March 2022 to 20th March 2022; Co-ordinator: Dr. Alwyn R. Pais. Prof Bimal K Roy, ISI-Kolkatta, Dr Alok Kumar, SVNIT- Surat, Dr

Asoke Talukder, SRIT-Bangalore, Dr Ashok K Das, IIIT-Hyderabad, Dr Kannan Srinathan, IIIT- Hyderabad, Dr. Sandeep Narayanan, CISCO-USA, Dr Hemang S., Florida International University, Dr Roland Hass, IIITB, Dr Sobhan Babu, IIT-Hyderabad, Dr. Alwyn R. Pais, Dr. Jeny Rajan, Dr. Mahendra Pratap Singh were the resource person(s) of the workshop. The Program was targeted towards postgraduates, researcher scholars from academic institutes.

#### **EXPERT / TECHNICAL TALK:-**

- Expert Session on “5G Core: Challenges and Opportunities” held on 19th March 2022; Co-ordinator: Dr. Saumya Hegde, Dr. Mohit P. Tahiliani. Mr. Subodh Gajare, Lead Solutions Architect, Cisco R&D, Bangalore was a resource person of the event.
- Online Distinguished Lecture held on 22nd March 2022; Co-ordinator: Dr. Basavaraj Talawar. Prof. R Govindarajan, SERC, IISc, Bangalore delivered a distinguished lecture on “Computer Systems Research in the Era of Machine Learning”

#### **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

##### **BOOK CHAPTERS**

Pradeep Gorre, Rajesh Kumar, Hanjung Song, Sandeep Kumar "Mm-wave CMOS power Amplifier for 5G" a chapter in the book entitled "CMOS Analog IC Design for 5G and Beyond DOI: 10.1007/978-981-15-9865-4, 2021.

Vignesh R, Vipin sharma, Hanjung Song, Sandeep Kumar " Techniques to Improve Gain-Bandwidth 5G ICs" a chapter in the book entitled "CMOS Analog IC Design for 5G and Beyond DOI: 10.1007/978-981-15-9865-4, 2021.

Anmol Verma, Asish Panda, Amit Kumar Chanchal, Shyam Lal, and B.

S. Raghavendra, "Automatic Deep Learning Framework for Breast Cancer Detection and Classification from H&E Stained Breast Histopathology Images" a chapter in the book entitled "Data Science, Transactions on Computer Systems and Networks" [https://doi.org/10.1007/978-981-16-1681-5\\_14](https://doi.org/10.1007/978-981-16-1681-5_14), August 2021; pp. 215-227.

Amit Kumar Chanchal, Aman Kumar, Kumar Alabhya, Shyam Lal, Jyoti Kini, "Efficient Deep Learning Framework with Group Convolution for Segmentation of Histopathology Image" a chapter in the book entitled "Intelligent Computing and Communication System Algorithms for Intelligent Systems," [https://doi.org/10.1007/978-981-16-1295-4\\_39](https://doi.org/10.1007/978-981-16-1295-4_39), June 2021, pp.383-392.

##### **BOOKS PUBLISHED**

"Advances in VLSI, Signal Processing, Power Electronics, IoT, Communication and Embedded Systems" Shubhakar Kalya, Dr. Muralidhar Kulkarni Dept. of E&C Engg., K. S. Shivaprakasha, SPRINGER Book, published in 2021, <https://link.springer.com/book/10.1007/978-981-16-0443-0>.

"Op-amps and Linear Integrated Circuits" - Ramakant A. Gayakwad, Revised fourth edition, Pearson Publishers, Contents contribution for Indian Adaptation by Dr. Rekha S., Dept. of E&C Engg., April 2021.

##### **PATENTS FILED**

Shivaraj Hublikar and N.S.V Shet, " A Dynamic Machine Learning Intrusion System for Cyber Security Application", Australian Patent Application number 2021107470 dt 25/08/2021.

Sandeep Kumar, Hanjungsong, Shyam Lal, Prabu K, "Reconfigurable Triple-Band On-Chip Nano Antenna for Terahertz Applications" Application No.

202141032871, Indian Patent Filing  
Date: 07/22/2021.

### **STTPS (SHORT TERM TRAINING PROGRAMMES)/SCHOOLS**

Online Summer school workshop on Machine and Deep Learning for Remote Sensing Applications - IEEE GRSS Bangalore Section, NITK IEEE Student Branch and Dept. of ECE, NITK Surathkal by Dr. Shyam Lal, Dr. Aparna P. and Dr. Ramesh H. Associate Professor, Dept. Water Resources and Ocean Engineering with Dr. PG Diwakar, Honorary Distinguished Professor, ISRO-HQ, Bangalore, Prof. Avik Bhattacharya, IITB Mumbai, Prof. B S Daya Sagar, ISI Bangalore, Dr. C. Sudhakar Reddy, Scientist-SG and Head, NRSC (ISRO), Hyderabad, Dr. Anil Kumar, Scientist-SG and Head, IIRS (ISRO), Dehradun, Er. Nagajothi Kannan, Scientist-SG, RRSC-NRSC (ISRO), Bangalore, Dr. Biplab Banerjee, IITB Mumbai, Dr. Alok Bhardwaj, IIT Roorkee, Dr. Rama Rao Nidamanuri, IIST, Trivandrum, Kerala, Prof. Saroj K. Meher, ISI, Bangalore, Mr. Ujaval Gandhi, Founder, Spatial Thoughts, Bangalore, Dr. Uttam Kumar, IIIT Bangalore, Er. Ujjwal Kumar Gupta, Scientist-SD, SAC (ISRO) Ahmedabad, Dr. Ramesh H, NITK, Dr. Deep Vijayasanen, NITK, Dr. Jeny Rajan, NITK and Dr. Shyam Lal, NITK, July 05-16, 2021.

Two weeks Online Practical Training Program on Machine Learning and Deep Learning for Remote Sensing Applications (MLDLRSA2022) - National Remote Sensing Centre (NRSC), Hyderabad by Dr. Shyam Lal with Ujjwal Gupta, Scientist-SD, SAC, ISRO Ahmedabad, Dr. Ramesh H. NITK, Dr. Deepu Vijayasanen, NITK, Dr. Jeny Rajan NITK, January 17-February 19, 2022.

### **SEMINARS (National)**

Online One-Day Webinar on Quantum Computing - IEEE Photonic Society USA, IEEE Mangalore Sub-Section &

IEEE Bangalore Section by Dr. Mandeep Singh and Dr. Muralidhar Kulkarni with Nikhil Mitaliya, Team Lead- Application Engineer at Tektronix, 18th June 2021.

### **WORKSHOPS**

Online IEEE Workshop on Advances in Nanophotonic devices & Sensors (2nd IEEE WANS - 2021) - IEEE Photonic Society USA by Dr. Mandeep Singh and Dr. Muralidhar Kulkarni with Dr. Yi-Hao Chen, Ph.D. University of Michigan, USA., Dr. Santosh Kumar, Liaocheng University, China, Prof. Venu G. Achanta, Director, CSIR-NPL, Dr. H. S Jattana, SCL - ISRO Mohali, Dr. Rahul Sharma, SCL - ISRO Mohali, Dr. U. K. Tiwari, CSIR-CSIO Chandigarh, Dr. Om Prakash, RRCAT Indore, Prof. Brajesh K. Kaushik, IIT Roorkee, Prof. T Srinivas, IISc Bangalore and Prof. S. K Raghuvanshi, IIT Dhanbad, October 04-08, 2021.

Workshop on OpenLANE EDA tool for RTL to GDSII flow - COSH (NITK) by Dr. Ramesh Kini M. with M Sudarshan Shenoy, Student MTECH R, February 21-23, 2022.

### **FACULTY DEVELOPMENT PROGRAM**

Online Faculty Development Program on Recent Trends in Free Space Optics and its Applications (RFA-2021) - SERB by Dr. Sandeep Kumar, Dr. Shyam Lal and Dr. Prabu K with Dr. Swaminadhan, IIT Indore, Dr. Sandeep Kumar, NITK, Dr. Prabu K, NITK, Prof. M. Ganesh Madhan, MIT, Chennai, Dr. A. A. Bazil Raj, DIAT, Pune, Dr. Sanjay Kumar Mishra, Scientist F, IRDE, Dehradun, Dr. Jagadeesh V K from NIT Patna, Dr. Sanya Anees, IIIT Guwahati, Dr. Sangeeta R.G., VIT, Chennai and Prof. Sriram Kumar, NIT, Trichy, October 04-08, 2021.

Online Faculty Development Program on Applications of Artificial Intelligence in Digital Histopathology - SERB by Dr. Shyam Lal, Dr. Sandeep Kumar and Dr. Prabu K with Prof. Amit Sethi,

IITB, Mumbai , Prof. Jyoti Kini, Dept. of Pathology, KMC Mangalore, MAHE, Manipal, Dr. K.B. Vatsala, Dept. of Pathology, KMC Mangalore, MAHE, Manipal, Dr. Shyam Lal, NITK, Dr. Jeny Rajan, NITK, Dr. Arulalan Rajan, Formerly NITK, Mr. Rajesh Ranjan, Catalyst Biotech, Mumbai, Dr. Anand Kumar M, NITK, and Mr. Amit Kumar Chanchal, Research Scholar, E&C Dept., NITK, December 13-17, 2021.

### EXPERT TALKS

Online lecture series on Challenges in Biomedical Research – Wearables and Machine learning in Epilepsy, Dr. Zulfi Haneef MBBS, MD, Associate Professor in Nuerology, Director Neurophysiology Laboratory, Houston Texas, 31<sup>st</sup> December 2021.

Online lecture series on Challenges in Biomedical Research – Machine Learning for flow cytometry, Dr. Thiagarajan Perumal MD, Professor of Medicine and Pathology Baylor College of Medicine, Director Transfusion Service and Hematology Laboratory, Houston Texas, 7<sup>th</sup> January 2022.

Online lecture series on Challenges in Biomedical Research – Challenges of using Machine Learning to Predict Outcomes in Neurological Diseases, Dr. Pitchaiah Mandava MD, Professor, Baylor College of Medicine, Chief of Neurology at Michael E. DeBakey VA Medical Center, Houston Texas, 10<sup>st</sup> January 2022.

Digital Learning Strategies, Solutions and Services, Vishal Bajpai, Regional Sales Leader - South India, Skill-up Technologies, 25<sup>th</sup> February 2022.

### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

#### Book Chapters: -

1. Kulkarni S.V., Gatade S., Samanvita N. and Gaonkar D.N., “Comprehensive Strategy for Power Quality Improvement of Inverter Based Distributed Generation Systems”, In:

*Annual Report 2021-22*

Shetty N.R., Patnaik L.M., Nagaraj H.C., Hamsavath P.N., Nalini N. (eds) Emerging Research in Computing, Information, Communication and Applications. Lecture Notes in Electrical Engineering, VOL 790, December 2021, Springer, Singapore. [https://doi.org/10.1007/978-981-16-1342-5\\_14](https://doi.org/10.1007/978-981-16-1342-5_14)

2. Swathi Tangi and D. N. Gaonkar, “Optimal Phasor Measurement Units Placement in Radial Distribution Networks Using Integer Linear Programming”, Book Computer Networks and Inventive Communication Technologies, 1021-1031, Publisher Springer, Singapore, September 2021.
3. Vikas Singh, Tukaram Moger and Debashisha Jena, “Probabilistic Steady-State Analysis of Power Systems Integrated with Renewable Generations”, Book chapter in Renewable Energy Integration to Grid: A Probabilistic Perspective published by CRC Press, Taylor and Francis Group ([www.taylorandfrancis.com](http://www.taylorandfrancis.com)), pp. 199-238, March 2022 (DOI: <https://doi.org/10.1201/9781003271857>).

### PATENTS

#### Granted:

1. J Saikrishna Goud, R Kalpana and Bhim Singh, “Method and System for Maximum Power Point Tracking of a PV-Array during Non-Uniform Insolation Conditions”, Granted, 201741017347, 2021.
2. R Kalpana, Saravana Prakash P, Bhim Singh and G Bhuvaneshwari, “A multiphase transformer rectifier unit and a method thereof”, Granted, 201641040621, 2021.
3. Mr. Ragavendra Rao P, Dr. V. Vignesh Kumar, Prof. B.Venkatesaperumal, “A Method And System For Global Peak Detection Under Non-Uniform Insolation Conditions”, Granted, 202141016770, 9th April 2021.

**Published & Filed:**

4. B. Dastagiri Reddy, "Smart Electric Vehicle Charging Station", published, 202141023698, 27th May 2021.
5. Prajof Prabhakaran and B. Dastagiri Reddy, "Method, System and Apparatus for Universal Motor Drive Cum Charging of an Electric Vehicle", Published, 202241004255, 25th February 2022.
6. Tukaram Moger, Sagar Dipesh Dahanuwala, Prathamesh Gachhi, Teena Johnson, Abhinandan Pathak, Shantanu Ajay Arya, "Method and System for Major Event Detection in a Power System", Published, 202241012056, 07th March 2022
7. B Dastagiri Reddy, Philippe Noisette and Tong Wu, "Direct Current Power Supply Assembly Provided with Fault Detection System", Published, PCT/EP2019/071826, 26th July 2021.
8. B Dastagiri Reddy and Philippe Noisette, Charles Sao, "Direct Current Power Supply Assembly", Published, PCT/EP2019/071829, 26th July 2021.
9. B Dastagiri Reddy, "Smart Electric Vehicle Charging Station", Filed, CHE/26536/2021, 26th July 2021.
10. Dharavath Kishan and B. Dastagiri Reddy, "Electric Vehicle Charger for Wired and Wireless Charging", Filed, C.000934, 26th July 2021.
11. Santhosh K G Manikonda and Dattatraya N. Gaonkar, "A Method for islanding detection based on image classification with ensemble convolution neural networks", Filed, 201941036379, 16th July 2021.
12. Y. Suresh, B. Shiva and B Nageswar Rao, "A switched-capacitor based boost multilevel inverter and its hybridization", Filed, 202141056310, 4th December 2021.
13. Y. Suresh, B. Shiva and B Nageswar Rao, "Single DC source-based power conversion by employing single phase transformers for PV power systems", Filed, 202141056311, 4th December 2021.
14. Prajof Prabhakaran and Nithin Raj, "Reconfiguration of EV Battery Pack with Voltage Balancing Features", Filed, 202241008785, 19th February 2022.

15. B. Dastagiri Reddy and Dharavath Kishan, "Method, System and Apparatus for Charging an Electric Vehicle", published, 202141056309, 4th December 2021.

**STTPS (Short term Training Program)**

1. Short term Training Program on "Design and Control of Power Electronic Converters and its Applications", held from 19th to 23rd October 2021, organized and sponsored by Dr. B. Dastagiri Reddy.
2. 8 Days Online FDP on Application of Power Electronics in Electric Vehicles and Energy Storage: Jointly organized by Dept of EE NITK Surathkal and NIT Warangal, held from 14th to 22nd February 2022, coordinated by Dr. Nagendrappa H.
3. Design and Development of Low-Cost Power Electronic Converters for Home Applications under DST-SERB (Accelerate Vigyan Program) program, funded by Scientific and Engineering Research Board, DST, Govt. of India, held from 1st August 2021 to 30th September 2021 (2 months), organized by Dr. Prajof P.
4. Power Electronic Applications in Electric Vehicles, Wireless Power Transfer System under DST-SERB (Accelerate Vigyan Program) program, funded by Scientific and Engineering Research Board, DST, Govt. of India, held from 1st August 2021 to 30th September 2021 (2 months), organized by Dr. Dharavath Kishan.

**ADMINISTRATIVE RESPONSIBILITIES OF FACULTY MEMBERS AT THE INSTITUTE LEVEL**

1. Prof. K. P. VITTAL: Standing Committee Member to frame guidelines and monitor MHRD funding scheme 2020, HEFA.
2. Prof. K.P Vittal, the Dean AAIR, NITK.
3. Dr. P. Parthiban, "Faculty-in- Charge of Electrical works of NITK Surathkal."
4. Dr. Kalpana, Girls Hostel Warden for Yamuna (GH III Block) from Jan. 2020 - till date.
5. Dr. Yashwant Kashyap, the IV-Block

(SATPURA Hostel) Warden.

6. Dr. Shashidhara M Kotian, Placement coordinator.
7. Dr. Nagendrappa H., Liaison Officer SC/ST Cell, NITK Surathkal.
8. Dr. K Manjunatha Sharma, Associate Dean (Academics), NITK, Surathkal

## DEPARTMENT OF INFORMATION TECHNOLOGY

### BOOK CHAPTERS:-

1. Siddhanth Pillay and Sowmya Kamath, "Predicting Medical Procedures from Diagnostic Sequences using Neural Machine Translation", In Smart Computational Intelligence in Biomedical and Health Informatics, CRC Press, Taylor & Francis Group, 2021, ISBN 9780367624125
2. Karthik K and Sowmya Kamath S, "Automated View Orientation Classification for X-ray images using Deep Neural Networks", In Smart Computational Intelligence in Biomedical and Health Informatics, CRC Press, Taylor & Francis Group, 2021, ISBN 9780367624125
3. Geetha V, Sowmya Kamath S, Salvi Sanket Sarang, "Smart Home Environment: Artificial Intelligence Enabled IoT Framework for Smart Living and Smart Health", In: AI-Based Services for Smart Cities and Urban Infrastructure, Editors: Lyu, Hu, Duan and Sugumaran (Oakland University), IGI Global, 2021 (DOI: 10.4018/978-1-7998-5024-3)
4. Vyas, K., Naik, D "Language Model Fine-Tuning with Second-Order Optimizer" Advances in Intelligent Systems and Computing, June 2021.
5. Shubham Agrawal, Rashad Ahmed, Anand Kumar, M., Sheela Ramanna Categorizing Relations via Semi-supervised Learning Using a Hybrid Tolerance Rough Sets and Genetic Algorithm Approach (2022) Studies in Fuzziness and Soft Computing, 413, pp. 103-116.
6. Praveena, R., Anand Kumar, M., Soman, K.P. Semantic Similarity and Paraphrase Identification for Malayalam

Using Deep Autoencoders (2021) Signals and Communication Technology, pp. 81-96.

7. Shrutilipi Bhattacharjee, Johannes Madl, Jia Chen and Varad Kshirsagar, "Spatio-temporal Modeling", Encyclopedia of Mathematical Geosciences, Springer, (accepted), 2021
8. Shrutilipi Bhattacharjee, Johannes Madl, Jia Chen and Varad Kshirsagar, "Spatio-temporal Analysis", Encyclopedia of Mathematical Geosciences, Springer, (accepted), 2021

### BOOKS EDITED

Futuristic Research Trends and Applications of Internet of Things- Taylor and Francis, CRC Press- Dr. Bhawana Rudra

### PATENTS:

OMS Docket No.	OMS.0065.000299
Patent Number	<b>374782</b>
Application Number	201641025735
Filing date	27/07/2016
Date of grant	18/08/2021
Title	METHOD AND SYSTEM FOR DYNAMIC WORD ENCODING AND COMPRESSION OF DATA
Applicant (s)	National Institute of Technology Karnataka
Inventor(s)	1. <b>Dr. Ananthanarayana V.S</b> 2. <b>Sakthi Murugan R.</b>

2.

Patent Number	<b>2021103335</b>
Filing date	14/06/2021
Date of grant	16/03/2022
Title	SYSTEM FOR PRODUCTIVITY DETERMINATION USING MACHINE LEARNING BASED FACE RECOGNITION
Inventor(s)	<b>Dr. Bhawana Rudra et.al</b>

### REVIEWS:

**Prof. Ananthanarayana V S:**

1. Reviewed PhD thesis under faculty of Technology & Engineering of Charotar University of Science and Technology

(CHARUSAT) – Improvement of Deep Cross-Modal Retrieval Using Common Subspace Generation – Aug 2021.

2. Reviewed the book chapters of the book – DATA SCIENCE UNRAVELLED, publisher: Cambridge University Press.
3. Reviewed the PhD thesis and conducted the viva voce examination of VTU, Belagavi – Recognition of Autistic Individuals Using Pattern Analysis Techniques on Brain Imaging Data – Aug 2021.
4. Reviewer for the Journal on Software: Practice and Experience, a Willey publication on Aug 2021.
5. Reviewed PhD thesis under JSS Science and Technology University – Personal Authentication Through Sclera Segmentation And Recognition – Aug 2021.

**Dr. Anand Kumar M:**

1. ACM Transactions on Asian and Low-Resource Language Information Processing
2. Computer Speech; Language
3. Computers Electrical Engineering
4. Engineering Applications of Artificial Intelligence
5. LRE
6. ICT Express
7. Pattern Recognition Letters
8. Sadhanā

**Conferences:**

1. Publication Committee Member In The International Conference On Advanced Network Technologies And Intelligent Computing 17-18 December, 2021 Organized By Department Of Computer Science Institute Of Science Banaras Hindu University Varanasi India - Dr. Bhawana Rudra

**Workshops:**

**Dr. Anand Kumar M**

1. Organized The First Workshop on Speech and Language Technologies for Dravidian Languages @ EACL 2021 (CORE A CONFERENCE)
2. Organized A Shared Task Hate Speech And Offensive Content Identification (Hasoc)-

Dravidian-Codemix - Hasoc 2021; At Fire 2021 . In Forum For Information Retrieval Evaluation (Fire 2021)

**Dr. Bhawana Rudra**

1. 5 Day Aicte -Atal Sponsored Online Workshop On "Quantum Computing And Quantum Cryptography" From June 07th, 2021 To June 11th, 2021

**Other Event:**

1. Dr. Sowmya Kamath: Faculty Convener for NITK National-level Hackathon, "HackVerse 3.0" (February 26-27, 2022)
2. Dr. Anand Kumar M: Cordinated HackVERSE 3.0 -2021 26th-27th of February, 2022

**DEPARTMENT OF MATHEMATICAL & COMPUTATIONAL SCIENCES**

**E-PRINT ARCHIVES**

1. K. Mahesh Krishna and P. Sam Johnson, "Operator-Valued p-Approximate Schauder Frames", arXiv, Cornell University Library, DOI: arXiv:2201.03955, Jan 2022
2. K. Mahesh Krishna and P. Sam Johnson, "Approximately Dual p-Approximate Schauder Frames", arXiv, Cornell University Library, DOI: arXiv:2110.10121, Oct 2021
3. P. Sam Johnson, "Closed  $EP$  and Hypo- $EP$  Operators on Hilbert Spaces ", arXiv, Cornell University Library, DOI: arXiv:2109.01315, Sep 2021
4. K. Kamaraj, P. Sam Johnson and Sachin Manjunath Naik, "Generalized Principal Pivot Transform and its Inheritance Properties", arXiv, Cornell University Library, DOI: arXiv:2108.05883, Aug 2021
5. K. Kamaraj, P. Sam Johnson and Athira Satheesh, "Reverse Order Law for Generalized Inverses with Indefinite Hermitian Weights", arXiv, Cornell University Library, DOI: arXiv:2108.05873, Aug 2021
6. K. Mahesh Krishna and P. Sam Johnson, "Dilations of Linear Maps

- on Vector Spaces ”, arXiv, Cornell University Library, DOI: arXiv:2104.07544, Apr 2021
7. K. Mahesh Krishna and P. Sam Johnson, “Commutators Close to the Identity in Unital C\*-Algebras ”, arXiv, Cornell University Library, DOI: arXiv:2104.02035, Apr 2021
  8. Chaitanya Gopalakrishna, Murugan Veerapazham, Suyun Wang, Weinian Zhang, Continuous solutions of an iterative equation with multiplication, arXiv:2105.03385.  
<https://doi.org/10.48550/arXiv.2105.03385>

#### REVIEWS:-

1. Dr. R Madhusudhan reviewed the manuscript- Naveen Chandra Gowda and Sunilkumar S Manvi, “Ecient Multi-level and Two-way Authentication Scheme for FogComputing Environment using Symmetric Cryptographic”, Journal of Network and Computer Applications, ELSEVIER
  2. Dr. R Madhusudhan reviewed the manuscript-Zheng, Zhiwen and Yu, Nan and Zhang, Jingyang and Dai, Haipeng and Wang, Qingshan and Wang, Qi "Wi-ID: WiFi-Based Identification System Using Rock-Paper-Scissors Hand Gestures" Wireless Personal Communications, SPRINGER
  3. Dr. Jothi Ramalingam reviewed the manuscript TCC-2022-01-0013 titled "Fully Verifiable Outsourcing of Single and Composite Modular Exponentiation with Single Untrusted Cloud Server" for IEEE Transactions on Cloud Computing, Feb. 2022.
2. Soni H., Narendranath S., Ramesh M.R., Nedelcu D., Mashinini P.M., Kumar A. Development of Ti50Ni50-XCox (X = 1 and 5 at. %) Shape Memory Alloy and Investigation of Input Process Parameters of Wire Spark Discharge Machining. In: Pathak S. (eds) Intelligent Manufacturing. Materials Forming, Machining and Tribology, 2021, doi.org/10.1007/978-3-030-50312-3\_4, Springer, Cham.
  3. P. S. Suvin, Ranjeet Kumar Sahu., Chapter 11|14 pages, Sequential Laser and Electrical Discharge Machining, CRC Press, <https://doi.org/10.1201/9781003202301>, taylorfrancis.com/book.
  4. Jitendra Kumar Katiyar and Ranjeet Kumar Sahu, Modern Manufacturing Technology: Spotlight on Future, CRC Press, Taylor & Francis, DOI:<https://doi.org/10.1201/9781003203162>, Print ISBN - 9781032066394; eBook ISBN - 9781003203162, 2021.
  5. Srijit Sen, Arumuga Perumal D, Ajay Kumar Yadav, Communications in Computer and Information Science, Springer Nature, DOI: 10.1007/978-981-16-4772-7\_9, 2021.
  6. P.H. Jadhav, B. Kotresha, N. Gnanasekaran, Arumuga Perumal D, Lecture Notes in Mechanical Engineering, Springer, DOI: 10.1007/978-981-16-0698-4\_53, 2021.

#### WORKSHOPS:

- Dr. Jitendra Kumar Katiyar, Dr. Ranjeet Kumar Sahu, Dr. P S Suvin, Dr. Anuj Kumar Sharma, Dr. Mir Irfan Ul Haq, Dr. Ankush Raina, Prof. TVVLN Rao and Dr. Mohd Ali Ahmad, International Tribology Research Symposium 2021 (ITRS 2021), December 8-10, 2021, Apar Industries, Mumbai, DUCOM, Shreenath Engineering Industries and Biovis, Resource persons from

#### DEPARTMENT OF MECHANICAL ENGINEERING

#### BOOKS PUBLISHED

1. Puneet, N. P., Hegale A., Hemantha K., Gangadharan K.V., Optimal Parameters Identification of Quarter Car Simulink Model for Better Ride Comfort and Road Holding, 2021,

industry, academics and Research laboratories.

- Dr. A. Sathyabhama, Experimental and Numerical Approaches to Two-Phase Heat Transfer, 27th to 31 December 2021, Self financed course as per institute norms.
- Dr. Mrityunjay Doddamani, One Day Indo-US SPARC Workshop (ONLINE) on Additive Manufacturing: Materials and Applications, February 7, 2022, SPARC, MoE.
- Sudhakar C.Jambagi, Dr. Srikanth Bontha, Dr. Gnanasekaran, Dr. Ranjeet Kumar Sahu and Dr. Sumanth Govindarajan, Recent Advances In Manufacturing Processes For Industrial Applications, Sponsored by DST/SERB 21-25<sup>th</sup> Feb, 2022 (5 Days).
- Dr. N. Gnanasekaran, Dr. Kumar G N, Dr. Sudhakar C Jambagi, Dr. Arumuga Perumal D and Dr. Parthasarathy S, Recent Advancements in Modeling and Analysis of Porous Materials RAMAPM-2022, Sponsored by DST/SERB, Feb 28<sup>th</sup>- March 4<sup>th</sup>, 2022 (5 days).

## DEPARTMENT OF MINING ENGINEERING

### Patents:

“Method for Evolution of Probability Distribution Function of Shovel-Dumper Combination in Opencast Coal Mine”, Patent granted by Australian Government on 14<sup>th</sup> July 2021 (Investigators: Harish Kumar N.S, Prof. Ch.S.N.Murthy and Dr.R.P.Chodhary)

### Books Published:-

“Rock Inundation: Experiments and Analyses”, Published by CRC Press, Taylor & Francis, Prof. Ch.S.N.Murthy.

## DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

### Books Chapters:-

S. Shetty, S. Anandhan, 'Electrospun PVDF based composite nanofabrics: An emerging trend towards energy harvesting', DOI: 10.1016/B978-0-12-821709-2, 'Nano Tools & Devices for Enhanced Renewable Energy', ISBN: 9780128217092, S. Devasahayam, C. Hussain, Eds., Elsevier, UK, 2021.

S. Anandhan, S. Murugesan, A. G. Patil, 'Fly ash-reinforced poly(vinyl alcohol) composites', DOI: 10.1016/B978-0-12-817686-3, 'Handbook of Fly Ash', ISBN: 9780128176863, K.K.Kar, Ed., Elsevier, UK, 2021.

Mohammed Khalifa, Selvakumar Murugesan and S. Anandhan, 'Graphene-Rubber Nanocomposites: Fundamentals to Applications' CRC Press, 2022

S. B. Arya, “Electrochemical methods in tribocorrosion”, Tribocorrosion: Fundamentals, Methods, and Materials, Elsevier, 2021.

Udaya Bhat K, Devadas Bhat P, Carbon nanomaterials for biofuel cells in Biofuel cells: Materials and Challenges (ed Inamuddin et al), 21/7/2021, Scrivener Publ, p 171-217.

Udaya Bhat K, Devadas Bhat P, Microbes-Surface Interactions, in Applications of microbes in environmental and microbial biotechnology, 25/7/2021, Springer nature, <https://doi.org/10.1007/978-981-16>.

Udaya Bhat K, Devadas Bhat P, Engineering architectures for biofuel cells (ch 10), in Biofuel cells: Materials and Challenges (ed Inamuddin et al), 21/7/2021, Scrivener Publ, p261-298

Devadas Bhat P and Udaya Bhat K, Corrosion characteristics of metal matrix composites, Encyclopedia of Materials: Composites (ed: Manoj Gupta et al), Elsevier, 2021, p 1-12, doi: 10.1016/B978-0-12-819724-0.00102-6.

Udaya Bhat K, Devadas Bhat P: Ionic liquid electrolytes for flexible supercapacitors (ch19) in Flexible Supercapacitors Nanoarchitectonics Ed-M Inamuddin et al, Wiley Online, 2021, <https://doi.org/10.1002/9781119711469.ch19>.

### Patents:

Subray R Hegde, Preetish Crimson Dsilva, Method and System For Producing Elongated Grains in Wrought Metals with Superior Creep Resistance, Indian Patent Application No. 201941033324, filed on 19/08/2019, Published on 26/02/2021, FER received on 08/06/2021, FER Replied on 01/12/2021.

Subray R Hegde, J K Rakshan Kumar, Sudhir Hegde, Sudarshan B, Jayarama Bhat M, Ganesh Bhat, Allen John, Praveen R, Industrial Thermocouples with Superior Creep Resistance, Indian Patent Application No. 201941033961, filed on 19/08/2019, Published on: 26/02/202, FER Received on 10/11/2021, FER to be Replied by: 05/05/2022.

Ashritha Salian, Saumen Mandal, "A method of preparing low temperature stabilized high entropy high-k oxides", Indian Patent, Application Number 202141035822, August 9, 2021 (Filed)

### Posters Presented

Ashritha Salian, Robbi Vivek Vardhan, Praveen Lakkimsetti, Santhra Krishnan P, Pavan Pujar, and Saumen Mandal, "Development of low temperature processed high dielectric constant high entropy oxide for electronic applications", XXI

International Workshop on Physics of Semiconductor Devices (IWPSD 2021), Delhi, December 14-17, 2021

### SCHOOL OF MANAGEMENT

#### Book Chapters:-

1. Bhat, Savita and Suresha, S. N. (2021), "Big data in roads and pavements: Insights from a bibliometric study and a critical review of recent publications", in Liu X., Anupam, K. Erkens, S., Sun, L. and Ling, J. (Eds.) *Green and Intelligent Technologies for Sustainable and Smart Asphalt Pavements*, CRC Press, pp. 714-719. ISBN: 9781032169545.
2. Majhi, R, A Review on Detection of COVID-19 Patients Using Deep Learning Techniques in the book *Assessing COVID-19 and Other Pandemics and Epidemics using Computational Modelling and Data Analysis*, pp 59-74, Springer,2022
3. Majhi, R, Techniques in the book of *Biomedical Data Mining for Information Retrieval: Methodologies, Techniques, and Applications*, pp1-19, John Wiley & Sons, Inc.2021.
4. Majhi, R, Performance Evaluation of Machine Learning Techniques for Customer Churn Prediction in Telecommunication Sector, *Handbook of Research on Automated Feature Engineering and Advanced Applications in Data Science*, pp 262-274, IGI Global,2021

#### MAGAZINE/NEWSPAPER ARTICLES:-

1. Koudur,Shashikantha,Bhagavahisuvik eya Sahityayuga" (Kannada), Diwali Special Edition of Prajavani November 2021

#### WORKSHOPS

1. 16 one day workshops conducted for various engineering colleges in the states of Karnataka, Kerala and Tamil Nadu on Virtual labs as the Outreach Coordinator, Centre for System Design, NITK from April 1st, 2021 – March 31st, 2021.
2. Two Day International Conference On Sustainable Learning: Strategies And Its Consequences In Digital India (SLSC-2021) organized in collaboration

with Dept of Humanities and Sciences, NIT Goa on June 5-6 , 2021.

3. School of Management hosted a Five-day Workshop using JMP SAS on Statistical Discovery for Management from 10th - 14th May 2021. The workshop was attended by 50 participants which included the MBA students, research scholars, and faculty of the School of Management. The workshop was organized by Dr. Bijuna C Mohan in collaboration with JMP® Academic Team.

#### **DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING**

##### **Books Chapters**

Binumol S, Subba Rao and A V Hegde (2021) "Runup & Rundown Characteristics - Emerged Quarter - Circle Breakwater (Perforated Quarter Circle Breakwater)" ebook published by Lambert Academic Publishing (LAP), ISBN-13: 978-620-4-72621-2, ISBN: 620-4-72621-8.

Sasikumar H., Mane V., Rao S. (2022) "Estimation of Wave Overtopping Discharge at Quarter Circle Breakwater Using LSSVM". In Algorithms for Intelligent Systems edited by Mathur G., Bundele M., Lalwani M., Paprzycki M. (eds). Springer, Singapore. [https://doi.org/10.1007/978-981-16-6332-1\\_34](https://doi.org/10.1007/978-981-16-6332-1_34).

Gururaj P., Umesh P., Sara P.E.K., Shetty A. (2022) Top Surface Soil Moisture Retrieval Using C-Band Synthetic Aperture Radar over Kudremukh Grasslands. In: Jha R., Singh V.P., Singh V., Roy L.B., Thendiyath R. (eds) Hydrological Modeling. Water Science and Technology Library, vol 109. Springer, Cham. [https://doi.org/10.1007/978-3-030-81358-1\\_4](https://doi.org/10.1007/978-3-030-81358-1_4).

#### **CONSULTANCY PROJECTS**

##### **DEPARTMENT OF MINING ENGINEERING**

1. Assessment of Intensity of Ground Vibrations due to Blasting Operations in Quarry of M/s. Thumson Sands Private Limited, Kottayam-Dist, Kerala (PI- Dr. Karra Ram Chandar).
2. Assessment of Intensity of Ground Vibrations due to Blasting Operations in Quarry of M/s. Mubarak Granites Private Limited, Malappuram-Dist, Kerala, PI- Dr. Karra Ram Chandar.
3. Scientific Study for Controlled Blasting in Tummalpenta Limestone Mine to apply for permission for blasting up to 100/50m from 132KV Power Line, M/s. Ultratech Cements Private Limited, Ananthapur, AP, (PI- Dr. Karra Ram Chandar).
4. Assessment of Stability Analysis of Slopes in Quarry of M/S. Alakode Granites, Kannur-Dist, Kerala, (PI- Dr. Karra Ram Chandar).
5. Design of method of working, ultimate pit slope, dump slopes including monitoring of highwall benches, OB dumps and slopes of Naini coal mine, SCCL, Odisha (PI- Dr. Karra Ram Chandar).
6. Scientific Study for Controlled Blasting in Kollur Limestone Mine (Block-B) to apply for permission for blasting upto 200m from 132KV Power Line & public Road, M/s. Chettinad Cement Corporation Limited, Gulbarga, Karnataka (PI- Dr. Karra Ram Chandar).
7. Scientific Study for Slope stability analysis of Kallur Limestone Mine, M/s. Chettinad Cement Corporation Limited, Gulbarga, Karnataka, (PI- Dr. Karra Ram Chandar).
8. Assessment of Intensity of Ground Vibrations due to Blasting Operations in M/s. Bismi Granites, Ernakulam Dist, Kerala, (PI- Dr. Karra Ram Chandar).

##### **DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING**

Dr. Subray R. Hegde: Life Extension of K-type Thermocouples, R&D Project, Amount: 20 lakhs, Client: MRPL, Status: On going.

Dr. Subray R. Hegde: Failure Analysis of Utility Boiler (UB-4) tubes of CPP-III Plant, Consultancy Project, Amount: 5 Lacs, Client: MRPL, Status: Ongoing (From Nov 2021)

Dr. Subray R. Hegde: Failure Analysis of Utility Boiler (UB-2) tubes of CPP-III Plant, Consultancy Project Amount: 5 lacs, Client: MRPL, Status: Ongoing (From Feb 2022)

Dr. Sumanth Govindarajan & Dr. Subray R. Hegde Failure of Heat Exchanger Bellows for SRU, Consultancy Project Amount: 2.5 lacks, Client: MRPL

#### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

1. Prototype of a Reliable ICN Router using Non-Volatile Memory, CAMP-81 Program, PI: Dr. Mohit P Tahiliani, Co-PI: Dr. Basavaraj Talawar at the cost of 01 Lakh, 2019-22
2. Proof of Concept (v1) of New IP, Futurewei technologies. Inc, Santa Clara, CA, USA, PI: Dr. Mohit P Tahiliani at the cost of USD 20000, 8 months (2021)
3. DLT based Platform for Warranty of Home Appliances, Robert Bosch Engineering and Business Solutions Pvt. Ltd., PI: Dr. Mohit P Tahiliani, Co-PI: Prof. K. V. Gangadharan at the cost of 8.26 Lakhs, 4 months (2021)
4. Queue Management and Traffic scheduling for efficient utilization of DPU's., NVIDIA Academic Hardware Grant Program, PI: Dr. Mohit P Tahiliani at the cost of USD 1500 worth of hardware, 2021-2022
5. Proof of Concept (v2) of New IP, Futurewei technologies. Inc., PI: Dr. Mohit P Tahiliani at the cost of USD 40000, 2022-2023

## 15 HUMAN RESOURCE DEVELOPMENTS

### 15.1 TRAINING STATUS

#### DEPARTMENT OF CIVIL ENGINEERING

Prof. Varghese George, attended the Online ATAL FDP Training on “Green Building and Built Environment” organized by IGBC and CII Hyderabad

#### DEPARTMENT OF CHEMICAL ENGINEERING

1. Dr. Chinta Sankar Rao, attended an online FDP on Machine learning at IIT, Kanpur under TEQIP on 23<sup>rd</sup> Nov-3<sup>rd</sup> Dec, 2020
2. Dr. Chinta Sankar Rao, attended a 2-day training on “Control System Design with MATLAB and Simulink” during 15-16 April, 2021
3. Dr. Prasanna B.D , attended the Training on Ethics & Values for Scientists and Technologists on 23-27 November, 2020
4. Prof. Vidya Shetty K ,Department of Chemical Engineering attended a three day online Professional Development Training Programme under TEQIP III for Senior faculty from January 18<sup>th</sup> – 20<sup>th</sup> , 2021 conducted by IIM Tiruchirappalli.
5. Dr. Vaishakh Nair, attended the Short term course on Recent Advances in Environmental Biotechnology Under TEQIP conducted by IIT Kharagpur on 5-9<sup>th</sup> October , 2020.

#### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Dr. K. Panduranga Vittal, attended Smart Grids: Future Intelligent Electricity Distribution Grids training programme organized by International Co-PI, School of Engineering, Cardiff University, UK

#### DEPARTMENT OF INFORMATION TECHNOLOGY

Prof. G. Ram Mohana Reddy attended DST-CPR-IISc Policy Lecture Series on "Building Research Universities" by Prof. Pankaj Jalote, Distinguished Professor and Founder Director, IIIT Delhi (Webinar), August 11, 2021.

#### SCHOOL OF MANAGEMENT

1. Dr Dhishna P successfully completed the Swayam online, ARPIT course for Career Advancement Scheme (CAS) promotion, Online Refresher course in Arts (Literature and Culture) (from 1 Dec 2020 to 31 March 2021) by Jawaharlal Nehru University, Delhi.
2. Dr Dhishna P participated in the online webinar on excellence in “Peer Review: How to be an Effective Peer Reviewer” by Taylor and Francis Reviewer Training Network held on 23<sup>rd</sup> June 2021.

#### PLACEMENT OF STAFF FOR ACADEMIC EXCELLENCE

#### DEPARTMENT OF CHEMICAL ENGINEERING

1. Dr. Vidya Shetty K, Member of BOS ,Department of Chemical Engineering, SIT Tumkur
2. Dr. Vidya Shetty K, Member of BOS,, Department of Chemical Engineering, MVJ College of Engineering
3. Dr, Vidya Shetty K, Member of Core Committee, DASA -2021 admissions coordinated by MNIT Jaipur

#### DEPARTMENT OF CIVIL ENGINEERING

Prof. Subhash C. Yaragal, appointed as a nominee of VTU Belagavi to the “IQAC Member” of PDACE, Kalaburagi (Autonomous), From 31st Jan 2022 to 30th Jan 2025.

Prof. Subhash C. Yaragal, was invited as an Expert Member for Faculty selection at KLE Technological University, Hubballi., 11th February 2022.

Prof. Subhash C. Yaragal, was invited as an Expert Member for Faculty selection at KLE Technological University, Hubballi., 13th and 14th September 2021.

Prof. Subhash C. Yaragal, was invited as an Expert Member for Faculty selection at Dr. M. S. Sheshgiri College of Engineering and Technology, Belgaum, 20th and 21st September 2021.

Prof. Subhash C. Yaragal has been a VTU Nominee to the Board of Studies in Civil Engineering of SDM College of Engineering and Technology, Dharwad, 23-03-2020 to 23-03-2022 (Two Years).

Prof. Subhash C. Yaragal, selected for the prestigious Programme of Ministry of Education, Leadership for Academicians Programme LEAP 2020, attended the Indian part of program from 18th February to 4th March 2021, the foreign part is pending at University of Oxford, UK.

Dr. Sreevalsa Kolathayar was nominated to the Executive Committee of Indian Society of Earthquake Technology (ISET), IIT Roorkee.

Dr. Sreevalsa Kolathayar was renominated as TC Member of Earthquake Engineering and Soil Dynamics Committee of American Society of Civil Engineers (ASCE).

### **DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

1. Dr. Gururaj S. Punekar, Recognized as PhD main guide to a student in Addis Ababa Science and Technology University, Addis Ababa, Ethiopia.
2. Dr. K. Panduranga Vittal, Worked as a Resource person in International Conference on Renewable Energy - Opportunities, Key Challenges & Potential Solutions.
3. Dr. K. Panduranga Vittal, Worked as a Resource person in SSTP on AI applications to Control of smart grid.

4. Dr. Nagendrappa H., Worked as a Resource person in FDP on DC-DC Resonant Converters for Grid Interfacing of Renewable Energy Sources.
5. Dr. Nagendrappa H., Worked as a Resource person in FDP on High Gain Converters for DC Microgrid /EV Charging Applications.
6. Dr. Nagendrappa H., Worked as a Resource person in International FDP on DC-DC Resonant Power Converters.
7. Dr. Dharavath Kishan, Worked as a Resource person in FDP on Bidirectional Wireless Power Transfer: Electromagnetic and Power Electronics Prospects.
8. Dr. B. Dastagiri Reddy, Worked as a Resource person in FDP on "Battery Charging Technology for New Generation e-Bus".
9. Dr. Dharavath Kishan, Worked as a Resource person in STTP on Wireless Power Charging for EVs.
10. Dr. B. Dastagiri Reddy, Worked as a Resource person in STTP on Powertrain Design for EV.
11. Dr. Dharavath Kishan, Worked as a Resource person in STTP on Wireless Battery Charging for Electric Vehicles.
12. Dr. P. Parthiban, Worked as a Resource person in National level seminar on High gain dc-dc converter for electric vehicle battery charging.
13. Dr. D. N. Gaonkar, Worked as a Resource person in FDP on OPERATION AND CONTROL OF SMART GRID WITH EV AND ENERGY STORAGE DEVICES.
14. Dr. D. N. Gaonkar, Worked as a Resource person in work shop on Application of AI And ML In Operation and Control of Smart Grid.
15. Dr. D. N. Gaonkar, worked as a Resource person in one-week Short-Term Training Program on Operational Challenges of renewable energy dominated future grid.
16. Dr. Prajof P., Worked as a Resource person in Online Workshop on Battery Management and Control in DC microgrid.
17. Dr. Prajof P., Worked as a Resource

person in STTP on Battery Management System for EVs.

18. Dr. Prajof P., Worked as a Resource person in Webinar on Control of Power Electronic Systems.

19. Dr. Prajof P., Worked as a Resource person in Workshop on Role of Power Electronics in EVs.

20. Dr. Prajof P., Worked as a Resource person in FDP on Introduction to EV chargers.

21. Dr. B. Dastagiri Reddy, Worked as a Resource person in FDP on Flash charging system for EV bus.

22. Dr. Prajof P., Worked as a Resource person in Faculty Development Programme on Role of Power Electronics in Electric Vehicles" and "Battery Management System for EV.

23. Dr. Prajof P., Worked as a Resource person in FDP on Advancement in Systems for Electric and Hybrid Vehicles.

24. Dr. Prajof P., Worked as a Resource person in Faculty Development Programme on Battery Management System (BMS).

25. Dr. Prajof P., Worked as a Resource person in FDP on Battery Management System for EVs.

26. Dr. Prajof P., Worked as a Resource person in National Symposium and Research Colloquium on Research Scope and Challenges in EV Chargers.

27. Dr. Prajof P., Worked as a Resource person in FDP on Basics of TMS320f28335 DSP Controller.

28. Dr. D. Jena, Worked as a Resource person in International Conference on Sliding Mode Controller and its Application to Wind Turbine Control.

29. Dr. D. Jena, Worked as a Resource person in STP on Sliding Mode Control.

30. Dr. Y. Suresh, Worked as a Resource person in FDP on High Power Converters.

31. Dr. Y. Suresh, Worked as a Resource person in FDP on

Multilevel Inverters for Hybrid Electric Vehicles

32. Dr. Shashidhara Mecha Kotian, Worked as a Resource person in FDP on Power System Stability Analysis.

33. Dr. V. Vignesh Kumar, Worked as a Resource person in Webinar on Design and steady state performance analysis of generic buck converter.

34. Dr. V. Vignesh Kumar, worked as a Resource person in FDP on Aspects of Electric Vehicle Charging System.

35. Dr. B. Dastagiri Reddy, Worked as a Resource person in FDP on Role of Power Converters in Electric Vehicle Technology.

36. Dr. B. Dastagiri Reddy, Worked as a Resource person in FDP on Battery Charging Technology for new Generation e-Bus.

37. Dr. Prajof P., Worked as a Resource Person in the Workshop on Introduction to E-motor design using FEA platform.

38. Dr. Prajof P., Worked as a Resource Person in the Workshop on DC Community Level Grid Challenges in Protection, Control & Stability (DCLG-2022).

## **DEPARTMENT OF INFORMATION TECHNOLOGY**

### **PROF. ANANTHANARAYANA V S**

1. Chairman for the SRS Identification Committee for the Institute level software development, 2021.
2. Chairman for the disbursement committee for the Institute consultancy projects, 2021.
3. Convener of Technical Committee (Overall) for the 19<sup>th</sup> Convocation, 2021.
4. Chairman for stock verification related matters of RE office, 2021 (2-11-2021)
5. Academic and administration auditor for MTech(IT) program of NIE, Mysore for the academic year 2021-22 (Aug 25, 2021).
6. BOG nominated expert member for faculty selection to IIITDM, Karnool

during the selection on 6<sup>th</sup> July 2021.

7. Subject expert for the faculty selection for CSE discipline to IITDM Kancheepuram on 23<sup>rd</sup> December 2021.
8. Session Chair for a technical session during the 6<sup>th</sup> International Conference on Computer, Communication and Signal Processing–2022, 24-2-2022 (FN) in online mode.

**DEPARTMENT OF METALLURGICAL  
& MATERIALS ENGINEERING**

Prof. S. Anandhan, Referee for research proposals submitted for funded projects to Board of Research in Nuclear Sciences (BRNS), November 2021.

## 16 STUDENTS PLACEMENTS

### Highlights

The year 2021-22 has been a very successful year for Career Development Centre. We had reasonably very high percentage of Placements and Training slots. In spite of the unfortunate breakout of the Covid -19 in March 2021, Most of the companies including PSU's GAIL, BEL, BEL-CRL Bangalore, C-DOT and BPCL conducted placement / Internship drives virtually. As Chairman of CDC, On Behalf of the Institute, I thank all the companies which could do the entire process in online mode very successfully.

### Main Objectives:

To provide opportunities for,

1. Placement to all students of the final year B.Tech, M.Tech, MCA, MBA and M.Sc.
2. Training to all students to be covered during the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> Semester vacations. The compulsory training for B.Tech. Mining Engg. Students during the 5<sup>th</sup> and 6<sup>th</sup> Semester vacations.
3. Provide Counseling and facilitate development of Soft Skills and Personal Effectiveness to help students build a successful career.

### Performance Overview:

- ❖ A total of 358 Companies visited NITK Surathkal for Campus Recruitment/Internship.
- ❖ 126 Companies visited NITK for Placement process for the first time.
- ❖ 1250 students are placed – 682 B.Techs, 480 M.Techs, 44 MCAs, 16 MBAs, 28 MSc.
- ❖ 30 students are got double offers.

#### PLACEMENT RECORD FOR 2021-22

Program	% placed
B.Tech	89.50
M.Tech	66.48
MCA	84.61
MBA	55.17
MSc(PHY+CHEM)	47.45

#### BRANCHWISE UG PLACEMENTS 2021-2022 (as on 27-04-2022)

Branch	Total Eligible Students	Placed
CIVIL	89	67
CHEMICAL	46	42
COMPUTER	104	100
E & C	102	100
E & E	101	91
IT	91	91
MECHANICAL	158	137

METALLURGY	39	30
MINING	32	24
<b>Total</b>	<b>762</b>	<b>682</b>

(56 B.Tech Students have opted out of the placement process for pursuing Higher Studies)

(The data given is as on 27-04-2022 and placements are expected to continue till 30-06-2022)

**Internship for the Academic Year 2021-22**

Sl. No.	Branch	No. of Slots
01	Chemical Engineering	12
02	Civil Engineering	4
03	Computer Engineering	93
04	Electronics & Communication Engineering	51
05	Electrical & Electronics Engineering	38
06	Information Technology	78
07	Mechanical Engineering	31
08	Metallurgical & Material Engineering	2
09	Mining Engineering	4
	<b>Total Number of Students</b>	<b>313</b>

<b>Number of Companies : 62</b>	<b>Number of Internship: 313</b>
---------------------------------	----------------------------------

## 17. SPECIAL INITIATIVES

### 17.1 Scholarships / Assistanceship

As per the guidelines of Govt. of India (MHRD) Merit and Merit cum Means Scholarship have been awarded to I B.Tech. students every year who have got 60% above marks in +2 exam and the same will be continued based on their performance in II, III & IV B.Tech. Examinations. In addition, based on performances at the semester Examinations scholarship have been awarded to the students of II, III and IV year B.Tech. Several other scholarship awarded by Central and State Govts., Endowments, Institution of Engineers etc., are enjoyed by the students. SC/ST students will be paid post-matric scholarship and facilities of Fee Concessions.

The Post Graduate students who have qualified with GATE are paid a sum of Rs.12,400/- as P.G. stipend per month. M.Tech. (Q.I.P.) Regular and (Q.I.P.) Poly are paid Rs.4,000/- per month.

Full-Time Ph.D. Research Scholars are paid institute scholarship @ Rs.25,000/-p.m for I and II year and III, IV and V year Rs. 28,000/- per month. Ph.D. QIP( R) students are paid Fellowship of Rs.9,000/- per month and a contingent grant of Rs.10,000/- per year.

**17.2 Memorandum of Understanding**

MOUs details (01-04-2021 to 31-03-2022)

Sl.No	Date of Signing	ORGANIZATION	DOMAIN
1	16-03-2022	TATA Consultancy Services Limited, Mumbai	Consultancy Services
2	02-03-2022	UniCourt	To collaborate on research and Consultancy projects and Internship
3	02-03-2022	Mangalore Infotech Solutions Pvt. Ltd Mangalore	To collaborate on Research and Consultancy Project and Internship
4	02-03-2022	Trishilabs Infosystems LLP, Bangalore	To collaborate in academic, scientific, and technical research in specific areas of common interest in the broad areas of artificial intelligence in medical image analysis under a project titled Development of Software tools for retinal image analysis
5	17-12-2021	Karnataka Veterinary, Animal and Fisheries Science University, Bidar	To Foster in implementation of state of the art Technology in aquaculture, and National and International cooperation in education and Consultancy
6	17-01-2022	Industry Network Technology Council (INTC)	To Promote education and collaboration on current and evolving Internet Standards in a Vendor-Neutral Environment.
7	08-12-2021	India Internet Engineering Society (IIESoc)	Cooperation in areas of common interest such as IPv6 deployment at university campuses and explore additional related work items.
8	08-12-2021	Garrison Engineer (P) Ezhimala, Naval Academy, Ezhimala	Consultancy Services
9	04-09-2021	Nukus Branch of Navoi State Mining Institute	Development of cooperation in the field of Technical Education and science. Training mineral industry personnel for acquiring higher skill levels and preparing qualified scientific personnel to be ready for industry 4.0 and beyond. Continuous improvement of the qualifications of field professionals. Integration of vocational education and science. Cooperation within the framework of the implementation of international projects using the personnel potential of the parties.
10	21-10-2021	M.S Ramaiah Institute of Technology, Bangalore	To facilitate faculty members of the Institute to submit Joint project with faculty members of NITK in the Regional Academic Centre for Space (RAC-S) setup at NITK.
11	17-08-2021	Manipal Academy of Higher Education, Manipal	To Promote Academic Cooperation
12	25-03-2021	Maire Tecnimont S.p.A	for the creation of Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy
13	12-04-2021	Prime Ever Ayurvedic Research Laboratories, Navsari , Gujarat	To foster cooperation in education and research

## TECHNOLOGY TRANSFER

### DEPARTMENT OF CIVIL ENGINEERING

Prof. Varghese George delivered a guest lecture entitled “Importance of Four-Stage Trans. Plng.” on 16th Aug 2021 as part of ATAL FDP on “India’s Strategic Transp. Infra. Dev. Proj. & Progs”, at NITK.

Dr. Adani Azhoni delivered two lectures entitled “Emerging environmental issues in river management” and “Hazardous Waste Management: Practices, Issues and Challenges in Karnataka” in the DST-Sponsored Faculty Development Program organized by NIT Rourkela during 12 to 16 February, 2022.

Dr. Azhoni also delivered another lecture on “Hazardous Waste Management: Practices and Challenges” at the Short Term Training Program on “Neoteric Developments in Solid Waste Management” 21st to 25th March, 2022 organized by NIT Arunachal Pradesh.

Prof. Subhash C. Yaragal was Invited as Keynote speaker for Three days Workshop on “Advances in Concrete Mix Design” , 25th March 2022, S. G. Balekundri Institute of Technology, Belgaum., “Ambuja method of Design of Concrete Mixes”

Prof. Subhash C. Yaragal gave an invited talk on World Water Day for Engineers and Staff from Karnataka Urban Infrastructure Development and Finance Corporation, under Community Awareness, Participation Rehabilitation & Resettlement Activities (CAPRR), 22nd March 2022, Mangalore., “Water and It’s Judicious Use”

Prof. Subhash C. Yaragal, was invited as keynote speaker for Five days Online Faculty Development Program, Jyothy Institute of Technology, Bangalore, 30th Dec. 2021., “Value added materials for sustainable concrete construction”

Dr Sreevalsa Kolathayar delivered a keynote lecture on “Earthquake Hazard Assessment” as a Keynote Speaker in the Second Virtual th th International Conference ERTSE 2022 from 24 -25 March, 2022 organized by the Vellore Institute of Technology, Chennai in association with Indian Concrete Institute, Chennai Centre.

Dr Sreevalsa Kolathayar delivered a talk on Innovative Soil reinforcement techniques for sustainable construction in Five-Days Online e-Short-Term Course on “Advances in Transportation and Environmental Geotechnics (ATEG-2022)” during 4th to 8th April 2022 at NIT Hamirpur.

Dr Sreevalsa Kolathayar delivered a talk on Geotechnical Interventions in DRR for Sustainable Development" at 5 - Day Short-term Course on "Soil and Rock Geotechnics for Sustainable Infrastructure (SRGSI)" from 04th - 08th April, 2022 organized by NIT Patna.

Dr. Vinoth Srinivasan gave an invited talk on “Rock Engineering on Geological Perspective” in the Workshop on Geosciences for Society organized by the Department of Geology, University of Calicut on 29.05.2021.

Dr. Mithun Mohan delivered a plenary lecture during the international conference titled “NEW HORIZONS of Transport and Communications 2021” organized by the University of East Sarajevo, Bosnia and Herzegovina.

## DEPARTMENT OF CHEMICAL ENGINEERING

1. Details Technology Transfer:- The technology developed by **Dr. Prasanna B. D.**, Associate Professor, Department of Chemical Engg, NITK and his team entitled "Technology to produce and preserve ready-to-cook, non-acrid edible aroids" was transferred to nGV Natural Industry Private Ltd. Bangalore. The technology transfer agreement was signed and exchanged between Prof. Ananthanarayana, Deputy Director, NITK and Mr. Naveen G.V, proprietor, nGV natural Industry Pvt. Ltd on the 76th foundation day of NITK (6<sup>th</sup> August 2021).

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Full system modeling of POWER9 processor in a standard architecture simulator, gem5. The models are in the queue to being up streamed in the core gem5 thread.

## DEPARTMENT OF INFORMATION TECHNOLOGY

### PROF. G. RAM MOHANA REDDY

- Delivered a Motivation Lecture on "Skill Sets Required for Future Citizens of India", Government High School, Koilkuntla, Kurnool District, Andhra Pradesh, India, Dec. 16, 2021.
- Delivered an Expert Talk on "Career Guidance for Emerging Engineers", 1-Day Workshop on Career Guidance, Dr. K. V Subba Reddy College of Engg. & Technology, Kurnool, A.P, India, Dec. 14, 2021.
- Delivered Keynote Talk on "AI-based Real-Time Data Analytics in Smart Application Environments", 5th Conference on Information and Commn. Technology (CICT-2021), IIITDM Kurnool, Dec. 10-12, 2021.

## DEPARTMENT OF MECHANICAL ENGINEERING

- Dr. Ajay Kumar Yadav & Dr. Anish S, Development of solar based low energy humidifier (air cooler) linked with ground water.
- Dr. Ajay Kumar Yadav, Prof. Laxminidhi T, Prof U. Sripathi Acharya, Dr. PU Saxena, Prof. B Satish Rao, Development Of Cost Effective Radiofrequency Ablation System And Magnetic Hyperthermia Equipment For Thermal Therapies Of Cancerous Tumors.
- Dr. S Kattimani and Prof. S.M. Murigendrappa, Experimental Characterization And Numerical Modelling Of Delamination Growth In Fiber Reinforced Polymer Laminated Composites Under Cyclic Loading
- Dr. S Kattimani, Active Vibration Control Of Laminated Composite Sandwich Plates In Hygrothermal Environment Using 1-3 Piezoelectric Composites.
- Dr. Arumuga Perumal D, Experimental Investigation On Pulsating Synthetic Jet Micromixers To Determine The Injection Dynamics Of Insulin In Hydrogels For Subcutaneous Drug Delivery.
- Dr Sudhakar C Jambagi, Improvement In The Properties Of Thermally Sprayed Hydroxyapatite Bio-Ceramic Coating Reinforced With Nanostructured Materials.
- Dr. Sathyabhama A, Experimental And Numerical Investigation Of Effect Of Leading Edge Protuberances On The Performance Of Wind Turbine Blade.
- Dr.A.S.S.BALAN, Ultrafine Grain Refinement Through Low Plasticity Burnishing On Waam Of Mgalloy For Aerospace And Automotive Applications.
- Dr. H Shivananda Nayaka, Experimental Technique To Induce Surface Grain Refinement Through Laser Shock Peening On Ecap Processed Mg. Alloy.
- Prof. C.Sujatha and Dr. Hemantha Kumar, Design Of Magneto Rheological Damper For Vehicular Applications.

- Dr. Hemantha Kumar and Prof. C.Sujatha, Development Of Cost Effective Magneto-Rheological (Mr) Fluid Damper In Two Wheelers And Four Wheelers Automobile To Improve Ride Comfort And Stability.
- Dr. Sharnappa Joladarashi and Dr. Hemantha, Kumar Experimental Investigation Of Passive, Semi-Active And Active Vibration Control Of Composite Sandwich Structure.
- Dr. Ranjith M, Investigations On The Dynamic Behaviour Of Bacterial Helical Flagellar Filaments Under Axial Flow.
- Dr. Mrityunjay Doddamani and Dr. Srikanth Bontha, Development Of Composite Filament For Light Weight 3D Printed Components.
- Dr. Mrityunjay Doddamani, Pre-Operative Damage Assessment In Orthopedic Surgery Using 3D Printing To Minimize Healing Time.
- Dr. K V Gangadharan, Development Of Brushless Dc (BlDc) Motors For An Automotive Power Window Application.
- Dr. Pruthviraj U and Dr. K V Gangadharan, Design Of Oil Skimming Application With Super Hydrophobic Sponge.
- Dr. K V Gangadharan and Dr. Jeyaraj, Tpem - Fame India Scheme - “Switched Reluctance Motor & Controller For 2W & 3W”.
- Dr. K V Gangadharan and Dr. Pruthviraj U Virtual Lab Phase Iii.
- Dr. KK Poornesh, Investigations on the origin of hydration induced yield.
- Dr. KK Poornesh, Interface Characteristics Of Membrane Electrode Assemblies.
- Dr. N. Gnanasekaran, Analytical And Numerical Investigations Of Mixed Convection Through Wire Mesh Porous Structure Filled In a Channel.
- Dr. Mrityunjay Doddamani, NITK and Dr.Pavana Prabhakar, University of Wisconsin - Madison, USA, Additive Manufacturing of Novel Structural Foam Composites for Durability and Damage Tolerance.
- Dr. Anish S and Dr. Mrityunjay Doddamani An investigation in to the effects of induced helicity in the carotid bifurcated arteries on patient specific models.
- Dr. Mrityunjay Doddamani, Cost-effective enhanced insulating foams for cold storage application.
- Dr S. Kattimani, NITK Surathkal, Dr. Mabdi Shariati, Uttiversiti Teknologi Malaysia, Malaysia and Dr. NGUYEN THO TRUNG, Ton Due Thang University, Vietnam, Investigation on radiolucent composite sandwich materials for biomedical imaging systems under hygrothermal environment.
- Dr. Ajay Kumar Yadav, Numerical and experimental studies on two phase carbon dioxide based natural circulation loops.

#### DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

##### INDUSTRY INSTITUTE INTERACTION

1. Name of the Faculty: Dr. Gururaj S. Punekar Name of Industry: OMPL, Mangalore  
Nature of Collaboration (academic, research, training, etc.): Academic  
Period/Duration: 2019 onwards
2. Name of the Faculty: Dr. Gururaj S. Punekar  
Name of Industry: BPCL, Mumbai  
Nature of Collaboration (academic, research, training, etc.): Academic  
Period/Duration: 2018 onwards
- 3 Name of the Faculty: Prof. B. Venkatesaperumal and Dr. V. Vignesh Kumar  
Name of Industry: SEG Automotive Pvt. Ltd., Bangalore  
Nature of Collaboration (academic, research, training, etc.): Research  
Period/Duration: October 22, 2021
4. Name of the Faculty: Dr. Dastagri Reddy and Dr. Prajof P.  
Name of Industry: Hella India Automotive Pvt. Ltd., Pune  
Nature of Collaboration (academic, research, training, etc.): Research

Period/Duration: November 2021 Onwards

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Process is going on to setup MoU with ICMR- National Institute for Research in Tuberculosis.

### 17.4 Concessions For SCs, STs, Handicapped Students

All SC/ST candidates are eligible for exemption of Tuition Fees as per the order of M.H.R.D., GOI, New Delhi.

### 1 17.5 SC/ST CELL

The SC-ST Cell was established in the year 2006 by an act of parliament, Govt. of India. The primary responsibilities of the SC-ST cell are: Monitoring implementation of reservation roster, addressing grievances of SC/ST students and employees, coordinating scholarship schemes of the SC/ST students, organizing special coaching classes for the First year B. Tech. SC/ST students, and conducting training programmes for SC/ST students and employees. In addition to the primary responsibilities, the SC/ST cell has initiated new programmes for uplifting the academic standards and communication skills of the SC/ST students so that their chances of getting placed are increased.

Important activities undertaken by the SC/ST cell for the financial year 2021-22 are given below.

#### 1. Coordination of Central Sector Scholarship Schemes:

**SC Students:** In 2020-21, Ministry of Social Justice and Empowerment, Govt. of India under the Central Sector scholarship of Top Class Education Scheme (TCES) for B.Tech. SC students has awarded TCES. Based on JEE (Main), top 50 students from first year and top 10 students from second and third year whose family income is below 8 lakhs were awarded TCES. Top 23 students from final year whose family income was below 6 Lakhs were awarded TCES.

**ST Students:** In 2020-21, Ministry of Tribal Affairs, Govt. of India under the National Fellowship and Scholarship for Higher Education of ST Students-Scholarship scheme for B.Tech./M.Tech. ST students whose family income is below 6 lakhs has awarded NFSHES. A total of 110 ST students from first, second, third and fourth year B.Tech., and first and second year M. Tech. have received the NFSHE scholarship.

#### 2. Financial Assistance:

To support the financial needs of SC/ST students for pursuing quality education in Engineering, a scheme called **Financial Assistance to SC/ST students** has been offered. All the SC/ST students (UG/PG) who do not receive any other scholarships and whose family income is below Rs. 4.5 Lakhs per annum are eligible. Under this scheme, the following items are offered on reimbursement basis.

- Book allowance: Rs.6000/- per year (Except M. Tech. and PhD students)
- Waiver of Hostel Fee (Except M. Tech. and PhD students)
- Purchase of Laptop up-to Rs.45000/- per student as one time assistance.
- Academic Performance Incentives (Rs.12,000-00 if CGPA is more than 6.5 and Rs.18,000-00 if CGPA is more than 8.0 in previous year) (Except M. Tech. and PhD students)

#### 3. New Programmes Initiated for the SC/ST students:

**(i) Conversation Partner Programme:**

This program has been initiated to create opportunities to practice, build confidence, and improve conversational English skills of SC/ST Students by partnering them with volunteering senior students who are proficient in English. In addition to improving the English skills, this program also gives an opportunity for the partnering student to serve as a 'Buddy' for the new student. In this program the students will continue as conversation partners until the senior student graduates.

**(ii) Faculty Mentoring Programme:**

In this program one or two SC/ST students will be assigned to each volunteering Faculty member, who will work as a mentor for guiding and monitoring the academic progress of the SC/ST students. This arrangement is anticipated to give confidence and hope for a new student who may have difficulty in understanding and following the NITK academic setup on his/her own, and it will boost their confidence as they are being mentored by their own Professors in the absence of their parents on campus. In this program, the faculty mentor will continue to serve as Mentor for the assigned students until these students graduate.

**17.6 NSS (National Service Scheme)**

The NSS unit of the NITK Surathkal (formerly KREC Surathkal) has been actively rendering its services to the backward areas and villagers of Dakashina Kannada district since its inception in this institute in 1964. The NSS unit organizes regular activities like, tree plantation, clean up of the hostels and NIT K Beach, organizes blood donation, medical, dental and eye camp for the villagers. It also involves in promoting literacy to villagers irrespective of their age, and enhances educational tools and, motivates primary school children of the schools located in various villages. The NSS unit of the institute was initially part of the Mysore University, Mangalore University and Vishvesvaraya Technological University. For the year 2010, the institute has already obtained permission from the Karnataka state NSS unit to have NSS unit which is independent to NIT K Surathkal.

**17.7 RIGHT TO INFORMATION ACT (RTI 2005)**

RIGHT TO INFORMATION ACT (RTI 2005) The Right to Information Act, 2005 empowers citizens to get information from any 'public authority'. The Central Public Information Officer (CPIO) of a public authority plays pivotal role in making the right of a citizen to information a reality. The Act casts specific duties on him and makes him liable for penalty in case of default. RIGHT TO INFORMATION UNDER THE ACT A citizen has a right to seek such information from a public authority which is held by the public authority or which is held under its control. This right includes inspection of work, documents and records; taking notes, extracts or certified copies of documents or records; and taking certified samples of material held by the public authority or held under the control of the public authority. The Act gives the citizens a right to information at par with the Members of Parliament and the Members of State Legislatures. Right to Information Cell was established as per the MHRD letter No. F.19- 31/2005-TSIII dated 20.09.2005. Suo-Moto disclosures are uploaded on the NITK website under RTI section. These disclosures are mandatory and are crucial to ensure transparency and accountability. This would reduce the load of RTI Applications which are freely available to citizens. The 174 numbers of RTI Applications were received during the year 2021-2022 (from 01.04.2021 to 31.03.2022).

## **17.8 YOGA CENTRE HISTORY**

Yoga club is a club which organizes all sorts of meditation methods like different yam or self discipline, niyam or discipline, Asanas or position, Bandha or Mudra, Pranayama or control of breath, pratyahar or determination, dharana or dedication, dhayan or meditation and Samadhi or deep meditation which help in concentration in study, helping in attaining happiness by removing all sorts of diseases, for the purity of external life and for internal purity by following regulation of purity of thoughts. It has been organizing yoga events from the last 15 years in NITK.

### **RECENT INITIATIVES**

- We have planned to organize 6 batches in this year which is much more than last year in which only 3 batches were conducted in one year and previous years.
- We are also planning to conduct some special yoga practices for faculty members who are willing to join in large number. A large number of faculty members have enquired and wanted to join the yoga practices.
- We are planning to attract more number of B.TECH students by increasing the size of organizing members and also inducting 1<sup>st</sup> years into organizing committee.
- We are trying to make people aware of yoga programs more and more by notices as well through personal and group contacts.

### **MAJOR ACHIEVEMENTS**

- 180 people have been enrolled in this semester in different batches which is very large as compared to previous year enrolments and about same number of students are likely to enroll in the next semester yoga practices.
- More than 60 girl students have enrolled for yoga practices this year and are actively participating in almost all batches.
- Postgraduate students and Ph.D scholars have shown much more interest in practicing and learning yoga asanas and pranayams than undergraduate people.

### **17.9 TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP)**

#### **A report regarding Technical Education Quality Improvement Programme – Phase III (TEQIP-III)**

TEQIP-III project funded by World Bank has been running in the institute from 01-April-2017. As per the official communication from NPIU all the TEQIP-III activities were closed on 31-March-2021. However, the project was extended up to 30-September-2021 allowing for the project closure activity. Further a grace period of four months – 01-October-2021 to 31-January-2022 was provided to all participating institutions under the project for completing project closure activities. The project has been officially closed on 31<sup>st</sup> January 2022. The only activities permitted for the year 01-Apr-2021 – 31-Mar-2022 are the project closure and the associated audit of the funds. The Project Life Allocation (PLA) for the project was Rs. 7 Crores with a breakup of Rs. 3.5 Crores, Rs. 2.8 Crores and Rs. 0.7 Crores for Procurement, Academic and Operating Cost respectively). The total expenditure at the end of the project is Rs. 6.74 Crores (96.3%).

## 18. INDUSTRY INSTITUTE INTERACTION

### 1.1 IPR and Industrial Consultancy

The IIP Cell at NITK, Surathkal is engaged in building Institute Industry Collaboration for mutual benefit. The Cell is headed by a faculty member of Associate Professor or above grade supported by a Clerical Assistant. The Faculty in-charge reports to Dean (R&C), Dean (P&D) and Director. IIP Cell is mainly involved in handling of Testing and Consultancy works of all the departments and arranging endowment lectures.

Sl No	Inventors	Title Of Patent Application	Application No	Date Of Filing
1	Debabrata Karmakar	Frustrum tension Leg Platform for FloATING Wind Turbine	20214108525	22.04.2021
2	Dastagiri Reddy	Smart Electric Vehicle Charging Station	202141023698	27.05.2021
3	Shashidhar G Koolagudi	Text to Graph Convertor	202141025360	08.06.2021
4	Harsha Vardhan	Hydro Squeeze pressure Filtering foe efficient Beneficiation of Coal material	202141026712	16.06.2021
5	Dr.Prasanna B,	Aroid Corm Dices Free From Antinutritional Factors	202141016581	08.04.2021
6	Dr.Vignesh kumar	A Method & System for Global Peak detection under non uniform Insolation Conditions	202141016770	09.04.2021
7	Dr.Arun M.Isloor	A Hollow fiber Ultrafiltration membrane	202141027382	19.06.2021
8	Sandeep Kumar	Reconfigurable Triple Band on Chip Nano Antenna for Teraheartz Applications	202141032871	21.07.2021
9	Saumen Mandal	A method of preparing Low Temperature stabilised high Entropy High-k-Oxides	202141035822	09.08.2021
10	K V Gangadharan	A torsional Vibration Isolator Based on Shear Mode Operation	202141037148	17.08.2021
11	Dr.Arun M.Isloor	A Hollow fiber Ultrafiltration membrane	202141035597	06.08.2021
12	Dr.Jagadish Babu	Novel hydrogel based pH-sensitive wound dressing material	202141035520	06.08.2021
13	Shashidhar G Koolagudi	A System & Method for an Authentication & Fraud Detection	202141039927	03.09.2021
14	D.Arun M.Isloor	A novel zwitteronic polymer nanocomposite immobilized polyethersulfone ultrafiltration membrane-based mobile water purifier	202141042588	20.09.2021
15	D.Arun M.Isloor	Ultra Filtration hollowe fibre membrane comprising of Hydrophilic polymeric microspheres for protin rejection	202141048958	26.10.2021

16	SOURAV KANTI ADDYA	Sat Vote:Secure Remote Voting System using Blockchain & Satellite Communication	202141056308	04.12.2021
17	Y Suresh	a Single DC Source based power conversion by employing single phase transformers for Power Systems	202141056311	04.12.2021
18	Y Suresh	A Switched Capacitor Based Boost Multilevel Inverter & its Hybridization	202141056310	04.12.2021
19	Dharavath Kishan Et All	Method , System & Application for charging an Electric Vehicle	202141056309	04.12.2021
20	PRAJOF P	Method, System & Apparatus for Univwesal Motor Drive Cum Charging of an Electric Vehicle	202241004255	25.01.2022
21	SOWMYA KAMATH	Method, System & Apparatus for Automated Diagnosis of Mycotic Keratitis	202241008784	19.02.2022
22	PRAJOF P	EV Battery Pack with Voltage Balancing Features	202241008785	19.02.2022
23	SURESHA S N	Separation tube for Investigating Storage stability of modified asphalt binder	202241010501	25.02.2022
24	HEMANTHA KUMAR	A single -Step method for production of Magnetorheological (MR) fluid using spark discharge technique	202241010082	25.02.2022
25	NAGENDRAPPA H	A Compact isolated DC/DC multiport converter to interface multiple sources, loads & enerty storage devices	202241012406	07.03.2022
26	TUKARAM MOGER	Method & System for Major Event Detection ina Power System	202241012056	08.03.2022

## 18.2 INDUSTRY INSTITUTE COLLABORATION

### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IBM and NITK-IBM Computer Systems Research Group, NITK are working to build POWER Processor models into the gem5, full system simulator.

### DEPARTMENT OF INFORMATION TECHNOLOGY

Dr. SOWMYA KAMATH S  
Hewlett Packard enterprise (HPE)  
Bangalore

### DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

#### Name of the industry:-

Texas Instruments India Ltd.  
AMD India Pvt. Ltd.  
Intel  
Dell, Technologies  
Mediatek  
NXP India Pvt. Ltd.  
Samsung Semiconductors  
National Instruments  
ABB Global Industries and Services  
Pvt. Ltd.  
Siemens Technology & Services Pvt.  
Ltd  
Cadence  
Nvidia Graphics Pvt limited  
ARM

**Nature of Collaboration (academic,  
research, training etc):-** Academic  
and Research.

**Period/Duration:-** April 2021 to  
March 2022

### DEPARTMENT OF MECHANICAL ENGINEERING

- IFB Goa, Industry sponsored research, Dr. Hemanth Kumar, Dr. Jeyaraj P, Dr. Sharanappa, Dr. K V Gangadharan
- NMPT, Industrial Consultancy, Dr. Bijuna (SOM), Dr. K V Gangadharan,
- MRPL, Industrial Consultancy, Dr. K V Gangadharan, Dr. Pruthviraj (app Mech)

- NMPT, Industrial Consultancy, Dr. Pruthviraj (AppMech), Dr. Sheena (SOM) , Dr. K V Gangadharan
  - Wonderla Kochin, Industrial Consultancy, Dr. K V Gangadharan
  - Wonderla Bangalore, Industrial Consultancy, Dr. K V Gangadharan
  - Wonderla Hyderabad, Industrial Consultancy, Dr. K V Gangadharan
  - MRPL, Management Training Program, Dr. Sheena (SOM) Dr. K V Gangadharan
  - OMPL, Industrial Consutancy, Dr. Ranjith and Dr. K V Gangadharan
  - Clasic Fussion, Industrial Consutancy, Dr. Bijuna (SOM), Dr. K V Gangadharan,
  - Hi Tech Batteries, Industrial Consutancy, Dr. Bijuna (SOM), Dr. K V Gangadharan,
  - IKP knowledge park, BRIC Hackathon, Dr, Sowmya Kamath (CS) and Dr. Suprabha (SOM) , Dr. K V Gangadharan
  - MRPL, INVENCIO - Design Contest, Dr. Pruthviraj (AppMech) , Dr. K V Gangadharan
  - Rambal India Ltd. Chennai, Industry sponsered research, Dr. Hemantha Kumar, Prof. K.V.Gangadharan, Dr. Sharnappa J, Dr. Mohd.Rizwan Rahman (Material and Metallurgy Engg),
  - Ashok Leyland Ltd. Chennai, Industry sponsered research, Dr. Hemantha Kumar, Prof. K.V.Gangadharan, Dr. Sharnappa J, Dr. Mohd.Rizwan Rahman (Material and Metallurgy Engg)
  - Arya Technokrats Belgaum, Collaboration for Fabrication, Dr. Hemantha Kumar
  - AUM Techno Spray, Research, Dr. Ramesh M R and Dr Sharnappa J
  - Flow and Force Engineers, Bangalore, Industrial partner in the ongoing IMPRINT project, Dr. Ajay Kumar Yadav
- M/s Siskin Instruments, Bangalore, Industrial partner in the ongoing IMPRINT project, and DST CERI project, Dr. Ajay Kumar Yadav

**SCHOOL OF MANAGEMENT**

Name of the industry:- New Mangalore  
Port Trust. Nature of Collaboration  
(academic, research training etc):-  
Consultancy. Period/Duration:- 2  
years

## 19. SIGNIFICANT ACHIEVEMENTS

### DEPARTMENT OF CIVIL ENGINEERING

#### AWARDS AND RECOGNITIONS

Prof Varghese George was awarded the title “IGBC Accredited Faculty” by IGBC and CII Hyderabad in August 2021 for knowledge on “Green Building and Built Environment”.

Prof Varghese George was awarded as the “Best Reviewer” of research papers submitted to the Scopus Indexed Springer International Conference - CTCS-2021 organized by NMAMIT, Nitte, in December 2021.

Prof Katta Venkataramana was awarded the Scroll of honour for outstanding contribution to the cause of engineering and nation building, from the Institution of Engineers (India) on the occasion of IEI Centenary year, awarded on October 4, 2021.

### DEPARTMENT OF CHEMICAL ENGINEERING

#### Achievements during 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022

The oral presentation titled "Highly efficient solar light-driven BiOX (X=Br/Cl/I) and BiOY heterojunction (Y=Br/Cl) nano photocatalysts in suspended and immobilized forms for malachite green dye wastewater treatment" presented by Dr. Hari Mahalingam (Coauthors: Sukriti Mishra and Manasa Mandhan) has been awarded the Econeeds foundation sponsored best oral presentation in the international conference on advances in sustainable research for energy and environment management (ASREEM 2021) held at NIT Surat during August 6 - 8, 2021.

Best Oral presentation award under Mineral Processing to Minimol M, Vidya Shetty K and Saidutta M.B. for “Bioleaching of Zinc from E-waste,”

presented at Indian Chemical Engineering Congress & 74<sup>th</sup> Annual Session of Indian Institute of Chemical Engineers (CHEMCON-2021) held during 26-30 December 2021 at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, India

Prof. Raj Mohan B. received Prof. Satish Dhawan Award for Young Engineers 2019 by Karnataka State Council for Science and Technology, GOK

### DEPARTMENT OF CHEMISTRY

#### Achievements during 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022

Dr. Debashree Chakraborty received SERB Women Excellence Award 2022, from DST, Govt. of India.

Prof. D. Krishna Bhat secured a position in the list of top 2% scientists of the world for career long impact (Rank: 230963) as well as for the year 2020 (Rank: 67938). Prof. Bhat was also awarded with a certificate of appreciation as highly cited author by the Royal Society of Chemistry, London, UK.

Prof. Arun Isloor secured a position in the list of top 2% scientists of the world as surveyed by Stanford University (October 2021). He received the Best teacher award (2<sup>nd</sup> position in Science at the National level) by Academisthan (A Nonprofit Organization), among 10000+ nominations (September 2021).

### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

#### AWARDS AND RECOGNITION

- Prof. Annappa received best thesis award from BITES Best PhD Thesis Award Ceremony- 2020, Media Centre, Siddaganga Institute of

Technology, Tumakuru on March 18, 2022

- Dr. Mahendra Pratap Singh awarded Protsahan Award from IEEE ComSoc Bangalore in recognition of the contribution towards Research publications in conferences, journals during Jan 2020-Sept 2021.
- Dr. Biswajit R Bhowmik has been awarded The Monetary Prize of 10000.00 INR at the 2021 IEEE 18th India Council International Conference (IEEE INDICON 2021) December 19-21, 2021, Guwahati, Bharat
- Dr. Biswajit R Bhowmik awarded The Best Paper Award at the 2021 IEEE 18th India Council International Conference (IEEE INDICON 2021) December 19-21, 2021, Guwahati, Bharat.
- Dr. Biswajit R Bhowmik has been awarded the Start-up Research Grant Award sponsored by Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Bharat Sarkar.
- Dr. Sourav Kanti Addya, Arpana Chakma (PG student) received the Best Paper Award (Poster track) from 13th International Conference on Communication Systems & Networks (COMSNETS 2021), Bangalore, India.
- Serverless To sErve moRe at Scale (STEERS 2021), 10th May – 13th May, 2021 held with 21st IEEE/ACM CCGrid 2021. Melbourne, Australia. Website: <http://www.steers.iitkgp.ac.in/2021/>. Organizing Chair: Dr. Sourav Kanti Addya
- The Second International Workshop on, Fog Networks: The Next Generation Cellular Communication Systems, held with IEEE ANTS 2021, Hyderabad, India, 13th Dec -16th Dec, 2021. Website: <https://ants2021.ieee-comsoc-ants.org/fog-networks/>. Organizing Chair: Dr. Sourav Kanti Addya
- Workshop on Recent Cutting Edge Technologies in Computing, 29th

Oct – 2nd Nov, 2021, CompSoc Chapter and WiE, NITK IEEE Student Branch. Organizing Chair: Dr. Sourav Kanti Addya

### **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

#### **ACHIEVEMENTS DURING 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> MARCH 2022**

Dr. Prabu Krishnan, Dept. of E&C Engg., : A Stanford University study has published the names of researchers who are in the top 2% in their field based on productivity through publications and citations for the year 2020 in the “Updated Science wide author data base of standardized citation indicators” from Scopus database. 7 Faculty researchers from NITK Surathkal have featured in this list among the Top 2% global scientists.

Dr. Mandeep Singh, Dept. of E&C Engg., have received Indian National Science Academy (INSA) Visiting Scientist award to do Joint research with Dept. of ECE, IISc Bangalore

Dr. Krishnamoorthy Kandasamy, and Muralidhar Kulkarni, Geriki Polaiah Dept. of E&C Engg., Best Paper Award for the paper presented at MASCON 2021: Based on the evaluation reports by the reviewers and the session chairs, the following paper has been conferred as BEST PAPER among the papers presented in the technical session Date & Session of presentation on 28/08/2021/D2T9S1. ("Triple-Band Modified Square Slotted Antenna With Enhanced Gain for RF Energy Harvesting", Proceedings of the IEEE Madras Section International Conference (MASCON 2021) held at Chennai, TN, India).

Dr. P Srihari, Dept. of E&C Engg., Purushottama Lingadevaru, Bethi Pardhasaradhi, Gunnery Srinath, Over all Best paper Award for the Paper entitled "A Conceptual Framework for Knowledge Aided Passive Radar System" 2021 IEEE International

Conference on Electronics, Computing and Communication Technologies (CONECCT), 9-11 July, 2021

Dr. P Srihari, Dr. John D'Souza Dept. of E&C Engg., Paramananda Jena, Ashoka Chakravarthi Mahipathi, Srinath Gunnery Track Level Best Paper Award for the Paper entitled "Nonlinear Frequency Modulated Waveform Optimization for a Cooperative Radar-Communication System" 2021 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT), 9-11 July, 2021

Dr. P Srihari, Dr. U Shripathi Acharya, Dept. of E&C Engg., D S L Praharshita, Bethi Pardha Saradhi, G.V.K Sharma, Track Level Best Paper Award for the Paper entitled "High-Frequency and Low-Latency DSP Architecture for Information Matrix Fusion" 2021 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT), 9-11 July, 2021.

Dr. Sandeep Kumar Dept. of E& C Engg., Vaishnavi Surve, Pradeep Gorre, has received the best paper award for the paper entitled High Efficiency Broadband Mixed Mode Power Amplifier for Patient Monitoring co-authored by Sandeep Kumar, Pradeep Gorre in the VLSI Technology & Embedded Systems Track of 2021 7th International Conference on Signal Processing and Communication (ICSC), 25th - 27th November, 2021 at Jaypee Institute of Information Technology, Noida, India.

Dr. Sandeep Kumar, Dept. of E&C Engg., received Greetings from Modelithics Company USA! : 10 Licences RFIC and MMIC nano manufacturing process design kit (PDK) Exemplar Library has been provided to the Dept of ECE, NITK through Modelithics University Program for one year.

Dr. Shyam Lal, Dept. of E&C Engg., received the Google Cloud Research Award of \$5000 (INR 373,681.25) for the project of " Design and Development of Deep Learning based Automated Colon Cancer Detection System from H&E-stained CRC Histopathology Images" on 19th January 2022.

Deeksha M. S. Final year BTech ECE and NITK IEEE Chair received the prestigious Shri Prahlad P Chhabria best outgoing female student award for the year 2021 by Hope Foundation in association with the IEEE India Council and Women In Engineering Affinity Group. This award applaud academic and professional achievements of young women for their accomplishments in the areas of Science, Engineering and Technology. The award comprises of a prize of Rs.1,25,000/- (Rupees One Lac Twenty Five Thousand Only), a medal and a citation which is sponsored by Hope Foundation.

<http://hfrcieeeawards.org/index.php/winners-2021/>

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **Notable Achievements: Achievements during the year**

- Geared-up and Engaged in Online Teaching and Research. Developed Pedagogy for Contents for teaching all subjects in Online mode
- Numerous Research projects including IMPRINT projects from various funding agencies
- Organized offline and online technical workshops and faculty refresher courses
- More than 250 papers in Journals and conferences
- Filing of IPR

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### SIGNIFICANT ACHIEVEMENTS

#### • Awards and Recognitions

1. Dr. Debasish Jena has found place in the “updated Science wide author data base of standardized citation indicators form the Scopus data based updated to the citation year 2020 with a percentile rank of 2% or above.
2. Prof. B. Venkatesaperumal was received the Awards for Research Publications (ARP) Vision Group on Science and Technology, Government of Karnataka on 18th September 2021.
3. Suraj Kulkarni (181EE248) and Nikhil Nair (181EE131), the students of VIII Sem. BTech. of the Department of Electrical and Electronics Engineering have participated in the finals of e-Yantra Robotics Competition (eYRC 2020-21) held on March 30th to April 3rd, 2021 online. This team has been selected as one of 7 finalists out of 465 teams in the “Sahayak Bot” theme and has been placed at 1st position in this theme.

#### Notable Achievements: Achievements during the year

1. Prof. B. Venkatesaperumal was graded as a Fellow the Institute of Electronics and Telecommunication Engineers - Fellow IETE on 26th November 2021.
2. Prof. B. Venkatesaperumal was graded as a Fellow the Institute of Engineers(India) - Fellow IE on 02nd September 2021.
3. Dr. Gururaj S. Punekar was the Chief Guest for Valedictory function of Energy conservation week observation by Syngene International Limited, MSEZ Mangalore on 31st December 2021.
4. Dr. Gururaj S. Punekar, of the Department of Electrical and Electronics Engineering was invited as Expert member of reviewing of autonomous scheme and syllabus of Electrical & Electronics Engineering Board MVJ College of Engineering, Bangalore. The online meeting was scheduled on 29th Nov 2021 (Monday).
5. Dr. Ravi Raushan of the Department of Electrical and Electronics Engineering contributed as a session-chair during the virtual International Conference on Advances in Communication & Computing Technology (ICACCT-2021) during 28-29, December 2021.
6. Dr. R Kalpana, Department of Electrical and Electronics Engineering visited SEG Automotive Company, Bangalore on 22-10-2021 to explore the facilities in the company and setting up EV research Lab in the Institute and funded by ALUMNI FEES HEAD UNDER ENDOWMENT ACCOUNT, NITK, Surathkal.
7. Dr. Prajof P. was elevated to the grade of IEEE senior member on 14th August 2021.
8. Dr. Prajof P. was invited to the meeting of the Board of Studies in E&E Dept., Malnad College of Engineering, Hassan, for the academic year 2021-22.
9. Dr. Prajof P. was invited to the meeting of the Board of Studies in E&E Dept., Amrita School of Engineering (for M.Tech Power Electronics), Coimbatore, for the academic year 2021-22.
10. Dr. Prajof P. served as a Technical Programme Committee Member and as a Track Chair in the 2022 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE 2022), organized by IEEE IA/IE/PELS Joint Chapter Kerala, held during 2-5 January 2022 at Thiruvananthapuram, Kerala, India.
11. Dr. Prajof P. and Dr. Dastagiri Reddy visited Hella India Automotive Pvt. Ltd., Pune, from 15th to 17th November 2021, for exploring the possibility of patent commercialization and research collaboration. The visit was funded by Alumni Affairs and Institutional Relations Fund, NITK, Surathkal

## DEPARTMENT OF INFORMATION TECHNOLOGY

### ACHIEVEMENTS DURING 1<sup>ST</sup> APRIL 2021 TO 31<sup>ST</sup> MARCH 2022

Dr. Sowmya Kamath S

1. Best paper award for “Deep Learning based detection of Diabetic Retinopathy from Inexpensive Fundus Imaging Techniques”, at 7th International Conference on Electronics, Computing and Communication Technologies (IEEE CONECCT 2021), organised by IEEE Bangalore Section, India
2. Best paper award for “Sketch-based Image Retrieval using Convolutional Neural Networks based on Feature Adaptation and Relevance Feedback”, at 6th International Conference on Emerging Applications of Information Technology (EAIT 2021), organised by Computer Society of India (Kolkata chapter) at University of Kalyani.

## DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

### Significant Achievements

#### Awards and Recognitions:

Prof. S. Anandhan has been admitted as a Fellow of the Royal Society of Chemistry (FRSC), London, UK on the 7<sup>th</sup> of September 2021.

#### Students Achievements:

Aparna Kesharwani of II Sem. MTech of the Department of Metallurgical and Materials Engineering was awarded the prize of Master of Innovation during September 8th to 12th 2021 in the Online Edition of the Innovation Week IWA 2021 organised by OFEED under the patronage of International Federation of Investors Associations IFIA and main International partners Oxford Business Group- The Patent Magazine- PQAI American Initiative- Sharjah Research Technology an Innovation Park, United Arab Emirates- Sparkinov, India.

Annual Report 2021-22

Bhosale Akash Dattu of III Sem. MTech of the Department of Metallurgical and Materials Engineering was awarded (Runners Kabaddi in PG CUP) during 21st march to 27th in NITK Surathkal.

Bhosale Akash Dattu of III Sem. MTech of the Department of Metallurgical and Materials Engineering was awarded (Runners Cricket in PG CUP) during 21st march to 27th in NITK Surathkal.

NITIN PAL of BTech Final Year of Metallurgical and Materials Engineering received O.P. Jindal Engineering and Management scholarship (2021). A merit based scholarship awarded to 100 students (80 engineering and 20 management) shortlisted from the premier institutes of India (IITs, NITs, IIMs).

## SCHOOL OF MANAGEMENT

### Achievements during 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022

1. Dr Dhishna P received Sri Sarvepalli Radhakrishnan “The Best Teacher award in English and Comparative Literature” on 5th Sept 2021 organized by CPACE and IMRF, Andrapradesh, India.
2. Kumar, S.P., Saha, S. & Anand, A. (2021), "A green human resource management approach of participation in decision-making and behavioural outcomes – a moderated mediated model", International Journal of Organizational Analysis, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJOA-09-2021-2954>.
3. Kumar, S. P. (2022). Influence of University teachers’ job satisfaction on subjective well-being and job performance. Journal of Engineering Education Transformations, 35 (Special Issue), 160-167.

#### Others:

1. Koudur, Shashikantha, “Dasasahitya and Communities: Iconisation of Purandaradasa in Twentieth Century”, (Kannada) under Bhakti-Bahu Abhivyakti Lecture series, Centre of Excellence for Studies in Classical Kannada, Central

Institute of Indian Languages, Mysore on 19 August 2021

**DEPARTMENT OF WATER RESOURCES AND OCEAN ENGINEERING**

**AWARDS AND RECOGNITIONS**

1. Kumaran. V, Sajid K, Subba Rao, Manu (2021) "Experimental Investigation of Dynamic Pressure on Wall Type Breakwater with Slotted Barrier," First International Conference on Recent Advances in Civil Engineering (ICRACE - 2021), held at National Institute of Technology, Silchar 2021 and *has been honoured with BEST PAPER AWARD*
2. Sreelakshmy Madhusoodhanan, Subba Rao (2021), "Performance Analysis of Effect of Coastal vegetation on Wave Attenuation using Artificial Neural Network", International Conference on advances in Naval and Ocean Engineering (iCANOE'21), held at Department of Ship technology, Cochin university of Science and Technology (19-20 November 2021) and *has been honoured with BEST PAPER AWARD.*
3. Surakshitha, Manu, Subba Rao (2021) "Physical model study on soft options of coastal protection work by Vegetation meadow - a review ", 26th International Conference on Hydraulics, Water Resources and Coastal Engineering (HYDRO 2021 INTERNATIONAL) at SVNIT Surat, Gujarat, India during December 23-25, 2021 and *has been honoured with Best Paper Presentation Award*

**Addition(s) to Building Infrastructure Building Infrastructure**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

The building vacated by the Dept. of Computer Science and Engg. (while moving to a new building) has been allotted to the Dept. of E&C Engg.

**Department of Physical Education & Sports**

**Enhancement of Infrastructural facilities:**

New Sports complex is provided with most of the facilities for students use. Facilities available in this New Sports Complex are Fitness Gym, Table Tennis hall, Badminton Hall. Indoor games hall, Aerobic dance hall, Indoor Cricket pitches, Cricket pavilion, Athletic pavilion, Department office, Store room, Dressing/changing room for many outdoor games with locker facilities and required Bath room and Toilets, Stages and green rooms for cultural activities. Kabaddi men and women teams regularly practice and matches were held on the synthetic mats laid in one of the hall. Provision to play Volleyball is also there in Portable Volleyball posts made available for students use. The ground at eastern side of new sports complex has been levelled and more space is made available for play. A separate Hockey ground may be laid to the eastern side of the Athletic track laid at that ground. Levelling work is in progress to the eastern side of Swimming pool to lay separate Handball and Kho-Kho courts

Physical Education and Sports: Institute teams were formed in all sports selecting players from the students present in this campus during this pandemic hit year. Football Team participated in Karnataka State Football Association's Mangaluru 'B' Division League and Knock-out tournaments during the months of January and February, 2022. Basketball Men and Women teams participated in the "SLAM DUNK" tournament held at our Institute during 03<sup>rd</sup> 06<sup>th</sup> March, 2022. "SMASH" an invitational Inter collegiate Badminton tournament was held at our Institute during 11<sup>th</sup> to 13<sup>th</sup> March, 2022, in which 08 colleges from DK district participated and NITK men's team won Runners-Up position.

## ACHIEVEMENTS

### **1996 BTech Batch Reunion Organised at NITK Surathkal on 20<sup>th</sup> to 22<sup>nd</sup> December 2021**

The reunion of the BTech 1996 Batch of NITK Surathkal was organized at the NITK campus on 20<sup>th</sup> to 22<sup>nd</sup> December 2021.

Write Up from 1996 Batch

Moments are ephemeral; Time is a continuum. Experiences make for collective memories that enrich and bind us across distant expanses of time and space.

25 years after graduating from KREC, with a bunch of eclectic experiences indelibly etched in our individual and collective consciousness, a small but committed number of us landed again on the hallowed grounds of our alma mater, on 20<sup>th</sup> Dec 2021 to be precise.

It was a rush of emotions, memories, and nostalgia, packed in two days of immersion in a campus metaverse that transcended time and materiality.

Two days of reliving campus life with beach sports and games, bantering under the starry sky by the sea, a musical and dance night at the Pavilion, creating new experiences to embed with the old ones, and indulging in the gourmet food of our engineering days.

We also had very interesting and insightful discussions with Director Prof. K. Umamaheshwar Rao and the Dean of Alumni Affairs, Prof. Vijay Desai and the Chief Hostel Warden, Prof. Raj Mohan. The conversations were extremely meaningful and veered towards constructive engagement between the alumni and the institute with a number of ideas coming forth on ways of taking the interaction forward.

All in all, it was a wonderful experience and we left with richer memories, old and new and looking forward to coming back, to where it all began!



A Group photograph of 1996 Batch

### **1995 BTech Batch Reunion Organised at NITK Surathkal on 27<sup>th</sup> and 28<sup>th</sup> December 2021**

The BTech 1995 Batch of NITK Surathkal organized 25th year at NITK campus on 27<sup>th</sup> and 28<sup>th</sup> December 2021.

Write Up from 1995 Batch

Braving the pandemic headwinds, students from the batch of 1995 trooped into campus on the 27<sup>th</sup>-28<sup>th</sup> December 2021 for their 25<sup>th</sup>-year reunion. Dean(AA&IR), Prof. Vijay Desai ensured all arrangements were in place for the reunion events.

NITK Director Umamaheshwar Rao welcomed the batch & updated them of all that's changed with NITK, and the path ahead as we strive to become one of the very best institutes in the country. He emphasised the role of alumni in making this happen. Post the felicitations & group photographs, interactions continued over a sumptuous lunch. The batch had fun ice-breaker event that had the group in splits as they endeavoured to identify their batchmates from limited clues. After a chai-bhajji break at Samudra Darshan & the group photographs, the batch hit the beach for a senior citizen version of beach volleyball & football.

Day 2 started the cricket match at the college grounds. Small groups explored the campus, visited departments, & caught up with professors.

The evening started off with a re-creation of egg magic at the old hostel gates, with Sundar. Capping off 2 memorable days, the batch assembled at a specially identified & staged beach location near Panambur for an unforgettable evening of music, dance & great food.

After 2 enthralling days, the batch of 1995 began to disperse on 29<sup>th</sup> morning, with emotional goodbyes & a promise to do this again, in 2025, with an even bigger group!



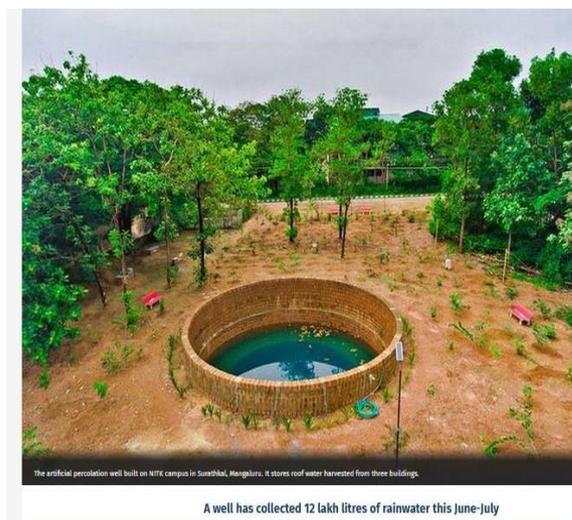
A Group photograph of 1995 Batch

### **Award of cash and certificate of merit for the wards of Non - teaching and Contract staff.**

NITK/KREC Alumni of the 1981 batch have profoundly contributed to support NITK Non-teaching and contact staff by contributing Rs. 4,73,663/- to NITK/KREC Endowment fund. The purpose of the contribution is to award a cash scholarship and certificate of merit for SSLC passed children of NITK Non - teaching and contract staff. The award is a cash scholarship of Rs. 10,000 each for two meritorious and deserving children of nonteaching/contact employees who secured the highest score in their SSLC examination (of 2020) are Ms. Anisha D/o Mr. Srinivas R.E. office NITK Surathkal and Mr. M.S.Manjunatha, S/o Mr. L Mahadeva, Dept. of Chemical Engg, NITK Surathkal. This cash scholarship is given during the NITK Foundation day on 6<sup>th</sup> August 2021.

### **Trishul Jal Sanchayan - a groundwater recharge project for Trishul (8th block) hostel surroundings**

The KREC batch of 1994 is delighted to invite you to the inauguration of Trishul Jal Sanchayan - a groundwater recharge project for Trishul (8th block) hostel surroundings. This aims to reduce the water inadequacy that NITK faces by adopting various techniques available for groundwater recharge. This project is for groundwater recharge of Trishul(8th Block) hostel surroundings. The project is designed to collect rainwater from the rooftop of Trishul boys hostel, Canara bank building and State bank building and divert it to the proposed location of pond and well. Over 300 saplings have been planted around the well to create a green space. In this regard, The total cost of the project was around Rs 20 lakhs and it was funded by the KREC 1994 batch.



### **Associating with HERITAGE NETWORK**

NITK had submitted its application to enroll itself The Heritage Network. The Heritage Network is an Indo-European network of more than twenty leading technical Higher Education Institutions (HEI) jointly engaged in collaborations through their research and academic activities addressing common priorities of national interest and well-being The Heritage Network aims at achieving these goals by identifying partner institutions willing to undertake joint research projects, academic and research exchanges, and industry partnerships between India and Europe. This Network proposes a unique platform and framework for sharing expertise and best practices and foster high level educational programmes.

### **Associating with OBREAL GLOBAL NETWORK**

NITK had submitted its application to enroll itself in OBREAL GLOBAL NETWORK in order to open up academic and research collaboration with select Institutions of European Union, Africa, LATIN AMERICA. Our membership eligibility has been evaluated by the executive committee and now we are accepted as members of this network. Based in Barcelona, OBREAL Global Observatory (<http://obsglob.org/>) has recently expanded its mandate to cater to

diverse global regions in a ‘South-South-North’ perspective, aiming to create bridges in support of shared development objectives. It focuses on the following three key pillars of the higher education sector, yet also extends its reach the youth and other related sectors: Internationalisation, mobility and collaborative international study programmes • Quality assurance and recognition tools and processes. Research and innovation management. During the last 14 years, OBREAL-Global Observatory has extended its reach from Europe to Latin America, Asia, the Middle East and Africa, connecting important actors in diverse sectors in collaborative projects for research, education and development. The setting up of the OBREAL – Global India Chapter will allow Indian universities and research institutions to link themselves to a global network of universities, university associations and higher education organizations that work together around development, internationalization, research and innovation.

### **CSR funding received and project executed**

About Maire Tecnimont Group Milan-based Maire Tecnimont Group plays a significant role in the international engineering & construction (E&C) with specific competences in plant building, particularly in the hydrocarbons segment (Oil & Gas, Petrochemicals and Fertilizers), as well as in Power Generation and Infrastructures. Maire Tecnimont Group operates in approximately 40 different countries, numbering around 50 operative companies and a workforce of about 5,400 employees, along with approximately 3,000 additional Electrical & Instrumentation professionals.

For more information:  
[www.mairetecnimont.com](http://www.mairetecnimont.com)

Anaerobic Digestion Plant:

Maire Tecnimont Group, the global leader in engineering & construction, hydrocarbon sector, circular economy & green chemistry, has funded a 500

kg Biogas Plant which uses Food and Vegetable Waste as a feedstock, through its Indian subsidiary, Tecnimont Private Limited (TCMPL) as a part of its CSR Initiative and has donated about Rs 39.60 Lakhs for the installation of pilot plant at National Institute of Technology Karnataka Surathkal.

The company has also provided scholarships worth Rs 4.3 Lakhs to NITK for supporting implementation of pilot plant and further activities related to the sustainability at NITK campus.

This project will be useful for the dissemination of biogas technology, related energy policies, practical energy generation techniques and skills, for academicians, students as well as industry personnel's, by means of various lectures, hands-on training and field visits. This initiative will be helpful to handle the problems of environmental pollution and energy shortage, to promote eco-friendly agricultural practices, to enhance international cooperation in the field of renewable energy, environmental management and services.

The project can also help in replacing chemical fertilizers using Food Waste Digestate, a by-product of biogas plant, commonly used as a manure. Substitution of chemical fertilizer with spent digestate can reduce major greenhouse gas emissions.

Important Mile Stones:

Maire Tecnimont S.p.A. Milan has signed an MOU with NITK for period of Five years for the creation of Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy.

Maire Tecnimont S.p.A. Milan has donated 16 scholarships worth 35.20 lakhs for the academic year 2021-22 to NITK to run the Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy and carryout research, even though entire world is suffering due to COVID 19 Pandemic.

Further Maire Tecnimont Group, through its Indian subsidiary

Tecnimont Pvt Ltd. Mumbai has already sponsored INR 1,47,000/(taxes Extra) in order to meet the partial expenses involved in organising the International Corporate Level Social Outreach Program

As part of international Corporate Level Social Outreach Program, the inaugural function of Bio Waste Recycling Pilot Plant (both indoor and outdoor) was held on 25th March 2021 with intention of giving clear message to Society that, Institutions like NITK play a pivotal role in building a strong future for communities throughout the country and across the globe in the area of Waste Recycling and Circular Economy”.

Utilisation of Clean Energy generated from Bio Waste Recycling Plant will serve as a classic model to educate the students about how the renewable energy systems will be managed in a sustainable manner.

Further students can also learn to work with different types of equipment used for the generation of Green power.

The generation of renewable energy from waste will set an example for the students, surrounding community, Urban Local Bodies (ULB s), and also for other educational institutions to address waste management issues in a sustainable manner.

The public perception is one of the most important NIRF Ranking Parameters that decides the ranking of a particular institution. By keeping this point in mind, the information about BWRP which utilizes the organic waste generated inside the campus and generate renewable biogas, was published in various news channels and published in various websites and also in print media (International as well as National (List Attached as Annexure A, for your kind reference). More than 800 hundred people viewed You tube live streaming,

Inaugural Function:  
Anaerobic Digestion Plant is inaugurated in the Presence of Prof Umamaheshwar Rao, Director NITK, Prof Anathanarayan,

Deputy Director, NITK, Prof K P Vittal Dean Alumni affairs and Institutional relations, Shree Milind V Baride Vice President India Region Tecnimont Private Limited Mumbai and Mr Gopal Gupta Head Communications Tecnimont Private Limited Mumbai, Dr. G Santhosh Kumar, KAS, Joint-Commissioner (Administration), Mangaluru City Corporation, Prof S M Kulakrni, Head of the Department Mechanical Engineering, and Project Coordinators Dr Vasudeva Madav and Prof Ashokbabu T. P.

and Online Presence of

Mr Fabrizio Di Amato, Chairman Maire Tecnimont Group, S.p.A. Milan, Italy, Mr Pierroberto Folgiero, CEO Maire Tecnimont Group, S.p.A. Milan, Italy, Mr. Vincenzo De Luca, Italian Ambassador of Italy in India, Ms Grieco Valentina (Communication and Sustainability, Marie Tecnimont Group, S.p.A. Milan, Italy .

Online presence of Alumni

Shree R. Krishnamurthy, Coordinator, CAMP initiative of 1981 Alumni Batch of KREC/NITK

Video Message was sent by Shree Dharmendra Pradhan Minister for Petroleum and Natural Gas GOI, Message from Fabrizio Di Amato, Maire Tecnimont Chairman,

"We are honoured to further strengthen the collaboration with such a prestigious institute as NITK to foster new skilled professionals and entrepreneurs in the field of green chemistry and circular economy in order to accelerate the energy transition in India. We at Maire Tecnimont strongly believe in giving back to society and empowering aspirations in education which is one of the key pillars of our sustainability strategy. India is our second home, and we are improving our efforts through partnerships and agreements with public and private players."

Message from Director, NITK

"We are elated by the support of Marie Tecnimont towards promoting green energy within our campus. As it is said that actions speak louder than words, their gesture of installing the waste-to-

energy pilot plant will not only inspire students, who will be tomorrow's entrepreneurs, to think about and experience the immense potential of green energy; but more importantly, will set an example for other corporates to lead the change. Maire Tecnimont Research Scholarship for Sustainable Development will give much-needed support to students”.



Biogas Plant Ready for Inauguration (Behind Aravali Hostel Block)



Inaugural Function at Outdoor (Behind Aravali Hostel Block)



Outdoor Program (Behind Aravali Hostel Block)



1. The donation amount of ₹ 17,33,418/- from Tecnimont Private Limited to the NITK /KREC Endowment fund shall be utilized for creating the “Centre for Clean Energy Technology”- A Joint Project Initiative of NITK-Tecnimont-Govt. of Karnataka under Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy to carryout project entitled Experimental investigation and optimization of green hydrogen production using biomass (RDF) and red mud catalyst and for providing 10 Scholarships and Fellowship's for Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy.
2. The donation amount of ₹ 27,02,840/- from Tecnimont S.p.A. India Project Office to the NITK /KREC Endowment fund shall be utilized for “Feasibility analysis for the implementation of Bio-Waste Recycle Pilot Plant Project in Paradip, Orissa and for providing Four Scholarships under Maire Tecnimont Research Scholarships for Sustainable Development”.

### Orientation meeting

There were two Open House Orientation Meets organised. One on 28th Jan 2021 themed "Bucket List". The next one with the theme of "Around the World", the Orientation meet of NITK TMC, kicked off with a bang on 17th September 2021. With engaging speeches and entertaining role-takers, the Orientation Meet was the highlight of the year. NITK students, present as guests in the meeting, were eager to take up on-the-spot speaking challenges and even won awards for their speeches.



### Azadi ka Amrut Mahotsav Art Competition –

To commemorate 75 years of progressive India, we conducted an Art Competition in the spirit of "Azadi ka Amrut Mahotsav" in the month of November, 2021. The competition was themed "75 years of triumph of the Indian Freedom Struggle" and was open to all students of NITK. Every artwork was creative and well



thought of, making it undoubtedly challenging to choose the top 3. Winning artworks:



### ACM Club

Mental Health Conversations was an event jointly conducted by ACM-W and the social initiatives wing of ACM NITK, Krutagnata. It was a session conducted by a mental health professional who delivered a talk aimed to cope with the stress and uncertainty during the internship season. An active Q&A session concluded the conversation which helped the students to get answers to their unsolved difficulties faced during internship season. This tackled a less spoken-about issue prevalent among the students.



### NITK Racing

NITK Racing in the year 2021 has established NITK Surathkal's first formula student electric team.

We have participated at 2 major events with the following results

1. 1st overall at FSEV 2021
2. 2nd in Business Plan at Formula Bharat Virtuals 2020-21
3. 4th Overall and in Engineering Design at Formula Bharat Virtuals 2020-21



### Aradhana 2021

**Aradhana**, a festival celebrating the rich heritage of India is the flagship event of **SPICMACAY NITK**. It is a 3-day cultural fest aimed at promoting our culture and arts at the school level. This is done in two phases – by conducting literary and art competitions for school children and giving a platform to upcoming artists to showcase their classical art forms. On account of the pandemic, Aradhana was conducted completely in online mode, including the concerts which were streamed on our YouTube channel '[Spicmacay Student Club NITK](#)', receiving over 10000 views.

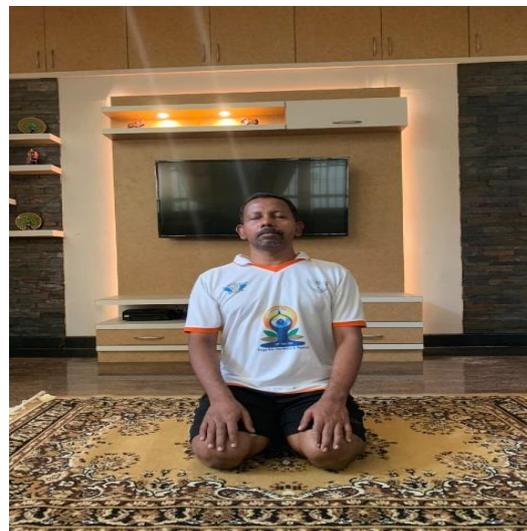


### Yoga day

Seventh edition of International Day of Yoga was celebrated on 21st June, 2021 at National Institute of Technology Karnataka Surathkal today at its premises with full of enthusiasm and healthy spirit as per the protocol mentioned “Be with Yoga Be at Home”. Office of the administration has circulated the circular about the “Yoga at Home” programme and all were requested to follow the guidelines and send at least two photographs of individual yoga sessions done at respective homes.

The turnout was good and maximum staff has sent the photos.

It was indeed a great experience for everyone to practice this holistic approach of life.



### Plog Run Competition

Plog Run Competition was conducted in our Institute on online mode on 27.10.2021 nearly 48 participated in the competition

Plog Run Competition Results
1. Shashank S R (KA/18/SD/A/445515) (I)
2. L. Chethan Kumar (KA/19/SD/A/445269) (II)
3. Dhanush Bekal (KA/18/SD/A/445279) (III)
4. ManojGS(KA/18/SD/A/445251) (III)



## Rāgānvēshaṇe

Rāgānvēshaṇe is a series of posts on our Instagram channel [@spicmacaymangalore](https://www.instagram.com/spicmacaymangalore), started in October 2021, aimed at introducing the audience into the beautiful world of music through the lens of rāgas. Every Saturday, posted a short clip of a song or a tune as an Instagram story, and users were encouraged to guess the Rāga in which the tune had been set. Then on the next day, posted a reel with the answer along with the description of the Rāga.



### RAAGA KALYANI

Kalyani (also called mechakalyani) is the 65th melakarta raaga which belongs to the 11th chakra (Rudra Chakra).  
Arohana: S R2 G3 M2 P D2 N3 S  
Avarohana: S N3 D2 P M2 G3 R2 S

The notes are chatushruti rishabha, antara gandhara, prati madhyama, panchama, chatushruti daivatha and kaakali nishada. This ragam, and the ragam shankarabharanam have the same notes but differ in just one swara which is the madhyama.

This raaga is considered auspicious and so is often performed at the beginning of concerts. Popular carnatic compositions in this ragam include 'Himaadri Sute Paahimaam' by Shyama Shastri and the Navaavarana Kruthi 'Kamalaambaam Bhajare' by Muttuswami Dikshitar.

There are also several songs of this raaga in the Kannada movie industry, including 'Nanna Jeeva Neenu', 'Tunturu Alli Neera Haadu' and 'Hosa Baalige Nee Jotheyade'.



Pre-Recruitment Event - SpaceWalk Amateur Astronomy Club held a pre-recruitment event from 26th August to 27th August 2021 to make the second and third year students aware of the activities of the club. They also had an opportunity to interact with existing members of the club. This year was the first time a pre-recruitment event was held by AAC and was dubbed "SpaceWalk".

## Freshers Cup

Freshers cup was organized for the second year UG, and first-year and second-year PG students are entering the campus for the first time, on 18<sup>th</sup> & 19<sup>th</sup> December, 2021 (Saturday & Sunday).

## KANNADA RAJYOTSAVA 2021

On 1<sup>st</sup> November, 2021, at the pavilion. Prof. Krishnamurthy. P, Principal of Govinada Dasa College, was the chief guest. Nearly 100 people attended the event including Prof. Narendranath S. (Dean Student Welfare Dean), Dr. Nagamma Patil (Faculty Advisor of Kannada Vedike Club), Prof. Ananthanarayana (Deputy Director), Prof. Jagannath Nayak (former Student Welfare Dean), Sri. K. Ravindranath (Registrar), Prof. Vidya Shetty (Dean - Academic), Prof. M. S. Bhat (Dean - Faculty Welfare), Prof. U. Shripathy Acharya (Dean - Research

and consultancy), Hem Prasad Nath (Student Activity and Sports Officer), Dr. Manoj (Student Activity and Sports Manager), Dr. Devatha C. P. (Associate Dean – Student welfare), Dr. Subhaschandra Kattimani (Associate Dean – Research and Consultancy), Faculty members and students of NITK were also present during the event.

**Virtual Quiz Competition:** - On 29th October, 2021, first round of quiz was conducted, 15 students participated in the first round. Students were asked to answer through google forms and top 5 participants were selected for the second round based on their scores. Second round was conducted on 30th October, 2021. Participants were directly addressed by invigilators, through MS Teams. Top three contestants were rewarded. The questions were based on the contribution of Kannadigas in the Indian freedom fight and propagation of Kannada language.

PLACE SECURED	NAME	ROLL NO	BOOK AWARDED
First	Meghana G S	201IT136	Mookajjiya Kanasugalu
Second	Harsha J	201CV122	Jugari Cross
Third	Akash Kori	191CV108	Chidambara Rahasya

**Virtual Essay Competition:** - On 29th October, 2021, essay competition was conducted, 6 students participated in the competition. “Unification of Karnataka” was the topic given for the essay. Top two contestants were rewarded.

Place Secured	Name	Roll No	Book Awarded
First	Kavya R	201CV225	Mookajjiya Kanasugalu
Second	Shama G S	201EE152	Jugari Cross



### DDFC Club

Dance, drama and fashion together form a way of life and acknowledging it's worth, NITK has it's cultural club DDFC, organising various events annually, giving students a platform to showcase their talent at dance and drama.

### Bharath Darshan

This bright and colourful extravaganza showcases brilliant performances by groups representing the various states of India, and is held on the occasion of Republic Day DDFC take pride in conducting a festival where students are able to see and feel the culture of their home state. At Bharath Darshan, it's always about making yourself truly at home here to win NITK.



### **Organising Incident Flashmob**

The Dance Crew members helped the Incident team to organize and choreograph the Flash Mob routine for the Theme Reveal for Incident'22. There were 35 students in the same and was held in front of the Main Building.



### **SAE**

In September 2021, a team from SAE represented NITK in an inter-collegiate competition organised by Garrett - Advancing Motion and secured the first place along with a cash prize of ₹21,000. The members of the winning team were Vedika Patrike, Mihir Mali, Sumit Sagar, Pradeep Singh Solanki.

### **CAREER DEVELOPMENT PROGRAMMES**

#### **1. GATE Preparation Webinar (May 2021):**

An interactive session on GATE preparation and the value of GATE in PG admissions and PSU job opportunities was conducted in partnership with Exergic (sponsors). The speakers were Bharath Desikan (NITK Alumnus and GATE (CH) AIR 17) and Abhisheka Shetty (GATE (ME) AIR 05)

### **Slam Dunk 2022 - Incident NITK**

Incident is the annual college cultural festival of NITK Surathkal. It is one of India's largest cultural fests and is one of the most awaited festivals in and around coastal Karnataka. Incident boasts of numerous cultural events spread across various art forms like dance, music, fine arts, fashion etc.

The NITK Basketball Team hosts the flagship sports event SLAM DUNK during the cultural fest every year. SLAM DUNK is an invitational inter-collegiate basketball tournament for MEN and WOMEN, featuring participation from some of South India's best college/university teams. The tournament has gained great prestige and reputation over the years.

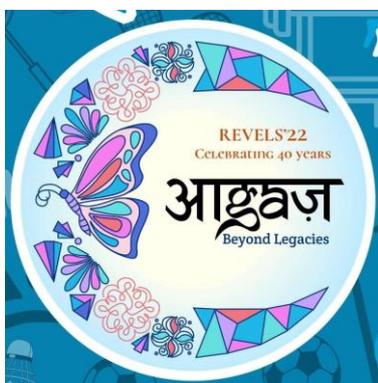
SLAM DUNK'22 saw 11 of the best teams from across states in South India battling in the 3-day contest. Following are the details of the tournament that turned out to be a huge success thanks to the help of the college and administration, Team Incident, and the basketball team.

**Event Details:-** 3rd March 2022 to 6th March 2022 Day 0 (Inauguration) of NITK Slam Dunk'22 started with the Opening ceremony held on the College's Basketball ground along with Dignitaries including our Director-In-Charge Prof. Udaykumar R Yaragatti, Dean Student Welfare Dr. Narendra Nath S, Associate Deans Student Welfare Dr. Devata C.P. and Dr. Alwyn Roshan Pais Physical Director, Shri Shivaram A assistant Physical Education Director ,SAS Officer Dr. Manoj and Dr. Hem Prasad Nath , Security Officer Shri Ram Prasad Bhat who inaugurated the tournament by making the ceremonial shot to commence the tournament.



**KMC Mangalore Women's Basketball Team VS NITK Women's Basketball Team**

### **REVELS (MEN and WOMEN)**



*Dates:* 9th April to 14th April 2022

*Participation:* 23 (11 MEN's team, 12 WOMEN's team)

*Organisers:* Manipal Institute of Technology, Manipal

*Description:* Revels, the annual fest of Manipal Institute of Technology experiences thousands of athletes from colleges all over the country. The NITK Basketball team was enthusiastic to take part in the Revels Basketball tournament like always. The matches were played at MIT Basketball court from 9th April to 14th April 2022. The NITK Men's and Women's team consisted of 11 and 12 players respectively.

### **Women's Basketball Team**

First match of Women's NITK Basketball team was with PESU, Bengaluru on 9th April where PESU won. Second match was on 10th April, NITK Women's Team vs MIT and MIT won the match. Third match was on 10th April evening with MSAP and NITK Women's team won the match. The NITK Women's Basketball Team qualified for Quarter Finals, and played their quarterfinals match against BMSCE. BMSCE won the quarterfinals match which happened on 11th April evening.

### **Men's Basketball Team**

First match of Men's NITK Basketball team was with BITS, Goa on 9th April where BITS, Goa won. Second match was on 10th April, NITK Men's Team vs MSAP and NITK won the match. The NITK Men's Basketball Team qualified for Quarter Finals, and played their quarterfinals match against MSRIT, Bengaluru. MSRIT, Bengaluru won the quarterfinals match which happened on 11th April morning.

The team had a very good learning experience by playing various matches with equally competitive teams from different colleges. Exposure to many teams increased our confidence, learnt new strategies and grew aware of the team's strengths and weaknesses. All the matches were played sportively with good team spirit. Overall the tournament was a very good experience for improving the performance of the team.

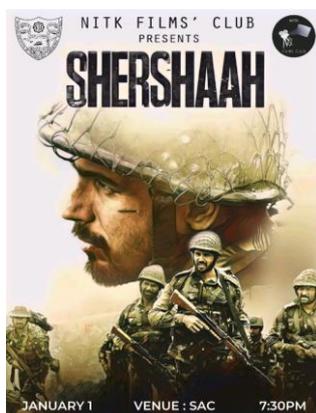
## **NITK Films Club**

The NITK Films Club aims at making the student community aware of the great talents existing in the field of cinema. The regular activities of the club include the screening of movies and matches, conducting quizzes and discussions related to films.

As the prevailing pandemic conditions, no events were conducted in the online semester. But as the campus was opened to the students first screening was conducted on January 1st, 2022.

NITK Films Club conducted a film screening of "Shershaah". The movie was based on true events, and it portrays the thankless job of soldiers who put their lives on the line every day to keep the nation safe. The movie screening was conducted in the Student Activity Centre (SAC) and it started at 7:30 pm. The movie screening had a total footfall of around 1000 students making the whole event a grand success.

### **Movie Poster:**



### **Screening on Feb 24th:**

NITK Films Club conducted a film screening of "Garuda Gamana Vahana Vrushabha". The movie

screening was conducted in the Student Activity Centre (SAC) and it started at 7:30 pm. During the intermission, the artist lineup for Incident'22 and Engineer'22 was announced with a short video clipping. The movie screening had a total footfall of around 1200 students making the whole event a grand success.

### **Movie Poster:**



### **Screening on Mar 11th:**

NITK Films Club conducted a film screening of "Airlift". The movie was based on true events, it tells the story of men and women who fought hard to get Indians back home during the invasion of Kuwait by Iraq. The movie screening was conducted in the Student Activity Centre (SAC) and it started at 7:30 pm. The movie screening had a total footfall of around 300 students making the whole event a grand success.

### **Screening on Mar 18th:--**

NITK Films Club conducted a film screening of "The Tashkent Files". The movie deals with uncovering the conspiracy behind the death of India's second prime minister, Lal Bahadur Shastri. The movie screening was conducted in the Student Activity Centre (SAC) and it started at 7:30 pm. The movie screening had a total footfall of around 400 students

making the whole event a grand success.

### Movie Poster:



### Screening on Mar 20th:-

NITK Films Club conducted a film screening of “Finals of Indian Super League”. The finals of the ISL were between Kerala Blasters and Hyderabad FC. The screening began at 7:30 pm in the Student Activity Center (SAC). There was a total footfall of around 200 students.

### Screening on Mar 31st:-

NITK Films Club conducted a film screening of “Chhichhore”. The screening was done in association with Phoenix and Crescendo. The movie tells a story about the celebration of life, college, and friendship. The movie screening was conducted in the Student Activity Centre (SAC) and it started at 7:30 pm. The movie screening had a total footfall of around 600 students making the whole event a grand success.

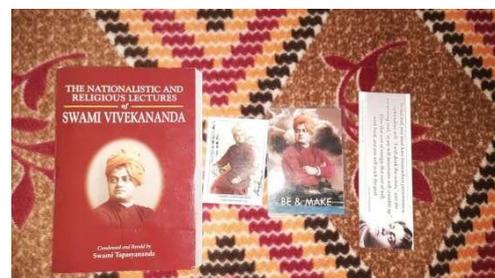


Annual Report 2021-22

Yuva Jagrithi Quiz as a part of National Youth Day Celebrations, on 15<sup>th</sup> Jan 2022, organized by Utkrishta Bharath NITK

Utkrishta Bharath Club of NITK Surathkal organized Yuva Jagrithi Quiz on the life and teachings of Swami Vivekananda. It was held as a part of the National Youth Day celebrations. There were 71 applications from students from all years and disciplines in NITK. The quiz was held mainly on the famous Chicago speeches delivered by Swami Vivekananda in the World Parliament of Religions from 11<sup>th</sup> to 27<sup>th</sup> September, 1893 which beautifully demonstrated the salience of Indian culture.

The quiz was held between 6:00 PM and 6:30 PM on 15<sup>th</sup> Jan 2022. A lot of thought and work was put into the quiz and questions and conducting the quiz. The winners received books on the life and teachings of Swami Vivekananda.



Speech on “Journey Towards Utkrishta Bharath” by Sri Ram Madhav, on 30<sup>th</sup> Jan, 2022, organized by Utkrishta Bharath NITK

Utkrishta Bharath Club of NITK Surathkal organized a lecture on the topic “Journey Towards Utkrishta Bharath” by Sri Ram Madhav, an eminent author and intellectual speaker on 30<sup>th</sup> Jan, 2022. The lecture was held in Lecture Hall Complex – C. The event had professors and students in attendance. In total there were close to 120 participants. The event

commenced at 10:00 AM. It started by lighting the lamp along with a prayer song.

It was followed by an introduction of the club and the institute. The club's logo and website were inaugurated by the Chief Guest Sri Ram Madhav and the Director, Prof K Umamaheshwar Rao. The preamble of the club was delivered by the Dean of Student Welfare, Prof S Narendranath.

The Chief Guest addressed the gathering on the topic of "Journey Towards Utkrishta Bharath" where he spoke about reaching the pinnacle of excellence and working towards making Bharath "utkrisht". The speech talked about preparedness for the future for problems that don't even exist today. This was followed by an interactive Q&A session where the audience asked questions to Sri Ram Madhav ji. The presidential address was delivered by the Director, Prof K Umamaheshwar Rao. The director addressed about some key issues that exist in Indian society and Indian origin students living abroad.

The Vote of Thanks was delivered by the club's President, Mr Reetesh Bhat. The event concluded with the National Song, Vande Mataram sung by Sudhanva N, Priyanka C.N.

The event was organized by Utkrishta Bharath Club. Utkrishta Bharath is a student's club in NITK that mainly aims at organizing programs that help in promoting nationalistic amongst the students of NITK. It also provides a platform for academic discussions, in a professional way, on topics of scientific, technological and cultural relevance.



Event on "Save Soil" by Sri Deepak Karkal Bhat, on March 31st, 2022, organized by Utkrishta Bharath NITK

Utkrishta Bharath NITK organized an event - "Save Soil", on 31st March, 2022. The event was conducted by the Mangalore Chapter of the Save Soil Movement by Conscious Planet Organization. It was headed by Shri Deepak Karkal Bhat, one of the directors of Achal Farmhouse Products Pvt. Ltd. and an active volunteer of the Save Soil Movement. The event took place in Lecture Hall Complex - C and had professors and students in attendance.



The event commenced at 5.30 pm by lighting the diya. It was followed by an inspiring speech by the Institute's Director in-charge, Prof. Udayakumar R. Yaragatti. He talked about the importance of soil in Indian culture and motivated the students so that soil

can be preserved and replenished with collective efforts. Dean of Students' Welfare, Prof. Narendranath S, also shared his experiences with the gathering.

The Guest of Honour, Shri Deepak Karkal Bhat, then addressed the audience and enlightened them on how grave soil crisis is and how it is linked to various environmental problems faced by humankind now.

He also proposed solutions to the crisis and encouraged the students to spread awareness regarding the "Save Soil" movement started by the Conscious Planet Organization. He also talked about how Sadhguru, founder of Isha Foundation, also ambassador of the Save Soil movement has taken up a solo bike ride of 30,000 km starting from London reaching up to Cauvery Basin in India to awaken the people and governments to the issue. The event concluded with every person enthusiastically dancing and singing the theme song of the movement and proudly displaying "Save Soil" badges and posters. The students were really inspired and everyone learned something new out of it.

### **Incident 2022**

Incident 2022 "Realm of Reveries" as the name suggests took everyone to a euphorial dimension. It was one of a kind experience to witness its beauty, unravel in front of our eyes. To bring such an event to life is a hard enough task in itself, and to do it in 41 days is impossible. But the team Incident somehow jumped through all the hurdles to it one of the best ones yet.

A festival this big deserves a grand Inauguration and it couldn't have been any better. Our chief guest Dr Ashwathnarayan C N, Minister Government of Karnataka sent a video message to the students of NITK as couldn't attend the event because of his busy schedule. Dr. Bharat Shetty Y Member of the Legislative Assembly of

Karnataka representing Mangalore the Guest of Honour addressed the gathering and shared his experience with the event as he too had participated in Incident in his College days.

The Padma Shri award recipients from the district Shri Harekala Hajabba, Shri Amai Mahalinga Naik, alongside Dr Soujanya J. Anchan, Medical officer at the Surathkal Primary Healthcare Center, were felicitated by our Guests for their contributions and achievements. Prizes were distributed to the winners of various competitions organized by I-Care, the social initiative wing of Incident for the school kids. The amp was then amp up by the electric dance performances from the students. This was a perfect segway to the two more amazing shows held that night, a comedy special by Karnunesh Talwar and a magic show by Mr. Karan Singh.

### **Inci talks**

Fostered by the vision of serving the student community with the most innovative and inspiring ideas, Inci Talks is an event that is held during Incident. Various inspiring people from various fields are invited to share their experiences, breakthroughs, and ideas in this stage

### **Arzoo kurana**

Incident '22 in association with Photography Club NITK invited an Elite Wildlife Photographer with acknowledgments from Discovery, Nat Geo, and BBC Ms. Arzoo Khurana. She strives to find beauty in the elements of nature and paints through her lens the colors of nature in all their splendor.

### **Deepak Shenoy:-**

Deepak Shenoy, Founder, and CEO of CapitalMind, SEBI, registered Research Analyst enlightened us with his words of wisdom and experience in the field of business. His company provides financial analytics, investment advice, and money management services. He is

very active on Twitter with over 53,000 followers and is often interviewed live on TV as Market Commentator on channels like ET Now and CNBC-TV18.

Gaurav Sen, Founder of InterviewReady, popular programming and software YouTuber, and an avid programming enthusiast was one of the guest speakers at Inci Talks. Having worked with **Promenade** companies such as Uber, Morgan Stanley, and Directi, Mr. Sen now runs InterviewReady

helping several prepare for interviews for software developers from basic entry-level to CEO positions. He shared his breakthrough in the corporate world.

### **Music events**

In collaboration with Incident 2022, the NITK Music Club organized Incident's coveted inter-college Battle of Bands, Pulse attracts talent from all over the country and showcases the best music you may have yet heard. The event was conducted on Day 1 i.e, the 4th of March with over five teams of 8 people each, and over 100 audience members joining us

### **Raaga rhapsody**

In collaboration with Incident 2022, the NITK Music Club organized a solo vocals competition Raaga rhapsody, From Ballads to Alaaps, this event gives you a stage to wow us with your singing and a chance to win the title of "Voice of Inci". It was conducted on 4th of march and had over 45 Participants.

### **Dance events**

#### **Tandav**

In collaboration with Incident 2022, the Genesis NITK organized the much-awaited classical extravaganza Tandav, which is a semi-professional eastern contemporary group dance competition. where some of the most talented artists battle it out with prizes worth 30K up for grabs. The event was on 5th of march and 3 teams took part in the competition. Winners:

1st PLACE: Team NNK

#### **Nrithya**

In collaboration with Incident 2022, the Genesis NITK organized the Classical Eastern and Contemporary Solo Dance Competition where the best dancers across the country morph the diverse ethnic Indian Dance forms into unforgettable

performances with prizes up to 13K up for the taking. It was conducted on 5th of March and 13 participants took part in the event. Winners: 1st PLACE: Swasthi Shetty  
2nd PLACE: Vasundhara  
3rd PLACE: Shraddha K Bhat

### **HIP HOP international audition**

Incident 22 in association with Hip Hop Internationals conducted a Semi Professional Western group dance competition. It was conducted on 6th of march. participated in his event.

Winners:

1st PLACE: Team NV

2nd PLACE: Team, MBDC

Incident 22 in association with Hip Hop Internationals conducted a duet dance competition of all genres on 6th of March. 6 teams participated in the competition.

Winners:

1st PLACE: Hasini Upadhya and Shri Vidya bhat  
2nd PLACE: Vinayak M and Akanksha.

### **Step up solo**

Incident 22 in association with Hip Hop Internationals conducted a solo dance competition that involved dance forms like HIP HOP, Locking, Popping, b-boying etc. It was conducted on the 6th of march and around 13 participants took part in the event.

winners:

1st PLACE: Vinayak M

2nd PLACE: Ronit Kumar and Mehendi nayak

### **Dance workshop**

In collaboration with Incident 2022, the Genesis NITK organized a Dance workshop, a warm and inviting space for youth to enjoy and learn the art of dance

### **Udaan**

In collaboration with Incident 2022, Artists' Forum NITK conducted its annual flagship event Udaan. It is held on the beach in the Even semester every year. The event is filled with fun and frolic on the beach and is open to everyone from in and around NITK as well. Every year we hold a Sand Art competition, organize kite flying, keep fun stalls like a tattoo, Mehendi, caricature, etc for the students and children alike to come and participate. There are also beach games such as sack race, tug of war and limbo to name a few.

This year Udaan was held in association with Incident 2022. Kalakriti, the showcase of artworks by the club members was also done along with it. Date of the Event: 5 March 2022 Details of the events held-

The event saw 10 registrations, whose participants were both from and outside NITK. We saw some of the most talented and beautiful sandarts on themes like protecting the ocean. The prize money was 10,000 for the winners.

There was a stall dedicated to selling kites for everyone who attended this beach fest. Tattoo, Mehendi, and Hair Spray stalls were organized by the club members. Several people approached these stalls looking for unique designs and styles and these were catered to them by our own members. We had games like Tug of war, Limbo, Twister and Sack race to keep people engaged on the beach. Several people took part in these and thoroughly enjoyed themselves. The artworks of the club members were displayed on the beach to the visitors.

### **Expose**

In collaboration with Incident 2022, the Photography club NITK organized an exhibition of the photographs clicked by NITK students to the visitors. It was held in new chemical department and was open for all three days.

### **Lit events**

#### Quizzes

Quizzes were held on each day of Incident and they witnessed large participation and great reception from in and around NITK. It featured some respected quizmasters such as Major Chandrakant Nair

A quiz that will test the mettle of all participants in all the topics under the bright blue sky. Hosted by one of India's finest quizmasters, Major Chandrakant Nair the quiz surely left everyone wanting for more. It was held in the spacious and ambient LHC-C Seminar Hall on the first day of Incident 2022.

Winners: Aniruddh, Amith, Krishan.

Runners Up : Kewal Shah

### **Requiz'em for a Dream**

A quiz that took everyone to a dreamland filled with nutty fundas and brain-tickling trivia. It was a wonderful journey for all the

participants to a Realm of Reveries in the Main Seminar Hall on Day 2 of Incident.

Winners : Krishan, Stafan, Drishika

Runners Up : Aniruddh, Amith, Aakash

### **The Wind is Rising**

As everything slowly opened up around the world, it was time to set out on a journey and experience the world's vibrant cultures, cuisines and more with the Travel and Exploration quiz held on Day 3. Participants truly explored to their heart's content in the Main Seminar Hall.

Winners : Aniruddh, Amith, Stafan

Runners Up : Krishan, Aakash, Shubhang

### **Biz events**

Duco (Best Management Team)

Duco - "we are not led, we lead" is the event where people can exhibit their management skills as a team. A total of 24 teams participated in the event. Narasimha bhandary and D.M. Deeksha from Mangalore Institute of Technology and Engineering, Mangalore are the winners of the event. Siddharth R P and Adarsh M were the runners up.

### **Zōdiacus**

Zōdiacus - A Realm Of Marketing is a marketing event where they will test your marketing acumen. A total of 11 teams participated in the event. Poornaraj D Padmashali and Akhil Kumar H A from Poornaprajna College (PPC), Udupi are the winners of the event. Harshit D Kulkarn and Parth Zavar from KLS Gogte Institute of Technology, Belagavi were the runners up.

### **Case Crunch Competition:-**

In collaboration with the NITK Student Council Incident 2022, E-Cell organized the first business event of Incident 2022. A Case Study Competition that challenged the participants to think on their feet and brought out the entrepreneurial spirit in them. Everyone received a certificate of participation and took away many lessons from this awareness session.

Judges:

**Dr. Savita Bhat:** Professor in the School of Management here at NITK. A specialist in the field of Innovation systems, international competitiveness, and industrial analysis.

She has more than 10+ publications, multiple book chapters published, is a valuable member of several conferences, and is a vital contributor to workshops, seminars, and events

**Mr Vikram S.:** A research scholar and a treasured benefactor to the management and entrepreneurship community. A maestro in the field of financial markets, quantitative analysis, behavioral finance, risk management, and fintech.

Session Details:

Participation: 106

Date and Time: February: 25th February 2022 - 5th March 2022

Winners:

1st PLACE Team Member Name: YAJAT SAMIR BENDALE

2nd PLACE Team Member Name: Aditya Dhanraj

### **CryptoKnight Competition**

In collaboration with the NITK Student Council, and Incident 2022, E-Cell organized the second business event of Incident 2022. A Mock Crypto Trading Competition that gave the participants an opportunity to explore the exponentially growing Crypto space and experience the volatility of this market without any risk. This event aimed to get students familiarized with the intricacies of the crypto market to provide them with some net practice before they face the real sharks.

Session Details:

Participation: 242

Date and Time: February: 26th February 2022 - 4th March 2022

winners:

1st PLACE Team Member Name: Basil Manihottam

2nd PLACE Team Member Name: Amogh Singhal

### **Biz CosPlay Competition**

In collaboration with the NITK Student Council, Incident 2022, and Literary Stage and Debate Club NITK, E-Cell organized the third business event of Incident 2022. A first-of-its-kind event that amalgamated business acumen with pop culture. This event aimed to make students integrate cutting-edge business ideas into their favorite pop-culture worlds. Everyone received a certificate of participation and

took away many lessons from this fun competition.

Session Details:

Participation: 30

1st PLACE Team Member Names: Swamy Lydia Lois Frank, SUMITH NAIK, Sejal Inamdar

2nd PLACE Team Member Names: GOPIKA M J, Swastik Shrey, Ankith Jassni.

### **TSAR**

Toastmasters Speech and Rhetoric Contest In collaboration with Incident 2022, the NITK Toastmasters Club organised a public speaking competition, open to all. With over 27 contestants and over 50 audience members joining us, the competition had two rounds that helped the judges pick the TSAR 2022. From a prepared speech to an impromptu speech, our speakers were tested for creativity, logic, confidence, audience connect, deliver and all the other nuances that make a good speaker.

Winners:

1st PLACE - Varun Shiri - KLS Gogte Institute of Technology

2nd PLACE- Nidhi N Pai -Dr G Shankar Govt Wmns College Ajjarakadu

Udupi 3rd PLACE- Sumith Naik - KLS Gogte Institute of Technology

### **Chai Point**

Incident 22 in collaboration with Chai Point, had organized an Open Mic cum Talent show for all at the Department of Chemical Engineering premises. Over the course of 3 days, Chai point hosted nearly 20+ artists and over 150 audience members. The exhibits ranged from singing and dancing to stand-up comedy.

### **Hogathon**

Incident 22 in collaboration with Lassi Tales, Food Mall, and Big Mishra Pedha had organized Hogathon, a competition where one who eats the most in the least time was declared the winner. Hogathon, which was held on Day 2 of the fest, boasted nearly 50+ participants.

Bike Stunt Show

Incident 22 in association with Team RDX Mangalore, a reputed bike stunt team, hosted a Bike Stunt event at the Lecture Hall Complex- C premises. This event was a visual treat that was enjoyed by more

than 500 people. This event was held on Day 3 of the Fest.

### **Cycle Stunts**

Incident 22 in collaboration with local artists, had organized a Cycle stunt show at the Department of Chemical Engineering premises. Local cycle stunt masters were called for the event to promote the independent local artists. This event was conducted on Day 1 of Incident and was attended by over 500 people.

### **Adventure Zone**

Incident 22 had organized an Adventure Zone for all at the Student Activity Centre. The Adventure Zone consisted of various fun-filled games such as Mechanical Bull riding, Bubble Ball, Archery, and Sumo Wrestling. This event was organized on Day 3 of the fest and was attended by nearly 600 odd people.

### **E-Bike Release**

During one of the pro-shows, Incident gave a stage to CSD NITK to release their e-bike VidhYug 4.1 by our beloved Director Prof. Udaykumar R. Yaragatti. By steering the bike on our proshow stage in style he unveiled the E-bike fully developed in NITK which is only a stepping stone to much more technological advancements to come

### **Slam Dunk**

The NITK Basketball Team hosts the flagship sports event SLAM DUNK during the cultural fest every year. SLAM DUNK is an invitational inter-collegiate basketball tournament for MEN and WOMEN, featuring participation from some of South India's best college/university teams. The tournament has gained great prestige and reputation over the years.

SLAM DUNK'22 saw 18 of the best teams from across states in South India featuring 192 young athletes battling in the 3-day contest. The results of the tournament are as follows:-

Winners (MEN): JAIN UNIVERSITY, BANGALORE

Runner up (MEN): ST. BERCHMANS COLLEGE

KERALA Winners (WOMEN): NITTE UNIVERSITY, MANGALORE

Runner up (WOMEN): ST. JOSEPH COLLEGE OF COMMERCE, BANGALORE

### **Pro show**

Every day of the festival ends high without a question because of the pro shows. No matter how exhausted the participants and the students are, they dance their hearts out at night during the shows.

After the inauguration of the fest in association with Tribe Vibe Live and Ojas Entertainment, Karunesh Talwar gave a splendid stand-up comedy performance.

The first day was the fusion night where five thousand students grooved to the music by Non-Violinist Project and it also was the day Pineapple Express gained a strong fanbase on the campus with many waiting after the show to get an autograph or a selfie.

On the final day of the festival, the Encore night has to be the biggest of the nights, the arena's size was increased so it can accommodate more people as Lohar the Blacksmiths brought their A-game. Team Incident managed to get a Band that's as fast-growing as Pineapple Express and Benny Dayal, who made people move in unison to their music. One should consider themselves lucky to have witnessed Benny Dayal sing Muqabla with a crowd that's well over six thousand.

### **Engineer 2022**

The annual technical symposium of National Institute of Technology Karnataka (NITK) Surathkal, Engineer 2022 was celebrated from 4th March 2022 to 6th March 2022. The event started with the Inauguration Ceremony on the eve of 3rd March 2022 and hosted over 60+ events enveloping all disciplines of engineering and included business events as well. The following reports a glimpse of grandeur of the 16th edition of fest.

The event was presided by Professor Udaykumar R Yaragatti, Director, NITK Surathkal, Professor Narendranath S, Dean of Students Welfare NITK and the Convenor of Engineer and Incident, Abhay Mishra and Sreehari M. respectively. Metaverse, the new era in the world of virtual reality, saw its presence on the campus, with dignitaries using the VR headsets presented by 'KARENAGE' a start-up of NITK. The NITK Dance Crew, popularly known as Genesis, displayed their talents with their exhilarating

performance, showcasing a nostalgic memory of the life of a student at NITK while dancing to the tunes of classic Bollywood songs.

We Think, we Create, we Engineer. We, at Technites, design ideas & implement imagination.

Like

Laser Shooting Game, Led Wall, Led Cube, Led Propeller, Midi Flute, Air Piano, Ddr Board, Laser Harp, Blitzkrieg, Pin Ball, Humanoid Robot, Face Animate, Prisma, Augmented Reality Sandbox:

### 3. BAJA COMMITTEE

BAJA NITK Racing is a team comprising of racing enthusiasts passionate about off-road racing. They build ATVs that survive the harshest of the terrains and pit them against hundreds of teams at BAJA SAE India every year. They made their own car and exhibited in the tech mela.

### CAR EXHIBITION

The intention is to expand the knowledge of the students as they attend the exhibition of the car at the Pavilion.

### CAR DRIVING

Held for all the students who want to experience off-road racing. Any student with a license will be permitted to drive any buggy built by their fellow mates in a BAJA car at the ground behind the new sports complex.

### 4. NITK RACING

NITK Racing is the formula student electric team of NITK with one motto- Design, Build, Test and Repeat. At Engineer 2022, they presented a sim racing setup along with interesting games around Formula 1 and a PCB design workshop for electric vehicle safety circuits.

### RACE CAR SIMULATION

Exciting race car gaming simulator embedded in our own car.

#### WORKSHOP #1

1. Electric safety fundamentals
2. PCB design fundamentals

#### WORKSHOP #2

1. Explanation of the circuit
2. Soldering and wiring the circuit

### 5. ROBOCON

CSD Robocon NITK is one of the foremost robotics clubs at NITK. Ever since 2018, they have been taking part in the ABU Robocon (Asia Pacific Broadcasting Union), which is touted as the ultimate Robotics Challenge for Undergraduates. They build Robots that aim at incredible Precision, Reliability and Speed or in other words industrial performance. CSD Robocon showcases previous year bots, and our Lab ranges from a simple Line Follower Bot to an entire Award-Winning Robocon Project! Be there at Robocon Lab in Main Building to visualize a first-hand experience of Robotics.

### ROBOCON LAB

Team CSD Robocon showcased its new working robots and gave the audience a hands-on experience on the same in CSD Robocon's Lab & Arena.

### PROJECT EXPO

Team CSD Robocon showcased the Best Robots of its own kind in the pavilion and they gave it to the audience to try out bots, line following robots and multifunctional robots on their own.

### 6. MECHANICAL EVENTS

#### ROBO-WARS

Robowars, the flagship event of Mechanical Events, saw a huge success on Day 3 of Engineer 2022 as it attracted a very good crowd. The highly talented participants let the crowd witness bots with unique attacking mechanisms, battling against each other inside a steel cage. The competition consisted of 2 teams fighting their bots against each other, in 2 sessions. A break of 2 minutes was given between the sessions, for the teams to repair their bots if necessary. Each attack or hit yielded 10 points whereas a pin raised the score by 50 points. Any damage to the arena led to negative marking, the points depending upon the damage caused. Total 12 teams participated in the robo war event. Team wildbees was in 1st place, Team Taurus was in 2nd and Team Kira got 3rd place in the competition. Total cash Prizes for the event is Rs 80,000.

### 7. COMPUTER EVENTS

The main goal of the Computer Science Committee was to organise a series of

events that encompass all the different fields that make up the field of Computer Science. A description of all the events that were organised is given below.

### **HACKATHON**

The Engineer Hackathon is a contest intended to foster technological innovation among the students of NITK. The contest consists of a set of real-life problems which need to be solved. The participants use different technologies ranging from web and mobile application development to Machine Learning, to solve these problems. The best and most impactful solutions will receive cash prizes. The winners will also be invited to collaborate with the technical clubs of NITK to further work on their solution and deploy it in real-life scenarios in and around NITK. Since the duration of the contest is 24 hours, we had provided refreshments to the participants present in the venue at NITK.

### **CAPTURE THE FLAG**

ECTF was a jeopardy style Capture the Flag event that was held during Engineer 2022. CTFs are contests involving crypto, reverse engineering and web app challenges, where the goal is to find a specifically formatted string. The Capture The Flag contest hosted by NITK is a flagship event consisting of a set of systems and security-oriented challenges. The participants need to follow a trace of clues, find vulnerabilities in computer systems, and obtain a figurative flag. The contest features challenges of all difficulty levels, thereby allowing beginners as well as experts to participate and learn interesting concepts. Previous editions of CTF contests hosted by NITK clubs have witnessed great participation (nearly 350 participants in 2021). This time, we boosted the reach of our event with substantial prizes and got the total participation as 450+. Since the duration of the contest is 24 hours, we had provided refreshments to the participants present in the venue at NITK.

### **INSCRIPTION**

Team Event / Individual Event (Online) Incription was the international programming contest of ENGINEER. It was an individual online event. It provided participants with an exciting and stimulating opportunity to improve their

algorithmic and coding skills. It involved interpreting and reducing the problem statement correctly, and then designing efficient algorithms to solve them. Contestants had to write working code in a language of their choice as fast as possible. The event consisted of only one online round in which we gave the participants a set of real world problems to be solved using optimal algorithms within a specific time limit. This time limit was the maximum amount of time any solution could take for that particular problem. The solution was given in the form of source code. The solution when fed with predetermined inputs should execute within the given time limit and the output should match the expected one. Wrong Answers were given time penalties. The participant who had solved the most number of questions in the least amount of time wins the event. In 2022 edition, the duration of the contest was 24 hours and 1000+ participants from all over the world were a part of this grand contest. Some of India's best competitive programmers (including ACM ICPC World Finalists) appreciated the quality of questions and the contest itself.

### **COSH CODE SPRINT**

The COSH Code sprint is an event geared towards first-time contributors to open source code repositories. The event started with an introduction to open source contributions, after which participants contributed to different open source repositories. The event concluded with a talk from Dr. Mohit Tahiliani, who had covered different aspects of open source contributions, their benefits, and also an introduction to COSH and its objectives.

## **8. TRONIX EVENTS**

### **SYMPHONY**

Symphony is one of the main attractions during Engineer which draws huge crowd and attracts participants from various colleges. In Symphony we have a water fountain which is fit with waterproof lamps. The aim of the participants is to make an electronic system to sync the fountain nozzles and lights with the music being played, taming the water to the beats of the music. This year, for the first time, the event was held at the main fountain outside the Main Building on the first day.

However due to unexpected rains, the event had to be postponed to the next day. Yet, it was a success and we had three teams participating.

### **LIGHT OF THE SEVEN**

Light of the Seven is a one of a kind light following robot competition. Participants are required to build an autonomous robot which can follow a light source and complete the given task as well. This year, we had almost 10 teams in all, including outstation participants. The competition this time was divided over two rounds and an aggregate score was used to determine the winner of the competition. As promised last year, this year the event was a great success with outstation participants winning both prizes. Total Cash Prizes of Rs 6000 given to the winners.

### **TRADE OFF**

Trade-off is a fun-filled fiercely competitive circuit design competition that makes students come up with efficient, out of the box solutions to engineering problems through circuitry. The event is a race against time where utilities have to be implemented at minimum cost of components in the given time frame to fetch better points. The event has 2 rounds: a preliminary written round that tests basic analog and digital circuit design skills. The shortlisted teams participate in a final practical round where circuits are to be rigged up, using components in a very cost-effective manner. It is very popular with the first and second years and attracts a huge pool of participation, and this was the case for Engi '19 too.

### **9. TECH MELA**

A technical exhibition of projects made by the students and faculty of NITK was showcased at the Pavilion for the Tech Mela 2.0. Team CSD Robocon's Robots, designed for the International Competition ABU Robocon also had its presence at the venue. NITK Racing had presented its own Formula student race car and the audience were given a chance to drive the simulated version of the car. It was a unique opportunity for the audience to drive the car made by BAJA NITK Racing's very own ATV, Destiny 2.0 in the New Sports Ground. The experience was enthralling and the fact that these cars were home-grown by our own students

sparked the curiosity among the audience to get the feel of it!

CSD NITK presented its flagship E-Mobility vehicle Vidhyug during the Tech Mela exhibition. The green initiative undertaken by CSD NITK was made to highlight the importance of conserving our environment through various other alternative mobility solutions. CSD NITK had also launched its new vehicle Vidhyug 4.1 during the Encore Night driven on stage by our very own director Prof. Udayakumar R Yaragatti.

As part of Metamorph, a group of enthusiasts from Metallurgical & Material Sciences in association with SAE-NITK (Technical Club of NITK) performed various experiments like Corn starch experiment, Hologram, Thermite process, Casting process along with some exciting experimentations with Liquid Nitrogen, etc. during the Tech Mela exhibition.

The Flying & Robotics Club (FARC) of NITK had organized a jet plane exhibition during the Tech Mela exhibition which featured a 2 M long Mini Jet Plane powered by Nitrogen fuel. The audience was also given a chance to experience flying an RC Plane Simulator.

## **10. CIVIL EVENTS**

### **FANTASTICITY**

Fantasticity was the first event organised as a part of ENGINEER Civil Events. Fantasticity provided the platform to unfurl one's thoughts and actions on the effective utilisation of natural resources and available space to develop a liveable habitat for the people. The event was conducted in online mode and open for students of all disciplines. The event started at around 10:00am on Day 1 and was finished by 12:00 p.m. Problem statement for the event: The participants were expected to provide the Master plan of the college and a PowerPoint presentation discussing the details of the project. The problem statement was uploaded on the ENGINEER website before the event was started. Students could also register for the event on the ENGINEER website.

## **MINDBEND**

MINDBEND was open for all the students and mainly focused on the 1st and 2nd year students. This year we had 36 teams. The event was conducted in online mode. The event was basically testing the knowledge of the participants, consisting of 3 rounds, elimination of teams after each round, the team which scores the highest score in the 3rd round are the winners. Rounds held: → Round 1: Quiz This was a written quiz consisting of 30 questions to be answered in 30 minutes. 18 teams were shortlisted for the next round. → Round 2: This round is divided into 3 sub rounds which are Jigsaw puzzle, Taboo round and Pictionary. Each sub round had a time limit of 5 minutes. Top 5 teams were selected to the final round. → Round 3: Blindfold walk It was the final round in which one person was blindfolded, he/she had to cross the obstacles based on the instructions given by his/her partner. Total Prizes worth Rs 20000 were given to the winners.

## **11. ASTRO EVENTS**

Engineer 2022 saw a new and improved Astro Committee room with an array of innovative exhibits attracting a sizable crowd. The product of several weeks of hard work by the members of the Amateur Astronomy Club, the committee room of 2022 was definitely an improvement from the year before.

### **STARRY NIGHT**

Starry Nights, organized by the Amateur Astronomy Club (AAC) of NITK had numerous events to offer this year. Audiences were provided with the opportunity to witness the beautiful sky over the night from the Telescope of NITK at the terrace of the science department.

### **STAR-WARS**

Star Wars, the well-known and much awaited quizzing event organized by the Astro Committee saw a really good participation. Quizzing events never fail to disappoint and this was not an exception. Testing the participants of their astronomy, astrophysics and pop culture, this well organized and fun quiz saw the

participants and the audience leave the MSH entertained.

## **ENDEAVOUR**

This event was one for all the Astrophysics enthusiasts. Organized by dedicated astrophysics enthusiasts, the event had carefully designed questions that tested the participants on their knowledge of astrophysics.

The major exhibits under **Antariksh** are described below:

## **12. FARC**

The Flying & Robotics Club (FARC) of NITK, in association with Team Mangalore Flyers, presented a stunning airshow with an aura of colors in the air. There were 2 RC advanced aircraft & a helicopter performing aerobatics during the early hours at the NITK New Sports Complex. The sight was accompanied by all the primary school kids, UG & PG Students along with the faculty, witnessing the marvel of the airshow.

## **13. REFLUX**

The chemical events under reflux committee organized two events and a visit to MRPL for Engineer 2022.

### **CHEMICAL BREAKDOWN**

This event was aimed at the first year students with an objective to introduce them to the world of Chemical Engineering in an engaging way. The event was conducted in two rounds. The first round was a pen and paper round with objective type questions, crosswords and picture-connects and riddles majorly from chemistry and physics along with a smattering of questions from other disciplines of science. The participants qualifying the first round took part in the second round which was basically a treasure hunt. The treasure hunt was based on identifying the equipment commonly used in chemical engineering. The laboratories at the Department of Chemical Engineering were used for this purpose. The team finishing the hunt in the shortest time was declared the winner.

### **INDUSTRIAL VISIT TO MRPL**

This is a unique event that exposes the participants to the industrial world. This time students went to Mangalore Refineries and Petrochemicals Limited (MRPL) site and got the insights of the

working of an industry, interacted with the DGM of Process Engineering of MRPL. The students were extremely pleased with the visit.

### **CHEMSHOT**

Reflux Committee (Engineer 2022) is back with its flagship event Chemshot. All the photographers, be ready with your best shots. Prize money was worth 1K. Participants just need to click any chemical-related photo and then the reflux core team along with the photography club decide the winners. Maximum 2 photographs per participant can be uploaded.

## **14. METAMORPH**

### **LIQUID NITROGEN**

Liquid nitrogen—LN<sub>2</sub>—is nitrogen in a liquid state at low temperature. Liquid nitrogen has a boiling point of about -195.8 °C (-320 °F; 77 K). It is produced industrially by fractional distillation of liquid air. It is a colorless, low viscosity liquid that is widely used as a coolant. We used it to re-freeze pre-melted ice-cream and make ice-cream crackers.

### **FIRE EXTINGUISHING BALL**

The Fire Extinguishing Ball is a round-shaped fire extinguisher that self-activates after about three to five seconds of fire exposure. It disperses non-toxic extinguishing chemicals, and it can extinguish fires within a three-cubic meter radius. The Fire Ball contains dry fire extinguishing powder – ammonium phosphate mono (about 94% active material) – it is a dry chemical fire extinguisher, environmentally friendly and safe for humans, plants and animals. Using cardboard boxes and dry leaves, we started a fire in an open space and demonstrated the working of the fire extinguishing ball.

### **TRANSPARENT CONDUCTING OXIDE**

Transparent conductive oxides (TCO) are doped metal oxides used in optoelectronic devices such as flat panel displays and photovoltaics (including inorganic devices, organic devices, and dye-sensitized solar cells). Most of these films are fabricated with polycrystalline or amorphous microstructures. We used a flat piece of fiberglass on which one side was coated with an Indium oxide film while the other side was not coated. Using a

voltmeter, we demonstrated that the side coated conducts electricity while the other side is non conductive.

### **NON NEWTONIAN FLUID**

A non-Newtonian fluid is a fluid that does not follow Newton's law of viscosity, i.e., constant viscosity independent of stress. In non-Newtonian fluids, viscosity can change when under force to either more liquid or more solid. Ketchup, for example, becomes runnier when shaken and is thus a non-Newtonian fluid. We mixed 1:1 corn starch with water in a big tub and allowed it to form a non-Newtonian Fluid. We demonstrated the change in viscosity by punching the fluid layer, upon which it behaved like a solid. But when we placed our hands gently on the surface it turned into a liquid again.

### **FIRE TORNADO**

A fire tornado is a spinning vortex of fire that spirals upward away from the source due to whirling eddies of air. They occur naturally during some fires where the intense heat pulls air and ash, or other fuel, upwards and begins to spin due to whirling eddies of air. A wire basket is secured to a rotating disc and a dish with isopropyl alcohol is placed in it. The alcohol is ignited and the basket is slowly twirled. This causes a mesmerizing effect of the fire tornado.

### **ELEPHANT TOOTHPASTE**

1/2 cup of hydrogen peroxide and a big squirt of dish soap was added into the bottle and swirled gently to mix. To give our foam stripes like some toothpastes, we put food color drops along the inside rim of the bottle's mouth. In a measuring cup we mixed together one tablespoon of yeast and three tablespoons of warm water and stirred for about 30 seconds. We then poured the yeast mixture into the bottle then quickly stepped back, and watched our reaction go!

### **HOT ICE**

Sodium acetate or hot ice is an amazing chemical which can be prepared from baking soda and vinegar. A solution of sodium acetate is cooled below its melting point and then causes the liquid to crystallize. The crystallization is an exothermic process, so the resulting ice is hot. Solidification occurs so quickly we can form sculptures as we pour the hot ice. We demonstrated this experiment by adding a pinch of sodium acetate to the boiled and

cooled sodium acetate solution. This causes the solution to instantly freeze in the form of needles.

### **CARBON SNAKE**

Here, sugar and baking soda mix were taken in a container. Sulphuric acid was added and stirred and after a few minutes, the mixture began to bubble and a black snake started to form. Sulfuric acid fumes start to form.

### **CONDUCTING PAINT**

Conductive paint is a paint or ink which is electrically conductive. Originally developed for use in printed electronics, applications for these materials were traditionally reserved for printing the PCBs (printed circuit boards) that live inside electronic devices, like the smartphones and computers we use every day. But there is an exciting world of new applications available thanks to advancements in materials science, manufacturing and electronics. We formulated a simple conductive paint using graphite powder and sodium silicate and painted it over a sheet of paper. Using a simple circuit and an LED bulb, it could be shown that the conductive paint completes the circuit.

### **TEM**

Transmission electron microscopes (TEM) are microscopes that use a particle beam of electrons to visualize specimens and generate a highly-magnified image. TEMs can magnify objects up to 2 million times. In order to get a better idea of just how small that is, think of how small a cell is. It is no wonder TEMs have become so valuable within the biological and medical fields. A demonstration on the working of TEM and sample preparation was provided by one of our own professors Dr. Udaya Bhat K. Students enthusiastically participated in this demonstration.

### **CASTING**

Casting is a manufacturing process in which a liquid material is usually poured into a mold, which contains a hollow cavity of the desired shape, and then allowed to solidify. The solidified part is also known as a casting, which is ejected or broken out of the mold to complete the process. Casting is most often used for making complex shapes that would be otherwise difficult or uneconomical to make by other methods. We held a demonstration of casting in our

own lab. We cast a wrench from start to finish. Right from the mixing of the sand to the setting of the mold and pattern and pouring of hot metal, students enthusiastically observed the entire process and marveled at the intricacies involved in this age-old process.

## **15. GAMING EVENTS**

The main goal of the gaming committee was to provide a competitive and enjoyable experience in the most popular LAN games around while ensuring that all participants got significant gameplay time. A description of a few of the events that were organized is given below. Game List are

- CS Go LAN(Online)
- BGMI (Online)
- Valorant(Online)
- DotA 2
- FIFA 16
- EA Sports WWE
- Mortal Kombat 4
- VR game - rush of blood
- VR game - Forza horizon racing

### **CSGO LAN Tournament**

Counter Strike Global Offensive is a competitive FPS game that was conducted during Engineer 2022 techfest in CCC as a LAN Tournament. Around 10 teams registered from NITK and outside NITK too.

## **16. MAGIC SHOW BY KARAN SINGH**

Karan Singh is a magician from India. He has been named as “Modern Day Wizard” by The New York Times and “The mentalist who found out Shah Rukh Khan’s ATM Pin” by GQ India for utilizing his audience as a prop while performing on stage.

Karan Singh performs several mental illusions and has his own YouTube channel where he presents various mind-blowing illusions to notable personalities, combining psychology and the art of magic.

## **17. ENGI TALKS**

A seminar on Metaverse, the blockchain-based virtual world, was conducted by Anup Pai at the Main Seminar hall, in association with KARENGe- the first campus integrated metaverse in India. The word KARENGe which literally means “we will do it” also symbolizes the never-give-up spirit every engineer graduated from

NITK holds within. The idea is to create an imagination economy where alumni, students, faculties and anyone who has ever spent their life in NITK can interact with each other and share values. The values can be moral or career guidance, monetary, life lessons, art, poetry, almost anything which will enhance the life of students at NITK.

Breakthrough, the title of the Engi talks, was conducted at the Silver Jubilee Auditorium (SJA), which brought a plethora of topics ranging from dealing with competitive exams to the revolutionary transition in technology to tackling the changing variables in life to observing the bliss in the wonders of nature. We've had four amazing personalities, coming from different walks of life bringing in their personal experiences to share and connect with the audience. Notable guests included Chandresh Mahajan (CMD-Exergic Edutech), Deepak Shenoy (CEO-Capitalmind), Gaurav Sen (Founder-Interview ready), and Aarzo Khuranna (Wildlife photographer- Sony Alpha Ambassador).

### **18. LAZER SHOW**

It was a packed evening on the first day of Engineer, with people rushing in at the SJA to witness the Laser show organized by Innovative Lasers, Bangalore. Students, faculty of NITK, along with families were also present to witness the laser performance. The show turned out to be a crowd puller, with realistic 3D images carved out from the lasers along with the visual effects, showcasing the Penrose triangle of Engineer. Laser beams filled the auditorium, which was accompanied with smoke media and laser display synchronized to the beats of the background music.

### **19. WEAPON SHOW**

Engineer 2022, in association with 2 KAR ENGR COY NCC NITK has its display of advanced artillery and weapons provided by the Indo-Tibetan Border Police force 56 ITBP unit. Attended by over 200+ primary school students from the Kannada medium and English medium schools, the event also featured the students, staff and faculty of NITK, who were given the awareness on various weapons like 5.56 MM Insas Rifle, 7.62 MM AK 47, 9 MM Carbine machine gun, and many more.

### **20. DJ NIGHT**

Perhaps the most memorable moment in Engineer was the power-packed DJ nights with live performances from DJ Paranox, the maestro in fusing Indian elements with the slickest Bass Drops, a class in itself. Lost Stories, the Indian DJ/producer duo had the audience up on their feet grooving through the whole night, with reminiscence to the classic tunes of Vaseegara, Bombay Dreams, and many more. With their unique ability to blend Indian folk sounds with electronic music, they captivated the audience with their live performance, making Encore a night to be truly cherished forever.

### **21. STAR EVE WITH JASMIT SINGH BHATIYA**

Engineer had its last performance with the Star Eve talk show, with a prelude comedy talk performed by Danish Juneja, followed by the main performance by none other than the very famous Jasmeet Singh Bhatia, popularly known as Jassy. Well known for his performances in TVF Bachelors, OK Jaanu and TVF Tripling, the audience was all in for a laughter-packed evening, with classic jokes and humorous narratives filling up the auditorium all the way.

It was the last memorable event left in the day, marking the end of Engi '22. Everyone who had attended the event enjoyed the plethora of events held over the days across the campus.

## 20. ASSOCIATED CENTRES

### 20.1 Nitk - Science And Technology Entrepreneurs' Park (Step)

We Wanted To Share With You Our Achievements And Contributions To The Impact Community In This Past Year . The Past Year Was Unimaginable By Any Measure. The Pandemic Swamped The Entire Globe Like A Colossal Tsunami Leaving Multifold Changes In Its Wake. Besides Extracting An Appalling Human Toll, It Changed The Way We Live, Work, Learn, And Much More. Its Immediate Consequences Saw The World Facing A Severe Economic Contraction And Triggered Unprecedented Government Actions. But The Step Swung Into Action, As We Moved Towards, We Looked Back With Pride At What We Had Been Able To Do In The Last Year.

Prof. Arun M Isloor, Department Of Chemistry, Nitk-Surathkal Have Taken Charge Of Nitk-Step From 31.08.2021(Forenoon) And Manages Day To Day Activities As Professor Incharge Of Nitk-Step.

The Core Advisory Group Of Nitk-Step Was Constituted With The Following Faculty Members Of Nitk:

#### **Professors:**

Dr.K.V.Gangadharan  
Dept. Of Mechanical Engineering

Dr.M.N. Satyanarayana,  
Dept. Of Physics & Chairman – Crf

#### **Associate Professors:**

Dr. Hari Prasad Dasari  
Dept. Of Chemical Engineering  
Dr. Mohammed Rizwanur Rahman  
Dept. Of Metallurgical And Materials Engg

#### **Asst. Professors:**

Dr. Saikat Dutta, Dept. Of Chemistry

Dr.Somashekhar Rao Todeti  
Dept. Of Mechanical Engineering  
Dr.SoumyaKamathS  
Dept. Of Information Technology Engineering  
Dr.Pathipati Srihari, Dept. Of Electronics&Communication Engineering  
Dr. Pruthviraj U,Dept. Of Water Resources & Ocean Engineering  
Dr.Mrityunjay Doddamani  
Dept.Of Mechanical Engineering  
From Nitk Administration Side:  
Shri.Rammohan Y,  
Joint Registrar

We Conducted 8 Training Programmes During The Year.

#### **Name Of Event**

1. Dst Sponsored Tedp 2021 (Virtual Mode) -- 33
2. Dst Sponsored Wedp 2021 (Virtual Mode) -- 28
3. Fundamentals Of Intellectual Property (Online Programme) -- 19
4. Iot With Machine Learning And Data Science(Online Programme) 82
5. Internship On Small Satellite Design-2021 (Online Programme)-- 52
6. Short-Term Course On Pcb Design Using Open Source Tools For Beginners (Online Programme) -- 70
7. Online Short Term Course Organized By Pantech Learning – 57
8. Industrial Internship On Iot With Machine Learning & Data Science(Online Programme) -- **60**

#### **Existing Entrepreneurs:**

1. Expert Vision Labs Pvt. Ltd.
2. Kambala Solutions Pvt. Ltd.
3. Serpro Consultancy Pvt.Ltd
4. A&A Associates Pvt Ltd R& C
5. Bellare Gis Consultancy Pvt.Ltd.,
6. Penzigo Technology Solutions Pvt.
7. Sri Shasha Prayathi Technologies Limited
8. Hitham Herbal Products
9. Apahatech Solutions Llp

10. Dri-Ev Technology And Solutions Pvt.Ltd

**Newly Registered Entrepreneurs:**

11. Stackwalk Technologies Private Limited
12. Greenthrust Oil Industries Pvt. Ltd.
13. Reuleaux Solutions Llp
14. Shree Jayalakshmi Enterprises

**Existing Entrepreneurs Nitk**

**Faculty Members:**

1. Dr. Pathipati Srihari, - (Sri Shasha Prayathi Technologies Limited)
2. Dr. Arun Mohan Isloor, - (M/S Apahatech Solutions Llp)

Dr. B Dastagirireddy, - (Dri-Ev Tech Solutions)

**20.1 CENTRE FOR CONTINUING EDUCATION (C.C.E)**

<b>Sl. No.</b>	<b>Title of the Course</b>	<b>Duration</b>	<b>Organized through</b>	<b>Name of the Course Coordinators</b>	<b>No. of Participants attended</b>	<b>Course Intended for</b>
1	“EXPERIMENTAL AND NUMERICAL APPROACHES TO TWO PHASE HEAT TRANSFER - (ENTPHT 2021)”	27-12-2021 to 31-12-2021	Department of Mechanical Engineering, NITK	Dr. Sathyabhama A	58	Faculty and Students of NITK, sponsored by NITK, Surathkal
2	“MACHINE LEARNING AND DEEP LEARNING FOR REMOTE SENSING APPLICATIONS”	17-01-2022 to 21-02-2022	Department of Electronics and Communication Engineering, NITK	Dr. Shyam Lal	32	ISRO Scientists, sponsored by NRSC, Hyderabad

## 21.00 FINANCE AND ACCOUNTS

### Expenditure position for the four years

Year	Oh.35 (Capital)	Revenue Grant 31&36	Total
2018-19	5413.50	15067.04	20480.54
2019-20	1094.76	16311.21	17405.97
2020-21	2595.03	14750.97	17346.00
2021-22	2096.74	16808.35	18905.09

<b>BALANCE SHEET AS AT 31-03-2022</b>			
			<b>(AMOUNT - Rs.)</b>
<b>PARTICULARS</b>	<b>SCH. NO.</b>	<b>CURRENT YEAR</b>	<b>PREVIOUS YEAR</b>
<b>SOURCE OF FUNDS :</b>			
CORPUS/CAPITAL FUND	1	(26,45,29,745)	(14,51,50,623)
DESIGNATED/ EARMARKED/ ENDOWMENT FUNDS	2	3,64,94,39,740	3,48,95,68,844
LOANS/BORROWINGS	3	1,01,66,13,576	67,50,36,722
CURRENT LIABILITIES AND PROVISIONS	4	6,71,79,23,434	6,16,03,93,430
TEQIP PROJECT - PHASE III	26	3,45,90,110	3,47,42,810
<b>TOTAL</b>		<b>11,15,40,37,115</b>	<b>10,21,45,91,183</b>
<b>APPLICATION OF FUNDS :</b>			
FIXED ASSETS	5		
Tangible Assets	5(A)+(D- ii)	4,62,72,29,309	3,87,09,86,176
Intangible Assets	5(c)	2,48,96,728	1,53,39,833
Capital Works-In-Progress	5(B)	1,16,14,88,687	1,06,23,66,295
INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS	6		
Long Term		3,61,92,38,191	3,56,11,26,301
Short Term		-	-
INVESTMENTS - OTHERS	7	-	-
CURRENT ASSETS	8	1,22,86,53,519	88,48,61,865
LOANS, ADVANCES & DEPOSITES	9	45,79,40,571	78,51,67,903
TEQIP PROJECT - PHASE III	26	3,45,90,110	3,47,42,810
<b>TOTAL</b>		<b>11,15,40,37,115</b>	<b>10,21,45,91,183</b>
SIGNIFICANT ACCOUNTING POLICIES	24		
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS	25		

<b>INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31-03-2022</b>			
			<b>(AMOUNT - Rs.)</b>
<b>PARTICULARS</b>	<b>SC.NO.</b>	<b>CURRENT YEAR</b>	<b>PREVIOUS YEAR</b>
<b><u>INCOME:</u></b>			
ACADEMIC RECEIPTS	10	44,08,84,999	36,69,59,475
GRANTS/SUBSIDIES	11	1,67,49,44,873	1,47,77,76,456
INCOME FROM INVESTMENTS	12	2,85,87,625	1,33,89,090
INTEREST EARNED	13	26,53,346	86,30,628
OTHER INCOME	14	11,05,10,371	11,66,12,190
OTHER RESEARCH PROJECTS		6,55,09,741	8,12,39,079
PRIOR PERIOD INCOME	15	-	2,27,62,724
<b>TOTAL (A)</b>		<b>2,32,30,90,955</b>	<b>2,08,73,69,641</b>
<b><u>EXPENDITURE:</u></b>			
STAFF PAYMENTS & BENEFITS	16	1,70,55,08,090	1,61,26,21,655
ACADEMIC EXPENSES	17	44,59,66,785	42,12,89,114
ADMINISTRATIVE & GENERAL EXPENSES	18	22,61,73,848	21,66,25,530
TRANSPORTATION EXPENSES	19	13,97,570	15,52,745
REPAIRS & MAINTENANCE	20	8,36,16,685	10,30,54,761
FINANCE COST	21	6,34,18,260	2,10,56,390
DEPRECIATION	5	27,49,98,146	19,98,56,085
OTHER EXPENSES	22	2,96,39,887	4,84,92,081
PRIOR PERIOD EXPENSES	23	-	-
<b>TOTAL (B)</b>		<b>2,83,07,19,271</b>	<b>2,62,45,48,361</b>
<b><u>BALANCE:</u></b>			
EXCESS OF EXPENDITURE OVER INCOME	(A-B)	<b>50,76,28,316</b>	<b>53,71,78,720</b>
SIGNIFICANT ACCOUNTING POLICIES	24		
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS	25		

RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31-03-2022										
RECEIPTS			Current Year	Previous Year		PAYMENTS			Current Year	Previous Year
<u>Opening Balances:</u>						Establishment and Administrative expenses			1,73,58,09,528	1,72,49,44,456
(a) Cash in hand			14,973	33,617						
<u>(b) Bank Balances:</u>						Payments Against Earmarked/Endowment Funds			15,02,70,690	13,91,88,395
(i) In current accounts			5,33,34,913	1,69,11,111						
(ii) Savings accounts			5,07,93,004	8,54,50,844		Payments Against Sponsored Projects/Schemes			19,02,93,020	21,32,62,888
(iii) HEFA accounts			22,26,654	4,35,985						
<u>Grants Received:</u>						Investments			1,97,74,77,686	1,75,80,66,635
(a) From Govt. of India										
Capital Grant	45,99,64,000					Expenditure on Fixed Assets & Capital Work - in - progress:			1,13,98,02,644	77,66,12,279
Revenue Grant	1,57,26,67,734		2,03,26,31,734	1,57,79,00,447						
(b) From State Government			-	-						
						Deposits & Advances			1,64,60,24,922	1,78,46,91,696
Academic Receipts			47,33,86,701	42,28,29,233						
Receipts Against Earmarked/Endowment Funds			30,31,27,346	36,11,36,326		Payments made against Funds for various projects:			-	2,80,82,00,316
Receipts Against Sponsored				15,10,09,623		Any Other Payments :				

Projects/Schmes/Plan			41,91,21,828					90,54,49,917	59,34,74,021
Income on Investments.			2,11,85,200	1,33,89,090		<u>Closing Balances:</u>			
						(a) Cash in hand		22,596	14,973
Interest Received :			23,46,541	1,04,25,338		(b) Bank Balances:			
						(i) In current accounts		19,64,09,174	5,33,34,913
Deposits & Advances			2,27,62,59,692	1,64,38,15,622		(ii) Savings acconts		2,19,91,566	5,07,93,004
						(iii) HEFA acconts		4,30,50,812	22,26,654
Investments Encashed/matured			2,04,05,95,174	1,60,55,94,740		(iv) TSA acconts		26,70,44,487	-
Any other receipts:			59,86,23,283	4,01,58,78,253					
<b>TOTAL</b>			<b>8,27,36,47,042</b>	<b>9,90,48,10,229</b>		<b>TOTAL</b>		<b>8,27,36,47,042</b>	<b>9,90,48,10,229</b>



**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA SURATHKAL**

SRINIVASNAGAR, MANGALORE - 575 025 INDIA



# **AUDIT REPORT**

## **2021-22**

Website : [www.nitk.ac.in](http://www.nitk.ac.in)

E-mail : [director@nitk.ac.in](mailto:director@nitk.ac.in)

Tel : 0824-2474000 (7 lines)

Fax : 0824-2474033



**SEPARATE AUDIT REPORT ON THE ACCOUNTS OF THE  
NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA,  
SURATHKAL, MANGALORE FOR THE YEAR 2021-22.**

We have audited the attached Balance Sheet of National Institute of Technology, Surathkal, Mangalore, as at 31<sup>st</sup> March 2022 and the Income & Expenditure Account / Receipts & Payment Account for the year ended on that date under Section 19(2) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The audit on the accounts of the Director, National Institute of Technology, Karnataka, Surathkal is entrusted under the NIT Act 2007. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller and Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules and Regulations (Propriety and Regularity) and efficiency-cum-performance aspects etc., if any, are reported through Inspection Reports/ CAG's Audit Reports separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements. An audit includes examining on a test basis, evidences supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that:

- i We have obtained all the information and explanations, which to the best of our knowledge and belief, were necessary for the purpose of our audit.
- ii The Balance Sheet and Income & Expenditure Account/Receipt & Payment Account dealt with by this report have been drawn up in the format prescribed by the Government of India, Ministry of Human Resource Development.
- iii In our opinion, proper books of accounts and other relevant records have been maintained by the Institute in so far as it appears from our examination of such books.
- iv We further report that :

**(A) REVISION OF ACCOUNTS:**

The NITK revised the accounts on the basis of audit observations and resubmitted and revised accounts on 19.07.2022. The effect of revision is as under:

- (i) The "Sources" and "Application" of Funds increased by ₹1.09 lakh from ₹1,11,539.28 lakh to ₹1,11,540.37 lakh.
- (ii) Income increased by ₹2.99 lakh from ₹23,227.92 lakh to ₹23,230.91 lakh.
- (iii) Expenditure decreased by ₹1.06 lakh from ₹28,308.26 lakh to ₹28,307.19 lakh.

## **(B) COMMENTS ON ACCOUNTS:**

### **B. 1 GENERAL:**

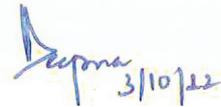
Under Schedule No. 5(D) - Fixed Assets of Various Projects & Funds' Assets of ₹14,27,16,663 has been accounted as transfer to NITK Institute Account.

Audit scrutiny of the relevant records revealed that there were no Project Closure Reports and approved of the Competent authority authorising the transfer of Fixed Assets of Various Projects & Funds' to an extent of ₹14,27,16,663 to NITK Institute Account' Fixed Assets was not on record. The policy of the Institute to account the Assets of closed Projects needs to be adequately disclosed in the Notes to Accounts.

### **(C) GRANTS-IN-AID :**

Out of Grant-in-aid of ₹215.76 Crore (including previous year balance of ₹12.49 Crore), the Institute could utilize an amount of ₹189.04 Crore leaving on amount of ₹26.70 Crore as unutilised as on 31.03.2022. (Source - Schedule 11).

- (v) We report that the Balance Sheet and Income & Expenditure Account/Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.
- (v) In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read with the Accounting Policies and Notes on Accounts, and subject to the matters stated above and other matters mentioned in Annexure to this Audit Report gives a true and fair view in conformity with accounting principles generally accepted in India.
- a. In so far as it relates to the Balance Sheet, of the state of affairs of the National Institute of Technology, Karnataka, Surathkal as at 31 March 2022;
- and
- b. In so far as it relates to Income & Expenditure Account of the deficit for the year ended on that date.



**PRINCIPAL DIRECTOR OF AUDIT (CENTRAL)  
BENGALURU**

## ANNEXURE

### 1. Adequacy of Internal Audit system

There is a separate Internal Audit Wing (IAW) functioning in the Institute conducting audit regularly every year.

### 2. Adequacy of Internal Control System

The prevailing internal control system is adequate. The IAW covers all areas of transactions like receipt and utilization of grants, IRG, construction activities, transactions related to funds etc. Four members from the Accounts section (Joint Registrar, Assistant Registrar, Superintendent and Senior Assistant) are actively involved in the preparation of Annual accounts and assisted by a Chartered Accountant M/s Nitin J Shetty & Co.

### 3. System of physical verification of fixed assets

Physical verification of fixed assets for the period 2021-22 has been carried out by the Institute.

### 4. System of physical verification of Inventory

Physical verification of inventory for the period 2021-22 has been carried out by the Institute.

### 5. Regularity in payment of statutory dues

The Institute is exempted from payment of income tax under Section 12 of the Income Tax Act. All the statutory dues of the institute towards EPF and ESI were remitted within the stipulated date.

A handwritten signature in blue ink, followed by the date '3/10/22'.

**PRINCIPAL DIRECTOR OF AUDIT (CENTRAL)  
BANGALURU**

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA SURATHKAL

P.O. SRINIVASNAGAR, MANGALORE - 575 025 INDIA

## CONTENTS

Sl.No.	Particulars	Page No.
1.	Director's Report	1 - 4
2.	Balance Sheet	5
3.	Income and Expenditure Account	6
4.	Schedules forming part of Balance Sheet "Sch - 01 to 09"	7 - 30
5.	Schedules forming part of Income and Expenditure Account "Sch - 10" to "Sch - 23"	31 - 36
6.	Statement of Receipts and Payments	37
7.	Significant Accounting Policies and Notes on Accounts	38 - 40
8.	Schedule 25 - TEQIP Phase III Statement of Accounts	41 - 47
9.	NITK Employees GPF	48 - 50
10.	NPS Tier – I Account	51 - 52



# DIRECTOR'S REPORT

## Introduction

National Institute of Technology Karnataka, Surathkal formerly, Karnataka Regional Engineering College Surathkal is one of the Seventeen REC's established in the country by the Government, started in the year 1960. It was the second among the first batch of Eight RECs' set up in the Country. The Institute was upgraded to NIT and conferred Deemed University status w.e.f. 26.06.2002 as per GOI order No.F9 6/95 U3 Dt 26.06.2002 and now holds a statutory status as "Institute of National Importance" by an Act of Parliament - NIT Act notified on 15<sup>th</sup> August 2007, further amended and notified as NITSER Act 2012.

The Institute is located at Srinivasnagar, Surathkal, of Mangaluru city in Dakshina Kannada District, Karnataka State, on the West Coast National Highway (NH 66), having campus area of 295 acres.

During the year NITK has achieved significant growth in various spheres of its activities. Our efforts in teaching, infrastructure building, Research and development, Testing and Consultancy, developing entrepreneurship, and student training and placement have been responsible for NITK being placed amongst the top technological institutions in the country. We wish to acknowledge the strong support we receive in all our activities from our distinguished alumni who occupy coveted positions in the Industry.

It is now my pleasant duty to place before you, a brief report highlighting our significant achievements during the year 2021-22. I wish to place before you, some of the new initiatives taken at NITK so as to scale greater heights in teaching, research and outreach activities and get recognised as 'A National Institute with an International Recognition'.

## Governance:

NITK, an Institute of National Importance, is governed by the Board of Governors, under the NITSER Act 2012 and Statutes laid down by the Govt. of India. The Board consists of representatives from Govt. of India, Govt. of Karnataka, Industry, Educationists and the Institute Senate. The Director is the Executive Head of the Institute. The day-to-day activities are carried out by the Director, with the support of Deans, Registrar, Joint Registrar, Heads of the Departments, Professor-in-charge of various activities and Assistant Registrars. Several committees have also been formed to facilitate decision-making process, effective.

## Faculty and Staff:

Availability of high-quality human resources has been the major factor contributing to the success achieved in different spheres of activities at NITK, all these years. The institute is making concerted efforts to fill up all the vacant positions, both in faculty cadre as well as non-teaching staff. During the period of the report, the total number of faculty and non-faculty are 273 and 123 respectively.

## Institute Ranking:

The NITK has secured 10<sup>th</sup> Rank in all India Ranking for Engineering by the NIRF and secured 32<sup>nd</sup> position in overall ranking category in the year 2021.

## Financial Support:

There has been an enhanced Revenue and Capital grants, increase in R&D funding, an increase in student intake, Testing and consultancy output and initiation of a few new infrastructural projects. The total internal revenue generation through fee collection and other receipts were Rs. 58.09 crores. Our Corpus fund and Institute Development fund has grown steadily to about Rs.281.18cr Crores.

NITK is the beneficiary of financial support extended to Centrally Funded Institutions under Phase-III of the World Bank Assisted TEQIP Program. Under the scheme, NITK has received a total grant of Rs. 5.23 lakh for

the year 2021-22 and the scheme has been successfully completed. The main focus of this phase of the project is on the improvement of post-graduate education and enhancement of our research activities and output.

### Academic Activities:

Presently, NITK offers B.Tech programs in 10 disciplines and M.Tech programs in 25 specialisations. In addition, MSc Programs are offered by both Departments, Physics and Chemistry and the MBA and MCA programs are offered by the School of Management and MACS Department respectively. While M.Tech (Research) Programs are offered in all PG specialisations, doctoral research is also being undertaken with scholars registered in all the Departments.

For the academic year 2021-22, about 982 students were admitted to the B.Tech. Program based on their scores in JEE-Mains /SAT Examinations, 819 M.Tech and M.Tech by Research through GATE, 64 in MSc, 45 in MBA and 64 in MCA. A total of 204 students joined the doctoral programs, focusing increased research at the Institute. There are about 858 Research Scholars in the Institute and during the reference year, 120 students have been awarded PhDs.

Students' performance in examinations continues to be excellent with an overall pass percentage of more than 98.53%. A large number of our students have graduated with distinction. This year too, our students have excelled in GATE-2021 and CAT-2021 examinations which have fetched them admissions to top technological and business schools of India to pursue their post-graduate programs or MBA studies.

### R & D Activities:

Going by the legacy and standards of NITK, Institute faculty are engaged in research covering all state of the Art domains such as AI, ML, Electric and Vehicles, Materials and Device Research for Biomedical, transport and defense applications, Earth quake structures, GIS for Water resources planning, Environmental impact mitigation etc.

Institute has been supporting through Central Research Facility (CRF) as well as other laboratories. Last year's research performance is reflected in 15+quality publications per faculty along with 6 patents and 22+citations on average/faculty for last 5 years. Institute has also supported the research by providing post-doctoral fellows for faculty engaging in projects.

Faculty are also bagging good number of sponsored research projects from funding agencies like, DST, DRDO, ISRO under schemes like CRG, BIRACS, TARE, CARS etc, and also from companies in India and abroad. Last year Institutes has accommodated 120 ongoing projects worth of about ₹ 48 crores. In addition to supporting existing centers of excellence in Disaster Management and Smart Grid Technology, Institute is working on establishing Centers of excellence in Digital manufacturing and Ansys Development Centre.

### Infrastructural Facilities:

The following works were completed during the financial year 2021-22 through CPWD:

Sl. No.	Name of the project/ work	Estimated cost
1	Providing power supply to Faculty Apartments – Type - V and Type – VI	₹ 0.23 crore
2	Construction of STP along with underground collection tank and allied electrical works for Faculty Apartments (Type - V and Type -VI)	₹ 0.73 crore
3	Extension of 11kV line from 33kV substation to western side of the Campus, providing Trasformers, DG sets and Service building	₹ 5.48 crore

The following works were under construction during the financial year 2021-22 through CPWD:

Sl. No.	Name of the project/ work	Estimated cost
1	Const. of Boys' hostel building of 500 single occupancy rooms 10 <sup>th</sup> block (EWS)	₹51.14 crore
2	Construction of building for Security Office and Security Gate at the main entrances of the campus (Eastern and western side).	₹1.36 crore
3	Construction of Concrete testing Laboratory and Environmental Engineering Laboratory for Department of Civil Engineering (G+1 floor as annex to the existing building)	₹1.32 crore
4	Construction of SKY-TRACK (Foot over bridge) across National Highway - 66 to connect eastern and western parts of the campus	₹3.20 crore
5	Construction of New building for School of Interdisciplinary Studies (to house different Centers of Excellence) and Central Research Facility (CRF) – Under HEFA	₹48.00 crore
6	Construction of New Girls Hostel with modified 427 capacity (212 double occupancy + 3 single occupancy for differently abled persons) [Block No. 6 - Sowparnika] – Under HEFA	₹37.88 crore
7	EWS Reservations - Construction of New Boys' Hostel of 200 triple occupancy rooms (Block No. 11)	₹43.00 crore

The following new infrastructural works has been initiated in 2021-22 under HEFA loan scheme:

Sl. No.	Name of the project/ work	Estimated cost
1	Const. of Lecture hall Complex – Block D [under HEFA]	₹54.76 crore

### Industry-Institute Collaborations

NITK understands that the objective of effective training of our students can only be met when we have meaningful and continuous interaction with industry. Efforts are on for establishment of industry-sponsored professorial chairs, creating opportunities for training of faculty, staff and students in the collaborating industry and providing for content/skill up-gradation to industrial personnel. Currently there are 67 active MoU's with various academia and industries within India and abroad. From April 2021 to March 22, 22 MoU's have been signed. TCS, TCL, Karnataka Veterinary, Animal and Fisheries Science UNic (GoK), IITG, Maire Technimont, University of Utah USA are some of the prominent MoU's signed during the period April 2021 to March 22,

Active MoUs with reputed global industries and National Research agencies like Universita Degli Studi di Pavia, Italy, Arya Technocrats, Belagavi, Wadhvani Operating Foundation, Los Altos, California, USA, Eaton Technologies Pvt. Ltd, SimLife Electric Private Ltd Bangalore, Aum Techno Spray, Bangalore, IIT Bombay, Kanchanaburi Campus, Mahidol University Thailand, National Institute of Disaster Management , New Delhi, National Law School of India University Bengaluru, KIOCL Limited Mangalore, Human Resocia Co. Ltd, Japan, Department of Nanoscience & Engineering/BK21PLUS Nano Convergence Project Group of INJE University , Republic of Korea, Institute of Radio Frequency and optoelectronics Integrated Circuits plus State Key Lab of Bioelectronics, South East University. One Professorial Chair has been established with sponsorship from Ministry of Steel (GOI). Postgraduate courses are being offered in collaboration with L & T Construction, Chennai, CMTI, Bangalore and Robert Bosch, Bangalore. A number of outreach and collaborative activities are being planned in the domain of field of Testing and Consultancy. A Bio Waste Recycling Plant (BWRP)

costing INR 39.6 Lakhs funded through Corporate Social Responsibility (CSR) fund of Marie Tecnimont Private Limited, Mumbai was installed at Institute and functional now. This plant will be used to recycle and process the bio-waste produced in the hostels. It will also be used by researchers working in the area of alternate energy generation and sustainable development to conduct research. A high value funded research project is being executed with support from Department of Heavy Industry (FAME-TPEM project). This project is designed to support the country in its quest for development of indigenous technologies in the domain of Electrical mobility.

#### **Training and Placement:**

The Department Career Development Centre (CDC) of the Institute facilitates on-campus recruitment and placement of our students and also arranges for their training/internship in Industry. NITK is one of the top preference institutions in the country to many companies for campus placements and internships. During 2021-22 the percentage of eligible students placed was 92.19% for UG and 72.38% for PG as on date of this report. The recruitment process which is expected to happen till the end of June 2022. The average salary for 2021-22 is 13.12 LPA. This year top PSU's like BEL, BEL-CRL, GAIL, C-DAC, IOCL, BPCL, BEML and CDOT visited the campus.

#### **Social outreach activities:**

The institute has produced 3D printed components for Circuit splitter and flow regulator to double the capacity of Ventilators for Multiple patient lung ventilation as a part of the service to society initiative during the pandemic. Regular ShramDaan events under Swachh Bharath Abhiyan program are being conducted on weekends by NITK SEVADAL with the active participation of faculty and staff members to improve the campus ambience and foster the feeling of one-ness among all members of the institute family. Institute Swachh Bharath program team also participating in the swachh Surathkal city program in association with local NGOs.

#### **Acknowledgement and Conclusions:**

At this juncture, I personally acknowledge the support and encouragement received from the Chairman and members of the Board of Governors. The members of the Senate, all my colleagues – both faculty and non-teaching members have been very supportive of all the new initiatives being contemplated and implemented. I record my appreciation for the students of the outgoing batch for their disciplined behaviour and keen participation in the activities of the Institute. Again, on behalf of all the members of Team-NITK, I wish to place on record, our gratitude to the MoE-GOI, Govt. of Karnataka and other agencies for their constant support and encouragement.

Date : 18-07-2022

Place : Surathkal

**Sd/-**  
**DIRECTOR i/c**  
**(PROF. UDAYA KUMAR R YARAGATTI)**

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## BALANCE SHEET AS AT 31-03-2022

(AMOUNT - ₹)

PARTICULARS	SCH. NO.	CURRENT YEAR	PREVIOUS YEAR
<b>SOURCE OF FUNDS :</b>			
CORPUS/CAPITAL FUND	1	(26,45,29,745)	(14,51,50,623)
DESIGNATED/ EARMARKED/ ENDOWMENT FUNDS	2	3,64,94,39,740	3,48,95,68,844
LOAN/ BORROWINGS	3	1,01,66,13,576	67,50,36,722
CURRENT LIABILITIES AND PROVISIONS	4	6,71,79,23,434	6,16,03,93,430
TEQIP PROJECT - PHASE III	26	3,45,90,110	3,47,42,810
<b>TOTAL</b>		<b>11,15,40,37,115</b>	<b>10,21,45,91,183</b>
<b>APPLICATION OF FUNDS :</b>			
<b>FIXED ASSETS</b>			
Tangible Assets	5	4,62,72,29,309	3,87,09,86,176
Intangible Assets	5(A)+(D- ii) 5(C)	2,48,96,728	1,53,39,833
Capital Works-In-Progress	5(B)	1,16,14,88,687	1,06,23,66,295
INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS	6		
Long Term		3,61,92,38,191	3,56,11,26,301
Short Term		-	-
INVESTMENTS - OTHERS	7	-	-
CURRENT ASSETS	8	1,22,86,53,519	88,48,61,865
LOANS, ADVANCES & DEPOSITES	9	45,79,40,571	78,51,67,903
TEQIP PROJECT - PHASE III	26	3,45,90,110	3,47,42,810
<b>TOTAL</b>		<b>11,15,40,37,115</b>	<b>10,21,45,91,183</b>
SIGNIFICANT ACCOUNTING POLICIES			
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS			
	24		
	25		

PLACE: SURATHKAL

DATE : 18.07.2022

Sd/-

(RAVINDRANATH K.)

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

(PROF. UDAYA KUMAR R. YERAGATTI)

DIRECTOR

N.I.T.K., SURATHKAL

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2022

(AMOUNT - ₹)

PARTICULARS	SC.NO.	CURRENT YEAR	PREVIOUS YEAR
<b>INCOME:</b>			
ACADEMIC RECEIPTS	10	44,08,84,999	36,69,59,475
GRANTS/SUBSIDIES	11	1,67,49,44,873	1,47,77,76,456
INCOME FROM INVESTMENTS	12	2,85,87,625	1,33,89,090
INTEREST EARNED	13	26,53,346	86,30,628
OTHER INCOME	14	11,05,10,371	11,66,12,190
OTHER RESEARCH PROJECTS		6,55,09,741	8,12,39,079
PRIOR PERIOD INCOME	15	-	2,27,62,724
<b>TOTAL (A)</b>		<b>2,32,30,90,955</b>	<b>2,08,73,69,641</b>
<b>EXPENDITURE:</b>			
STAFF PAYMENTS & BENEFITS	16	1,70,55,08,090	1,61,26,21,655
ACADEMIC EXPENSES	17	44,59,66,785	42,12,89,114
ADMINISTRATIVE & GENERAL EXPENSES	18	22,61,73,848	21,66,25,530
TRANSPORTATION EXPENSES	19	13,97,570	15,52,745
REPAIRS & MAINTENANCE	20	8,36,16,685	10,30,54,761
FINANCE COST	21	6,34,18,260	2,10,56,390
DEPRECIATION	5	27,49,98,146	19,98,56,085
OTHER EXPENSES	22	2,96,39,887	4,84,92,081
PRIOR PERIOD EXPENSES	23	-	-
<b>TOTAL (B)</b>		<b>2,83,07,19,271</b>	<b>2,62,45,48,361</b>
<b>BALANCE:</b>			
EXCESS OF EXPENDITURE OVER INCOME	(A-B)	50,76,28,316	53,71,78,720
SIGNIFICANT ACCOUNTING POLICIES	24		
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS	25		

PLACE: SURATHKAL

DATE : 18.07.2022

Sd/-

(RAVINDRANATH K.)

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

(PROF. UDAYA KUMAR R. YERAGATTI)

DIRECTOR

N.I.T.K., SURATHKAL

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31.03.2022

(AMOUNT - ₹)

SCH. NOS.	CURRENT YEAR	PREVIOUS YEAR
<b>1</b>		
<b>CORPUS/CAPITAL FUND:</b>		
<b>A CORPUS FUND:</b>		
Balance at the Beginning of the Year	(14,51,50,623)	(75,85,777)
Add : Contributions towards Corpus/Capital Fund	-	
Add : Grants from MoE, Govt. of India to the extent utilised for Capital Expenditure	21,55,64,060	
Add : Assets Capitalised out of completed Sponsored Projects, Where Ownership Vests in the Institution	14,47,29,917	
Add : Assets Capitalised out of Revenue Grant	2,79,55,217	40,22,92,509
	24,30,98,571	39,47,06,732
Less : Interest on Mobilisation Advance	-	
Less : Transferred to Income & Expenditure Account towards Recurring Expenses	-	26,78,635
Less : Deficit Transferred from Income & Expenditure Account	50,76,28,316	53,71,78,720
<b>TOTAL - A</b>	<b>(26,45,29,745)</b>	<b>(14,51,50,623)</b>
<b>B CAPITAL FUND OF PROJECTS &amp; EARMARKED FUNDS</b>		
Opening Balance.	-	-
Add : Assets Donated/Gift Received	1,35,427	-
Add : Assets from Completed Projects	14,27,16,663	9,89,47,548
Add : Assets from Workshops	6,68,804	4,70,893
Add : Assets from Funds	12,09,023	2,35,944
Add : Additions during the year	14,47,29,917	9,96,54,385
	-	-
Less : Assets of incomplete projects	14,47,29,917	9,96,54,385
Less : Transferred to Corpus Fund	-	-
	14,47,29,917	9,96,54,385
<b>TOTAL - B</b>	<b>-</b>	<b>-</b>
<b>BALANCE AS AT THE YEAR - END FOR SCHEDULE - 1 (A+B)</b>	<b>(26,45,29,745)</b>	<b>(14,51,50,623)</b>

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## SCHEDULE 2 - DESIGNATED/ EARMARKED/ ENDOWMENT FUNDS AS ON 31-03-2022

PARTICULARS	CAMPUS DEVELOPMENT FUND	EQUIPMENT MAINTENANCE FUND	GOLDEN JUBILEE FUND	HOSTEL DEVELOPMENT FUND	IIIP CELL FUND	INSTITUTE DEVELOPMENT FUND	INSTITUTE SCHOLARSHIP FUND	PROFESSIONAL DEVELOPMENT FUND	R & D FUND	STAFF DEVELOPMENT & WELFARE FUND	SELF FINANCING
<b>A</b>											
(a) Opening Balance of the Fund	1,63,46,973	88,05,128	34,31,579	1,58,96,449	44,09,643	33,85,66,538	1,03,590	92,72,341	5,84,61,020	44,91,92,478	85,35,319
(b) Additions during the year											
(i) Donations/ Grants/ Fee/ Loans & Advances -		19,80,056			3,62,798	1,57,33,818		12,43,715	1,19,72,361	2,98,12,078	2,86,85,262
(c) Income from Investments	-	3,98,447	1,60,278	2,99,484	2,03,189	1,51,02,833		4,16,584	24,67,672	64,43,154	-
(d) Interest on Savings Bank A/c.	-	-	-	-	-	-		-	-	-	-
(e) Other Additions											
(a) Consultancy Fund	-	-	-	-	-	-		-	-	-	-
(b) Testing & Consultancy	-	-	-	-	-	-		-	-	-	-
(c) Institute Development Fund	-	-	-	-	-	-		-	-	-	-
(d) Staff Development Fund	-	-	-	-	-	-		-	-	-	-
(e) Professional Development Fund	-	-	-	-	-	-		-	-	-	-
(f) Campus Development Fund	-	-	-	-	-	-		-	-	-	-
(g) Equipment Maintenance Fund	-	-	-	-	-	-		-	-	-	-
(h) Ill Cell Fund	-	-	-	-	-	-		-	-	-	-
(i) Staff Welfare Fund	-	-	-	-	-	-		-	-	-	-
(j) Miscellaneous Income/Adj	-	-	-	-	-	-		-	-	-	-
(k) Transfer	-	-	-	-	-	-		-	-	-	-
<b>TOTAL A</b>	<b>1,63,46,973</b>	<b>1,11,83,631</b>	<b>35,91,857</b>	<b>1,61,95,933</b>	<b>49,75,630</b>	<b>36,94,03,189</b>	<b>1,03,590</b>	<b>1,09,32,640</b>	<b>7,29,01,053</b>	<b>48,54,47,710</b>	<b>3,72,20,581</b>



**SCHEDULE 2 - DESIGNATED/ EARMARKED/ ENDOWMENT FUNDS AS ON 31-03-2022**

	ENDOWMENT CHAIR FUND	STUDENT ACTIVITY COUNCIL	NITK CORPUS FUND	CCE FUND	STUDENT PRIZE FUND	NITK/KREC ENDOWMENT FUND	DASA	GRAND TOTAL 2021-22	GRAND TOTAL 2020-21
<b>A</b>									
(a) Opening Balance of the Fund	77,46,691	7,95,40,914	2,39,24,06,706	44,01,444	72,79,052	54,95,506	7,96,77,473	3,48,95,68,844	3,27,81,89,351
(b) Additions during the year	-	1,54,00,000	5,15,68,212	15,46,000	-	2,99,98,329	45,46,678	19,22,49,307	21,86,38,318
(c) Income from Investments	3,70,065	40,42,055	9,03,98,267	1,76,460	2,03,165	2,18,139	28,85,460	12,37,85,252	13,44,45,640
(d) Interest on Savings Bank A/c.	-	7,50,864	22,76,746	32,463	-	-	-	30,60,073	2,73,185
(e) Other Additions	-	-	-	-	-	-	-	-	-
(a) Consultancy Fund	-	-	-	-	-	-	-	-	-
(b) Testing & Consultancy	-	-	-	-	-	-	-	-	-
(c) Institute Development Fund	-	-	-	-	-	-	-	-	-
(d) Staff Development Fund	-	-	-	-	-	-	-	-	-
(e) Professional Development Fund	-	-	-	-	-	-	-	-	-
(f) Campus Development Fund	-	-	-	-	-	-	-	-	-
(g) Equipment Maintenance Fund	-	-	-	-	-	-	-	-	-
(h) Ill Cell Fund	-	-	-	-	-	-	-	-	-
(i) Staff Welfare Fund	-	-	-	-	-	-	-	-	-
(j) Miscellaneous Income/Adj	-	27,508	-	-	-	612	90,000	1,18,120	73,05,342
(k) Transfer	-	-	-	-	-	-	-	-	1,86,67,472
<b>TOTAL A</b>	<b>81,16,756</b>	<b>9,97,61,341</b>	<b>2,53,66,49,931</b>	<b>61,56,367</b>	<b>74,82,217</b>	<b>3,51,12,586</b>	<b>8,71,99,611</b>	<b>3,80,87,81,596</b>	<b>3,65,75,19,309</b>
<b>B</b>									
Utilisation/ Expenditure towards Objectives of Funds :									
(I) Capital Expenditure									
Fixed Assets	-	74,775	3,16,240	-	-	1,12,100	-	12,09,023	1,78,147
(II) Revenue Expenditure									
Salaries, Wages & Allowances Etc	-	-	-	-	-	46,607	-	46,607	7,61,076
Other Administrative/ Activity Expenses	-	75,21,923	9,03,98,939	9,35,156	-	75,10,719	78,19,221	15,29,90,248	4,33,24,288
Sports & Games/Swimming Pool	-	50,95,979	-	-	-	-	-	50,95,979	63,32,906
(III) Transfer/ Refund-Admission Fee/TDS	-	-	-	-	-	-	-	-	11,73,54,048
<b>TOTAL B</b>	<b>-</b>	<b>1,26,92,677</b>	<b>9,07,15,179</b>	<b>9,35,156</b>	<b>-</b>	<b>76,69,426</b>	<b>78,19,221</b>	<b>15,93,41,857</b>	<b>16,79,50,465</b>

	ENDOWMENT CHAIR FUND	STUDENT ACTIVITY COUNCIL	NITK CORPUS FUND	CCE FUND	STUDENT PRIZE FUND	NITK/KREC ENDOWMENT FUND	DASA	GRAND TOTAL 2021-22	GRAND TOTAL 2020-21
<b>Closing Balance at the year end (A-B )</b>	<b>81,16,756</b>	<b>8,70,68,664</b>	<b>2,44,59,34,751</b>	<b>52,21,211</b>	<b>74,82,217</b>	<b>2,74,43,160</b>	<b>7,93,80,390</b>	<b>3,64,94,39,740</b>	<b>3,48,95,68,84</b>
Represented by									
Cash & Bank Balance	-	88,55,004	17,33,704	6,15,436	-	1,09,37,417	59,25,693	9,09,57,414	3,12,91,685
Investments	79,90,149	7,81,15,798	2,45,14,35,443	45,02,484	94,39,583	1,65,81,528	7,17,94,965	3,56,12,57,757	3,51,29,05,654
Interest Accrued but not due	3,70,065	29,94,638	4,82,49,941	48,110	2,03,165	1,84,726	3,73,490	5,79,97,587	4,63,66,020
TDS	-	19,69,377	2,30,34,644	55,180	-	36,096	16,05,733	2,67,01,030	2,49,77,574
Sundry Creditors/Payables	(2,43,458)	(48,66,152)	(7,85,18,982)	-	(21,60,531)	(2,96,607)	(3,19,490)	(8,74,74,049)	(12,59,72,086)
Misc Advance/Receivable	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>81,16,756</b>	<b>8,70,68,664</b>	<b>2,44,59,34,751</b>	<b>52,21,210</b>	<b>74,82,217</b>	<b>2,74,43,160</b>	<b>7,93,80,390</b>	<b>3,64,94,39,740</b>	<b>3,48,95,68,844</b>

PLACE : SURATHKAL

DATE : 18.07.2022

Sd/-

( RAVINDRANATH K. )

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

( PROF. UDAYA KUMAR R. YERAGATTI )

DIRECTOR i/c

N.I.T.K., SURATHKAL

SCH. NOS.		CURRENT YEAR	PREVIOUS YEAR
			(AMOUNT ₹)
<b>3 LOANS/BORROWINGS:</b>			
<b>A. SECURED LOANS</b>			
1. Central Government		-	-
2. State Government (Specify)		-	-
3. Financial Institutions			
4. Banks:			
5. Other Institutions and Agencies		-	-
6. Debentures and Bonds		-	-
7. Others (Specify)		-	-
Total		-	-
	Note: Amounts due within one year		
<b>B UNSECURED LOANS</b>			
1. Central Government		-	-
2. State Government (Specify)		-	-
3. Financial Institutions			
4. Banks:			
a) Term Loans			
i) HEFA Loan A/c.No.0010110000070 - CRF Equipment	55,57,86,127	-	30,89,99,255
ii) HEFA Loan A/c.No.0010110000075 - COE & CRF Building	26,89,32,835	-	19,50,55,279
iii) HEFA Loan A/c.No.0010110000121 - New Boys Hostel Building (EWS)	-	-	4,38,19,446
iv) HEFA Loan A/c.No.0010110000123 - New Girls Hostel Building	19,18,94,614	1,01,66,13,576	12,71,62,742
b) Other Loans (Specify)		-	-
5. Other Institutions and Agencies		-	-
6. Debentures and Bonds		-	-
7. Fixed Deposits		-	-
8. Others (Specify)		-	-
<b>Total</b>		<b>1,01,66,13,576</b>	<b>67,50,36,722</b>
	16,58,80,000		
	Note: Amounts due within one year		
	<b>BALANCE AS AT THE YEAR - END FOR SHEDULE - 3 (A+B)</b>	<b>1,01,66,13,576</b>	<b>67,50,36,722</b>

		(AMOUNT ₹)	
SCH. NOS.		CURRENT YEAR	PREVIOUS YEAR
<b>4</b>	<b>CURRENT LIABILITIES AND PROVISIONS:</b>		
	<b>A. CURRENT LIABILITIES:</b>		
1	Deposits from Staff & Lease	4,39,985	4,39,985
2	Deposits from Students	3,95,26,692	3,37,59,622
3	<b>Sundry Creditors - Others</b>		
	Student Activity Council		20,60,621
	DASA 2019		2,53,78,989
	NITK/KREC Endowment Fund		1,97,005
	NITK Corpus Fund	8,40,01,231	9,83,35,471
4	<b>Deposit - Others</b>	6,74,18,779	7,69,27,947
5	<b>Statutory Liabilities</b>		
	a) Overdue	-	-
	b) Others	-	-
6	<b>MoE Surplus Grant</b>	26,70,44,487	12,49,21,686
7	<b>Other Current Liabilities</b>		
	Bills Payable		18,16,98,806
	Salary Deductions		9,61,150
	Projects/Other Reseach Schemes:		18,57,48,422
	SC/ST Scholarship Grant		-
	Workshop/seminar Grant	35,34,92,663	45,45,912
	<b>TOTAL (A)</b>	<b>81,19,23,837</b>	<b>73,49,75,615</b>
	<b>B. PROVISIONS:</b>		
1	Gratuity	37,08,31,204	35,53,56,511
2	Superannuation Pension	4,97,02,32,143	4,55,52,21,821
3	Accumulated Leave Encashment	45,49,89,602	39,38,81,131
4	Audit Fee	2,00,000	2,00,000

		(AMOUNT ₹)	
SCH. NOS.		CURRENT YEAR	PREVIOUS YEAR
5	Children Education allowance	74,11,225	76,10,000
6	Electricity charges	49,81,823	30,00,000
7	Fellowship/Stipend	3,62,00,000	3,75,00,000
8	Hostel Establishment Charges	8,08,414	13,40,000
9	Mtce of Electrical Installation	1,95,828	4,37,386
10	Mtce of Waste Water Disposal	3,71,291	3,56,004
11	Merit Cum Means Scholarship	40,56,000	28,08,000
12	Merit Scholarship	9,40,000	7,70,000
13	Pay & Allowance	4,85,62,827	6,24,16,718
14	Professional Fee	5,60,000	5,60,000
15	Telephone /Telex	1,06,964	4,51,971
16	Water Supply	8,00,000	2,94,038
17	Provision for Other Expenses	-	4,90,258
18	Provision for GST	43,98,980	27,23,977
19	N I T Transit House - Provision	3,53,297	-
	<b>TOTAL (B)</b>	<b>5,90,59,99,598</b>	<b>5,42,54,17,815</b>
	<b>BALANCE AS AT THE YEAR - END FOR SCHEDULE - 4 (A + B)</b>	<b>6,71,79,23,434</b>	<b>6,16,03,93,430</b>

**SCHEDULE : 4 (A) SPONSORED PROJECTS:**

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
1	5G Project Funding - Mohit Tahiliani	1563057	-	37646	225000	1375703
2	ADA-Generation of Design-Ashokbabu	-	5235391	89584	985844	4339131
3	ADBI-Impact Soil Health Card Scheme- Prad Jena	-	2172977	18068	1958660	232385
4	Alumni Android Based Home Automtn - Venkatesh P	6469	-	165	4425	2209
5	Alumni-Bio-Hydrogen Storage Tech -Ravishankar	-	276000	2416	30214	248202
6	Alumni Bio Waste Recycling - Vasudeva M	391276	-	5947	324000	73223
7	Alumni Chito -Oligosaccharides Medical - Keyur	356344	50000	4011	364808	45547
8	Alumni - CWEP Project - Vasudeva M	1409165	147000	39686	272644	1323207
9	Alumni DC Hoome Sikar Based Grid- Suresh Y	8182	-	221	-	8403
10	Alumni-Des&Assel 7seater E Van - Pruthviraj	-	1000000	3811	977804	26007
11	Alumni-Develop of Dense & Porous - Rajasekaran	106295	-	2870	-	109165
12	Alumni-E Bike for Security in NITK-Pruthviraj	-	196000	562	190713	5849
13	Alumni-Food Waste to Biogas BCNG -Keyur/Saidu	-	1144000	9552	243839	909713
14	Alumni-Food Waste to Hydrogen -Saikat Dutta	-	680000	5536	178146	507390
15	Alumni- Food Waste to Hydrogen SMR- Vasu/Ashok	-	1420000	12225	178240	1253985
16	Alumni - IIT Madras - EXPLORE - K V G	591706	900000	16407	423080	1085033
17	Alumni-Immersive Leng Using AR&VR-Pru/Gang	-	715000	5090	427603	292487
18	Alumni-Industry Safety Traing Simn AR&VR-Pru/Gan	-	366250	2188	352638	15800
19	Alumni-Mode Design of Chrumophones- A V Adhi/Udaya	27761	-	-	27761	-
20	Alumni-NBO-Sumanth Govindarajan	26199	-	707	-	26906
21	Alumni-Novel B C for Electric Vehicle- A Perumal	-	40000	715	2213	38502
22	Alumni Proj.Open Source G I S - Pruthviraj U	51130	-	-	51130	-
23	Alumni-Prototype of Reliable ICN- Mohit P T	15829	-	251	15635	445
24	Alumni Silent Speech Interface Dev - Krishnan	35581	-	961	-	36542
25	Alumni - Trishul Jal Sanchayan - Pruthviraj U	169009	-	2129	168650	2488
26	Alumni-URJA-Solar Charg Stn for E-Mob- Pruthviraj	-	550000	4383	493556	60827
27	ANSYS Software Post Doctrol Fellowship	-	1950000	4387	-	1954387
28	Aumni- Devt of Electric System for S L- V Perumal	-	25000	450	-	25450
29	Boeing Company- Vijay Desai	2034368	886182	54529	315084	2659995
30	CPCB - Random Verfy - Azhoni	-	260000	1117	188572	72545
31	CSD Industrial Project - K V Gangadharan	492712	-	13248	24544	481416
32	CSIR - Chemo - Dr Saikat Dutta	-	104167	-	104167	-
33	CSIR-CRRI-Devt of Trip- Mithun Mohan	-	638000	5591	67040	576551
34	DAE-Fractional Regularization Methods-Jidesh	78944	-	2024	18941	62027
35	DAE-On The Solutions of Convection - E Satyanara	72818	-	-	72818	-
36	DBT-Dev of Artificial Intelligence- J Rajan	1507988	-	17826	1425809	100005
37	DBT-Social Economic-A Azhoni	74533	1036765	5654	842141	275011

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
38	Design & Dev of Ultra Low Power CMOS-Sandeep	1017772	-	20659	714954	323477
39	Design & Exeution Fisheries Project-Pruthviraj	-	50066180	450539	25000	50491719
40	Design Innovation Center -S.M.Kulkarni	745212	-	19474	105743	658943
41	Dev of Effluent Treatment Tech for CN- B Manu	88049	-	2377	-	90426
42	DHI-Devt of Brushless DC- Gangadhar	1046580	-	13066	843812	215834
43	Digital India In Faculty Youth Award	702951	1738911	46069	986164	1501767
44	DRDO-Design & Devt - Raj Mohan	392442	-	7089	364325	35206
45	DRDO-Modeling & Sinul- Guruprasad K R	898795	516578	19458	814886	619945
46	DRDO-Partial Slip- Vadiuvhezion K	820723	-	19127	246758	593092
47	DRDO-Sigma Delta Space Time Adaptive- Srihari	7510	-	203	-	7713
48	DST-Cp-ABE Scheme Decryptn-Alwyn	149179	475000	6247	567345	63081
49	DST-CSRI-Automatic Detection & Qlfn- Jenny	13980	700000	231	707406	6805
50	DST-CSRI-Speaker Recoitn - Shashidhar	1965232	-	52729	113727	1904234
51	DST-Des&Dev of Nanoscale Interg Sys- Sandeep	1083953	-	27947	208399	903501
52	DST-Design & Test - Parthasarasthy	1799392	-	47893	306978	1540307
53	DST- Devt of Value -Dr.B.B.Das	236985	-	6157	32285	210857
54	DST-Devt of Convertible -Saurbh Chandraker	-	4318672	91731	468672	3941731
55	DST-Devt of Solar Based Humidi -Ajay Kumar	-	96478	-	96478	-
56	DST-DS (ICPS) Multi Graph Base Anomaly- Venkatesan	1645609	321360	-	1966969	-
57	DST-Entrepreneurship Training Program-Alwyn	207635	-	1754	190245	19144
58	DST Fellowship - Venkatramana	522802	-	4310	514895	12217
59	DST Fellowship- Vigneshwar Ganesh Bhat	-	421760	3375	206000	219135
60	DST-FIST-PROGRAM-HOD MET. ENGG.	13855896	-	-	13855896	-
61	DST-FIST-Program-HOD of App. Mech	3158330	-	85275	-	3243605
62	DST - HOD - Chemical Engg	3849070	189980	-	4039050	-
63	DST-Indo-Portugal-Debabrata Karma	188582	-	5092	-	193674
64	DST Inspire - Dr Poornesh K K	646995	-	8762	534274	121483
65	DST-Integrated Photocatalytic - Vidya Shetty	1094900	-	25348	904496	215752
66	DST-SEED-Design & Devt -Hemanth Kumar	-	1598670	3597	-	1602267
67	DST-Ultratfine Grain - A S S Balan	514892	-	11654	150905	375641
68	E Cycle for NITK Campus	356747	-	-	356747	-
69	ESTC-Coastal Ocean Tech-Dr Manu	1285488	1200000	19878	2179476	325890
70	Experimental & Numerical - Jeyaraj P	351954	-	9503	-	361457
71	FIST Program-Vijay Desai Mechl	4620314	-	88045	3384449	1323910
72	Foundation for ISHRAE -Cost of Effe- Doddamani M	2146933	-	35138	2044831	137240
73	Global Vipassanna Foundation - Pavan G S	-	488250	10960	11550	487660
74	HGML-Devt.of New Type -Harsha	151301	-	-	151301	-
75	Hindustan Zinc -Services & Proleft - M R Rehman	4455	-	-	4455	-

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
76	Hutti Gold Mines-Development of Value - Aruna	68908	-	1733	18181	52460
77	I B M SUR Award - Basavaraj Talwar	2211055	-	58865	370625	1899295
78	ICSSR:Study of Adaptation to Tech Innovation-P R Je	3265	179764	485	160954	22560
79	ICSSR-Assing Impact of Climate Change - Rajesh A	158778	121500	2166	247833	34611
80	ICSSR-Assing the Impact of PMFBY- Rajesh A	157185	120000	2079	242953	36311
81	ICSSR-Exp Efficient Solutions - Ritanjali M	228151	360000	10566	247634	351083
82	ICSSR-Governing Extereme & Exploith- Sreejith	363689	-	-	363689	-
83	ICSSR-JSPS(Japan) -Moving Climate - Jena	260037	230260	6816	306844	190269
84	ICSSR-Make in India Initiative- Sheena , SOM	225144	240000	3957	439629	29472
85	ICSSR-Policies for Compe Base E Particip- Sreejith	-	123500	-	123500	-
86	ICSSR-Socio-Economic - A Azhoni	22525	400000	2673	394797	30401
87	Imprint Project - Arun Kumar Thalla	47993	-	1296	-	49289
88	Industry Sponsor Research-Imprint	43643	-	1178	-	44821
89	Info.Security Education & Aware-Phase II-Alwyn	2747453	-	74181	-	2821634
90	INSPIRE Faculty Award-Kishore Sridharan	1283790	-	34662	-	1318452
91	INTEL India Fellowship -Basavaraj Talawar	204568	450000	4937	553161	106344
92	ISRO-Customized Reconfigule Platform-Annappa	-	40834	92	-	40926
93	ISRO Des & Dev of Wideband Ciruly- Krishna	249867	-	-	249867	-
94	ISRO-Design &Analysis - Partha Sarathy	447111	-	7468	372000	82579
95	ISRO-Design Dev of Multi Harmonies-Sandeep	-	344480	2988	50000	297468
96	ISRO-Design & Devt of Multiimpet-Karthikeyan	-	1637480	14569	75000	1577049
97	ISRO-Layer Based - Srikanth Bontha	-	1587500	14040	109867	1491673
98	ISRO-Progra Photonic Microwave -Mandeep Singh	-	747763	6561	75000	679324
99	ISRO RACS- NITK Centre	-	5115700	34531	5115698	34533
100	ISRO-Realisation of A1- G V Preetham K	-	142920	322	-	143242
101	ISRO-Respond Dev of Automatic Land- Shyamial	484808	-	8417	372000	121225
102	Karnataka State Bio Fuel Dev Board	314624	1500	8508	3201	321431
103	KSMC - Devt. of A Communitioin -Harsha	333100	-	7908	167062	173946
104	KSTePS:Experi Verification of Three Phase-Y Suresh	542323	-	14643	-	556966
105	KSTEPS-Dept of Sturctural -Ravishankar K S	-	1000000	2250	-	1002250
106	KSTEPS-Des & Fab - Partha P Das	31370	-	-	31370	-
107	KSTePS-Development of Anti-Udaya Bhat K	2401990	-	62272	258503	2205759
108	KSTEPS- Devlpt of Met - M R Rehman	197567	-	5334	-	202901
109	KSTePS-Effective Online Framework-Nagamma Patil	56337	-	1521	-	57858
110	KSTEPS-Optimal Controller Wide Speed-Parthiban	331625	-	6437	282490	55572
111	KSTEPS-Synthesis of Levulinate - Sib Sankar Mal	18607	-	-	18607	-
112	KSTEPS-VGST-Extraction of Max Power-Karthikeyan	-	279750	3777	-	283527
113	L&T Sponsored MTech(CTM)Project	33183603	12777300	845568	10814342	35992129

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
114	Measut & Asst of Dust Conctns - Harsha Vardhan	-	131962	252	19794	112420
115	Metallurgical Investigatin-Jagannath Nayak	66488	-	1795	-	68283
116	MoE-IMPRINT Project- Hemanth Kumar	1506837	494340	34365	1372409	663133
117	MoE-Virtual Lab- K.V Gangadharan	29743	-	803	-	30546
118	MoE Virtual Lab Phase2 Gangadharan	8035658	3332000	211456	4374127	7204987
119	Ministry of Mines -Devt of Novel - Arun Isloor	111246	-	3004	-	114250
120	MOES-Unraveling Submarine-Ramesh H	243644	-	-	243644	-
121	MOWR-Impact of Climate - Mahesha A	134775	1000000	10201	1082828	62148
122	MPSW-Design Analysis -Dr Debabrata Karmakar	-	2800000	24426	344219	2480207
123	MRDMS Summer/Winter School -Ramesh H	-	500000	10013	50000	460013
124	MSME CLCS - TU Scheme- Bijna C M/KVG	-	3472625	44598	514400	3002823
125	M S T-In Vitro Mass-Dr Prasanna B D	176395	-	-	176395	-
126	NBHM/DAE Post Doctoral Fellow - Shubha	42851	-	-	42851	-
127	NRB- Theoretical Study & Design of H E - Prarthiban	540150	-	11296	361107	190339
128	Phase 3-Virtual Lab-K V Gangadharan	5384285	-	129846	1155247	4358884
129	Raptor Design -High Gain- V Preumal, EE	103500	-	2712	13714	92498
130	Raptor Design-Voyager-V Perumal, EE	2795	-	75	-	2870
131	R & D Project-Investigation to Reduction-Harsha Var	439175	-	11840	8070	442945
132	Research Training Fellowship - Rajmohan B	4021	-	-	4021	-
133	SERB: Adaptive MPPT of Grid-Tied-D Jena	220959	-	-	220959	-
134	Serb-Active Vibration-Subhas C Katti	269841	-	-	269841	-
135	SERB-Additive-Manufacturing - Srikanth Bonth	1367513	-	-	1367513	-
136	SERB-Affordable Thera Sol for Rehabi- Krishnan	-	1754000	29175	502754	1280421
137	SERB-Analytical & Numerical - Gnanasekaran	143172	400000	5290	443409	105053
138	SERB-Application of Kneading Theory -Murugan	110933	-	-	110933	-
139	SERB-A Retinex Inspired Framework - Jidesh P	961158	-	19039	695446	284751
140	SERB-Asean-Investigation - Subhas C Katti	1675628	-	39587	511437	1203778
141	SERB-Asen-Design- Uday Kumar Dalimba	-	1544096	27358	162834	1408620
142	SERB-Automatic Multi Speaker- Deepu V	90853	-	2453	-	93306
143	Serb-Characterize & Identiftn of Dialect-Shashidhar	220090	220090	-	440180	-
144	SERB-Compact Multi-Band Antenna - Krishnamoorthy	-	3408	-	3408	-
145	SERB-Conjunctive Use - Ramesh H	795758	-	20154	63720	752192
146	SERB-Des & Dev of Automated Kidney Cancer-Shyamal	924690	250000	22274	1040833	156131
147	SERB-Des&Dev of Gan HEMT Based LNA-Sandeep	1438046	-	17357	1357859	97544
148	SERB-Design Analysis - Debabrata Karmakar	104660	650000	8248	634829	128079
149	SERB-Design & Devt -Ajay Kumar Yadav	-	1057254	6974	72175	992053
150	SERB-Design & Devt - Ramachandra Bhat	2019974	-	48729	512392	1556311
151	SERB - Design & Fabrication -Saurabh Chandraker	56276	81070	1544	103416	35474

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
152	SERB-Des & Impln of Multi Attribute-Chandavarkar	285874	500000	5483	555459	235898
153	SERB-Dev of Design Essentls for GA203-Nikhil	2251630	-	35455	1811198	475887
154	SERB-Dev of Highly Condu Ultrathin VS2-Sushil	1858108	-	43423	512415	1389116
155	SERB-Dev of Innovative - Palanisamy	883574	300000	17431	884938	316067
156	SERB-Dev of Integrated Health Monitg-W Ahmad	-	1469210	13012	93530	1388692
157	SERB-Devt & Demonstration - Hari Prasad Dasari	5282671	1450000	87611	6304927	515355
158	SERB-Devt of Biodegrade-Jeyaraj	2242458	-	52634	1755236	539856
159	SERB-Devt of Cost - Ajay Kumar Yadav	1044910	-	27433	101191	971152
160	SERB-Devt of Counter- Babloo Choudhary	2287899	-	48865	2227464	109300
161	SERB-Devt of Electro - Hari Prasad Dasari	2437398	-	47659	2167156	317901
162	SERB - Devt of Sust - Prasanna B D	814138	-	-	814138	-
163	SERB-DS & DV of Low Cost Power- Prajof P	-	50000	-	50000	-
164	SERB-Effect of Frictional - Vadivuchezhian	8989	-	243	-	9232
165	SERB-Effect of High - Debashree Chakraborty	1205506	-	25718	494671	736553
166	SERB- Efficient Regularization Methods-Santhosh	201342	-	-	201342	-
167	SERB-Evaluation of Macro-Parthasarathy P	1295649	-	25533	700000	621182
168	SERB-Experimental-Dr Murigendrappa	34828	-	-	34828	-
169	SERB-Expert Technique- Shivananda Nayak	2456583	250000	58627	2662357	102853
170	SERB Fellowship- Vipin Joseph	292309	-	7442	200000	99751
171	SERB-Highend Workshop - Alwyn R Pais	-	500000	4050	325555	178495
172	SERB-Impact of Maternal - Keyur Raval	4740	-	-	4740	-
173	SERB-Impounding of River - Ramesh H & Nasar	3972357	-	86919	2174477	1884799
174	SERB-Improvement in the Prop - Suchakar C J	711780	400000	15637	971050	156367
175	SERB-Influence of Binary - B B Das	629580	-	12375	406982	234973
176	SERB-Interaction of Various Envt - Vinoth	-	2800000	24719	213240	2611479
177	SERB-Investigations on Origin - Poornesh K	371339	644450	11646	780510	246925
178	SERB - Invest Induced - Anish S	1002146	-	20349	675070	347425
179	SERB-Invest of Primordial-Sreenath V	-	997900	8860	53900	952860
180	SERB-Laboratory Scale Demon of Kite-Karthikeyan	-	4708360	20840	154700	4574500
181	SERB-Logical Corr for Batteryess Internet- Biswajit	-	1366115	5943	90955	1281103
182	SERB-Multi Scale Model -Debashree Chak	-	600000	1125	100000	501125
183	SERB-Olefin Linked - Lakshmi Vellank	-	1725805	14543	371248	1369100
184	SERB-Organinc Rankine - Veeretty Gumptra	2188530	-	59090	-	2247620
185	SERB-Particle Migration- Arun Mahalingam	-	2350000	10289	127045	2233244
186	SERB-Perforce Analysis & Enhancnt- Prabhu Krish	124272	500000	7665	501463	130474
187	SERB-Photonic Porous Silicon Nano- Mandeep Singh	-	2174000	9540	107841	2075699
188	SERB Post Doctoral Fellowship- Dr.Kaipana	913814	-	-	913814	-
189	SERB-Power Electronic Appln - Dharavath	-	50000	-	50000	-

Sl. No.	Particulars	Opening Balance	Receipts	Interest	Expenditure	Closing Balance
190	SERB-Prawn Shell - Saumen Mandal	-	2347500	10319	108757	2249062
191	SERB-Predictive Asst of Posteral Risk-Bijay Mihir	380686	300000	8046	455677	233055
192	SERB-Proteins at- Debashree Chakraborty	-	190199	-	190199	-
193	SERB-Restricted Proper Edge Color of Graphs -Manu B	204410	-	5519	-	209929
194	SERB-Selective Extraction - Regupathi	551600	-	11450	216425	346625
195	SERB-Semi Active -Hemanth Kumar	-	1247515	5422	85409	1167528
196	SERB-Smart Electric Vehicle - Dastogiri	3507875	871754	100920	2740303	1740246
197	SERB-Study on Non Linear Equations- Santho.Jjidesh	-	707754	3040	64341	646453
198	SERB-Synthesis of Azulence-Vijayendra S	-	1522087	16583	240246	1298424
199	SERB-Synthesis of B Cyclo - Rajmohan B	813409	-	-	813409	-
200	SERB-Synthesis of Carbo -Beenesh P B	-	1705421	18792	174953	1549260
201	SERB-TARE-Nitte- Narayan Prabhu	312205	-	5251	304499	12957
202	SERB-TARE-Nitte- Regupathi	312959	-	7500	149863	170596
203	SERB - TARE - Nitte - Shrikantha Rao	-	330000	3365	329903	3462
204	SERB-Transition Metal - Partha P Das	13032	-	-	13032	-
205	SERB-Vritika--Des & Dev of Power Factor-Vignesh	-	50000	259	48202	2057
206	Smart Grid Tech-COE -K P. Vittal	4771784	5000000	-	9771784	-
207	Sparc-Adaption of Climate Smrt Agri- Pradyot	356320	-	8654	58853	306121
208	Sparc-Additive Manu - M Doddamani	536739	-	14492	-	551231
209	Sparc-Environmental-Dr Pritviraj	448262	-	10666	416600	42328
210	Sparc-Exploring Appns of Radiomies - Sumam	54889	100000	2157	-	157046
211	SPARC Project - Hemanth Kumar	14143	-	382	-	14525
212	Spare -Coastal-Dr Ramesh H	93449	-	2523	-	95972
213	Special Manpower Devt. Programme - DEIT-R Kini	5545367	72951	-	5618318	-
214	Study on Low Temperature -GN Kumar	592099	-	-	592099	-
215	U K Project- Collaborative Research - B B Das	1161675	200682	35881	-	1398238
216	Utilization of Fine Material of Mines Waste-Harsha	72265	-	1951	-	74216
217	VGST-Dev. & Characterization -Ch S N Murthy	228834	1000000	28678	-	1257512
218	V GST-Develop of Low Cost-Arun M Isloor	736317	1776182	35451	108406	2439544
219	VGST-KSTEPA-Desaltn of Sea Water - Debabrata Kar	302022	5	3592	300005	5614
220	Visvesvarya PhD Scheme for EC & IT	174638	2183403	-	2358041	-
221	Serb-High End Workshop Network	-	500000	-	-	500000
		<b>184417656</b>	<b>168456960</b>	<b>4662560</b>	<b>142548525</b>	<b>214988651</b>

**SCHEDULE 4(b): SPONSORED FELLOWSHIP AND SCHOLERSHIP**

SI.No.	NAME OF SPONSOR	OPENING BALANCE AS ON 01.04.2021		TRANSACTIONS DURING THE YEAR		CLOSING BALANCE AS ON 31.03.2022	
		3 CR.	4 DR.	5 CR.	6 DR.	7 CR	8 DR.
1	2						
1	AICTE GRANT QIP REGULER	1173000	-	35688	855956.00	352732	-
2	AICTE GRANT QIP PLAN (POLY)	157766	-	850815	638282.00	370299	-
3	SC/ST Scholership Grant - MSJE	-	-	4125906	3570984.00	5,54,922	-
4	Other External Scholership	8778549	-	4992287	7685293.00	6085543	-
	<b>TOTAL</b>	<b>10109315</b>	<b>-</b>	<b>10004696</b>	<b>12750515</b>	<b>7363496</b>	<b>-</b>

## SCHEDULE 4(C) UNUTILIZED GRANTS FROM GOVERNMENT OF INDIA

₹ in lakhs

PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
<b>A. Capital Grants:</b>		
Balance B/F	128.82	1,971.10
Add: Receipts during the year	4,599.64	752.75
<b>Total (a)</b>	<b>4,728.46</b>	<b>2,723.85</b>
Less: Utilized for Revenue Expenditure		26.79
Less: Utilized for Capital Expenditure	2,155.64	2,568.24
Less: Excess Expenditure met from IRG	58.90	2,096.74
<b>Total (b)</b>	<b>2,096.74</b>	<b>2,595.03</b>
<b>Unutilized carried forward grant under TSA (a-b) = (A)</b>	<b>2,631.72</b>	<b>128.82</b>
<b>B.i) Revenue Grants: OH 31</b>		
Balance B/F	-	-
Add: Receipts during the year	7,665.08	5,831.27
<b>Total (c)</b>	<b>7,665.08</b>	<b>5,831.27</b>
Less: Utilized for Non-Salary Expenditure	10,321.00	5,831.27
Less: Excess Expenditure met from IRG	2,685.85	7,635.15
<b>Total (d)</b>	<b>7,635.15</b>	<b>5,831.27</b>
Unutilized carried forward grant under TSA (c-d)	29.93	-
<b>B.ii) Revenue Grants: OH 36</b>		
Balance B/F	1,120.40	845.13
Add: Receipts during the year	8,061.60	9,194.97
<b>Total (c)</b>	<b>9,182.00</b>	<b>10,040.10</b>
Less: Utilized for Salary Expenditure	9,370.63	8,919.70
Less: Excess Expenditure met from IRG	197.43	9,173.20
<b>Total (d)</b>	<b>9,173.20</b>	<b>8,919.70</b>
<b>Unutilized carried forward grant under TSA (c-d)</b>	<b>8.80</b>	<b>1,120.40</b>
<b>Unutilized carried forward grant under TSA Grand Total (A+B)</b>	<b>2,670.44</b>	<b>1,249.21</b>

### IRG STATEMENT 2021-22

₹ in lakhs

PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
Balance B/F IRG 2019-20	2,822.29	2,988.91
TOTAL INTERNAL RECEIPTS	5,812.53	5,029.14
LESS: HEFA PRINCIPAL & OTHER EXPENDITURE	4,831.60	-
LESS: EXCESS EXPENDITURE OF OH 31, 35 & 36	2942.18	5,195.76
<b>SURPLUS UNDER CAPITAL FUND/CORPUS</b>	<b>3,803.22</b>	<b>2,822.29</b>

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## SCHEDULE NO. 5 FIXED ASSETS & DEPRECIATION AS ON 31-03-2022 (AMOUNT - ₹)

PARTICULARS	GROSS BLOCK				DEPRECIATION					
	BALANCE AS ON 01.04.2021 1	ADDITIONS DURING THE YEAR 2	DELETIONS DURING THE YEAR 3	TOTAL 4 = (1+2-3)	RATE OF DEP.(%) 5	DEPRECIATION UP TO 31.03.21 6	DEPRECIATION FOR THE YEAR 7	PRIOR PERIOD DEPRECIATION 8	TOTAL DEPRECIATION 9 = (6+7-8)	BALANCE AS ON 31.03.2022 10 = (4-9)
<b>(A) FIXED ASSETS</b>										
<b>(i) Tangible Asset</b>										
Land : Freehold	90,49,981	-	-	90,49,981	-	-	-	-	-	90,49,981
Buildings : Freehold.	2,49,26,78,464	2,91,24,660	-	2,52,18,03,124	2.00	64,52,73,688	5,04,36,062	-	69,57,09,750	1,82,60,93,374
Buildings : Freehold (Residential).	37,97,76,116	39,51,83,158	-	77,49,59,274	2.00	5,12,97,538	1,54,99,185	-	6,67,96,723	70,81,62,551
Buildings : Freehold (Hostel).	1,03,89,61,042	73,08,107	-	1,04,62,69,149	2.00	43,00,38,805	2,09,25,383	-	45,09,64,188	59,53,04,961
Plant & Equipments	24,93,09,018	4,72,85,683	-	29,65,94,701	5.00	16,54,16,100	1,48,29,735	-	18,02,45,835	11,63,48,866
Vehicle	71,15,444	34,800	-	71,50,244	10.00	53,74,791	7,15,024	-	60,89,815	10,60,429
Furniture & Fixtures	24,84,22,135	2,21,31,508	-	27,05,53,643	7.50	10,48,81,966	2,02,91,523	-	12,51,73,489	14,53,80,154
Office Equipments	3,07,46,125	14,49,791	-	3,21,95,916	7.50	1,34,17,633	22,72,808	-	1,56,90,441	1,65,05,475
Computer & Peripherals	36,60,82,669	9,54,30,430	82,793	46,14,30,306	20.00	26,92,85,248	4,91,89,490	-	31,84,74,738	14,29,55,568
Electrical Installation	6,67,68,623	1,20,48,574	-	7,88,17,197	5.00	1,57,78,671	39,40,860	-	1,97,19,531	5,90,97,666
Library Books	2,36,40,963	4,77,103	-	2,41,18,066	10.00	2,18,34,866	4,18,403	-	2,22,53,269	18,64,797
Audio Visual Equipments	1,27,16,344	18,54,383	-	1,45,70,727	7.50	53,73,056	10,92,805	-	64,65,861	81,04,866
Tube Wells and Water Supply	8,56,236	3,92,498	-	12,48,734	2.00	1,86,419	24,975	-	2,11,394	10,37,340
Lab & Scientific Equipments	50,41,44,933	39,51,88,128	-	89,93,33,061	8.00	11,23,80,143	7,19,46,645	-	18,43,26,788	71,50,06,273
<b>TOTAL 5 (A)</b>	<b>5,43,02,68,093</b>	<b>1,00,79,08,823</b>	<b>82,793</b>	<b>6,43,80,94,123</b>		<b>1,84,05,38,924</b>	<b>25,15,82,898</b>	<b>-</b>	<b>2,09,21,21,822</b>	<b>4,34,59,72,301</b>

\* Proportionate book value of land acquired by NHAI to be recoverable from GOK.

**B. CAPITAL WORK IN PROGRES AS ON 31.03.2022**

PARTICULARS	OP. BALANCE	ADD / TRANS.	TOTAL	TR. TO REVENUE	TR. TO ASSET	CL. BALANCE
Constn of Bldg - Concrete Testing Lab & Environ Lab	8,91,755	1,06,45,193	1,15,36,948	-	1,15,36,948	-
Constn of New Boys Hostel 500 Single Occup	46,89,45,505	4,38,39,830	51,27,85,335	-	-	51,27,85,335
Constn of New Faculty Apartments 48Nos	38,58,79,142	92,97,318	39,51,76,460	-	39,51,76,460	-
Constn of Security Office at Main Ent	9,20,529	69,17,807	78,38,336	-	-	78,38,336
Constn of STP& Elec Work for Resi Apts Type V&VI	36,11,031	19,06,795	55,17,826	-	-	55,17,826
Providing Power Supply to 56 New Non Faculty Apts	6,698	-	6,698	-	6,698	-
Revn of Girls Hostel Kaveri - OH 35	-	30,97,467	30,97,467	-	30,97,467	-
Special Repir Works to LHC -A Building	-	19,56,665	19,56,665	-	19,56,665	-
Constn of Addl Bldg for Library	-	28,10,623	28,10,623	-	28,10,623	-
Constn of New Boys Hostel 200 Rooms EWS	22,02,734	11,93,14,691	12,15,17,425	-	-	12,15,17,425
Constn of New Sports Complex	-	3,16,041	3,16,041	-	3,16,041	-
Prodg 11KV HT Line From 33KV Substation	-	10,28,042	10,28,042	-	10,28,042	-
Renovation of Ele Works LHC -A- OH 35	-	11,54,707	11,54,707	-	11,54,707	-
Expenses from HEFA Loan	-	-	-	-	-	-
Constn of New Girls Hostel - Block No.6	4,32,18,751	14,10,78,473	18,42,97,224	-	-	18,42,97,224
Constn of School of Inter Disciplinary - COE & CRF	15,66,90,150	17,28,42,391	32,95,32,541	-	-	32,95,32,541
Renovation of Lecture Hall Complex B	-	66,17,834	66,17,834	-	66,17,834	-
<b>TOTAL 5 (B)</b>	<b>1,06,23,66,295</b>	<b>52,28,23,877</b>	<b>1,58,51,90,172</b>	<b>-</b>	<b>42,37,01,485</b>	<b>1,16,14,88,687</b>
<b>Figures for 2020-21</b>	<b>78,84,56,410</b>	<b>61,25,59,288</b>	<b>1,40,10,15,698</b>	<b>26,78,635</b>	<b>33,59,70,768</b>	<b>1,06,23,66,295</b>

PARTICULARS	GROSS BLOCK			RATE OF DEP.(%)	DEPRECIATION			BALANCE AS ON 31.03.2021
	BALANCE AS ON 01.04.2021	ADDITIONS DURING THE YEAR	DELETIONS DURING THE YEAR		TOTAL	DEPRECIATION UP TO 31.03.21	DEPRECIATION FOR THE YEAR	
Intangible Asset								
Software	5,23,53,828	1,00,68,468	-	40	3,94,89,538	1,26,03,416	5,20,92,954	1,03,29,342
E-Books	1,36,53,992	2,29,03,675	-	40	1,11,78,449	1,08,11,832	2,19,90,281	1,45,67,386
<b>TOTAL (C)</b>	<b>6,60,07,820</b>	<b>3,29,72,143</b>	<b>-</b>	<b>5</b>	<b>5,06,67,987</b>	<b>2,34,15,248</b>	<b>7,40,83,235</b>	<b>2,48,96,728</b>
<b>TOTAL (A) + (C)</b>	<b>5,49,62,75,913</b>	<b>1,04,08,80,966</b>	<b>82,793</b>		<b>1,89,12,06,911</b>	<b>27,49,98,146</b>	<b>-</b>	<b>4,37,08,69,029</b>
<b>Figures for 2020-21</b>	<b>5,01,48,37,314</b>	<b>48,14,38,599</b>	<b>-</b>		<b>1,71,41,13,549</b>	<b>19,98,56,085</b>	<b>2,27,62,724</b>	<b>1,89,12,06,911</b>
								<b>3,60,50,69,002</b>

**( D - i ) FIXED ASSETS OF VARIOUS PROJECTS & FUNDS AS ON 31-03-2022**

	OP. BALANCE	ADDITIONS	TRANSFER	CL. BALANCE
<b>OTHER RESEARCH SCHEMES</b>				
Computer & Peripherals.	3,74,60,707	1,28,28,256	1,18,11,683	3,84,77,280
Plant & Equipment.	4,71,59,578	-	4,67,97,066	3,62,512
Electrical Installations.	74,53,421	9,69,051	24,32,909	59,89,563
Furniture & Fixtures	34,01,461	1,41,968	22,49,383	12,94,046
Office Equipments.	20,62,367	5,624	5,37,268	15,30,723
Books	6,94,253	1,47,423	2,35,221	6,06,455
Software	2,34,62,144	20,67,880	18,34,325	2,36,95,699
Audio Visual Equipments	17,81,343	4,16,796	12,07,062	9,91,077
Tube Wells and Water Supply	14,150	35,350	-	49,500
Lab & Scientific Equipments	17,68,09,670	4,27,62,608	7,56,11,746	14,39,60,532
<b>TOTAL ( D - i )</b>	<b>30,02,99,094</b>	<b>5,93,74,956</b>	<b>14,27,16,663</b>	<b>21,69,57,387</b>
<b>Figures for 2020-21</b>	<b>33,82,50,290</b>	<b>6,09,96,352</b>	<b>9,89,47,548</b>	<b>30,02,99,094</b>

**( D - ii ) FIXED ASSETS OF TEQIP AS ON 31-03-2022**

PARTICULARS	GROSS BLOCK				DEPRECIATION				
	BALANCE AS ON 01.04.2021	ADDITIONS DURING THE YEAR	DELETIONS DURING THE YEAR	TOTAL	RATE OF DEP.(%)	DEPRECIATION UP TO 31.03.21	DEPRECIATION FOR THE YEAR	TOTAL DEPRECIATION	BALANCE AS ON 31.03.2021
TEQIP I Assets	18,42,37,765	-	-	18,42,37,765	-	-	-	-	18,42,37,765
TEQIP II Assets	9,70,19,243	-	-	9,70,19,243	-	-	-	-	9,70,19,243
<b>TOTAL ( D - ii )</b>	<b>28,12,57,008</b>	<b>-</b>	<b>-</b>	<b>28,12,57,008</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8 = (6+7)</b>	<b>28,12,57,008</b>
<b>GRAND TOTAL ( A ) + ( C ) + ( D - ii )</b>									<b>4,65,21,26,037</b>
<b>Figures for 2020-21</b>									<b>3,88,63,26,010</b>

PLACE : SURATHKAL

DATE : 18.07.2022

( RAVINDRANATH K. )

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

( PROF. UDAYA KUMAR R. YERAGATTI )

DIRECTOR I/C

N.I.T.K., SURATHKAL

SCH. NOs.	(AMOUNT ₹)	CURRENT	PREVIOUS
		YEAR	YEAR
<b>6 INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS</b>			
1 In Central Government Securities		-	-
2 In State Government Securities		-	-
3 Other Approved Securities		-	-
4 Shares		-	-
5 Debentures and Bonds		-	-
6 Term Deposits with Banks		-	-
Long Term Investments:			
Main Account Funds			
Balance at the beginning of the year	90,80,98,578		
Add: Additions during the year	44,42,25,020		
	1,35,23,23,598		
	40,78,90,618	94,44,32,980	90,80,98,578
Less: Transferred/Matured.	8,11,10,436		
Student Activity Council.	-		7,68,59,689
NITK Corpus Fund (NIMCET)	-		1,84,93,410
NITK Corpus Fund	2,49,96,85,383		2,45,16,73,002
KREC/NITK Endowment Investments	1,67,66,254		16,39,923
DASA	7,21,68,455		10,08,52,594
T&C - Performance Security FD with Exe. Engg. Minor Irrgn	5,24,089		
CCE Fund	45,50,594	2,67,48,05,211	35,09,105
7 Other		-	-
<b>BALANCE AS AT THE YEAR - END FOR SCHEDULE -6</b>		<b>3,61,92,38,191</b>	<b>3,56,11,26,301</b>
<b>7 INVESTMENTS - OTHERS</b>			
1 In Central Government Securities		-	-
2 In State Government Securities		-	-
3 Other Approved Securities		-	-
4 Shares		-	-
5 Debentures and Bonds		-	-
6 Other		-	-
<b>BALANCE AS AT THE YEAR - END FOR SHEDULE - 7</b>			

SCH. NOS.	(AMOUNT ₹)		
		CURRENT YEAR	PREVIOUS YEAR
<b>8 CURRENT ASSETS</b>			
1 Stock		-	-
2 Sundry Debtors		-	-
3 Cash and Bank Balances		22,596	14,973
a) Cash in Hand			
b) With Scheduled Banks		26,70,44,487	-
In Reserve Bank of India TSA-10681301001			
In Current Accounts			
State Bank of India CA No.10175365060	19,57,50,030		4,21,08,164
State Bank of India CA No.37772503911	6,59,144		99,836
In Term Deposit Accounts			
Balance at the beginning of the year	77,73,16,854		
Add: Additions during the year	1,49,87,67,213		
	2,27,60,84,067		
Less: Transferred/Matured.	1,60,40,20,417		
In Savings Bank Accounts		67,20,63,650	77,73,16,854
Canara Bank - SB A/c No.8517101000001	40,99,948		1,58,60,980
Canara Bank - HEFA Principle Payment A/c.No.8517201000070	4,25,64,452		22,24,443
Canara Bank - HEFA Interest Payment A/c.No.8517201000071	4,86,360		2,211
SBI SB Account No.10175367556	1,78,91,618		3,49,32,024
DASA CA-SBI No.38036472824	1,77,308		29,08,009
DASA CA-UBI No.510101006781570	57,48,385		-
SBI-CCE Fund No.10175366686	6,15,436		8,55,191
SBI - NIMCET No.38256905961	-		759
SBI - NITK/KREC Endowment Fund No.37481178720	1,09,37,417		40,38,309
SBI-NITK Corpus Fund No.10175367454	17,33,704		13,27,251
SBI-Student Activity Council No.30118900494	88,55,004		31,71,857
c) With non-Scheduled Banks		9,31,09,632	-
4 Stamps		3,980	1,007
<b>BALANCE AS AT THE YEAR - END FOR SHEDULE - 8</b>		<b>1,22,86,53,519</b>	<b>88,48,61,865</b>

SCH. Nos.	(AMOUNT ₹)		
		CURRENT YEAR	PREVIOUS YEAR
<b>9 LOANS, ADVANCES &amp; DEPOSITS</b>			
1 Advance to Employees			
a) Salary	-		-
b) Festival	-		-
c) Medical	-		-
d) Other	55,000	55,000	-
2 Long Term Advances to Employees (Interest Bearing)			
a) Vehicle Loan	-		-
b) Home Loan	-		-
c) Other	-		-
3 Advances and Other Amounts Recoverable in Cash or in Kind or for Value to be Received			
a) On Capital Accounts	-		-
b) To Suppliers	4,83,45,141		18,30,14,601
To CPWD	19,67,64,329		38,91,35,807
To NMPRC	3,19,37,606		3,19,37,606
To Staff	-		-
To Others	17,70,770		3,25,085
c) Other			
Rent Receivable	7,89,016		5,12,935
Interest Receivable	2,68,194		2,93,435
Student Fee Receivable	41,67,451		-
Water/Electricity Charges Receivable	8,27,889		3,51,414
NITK Corpus Fund - Interest Receivable	7,01,83,511		9,86,86,576
Receivable - NITK/KREC Enow Fund.	-		50,005
TDS Receivable	1,95,55,320		1,56,60,531
TCS Receivable	1,02,159		40,166
GST - TDS	96,423		25,160
GST Paid in Advance	34,200		-
Pre-Deposit-Service Tax-Immovable Property	9,591		9,591
Pre-Deposit-Service Tax Penalty-T&C	2,20,209		2,20,209

SCH. NOS.	(AMOUNT ₹)		
		CURRENT YEAR	PREVIOUS YEAR
	Loans, Advance/Receivable of Project/ Funds		
	NITK Corpus Fund - TDS	2,30,34,644	1,90,74,455
	CCE - TDS	55,180	37,147
	NIMCET - TDS	-	1,73,303
	NITK/KREC Endowment Fund - TDS	36,096	14,279
	DASA - TDS	16,05,733	12,95,859
	SAC - TDS	19,69,377	15,69,989
4	Prepaid Expenses		
	a) Insurance	1,53,507	1,57,980
	b) Other Expenses		
	Prepaid Road Tax	5,364	-
	Prepaid Maintenance of Computers	1,08,00,000	1,08,00,000
	Prepaid Operating Cost - Library	2,68,16,694	2,26,67,794
5	Deposits		
	a) Telephone	77,466	77,466
	b) Lease Rent	-	-
	c) Electricity	70,41,939	70,41,939
	d) Other - Gas & Oil suppliers	1,02,120	1,02,120
6	Income Accrued		
	a) On Investments from Earmarked/ Endowment Funds	-	-
	b) On Investment - Others	-	-
	c) On Loans & Advances	-	-
	d) Other		
	Leave Salary & Pension Receivable	15,42,402	18,65,006
	DCRG & Commutation - Receivable	90,55,145	-
7	Other - Current Assets, Recivables from UGC/Sponsored Projects		
	a) Debit Balance in Sponsored Projects	-	-

		(AMOUNT ₹)	
SCH. NOS.		CURRENT YEAR	PREVIOUS YEAR
b)	Debit Balance in Sponsored Fellowships & Scholerships	-	-
c)	Grants Receivable		
	DEIT Grant Receivable	3,00,450	-
	DST Interest Receivable	27,446	27,446
	SERB Grant Receivable	1,90,199	-
d)	Other Receivables from UGC	5,18,095	-
8	Claims Receivable.	-	-
<b>BALANCE AS AT THE YEAR - END FOR SHEDULE - 9</b>		<b>45,79,40,571</b>	<b>78,51,67,903</b>

PLACE : SURATHKAL

DATE : 18.07.2022

Sd/-

( RAVINDRANATH K. )

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

(PROF. UDAYA KUMAR R. YERAGATTI)

DIRECTOR i/c

N.I.T.K., SURATHKAL

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

P.O. SRINIVASNAGAR - 575 025

## SCHEDULES FORMING PART OF INCOME & EXPENDITURE FOR THE YEAR ENDED 31-03-2022

(AMOUNT ₹)

SCH. NOs.	CURRENT YEAR	PREVIOUS YEAR
10	<b>ACADEMIC RECEIPTS:</b>	
<b>A Academic</b>		
Admission Fee-College & Hostel	26,88,320	25,25,250
Library Fee	1,58,37,850	1,33,40,820
M.B.A.Tution Fee	76,25,000	59,00,000
M.C.A.Tution Fee	1,42,80,000	1,17,60,000
M.Sc.Tution Fee	29,92,500	16,05,000
Phd Thesis Processing/Evaluation Fee	46,45,368	43,63,000
Phd. Tution Fee	1,89,45,240	1,65,83,645
Tution Fee - M.Tech	9,86,05,125	7,86,16,510
Tuition Fee - U.G	23,69,40,145	19,83,22,365
<b>TOTAL (A)</b>	<b>40,25,59,548</b>	<b>33,30,16,590</b>
<b>B Examinations</b>	-	-
<b>TOTAL (B)</b>	-	-
<b>C Other Fees</b>		
Central Computing Facilities Fee	1,80,47,300	1,41,92,125
Identity Card	3,800	2,100
Campus Amenities	29,77,325	41,80,250
Career Development Fee	71,54,795	52,41,772
Certificate Fee	2,24,650	2,37,300
Convocation Fee	49,30,090	46,19,900
Health Care Facility	29,77,325	41,81,250
Late Fee, Fine & Processing Fee	5,92,244	3,81,538
<b>TOTAL (C)</b>	<b>3,69,07,529</b>	<b>3,30,36,235</b>
<b>D Sale of Publications</b>		
Application Form/Prospectus	14,17,922	9,06,650
<b>TOTAL (D)</b>	<b>14,17,922</b>	<b>9,06,650</b>
<b>E Other Academic Receipts</b>	-	-
<b>TOTAL (E)</b>	-	-
<b>TOTAL (F) = (A)+(B)+(C)+(D)+(E)</b>	<b>44,08,84,999</b>	<b>36,69,59,475</b>
Less : Utilised for Capital Expenditure (G)	-	-
<b>TOTAL (F)-(G)</b>	<b>44,08,84,999</b>	<b>36,69,59,475</b>
11	<b>GRANTS / SUBSIDIES :</b>	
Balance B/F	12,49,21,686	28,16,22,373
Add : Receipts during the year - Revenue Grant	1,57,26,67,734	1,50,26,25,447
- Capital Grant	45,99,64,000	7,52,75,000
	2,15,75,53,420	1,85,95,22,820
Less : Refund to MoE	-	-

Balance	2,15,75,53,420	1,85,95,22,820
Less : Utilised for Capital Expenditure (A)	21,55,64,060	25,68,24,678
Balance	1,94,19,89,360	1,60,26,98,142
Less : Utilised for Revenue Expenditure (B)	1,67,49,44,873	1,47,77,76,456
Balance C/F (C)	<b>26,70,44,487</b>	<b>12,49,21,686</b>
<b>12 INCOME FROM INVESTMENTS :</b>		
1 <b>Interest</b>		
a. On Government Securities	-	-
b. Other Bonds / Debentures	-	-
2 Interest on Term Deposits	15,23,72,877	14,78,34,730
3 Income Accrued but not Due on Term Deposits	-	-
4 Interest on Savings Bank Accounts	30,60,073	2,73,185
5 Others	-	-
<b>TOTAL (A)</b>	<b>15,54,32,950</b>	<b>14,81,07,915</b>
Less : Transferred to Earmarked / Endowment Funds (B)	12,68,45,325	13,47,18,825
<b>TOTAL (A)-(B)</b>	<b>2,85,87,626</b>	<b>1,33,89,090</b>
<b>13 INTEREST EARNED :</b>		
1 Interest on Savings Bank Accounts	17,45,515	35,26,754
2 On Loans	-	-
3 On Debtors & Receivable		
Interest on Income Tax Refund	6,01,026	47,86,647
Interest on MESCOM Deposit	3,06,805	3,17,227
<b>TOTAL</b>	<b>26,53,346</b>	<b>86,30,628</b>
<b>14 OTHER INCOME :</b>		
<b>A 1 Income from Land &amp; Building</b>		
Hostel Room Rent	2,01,74,694	14,83,348
Rent From Building	9,87,851	7,65,925
Rent from Guest House	10,60,384	7,34,200
Rent from Quarters	61,99,305	48,16,650
2 Water/Electricity Charges Collection-Qtrs	6,19,714	4,88,507
3 Water/Electricity Charges-Contractor	35,623	3,47,220
4 Liquidated Damages	62,206	-
4 NITK Corpus Fund - Interest.	7,01,83,511	9,86,86,576
<b>TOTAL (A)</b>	<b>9,93,23,288</b>	<b>10,73,22,426</b>
<b>B Sale of Institute's Publications</b>	-	-
<b>TOTAL (B)</b>	-	-
<b>C Income from Holding Events</b>	-	-
<b>TOTAL (C)</b>	-	-
<b>D Other</b>		
1 Income from Consultancy	-	-
2 RTI Fees	282	-
3 Income from Royalty	-	-
4 Sale of Application Form (Recruitment)	13,83,500	-
5 Miscellaneous Receipts	25,91,190	11,69,082
6 Profit on Sale/Disposal of Assets		
a) Owned Assets	-	-

b) Assets Received Free of Cost	-	-
7 Grants/Donations from Institutions, Welfare Bodies & International Bodies	-	-
8 Others (Specify)		
Recurring Exp - Capital Grant	-	26,78,635
Auction Sales	9,15,190	26,31,779
CRF Receipts	17,88,336	-
Leave Salary & Pension Contrib	29,29,566	15,85,204
Lapsed Deposit	2,95,782	2,33,790
Software Fee Plagiarism	1,54,000	1,28,000
Transcript Charges	6,14,322	5,15,700
Vehicle Running Charges	-	4,220
Verification Fee	5,14,915	3,43,354
<b>TOTAL (D)</b>	<b>1,11,87,083</b>	<b>92,89,764</b>
<b>TOTAL (A)+(B)+(C)+(D)</b>	<b>11,05,10,371</b>	<b>11,66,12,190</b>
<b>15 PRIOR PERIOD INCOME</b>		
1 Academic Receipts	-	-
2 Income from Investments	-	-
3 Interest Earned	-	-
4 Other Income - Depreciation	-	2,27,62,724
<b>TOTAL</b>	<b>-</b>	<b>2,27,62,724</b>
<b>16 STAFF PAYMENTS &amp; BENEFITS (ESTABLISHMENT EXPENSES)</b>		
a) Pay Non-Teaching	19,57,51,136	19,42,80,048
b) Pay-Teaching	67,81,90,072	61,28,11,772
c) New Defined Pension Contribution	4,72,16,715	4,30,95,501
d) LTC/Home Travel Concession	17,29,086	1,49,91,619
e) Medical Facility	1,38,85,586	51,20,662
f) Children Education Allowance	74,11,225	74,80,400
g) Others		
1 Livery to Class IV Staff	11,319	-
2 Cumulative Professional Dev Allowance	67,07,739	1,20,14,681
3 Staff Research Project	-	3,24,583
4 Staff Amenities	9,75,784	11,37,502
5 Training to Staff and Faculty	20,000	-
<b>TOTAL</b>	<b>95,18,98,662</b>	<b>89,12,56,768</b>
<b>16A EMPLOYEES RETIREMENT AND TERMINAL BENEFITS</b>		
Opening Balance as on 01.04.2021	5,30,44,59,463	4,83,65,81,712
Add: Capitalised Value of Contributions Received from other Organisations	-	-
Total (a)	-	-
Less: Actual Payment during the year (b)	26,20,15,942	25,34,87,136
Balance as on 31.03.2022 (c)	5,04,24,43,521	4,58,30,94,576
Provision required on 31.03.2022 as per Actuarial Valuation (d)	5,79,60,52,949	5,30,44,59,463
A Provision to be made in the Current year (d-c)	75,36,09,428	72,13,64,887
B Contribution to New Pension Scheme	-	-
C Medical Reimbursement to Retired Employees	-	-

D	Travel to Hometown on Retirement	-	-
E	Deposit Linked Insurance Payment	-	-
	<b>TOTAL</b>	<b>75,36,09,428</b>	<b>72,13,64,887</b>
	<b>TOTAL</b>	<b>1,70,55,08,090</b>	<b>1,61,26,21,655</b>
<b>17</b>	<b>ACADEMIC EXPENSES</b>		
a)	Field work/Participation in Conferences	11,50,307	2,03,763
b)	Expenses on Seminars/Workshops	-	1,38,264
c)	Payment to Visiting Faculty	25,95,042	47,51,280
d)	Convocation Expenses	11,69,560	8,56,984
e)	Stipend/Means-cum-merit Scholarship	43,20,000	33,70,000
f)	SC/ST Plan Grant Exp	1,21,39,604	1,13,95,058
g)	Others		
1	Admission Expenses	7,61,500	5,75,250
2	Centre of Excellence	5,76,287	2,57,802
3	Coaching to SC/ST Students	50,143	-
4	Expert Lectures	39,070	86,142
5	NCC/NSS Activities Expenses	12,32,820	7,74,169
6	Phd Contingencies	61,52,862	51,16,360
7	Phd Evaluation/Viva Exp	24,23,713	28,70,925
8	Practical Training at Mining Site	1,21,465	1,70,752
9	Research Interaction	20,45,097	17,34,016
10	PG Stipend/ PhD Fellowship	35,50,54,151	33,36,97,432
11	Hindi Cell Activities	56,666	36,523
12	Operating Cost-Applied Mech (W R &O)	7,28,817	17,08,477
13	Operating Cost-Career Development Centre(CDC)	2,27,649	65,097
14	Operating Cost-Central Computing Facility	3,36,023	1,24,191
15	Operating Cost-Central Research Facility	13,56,481	4,13,328
16	Operating Cost-Chemical Engg.	46,36,845	28,87,583
17	Operating Cost-Chemistry	34,25,979	30,59,857
18	Operating Cost-Civil	19,91,155	32,21,149
19	Operating Cost-Computer Engg	5,49,336	6,03,099
20	Operating Cost-E&C Engg.	10,16,476	5,78,518
21	Operating Cost-E&E Engg.	9,70,587	9,28,545
22	Operating Cost-School of Management.	10,46,081	6,24,817
23	Operating Cost-Information Tech	4,01,794	3,33,016
24	Operating Cost-Library	2,90,60,834	3,13,22,617
25	Operating Cost-MACS Dept.	5,77,378	5,91,412
26	Operating Cost-Mechanical Engg	46,57,342	34,69,364
27	Operating Cost-Metallurgical Engg.	20,16,555	9,19,246
28	Operating Cost-Mining	6,78,549	6,82,771
29	Operating Cost-Physics	24,00,617	23,60,510
30	Diamond Jubilee Expenses	-	13,60,797
	<b>TOTAL</b>	<b>44,59,66,785</b>	<b>42,12,89,114</b>

<b>18</b>	<b>ADMINISTRATIVE AND GENERAL EXPENSES</b>		
A	Infrastructure		
	a) Electricity & Power	3,88,27,220	2,50,19,757
	b) Water Charges	1,24,18,031	97,72,625
	c) Insurance	-	-
	d) Rent, Rates & Taxes (including property tax)	16,62,090	12,18,508
B	Communication		
	e) Postage	1,41,408	47,359
	f) Telephone, Fax & Internet Charges	8,47,484	8,60,806
C	Others		
	g) Printing & Stationery	32,33,901	21,66,716
	h) Travelling, TA & Conveyance	11,88,269	8,47,720
	i) Hospitality/Entertainment	89,068	3,42,717
	j) Auditor Remuneration	6,53,700	2,35,390
	k) Professional Charges	10,31,625	11,27,935
	l) Advertisement & Publicity	7,32,951	10,87,988
	m) Magzines & Journals	48,99,793	1,19,204
	n) Hostel Establishment	1,50,78,395	1,68,88,712
	o) Others		
	Dispensary	1,61,38,663	1,36,63,907
	Security Outsourcing	5,16,48,451	4,88,79,125
	Contractual Staff/Manpower	1,09,23,211	-
	Miscellaneous Expenses	11,49,847	17,52,470
	Provision for Bad & Doubtful Advances	-	1,13,55,512
	Recurring Expenses from Projects: Other Research Project	6,55,09,741	8,12,39,079
	<b>TOTAL</b>	<b>22,61,73,848</b>	<b>21,66,25,530</b>
<b>19</b>	<b>TRANSPORTATION EXPENSES</b>		
1	Vehicles		
	a) Running Expenses	13,74,388	15,05,230
	b) Repairs & Maintenance	-	-
	c) Insurance Expenses	23,182	47,515
2	Vehicles taken on Rent/Lease		
	a) Rent/Lease Expenses	-	-
3	Vehicles Hiring Expenses	-	-
	<b>TOTAL</b>	<b>13,97,570</b>	<b>15,52,745</b>
<b>20</b>	<b>REPAIRS &amp; MAINTENANCE</b>		
a)	Building (ACB)	63,75,480	1,51,91,693
	Hostel	35,65,184	77,97,659
	Residential Bldg	47,27,307	63,28,706
b)	Furniture & Fixtures	-	1,50,123
c)	Machinery & Equipments	84,79,111	77,52,198
d)	Computers	1,49,34,112	1,55,86,985
e)	Gardening	28,89,032	34,00,138
f)	Others		
	Internal Telephone	21,79,647	22,70,673

	Guest House	24,97,567	50,01,427
	Campus Maint/upkeeping	11,57,261	32,60,629
	Electrical Installation	1,03,02,368	1,27,37,228
	House Keeping Charges	2,04,21,181	1,71,64,295
	Maintenance of Road	15,488	56,790
	Maint. of Waste Water Disposal	55,46,411	58,64,112
	Swachha Bharath Abhiyan	1,76,536	1,42,105
	NIT Transit House	3,50,000	3,50,000
	<b>TOTAL</b>	<b>8,36,16,685</b>	<b>10,30,54,761</b>
<b>21</b>	<b>FINANCE COSTS</b>		
	a) Bank Charges	3,40,044	15,99,038
	b) Others	6,30,78,216	1,94,57,352
	<b>TOTAL</b>	<b>6,34,18,260</b>	<b>2,10,56,390</b>
<b>22</b>	<b>OTHER EXPENSES</b>		
	a) Application Fee Refund	16,84,670	-
	b) Transfer to Corpus/Capital fund to the extent of Capital Exp- IRG & Non Plan	2,79,55,217	4,58,13,446
	c) Provision for Bad & Doubtful Debts/Advances	-	-
	d) Irrecoverable Balances Written Off	-	-
	e) Grants/Subsidies to other Insitutions/Organisations	-	-
	f) Recurring Expenses - Capital Grant	-	26,78,635
	<b>TOTAL</b>	<b>2,96,39,887</b>	<b>4,84,92,081</b>
<b>23</b>	<b>PRIOR PERIOD EXPENSES</b>		
	1 Establishment Expenses :	-	-
	2 Academic Expenses	-	-
	3 Administrative Expenses	-	-
	4 Transportation Expenses	-	-
	5 Repairs & Maintenance	-	-
	6 Othere Expenses - Depreciation on Fund/Project Asssets	-	-
	<b>TOTAL</b>	<b>-</b>	<b>-</b>

PLACE : SURATHKAL

DATE : 18-07-2022

Sd/-  
( RAVINDRANATH K. )  
REGISTRAR  
N.I.T.K.,SURATHKAL

Sd/-  
(PROF. UDAYA KUMAR R. YERAGATTI)  
DIRECTOR i/c  
N.I.T.K.,SURATHKAL

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

## RECEIPTS & PAYMENTS FOR THE YEAR ENDED 31-03-2022

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
Opening Balances:			Establishment and Administrative expenses	1,73,58,09,528	1,72,49,44,456
(a) Cash in hand	14,973	33,617	Payments Against Earmarked/Endowment Funds	15,02,70,690	13,91,88,395
(b) Bank Balances:			Payments Against Sponsored Projects/Schemes	19,02,93,020	21,32,62,888
(i) In current accounts	5,33,34,913	1,69,11,111	Investments	1,97,74,77,686	1,75,80,66,635
(ii) Savings accounts	5,07,93,004	8,54,50,844	Expenditure on Fixed Assets &	1,13,98,02,644	77,66,12,279
(iii) HEFA accounts	22,26,654	4,35,985	Capital Work - in - progress:	1,64,60,24,922	1,78,46,91,696
Grants Received:			Deposits & Advances	-	2,80,82,00,316
(a) From Govt. of India			Payments made against	90,54,49,917	59,34,74,021
Capital Grant	45,99,64,000		Funds for various projects:		
Revenue Grant	1,57,26,67,734	1,57,79,00,447	Any Other Payments :		
(b) From State Government	-	-	Closing Balances:		
Academic Receipts	47,33,86,701	42,28,29,233	(a) Cash in hand	22,596	14,973
Receipts Against Earmarked/Endowment Funds	30,31,27,346	36,11,36,326	(b) Bank Balances:		
Receipts Against Sponsored Projects/Schemes/Plan	41,91,21,828	15,10,09,623	(i) In current accounts	19,64,09,174	5,33,34,913
Income on Investments.	2,11,85,200	1,33,89,090	(ii) Savings accounts	2,19,91,566	5,07,93,004
Interest Received :	23,46,541	1,04,25,338	(iii) HEFA accounts	4,30,50,812	22,26,654
Deposits & Advances	2,27,62,59,692	1,64,38,15,622	(iv) TSA accounts	26,70,44,487	-
Investments Encashed/matured	2,04,05,95,174	1,60,55,94,740			
Any other receipts:	59,86,23,283	4,01,58,78,253			
<b>TOTAL</b>	<b>8,27,36,47,042</b>	<b>9,90,48,10,229</b>	<b>TOTAL</b>	<b>8,27,36,47,042</b>	<b>9,90,48,10,229</b>

PLACE : SURATHKAL

DATE : 18-07-2022

Sd/-

( RAVINDRANATH K. )

REGISTRAR

N.I.T.K., SURATHKAL

Sd/-

( PROF. UDAYA KUMAR R. YERAGATTI )

DIRECTOR i/c

N.I.T.K., SURATHKAL

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL, P.O. SRINIVASNAGAR - 575 025

## SCHEDULE: 24

### SIGNIFICANT ACCOUNTING POLICIES (2021-22)

#### 1. BASIS FOR PREPARATION OF ACCOUNTS

The accounts are prepared under Accrual method of accounting.

#### 2. REVENUE RECOGNITION

Revenues are recognised on accrual basis except for interests on Savings Bank Accounts.

#### 3. FIXED ASSETS AND DEPRECIATION

**3.1** Fixed assets are stated at cost of acquisition including inward freight, duties and taxes and incidental and direct expenses related to acquisition, installation and commissioning.

**3.2** Fixed assets are valued at cost less accumulated depreciation under different blocks. During the year depreciation is provided under Straight Line method. (Detailed working is given in the Schedule No. 5 to the Balance Sheet). Wherever the asset value is nil due to depreciation, the asset is carried forward at a residual value of Rupee one in the Balance Sheet and will not be further depreciated. Thereafter, depreciation will be calculated on the additions of each year separately at the rate of depreciation applicable for that asset head. Depreciation is provided for the whole year on additions during the year.

**3.3** The total value of assets acquired out of the Earmarked fund and sponsored funds of completed projects has been incorporated in the books of accounts and considered as Institute assets. The assets acquired from the ongoing sponsored projects are held and used by the Institution are not included in **Schedule 5**.

**3.4** The buildings and related works are capitalized as soon as the asset is handed over by CPWD and put to use by the Institute.

**3.5 Intangible Assets:** E-Journals and Computer Software are grouped under Intangible Assets.

#### 4. STOCKS

Expenditure on the purchase of chemicals, glassware, Stationary and other stores is accounted as revenue expenditure.

#### 5. RETIREMENT BENEFITS

Employees Gratuity, Leave Encashment and Pension liability has been valued by the actuaries and the same has been incorporated in the statement of accounts during the financial year 2020-21. Ref: **Notes on Accounts Sl. No. 10**.

#### 6. INVESTMENTS

Investments are stated at cost and the same is disclosed in detail as per the standard format.

#### 7. EARMARKED/ENDOWMENT FUNDS

The income from investments is credited on an accrual basis to the respective Funds. The expenditures are debited to the Fund. The assets created out of Earmarked Funds where the ownership vests in the

institution, are merged with the assets of the Institution by crediting an equal amount to the Capital Fund. The balance in the respective funds is carried forward and is represented on the assets side by the balance at Bank, Investments and accrued interest.

## **7.1 NITK CORPUS FUND**

The fee received from DASA students, Institution share of Consultancy fees are considered to Corpus fund. Income earned from the investment is added to the Fund. Only the investment Interest earned under the Corpus Fund may be utilised for both Revenue and Capital expenditure based on the guidelines of the Institution. The 44<sup>th</sup> BOG held on 23-03-2016, it was resolved to remove the upper accumulation ceiling limit for NITK Corpus Fund (FC Item No. 34.3.11 dated 23-03-2016). The interest earned out of the Investment shall be transferred to Institute Revenue account as per the BoG resolution No.53.3 dated 05.10.2018.

## **7.2 ENDOWMENT FUNDS**

Endowment funds are received from various individual donors, Trusts and other organisations for establishing Chairs and for Medals & Prizes as specified by the Donors. The income from the investment of each Endowment Fund is added to the respective Fund. The expenditure on Medals & Prizes is met from the interest earned on the investment of the respective Endowment Funds and the balance is carried forward. The balances are represented by Investment in Fixed Deposits and balance in the Saving Bank Account and Accrued Interest on Investments.

## **8. GOVERNMENT (MoE) GRANTS**

**8.1** Government Grants are accounted on sanction/realization basis. However, where a sanction for release of grant pertaining to the financial year is received before 31<sup>st</sup> March and the grant is actually received in the subsequent financial year, that grant is accounted on accrual basis and an equal amount is shown as receivable from the Government.

**8.2** Government Grants utilised towards capital expenditure, (on an accrual basis) is transferred to the Capital Fund to the extent of the amount spent on capital expenditure.

**8.3** Government grants for meeting Revenue Expenditure (on an accrual basis) are treated, to the extent utilised, as income of the year in which they are realised.

**8.4** Unutilized grants (including advances paid out of such grants) are carried forward and exhibited as a liability in the Balance Sheet.

**8.5** Surplus Grant from MoE as on 31.03.2022 is Rs.26,70,44,487/-. (Schedule 11 (C)).

## **9. HEFA LOAN**

As per the Govt of India policy the financial assistance for creation of educational infrastructure and R&D in India's Premier Educational Institutions is through HEFA. Institute has got sanctioned HEFA loan of Rs.209 crores for four major projects. The principal amount will be repayable out of the Internal Revenue Generation of the Institute in 10 years in half yearly instalment. **(Schedule 3B)**

## **10. INVESTMENTS OF EARMARKED FUNDS AND INTEREST INCOME ACCRUED ON SUCH INVESTMENTS:**

To the extent not required immediately for expenditure, the amounts available against such funds are invested in Short/Long Term Deposit in Scheduled Nationalized Banks, leaving a balance in Savings Bank Accounts. Interest received, interest accrued and due and interest accrued but not due on such investments are added to the respective funds and not treated as income of the Institution.

## 11. SPONSORED PROJECTS

**11.1** In respect of ongoing Sponsored Projects, the amounts received from sponsors are credited to the head "current liabilities and Provisions - Current Liabilities - Other Liabilities - Receipts against ongoing sponsored projects." As and when expenditure is incurred/advances are paid against such projects, or the concerned project account is debited with allocated overhead charges, the liability account is debited.

**11.2** Fellowships and Scholarships sponsored by various organisations are accounted in the same way as sponsored Projects and the expenditure generally for disbursement of Fellowships, Scholarships and contingent expenditure.

**11.3** The Institution awards Fellowships and Scholarships to Under Graduate and Post Graduate students, which are accounted as Academic expenses.

## 12. INCOME TAX

The income of the Institution is exempt from Income Tax under Section 10(23C) of the Income Tax Act. No provision for tax is therefore made in the accounts.

Date : 18-07-2022

Place : Surathkal

Sd/-  
(RAVINDRANATH K.)  
REGISTRAR

Sd/-  
(PROF. UDAYA KUMAR R. YERAGATTI)  
DIRECTOR i/c

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL, P.O. SRINIVASNAGAR - 575 025

## SCHEDULE: 25

### CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS (2021-22):

#### A. CONTINGENT LIABILITIES:

##### 1. CONTINGENT LIABILITIES:

1.1 As on 31.03.2022 following arbitration case is pending for decision with regard to the contractor. Construction of Ladies Hostel ₹ 29,79,122/-.

1.2 Disputed demands in respect of Service Tax is ₹22,97,932/-. Presently the appeal is with the Commissioner of Central Excise (Appeals) and we have paid the mandatory pre-deposit of ₹1,72,345/- being the 7.5% of the service tax demand of ₹22,97,932/- [Appeal File No. A.No.35/16/MR/ST].

#### B. NOTES TO ACCOUNTS:

##### 2. FIXED ASSETS:

2.1 Additions in the year to Fixed Assets in Schedule include Assets purchased out of Capital Grant ₹86,80,77,911/-, IRG ₹2,13,72,397/-, Non-Plan ₹65,82,820, Other designated funds/workshops ₹20,13,254/-. Assets Transferred from Completed Other Research Projects is ₹14,27,16,663/-.

2.2 Assets of TEQIP I & II Project Scheme of ₹ 28,12,57,008/- has been exhibited in Schedule 4 (D-ii).

Project Phase	Start of Proj(Year)	End of Proj(Year)	Total Value of Assets Acquired
TEQIP – I	2003	2009	₹ 18,42,37,765
TEQIP – II	2011	2017	₹ 9,70,19,243

2.3 Fixed Assets acquired out of Capital Grant, Revenue Grant and other funds have been exhibited in Sub Schedules A, B & C of the main schedule of Fixed Assets. (Schedule 5).

2.4 Depreciable fixed assets as set out in Schedule 5 do not include assets purchased out of funds of sponsored ongoing projects, as project contracts include stipulations that all such assets purchased out of project funds will remain the property of the sponsors.

2.5 Depreciation has been calculated under straight line method. Under this method the depreciation is calculated on original cost of the asset.

3. **DEPOSIT LIABILITIES** –No deposit liabilities.

##### 4. EXPENDITURE IN FOREIGN CURRENCY:

During the year 2020-21 the Institute has incurred expenditure in foreign currency and remitted the amount as under:

Type of Currency	Amount	Purpose
EURO	5,29,563/-	Procurement
USD	11,89,701/-	Procurement
GBP	1,20,150/-	Procurement
S\$	3,02,000/-	Procurement

## 5. CURRENT ASSETS, LOANS, ADVANCES AND DEPOSITS:

In the opinion of the Management, the current assets, Loans, Advances and Deposits have a value on realisation in the ordinary course, equal at least to the aggregate amount shown in the Balance Sheet.

6. The details of balances in Saving Bank Accounts, Current Accounts and Fixed Deposit Accounts with Banks shown in schedule 8 are detailed as below:

Particulars	Amount
I. Savings Bank Accounts:	
1. Institute - Canara Bank	40,99,948
2. Institute - Canara Bank – HEFA-Principal	4,25,64,452
3. Institute - Canara Bank – HEFA-Interest	4,86,360
4. SBI SB Account	1,78,91,618
5. DASA Bank Account-SBI	59,25,693
6. SBI-CCE Fund	6,15,436
7. SBI - NITK/KREC Endowment Fund	1,09,37,417
8. SBI-NITK Corpus Fund	17,33,704
9. SBI-Student Activity Council	88,55,004
II. Current Account:	
1. Institute - State Bank of India	19,57,50,030
2. Institute - State Bank of India	6,59,144
III Term Deposits with Schedule Banks	67,20,63,650

7. Figures in the Final accounts have been rounded off to the nearest rupee.

8. Schedules 1 to 25 are annexed to and form an integral part of the Balance Sheet at 31<sup>st</sup> March 2022 and the Income & Expenditure account for the year ended on that date.

9. The existing employees' terminal benefit & Pensioners liability as per the requirement under the uniform accounting standards prescribed by the Ministry valued at ₹ 579.61 crores, as on 31-03-2022 by actuaries M/s. K.A. PANDIT an approved Consultants and Actuaries, Mumbai. The details are as follows:

Pension Liability	₹ 497.02 Crore
Leave Encashment Liability	₹ 45.50 Crore
Gratuity Liability	₹ 37.08 Crore

10. The General Provident Fund Account is owned by the members of NITK GPF Trust and are maintained separately. A Receipts & Payments Account, Income & Expenditure Account (on Accrual basis) and a Balance Sheet of General Provident Fund Accounts for the year 2021-22 have been attached to the Institute's Accounts. During the year a sum of ₹ 4,82,20,662 has been collected and transferred to the GPF Trust Account [Investment Pattern: Central Govt. & State Govt. Securities 49.63%, Debt Securities/Term Deposits/Public Finance Bond Securities 45.19%, Money market instruments including units of money market Mutual Funds 5.18%].

All portion of the New Pension Scheme funds of ₹ 3,63,30,299/- in respect of 196 employees who have been allotted PRA numbers has been transferred to National Securities Depository Limited (NSDL) - Central Record Keeping Agency (CRA).

## 11. WORKS IN PROGRESS:

Works in Progress is valued at cost incurred basis.

## 12. HEFA LOAN:

During the year the Institute has not availed any new loan from HEFA. During the year interest charged to all the Loans is ₹ 6.31 Crores. The interest on HEFA loans are treated as revenue expenditure and shown under Schedule no.21 of Income & Expenditure Account.

All assets acquired out of HEFA loan are hypothecated to HEFA till the loan is discharged in full.

## 13. TUITION FEE:

The tuition fee is collected on a semester basis and accounted as per semester fee collection basis even though the period is spread over to two financial years.

## 14. OTHER:

1. Previous year figures have been re-casted and regrouped wherever necessary in conformity with current year presentation.

2. Tuition fee exemption has been extended to all SC/ST students along with other benefits. Hence Tuition Fee is accounted on accrual basis and other benefits such as Laptop, Book allowance, Mess Allowance etc., accounted on claim basis.

3. (i) During the year 2013-14 area of the land measuring 1.40 acres of land acquired by NHAI and compensation for the same is not yet received.

(ii) Land includes measuring 78 cents of book value ₹ 24,014/- which was under dispute. Out of which 62 cents of land was in the revenue court was decreed in favour of the Institute and same is appealed by the party in the tribunal.

4. Accrued interest earned on Investments includes ₹ 5,79,97,587 in Investments shown under schedule 6.

5. N.I.T.K. Hostel Mess Account is maintained separately. It is a separate entity governed by the NITK Hostel Trust (R).

PLACE : SURATHKAL

DATE : 18-07-2022

Sd/-  
( RAVINDRANATH K. )  
REGISTRAR  
N.I.T.K.,SURATHKAL

Sd/-  
(PROF. UDAYA KUMAR R. YERAGATTI)  
DIRECTOR i/c  
N.I.T.K.,SURATHKAL

# TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME [ TEQIP - III ]

NITK SURATHKAL, SRINIVASNAAR.

## BALANCE SHEET

CREDIT NO. CR. 4685-0 IN

AS AT 31<sup>ST</sup> MARCH, 2022

SI. No.	PARTICULARS	Schedule No.	Current Year Amount (₹)	Previous Year Amount (₹)
<b>A</b>	<b>SOURCE OF FUNDS</b>			
	1) Amount Received From NPIU	1	6,77,63,504	6,72,39,929
	2) Contribution From:		-	-
	3) Excess of Income Over Expenditure	2	(3,31,73,394)	(3,24,97,119)
	<b>Total</b>		<b>3,45,90,110</b>	<b>3,47,42,810</b>
<b>B</b>	<b>APPLICATIONS OF FUNDS</b>			
	1) Fixed Assets	3	3,45,90,110	3,45,90,110
	2) Work in progress - Scheme work under implementation	-	-	-
	3) Investment		-	-
	<b>4) A. Current Assets, Loan &amp; Advances</b>			
	a. Cash Balance		-	-
	b. Bank Balance	4	-	1,52,700
	c. Advance for Capital Goods		-	-
	d. Loan & Advances	5	-	-
	<b>Total (A)</b>		<b>-</b>	<b>1,52,700</b>
	<b>B. Current Liabilities</b>			
			-	-
			-	-
	<b>Total (B)</b>		<b>-</b>	<b>-</b>
	Net Current Assets (A - B)		-	1,52,700
	<b>Total</b>		<b>3,45,90,110</b>	<b>3,47,42,810</b>

Significant Accounting Policies and Notes to accounts form part of statement of accounts

As per Separate report attached of even date

Place : Mangalore

Date : 31.05.2022

**For NITIN J. SHETTY & CO**  
**Chartered Accountants**  
**Firm Reg. No. 008891S**

Sd/-  
**NODAL OFFICER**  
TEQIP III

Sd/-  
**REGISTRAR**  
NITK, SURATHKAL

Sd/-  
**DIRECTOR**  
NITK, SURATHKAL

Sd/-  
**CA. NITIN J. SHETTY, Partner**  
Membership No. 025990

# TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP - III)

NITK SURATHKAL, SRINIVASNAAR.

## INCOME & EXPENDITURE FOR THE YEAR ENDED 31<sup>ST</sup> MARCH 2022

CREDIT NO. CR. 4685-0 IN

Previous Year Amount (₹) 2020-21	EXPENDITURE	Current Year Amount (₹) 2021-22	Previous Year Amount (₹) 2020-21	INCOME	Current Year Amount (₹) 2021-22
8,50,300	To Improve Student Learning	-	-		-
-	" Research Assistantship	-	-		-
1,60,568	" Graduates Employability	-	-		-
11,03,988	" Faculty & Staff Development	-	55,04,294		6,76,275
5,96,654	" Research & Development	-	-	By Miscellaneous receipt	-
61,400	" Mentoring/Twinning System	-	-	" Excess of Expenditure over Income.	6,76,275
2,18,260	" Industry-Institute Interaction	-	-		-
1,12,100	" Hiring Consultancy Services	64,900	-		-
7,67,000	" Reforms, Governance	-	-		-
-	" Management Capacity Development	-	-		-
-	" Other Expenses	1,37,751	-		-
71,169	<u>Incremental Operating Cost</u>	41,019	-		-
45,474	Office Expenses	-	-		-
600	Meeting Expenses	-	-		-
14,97,432	Travelling Expenses	-	-		-
18,700	Staff Salary & Allowance	4,31,956	-		-
649	Operation & Maintenance of Equipment	649	-		-
<b>55,04,294</b>	<b>Total</b>	<b>6,76,275</b>	<b>55,04,294</b>		<b>6,76,275</b>

Significant Accounting Policies and Notes to accounts form part of statement of accounts

Place : Mangalore

Date : 31-05-2021

As per Separate report attached of even date

**For NITIN J. SHETTY & CO**

**Chartered Accountants**

**Firm Reg. No. 008891S**

Sd/-

**NODAL OFFICER**

TEQIP III

Sd/-

**REGISTRAR**

NITK, SURATHKAL

Sd/-

**DIRECTOR**

NITK, SURATHKAL

Sd/-

**CA. NITIN J. SHETTY, Partner**

Membership No. 025990

**TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP - III)**

**NITK SURATHKAL, SRINIVASNAAR.**

**RECEIPT & PAYMENT FOR THE YEAR ENDED 31<sup>ST</sup> MARCH 2022**

**CREDIT NO. CR. 4685-0 IN**

Previous Year Amount (₹) 2020-21	RECEIPT	Current Year Amount (₹) 2021-22	Previous Year Amount (₹) 2020-21	PAYMENT	Current Year Amount (₹) 2021-22
	<b>Opening Balance</b>			<b>Procurement of Assets</b>	
-	i) Cash in Hand	-	28,96,750	Books, LRs and Software	-
1,49,253	ii) Cash at Bank	1,52,700	1,60,92,143	Equipment	-
-	iii) Fixed Deposit with Bank	-	-	Furniture	-
2,43,40,076	<b>Grant</b>	5,23,575	8,50,300	<b>Improve Student Learning</b>	-
	TEQIP III Grant from MoE		-	<b>Research Assistantship</b>	-
	<b>Other</b>		1,60,568	<b>Graduates Employability</b>	-
1,56,558	Advances	-		<b>Faculty &amp; Staff Development</b>	-
1,03,718	TDS on Payments	8,500	11,03,988	<b>Research &amp; Development</b>	-
3,76,692	Deposit TDS on GST	-	5,96,654	<b>MOCs and Digital Learning</b>	-
3,600	Deposit Profession Tax	2,800	-	<b>Mentoring/Twinning System</b>	-
-	Miscellaneous Receipt	-	7,67,000	<b>Reforms, Governance</b>	-
			-	<b>Management Capacity Development</b>	-
			1,12,100	<b>Hiring Consultancy Services</b>	64,900
			2,18,260	<b>Industry-Institute Interaction</b>	-
			-	<b>Other Expenses</b>	1,37,751
			-	<b>Incremental Operating Cost</b>	-
			-	Consumables	-
			18,700	Operation & Maintenance of Equipment	-
			71,169	Office Expenses	41,019
			45,474	Meeting Expenses	-
			-	Hiring of Vehicles	-
			600	Travelling Expenses	-
			14,97,432	Staff Salary & Allowance	4,31,956

Previous Year Amount (₹) 2020-21	RECEIPT	Current Year Amount (₹) 2021-22	Previous Year Amount (₹) 2020-21	PAYMENT	Current Year Amount (₹) 2021-22
				<b>Other</b>	
			-	Advance.	-
			1,03,718	TDS Remitted (Contractor)	8,500
			-	TDS Remitted (Salary)	-
			649	Bank Charges	649
			-	GST Remitted	-
			3,76,692	Deposit TDS on GST	-
			3,600	Profession Tax Redmitted (Salary)	2,800
				<b>Closing Balance</b>	
			-	i) Cash in Hand	-
			1,52,700	ii) Cash at Bank	-
				iii) Fixed Deposit with Bank	-
<b>2,51,29,897</b>	<b>Total</b>	<b>6,87,575</b>	<b>2,51,29,897</b>	<b>Total</b>	<b>6,87,575</b>

As per Separate report attached of even date

**For NITIN J. SHETTY & CO**  
Chartered Accountants  
Firm Reg. No. 008891S

Sd/-  
**NODAL OFFICER**  
TEQIP III

Sd/-  
**REGISTRAR**  
NITK, SURATHKAL

Sd/-  
**DIRECTOR**  
NITK, SURATHKAL

Sd/-  
**CA. NITIN J. SHETTY, Partner**  
Membership No. 025990

Place : Mangalore  
Date : 31.05.2022

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL  
EMPLOYEES CONTRIBUTORY CUM GENERAL PROVIDENT FUND.**

**BALANCE SHEET AS ON 31<sup>ST</sup> MARCH, 2022**

LIABILITIES	Amount in Rupees	ASSETS	Amount in Rupees
<b>GENERAL FUND :</b>		<b>INVESTMENTS :</b>	
Balance as per last Balance Sheet	8079103	Govt. and Other Securities	382863884
Add : Old Credit Balances in Members Account Written Off	7055	Accrued Interest on Investments	4285424
: Excess of Expenditure over Income	1609530		387149308
	9695688		
<b>GPF SUBSCRIPTION :</b>		<b>TAX DEDUCTED AT SOURCE:</b>	125072
Balance as per last Balance Sheet	336455392	<b>CLOSING BALANCE :</b>	
Add : GPF Subscription & Interest	74244355	With SBI SB. A/c. No. 1017536747-6	711606
	410699747		
Less : Final/Partial Settlement	32409449		
	378290298		
	<b>387985986</b>		<b>387985986</b>

As per report of even date.

Place : Mangalore  
Date : 31-05-2022

**For NITIN J. SHETTY & CO**  
Chartered Accountants  
Firm Reg. No. 008891S

Sd/-  
**PRESIDENT**

Sd/-  
**SECRETARY**

**CA. NITIN J. SHETTY, Partner**  
Membership No. 025990

Sd/-

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL  
EMPLOYEES CONTRIBUTORY CUM GENERAL PROVIDENT FUND.**

**INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31<sup>ST</sup> MARCH, 2022**

EXPENDITURE	Amount in Rupees	INCOME	Amount in Rupees
To Interest Paid to GPF Members	25665093	By Interest Received :	
		Interest on Investments	25152600
" Interest Paid on Purchase of Investments	529194	Add : Accrued Int. of Current Year	4285424
			29438024
" Premium Paid on Purchase of Investments	683500	Less : Accrued Int. of Previous Year	1876265
		Interest on Special Deposit with SBI	540921
" Audit Fee	26640	Interest on SB Account	414941
" Bank Charges	3664		
" Excess of Expenditure over Income	1609530		
	<u>28517621</u>		<u>28517621</u>

As per report of even date.

Place : Mangalore  
Date : 31-05-2022

**For NITIN J. SHETTY & CO**  
Chartered Accountants  
Firm Reg. No. 008891S

Sd/-  
**PRESIDENT**

Sd/-  
**SECRETARY**

Sd/-  
**CA. NITIN J. SHETTY, Partner**  
Membership No. 025990

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL  
EMPLOYEES CONTRIBUTORY CUM GENERAL PROVIDENT FUND**

**RECEIPTS AND PAYMENT ACCOUNT FOR THE YEAR ENDED 31<sup>ST</sup> MARCH, 2022**

RECEIPTS	Amount in Rupees	PAYMENTS	Amount in Rupees
To <b>OPENING BALANCE :</b>		By Interest Paid to GPF Members	25665093
S.B.I., Surathkal, S.B. A/c. No. 1017536747-6	4594532	" Interest Paid on Purchase of Investments	529194
Investments	337963884	" Premium Paid on Purchase of Investments	683500
" <b>INTEREST :</b>		" Final/Partial Settlement to GPF Members	32409449
On Investments	25152600	" Audit Fee	26640
On Special Deposit with S.B.I.,		" Bank Charges/SHCI Limited	3664
Mangalore A/C No.4	540921	" TDS/TCS	25258
On Bank Balance	414941	" <b>CLOSING BALANCE :</b>	
" GPF Subscription & Interest	74244355	S.B.I., Surathkal, S.B. A/c. No. 1017536747-6	711606
" Old Credit Balances in Members Account Written Off	7055	Investments	382863884
to General Fund			383575490
	<b>442918287</b>		<b>442918287</b>

Place : Mangalore  
Date : 31-05-2022

As per report of even date.  
**For NITIN J. SHETTY & CO**  
Chartered Accountants  
Firm Reg. No. 008891S

Sd/-  
**PRESIDENT**

Sd/-  
**SECRETARY**

Sd/-  
**CA. NITIN J. SHETTY, Partner**  
Membership No. 025990

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL**  
**NPS TIER - 1 ACCOUNT**

**BALANCE SHEET AS ON 31<sup>ST</sup> MARCH, 2022**

		Rs.	Ps.		Rs.	Ps.
<b>LIABILITIES</b>				<b>ASSETS</b>		
<b>CURRENT LIABILITIES :</b>				<b>CLOSING BALANCE :</b>		
Amount Payable to NSDL		6913585.00		Balance with main Fund		6913585.00
		6913585.00				6913585.00

PLACE : SURATHKAL  
DATE : 18-07-2022

Sd/-  
(RAVINDRANATH K. )  
REGISTRAR  
N.I.T.K.,SURATHKAL

Sd/-  
(PROF. UDAYA KUMAR R. YERAGATTI)  
DIRECTOR i/c  
N.I.T.K.,SURATHKAL

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL**  
**NPS TIER - 1 ACCOUNT**

**RECEIPTS AND PAYMENT ACCOUNT FOR THE YEAR ENDED 31<sup>ST</sup> MARCH, 2022**

RECEIPTS	Rs.	Ps.	PAYMENTS	Rs.	Ps.
To <b>OPENING BALANCE:</b>					
Balance with main Fund		3643207.00	By Remittance to NSDL		80276636.00
" <b>NPS Tier-I Account :</b>			" <b>CLOSING BALANCE :</b>		
Own Subscription	36330299.00		Balance with main Fund		6913585.00
Institutes Subscription	47216715.00	83547014.00			
		<b>87190221.00</b>			<b>87190221.00</b>

PLACE : SURATHKAL  
DATE : 18-07-2022

Sd/-  
**( RAVINDRANATH K. )**  
REGISTRAR  
N.I.T.K., SURATHKAL

Sd/-  
**( PROF. UDAYA KUMAR R. YERAGATTI )**  
DIRECTOR i/c  
N.I.T.K., SURATHKAL