DIRECTOR'S REPORT

Honorable Dr. Devi Prasad Shetty, Chairman & Founder of Narayana Health, Dr. K Radhakrishnan, Honorable Chairman, Board of Governors of the Indian Institute of Technology Kanpur, Members of the Board of Governors, Members of the Academic Senate, all graduating students and their family members, members of faculty, alumni, staff and student community: I heartily welcome you all to the fifty-fifth convocation of IIT Kanpur. I would also like to congratulate the graduating students and their families on this joyous occasion.

ACADEMIC ACTIVITIES

The academic session 2021-22 ended in June 2022. Despite the shadow of the third wave of the Covid-19 pandemic, and the related challenges, the session has successfully brought back the normalcy in academics. It is my privilege to share some of our activities for this year.

I am happy to inform you that the total number of PhD degrees awarded at this Convocation is 116. In our efforts to encourage outstanding scholars, the Senate has approved the provision for an additional Master's degree to be awarded along with a PhD, subject to the fulfilment of a defined set of academic requirements. I am delighted to inform you that 10 students are graduating in the fourth batch of MTech and PhD Joint Degree at this Convocation. In all, 1360 degrees are being awarded at this Convocation with the following details:

GRADUATION DATA

Degree	Number of Recipients
PhD	116
MTech-PhD (Joint Degree)	10
MTech	144
MBA	53
MDes	14
MS (by Research)	25
PGPEX-VLFM	40
MSc (2-yr)	144
Double Major	24
Dual Degree	108
MS-PD (MS part of the Dual Degree)	21
BTech	556
BS	105
Total	**1360**

In keeping with the flexibility that the IIT Kanpur academic Programme is known for, 22 students are graduating with two Minors whereas 120 students are graduating with one Minor. You will be delighted to know that 2 of the graduating students are graduating with three Minors, and one of the graduating students is, in a first of its kind, graduating with five Minors. In all, 145 Minors are being awarded. In addition, by spending one additional year at the Institute, 108 undergraduate students are graduating with a Master's degree along with their Bachelor's while 24 of our undergraduate students are

graduating with a second Major. Of the 793 students of the Bachelor's and Bachelor's-Master's dual degree programmes who are being awarded the degree today, 250 students are graduating with Distinction (CPI of 8.5 and above). To keep pace with the evolving knowledge in science, technology, and other areas, 20 new undergraduate courses and 50 new postgraduate courses were approved by the Senate from October 1, 2021 to May 30, 2022.

It is a great pleasure to share that the graduating students are being issued the degrees conferred at the 55th Convocation today in the physical as well as digital modes. The digital degrees are being delivered through an in-house blockchain-driven technology developed at our Institute under the National Blockchain Project. This technology was inaugurated by the Hon'ble Prime Minister at the 54th Convocation of the Institute held in December 2021. The digital degrees are also being uploaded in the National Academic Depository.

ACADEMIC INITIATIVES

In the wake of the Covid 19 pandemic, the academics at IIT Kanpur have been continuing in the online mode since March 2020. As soon as the number of cases of Covid 19 started declining, the academics at IIT Kanpur switched to the hybrid mode. Nine classrooms were prepared as hybrid classrooms by installing the necessary equipment so that the teaching could be done in-person in the classroom and simultaneously transmitted for remote access as well as recorded for asynchronous delivery. This ensured that the students who

had returned to campus attended their classes in-person, whereas students who had not yet returned attended their classes remotely. At the same time, recordings of the lectures could also be shared with the class. Remarkably, all the necessary arrangements for the conduct of classes in the hybrid mode were put in place within less than two weeks.

As soon as the Covid 19 conditions improved and the number of cases declined, all the students (except Y21 BT/BS students) were called to the campus, and the teaching in fully offline mode was resumed on April 01, 2022. The end-semester examinations were conducted in the fully offline mode. The Y21 BT/BS students were called to the campus in the first week of April 2022 in batches, and all their different classes, labs, and examinations, including mid-semester and end-semester examinations, are being conducted in the offline mode. The ongoing Summer Term 2022 is also being conducted in offline mode, and the next semester, 2022-23-I Semester, is planned to be entirely offline. The academics on the campus has been brought back to normalcy after a gap of two years.

UNDERGRADUATE ACADEMIC REVIEW COMMITTEE (UGARC)

As part of its decadal review of academic programs and associated curricula, IIT Kanpur has announced a comprehensive revamp of its curriculum, laying down a new template with path-breaking features. The transformative steps were part of the Undergraduate Academic Review Committee

Report 2020-21 (UGARC 2020-21) that was approved by the IIT Kanpur Senate in its meeting held during October 6-7, 2021. The UGARC 2020-21 is going to be implemented from the session 2022-23-I.

The salient features of UGARC 2020-21 are:

- Flexible academic programmes with options of Double Major, Minor, and Dual Degree.
- Introduction of new degree options including the Honours degree and options of new interdepartmental degree programmes including the Management track.
- Augmentation of the scope of learning to include Social Sciences, Communication, Humanities, Economics, Management, and Environment (SCHEME).
- Greater flexibility to the Core Courses in the core curriculum.
- Designated online courses for the students on MOOC platforms, etc.

POSTGRADUATE ACADEMIC REVIEW COMMITTEE (PGARC)

The review of postgraduate academic programs and associated curricula, IIT Kanpur is under way. The PGARC Report is in the final discussion stage in the Academic Senate of IIT Kanpur.

STUDENT ENTREPRENEURSHIP POLICY

The Academic Senate of IIT Kanpur approved a student entrepreneurship policy in August 2021 in line with the National Education Policy (NEP) and National Innovation and Start-up Policy (NISP). The policy enables the undergraduate students in the 3rd year and postgraduate students following the completion of the minimum course work to gain academic credit for pursuing their entrepreneurial aspirations. This policy is expected to be implemented from the 2022-23-I Semester.

NEW PROGRAMMES & DEPARTMENTS

Several academic initiatives have been undertaken to strengthen our academic programmes. Two academic departments have been opened.

Department of Space Science and Astronomy

The Senate of IIT Kanpur approved the proposal for the Department of Space Science and Astronomy in its 544th E-Meeting held on October 25-26, 2021. The newly created department emphasizes instrumentation, space exploration, and astronomical observations and complements, augments, and amalgamates the expertise available in other departments in the Institute. The department will be offering MTech and PhD programmes from the 2022-23-I Semester.

Department of Design

The Senate of IIT Kanpur approved the proposal for a separate Design department in its 544th E-Meeting. The department will offer a multi-disciplinary space for design education, design research and innovation involving faculty expertise from diverse backgrounds including biological sciences, civil engineering, computer science, design, economics, electrical engineering, graphics and media, management, mechanical engineering, and humanities and social sciences. The department will continue to offer MDes and PhD programmes offered earlier by the Inter-Disciplinary Programme in Design. It also caters to the current UG students interested in getting their minor, major, and dual degrees through the Design department. The department also plans to offer a UG programme in design shortly.

eMasters Programme

IIT Kanpur started the eMasters programme in 2021 to contribute to the nascent ecosystem of online Programmes in the country. The eMasters Programme at the Institute has been designed to fulfill the requirements of employed personnel from industry and various other backgrounds to enhance their skill sets and improve employability. A total of 04 programmes are being offered in the ongoing quarter. A few other programmes are in the pipeline and are expected to be launched in the academic year 2022-23.

BT-MT Dual Degree, MTech and MS In Cyber Security

Department of CSE, IIT Kanpur, now offers three new master's programs specializing in Cyber Security. The MTech program in Cyber Security will cater to the students who are likely to take up jobs as cyber security tool developers. The MS by research program trains cyber security researchers, technology developers, cyber security strategists, and top-level cyber security policy designers. An option has been initiated for BT-MT dual degree students to specialize in Cyber Security from 2022-23-I Semester.

Indian Air Force Research Scholar Programme (IAF RSP)

The Indian Air Force entered into an MoU with IIT Kanpur in September 2021 to collaborate on 'Aircraft Structural Integrity and other allied subjects in Aeronautics and Aviation; providing an educational platform for qualified officers of IAF to undertake courses in the PhD, MTech and eMasters Programmes for enhancement of knowledge and capacity building, thereby enriching the technical knowledge to achieve the GoI’s goal of self-reliant or Aatmanirbhar Bharat.

RESEARCH & DEVELOPMENT

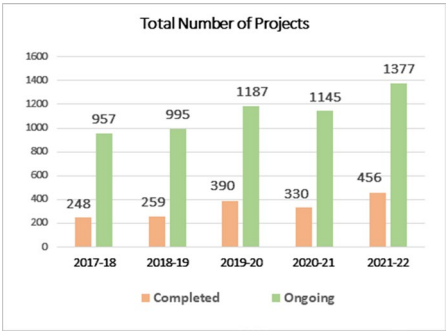
IIT Kanpur has registered steady growth in its research and development activities this year.

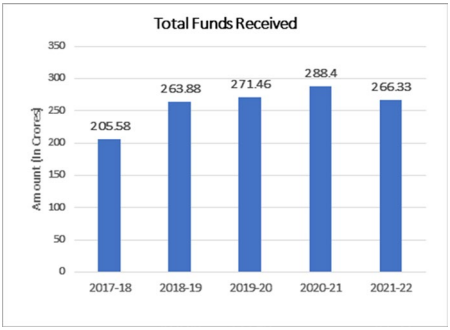
Research Highlights

- 1377 externally funded ongoing projects with a total sanctioned amount of Rs. 1449.39 crore.
- 219 sponsored projects were sanctioned during 2021-22 worth Rs. 153.40 crore.
- 207 consultancy projects were sanctioned during 2021-22 of Rs. 40.15 crore.
- During 2021-22, total funds received for sponsored projects are Rs. 230.25 crore and for consultancy projects are Rs. 36.09 crore.

Sponsored Research

a summary of 5 years





LEADING FUNDING AGENCIES

Table capturing five major funding agencies with sanctioned amount

Department of Science and Technology	Rs. 109.9 crores
Science and Engineering Research Board	Rs. 42.1 crores
Department of Biotechnology	Rs. 8.56 crores
Portescap India Private Limited	Rs. 7.58 crores
Stichting SED Fund Netherland	Rs. 5.18 crores

LEADING FUNDING INDUSTRY PARTNERS

Haswell Technik Private Limited Chandigarh, Larsen Toubro Limited, Micro Small and Medium Enterprises, PNC Infratech Limited, Techno electric and engineering company, Northern eastern Railways, and Keysight Technologies

MAJOR PROJECTS SANCTIONED

Some of the major projects sanctioned for the year 2021-2022 are mentioned below:

School of International Biodesign-Synergizing Healthcare, Innovation and Entrepreneurship (SIB-SHINE)

King George's Medical University (KGMU) and IIT Kanpur will soon be getting together to set up a special institute for biomedical innovation, design and entrepreneurship. The Union government's biotechnology Department has approved the collaborative project of the two premiere institutes, making it one of its kind in U.P. Called the School of International Biodesign-Synergizing Healthcare, Innovation and Entrepreneurship (SIB-SHINE), the institute will train 50 doctors and engineers in the next five years, and offer a one-year fellowship.

ICMR- DHR-COE Medical Research and Innovation

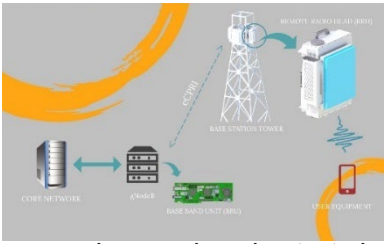
The Indian Council of Medical Research (ICMR) has joined hands with Indian Institutes of Technology (IITs) to establish "ICMR at IITs" by setting-up Centres of Excellence (CoE) for Make-in-India product development and their commercialization in medical devices and diagnostics space. In this regard, a project has been sanctioned for Rs. 15.07 Crores for three years by ICMR to Centre for Excellence, IIT Kanpur. The devices to be developed under ICMR-DHR-CoE at IITK, are screening device for cervical cancer, early diagnostic kit for pre-eclampsia, portable IV blood Infusion and fluid warmer, jaw opening device for doctors & oral cancer

patients, and non-invasive point of care diagnostics for neurological conditions like epilepsy. The development of devices will help to achieve National Health Mission goals faster for non-communicable diseases, injury & trauma, CVD and stroke; National Programme for Health Care of the Elderly (NPHCE), maternal and child health care, and the first level care for emergencies and trauma including essential drugs and diagnostic services.

Just Transition Centre funded by Stichting SED Fund Netherland

Coal, as the backbone of our economy, has weaved an intricate and complex web of socio-economic relations that stand threatened as India transitions towards a more sustainable energy system. This project is a step forward towards taking a stock of these threats and vulnerabilities in the form of lost livelihoods and imperiled social security. It aims to bring the trade unions and the coal communities to the forefront by tapping into their perceptions on how to make this transition just for them. Simultaneously, as the foundational research activity of the Just Transition Research Centre (JTRC), the project plans to bring diverse actors together to promote a just and democratic discussion to arrive at a policy-relevant and community-centric just transition framework for India at the national, state and regional level.

Next Generation Wireless Research and Standardization On 5g and beyond funded by Ministry of Electronics and Information Technology



The objective is to encourage Indian academia and industry to contribute to the 5G+/6G standards. The project aims to generate IPR and then take those IPRs as contributions to the 5G+/6G standards, which can give a head start in developing 5G+/6G telecom products. This project will take the next step of contributing IPR to the 5G+/6G standards by performing realistic system level simulations and by validating them in this network.

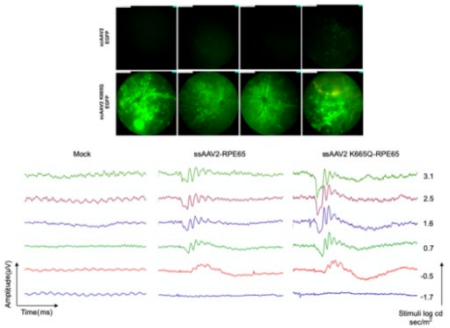
Establishment of "Tinkering Labs in Government Secondary Schools of Uttarakhand" sponsored by Government of Uttarakhand

Under this project, IIT Kanpur established Tinkering Labs in twenty six Government Schools of Uttarakhand in collaboration with Samagra Shiksha, Government of Uttarakhand. A two-day school level training was conducted for teachers as well as students in all 26 schools. Some other Higher Educational Institutions like NITs and Polytechnics also participated in the school level training, mentoring and monitoring. A two-day residential teachers-training cum capacity-building program was organized in IIT Roorkee.

Along with mentoring for tinkering labs, teachers had an opportunity to interact with professors from Electronics and Artificial Intelligence department. They also got exposure through visiting three different labs. Proper mentoring and monitoring of selected twenty six Government Schools by IIT Kanpur is still going on.

Mutation Independent Gene Therapy (MInT) for Photoreceptor Rescue in Retinal Dystrophies funded by Team Science Grant under DBT-Wellcome Trust India Alliance grant

Retinal dystrophy manifests due to genetic alterations and results in childhood blindness. Replacement of the altered gene with a normal copy (gene therapy) has been efficient only for a short-term in humans. This is because, while each retinal disease has its own genetic mutation, the common disease pathology, i.e., the continuous loss of cells that are responsible for visual perception is not addressed at all by the current approaches. This project proposes a strategy that will enhance photoreceptor survival, and this will be tested in a mice model of blindness. If successful, this project will help identify a novel approach to treat a wide variety of retinal diseases.



Pilot-Scale Demonstration of Liquid Phase Sulfonation of Aliphatic, Alkyl Aryl, & Aromatic Alkylates funded by Technithon International PTE Ltd.

Technithon International PTE Ltd., a Singapore-based company is a part of the Trivedi Groupe of companies that has a wide range of experiences with emerging technologies (and processes in Sulfonation, Alkoxylation, Quaternization, Amidation and Esterification), fabrication, sire construction, and project management activities in surfactants, specialties, and oleo-chemicals. Liquid phase sulfonation process is less energy-intensive, compared to the gas/liquid phase sulfonation process, and is able to synthesize heat – sensitive materials. Liquid phase sulfonation involves reacting the aliphatic, alkyl-aryl and aromatic alkylates (e.g. alcohols, alkyl benzenes, etc) with a liquid mixture consisting of SO_2 and SO_3 at sub-zero temperature (-10ºC) and under controlled pressure. In this liquid mixture, SO_3 is the main reacting species, which gets consumed, whereas SO_2 is recycled. The sulfonation reaction is highly exothermic and therefore controlling the temperature of the reaction mixture is critical to the quality of the products formed.

Engineering Fibers for Fog Harvesting and Interfacial Solar Water Purification funded by Ministry of textiles

Industrial wastewater treatment is critical for any sustainable development model. The development of effective and low-cost techniques to purify textile wastewater has received quite some attention in the contemporary times. With the availability of solar thermal energy utilization strategies, solar energy driven interfacial water evaporation is a highly promising

method for achieving purification of wastewater with non-conventional, yet effective technique. Suitable fiber surfaces / fabrics need to be developed which have robust optical absorption, light-to-thermal conversion, and water transport properties. These fabrics can then be effectively coupled with wastewater sinks so as to achieve very high rates of interfacial evaporation, caused by the solar energy influx, on the large surface area created due to the wicking meniscus.

This research explores two novel applications of functionally engineered fibers. The final aim is to develop two distinct products, through fundamental studies on fiber level, and translational research to achieve system level integration of (i) Potable water production from natural fog on engineered fabrics, and (ii) Solar water purification system.

Integrating UAV Technology with Thermal Infrared and Hyperspectral Imaging for Assessment of Water Quality of Large Water Bodies funded by SERB

Large aquatic water bodies such as rivers, lakes and wetlands offer a unique challenge in terms of monitoring water quality due to spatial variability and several feeder channels. Rapid water quality monitoring of such aquatic systems is important for the protection and preservation of water and related terrestrial resources. However, ground-based monitoring stations are cumbersome and expensive to maintain and the data quality remains uncertain due to problems of sample collection and variance in laboratory results.

This project aims to use modern technology such as UAV based sensors to monitor water quality at a large scale. The novelty of this project is the integrated use of high-end technology such as UAVs and hyperspectral/thermal sensors. Airborne methods would not only provide a quick and instant assessment of water quality of large stretches of the rivers, lakes and wetlands but would also help in ascertaining the source of pollution and its downstream dispersal. This approach would help to monitor critical stretches by strategically designing the sampling sites and therefore maximizing the efforts.

Upgrading DARPG Information Systems with AI Capabilities funded by Department of Administrative Reforms and Public Grievances, Government of India

The DARPG receives a large number of grievances from the citizens of India through an online portal. The manual analysis of those grievances is time taking and delays the help being reached to the person. The grievances are submitted in various text formats and have varying urgency to resolve. This project aims to develop a search engine using artificial intelligence and data science for frequency and semantic-based search which can help in identifying and classifying the grievance into a suitable category based on its nature and urgency. It has been deployed in the Ministry of Defence and other offices and has reduced the grievance redressal time considerably.

Three Major Projects funded by Prasar Bharati

An MoU has been signed with Prasar Bharati to establish Centre of Excellence for Media and Broadcasting Technologies at IIT Kanpur. Four major projects have been funded by Prasar Bharati:

- Next Generation Broadcast Technology Trial
- Sustainable Organic Farming (Jaivik Yatra)
- Archival Content Retrieval Through Audio and Text Query
- Automatic Speech Recognition for Speech Subtitling

Integrated Clean Energy Materials Acceleration Platform (IC-MAP) on materials funded by DST

The DST-IIT Kanpur centre was launched at the MI Annual Gathering session on 4th April 2022 in the presence of the honorable Minister of Science and Technology Dr Jitendra Singh. This material acceleration platform would leverage emerging capabilities in state-of-the-art computing, artificial intelligence (AI), machine learning (ML), and robotics to speed up the materials discovery up to 10 times faster. One of the objectives of this centre is to scale up the synthesis of

materials and devices to TRL 5-7 and commercialize numerous clean energy technologies such as Perovskite solar cells, smart windows and thermo-regulating tiles. A kickstart meeting of the project was recently organized by Dr. Kanwar S. Nalwa (centrehead, DST-IIT Kanpur centre) on 27th and 28th of May 2022 at IIT Kanpur.

Changing the Fate of the Hindon River by Evaluating the Impact of Agriculture on the Water Balance Developing a Template for a Cleaner Ganga River funded by DST

The aim of this project is to study the impact of water usage by agriculture, household and industry on water availability and quality in the Hindon river basin. Effect of more sustainable agricultural cropping methods on agricultural yield, food diversity, economic revenue, environment and climate resilience will also be examined. As part of this project, a spatially distributed measurement network of surface and subsurface water observations will be set up to study the physical structure of the river Hindon, spatial and temporal variation in pollution load, agricultural impact and ecological status. An integrated agro-hydrological model platform will be created by connecting various individual models for impact assessment, comparison with observations and visualization of results.

UAV and Soil Health Monitoring for Agriculture Applications sponsored by UP Government and Suraj Logistix Pvt. Ltd.

The application and consumption of fertilizers in India is highly unorganized with wide variations. Studies and investigations have shown that the insufficient soil testing facilities have enforced the farmers to depend on untrustworthy sources for recommendations on the fertilizer necessity, which is one of the reasons for the imbalanced use of fertilizers. Soil-testing based nutrient management can be used to estimate the needed fertilizer more accurately, increase the efficiency of soil fertility management, improve crop productivity and minimize wastage of these nutrients. Conventionally, the soil testing practice happens in sophisticated Labs, which takes a considerable workforce and time, and thus is not accessible to the farmers. To overcome the challenges, the current project has developed handheld spectroscopy & IoT-based eco-friendly smart soil health monitoring tool.

The most significant feature of the device is the simultaneous and instant determination of soil macronutrients using optical sensors and AI/ML technology. It can determine six important Parameters, viz., Nitrogen, Phosphorus, Potassium, Organic Carbon, Clay contents, and Cation Exchange Capacity. It provides soil health reports on the smartphone within a few

minutes. It also stores soil health reports and GPS location of farmland on the server, which can help the government to make better policies for our farmers.

UAV for precision agriculture funded by UP Government

Drones provide immense actionable insights required in Precision Agriculture. SNAP-M PPK Multispectral drone is designed and developed by a startup at IIT Kanpur. The drone is capable of providing multispectral imagery data in five bands. The data can further be processed and used for disease identification, crop health monitoring, weed detection, species classification, fertilizer management, soil monitoring, irrigation planning, advanced crop scouting and many more such applications. The drone can perform autonomous operations and can be operated by a single pilot with minimal training. The wide scale use of such drones can increase the yield and also provide job opportunities to the youth.

RESEARCH INFRASTRUCTURE

Centres of Excellence (COE)- Gangwal School of Medical Sciences and Technology

Under the umbrella of Gangwal School of Medical Sciences and Technology four new centres have been initiated:

- **Cardiovascular and Pulmonary Disease Research:** The CoE for Cardiovascular and Pulmonary Disease Research

will focus on creating a comprehensive computational and experimental framework unifying appropriate MRI methods, image analysis, model building and visualization algorithms, and simulation techniques based on computational mechanics. It aims to provide a highly efficient tool for the clinicians in disease diagnosis and in assessing its progression thereby to arrive at a personalized therapeutical measure. The CoE also aims to come with low-cost medical support devices like LVAD, IV-LITHOTRIPSY, Heart Valves, Pacemakers etc., to meet the need of economically poor countries.

- **AI in Healthcare:** The proposed CoE seeks to develop state-of-the-art machine learning (ML) algorithms capable of providing clinical decision support to doctors, enabling them to reach a larger population of patients on a day-to-day basis. To this end, we plan to create a medical data warehouse augmented with state-of-the-art computing facilities.

- **Non-invasive Imaging and Diagnostics:** The Centre of Excellence for Non-invasive Imaging and Diagnostics is a vibrant engineering-medical ecosystem where faculty and students collaborate with the medical fraternity to undertake interdisciplinary research in MedTech. The centre focuses on development of improved imaging technologies, novel measurement configurations, data interpretation algorithms for improved diagnostics, and specialized instrumentation.

- **Telemedicine and Robotics:** The centre aims at designing and developing products targeting at access to health services to population living in resource constrained environment. The potential of cloud computing and Internet of Things will be integrated in developing low-cost telemedicine systems and solutions for large scale deployment with minimal cost. In the area of medical robotics, we will develop an array of surgical, diagnostic, tele-presence, exoskeleton robots and simulating platforms to make the healthcare safe, accessible, affordable, high-performance and inclusive to the patients.

As a part of this initiative, a Health ATM was establised at IIT Kanpur Health Centre. A telemedicine platform - Health ATM is an integrated Computer, Biomedical diagnostics, Point of Care laboratory tests and videoconferencing system connected to Internet based network connecting clinic with Doctors at a distance.

These COE are oriented towards cutting-edge medical research and innovation in confluence with the core clinical

departments of the hospital and biomedical expertise of various engineering departments of IIT Kanpur.

IIT Kanpur-CII Risk Surveillance Centre

The Confederation of Indian Industry (CII) and the IIT Kanpur have collaborated to launch IIT Kanpur – CII Risk Surveillance Centre to monitor and control the spread of Covid 19 and other such infections in the future. This centre is one of its kind supported by industries. The IIT-CII Centre would work on mathematical forecast models based on health data that would help minimise the impact of infectious diseases. It would assist in understanding the transmission of infections and identify risk factors involved.

Chandrakanta Kesavan Centre for Energy Policy and Climate Solutions

In light of the growing importance of sustainable energy and climate change, the centre will promote and develop appropriate technology and policy solutions to help India and the world combat & address challenges in energy and climate change. The centre's broad aim is to develop low carbon solutions, provide the knowledge to build an appropriate policy framework, and engage with various stakeholders to help mitigate the challenges caused by climate change towards attaining sustainable living. The centre will be anchored in the Department of Sustainable Energy Engineering, IIT Kanpur. It will work towards making IIT Kanpur carbon neutral over the next few years. IIT Kanpur alumnus, Mr Sudhakar Kesavan (BT/CHE/76) and his wife, Ms Alka Kesavan, have contributed

USD 2.5 million for supporting the “Chandrakanta Kesavan Centre for Energy Policy and Climate Solutions” at IIT Kanpur.

National Centre for Geodesy

The centre was established with the funding from Department of Science and Technology. It is now fully operational with state-of-the-art equipment and platforms. The centre aims to act as a hub of excellence in teaching and research in Geodesy at the national and international levels by preparing well-trained human resources at the post-graduate level and has recently launched a new specialized course for working professionals. The centre's research activities include geodetic techniques for polar motion studies and in the determination of earth rotation parameters, determination of precise gravity field using satellite gravity missions and to support development of new technologies in the areas of mapping, navigation and remote sensing.

Shivani Centre for the Nurture and Re-Integration of Hindi and Other Indian Languages at IIT Kanpur

In a path-breaking initiative, IIT Kanpur has set up of a Centre aimed at a seamless integration of students from Hindi and Other Indian Languages (OILs) background in the socio academic milieu of the prestigious institute. This centre has

been set up for students from across the country with a non-English medium of instruction at school. The Centre will ensure availability of the course content in regional languages to overcome the challenge of restricted job opportunities at the end of the academic program. The Centre is established with a grant of USD 1 million from Micky and Vinita Charitable Foundation. Our alumnus Mr. Muktesh (Micky) Pant (BT/CHE/1976) is setting up this Centre in the memory of his late mother Smt. Gaura Pant better known as Shivani. She is an institution in Hindi literature and is considered as one of the most popular Hindi writers of the 20th century. She was awarded Padma Shri by the Government of India for her contribution to Hindi literature in the year 1982.

Centre For Rechargeable Energy Storage Systems for Augmenting Transportation and Electrification (Create) sponsored by SERB

CREATE aims to develop high energy density, low-cost and high-cycle life batteries using earth-abundant materials along with scale up to pouch cells to accelerate the revolution in electric mobility and renewable energy generation in India.
Other activities of the centre will include development of testing infrastructure and supporting electronics focusing on electric vehicle (EV) and stationary-storage applications to provide end-to-end solutions. The broader aim of the centre is to become a hub for the development of novel battery chemistries and low-cost materials, cell fabrication at various scales, comprehensive testing of batteries and their assessment in real life applications, prototype development and technology transfer to industries for commercialization.

Innovation for Defence Excellence (iDEX)

iDEX, a program launched by the Defence Innovation Organization (DIO) (Ministry of Defence initiative) to make India self-reliant in the field of defence and defence production. IIT Kanpur will work with iDEX to nurture and mentor entrepreneurs and MSMEs to create, deploy and commercialize technologies and products for the Indian military and defence PSUs. Programs such as accelerators, long-duration incubation, piloting, prototype investments, etc., will be run jointly with iDEX.

NEW INITIATIVES

The Ranjit Singh Rozi Shiksha Kendra (RSK)

The RSK centre is built from the generous donation of USD 1.9 million (Rs 14 crore) from our beloved alumnus, late Dr Ranjit Singh (BT/MME/1965), and his wife, Ms Martha Carreno. This centre is his dream of “Prosperity for All” through a socio-economic transformation in India, where education and employment are ensured for all. RSK’s main aim is to

1. Upskill youth to facilitate employment and develop an ecosystem of social enterprises.
2. Quality education for rural school children ensuring learning opportunities and all-round development.

Toastmasters (TM) Club

IIT Kanpur alumnus, Mr. Suresh Bazaj (MSc/PHY/1971) has contributed USD 185K to establish the Toastmasters (TM) Club. The club will work with the Students Placement Office to enhance the students' communication & leadership skills & foster self-confidence & personal growth.

R&D EVENTS

COVID Week

IIT Kanpur organized a week-long series of talks on various aspects of Covid 19 modelling, biological research, healthcare, and management issues of the problem by inviting the field specialists and eminent academicians working in the field. Starting from 17th May 2021 and ending on 21st May 2021, five webinars had been arranged which focused on the problem at length. The talks in the virtual platform were well attended by the researchers and people working in these domains.

COLLABORATIONS THROUGH MOU

IIT Kanpur distinguished alumnus Mr. Rakesh Gangwal (BT/ME/1975), Co-Founder IndiGo airlines, donated Rs. 100 crores towards the establishment of the Medical School on IIT Kanpur campus. It is one of the largest personal donations in the history of the Institute. An agreement was signed between Professor Abhay Karandikar, Director, IIT Kanpur, and Mr. Rakesh Gangwal. The proposed School will be named as "**Gangwal School of Medical Sciences and Technology**". Phase I of this project will include setting up a 450-bed Yadupati Singhania Memorial Super-Specialty Hospital along with an academic block, residential/hostel and service block. It will also involve setting up of Centres of Excellence (CoE) for pursuing R&D activities in futuristic medicine.

An MoU has been signed between IIT Kanpur and Shri Anil Bansal (BT/ME/1977) of "**Anil and Kumud Bansal Foundation**". The vision has been to set up a dedicated school to bridge the gap between medical sciences and technology disciplines in order to bring a paradigm shift in medical research and innovation in India. The school is now being named as Gangwal School of Medical Sciences and Technology.

The MoU for Centre of Excellence (CoE) at IIT Kanpur as a knowledge partner for the development of the UP Defense Corridor between the IIT Kanpur and **Uttar Pradesh Expressways Industrial Development Authority (UPEIDA)** aimed at the development of defence technologies. IIT Kanpur signed an extension of the MoU with UPEIDA for a period of three years.

An MoU has been signed with **Prasar Bharati** to establish Centre of Excellence for Media and Broadcasting Technologies at IIT Kanpur. Following projects are funded by Prasar Bharati

- Next Generation Broadcast Technology
- Automatic Speech Recognition for Speech Subtitling
- Archival Content Retrieval through Audio and Text Query

IIT Kanpur signed an MoU with the **Indian Air Force (IAF)** to establish the Air Vice Marshal Harjinder Singh Chair of Excellence and Research Scholars' Program at IITK. The Chair of Excellence will promote teaching, research and technology development in Aerospace, Aircraft Health Monitoring, and other allied subjects in Aeronautics & Aviation.

An MoU has been signed to share the strategic partnership that embraces the importance of technology in healthcare innovation between IIT Kanpur and **SGPGI Lucknow**. This

collaboration will result in developing solutions for affordable healthcare using telemedicine.

An MoU was signed with **Albot Technologies Pvt. Ltd.** for the commercialisation of an advanced low-cost oxygen concentrator based on the Pressure Swing Adsorption (PSA) technology.

IIT Kanpur signed a Memorandum of Agreement (MoA) with the **REC Foundation** to support the upcoming Gangwal School of Medical Sciences and Technology. REC Foundation has committed financial assistance of Rs. 14.4 crores under its CSR program for the construction of residential block for the upcoming Gangwal School of Medical Sciences and Technology.

An agreement was signed between IIT Kanpur and **JK Cement Limited (JKCL),** to establish a super specialty hospital on the campus as part of the Institution's initiative to set up Gangwal School of Medical Sciences and Technology. JKCL extended the support with funding of Rs. 60 crores as part of its CSR. The agreement was signed between

Professor Abhay Karandikar, Director IIT Kanpur and Dr. Raghavpat Singhania, Managing Director JKCL Cement Ltd. The hospital is being named as Yadupati Singhania Memorial Super Specialty hospital.The agreement is part of the IIT Kanpur's endeavor to bring about a paradigm shift in approach towards medical research and innovation in the country.

MOUs have been signed with our alumni **Dr. Dev Joneja** (BT/ME/1984), Chief Risk Officer at Exodus Point Capital Management, US. and Mr. **Hemant Jalan** (BT/CHE/1977) Founder, Managing Director, Indigo Paints, to support the establishment of Gangwal School of Medical Sciences and Technology. Dr. Dev Joneja and his wife Terri Musson donated an amount of USD 2.5 million, while Mr. Hemant Jalan donated Rs. 18 crores to support the infrastructure development of upcoming Gangwal Medical School. **IBM** as a part of their CSR activity pledged Rs. 37 crores and signed an MOU for the development of Gangwal Medical School.

INNOVATION & INCUBATION

During the Financial Year 2021-22, 104 IPR's were filed by the Institute including 60 Indian Patents, 4 US Patents, 18 Design Registration, 18 Trademarks, 3 Copyright & 1 IC Layout, 65 previously filed IPRs were granted and 8 technologies were licensed to industry partners.

Till date, 830 IPRs have been filed, out of which 344 have been granted so far along with 124 technologies licensed for

commercialization, a revenue of Rs. 1,83,54,420/- was generated from licensing of technologies for the year 2021-2022.

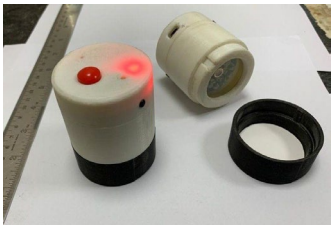
TECHNOLOGIES LICENSED (2021-22)

Nano-hydroxyapatite Based Porous Polymer Composite Scaffolds for Bioactive Molecule Delivery in Musculoskeletal Regeneration

With an objective to overcome the problems related to bone and joint disorders, capable of biocompatible bone regeneration, the invention developed by Professor Ashok Kumar and Mr. Arun Kumar Teotia from Department of Biological Sciences and Bioengineering at IIT Kanpur has an application in acting as carrier for bone active biomolecules, delivering them directly at the implant site. The above invention has been protected by an *India Patent Application No. 201811015012* which has been licensed to a healthcare company "**Ortho Regenics Pvt. Ltd**."

The technology provides a collagen-nano-hydroxyapatite composite macroporous gel, which is a potential approach for reconstruction of irregular bone defects and dental applications as well.

A Portable Spoil testing device - Bhu Parikshak



This novel technology is developed by Professor J K Singh from Department of Chemical Engineering, Mr. Pallav Prince, Mr. Ashar Ahmad, Mr. Yashasvi Khemani and Dr. Mohd. Aamir Khan, has been licensed to an Agri-tech based company**, AgroNxt Services Pvt. Ltd**. that helps to detect soil health in just 90 seconds through Bluetooth enabled device on mobile app, available on Google Play Store. The above invention has been protected through an *India Patent Application No. 201811015012*.

The device is one of its own kind that operates with zero use of chemicals and provides low cost instant soil analysis report of 1 lakh soil samples, with recommended dose of fertilizers the report is accessible on cloud service and in local languages.

Oxygen Concentrators

Aiming to encourage Make in India, commercialization of an advanced low-cost oxygen concentrator based on the Pressure Swing Adsorption (PSA) technology has been developed at IIT Kanpur and licensed to a company **Albot Technologies Pvt. Ltd**. A team led by Professor J. Ramkumar, Dept of Mechanical

Engineering, along with Mr Siddhanth Srivastava, Mr Jitendra Kumar, Dr Amandeep Singh Oberoi, Mr Rupendra Aryal & Mr Nitin Chaukhat at IIT Kanpur has developed the technology.

The developed technology includes a galvanic type of oxygen sensor for oxygen purity along with temperature & humidity sensors, with an adjustable capacity of upto 10 LPM. It works at a flow rate of 10 LPM with oxygen purity of 92% ± 3, which can be used for medical & personal use.

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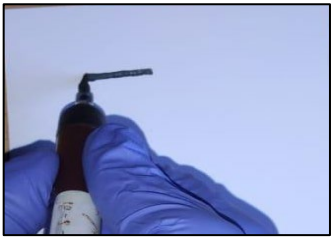
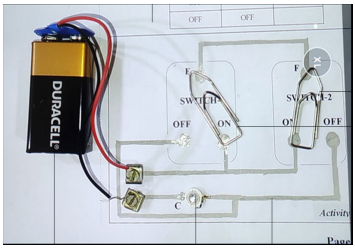
Conductive nano aqua ink formulation



The technology provides a silver nanoparticle conductive material capable of forming a conductive layer when formulated into an aqueous ink formulation which is developed by Dr. M. L. Rao, Prof. Y. N. Mohapatra, Dr. Ashish from IIT Kanpur and is protected through an Indian Patent Application No. 201911023898. This technology has been licensed to **Likhotronics Tech Pvt. Ltd**.

A process for creating flexible paper circuitry



The technology has been licensed to **Likhotronics Tech Pvt. Ltd**. The technology is developed by Dr. M. L. Rao, Prof. Y. N. Mohapatra, Dr. Ashish from IIT Kanpur and is protected through an *Indian Patent Application No. 202011047915*.

A process for creating a flexible paper circuitry includes providing a paper substrate placing the paper substrate on a flexible magnetic sheet placing electronic components on the paper substrate, drawing at least one of a conductive line or a resistive line by an end user on the paper substrate, wherein the conductive line has conductive particles and the resistive line has resistive particles, the conductive line and the resistive line linking the electronic components, thereby electrically connecting the electronic components to complete a circuit line.

Eco friendly ink formulation of resistive ink for roller ball pen

A resistive ink formulation comprises carbon black, an adhesive, glycerol and water. The ink formulation is aqueous and can be used in a 10 conventional pen to create paper based flexible circuits enabling the user to freely make hand drawn resistors with resistances comparable to the conventional resistors in magnitude.

The technology has been licensed to **Likhotronics Tech Pvt. Ltd**. It has been developed by Dr. Ashish Gupta, Prof. Y. N. Mahopatra, Mr. Piyush Kumar, Dr. Manju Lata rao and Mr. Krishna Pal and is protected by an Indian *Patent Application No. 202111032841*.

Oxygen Concentrators

Successful execution of Mission Bharat O_2 project was embarked by tech transfer of two variants of Oxygen Concentrators, developed by separate teams led by Professor Shikhar Jha, Dept. of Material Sciences & Professor J. Ramkumar, Dept. of Mechanical Engineering, IIT Kanpur, leading to commercialization. The technology has been licensed to **StemRev Refineries Pvt. Ltd**.

Air Sampling Device

This low-cost technology for efficient air sampling, bio aerosol & particulate matter has been licensed to **Airshed Professionals Pvt Ltd** for commercialization. Such technologies are developed at the institute to promote micro, small and medium enterprises, for boosting the indigenous ecosystem.

The technology has been developed by Professor Tarun Gupta & his PhD student Dr. Amit Singh Chauhan. It has been protected through an *Indian Patent Application No. 1474/DEL/2014*.

Foundation for Research & Innovation in Science & Technology (FIRST) IIT Kanpur

Name of Alumnus	Entrepreneur in the Field
Mr. Anupam Kumar Yadav, Mr. Owais Ahmad	Green Alloy Private Limited is a startup working on various physiological characteristics, such as skin tone, age, scars and burns, make finding the vein difficult. They will use visible light absorption and reflection to create a map of the vein. The device is used to help healthcare providers see veins better.
Mr. Shiv Bihari	Cyethack Solutions Private Limited is a cyber risk management startup that helps organizations mitigate cyber risk in real-time. The company aims to offer generic and customized products and services to keep Industrial control systems, web spaces, and networks protected.
Mr. J P Mishra	Intelsec Solutions Private Limited is in the business of dealing in all types of Cyber Security Software, Hardware, as well as consulting and allied services in the field of Cyber Security Software. Building a Next-Generation Indigenous Threat Intelligence Platform to deliver end-to-end Cyber Threat Protection Services to stay ahead of the game in terms of security.
Dr. Vishal Kumar	RF Nanocomposites Private Limited is an R&D based start-up to design, develop, optimize and deliver the best possible microwave absorbers as radar absorber materials for stealth technology in defense and EMI shielding layers/coating for various applications such as defense, space, electrical vehicles, medical, and consumer electronics. They also develop Full/Semi anechoic chamber and EMC chambers for specific requirements.

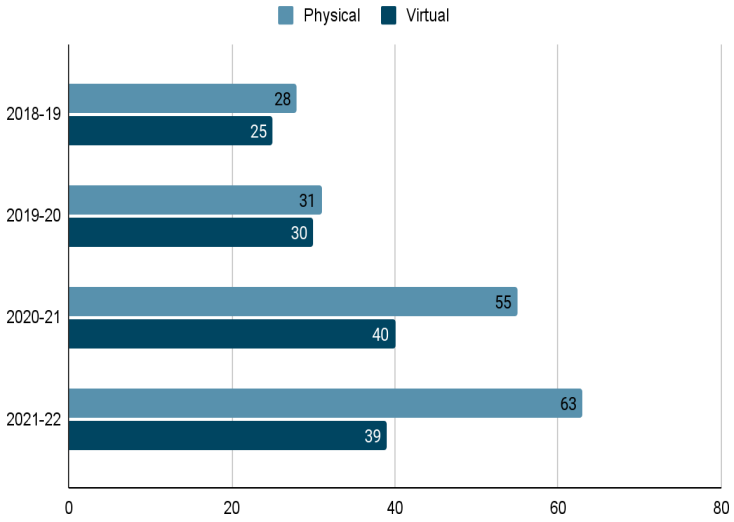
Mr. Shreyansh Tatiya	Joey Envirotech Private Limited is a startup currently working on a board game named Karma. It is designed using traditional Indian culture to entertain and convey the importance of “karma in one’s life”. The game is divided into 4 stages of life: Balyavastha; Kishoravastha; Yuvavastha; Vradhavastha and major events associated with those stages are in the path.
Mr. Siddhanth Srivastava	Siddlabs Pvt. Ltd. is a working on design and manufacturing of medical devices. To improve proctology diagnosis devices with ergonomics design, enhanced visual and physical accessibility
Dr. Sudhendra K. Rao	Likhotronics Tech Pvt. Ltd. started with an initial focus on developing educational kits. With a plan to enter the education sector now, the company aims to teach the basic concept to school going kids through specially designed modules by making the latest technologies accessible to the masses.
Mr. Sriram Balaji	Simactricals Private Limited are engaged in the development of charging infrastructure, smart grid integration, intelligent autonomous robot chargers, consumer electronic chargers, biosensors, smart high power transfer wireless chargers for EV's.
Mr. Nandan Mishra	Algo8 AI develops Artificial Intelligence (AI) / Machine Learning (ML) products for optimizing last-mile operations in large industries. The company offers customized solutions for applications in process-oriented industries through Data Science expertise, enabling clients' digital transformation into a data-driven organization.

Incubator Highlights 2021-22

IIT Kanpur backed Phool.Co, India's biomaterial start up and fragrance focussed wellness brand has raised an investment of 8 Million USD from one of the foremost consumer funds Sixth Ventures. The company has also developed Fleather, a breakthrough material that performs and feels exactly like leather".

GROWTH IN NUMBERS

46 Startups were incubated and 16 Startups graduated in FY 2021-22.



IIT Kanpur Research and Technology Park Foundation (Technopark@iitk)

IIT Kanpur Research and Technology Park Foundation, with the brand name Technopark@iitk, officially started its operations on 1st March 2019. Since its inception, it has had numerous interactions with large, medium, and small enterprises, and industry associations. These interactions have helped Technopark@iitk define its goals as: (1) Increase and accelerate R&D collaborations, (2) Strengthen industry-student connect, (3) Build a robust R&D ecosystem by partnering with industry associations and government entities, (4) Build and manage specialized labs and facilities for specific industry needs, (5) Train and upskill through courses and workshops and (6) Bridge TRL gaps for lab-to-market transition.

The milestones achieved so far against each of the listed objectives are described in the following sections.

INCREASE AND ACCELERATE R&D COLLABORATIONS

The primary objective of Technopark@iitk is to facilitate industries to set up Technology Development Centres, R&D Labs, and Centres of Excellence and Innovation within its premises and work closely with the IIT Kanpur ecosystem to create futuristic technologies and indigenous solutions. Considering the needs of large, medium, and small enterprises, Technopark@iitk has designed its industry engagement models:

Innovators (Resident Companies): Allows companies including start-ups graduating from incubators to set up their R&D bases within the research park premises. Currently, eight (8) companies have set up their satellite R&D offices within Technopark@iitk. These companies are closely working with IIT Kanpur faculty, students, and researchers, and using the central research facilities (CRF) of IIT Kanpur for their R&D work. These include, Transchain Technologies, ECOMEN, Geo Climate Risk Solutions, Kanopy Techno Solutions, C3i Hub, Injectoplast, Dataman Computer Systems and TISA Aerospace.

Pioneers (Affiliate Companies): Allows companies to engage closely with the IIT Kanpur ecosystem and avail benefits without taking physical space. Currently, nine (9) companies are affiliated with Technopark@iitk under its Pioneer Membership program including prominent names like JK Cement Ltd, GE Oil and Gas, Technithon International (Singapore based) and BPL Medical Technologies. Many of the companies are in discussions with IIT Kanpur faculty for R&D collaborations. One of the key attractions for the companies is to work with the IIT Kanpur students on industry problems through our Industry-Student Connect program.

Strengthen Industry-Student Connect

Keeping in mind the existing gap between the available skill pool and the industry requirements, Technopark@iitk has designed and structured its Industry-Student Connect program titled ReWoP. ReWoP stands for IIT Kanpur Students tackling Real World Projects. It is designed to harness the potential of the IIT Kanpur student and researcher community to address

industry challenges while providing them opportunities to understand real world issues and translate their learning to practice. It augments the existing curriculum imparted by IIT Kanpur through industry-facing projects.

Success with ReWOP

- 600+ students registered, across disciplines and departments.
- Eight companies engaged with ReWoP.
- Forty-two students engaged part-time on industry projects.
- Four students offered full time employment with member companies.

Build Robust R&D Ecosystem by partnering with industry associations and government entities

Technopark@iitk is actively reaching out industry associations and organizations to interact and work with them closely to create a holistic R&D ecosystem encompassing various stakeholders. Towards this, it has signed MoUs with prominent industry organizations and incubators. These include:

- MoU with NASSCOM
- MoU with IIM Lucknow incubator, IIM-EIC to co-create a strong techno-management ecosystem for mid-segment companies and start-ups to push their technology up in the value chain.
- MoU with Netaji Subhash University of Technology (NSUT) incubator to reach out to graduated companies with the intention of offering them conducive R&D ecosystem for their

further growth and help them gain more stability and stronger foothold in the market.

Build and manage specialized labs and facilities for specific industry needs

Technopark@iitk is currently focusing on five major sectors - Defence and Aerospace, Healthcare and Medical Technologies, Deep Tech, Agriculture and Core Engineering. In Defence and Aerospace sector, Technopark@iitk is in discussions with the UP Defence Industrial Corridor (UPDIC) to partner with them in creating a conducive environment in the Kanpur region (one of the six nodes of UPDIC) for aerospace and defence industries and enterprises.

Samtel Centre for Display Technologies and FlexE Centre

Samtel Centre for Display Technologies: The Samtel Centre for Display Technologies, known more popularly as Samtel Centre or SCDT, is a multi-disciplinary research and development centre which caters to prototype building and eventual productisation of technology related to Flexible Electronics. The areas of focus broadly includes large area electronics which are typically printable and are likely to be built on an organic electronics base. The ideas explored at the centre are necessarily linked to a real-world application with some practical value. The prototype building and productisation are carried out primarily at its industry outreach arm - which is the National Centre for Flexible Electronics

(FlexE Centre) - typically with active involvement and participation of industry partners right from the early stages of development and product conception.

National Centre for Flexible Electronics: The National Centre for Flexible Electronics (NCFlexE) was set up as a Centre of Excellence at the IIT Kanpur in 2014 with financial support from the Ministry of Electronics and Information Technology (MeitY), Government of India, and IIT Kanpur. The vision of this Centre is to catalyse the development of domestic industry in the field of large area flexible electronics, and this vision is being executed with the Centre serving as a bridge between the academic ecosystem and the industrial ecosystem.

Table summarizing the activity parameters for the Centre for the last financial year

Sl No.	Particulars	No
1.	Patents filed	13
2.	Publications	16
3.	NDA with Industries	17
4	Ongoing Project.	09
5	New Projects with Industry Partnership	01

NEW START UP

Likhotronics Tech Pvt. Ltd. is a startup from NCFlexE, IIT Kanpur, working on commercializing specialized/functional inks and their associated products.

Seekho Cirkit: the Kitt contains a hard box with component connectors, two pens (resistive and conductive), magnetic sheet and an instruction manual cum workbook.

OUTREACH ACTIVITIES

FlexE Innovation Challenge

The National Centre for Flexible Electronics, IIT Kanpur with MeitY Startup Hub, GoI, New Delhi organised a FlexE Innovation Challenge in March 2021. The target was to conceptualise practical and useful products that make use of the advantages of Flexible Electronics.

SCDT-FlexE Centre Webinar Series

SCDT and FlexE Centre have been organising monthly one-hour webinars on Tuesday evenings of the second complete week of the month. This was launched in January, 2021. This webinar series is an effort to bring together scientists, researchers and entrepreneurs on a common platform. All details can be found at https://www.iitk.ac.in/scdt/webinars.html

Industry Meet on Flexible Electronics

An Industry meet was organized by FlexE Centre, IIT Kanpur on 9th April, 2021 with “Electronic Industries Association of India” (Elcina). The theme of this industrial meet was “Enabling Printable Electronics Manufacturing in India”.

Short Course on Flexible Electronics

A short course on “Flexible Electronics” was organised on 18th September, 2021. This course was specifically designed for industry participants. Representatives from twelve industries participated in the course.

C3i Hub

C3ihub (Cyber Security & Cyber Security for Cyber Physical System Innovation Hub was created under the National Mission of Interdisciplinary Cyber-Physical Systems (NM-ICPS) under the Department of Science and Technology, Government of India. C3iHub aims to address the issue of cyber security of cyber physical systems in its entirety - from analysing security vulnerabilities and developing tools to address them at various levels of system architecture, to translating these tools to deployment-ready software, to nucleating start-ups developing these tools at scale, to partnering with industries in this domain and co-development and transfer of these technologies, to training the next generation of cyber security researchers and professionals.
Over the past two years, C3iHub has focused on security of critical infrastructure, development of security operations

centre(SoC), security of mobile devices, blockchain-based solutions for integrity & privacy of data, and supporting startups in cybersecurity domain including some that take technology developed in C3iHub to the market.

The first SoC developed at C3iHub, named C3i Vazra, was installed at NHAI headquarters. The SoC provides supervisory monitoring by gathering the feeds from end-points, network & internet, and processes the internal and external feeds and generates the threat intelligence. Major benefits of this solution are increased efficiency, reduced potential security threats, reduced impact of security breaches, better reporting & notification, and log analysis & retention.

A self-sovereign identity (SSI) system based on blockchain technology has also been developed by C3iHub. Self-Sovereign Identity (SSI) is a technology that allows the users

to have complete control over where and how the data personal to the user is used. SSI uses a combination of technologies to give this control to the user through blockchain, zero-knowledge proofs, and digital signatures. It is useful for securely storing a wide variety of personal information, including degrees, certificates, and identity proofs. An SSI-based system for awarding degrees was developed at C3iHub and is being deployed by an IIT Kanpur incubated Startup CRUBN through the hub. The Prime Minister awarded degrees through this system to graduating students of IIT Kanpur at the Institute's 54th Convocation held in December 2021. The system has also been used for awarding PM Bal Puraskar and degrees by IGNOU.

C3iHub, through CRUBN, has also deployed blockchain-based land records in six districts of Karnataka, which will be extended to the other districts. The Hub is currently working with the Ministry of Communications to formulate recommendations on how to protect end-users from unwanted leakage of mobile phone data as well as develop tools for analysing the security of smartphones. It is also working with the Ministry of Home Affairs, Ministry of Power, RBI, and Government of UP to address their cybersecurity requirements.

The Mehta Family Centre for Engineering in Medicine

The Mehta Family Centre for 'Engineering in Medicine (MFCEM)' will leverage the existing engineering strength of IIT Kanpur and the biomedical research emphasis of BSBE faculty to enable a fast growth in the initial phase of the new "Centre for Engineering in Medicine". The centre will allow the department to focus on 'engineering solutions to medical problems' while allowing it to grow in terms of personnel (faculty, post-doctoral fellows, students and project employees); academic programs (integrated Ph.D., MS by research and more minors for UG students) and infrastructure (new building). The centre will initially focus on three main areas: Regenerative Medicine, Molecular Medicine and Engineering, Digital Medicine. The major achievements of the centre in the year 2021-2022 is listed below:

AWARDS AND HONORS

- Professor Arun Shukla was awarded the prestigious **Shanti Swarup Bhatnagar Prize**, 2021, in Biological Sciences, for outstanding contributions towards the current understanding of activation, signaling and regulation of G protein-coupled receptors (GPCRs).
- Professor Sandeep Verma was awarded the prestigious **A.V. Rama Rao Technology Award 2021**, instituted by CSIR-Indian Institute of Chemical Technology in collaboration with AVRA Laboratories Private Limited, Hyderabad.

- Professor Nitin Gupta was awarded the **Swarnajayanti Fellowship**, in Life Science Category, for the year 2021, for his outstanding contributions in the field of olfaction.
- Professor Bushra Ateeq was awarded the **OPPI (Organization of Pharmaceutical Producers of India) Scientist Award** for the year 2021.
- Professor Bushra Ateeq was awarded the **S. Ramachandran-National Bioscience Award** for career Development 2020-21
- Professor Subramaniam Ganesh was awarded the prestigious **JC Bose fellowship**, SERB, DST, 2021.
- Professor Bushra Ateeq has been selected for the **Sun Pharma Science Foundation Research Award-2021** in the Medical Sciences- Basic Research category.
- Professor Bushra Ateeq was featured in the "**75 under 50: Scientists Shaping Today's India**" a compendium released by the Department of Science and Technology, Ministry of Science and Technology.

MEMBERSHIPS/NATIONAL ACADEMIES

- Professor R. Sankararamakrishnan's appointment as a member of Senior and Intermediate Fellowship Committee of Wellcome/DBT India Alliance has been renewed for another three years with effect from 1st April 2021.
- Professor R. Sankararamakrishnan has been invited to join as an external expert, Board of Studies for M.Sc. Computational Biology Program at Institute of Advanced Research, Gandhinagar, Gujarat.

- Professor Bushra Ateeq and Professor Arun Kumar Shukla, have been elected to The National Academy of Sciences, India.
- Professor Bushra Ateeq and Professor Kumar Arun Shukla have been elected to The Indian Academy of Sciences, Bangalore.

GRANTS & FELLOWSHIPS

Around 13 grants and fellowships have been sanctioned to various faculty members from funding agencies like SERB, DST, DBT, ICMR, DMSRDE and DBT-Wellcome Trust Alliance.

PATENTS: Around 10 patents were granted, and 13 were filed in the year 2021-2022

EVENTS

Various events were organized by MFCEM including MFCEM Dialogues and BSBE Dept and MFCEM Joint Colloquium & Seminar Series. In MFCEM dialogues an interactive session with stalwarts was held in the three focus areas of MFCEM, namely, Regenerative Medicine, Molecular Medicine and Engineering and Digital Medicine.The invited speakers discussed their research interests including future thrust areas, and their personal academic journey.

Consolidated summary of MFCEM activities for 2021-22

Awards and Honors	8
Committee Memberships & Elected to Academy	4
Grants and Fellowships	10
Patents Granted	13
Patents Filed	
Invited to deliver talks/Lecture/panel discussions	32
Events: MFCEM Dialogues	3
BSBE Dept and MFCEM Joint Colloquium & Seminar Series	18
Peer reviewed Publications	39

International Academic Collaborations

Recognizing the value of international cooperation, the Institute has signed 12 MoUs with many international universities from Australia, Germany, Indonesia, Japan, South Korea, Taiwan, Thailand, and USA for collaboration in academic and research activities. With these partnerships, IIT Kanpur students will have more opportunities to conduct world-class research under the guidance of faculty from both IIT Kanpur and a reputed partner university.

MOU SIGNED OFFLINE

A delegation from the Institute of Engineering (IOE), Tribhuvan University, Nepal visited IIT Kanpur and signed an agreement in November 2021. The agreement is significant as India and Nepal share common problems and need to address these together.

ORGANIZATION OF EUROPEAN DAY

On 12th October 2021, European day (EU day) was organized online on 'The Role of Research & Innovation in the EU-India Strategic Partnership with Focus on Renewable Energy and Cyber Security.'

Addressed by European experts and Indian academicians, the event brought together various stakeholders including students to deliberate on the EU-India Strategic Partnership, cooperation opportunities under the new R&I framework program 'Horizon Europe' and the possibilities of researchers' mobility under the Marie Skłodowska-Curie Actions and the possibility of Erasmus scholarships funded by the EU.

Some of the notable speakers included Professor Abhay Karandikar, Director of IIT Kanpur, and Mr. Seppo Nurmi, Deputy Head, EU Delegation to India. Other esteemed speakers were Professor Ashutosh Sharma, Secretary to the Department of Science and Technology (DST), Ms. Tania Friederichs, Minister Counsellor and Head of R&I Section at

the EU Delegation to India, researchers and academicians from both counterparts, and the European Union officials.

VISITS BY FOREIGN DELEGATION

Delegations from the University of Melbourne and the Australian National University visited IIT Kanpur to discuss furthering of ongoing collaboration. They also discussed areas of exchange of student-faculty members, joint academic activities and summer research programs, etc.

OVERSEAS STUDENTS AT IITK

A total of 16 Ph.D. and 08 M.Tech. Students from Bhutan, Indonesia, Iran, Jordan, Malaysia, Nepal, Seriya, and Sudan were registered in 2021-22 at IIT Kanpur. IIT Kanpur also hosted students from the Czech Republic, Germany and Nepal for semester exchange and summer internships.

Dean of Resources & Alumni Office

Out of the total amount of Rs.404.00 Crores pledged by donors in the last Financial Year, a total of Rs. 114.06 Crores has been received as compared to Rs. 30.14 crores in FY 2020-21 and the balance is expected to be received based on the milestones achieved as set by the donor in the next one year.

(All Figures are in crore)

S. No	Some Notable Contributions:	Pledged (Rs.)	Received (Rs.)
1.	Gangwal School of Medical Sciences and Technology	285.56	41.92
2.	Centre for Energy Policy and Climate Solutions	18.25	10.91
3.	Mehta Family Centre for Engineering in Medicine	17.50	4.43
4.	Dr. Ranjit Singh Rozi Shiksha Kendra	13.30	13.82
5.	Shivani Centre for the Nurture and Re-Integration of Hindi and Other Indian Languages	7.50	7.50
6.	Brain Stimulation Lab, Library up-gradation & Jay Pullur Endowment	5.00	5.00
7.	Bright Minds Scholarship Programme	5.00	5.00
8.	Air Vice Marshal Harjinder Singh, VSM Class I MBE Chair of Excel-lence/Research Scholar Program for IAF officers	3.50	3.50
9.	Professor R. N. Biswas Endowment for Teaching Excellence	2.50	2.01
10.	Tapas Mishra Memorial Chair in Computer Science and Engineering	1.25	1.28

11.	Department of Chemical Engineering Modernization of the Unit Operations Laboratory (UOL) and the Workshop Facility	1.79	1.79
12.	Faculty Chair/Student Scholarship (Devendra Shukla)	1.51	1.51
13.	Pavitar Joneja Chair	1.30	1.30
14.	Next Generation Broadcasting Faculty Chair	1.11	1.11
15.	WISE New Faculty Fellowship	0.79	0.79
16.	Professor U B Tewari Memorial Distinguished Lecture Series	0.70	0.70
17.	Batch of 1965 Scholarship	0.56	0.56
18.	IIT Kanpur Development Foundation	0.50	0.50
19.	The Pawan Tewari Goldman Sachs Sustainability Faculty Chair	0.45	0.45
20.	Kedar Singh Rawat Memorial Scholarship	0.38	0.38
21.	Bachi Devi Rawat Memorial Scholarship	0.38	0.38
22.	The Pawan Tewari Goldman Sachs Scholarships	0.30	0.30
23.	Prabha and Ramadhar Singh Distinguished Lecture in Psychology	0.30	0.30
24.	Artificial Heart Project	0.25	0.25
25.	Mallampati Bala Kishore Memorial Scholarship	0.25	0.25
26.	Arish Ali Scholarship	0.14	0.14
27.	May Award in Civil Engineering Department	0.13	0.13
28.	Govind Swarup Memorial Award	0.13	0.13
29.	Envirotech G D Agrawal Award	0.13	0.13
30.	Satish & Kamlesh Agarwal Scholarship	0.13	0.13
31.	Mrs. Nirmal Kumari Gaur Scholarship	0.13	0.13

CAMPAIGNS AND MEMORIAL FUNDS

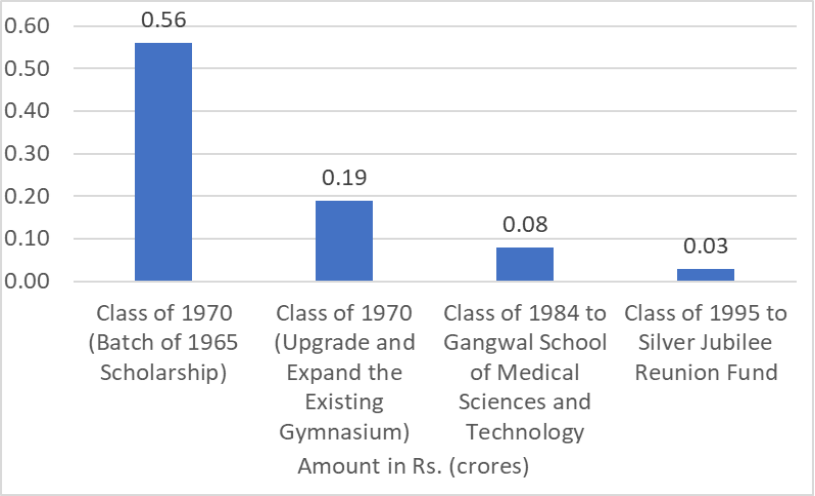
Various campaigns in the year 2021-22 were run by IIT Kanpur, which were held to raise funds for different initiatives from time to time.

S.No	Campaign Name (Student/Faculty& Community welfare)	Amount in Rs. (Crore)
1.	Professor R. N. Biswas Endowment for Teaching Excellence	2.01
2.	Tapas Mishra Memorial Chair in Computer Science and Engineering	1.28
3.	Covid 19 Relief Fund	1.63
4.	Professor U B Tewari Memorial Distinguished Lecture Series	0.70
5.	Sonu Agrawal Memorial Chair	0.40

IIT Kanpur conducts memorial fund campaigns to help raise money for the families of the deceased to provide much needed financial aid. The amount raised by the office is used by the families to give education to their children, for medical expenses, or any other emergency situation that may arise from time to time. The funds also come as a big moral support to families as sometimes the deceased was the only earning member. We are thankful to our batches and individual donors for extending a helping hand to such families in times of crisis.

S.No.	Campaign Name (Memorial Fund)	Amount In Rs. (Crore)
1.	Manish Bhatnagar Memorial Fund	0.64
2.	Sanjeev Shukla Memorial Fund	0.37

Alumni across various batches have contributed for academic and non-academic initiatives for the benefit of students and IIT Kanpur community a whole.



MAJOR DONATIONS RECEIVED TOWARDS ENDOWMENT ACTIVITIES FY 2021-22

Faculty Chair

Amount in Rs (crore)

Air Vice Marshal Harjinder Singh, VSM Class I MBE Chair of Excellence/Research Scholar Program IAF officers	3.50
Pavitar Joneja Chair	1.30
Tapas Mishra Memorial Chair in Computer Science and Engineering	1.28

Professor R. N. Biswas Chair in Teaching Excellence	2.01
The Pawan Tewari Goldman Sachs Sustainability Faculty Chair	0.45
Faculty Fellowship	
WISE New Faculty Fellowship	0.79

Scholarships

Amount in Rs (crore)

Bright Minds Scholarship Programme	5.00
Batch of 1965 Scholarship	0.56
Kedar Singh Rawat Memorial Scholarship	0.38
Bachi Devi Rawat Memorial Scholarship	0.38
The Pawan Tewari Goldman Sachs Scholarships	0.30
Mallampati Bala Kishore Memorial Scholarship	0.25
Satish & Kamlesh Agarwal Scholarship	0.13
Arish Ali Scholarship	0.15
Bhawani Shankar Meena Memorial Scholarship	0.13
Mrs. Nirmala Kumari Gaur Scholarship	0.13

Awards

Amount in Rs (crore)

May Award in Civil Engineering Department	0.13
Govind Swarup Memorial Award	0.13
Envirotech G D Agrawal Award	0.13

Major Activities

Amount in Rs (crore)

Gangwal School of Medical Sciences and Technology	41.92
Centre for Energy Policy and Climate Solutions	10.91
Dr. Ranjit Singh Rozi Shiksha Kendra	9.48
Shivani Centre for the Nurture and Re-Integration of Hindi and Other Indian Languages	7.50
Bright Minds Scholarship Programme	5.00
Brain Stimulation Lab, Library upgradation & Jay Pullur Endowment	5.00

Major Donors

Amount in Rs (crore)

S.No	Name of Donors	Class/Degree/Prog	Amount
1	Muktesh Pant	BT/CHE/1976	18.62
2	Sudhakar Kesavan	BT/CHE/1976	10.91
3	Late Ranjit Singh	BT/MME/1965	9.48
4	IBM India Pvt. Ltd.	Organization	9.00
5	Rakesh Gangwal	BT/ME/1975	7.55
6	Dev Joneja	BT/ME/1984	7.34
7	Lokvir Kapoor	BT/ME/1987	5.00
8	Nirmala Govindan	MT/CSE/1987	5.00
9	J K Cement Ltd.	Organization	5.00
10	Indian Air Force	Organization	3.50
11	Hemant Jalan	BT/CHE/1977	3.00
12	The Mehta Family Foundation	Organization	2.92
13	Devendra Shukla	BT/CE/1967	1.51
14	ONE Media 3.0 LLC	Organization	1.11
15	Jagjeet S. Bindra	BT/CHE/1969	1.08
16	Anjali Joshi	BT/EE/1981	0.82
17	Pawan Tewari	BT/EE/1988	0.76
18	Shishpal Singh Rawat	BT/EE/1979	0.75
19	Ranodeb Roy	BT/CSE/1990	0.51
20	Mukesh Bansal	BT/CSE/1997	0.30

21	Virajith Jalaparti	BT/CSE/2009	0.26
22	Sudha N Murty	Non Alumni	0.25
23	Ramadhar Singh	Non Alumni	0.20
24	Pradeep Sindhu	BT/EE/1974	0.19
25	Rajiv Batra	BT/EE/1982	0.19
26	Keshav Sharma	BT/CSE/1983	0.17
27	Vineet Gupta	BT/CSE/1989	0.14
28	Arish Ali	BT/EE/1996	0.14
29	Surya Mohanty	MSC2/STAT/1986	0.14
30	Aditya Soni	Non Alumni	0.13
31	Satyajeet Ghosh	BT/CE/1980	0.13
32	Satish Agarwal	Non Alumni	0.13
33	Rita Pandey	PHD/HSS/1985	0.13
34	Mahesh Swarup Agarwal	Non Alumni	0.13
35	Enviro Tech Instruments Private Limited	Organization	0.13
36	Zopsmart Technology Pvt. Ltd.	Organization	0.13
37	Sudhir Mohan Mittal	BT/CHE/1970	0.12
38	Jastej Singh Dhingra	BT/EE/1986	0.11

Gangwal School of Medical Sciences and Technology Pledged and Received Donation FY 2021-22

Donor Name	Class/ Degree/ Prog.	Amount Pledged USD	Amount Pledged Rs. (Crore)	Received Amount Rs. (Crore)
Muktesh Pant	BT/CHE/1976	2.5	18.62	11.12
Dev Joneja	BT/ME/1984	2.5	18.62	6.04
Anil Bansal	BT/MSE/1977	2.5	18.62	
Rakesh Gangwal	BT/ME/1975	11.35	100.00	7.55
J K Cement Ltd. (Late Mr. Yadupati Singhania)	BT/CE/1977		60.00	5.00
IBM India	Organization		37.00	9.00
REC Ltd.	Organization		14.40	0.20
Hemant Jalan	BT/CHE/1977		18.30	3.00
			285.56	**41.91**

S No.	Name of Company	Amount in Rs. (crore)
1	IBM India Pvt. Ltd.	9.00
2	J K Cement Ltd.	5.00
3	Citibank N.A.	1.44
4	Ericsson India Private limited	1.35
5	Portescap India Pvt. Ltd.	1.19
6	TCS Fellowship	0.51
7	Suraj Logistix Pvt. Ltd.	0.46
8	LIC Housing Finance Ltd.	0.37
1.	Indian Energy Exchange Ltd.	0.33
2.	PFC Consulting Limited	0.31
3.	Infosys Foundation	0.25
4.	Goods And Services Tax Network	0.20
5.	REC Foundation	0.20
6.	EcoEnergy Insights Limited	0.20
7.	Frontier Alloy Steel Ltd	0.10
8.	Kewal Engineering Private Limited	0.10
9.	PNC Infratech Ltd.	0.09
10.	Power System Operation Corporation	0.08
11.	Automech India Private Limited	0.05
12.	Power Finance Corporation Limited	0.04
13.	Bloom Combustion (India) Private Limited	0.04
14.	AlphaGrep Securities Pvt Ltd.	0.02
15.	Vtol Aviation India Pvt. Ltd	0.01
	Total:	**21.35**

CSR INITIATIVES (2021-22)

ALUMNI IMPACT

Our alumni have been the proud recipients of various honors and awards in various categories during FY 2021-22 as per the following details:

Selected Notable achievements in the fields of science and technology by our alumni:

Category of Award	Number of Awards
Academic Awards	22
Industrial Awards	1
Government Awards	6

Some of the major achievements are as follows:

S No.	Award	Name of Alumni	Award Endowed by
1	Fellow of the Royal Society, UK	Professor Thirumalai Venkatesan (MSC2/PHY/ 1971)	Royal Society of London, UK
2	American Astronautical Society Fellow 2020	Professor Kamesh Subbarao (BT/AE/1993)	American Astronautical Society
3	CTO of the Year Award 2021	Mr. Satya Gupta (BT/CHE/1982)	Virsec
4	Fellow of the Canadian Academy of Engineering, 2021	Professor Rajiv K.Varma (BT/PhD/EE/1980/1988)	Canadian Academy of Engineering
5	National Science Foundation Faculty Early Career Development Award	Dr. Eshan Chattopadhyay (BT/CSE/2011)	National Science Foundation (NSF), USA
6	National Science Foundation Faculty Early Career	Dr. Pravesh K Kothari (BT/EE/2010)	National Science Foundation (NSF), USA

	Development Program Award		
7	Technology Development Board, Government of India National award 2021 for technology start up by India DST. Noccarc won the award for its indigenous ICU ventilator, Noccarc V310 and Noccarc H210.	Mr. Nikhil Kurele (BT/ME/2016), Mr. Harshit Rathore (BS/CHM/2016) (Co-founders Noccarc Robotics)	Dept. of Science & Technology
8	UCSD CSE MS Student Achievement for Excellence in Research, 2021	Mr. Dheeraj Mekala (BT/CSE/2017)	University of California, San Diego
9	The Toycathon 2021 URA Career Cards	Mr. Prithvi Raj (M.Des/2016)	Ministry of Education's Innovation Cell with support from All India Council for Technical Education, Ministry of Women and Child Development, Ministry of Commerce and Industry, Ministry of MSME, Ministry of Textiles and Ministry of Information and Broadcasting.
10	Member of the US National Academy of Sciences	Professor Jainendra K.Jain (MSc2/PHY/1981)	United States nonprofit, non-governmental organization

11	Param Vishisht Seva Medal	Air Marshal Raj Karan Singh Shera (MT/EE/1990)	Government of India
12	Fellow of National Academy of Sciences, India	Professor S. A. Ramakrishnan (MSC5/PHY/1995)	National Academy of Sciences, India
13	Infosys Prize 2021	Dr. Neeraj Kayal (BT/PHD/CSE/2002/2007)	Infosys Science Foundation
14	Fellow of National Academy of Inventors	Professor Thirumalai Venkatesan (MSC2/PHY/1971)	U.S. and international universities, and governmental and non-profit research institutes
15	Young Scientist Platinum Jubilee Award of the National Academy of Sciences, India (NASI), 2021	Dr. Raghvendra Chaudhary (PHD/EE/2014)	National Academy of Sciences, India (NASI)
16	Marie R. Pistilli Women in Engineering Achievement Award	Dr. Renu Mehra (BT/EE/1991)	Design Automation Conference (DAC)
17	2022 NSW Australian of the Year	Professor Veena Sahajwalla (BT/MME/1986)	Australian Government
18	NASI Young Scientist Platinum Jubilee Award, 2021	Dr. Punita Kumari (PHD/BSBE/2019)	National Academy of Sciences, India
19	IEEE Electron Devices Society (EDS) Early Career Award 2021	Dr. Avirup Dasgupta (BT-MT/PHD/EE/2014/2018)	The Institute of Electrical and Electronics Engineers, USA
20	INSA Medal for Young Scientists 2021	Dr. Eshan Ghosh (PHD/BSBE/2019)	Indian National Science Academy, India
21	INSA Medal for Young Scientists 2021	Dr. Ritika Tiwari (PHD/BSBE/2019)	Indian National Science Academy, India

22	Padma Shri Award 2022	Dr. Anil Rajvanshi (BT/MT/ME/1972/1974)	Government of India
23	Boltzmann Medal 2022 in Physics	Professor Deepak Dhar (MSC2/PHY/1973)	Commission on Statistical Physics of the International Union of Pure and Applied Physics
24	Fellow of the American Association for the Advancement of Science (AAAS)	Professor Arvind Agarwal (BT/MT/MME/1993/1995)	Moore Foundation; Rockefeller Foundation; Carnegie Corporation of New York; and the Joyce Foundation, Federal government, US, National Science Foundation and other organisations
25	Fellow of the American Association for the Advancement of Science (AAAS), 2021	Professor Abhay Deshpande (MSC2/PHY/1987)	Moore Foundation; Rockefeller Foundation; Carnegie Corporation of New York; and the Joyce Foundation, Federal government, US, National Science Foundation and other organisations
26	US Department of Commerce Gold Medal Award 2021	Dr. K. Sriram (BT/EE/1977)	United States Department of Commerce
27	National Science Foundation Faculty Early Career Development Award	Dr. Snigdha Chaturvedi (BT/CSE/2009)	National Science Foundation (NSF), USA
28	Sloan Research Fellow 2022	Dr. Pravesh K. Kothari (BT/EE/2010)	Alfred P. Sloan Foundation
29	SERB Power Fellowship	Dr. Jayati Sengupta (MSC2/CHM/1990)	Department of Science and Technology, GOI

Some Notable Professional Achievements by our Alumni

S. No	Name of Alumni	Position
1.	Shri Ashwini Vaishnaw ji (MT/IME/1994)	Appointed as the Union Minister of Railways and Minister of Electronics, IT and Communication.
2.	Professor Jainendra K. Jain (MSC2/PHY/1981)	Inducted as a member of the US National Academy of Sciences.
3.	Professor Arup Chakraborty (BT/CHE/1983)	Named as the Institute Professor at Massachusetts Institute of Technology, USA.
4.	Professor Sanjay Ranka (BT/CSE/1985)	Promoted to Distinguished Professor at the University of Florida in the Department of Computer Information Science and Engineering.
5.	Ms. Vartika Shukla (BT/CHE/1988)	Took charge as the Chairman & Managing Director at Engineers India Limited.
6.	Mr. Aan S. Chauhan (BT/EE/1995)	Appointed as the Chief Technology Officer (CTO) of Mindtree.
7.	Mr. Rajinder (Raj) Singh (BT/ME/1983)	Appointed as the Chief Risk Officer at NewRez LLC.
8.	Mr. Asutosh Padhi (BT/ME/1993)	Appointed as the Managing Partner, McKinsey & Company, North America.
10.	Mr. Rajat Dhawan (BT/CHE/1994)	Appointed as the Managing Partner of McKinsey India.
11.	Mr. Mohit Singh (BT/CHE/1997)	Appointed as Executive Vice President & CFO of Chesapeake Energy Corp.
12.	Shri Puneet Kumar Goel (BT/EE/1987)	Appointed as the Chief Secretary of Goa.
13.	Mr. Sanjay Pandey (BT/CSE/1983)	Appointed as the new Chief of Mumbai Police.
14.	Shri Sanjay Malhotra	Appointed as the Financial Services

	(BT/CSE/1989)	Secretary.
15.	Professor Tarun Souradeep (BT/ME/1988)	Took charge as the Director of Raman Research Institute, Bengaluru.
16.	Mr Piyush Arora (BT/ME/1989)	Appointed as the Managing Director of the Skoda Auto Volkswagen India.

AWARDS TO THE ALUMNI BY THE INSTITUTE ON FOUNDATION DAY

Institute celebrated its foundation day on 2nd November 2021. Every year on this day, IIT Kanpur recognizes the accomplishments its alumni and confers with the Institute Fellows, Distinguished Alumnus, Distinguished Services, Young Alumnus and Satyendra K. Dubey Memorial awards. BOG Chairman Dr. Radhakrishnan K. Koppillil presided the function and Hon'ble Shiksha Mantri Shri Dharmendra Pradhan ji delivered the Foundation Day lecture.

List of Awards at the Foundation Day are listed below:

Institute Fellows 2021

S. No.	Name	Association with IIT Kanpur	Current Position
1	Mr. Jagjeet Singh Bindra	BT/CHE/1969	Member of Board of Directors Lyondell Basell Industries NV & HPCL Mittal Energy Ltd.
2	Professor Gautam Biswas	Faculty since 1990	Emeritus Fellow Department of Mechanical Engineering IIT Kanpur

3	Professor Santosh K. Gupta	BT/CHE/1968	Distinguished Professor Department of Chemical Engineering University of Petroleum and Engineering Studies (UPES) Dehradun
4	Professor Alak Kumar Majumdar	Faculty from 1972 to 2006	Former Professor Department of Physics IIT Kanpur

Distinguished Alumnus Award 2021

S.No.	Name	Association with IIT Kanpur	Current Position
1	Mr. Rakesh Bhargava	BT/CHE/1973	Former Chairman Fresenius Kab Oncology Ltd
2	Ms. Vartika Shukla	BT/CHE/1988	Chairperson & Managing Director Engineers India Ltd
4	Mr. Ashwini Kumar Vaishnaw	MT/IME/1994	Cabinet Minister Ministry of Railways, Govt. of India
5	Mr. Mukesh Bansal	BT/CSE/1997	CEO & Co-founder CureFit
6	Mr. Saurabh Chandra	BT/EE/1976	Director & Chairman Multi Commodity Exchange of India Ltd.
7	Mr. Rahul Garg	BT/EE/2001	Founder & CEO Moglix
8	Professor Rajesh Kumar Gupta	BT/EE/1984	Department of Computer Science & Engineering University of California San Diego, USA

9	Professor Vijay Vittal	MT/EE/1979	Regents Professor Arizona State University, USA
10	Professor Abhay Lalit Deshpande	MSC2/PHY/1987	Department of Physics & Astronomy Stony Brook University, USA
11	Dr. Dev Joneja	BT/ME/1984	Chief Risk Office Exodus Point Capital Management, USA

Distinguished Services Award 2021

S.No.	Name	Association with IIT Kanpur	Current Position
1	Mr. Pradeep Bhargava	BT/ME/1989	COO & Co-founder GladMinds
2	Mr. Kushal Chand Sacheti	MT/CHE/1972	Founder & CEO Galaxy USA Inc.

Young Alumnus Award

S.No.	Name	Association with IIT Kanpur	Current Position
1	Dr. Prateek Jain	BT/CSE/2004	Senior Research Staff Google AI, Bengaluru India
2	Mr. Varun Khaitan	BT/EE/2009	COO & Co-founder Urban Company

Satyendra K. Dubey Memorial Award

S.No.	Name	Association with IIT Kanpur	Current Position
1	Mr. Karnal Singh	MT/CSE/1981	IPS Officer (Retired) Government of India

NOTABLE ENTREPRENEURIAL ENDEAVORS BY SOME OF OUR ALUMNI

Name of Alumnus	Entrepreneur in the Field
Mr. Anupam Kumar Yadav , Mr. Owais Ahmad	Green Alloy Private Limited is a startup working on various physiological characteristics, such as skin tone, age, scars and burns, make finding the vein difficult. They will use visible light absorption and reflection to create a map of the vein.The device is used to help healthcare providers see veins better. This device will be affordable compared to market competition.
Mr. Shiv Bihari	Cyethack Solutions Private Limited is a cyber risk management start-up that helps organizations mitigate cyber risk in real-time. They offer consultancy, training, and solutions to counteract cyber-attacks. The company aims to offer generic and customized products and services to keep Industrial control systems, web spaces, and networks protected.
Mr. J P Mishra	Intelsec Solutions Private Limited is in the business of dealing in all types of Cyber Security Software, Hardware, as well as consulting and allied services in the field of Cyber Security Software. Building a Next-Generation Indigenous Threat Intelligence Platform to deliver end-to-end Cyber Threat Protection Services to stay ahead of the game in terms of security.
Dr. Vishal Kumar	RF Nanocomposites Private Limited is an R&D based start-up to design, develop, optimize and deliver the best possible microwave absorbers as radar absorber materials for stealth technology in defense and EMI shielding layers/coating for various applications such as defense, space, electrical vehicles, medical, and consumer electronics. They also develop Full/Semi anechoic chamber and EMC chambers for specific requirements.

Mr. Shreyansh Tatiya	Joey Envirotech Private Limited is a startup currently working on a board game named Karma. It is designed using traditional Indian culture to entertain and convey the importance of “karma in one’s life”. The game is divided into 4 stages of life: Balyavastha; Kishoravastha; Yuvavastha; Vradhavastha and major events associated with those stages are in the path.
Mr. Siddhanth Srivastava	Siddlabs Pvt. Ltd. is a working on design and manufacturing of medical devices. To improve proctology diagnosis devices with ergonomics deisgn, enhanced visual and physical accessibility
Dr. Sudhendra K. Rao	Likhotronics Tech Pvt. Ltd. started with an initial focus on developing educational kits. With a plan to enter the education sector now, the company aims to teach the basic concept to school going kids through specially designed modules by making the latest technologies accessible to the masses.
Mr. Sriram Balaji	Simactricals Private Limited are engaged in the development of charging infrastructure, smart grid integration, intelligent autonomous robot chargers, consumer electronic chargers, biosensors, smart high power transfer wireless chargers for EV's. They tend to overcome the drawbacks in the conventional wireless charging bed.
Mr. Nandan Mishra	Algo8 AI develops Artificial Intelligence (AI) / Machine Learning (ML) products for optimizing last-mile operations in large industries. The company offers customized solutions for applications in process-oriented industries through Data Science expertise, enabling clients' digital transformation into a data-driven organization. The range of products is based on a holistic understanding of industrial processes acquired from extensive research and collaboration with industry professionals and subject matter experts.

Institute Faculty

RECRUITMENT

In the past one year, the Institute has offered 99 faculty positions against a rigorous selection. Out of these, 46 new faculty members have joined the Institute. The appointments per department are mentioned below:

Department	Number of new faculty
Biological Sciences and Bioengineering	1
Chemical Engineering	1
Civil Engineering	1
Cognitive Sciences	2
Computer Science and Engineering	3
Earth Sciences	2
Economic Sciences	3
Electrical Engineering	6
Humanities and Social Sciences	5
Industrial and Management Engineering	6
Materials Science and Engineering	3
Mathematics and Statistics	4
Mechanical Engineering	2
Physics	4
Sustainable Energy Engineering	3

During this period, we have also made 60 post-doctoral fellowships, 14 visiting faculty and 08 adjunct faculty offers.

AWARDS AND HONORS

Our faculty has played a significant role in pushing the frontiers of knowledge. This has been duly recognized in the form of various awards and honors, including fellowships of professional societies and editorships of international journals.

I am extremely happy to share with you the wonderful news that Professor Laxmidhar Behera (EE) has been appointed as the Director of IIT Mandi for a period of five years. Dr. Sai Prasad Pydi (BSBE) has been awarded the prestigious Welcome/DBT Intermediate Fellowship. Dr. Bushra Ateeq (BSBE) has been selected for the Sun Pharma Science Foundation Research Award-2021 in the Medical Sciences-Basic Research category. The award carries a Trophy, Citation and a Cash Prize. Also Dr. Ateeq (BSBE) has been elected as a Fellow of the Indian Academy of Sciences, Bangalore.

Dr. Arun Shukla (BSBE) has received the Shanti Swarup Bhatnagar Prize for Science and Technology 2021 in Biological Sciences and the Khosla National Award 2021 by IIT Roorkee in the Science category. Also, he has been elected as a Fellow of the Indian Academy of Sciences, Bangalore and the National Academy of Sciences, India. Professor Jayant K. Singh (CHE) has received the Herdillia Award 2021 by the Indian Institute of Chemical Engineers for Excellence in Basic Research in Chemical Engineering. Professor S. N. Singh (EE) has received 2021 MGA Achievement Award of the IEEE Society, for his exemplary leadership and distinguished contributions at Section, Council,

and Region levels and the IEEE IAS Outstanding Educator/Mentor Award for his outstanding contributions to education and mentorship of students and young engineers within the fields of interest of the IEEE Industry Applications Society.

Professor Parasar Mohanty (MTH&S) has been awarded the INSA Teacher Award-2021. Professor Kumar Vaibhav Srivastava (EE) has received the Motohisa Kanda Award for their paper “Broadband Polarization Insensitive Tunable Frequency Selective Surface for Wideband Shielding,” published in IEEE Transactions. Professor Braj Bhusan (HSS) has been elected as a Fellow of the Association for Psychological Science, USA. Professor S. Anantha Ramakrishna (PHY), Professor Dattaraya H Dethe (CHM), Professor Mahendra K. Verma (PHY), Professor Nitin Saxena (CSE) and Dr. Bushra Ateeq (BSBE) have been elected as Fellow of the National Academy of Sciences, India.

Professor Pratik Sen (CHM) has been awarded the Fellowship of the Royal Society of Chemistry (FRSc). Professor Kantesh Balani (MSE) has been elected as a Fellow of the ASM International Society. Professor Abhay Karandikar (Director IITK, EE) has been appointed as member of the Board of Governors of IEEE- Standards Association (IEEE-SA) for a period of two years beginning January 2022.

Student Awards

The prestigious scholarships and awards received by our students have been a matter of pride and pleasure for us. Goutam Das, Antriksh Gupta, Harsh Bihany, Siddhant Suresh Jakhotiya, Antreev Singh Brar, Ishanh Misra and Varun Goyal received the Aditya Birla Scholarship. Aryash Pateriya, Hem Kalpak Shah and Mudit Mamodia received the O.P. Jems scholarship. Shapath Bhandari and Bhabani Sankar Dehury received the ACC Fellowship.

The full lists of awards received by the faculty and students are given at the end of the report.

Health Centre

COVID VACCINATION DRIVE

Institute conducted a Covid vaccination drive to combat COVID inside the campus. The details are given below:

Vaccination

Year 2021			
Age Group	**Is Dose**	**2nd Dose**	**Total**
18+	4573	5785	10358
45+	3003	2476	5479
Total	**7576**	**8261**	**15837**
Year 2022			
Age Group	**Ist Dose**	**2nd Dose**	**Total**
18+	124	192	316
45+	23	52	75
Total	**147**	**244**	**391**

Precaution Dose	239
Age group 15-18 (1st Dose) Co-vaxin	100

Total doses given at Health Centre: 16567

COVID POSITIVE CASES

1st Wave	135
2nd Wave	348
3rd Wave	341
Beyond 3rd wave	31
Total Covid positive cases as of now	**855**

COUNSELLING SERVICE

Counselling Service is an institute body that works for the welfare of the students by providing emotional, academic, and financial assistance to them. It also works toward sensitising the campus community towards issues related to mental health.

CS DURING COVID

Counselling sessions

The counselling sessions were shifted online with efforts to recreate the offline counselling environment in an online platform. To felicitate these the existing computer systems

were upgraded with webcams and necessary audio visual devices for a seamless counselling experience. Sessions were also taken over phone calls and audio calls, wherever a video appearance was infeasible. Help was also extended over emails by sharing self-help material.

TEAM STRUCTURE

Counselling Service consists of a professional wing and a student wing. The professional wing consists of the Head Counselling Service, Dean of Students' Affairs, and a team of trained counsellors and visiting psychiatrists. The student wing comprises a huge team of dedicated student volunteers from both UG & PG programs, coming from various batches & departments of IIT Kanpur. Apart from these, several faculty members also help the Counselling Service.

Professor Anjan Kumar Gupta, Department of Physics, is currently the Head, Counselling Service. He took over after Professor Nandini Nilakantan, Department of Mathematics and Statistics, completed her term in December 2020.

ACTIVITIES IN 2021-22 SESSION

Staying Motivated in Online Semester – interactive Session with The Counsellors (April 15, 2021)

An interactive session with the counsellors, where counsellors discussed some simple and effective methods to tackle the students' decreased efficiency and concentration levels during the nationwide lockdown due to the coronavirus pandemic.

Talking Through it (April 26, 2021)

Counselling Service organized an open house session with the counsellors for students to ask queries and discuss their various issues with the counsellors. The counsellors helped students in multiple ways to get things in perspective and develop a solution to the problems.

Embracing Wellness (June 2021)

In the “Embracing Wellness” series, Counselling Service planned to send out a list of simple activities every week that anyone could do in the comfort of one’s home. The reason was to encourage the students to take some time off from their otherwise hectic schedules for themselves.
A Discord server for discussions amongst the students, where they could share their progress and experiences was created.

Week 1: Mindfulness Week (30 May - 5 June)

Our first aim of the “Embracing Wellness” series was Mindfulness. Mindfulness means maintaining a moment-by-moment awareness of our thoughts, feelings, bodily

sensations, and surrounding environment, through a gentle, nurturing lens. A list of activities was shared with the students.

Week 2: Self Care Week (6 June - 12 June)

Next, the focus was to the practising of self-care. A Bingo was shared with the students with 16 activities like “Reconnecting with an Old Friend”, “A Day without Social Media” etc and at the end of the week students shared their performance throughout the week by striking out the activities they performed during the week.

Week 3: Gratitude Week (13 June - 19 June)

Seven activities were shared like “Gratitude Jar”, “Gratitude to Municipal Workers” etc. and students were asked to perform at least one of these activities daily.

Week 4: Meditation Week (20 May - 26 June)

The series ended with the Meditation Week where Counselling Service shared different types of mediation practices and how to perform them. The myths and benefits of practicing meditation were also discussed.

SAMVAD (June 11, 2021)

Counselling Service organized "Mental Health in Covid Times" by Dr. Alok Bajpai as expert speaker under SAMVAD. SAMVAD, as a mental health initiative, recognizes stories and narratives as powerful ways of connecting people through their struggles and success.

Safarnama (July 2021)

The Counselling Service started a new video series 'Safarnama'. In this series, some of the seniors walked us through their beautiful and enriching campus life.

Comic Series on Intern Season (August 2021)

The intern-season is a great opportunity for the students to secure good internships in companies across the world. However, the path is also brim filled with hard work, difficulties and apprehensions regarding CVs, shortlists, interviews etc.

The comic series introduced by the Counselling Service sought to provide a calmer and more reassuring headspace to the students by portraying familiar fictional characters handling similar challenges in their lives.

Suicide Prevention Day (September 10, 2021)

On the suicide prevention day, Counselling Service tried to express the collective compassion and love of the IIT Kanpur community for thefriends who might be going through a rough patch, counselling service made a video compiling the thoughts and messages of the campus community.

Sky Lanterns (Diwali, November 5, 2021)

For the festival of lights, Diwali, Counselling Service organized the lighting of sky lanterns for the student body, UG and PG. It was conducted so that people don't feel alone, away from home, in such a festive time, and can enjoy it with their friends here.

Wabi- Sabi (October 2021)

The Counselling Service came up with “Wabi-Sabi: Finding Beauty in Imperfections” where some exciting activities and insightful sessions were organized to celebrate the World Mental Health Day.

Breaking the Spell of Procrastination
8th February to 4th March

An online workshop for procrastination was conducted by counsellors for PG students. Workshop was designed to address a prominent problem in PG community of delaying work and management. It was scheduled for four sessions delivered to two batches on a weekly basis.

Blogs/Posters

- **Pride Day (28th June 2021)**

To celebrate pride day, a poster was shared trying to educate people about pride day and its history.

- **Understanding stress & exploring ways to alleviate it**

This blog was aimed to address the high levels of stress being developed due to the constant running/working around. The Counselling Serivce tried to explain the root cause of stress and shared some insights and methods to mitigate it.

- **Mental Health in an Unequal World**

The poster aimed to bring out the inequality in mental health based on various stigmas, economic status etc. and some ideas to avoid it.

- **Being a Mental Health Ally**

This poster aimed to educate people on how to support the people around them by educating them on how to create an environment by which one can comfortably share their stories and problems with others.

- **Mental Health Disorders**

To educate the campus community of various mental health disorders and how they are caused plus what help/treatment

one should take to get out of them, 3 blogs focusing on 3 mental health disorders were introduced.

AM Workshop (Online)

AM Workshop was conducted for the Academic Mentors to understand different problems their mentees might face and how to tackle them. They were guided on how to handle doubts experienced by their mentees and how they should move on with teaching in an Academic Class. Sessions conducted for them included academic workshops, interaction with Mentees and Mailing 101.

English Communication Classes

ECC aimed to cover two broad categories of students. Those who have a background in English but cannot converse confidently, and thosse that have no background in English. For the first category, classes comprising various listening and speaking activities were conducted. For students who had no background in English, grammar classes were organised. Then they were included in the first track for improving their conversation skills.

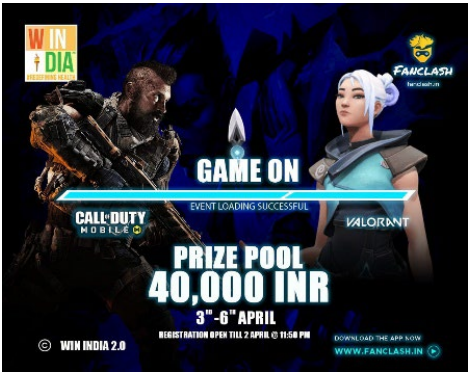
End Semester motivation cards

During Examinations, students are often under a lot of stress and anxiety, so to lighten up their mood and motivate them to believe in themselves, the Counselling service distributed cards with different quotes to make them feel good about themselves. These cards were left on their cycles outside the library and other places of study.

STUDENT ACTIVITIES

COUNCIL EVENTS

WIN India 2.0



After last year's successful conduct of WIN India 1.0, we launched the second version of the **Pan IIT WIN India movement**. Win India 2.0 was a sporting extravaganza comprising numerous events like Esports, Walkathon, Cyclothon, Chess, Quizzical, various talks, and workshops, to get the IITK junta pumped up. It saw the participation of over **5k participants** across the nation.

The major events conducted at that time are as follows- Workshops: **Sports Analytics Workshop** in association with Mad About Sports, **MedIITate** Yoga workshop with Isha Foundation, **Boxing Workshop** in association with Calib's Boxing Club. Apart from non-competitive sessions these events were also held. **Game On**: CODM and Valorant tournament in association with Fanclash; **Quizzical**: Sports Quiz powered by Universal Mednet; **Rook and Roll**: Chess tournament powered by Wow Chess; **Break the Threshold**: Runathon and Cyclothon event.

Fantasy League:

The event put together the fun of IPL, with the fantasy of mixing up our favourite players into the players fantasy teams. It saw the participation of around **300** players. The event lasted for seven days beginning from 19th- 26th April. The Council also organized the **WTC Fantasy League IITK**, in association with the Ballebaazi platform.

Know your Sportstar Season 2

Olympics and Paralympics Analysis, National Sports Awards Analysis, etc. to increase the reach of the council by 50% amongst the community.

Talk Hour With Mimansa Singh Tanwar

The Games and Sports Council organized a live zoom QnA session with Ms. Mimansa Singh Tanwar, a clinical psychologist with the Department of Mental Health Behavioural Sciences Fortis Healthcare.

Food to Fitness by Biomarked

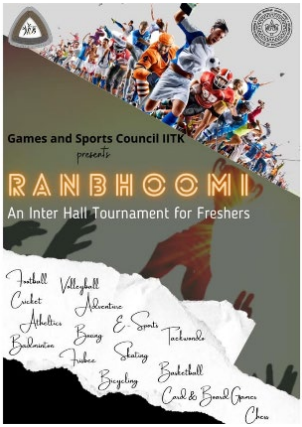
The Games and Sports Council organized "Food to Fitness", a **nutrition webinar** to help out the junta to get on to healthy eating habits and thus to a better lifestyle.

One Spirit Yoga

On the occasion of International Yoga Day, the Games and Sports Council organized an exciting talk by Akhilesh Parmanu, from the Art of Living Foundation.

The council organized live **Zumba Sessions** with **Sucheta Pal** - Zumba Ambassador & Coach with Team FITASTIC.

Ranbhoomi 2021



The tournament consists of various competitions across different sports among the six pools, namely UG Y20 students- Hall 2, Hall 3, Hall 5, Hall 6, Hall 12, and PG Y20. The cumulative score of the pools across all the events decided the ultimate winner.

Over the span of 7 weeks, a **Fit India initiative** was undertaken by the Games and Sports Council, IIT Kanpur. In this programme, the **coaches** of IIT Kanpur guided and mentored the participants with targets for each week. Certificates and prizes were given out for the weekly, daily, or event-wise achievers.

Power of Fitness Webinar: One of our IIT Kanpur alumni, Ayush Soni has started an online fitness platform **'RANTHRA'** which provides a holistic approach to fitness. The council in collaboration with Ayush organized this webinar that saw participation in great numbers from the student community.

The Games & Sports Council organized an offline **Gymnasium Workshop** with an aim to help the student

community with the basics at Gym regarding general equipment handling and custom fitness strategies and strategies for both "weight gain" and "weight loss" categories.
Career in e-Sports: The Games and Sports Council organized an amazing and imperative talk session on Career in E-Sports, presented by **FRAGNOW**, an eSports start-up by an IIT Guwahati alumnus.

Fitness, Diet and Nutrition Seminar: The Council organized a session on Fitness - Diet and Nutrition by National Fitness Physique Medallist, **Mr. Soumarup Bhattacharyya** who had won Mr. Inter IIT and is also an Inter IIT Gold Medalist.

Sports Cryptic and Scavenger Hunt For the fresh start of the semester for Y21, the Games and Sports Council organized team events including a Scavenger Hunt and a Sports Cryptic Hunt engaging so many students in these fun and competitive events.

The council organized an enlightening session **'Eat More & Lose More' (Webinar)** by an evidence-based fitness influencer, **Mr. Ojasvi Rajput.**

Holi sports camp

The camp was conducted from the 12th to the 17th of March. The camp was overseen by Institute coaches and Institute team captains. In total **150+** students participated in the Holi Sports Camp. Simultaneously, teams and players from outside the institute

were also invited in some sports to compete with the players from the institute. Out of all the players in the camp, one student per team was awarded the **Player of the Camp** recognition for their consistency, perseverance, and determination.

Intra-Hall Tournaments and Workshops

Intra-hall football, cricket and volleyball tournaments were organized for the campus junta. Workshops were also held for various sports like Hockey, Football for Girls. It gave the new students on campus the first taste of offline sports event as well as provided them a relief after mid-sem week.

Old Sports Complex Gymnasium Expansion: In collaboration with DoRA, funds worth Rs. 60 lakhs were pledged from alumni for gym expansion and total amount aimed is Rs. 2.6 crores

ACADEMICS AND CAREER COUNCIL

The Academics and Career Council, IIT Kanpur, aims to foster all the needs related to Academics and Research for the campus dwellers.

UG Academics Wing

- Conducted the Academic Orientation 1.0 and 2.0 to cater the unique needs of the Y20 Batch.

- Know your Department Sessions were being organized for the students transitioning from their freshman to sophomore year.
- Comprehensive Course Guidance (CCG) kits are being developed which contain information regarding all the IC courses.
- Course Repository and Departmental Guides for each department are being developed which contain all the information one needs to know about their departments and the Do's and Dont's to follow.
- Rise from Scratch Programme is initiated for the needy students to start their journey from the scratch. Academic Department Mentors and Career Department Mentors are selected from each Department and comprise of Y19 and Y18 students.

Career Development Wing

- Internship Sessions were conducted for Y19 students. A total of 5 sessions were conducted aiming at every major profile Interns are hired for.
- 'The More You Know' series of blogs was published to help students in their preparation of internship. 8 blogs were published in total.
- Online Courses and Test Series for internships were organized, collaborated with ProxyPrep, PrepLeaf, Alpha Derivatives for the resume making guidance, aptitude tests and coding tests/mock interviews.

- For Remote Internships, NGOs and StartUps were contacted and students were offered Summer Internships on the Application Portal.
- Successfully collaborated and started the membership drive for IAESTE IITK MD September 2021, getting over 140 students registered.
- Placement Fundae: Preparatory Placement Blog Series was being released having detailed account of the preparation of placements by Y17s.
- Collaborated with Interview Buddy and Coding Ninjas for placement preparation and scheduling mock interviews.
- Consulting Prep and Sophomore Summers were being organised for the preparation for the role of consulting and for the second-year students aiming for internships in the upcoming summers.
- Career-Connect: A two-day event organized on 29th-30th January 2022, in which a plethora of events were being conducted ranging from Game Development to Time/Stress Management.

Research Wing:

- Student Interest Groups were being developed in which great enthusiasm of students was seen along with Re-Scholar formation, A database has been prepared to consist of a list of relevant scholarships and programs took place.

- Alumini Connect: Alumni are invited to conduct a panel discussion where they discuss their current life. 3 sessions for the same were conducted.
- Spotlight: Exemplary UG research work is highlighted and given public promotion. This serves the purpose of motivating younger batches about the research work done at IIT Kanpur at the UG level.
- Newsletter: Newsletter initiating some important topics under the domain of AnC such as UG ARC Feedback, Technopark, SRC, words from DORD, new departments, etc.
- Career Flowchart: Basic flowchart describing the life of a UG interested in research. The motive was to highlight major milestones in the career and help provide a trajectory to students.
- Surge Introductory Session: The Research wing conducted an introductory session for the potential participants of SURGE 2022 to clear their doubts and queries as well as to provide them with the required knowledge.
- Students' Research Convention 2022: was held on 4th-6th March 2022 in a hybrid mode. The conference received an enthusiastic response from the campus community as well as participants from around the nation. Various new initiatives were also discussed such as ResQ.

International Relations Wing

- MoUs with Potential Partners: has a compiled database of potential institutes with which the institute can collaborate for the benefit of IIT Kanpur students.
- Invite Organizations for Test Series and Webinars: It involves approaching organizations like Jamboree, Manya, Magoosh, etc., for availing a package on preparation resources, for example, test series, study materials, etc.
- Higher Studies Session: These sessions discussing the aspects of both opportunities, logistics of the application procedure, and educational and future prospects pertaining to MS/Ph.D. abroad were conducted.

IR handbook:

The IR Handbook will be prepared as a global document for insight into both undergraduate and postgraduate opportunities. It will be divided into various sections which will be released as they are prepared under the umbrella of the handbook.

Foreign Intern Session and International programs for Exchange Programs and Internship Opportunities, under which various organizations DAAD, MITACS, Erasmus, ASEAN, etc. were being contacted.

IR Orientation Session: an orientation session will be conducted by the Managers, IR on the international opportunities that are available at IIT Kanpur.

Alumni Connect and Foreign Training Program: Connect the council with distinguished alumni. The first goal would be to

invite these alumni to conduct sessions for the campus community, which can be department or domain of work specific.

Web Division

- The Academics and Career Council Website and the Student's Research Convention Website have been updated in accordance with the arrival of new members, and legacy pages have been updated.
- Blogs section gives complete control to all wings and allows them to publish blogs without any possible delay from the web division. All previous blogs have been transferred here with the help of secretaries of respective wings.
- Admin Access: A central admin access portal has been designed to give all secretaries/managers access to all portals in a single application. This allows the council members to manage all portals effectively, unlike the previous design.
- Centralized Log-In and Content Delivery System, the team has developed a logging system that would allow us to resolve issues in any portal raised by the students quickly
- Portals: The career portal allows the managers to post internships, notifications, collect data, etc. All registered students with an ANC ID can apply using this portal.
- A new resources portal has been developed to allow single sign-on, and the previous login has been removed. The

new interface will enable managers to add resources dynamically

- Courses Portal was further updated during the term, and we are currently waiting for relevant permission from the authorities. The courses portal has also been integrated with the single sign-on.

SCIENCE AND TECHNOLOGY COUNCIL

The Media and Cultural Council of the Students' Gymkhana is the epitome and embodiment of the 'Culture of IIT Kanpur'. It organizes a plethora of activities spanning the entire calendar year. Our activities and responsibilities include but are not limited to:

- Providing students numerous platforms to pursue a diverse set of interests, train themselves, perform on stage, compete with others, and appreciate various art forms.
- Exposing students to various professional workshops and sessions to hone their skills and compete with other prolific colleges in competitions.
- Providing ample opportunity for students to cement themselves into the culture of IIT Kanpur through events like club-level workshops, semester-long projects, etc.

Some key highlights of this term of the Media and Culture Council are:

Cultural Extravaganza: The Media and Cultural Council organized its annual flagship event from 13th-16th April 2022,

which included multiple performances by the students in different domains like Dance, Dramatics, Music, Stand-up comedy etc. The event witnessed an audience participation from campus community in large numbers.

Treasure Hunt: The council organized its first offline event of the tenure which witnessed participation from 500+ students from the Y20 batch.

Evergreen Melodies: This was the first ever collaboration of media and cultural council and alumni association of IIT Kanpur for an event. The occasion was a reunion event of Alumni from batches 1973-2010.

Summer workshop: Many clubs organized summer workshops of some kind last summer.

Council also conducted two events namely **Treasure Hunt** and **Ultimate Cult Quest** which were Y21 specific. These Events included genres like Rapping which was not included earlier in any event.

Activities under **EBSB** were also organized. Also, two events were organized under the initiative of the government of India.

Four meetings of the Council Core Committee have been conducted in the tenure. Introductory Sessions, Competitions, and Preliminary workshops of clubs for Y21 were organized successfully.

Collaborations: This year, a number of inter-club collaborations were made which proved to be highly beneficial and were a benchmark achievement for the council in the long run.

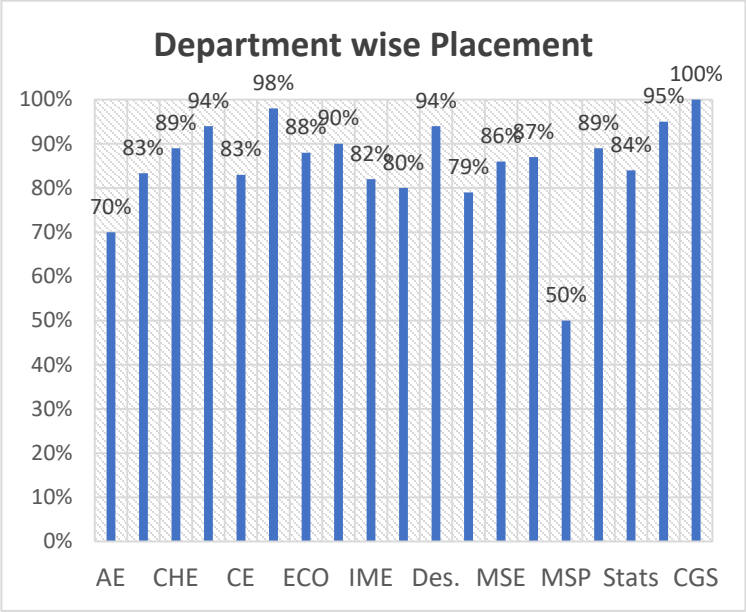
Rangmanch: An open for all plethora of events. Multiple competitive events were organized in rangmanch by different Clubs.

Freshers Showcase: A three-hour long video was published on YouTube and an event was organized for the Y21 students which witnessed participation of more than 400 students from all the M&C Clubs and societies. The event proved to be the flagship event of the council. The showcase event proved to be a major success, enabling new students to join the clubs and societies of their interest. To encourage interaction and harmony among new students.

STUDENT PLACEMENT

1445 students had registered with Student Placement Office for Campus Recruitment Drive 2021-22. Due to the pandemic restrictions, the placement drive was conducted in complete online mode and in two phases. Phase-1 of the recruitment officially started on December 1, 2021, and ended on December15, 2021. About 300+ recruiters participated in Phase-1 to hire students for full time employments. About 59 top tier firms with 74 different profiles from various sectors conducted interviews on Day 1, when an unprecedented 384 job offers were extended by the companies, and 304 of those were accepted by IIT Kanpur students. Based on the number

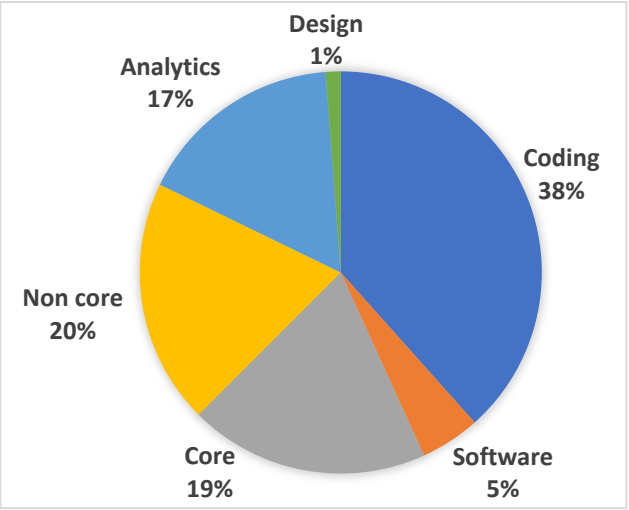
of students hired, the top recruiter for this placement season is Rakuten Mobile which hired 29 students. Other top recruiters of the season were Intel Technology Pvt. Ltd, Microsoft India Pvt Ltd., EXL Services, ICICI bank, SAP Labs etc., to name a few. Phase-2 of the recruitment started in January 2022 and continued till May 2022. Till May 2022, a total of 405 organizations have registered in the campus placements.



Placements across various departments of IIT Kanpur during placement season 2021-22.

A total of 1263 students out of the 1445 registered students were placed through SPO during the academic year 2021-22. The overall placements stood at 87.4%, which speaks highly of the dedicated efforts of the entire SPO team including the student, staff & faculty coordinators. The total placed number includes the students from both the UG and the PG program.

640 out of 686 registered students in B. Tech and B.S. degree programs (approx. 93%) were placed during the season. UG placement count also includes 141 accepted Pre-Placement Offers (PPOs) from the academic internships provided through SPO. Amongst the various PG programs, 96% in Dual degree program, 94% in Master of Design (M. Des.), and 85% in MSR got placed during the current placement season. In all 623 out of 759 registered PG students (approx. 82%) were placed during the season.



Students of IIT Kanpur continued to demonstrate a strong commitment to their core educational background in their choice of employment. The Placement drive witnessed highest participation from coding and software firms which accounted for 43% of the total placements, whereas 19% was comprised by core firms.

Some of the prominent recruiters who participated in Campus Recruitment Drive 2021-22 include Adobe Systems, Accenture Japan Ltd, Amazon Development Centre India, American Express, Axis Bank Ltd., Bajaj Auto Limited, Eaton, EXL Services, Google, Goldman Sachs, Jaguar Land Rover Limited, HSBC, JP Morgan Chase & Co., Mastercard, Microsoft, Oracle India Private Limited, Quantiphi Analytics Solutions Pvt. Ltd, Samsung, Taiwan Semiconductor Manufacturing Company, Texas Instruments, Uber etc.

Epilogue

Dear Graduating Students, on this occasion of the 55th Convocation, I extend my heartiest congratulations and best wishes to all of you, who will receive your degrees today. As we gather on this momentous occasion to celebrate your graduation and the beginning of a new chapter in your lives, I congratulate each one of you on your accomplishments. This is a well-deserved success and it is indeed a major milestone in your life.

My heartiest congratulations to all the proud parents and other family members of the graduating students on this happy occasion. We deeply appreciate the sacrifices you have made to see your children accomplish this success.

Dear Graduating Students, we celebrated the 75th Independence Day of our nation on 15th August 2021, and this monumental occasion is being celebrated all over the country in the form of ‘Azadi Ka Amrit Mahotsav’ - an initiative of the

Government of India to commemorate 75 years of a progressive India and the glorious history of its people, culture, and achievements! Higher Educational Institutions like IITs and its graduates like you, have an important role to play in this “Amrit Kal” of the nation.

You belong to a privileged class which has had an opportunity to get an education on par with the best in the world. The degree conferred on you today brings you a new sense of accomplishment, a new confidence, and a new hope. But, it also brings you a new responsibility! Now, it is your time to give back to the society and the nation at large.

Science and technology are key elements for the sustainable growth of a country. The pandemic has re-emphasized the role of technological innovations and development like never before. There has been an increasing focus on reducing the dependence on other nations and developing an indigenous ecosystem. Technology, especially the digital technology, is growing at a rapid pace. The availability of Internet is changing the landscape around us. In an all pervasive digitally connected world, almost all sectors of economy – all the industries, be it retail, agriculture, health, transportation, are undergoing massive transformation. As a graduate with world-class education and training from IIT Kanpur, you have a great opportunity to be a part of this transformation and the consequent economic growth of the country. Today’s enabling environment offers tremendous opportunities for you to become ‘job givers’ rather than ‘job seekers.

I have always believed that it is the responsibility of the youth to work for the betterment of the country. Vibrant energy of the youth, if channelized in the right direction, can do wonders in the developmental journey of our nation.

Merit, commitment, integrity, excellence, and service are the core values for success of both the Institute and its Alumni. I fervently hope that all of you will uphold and cherish these values.

As you leave the secured surroundings of the Institute today with flying colours, please remember that you are one of the pillars of our Institute, and we cherish our strong ties with you. I am sure that even after you have left the portals of the Institute, your relationship with your alma mater will remain as vibrant as ever. I urge you to maintain your links with your alma mater wherever you go and in whatever you do and enhance its glory.

I am confident that each one of you will succeed in your chosen career paths and we look forward to your remarkable contributions in the coming years. Dear students, as Swami Vivekananda said, “The greatest religion is to be true to your own nature. Have faith in yourselves.” Wherever you go, always have a ‘can do’ mindset and an eagerness to learn new things.

On behalf of our Institute, I wish you all the best in your future endeavours!!

With Best wishes for a new beginning!

Jai Hind!

-Abhay Karandikar

BOOKS PUBLISHED

1. Introduction to Advanced Electrodynamics, Kaushik Bhattacharya (PHY) and Soumik Mukhopadhyay (PHY), Springer (New York), 2021, ISBN: 978-981-16-7802-8.
2. Handbook of Nanocomposite Supercapacitor Materials: III Selection, Kamal K. Kar (ME), Springer Nature, ISBN: 978-3-030-68363-4.
3. Emerging Frontiers in Operations and Supply Chain Management: Theory and Applications, D. Philip (IME), Vipin B. (IME), Springer Nature 2021, ISBN: 978-981-16-2773-6

FELLOWSHIPS

1. Dr. Sai Prasad Pydi (BSBE) has been awarded the prestigious Welcome/DBT Intermediate Fellowship.

AWARDS AND HONORS

1. Professor Avinash Kumar Agarwal, Dr. Bushra Ateeq, Professor Nitin Saxena and Professor Sachchidananda Tripathi were featured in "**75 under 50: Scientists Shaping Today's India**" a compendium released by the Department of Science and Technology, Ministry of Science and Technology
2. Professor Avinash Kumar Agarwal has been elected as a Fellow of the Combustion Institute (CI), USA
3. Professor Yogesh M. Joshi (CHE) has been awarded the prestigious Academy excellence award 2021 of the Defence Research and Development Organization (DRDO)
4. Professor Nitin Gupta (BSBE) has been awarded the prestigious Swarnajayanti Fellowship in Life Sciences from the Department of Science and Technology (DST), Govt. of India.
5. Mr. Saptarshi Ghosh (EE) and Professor Kumar Vaibhav Srivastava (EE) have received the Motohisa Kanda Award for their paper "Broadband Polarization Insensitive Tunable

Frequency Selective Surface for Wideband Shielding," published in IEEE Transactions.

6. Professor Abheejeet Mohapatra (EE) has been selected for the INAE Young Engineer Award 2021.
7. Professor Parasar Mohanty (MTH&S), has been awarded the prestigious INSA Teacher Award 2021 for his contributions in inspiring and mentoring students.
8. Dr. Bushra Ateeq (BSBE) has been selected for the Sun Pharma Science Foundation Research Award-2021 in the Medical Sciences- Basic Research category.
9. Dr. Arun Shukla (BSBE) has been selected for the Khosla National Award 2021 by IIT Roorkee in the Science category.
10. Professor Jayant K. Singh (CHE) has received the Herdillia Award 2021 by the Indian Institute of Chemical Engineers for Excellence in Basic Research in Chemical Engineering.
11. Professor S N Singh (EE) has received 2021 MGA Achievement Award of the IEEE Society, for his exemplary leadership and distinguished contributions at Section, Council, and Region levels.
12. Dr Arun Shukla (BSBE) has received the Shanti Swarup Bhatnagar Prize for Science and Technology 2021 in Biological Sciences.
13. Mr. Ramanuja Panigrahi (EE) and Professor Santanu K. Mishra (EE) have received FIRST PLACE PRIZE PAPER AWARD 2020 by the Editorial board of IEEE Transactions for their paper "DC-DC Converter Synthesis: An Inverse Problem".
14. Professor S N Singh (EE) has been awarded 2021 IEEE IAS Outstanding Educator/Mentor Award for his outstanding contributions to education and mentorship of students and young engineers within the fields of interest of the IEEE Industry Applications Society.
15. Dr. Ajay Vikram Singh (AE) and his students have received the best paper award in the 2nd International Conference on Recent

Advances in Fluid and Thermal Sciences (ICRAFT 2020) held during 19-21 March 2021 in Dubai, UAE.

APPOINTMENTS

1. Professor Laxmidhar Behera (EE) has been appointed as the Director of IIT Mandi for a period of five years.
2. Professor Mukesh Sharma (CE) has been appointed as an honorary non-remunerative member of the World Health Organization (WHO) Global Air Pollution and Health - Technical Advisory Group (GAPH-TAG).

EDITORSHIPS / MEMBERSHIP

1. Dr. Suparno Mukhopadhyay (CE) has been invited to join the Editorial Board of Journal Structural Control and Health Monitoring published by Wiley publications.
2. Professor Braj Bhusan (HSS) has been elected as a Fellow of the Association for Psychological Science, USA.
3. Professor Yogesh Joshi (CHE) has been invited to join the editorial board of the Journal of Rheology published by The Society of Rheology, a member society of the American Institute of Physics, through AIP Publishing.
4. Dr. Vishal Govind Rao (CHM) has been invited to join the Editorial Board of the Journal Communications Materials - Nature.
5. Dr. Arun Shukla (BSBE) has been elected as a Fellow of the Indian Academy of Sciences, Bangalore.
6. Dr. Bushra Ateeq (BSBE) has been elected as a Fellow of the Indian Academy of Sciences, Bangalore.
7. Professor Shalabh (MTH&S) has been invited to become an editorial board member of the Journal of Quantitative Economics.
8. Dr. Arun Shukla (BSBE) has been elected as a Fellow of the National Academy of Sciences, India.
9. Professor S Anantha Ramakrishna (PHY) has been elected as a Fellow of the National Academy of Sciences, India.

10. Professor Dattaraya H Dethe (CHM) has been elected as a Fellow of the National Academy of Sciences, India.
11. Dr. Bushra Ateeq (BSBE) has been elected as a Fellow of the National Academy of Sciences, India.
12. Professor Mahendra K. Verma (PHY) has been elected as a Fellow of the National Academy of Sciences, India.
13. Professor Nitin Saxena (CSE) has been elected as a Fellow of the National Academy of Sciences, India.
14. Professor Abhay Karandikar (Director IITK, EE) has been appointed as member of the Board of Governors of IEEE-Standards Association (IEEE-SA) for a period of two years beginning January 2022.
15. Professor Nitin Saxena (CSE) has been invited to join as a founding editorial board member of Theoretics, a new journal in Theoretical Computer Science.
16. Dr. Amar Agarwal (ES) has been selected as an Associate for the Indian Academy of Sciences, Bangalore.
17. Professor R. R. K. Sharma (IME) has been invited to join the Editorial Board of the Journal, Cloud Computing and Data Science (CCDS) published by Universal Wiser Publisher, Singapore.
18. Dr. Nilesh Umesh Badwe (MSE) has been appointed as an Associate Editor of the Journal Microelectronics Reliability.
19. Dr. Indra Sekhar Sen (ES) has been appointed as an Associate Editor of Geophysical Research Letters for a period 3 years.
20. Professor Sachchida N Tripathi (CE) has been invited to join the Advisory Board of Journal Environmental Science: Atmospheres, published by the Royal Society of Chemistry.
21. Professor Pratik Sen (CHM) has been awarded the Fellowship of the Royal Society of Chemistry (FRSc).
22. Dr. Prakash Chandra Mondal (CHM) has been invited to join the advisory board of the Journal Analyst published by Royal Society of Chemistry (RSC).

23. Professor Kantesh Balani (MSE) has been elected as a Fellow of the ASM International Society.
24. Dr. Anjali Kulkarni, Principal Research Engineer of Mechatronics Lab has been appointed as one of the Editorial Board Members of Journal of Micromanufacturing published by SAGE publications.
25. Professor Kamal K Kar (ME) has been invited to serve as a Member of the Advisory Board of SPE Polymers published by Wiley.

STUDENT AWARDS

1. Arnab Sarkar (PhD/EE) was awarded the third prize in the IEEE-IES Student and Young Professional Competition 2021 - track 1. This is an international competition organized by the IEEE Industrial Electronics Society, which provides a chance for students and young professionals to show their exciting research results.
2. Sakshi Goel (PhD/BSBE) scored the first position in the Life Sciences category in the Saransh, a National Level Science Communication Competition organized by the Indian National Young Academy of Sciences (INYAS). She received a citation and a cash prize. Saransh is a Thesis Competition for PhD students. It is an initiative by the INYAS. This provides a platform for the new generation of budding Indian scientists to communicate their research to the broader population beyond the scientific community.
3. Manoj Kumar's (PhD/AE) paper titled “Effect of low-velocity impact on the failure behaviour of fibre-reinforced polymer composites” has been selected as the best research paper at International Conference on Advancements in Design and Tribology (ICADT- 2021).
4. Prateek Dwivedi (PhD/CHE) received the best oral presentation award in the recently concluded Compflu 2021.

5. Dr Bappa Maji (PhD/HSS) completed a large mural at Fort William, Kolkata, to celebrate the 50 years of the decisive victory in the 1971 Liberation War of Bangladesh. This Mural was commissioned by the Ministry of Defense and the Eastern Command of the Indian Army. The enormous artwork consists of 4 large panels (every 7 feet in height and 10 feet in width). The Mural was formally unveiled on the 16th of December 2021 to celebrate the 50 years of 'Vijay Divas.'
6. Sandarbh Kumar (PhD/BSBE) and Niranjan Chatterjee (PhD/BSBE) won Oral presentation award in NBRCOM. The award includes certificates and a cash prize.
7. Dibyajyoti Panja (PhD/CHM) received the best poster award in “ChemSci2021: Leaders in The Field Symposium” held in JNCASR, as a remote online conference, from 13th to 15th of December, 2021. His Poster Title was “Synthesis of Pyrrole Scaffolds Directly from Nitroarenes, Employing Bio-waste Caffeine Carbon-supported Heterogeneous Cobalt Catalyst”.
8. Apala Banerjee (PhD/EE) was awarded the First Prize in the Best Female Student Paper Category at the recently held International Microwave and RF Conference (IMaRC 2021). IMaRC is the flagship conference of the IEEE Microwave Theory and Techniques Society (MTT-S) which is held annually in India for the international academic, scientific, and industrial community working in the broad areas of RF and Microwave engineering. The title of the paper was "Wireless CSRR Based Planar Sensing System for Sensitivity Evaluation of Dielectric Materials in Nearfield ISM Band".
9. Shyam AB (PhD/EE) was awarded the Best Contributory Paper award at the 9th International Conference on Power Systems 2021.
10. Chandra Kant (PhD/MSE) was awarded the best poster award for his paper "Inkjet Printing of Phosphorescent Emissive Material for Organic Light-Emitting Diodes", presented in the

IWPSD 2021 held between 14th to 17th of December, 2021 at the Indian Institute of Technology Delhi.

11. Aman Deep Gupta (PhD/CE) won the Best Paper Award for his paper titled "Seasonal trends in Bioaerosol load in different microenvironments in IIT Kanpur" at the International Conference on Sustainable Energy and Environmental Challenges (VI SEEC) held in Lucknow from 27th to 29th of December.
12. Mahavir Singh (PhD/ME) won the Best Paper Award at the All-India Manufacturing Technology, Design and Research (AIMTDR) Conference for his paper titled "Large-area surface texturing through electrical discharge micromachining process for inducing hydrophobicity".
13. Ashok Tripathi (PhD/EE) received the best paper award at the 2021 IEEE 6th International Conference on Computing, Communication and Automation (ICCCA) held from 17th to 19th of December, 2021, for his paper titled "Electric Stress Control Using Field-Grading Material Rings on Polymeric Insulators".
14. A paper by Akshat Verma (MTech/CE), Jacklin J. Nilling (PhD/CE), Gaurav Pahuja (MTech/CE), and Ankit Kumar (MTech/CE) got selected as a highlighted article by the journal Environmental Engineering Science.
15. Gobinda Das (PhD/CE) received the "Springer Best Paper Awards" at the "Indian Geotechnical Conference (IGC-2021)", which was held at NIT Trichy in January 2022. The IGC is an annual national organized by the "Indian Geotechnical Society".
16. Aritra Bagchi (PhD/CE) and Sreyashrao S Surapreddy (PhD/CE) received Springer Best Paper Award at the Indian Geotechnical Conference (IGC)2021 for their paper titled, "Sensitivity Study of the Pressure-Dependent Soil Model Based on the AbutmentBackfill Pushover Behaviour" presented under the theme, "Computational, Analytical and Numerical Modelling".
17. Balbir Kumar Pandey (PhD/CE) received the Springer Best Paper Awards at the "Indian Geotechnical Conference (IGC-2021)" for his paper titled, "Influence of Conductive Jute

Geotextile-Encased Stone Column in Soft Clay". The paper was awarded under the theme, "Geosynthetics Applications" at the Conference.

18. Anjali Yadav (PhD/BSBE) was selected for the American Association for Cancer Research (AACR) Global Scholar-in-Training Award (GSITA) for presenting a paper at the AACR Annual Meeting 2022. The travel award included complimentary registration and a cash prize for meeting expenses attend the meeting.
19. Tavishi Mishra (MSR/CE) received the best oral presentation award at the ICESE 2022 conference organized at IIT Bombay.
20. Vaishali Jain (PhD/CE) received the Best paper award (oral) at the ICESE 2022 conference held at IIT Bombay.
21. Pranjal Dutta (BTech/CSE) and Mahesh Rajasree (PhD/CSE) were awarded the best student paper presentation award at CALDAM 2022 for their paper titled "Algebraic algorithms for variants of subset-sum".
22. Anjali Sharma (PhD/IME) received the "Outstanding Student Academic Award" in recognition and appreciation of her Outstanding Academic Performance by IEOM (Industrial Engineering and Operations Management) Society, USA.
23. Mrigank Singh Verma (PhD/CHM) has been awarded the AWSAR award for "Best Popular Science Stories under the PhD category". The story's title is "Gold Nanoparticles and the Ghost of Minamata", and the award carries a cash prize and a certificate.
24. Sujata Dhar (PhD/CE) has been awarded the AWSAR award for "Best Popular Science Stories under the PhD category". The award carries a cash prize and a certificate of appreciation. The title of her story is "Helping our Indian SPACE friend".
25. Surya Manisha Inukonda (PhD/CHE) has been awarded the AWSAR award for "Best Popular Science Stories under the PhD category". The award carries a cash prize and a certificate of

appreciation. The title of her story is "You can control your diabetes rather than let your diabetes control you".

26. Mishal KT (PhD/ES) has received the Best Poster Award at the recently concluded 21st National Space Science Symposium (NSSS). The award carries a certificate of appreciation and a cash prize. He presented his research on "Evolutionary constraints on Permanently Shadowed Regions (PSRs) on the Moon".
27. Garima (PhD/ES) is one of the recipients of this year's LPI career development award, which includes a certificate of recognition and financial support for participation at the prestigious Lunar & Planetary Science Conference (LPSC) in the USA. She presented her research at the Conference on the topic "Mg-Spinel Exposures in the South-Pole Aitken (SPA) Basin: New Insights into the Stratigraphic Relationships, Spatial Distribution and Spectral Varieties".
28. Trina Das (PhD/HSS) has recently earned a Certificate of Excellence and stood first in the Research & Industrial Conclave 2022, held at IIT Guwahati.
29. Anjali Sharma (PhD/EE) has been selected as a poster session awardee at the recently concluded IEEE WRAP conference 2022. The award includes a cash prize.
30. Semayat Fanta (PhD/AE) has received a certificate of Excellence for achieving first position in oral presentation in Research and Industrial Conclave held in Dept. of Mechanical Engineering at IIT Guwahati.
31. Aishwarya Naik (MTech/BSBE) has been awarded for her MTech work titled "Nano-Carbonaceous Gallic Acid Product for Sensing of High Glutathione in Eukaryotic Cells and Triggering of Plausible Cancer Therapeutics".
32. Abhishek Kumar Yadav (PhD/CHM) has been awarded the best poster presentation award at the 28th CRSI National Symposium in Chemistry.

33. Paras Sachdeva (PhD/ECO) has received the best paper award at the 3rd Annual Conference in Economics and Finance, 2022. The award consists of a citation and a cash prize.
34. Haider Ali (PhD/CHE) has received the best oral presentation award in the technical session of the ACES 2022 conference
35. Pratiksha Sarangi (PhD/BSBE) has been selected to deliver a platform presentation at the "XXX Congress of the International Society on Thrombosis and Haemostasis, 2022". She has also been awarded a financial support to present her work entitled "AAV mediated CRISPR/Cas9 based therapeutic gene-editing with a bypass coagulation factor in a murine model of haemophilia".
36. Sujata Dhar (PhD/CE) has been selected for presentation in the 44th COSPAR (Committee on Space Research) Scientific Assembly 16-24th July 2022, Athens, Greece. She has also been awarded financial support to present her work at the Conference. The title of her research work is "Effect of future intensives on short term UT1 predictions.
37. Eshaan Srivastava (PhD/ES) has received an Early Career Research Project Award for his proposal, "Landscape Evolution Marker Online Network" (LEMON) from the International Union for Quaternary Research (INQUA) organization.
38. Saptarshi Ghosh (PhD/EE) has received the Motohisa Kanda Award. The Motohisa Kanda Award is the most cited paper in the IEEE Transactions on Electromagnetic Compatibility in the past five years. The manuscript "Broadband Polarization-Insensitive Tunable Frequency Selective Surface for Wideband Shielding," in IEEE Transactions on Electromagnetic Compatibility, vol. 60, no. 1, pp. 166-172, Feb. 2018 received the highest citations among all the papers published in the last five years (2017-2021) in IEEE Transactions on Electromagnetic Compatibility. The award will be presented at the annual meeting of the IEEE EMC+SIPI Symposium scheduled to be held during August 1-5, 2022

39. Ishan Singhal (PhD/CGS) has been awarded the William James Prize for 2022. The award is given for theoretical and empirical work based on his paper titled "Time and time again: a multi-scale hierarchical framework for time-consciousness and timing of cognition", published in Neuroscience of Consciousness. The Association awards the William James Prize for the Scientific Study of Consciousness. The award will be given during the 25th Annual Meeting of the ASSC in Amsterdam in July 2022, where Ishan will deliver a plenary address. The prize includes a monetary award, support for attending the Conference and lifetime membership.
40. Bandura (MBA/IME) has been awarded the first prize for his research paper presented in the competition held at the Student Research Convention 22.
41. Purva Gupta (PhD/ BSBE), Aman Nikhil (PhD/ BSBE) and Ayushi Mairal (PhD/ BSBE) have received the best poster presentation award at the Conference which was conducted as a part of the SPARC workshop and was jointly organized by IIT Kanpur, SKUAST-Kashmir, and the University of Kashmir and was held at SKUAST-Kashmir and the University of Kashmir in hybrid mode during May 6-7, 2022.
42. Sneha Gupta (PhD/ BSBE) and Chitral Chatterjee (PhD/ BSBE) have received the best poster presentation award at the Conference which was conducted as a part of the SPARC workshop jointly organized by IIT Kanpur, SKUAST-Kashmir, and the University of Kashmir a during May 6-7, 2022.
43. Shreyasi Banik (PhD/CHM) has received the best poster presentation award on the 13th International High Energy Materials Conference & Exhibits – 2022, which was held at TBRL-Chandigarh from 26th to 28th May 2022.

MAJOR PROJECTS SANCTIONED

1. ICMR-DHR-Centre of Excellence (CoE) IIT Kanpur (ICMR)
2. Real-Time Source Apportionment and Forecasting for Advance Air Pollution Management in Delhi (DPCC)
3. Centre For Rechargeable Energy Storage Systems for Augmenting Transportation and Electrification (Create) (SERB)
4. Next Generation Wireless Research and Standardization On 5g And Beyond (MEITY)
5. Next Generation Broadcasting Research (Prasar Bharati)
6. Mutation Independent Gene Therapy (Mint) For Photoreceptor Rescue in Retinal Dystrophies (Wellcome Trust-DBT Alliance)
7. Upgrading DARPG Information Systems with AI Capabilities (DEPARTMENT OF ADMINISTRATIVE REFORMS & PUBLIC GRIEVANCES-GOI)
8. Neural Mechanisms Underlying Impact of Stress Neuromodulators on Decision Making (Wellcome Trust-DBT Alliance)
9. High-Throughput Determination of The Neural Basis of Olfactory Preference (SERB)
10. Establishment of School of International Bio Design (Sib)-Synergizing Healthcare, Innovation and Entrepreneurship (Shine) (DBT)
11. Establishment of Tinkering Labs in Government Secondary Schools of Uttarakhand (Samagra Shiksha Department of Education-Govt of Uttarakhand)
12. DST-Materials Map (DST)
13. Changing The Fate of The Hindon River by Evaluating the Impact of Agriculture on The Water Balance Developing a Template for A Cleaner Ganga River (DST)
14. Wind Tunnel Model Design, Fabrication & Testing of Unmanned Fighter Aircraft (ADE)
15. Instrumentation For Real-Time Measurement of Various Parameters on The Elevated Track Over Viaduct at Rohtak (N.RLY)

16. Integrating UAV Technology with Thermal Infrared and Hyperspectral Imaging for Assessment of Water Quality of Large Water Bodies (SERB)
17. Central Sector Scheme (CSS) MOOC Compliant E-Content Creation NPTEL Phase-IV (TSA Project in Continuation of 2015437) (MHRD)
18. Himalayan Metamorphic CO2 Fluxes to The Atmosphere: Solving the Mystery a Long-Standing Problem (SERB)
19. Understanding The Interaction and Modulation of The Human Complement Receptors by The Pore-Forming Toxins of Staphylococcus Aureus (DBT)
20. Sustainable Organic Farming (Jaivik Yatra) (Prasar Bharati)
21. Archival Content Retrieval Through Audio and Text Query (Prasar Bharati)
22. Automatic Speech Recognition for Speech Subtitling (Prasar Bharati)
23. Engineering Fibers for Fog Harvesting and Interfacial Solar Water Purification (Ministry of Textiles)
24. Solid State Two-Photon Entangled Light Sources Using Superconductor-Semiconductor Interfaces (SERB)
25. Structure, Dynamics and Function of Ccr5-Arrestin Interactions (DBT)
26. UAV And Soil Health Monitoring for Agriculture Applications (UP Govt)
27. Maintaining The Indigenous 5g Test Bed (Department of Telecommunications)
28. Hosting Backup Control Centre of Kesco Scada/Adms/Gis Project at IIT Kanpur (KESCO, Kanpur)
29. Just Transition Research Centre (Stichting SED Funds Netherlands)
30. Enabling Intelligent and Interactive Grievance Analysis at The Ministry of Defence (Ministry of Defence)
31. Source Apportionment Study, Emission Inventory and Carrying Capacity Assessment for Jodhpur City (RSPCB)

32. DST-Bioenergy & H2 Map (DST)
33. Pilot Scale Demonstration of Liquid Phase Sulfonation of Aliphatic, Alkyl Aryl and Aromatic Alkylates (Technithon International Pte Ltd.)
34. Creation Of Secretarial Support at IIT Kanpur (CPCB)
35. Centre Of Excellence in Broadcasting (ONE MEDIA)
36. Large-Scale Multicity Dense Urban Iot Real-Time Air Quality Monitoring Networks in India (Ericsson India Private Limited)
37. DST-Storage Map (DST)
38. Development of Substation Inspection Robot (Power Grid Corporation of India Limited)
39. A Synthetic Antibody Technology Platform to Generate Novel Probes and Potential Therapeutics Targeting the Human Gpcrome (SERB)
40. PPP Mode Industry Projects (Prototype Development Fund (Comet Technologies & Elu Technology Company Limited)
41. Source Apportionment Study, Emission Inventory and Carrying Capacity Assessment for Udaipur City (RPCB)
42. Site Visit and NDT Testing of Under Construction CBT Housing Complex New Delhi (National Buildings Construction Corporation Limited)
43. Development Atmospheric Pressure Plasma System and See the Unique Opportunities in The Field of Printed Electronics Industry & Focused on Developing Application for Its Platform (Comet Technologies & Elu Technology Company Limited)
44. DST-Bioenergy & H2 Map (DST)
45. Providing Guidance on Technical Aspects to RBI (RBI)
46. Damage Mitigation Strategies for Buried Structures in Different Geological Media Under Propagation of Blast Waves from Near Field Explosion (DRDO)
47. Design And Synthesis of Green Insensitive High Energy Density Materials with Fine-Tuned Properties (DRDO)

LAB /FACILITIES DEVELOPED

1. A home-built state of the art super-resolution microscope (STORM/PALM) has been developed. The microscope is able to visualize biological processes at 20 nm spatial and 100-millisecond temporal resolution by the lab (BSBE)
2. Attention and Eye-movement Lab (CGS)
3. Action Lab-A 2d projector-based setup as well as Oculus Rift S HMD based setup along with Ultra leap motion sensors for hand tracking and a Kinect sensor for face tracking (CGS)
4. Bio Signal Lab-Simultaneous recording of physiological signals (CGS)
5. High density EEG Lab (GGS)
6. Virtual reality and movement lab (CGS)
7. Studio with state-of-the-art audio recording facility and musical instruments (EE)
8. MADHAV lab: for audio processing and machine learning (EE)
9. Distributed Control & Decision Laboratory (DCoDe lab) (EE)
10. 5G Testbed lab (EE)
11. Intelligent Wireless networks Lab (EE)
12. 5G+/6G Standardization Lab (EE)
13. Experimental HPT Rock Deformation Laboratory (ES)
14. Geochemistry Laboratory with ICP-MS-MS facility (ES)
15. Crustal Imaging Laboratory (CIL, ES)
16. Rock specimen, thin-section, and sample preparation Laboratory (ES.)
17. Remote Sensing and GIS Laboratory (ES)
18. Language lab, Fine arts lab and HSS research lab (HSS)
19. Climate and Energy Policy Research Lab (CEPRL) (HSS)
20. Just Transition Research Centre (JTRC, HSS)
21. Transient Engine Test Cell (75 kW) for Engine Development, Heated Constant Volume Combustion (ME)
22. Artificial Fog Generating Machine and flow facility (ME)

SOFTWARE DEVELOPED

1. A package of GAP (Groups, Algorithms and Programming) language was developed (PI: Dr Amit Kuber, MTH)
2. GUI and software for hydrocarbon exploration (PI: Dr. Dibakar Ghosal, ES)
3. TreadWill software has been developed by the laboratory for providing digital treatments for mental health problems (PI: Dr. Nitin Gupta, BSBE)
4. A fully automated deep-learning-based architecture is developed for tracking cellular organelles at the single-particle level (PI: Dr. Nitin Mohan, BSBE)
5. Scilab Code for Turbo Coded Single User Massive MIMO [Source Code]. https://doi.org/10.24433/CO.8218725.v1 (PI: Dr. Vasudevan, EE)
6. Industry Standard BSIM-BULK 107.1.0 MOSFET Model (PI: Professor Yogesh Singh Chauhan, EE)
7. Narottam Music Teaching Application (Android and Desktop) (PI: Dr. Vipul Arora, EE)
8. Learning based Monte Carlo methods for generating large lattices (PI: Dr. Vipul Arora, EE)
9. Methods to detect simultaneous Audio Events for Ambient Sound Monitoring (PI: Dr. Vipul Arora, EE)
10. Learning based methods for audio retrieval with audio queries (PI: Dr. Vipul Arora, EE)
11. 1D and 3D Models for Methanol Engine Combustion (PI: Professor Avinash Agarwal, ME)
12. CODEX a Mathematica package to calculate the Wilson Coefficients of **SMEFT** operators Works for single and multiple degenerate heavy field propagators, at tree and one loop level (PI: Dr. Joydeep Chakrobortty, PHY).

TECHNOLOGIES DEVELOPED

1. A technology to analyse the grievances of citizens of India received in the Grievance registration portal - Centralised Public Grievance Redress and Monitoring System (CPGRAMS) based on artificial intelligence and data science has been developed (PI: Professor Shalabh, MTH) and (Dr. Nisheeth Srivastava, CSE)
2. A gas medium and internally heated high pressure temperature rock deformation apparatus (PI: Dr. Santanu Misra, ES)
3. A Vessel and a Method for Purifying Water and Monitoring Quality of Water (PI: Dr. Indrasekar Sen, ES)
4. Development and Commercialization of Ultra-low Noise Figure GaAs LNA for 5G communication (PI: Professor Yogesh Chauhan, EE)
5. Method for Music Teaching (PI: Dr. Vipul Arora, EE)
6. Sensor System for Symbolization of Indian Music (PI: Dr. Vipul Arora, EE)
7. Baseband unit for the Indigenous 5G network (PI: Dr. Rohit Budhiraja, EE)
8. DME Fueled Tractor Engine, M85 Fueled PFI Motorcycle, M15 Fueled Carbureted Motorcycle, 15 Fuelled 3kW and 7 kW SI Engine Gensets (PI. Professor Avinash Agrawal, ME)
   Technologies developed: Two-phase closed thermosyphon based solar desalination system (PI. Professor Sameer Khandekar, ME)