



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम  
National Institute of Technology Sikkim



**Annual Report**  
2022-23



# Annual Report 2022-23



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम  
National Institute of Technology Sikkim

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## INSTITUTE'S VISION

India has the capability and the responsibility to offer the World Science & Technology essentially with sustainability, through philosophy, conscience and value system. NIT Sikkim will play its role.



## INSTITUTE'S MISSION

To develop the students as 'Thinking Engineers' by nurturing them in attaining and enjoying the technical and scientific excellence, global exposure and at the same time in beholding the philosophy and the values for India and the world as a whole.



## Director's Message

In conformity with this idea which forms the very core of our educational philosophy here at NIT Sikkim, I am delighted to present the highlights of our institute's significant efforts, accomplishments, and our current and upcoming ambitions in this Annual Report for the year 2022-23. Over the past year, we have witnessed remarkable progress and growth in both our teaching and research environments. Our focus has not been solely on imparting information but on nurturing critical thinking and intellectual curiosity among our students. In line with this vision, we have made substantial investments in constructing state-of-the-art facilities and ensuring efficient management of our resources. These developments have significantly enhanced the overall learning experience at NIT Sikkim. Our goal has always been to empower our students to become independent thinkers, capable of tackling complex challenges in an ever-evolving world. We take pride in the fact that NIT Sikkim continues to be a magnet for the brightest minds across the country. Our Bachelor's, Master's, and Doctoral programs have not only attracted exceptional students but have also equipped them with the skills and mindset required to excel in their chosen fields. Many of our graduates have found success in both home-grown and international corporations, and some have even ventured to establish their own enterprises, demonstrating the effectiveness of our educational approach. As we move forward, we remain committed to fostering an environment that encourages the pursuit of knowledge, innovation, and critical thinking. The progress of NIT Sikkim on all fronts has been creditable in the past year and I would like to acknowledge the devoted efforts of the faculty, staff, and administration of the Institute towards these goals. I will now present a brief report of the Institute activities this year.

NIT Sikkim remains wholeheartedly dedicated to the comprehensive implementation of the New Education Policy (NEP-2020), which represents a transformative shift in the landscape of education in India. We have embraced the NEP-2020 frameworks across various aspects of our academic ecosystem, including academic requirements, syllabus development, and associated administrative operations. Our commitment to NEP-2020 is reflected in our integrative procedures, which involve expert-supervised engagement with relevant agencies. These deliberations and discussions take place year-round, culminating in forum approvals that ensure the alignment of our educational approach with the NEP-2020 objectives. Over the past two years, NIT Sikkim has expanded its horizons through strategic collaborations. We have signed Memorandums of Understanding (MoUs) with esteemed institutions, including IIT Hyderabad, IIT Bhilai, IIT Delhi, CCCT Chisopani, and NIPER Kolkata, among others. These partnerships are aimed at advancing research and academic projects, fostering innovation, and aligning with the overarching goals of NEP-2020. In response to the evolving educational landscape, NIT Sikkim has introduced





*“It must be remembered that the purpose of education is not to fill the minds of the students with facts...it is to teach them to think”*

~ Robert M. Hutchins



courses that reflect the latest trends and technological advancements. This includes offerings in disruptive technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Quantum Computing. Additionally, we have launched a dedicated course on Entrepreneurship and Start-ups that spans across engineering disciplines, nurturing a culture of innovation and entrepreneurship. One of the key aspects of NEP-2020 is the emphasis on research-based, skill-oriented learning. In line with this vision, we have instituted a professional practice audit course that equips students with essential soft skills. This course motivates our students to leverage technology for addressing real-world social issues, fostering a sense of responsibility and commitment to societal well-being. Furthermore, we have adopted a one-credit course developed by ‘The Art of Living’ organization, which is based on the Lok Vidya philosophy. This course aims to enhance students’ mental, physical, and emotional strength. By providing tools for managing stress and fostering holistic well-being, we are ensuring that our students are not only academically adept but also emotionally resilient.

One of our longstanding aspirations at NIT Sikkim has been to create a dynamic permanent campus equipped with state-of-the-art facilities. We are thrilled to share that we have made significant headway in turning this dream into a reality. The State Government has generously allocated approximately 100 acres of land for this purpose, marking a significant milestone in our journey. In addition to securing the land, we have diligently acquired the necessary suitability and sustainability reports, ensuring that the campus’s development aligns with both environmental and educational standards. The next pivotal step in our pursuit is the Detailed Project Report (DPR) for the construction of the permanent campus. I am pleased to announce that we have completed and submitted this comprehensive DPR to the Ministry of Education (MoE). We are optimistic about receiving the final approval for the DPR in the coming two to three months. Upon securing this crucial approval, we will swiftly move forward with the initiation of construction activities on the designated site. This achievement represents a significant leap forward in our mission to provide an environment conducive to world-class education and research. The new campus will not only enhance the quality of our programs but also offer

an inspiring and modern setting for our students, faculty, and researchers.

We are committed to providing a dynamic teaching-learning environment for our students at NIT Sikkim. To this end, we have undertaken significant renovations of our undergraduate and postgraduate laboratories. These revamped facilities are now equipped with the latest technology to enhance the practical learning experience. In our classrooms, we have integrated Smartboards, projectors, and various other technologies, ensuring that our teaching methods are interactive, engaging, and aligned with modern educational practices. In pursuit of streamlining our administrative and academic processes, we have successfully implemented the Samarth e-Gov ERP Project, which was created by Delhi University and is financially supported by the Ministry of Education, Government of India. This project enables us to efficiently manage student data and academic operations. We initially focused on the Academic, Student Management, and Examination modules and have progressively added other modules to further enhance our capabilities in various aspects of institutional management.

We are thrilled to report that for the 2023 passed-out batch, NIT Sikkim has achieved an impressive placement rate of 83.70%. This remarkable outcome underscores our unwavering dedication to providing our students with opportunities to kickstart their careers. A total of 171 job offers were extended by 100 distinguished companies, reflecting the high regard in which our students are held in the industry. Our students secured placements with an average package of 9.88 LPA, a testament to their calibre and the quality of education they received at NIT Sikkim. The highest package offered stood at an impressive 21.0 LPA, illustrating the immense potential our students possess. This success is a testament to the hard work of our students, the dedication of our faculty, and the unrelenting support of our staff and industry partners. NIT Sikkim remains committed to ensuring that our students are not just academically proficient but also well-prepared for the professional world.

On the 8th of April 2023, NIT Sikkim proudly organized its Fifth Convocation Ceremony at the picturesque Tathagata Tsal, commonly known as the Buddha Park, in Ravangla. This

serene and spiritually uplifting setting served as the perfect backdrop to celebrate the achievements of our graduating students. This year Institute awarded degrees to 19 Ph.D., 36 M.Tech, 15 M. Sc. (Chemistry) and 182 B.Tech. students who have graduated in the year 2022 and 2023.

NIT Sikkim takes pride in its ability to attract exceptional faculty members, many of whom are recognized on a global scale for their invaluable research contributions. Our distinguished faculty plays a pivotal role in shaping the educational experience and fostering a culture of academic excellence within the Institute. In line with our commitment to providing the best possible education to our students, we have undertaken the task of recruiting 12 additional teaching positions across various engineering departments. The advertisement was published and the last date for the receipt of applications was 14<sup>th</sup> August 2023. The entire process will be completed by the end of November 2023.

NIT Sikkim has consistently maintained a strong research legacy over the years, evident through its notable performance across various research indices. In our commitment to advancing knowledge and innovation, all academic departments have successfully completed their admissions to the Ph.D. program for the Even semester of 2023–2024. Our institution has been actively engaged in externally funded research projects, such as the SMDP-C2SD and the Visvesvaraya doctoral program. These projects, sponsored by esteemed bodies like the Department of Science and Technology (DST), Ministry of Electronics and Information Technology (MeitY), Indian Council of Social Science Research (ICSSR), and Ministry of Education Finance & Central Coordination (MoE F&CC), have seen successful completion, while others remain ongoing. Our faculty members routinely field requests to submit research proposals from prominent funding organizations, including the Science and Engineering Research Board (SERB), Department of Biotechnology (DBT), DST, and Indian Space Research Organization (ISRO). The Department of Electronics and Communication Engineering has recently secured two research funds from the Ministry of Electronics and Information Technology (MeitY), Ministry of Education (MoE), and the Defense Research and Development Organization (DRDO). Similarly, the Department of Electrical Engineering has been awarded a research grant for a SERB MATRICS-funded study. The Department of Humanities and Social Sciences and the Department of Physics, two non-engineering departments, each, accomplished their research projects with ICSSR and DST funding, illustrating the diversity in research excellence. In spite of a severe lack of resources, Institute faculty members and research scholars published 76 research articles in esteemed journals, 57 papers at conferences, 11 book chapters, and 1 book during the fiscal year 2023–2024.

The fact that two conference papers received the Best Paper award is noteworthy.

In addition to our academic pursuits, NIT Sikkim actively participates in the flagship programs of the Government of India, contributing to the nation's social, economic, and sustainable development. These programs serve as a testament to our commitment to our broader societal role and impact. Our students are actively engaged in various initiatives such as the Fit India Movement, Ek Bharat Shreshtha Bharat, Swaccha Bharat, Yuva Sangam, Skill India, Stand-up India, Digital India, Make in India, and Pariksha Pe Charcha, among others. These initiatives are not just concepts but actionable missions that we vigorously promote through regional awareness programs. Furthermore, as part of the Government of India's Yuva Sangam 2023 initiative aimed at fostering cultural exchange, students from NIT Rourkela recently visited our campus under the banner of Yuva Sangam 2023. This exchange not only enhances cultural diversity but also promotes the spirit of unity and harmony among students from different regions of the country. In return, we sent our own students to NIT Rourkela, strengthening the bonds of cultural understanding and creating opportunities for cross-cultural learning and collaboration. We are happy to report that the program was a grand success and NIT Sikkim received special recognition.

We have no doubt that we are building a solid foundation and that the Institute will soar to new heights in the coming years thanks to the enthusiastic support of all stakeholders. There remains more to be done to help establish NIT Sikkim as a premier educational institution and to strengthen the commitment to construct a powerful and independent India. However, this only provides a broad overview of the Institute's achievements; the Annual Report 2022–2023 will include more specifics.

I would like to say how much I appreciate the Ministry of Education (MoE) and the Board of Governors' ideas, guidance, and support. My heartfelt congratulations go out to all of the pupils, staff members, and faculty who have laboriously built NIT Sikkim into a hub of academic and scientific brilliance.

With profound regards,

Jai Hind



**Prof. Mahesh Chandra Govil**  
Director, NIT Sikkim

# Introduction

Sikkim is an exotic North-Eastern state nestled in the Eastern Himalayas. Founded in the 17th century as a Buddhist Kingdom by Nyingma lamas, a school of Tibetan Buddhism, Sikkim takes immense pride in its rich and unique cultural heritage.

During its inception, Sikkim was populated by the Bhutias, who migrated from Tibet, as well as the Lepchas, who were the original inhabitants of Sikkim and who are also described as “one of the most primitive communities of the world”. The etymological name of ‘Sikkim’ is derived from two Limbu words: Su meaning ‘new’ and Khyim meaning ‘palace’ or ‘house’. Today, Sikkim has earned international acclaim and recognition by becoming the first 100% Organic State in the world. Earning the title of “Organic State” and being internationally acclaimed has certainly brought laurels to the country. Sikkim added more feathers to its glory as it surpassed 50 other nominated policies to win the Gold Award for its State Policy on Organic Farming (2004) and Sikkim Organic Mission (2010), enabling it to become the first 100% Organic State in the world. The endeavour to win recognition by keeping alive the unique traditional methods of farming in compatibility with the modern mechanism of farming is indeed commendable. Organic farming is considered the agricultural system closest to the traditional Sikkimese way of farming, which is rain-fed with low external inputs and is in complete opposition to the use of chemicals.

The splendour and diversity of Sikkim’s art, literature, rituals, culture, and dance are distinct and unique in its kind. The word ‘Sikkim’ perhaps connotes a mystic land of diverse culture and multifarious ethnic communities existing in oneness and peace. Nepali is the lingua franca of the state, but different communities speak different languages. Sikkim has eleven official languages viz, Nepali, Bhutia, Lepcha, Tamang, Limbu, Newari, Rai, Gurung, Mangar, Sunwar and English. The predominant religions are Hinduism and Buddhism,; however, there are people who also follow Christianity, Islam, and Jainism. The Lepchas consider Munism as their traditional religion, which coexists with Buddhism and Christianity. Perhaps, Sikkim fulfils the concept of unity in diversity by looking beyond the petty rituals of cultural disparity as it embraces the innate primary consciousness of its unique culture and tradition.

Sikkim remained a kingdom for a long time and a protectorate state of India before its merger in 1975 as the 22nd State. The Government of India has ventured to foster innovation and creativity in the North-Eastern States of India. Hence, the Government of India took an important decision to establish such institutions in this region along with other states of India.

NIT Sikkim is an outcome of such endeavour that aims to impart quality technical education to students by providing world-class infrastructure and advanced pedagogical tools.

The National Institute of Technology (NIT) Sikkim is a foremost an educational institution catering to the needs of high-quality technical education in the state of Sikkim. It is one among the ten newly sanctioned National Institutes of Technology by the Government of India through an Act of the Parliament as a part of the 11th Five-year Plan forged in the year 2010. The objective of this establishment is to impart technical education of excellence and quality and also to foster research and development activities in the field of science and technology in order to produce quality human resources. The Government of India has accorded NIT Sikkim the status of “An Institute of National Importance” keeping in view its role in developing human resources of the highest skill and caliber in different fields of science and technology. Governed by the NIT Council, the Institute has four statutory bodies, namely, the Board of Governors, the Finance Committee, the Building and Works Committee and the Senate. The Institute is fully funded by the Ministry of Education, Government of India, New Delhi. The Institute enjoys the full financial and academic autonomy.

Since its inception in August 2010, the Institute is operating from a temporary campus, situated at Ravangla, South Sikkim. Despite various challenges that include but are not limited to extreme climate, poor transport, and small space of the campus, the Institute has been able to mitigate the teething problems and has progressed slowly but steadily in its pursuit of academic excellence. The Institute believes that rural development is essential for a balanced development of the nation; to this end, the Institute makes every possible effort to enable unhindered exchange of knowledge as well as the benefit of science and technology to the poor and underprivileged. The Faculty Members, Staff and Students are engaged in extending help to other academic institutions across the state by being actively involved in social developmental activities. A remarkable feature of the Institute is its endeavour to bestow a sense of societal responsibility and belongingness to the people associated with it. This has paved the way for numerous initiatives by the Students, Faculty Members and Staff of NIT Sikkim for transforming the underprivileged into sound, empowered souls of the Nation.

National Institute of Technology Sikkim started its journey with three (3) Undergraduate Programs in Computer Science & Engineering, Electronics & Communication Engineering, and

Electrical & Electronics Engineering with an intake of thirty (30) students each. At the moment, around thousand (1000) students are enrolled in NIT Sikkim. The Institute offers Undergraduate Programs in Civil Engineering, Computer Science & Engineering, Electrical & Electronics Engineering, Electronics & Communication Engineering, and Mechanical Engineering. Postgraduate Programs are offered in Computer Science & Engineering, Electrical Engineering (Control, Power, and Electric Drives), Electronics & Communication Engineering and Chemistry. The Institute also offers Ph.D. Programs in all Engineering disciplines, Basic Sciences and Humanities.

The Institute believes in the holistic development of students. They are empowered with an insight on inculcating a strong inclination towards co-curricular and extra-curricular activities like technical, cultural, literary and sports events. Under the guidance and able leadership of Staff and Faculty Members, events like *Abhiyantran* – the Annual Technical Event, *Udgam* – the Annual Cultural Event and the Annual Sports have been organized. Such events help in nurturing the young and energetic students of the institute as it tries to accomplish the growth of new ideas in the field of Science and Technology amidst an atmosphere of learning through innovation. An exhibition is held during the technical event where the students display prototype working models. Several workshops on emerging technologies and seminars by experts from industry and academia are organized during the event and otherwise. NIT Sikkim empowers the youth of the country through education

and encourages them to participate in the holistic development of the nation which is an absolute necessity of the time.

As an Institute of higher learning, NIT Sikkim aims to impart technical knowledge, and instills moral values so that the graduating students become good citizens and good human beings benefitting the society and the nation. The Institute is intent on exploring how the cultural diversity and traditional and religious heterogeneity of the state could exert an impact on developing the intellectual capacity of the learners. Embracing such diversities of culture and tradition could lead to the germination of ideas of innovation and excellence and could also sharpen the intellect of the students through a holistic development. Students at the institute have displayed commendable growth as they have adapted to the physical environment of Sikkim with its extremities of weather conditions and diversity in culture. The Institute justifies the meaning of complete learning by developing an aptitude of living in amity with new surroundings. Besides, its natural diversity exposes them to the world of flora and fauna and gradually trains their mind to appreciate nature and acknowledge its value which is a great need for this generation. In this rapidly evolving world of technology and rapid modernization, it is necessary to develop in students a judgement of living with and not without our rich biodiversity. Along with the learning programs offered, the Institute also offers a platform to the students to recognize and protect nature, breaking the myth of technical institutes being oblivious to such needs of preservation of nature and biodiversity.





## Location

Sikkim is an ever-enchanting state with its elegant natural beauty of snowing mountains, luxuriant forests with exotic flora and fauna, pristine waterfalls, sacred lakes, holy caves, medicinal hot springs and gentle streams. The snow-capped greenery with accessible mist and clouds magnifies the spectacular beauty of the place. It boasts of the third highest mountain in the world - Mt. Khanchendzonga which is also revered as the Guardian Deity of Sikkim. NIT Sikkim, since its inception in the year 2010, has been functioning from a temporary campus which is situated at Ravangla in South Sikkim.

Ravangla or Rawangla or Ravongla is a small town situated at an elevation of eight thousand (8000) ft in Namchi district of the Indian state of Sikkim. It experiences the Himalayan or high mountain type of climate where the weather fluctuates with altitude as well as snow and ice in the elevated areas. Ravangla witnesses snowfalls during winter which can dip the temperature to sub-zero levels. The serene, tiny semi-urban agglomeration is situated at 80 kms from Gangtok, the capital city of Sikkim. This small town has been widely acclaimed for the construction of a one hundred and thirty (130) feet high statue of Lord Gautam Buddha at 'Buddha Park'.

The nearest railway station from the campus is New Jalpaiguri Railway Station, West Bengal which is approximately one hundred and eighteen (118) kms away from the campus. Air connectivity is available from Bagdogra & Pakyong Airport which are approximately one hundred and thirty-two (132) kms & seventy-four (74) kms respectively away from the Campus. The Institute has been successfully carrying out academic and research activities from the temporary campus confronting various obstacles placed by its physiography and other factors.

## Campus

National Institute of Technology Sikkim at Ravangla is based on a campus that initially served as a 'Residing/ resettlement Camp for Tibetan Refugees.' This Refugee Camp posed several teething challenges in getting transformed into a campus of 'An Institute of National Importance'. However, the Institute has carved a niche by establishing a name and reputation despite the limited resources that it had at its disposal. In overpowering such hurdles of limited resources and hardships of space and environment through strong determination and reformative measures NIT Sikkim is definitely an inspiration.

The town of Ravangla is located at a distance of just 2.5 kms from the campus. Though the town offers essential utilities and services such as Banks, Post Offices and a Primary Health Centre, being a small town it has limited amenities and Health Care facilities. The Institute boasts of a picturesque location with abundance of natural and scenic beauty. Kanchenjunga, Mt. Pandim, Mt. Siniolchu, Mt. Kabru are just a few of the major peaks that are clearly visible from Ravangla. The climate at this place is severe and extremely unpredictable, largely due to the variation in altitude. Moreover, the remote location and inadequate infrastructure pose huge challenges to the management of the Institute from its temporary campus.

NIT Sikkim has invested arduous effort to renovate existing structures into instructional buildings, administrative blocks, hostels, residence for Faculty and Staff etc. by compromising the size of each building so as to accommodate different branches of learning within the limited space. It is to be noted that due to the locational disadvantages, poor infrastructural facilities and minimum required living amenities in the campus and in Ravangla town such as improper housing facility, lack of medical facility, schools, and other basic essential services, retention of Faculty and Staff has been a huge challenge before the Institute administration. The numbers of Faculty and Staff leaving the Institute have been increasing over the years; however, in last few years the institute has been trying hard to retain good Faculty and Staff in the Institute by providing some basic living facilities knowing fully well that even it would not be as per the minimum standards.

The Institute, within its limited campus area, is equipped with outdoor playgrounds, medical unit, and gymnasium for boys and girls along with other obligatory establishments. The present temporary campus of the Institute fails to accommodate all the students within the Institute premises, due to the increase in student intake. Therefore, the Institute has hired several well-



constructed and semi-furnished buildings in Ravangla town and are using them as Hostels. The Institute has a total of fourteen building blocks which accommodate eight hundred and forty-six students in one hundred and seventy-three rooms utilized as Boys' Hostel & Girls' hostels. Four building blocks which consist of twenty-four apartments are utilized as faculty and staff quarters.

A separate well-built Academic Building consisting of Classrooms, Computer Laboratory, Faculty Rooms and the Office of the Dean Student Welfare and the Dean Academic finds place within the campus. The first ever supercomputer in Sikkim "Param Kanchenjunga" is also situated in the Old Academic Building. The Training and Placement Cell of the Institute is also housed in the same Block. However, the Supercomputer Center is now old and is in need for upgradation. The classrooms are now converted into smart classrooms and are equipped with room heaters and projectors.

The Administrative Building of the Institute has been recently renovated and houses the Director's Office and Secretariat, the Registrar Office, Office of the Dean Administration, Accounts Section, Conference /

Meeting Room, Examination Cell and a Pantry Room. Adjacent to the Administrative Building a Central Store and offices of Executive Engineer, Junior Engineer Civil and Electrical is now fully functional.

The Institute in previous years was unable to provide even the basic Laboratory facilities compelling the students to travel to distant educational institutions for completing their Laboratory Courses. As Laboratories form the crux of the curricula of any technical institution, the Institute has created sheds and is able to increase the build-up space in the temporary campus to mitigate the problem of paucity of space for Laboratory facilities and classrooms. But considering the overall growth of the institute and the desire of the Ministry to branch out the various wings associated with the same, these temporary changes fall well short of the necessary requirements. The temporary campus hinders the growth of the Institute. The establishment of the permanent campus for the Institute is the only viable solution to these long pending issues. A permanent campus with state-of-the-art facilities and World Class Infrastructure will not only take the Institute to new heights but also will aid in human capital formation and steer our students towards becoming world leaders.

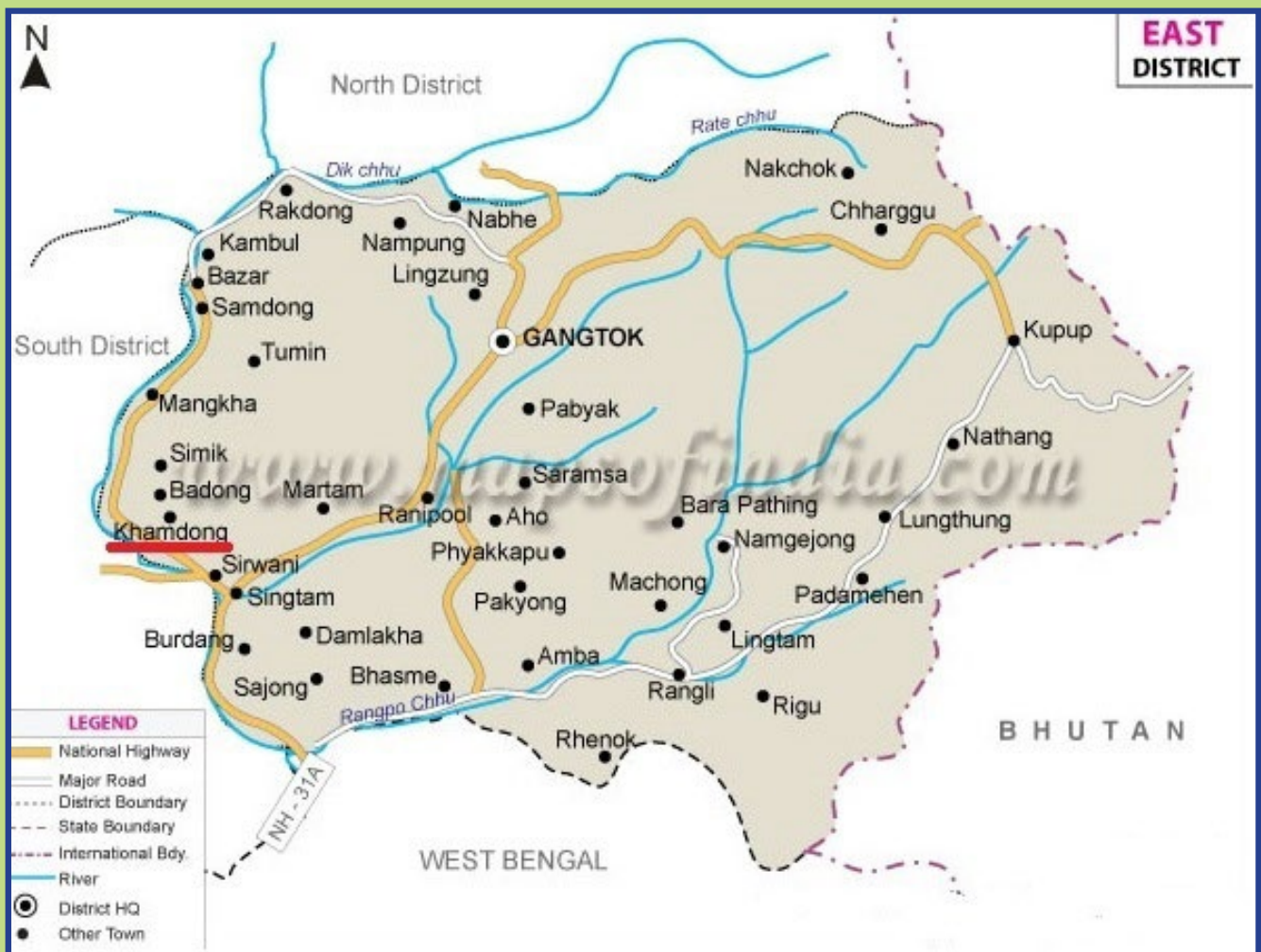


## Permanent Campus- Status and overview

Since its inception in 2010, NIT Sikkim is operating from a temporary campus, and after over 12 years of continuous efforts by the stake-holders of the Institute, the State Government of Sikkim has handed over nearly 100 acres of land for the construction of permanent campus of NIT Sikkim.

The site is located at a height of 1120 meters in the lower Himalaya with the Teesta River flowing through its western side. The nearest town from the site is Singtam, East Sikkim. The area is covered with dense forested area with moderate deciduous woods of poplar, birch, oak and elm as well as evergreen coniferous trees from the moist alpine zone.

The final DPR for construction of the permanent campus has been prepared and submitted to the ministry on 24<sup>th</sup> April 2023.



The Summary of the total estimated cost for the construction of the permanent campus is given below: -

ORIGINAL APPROVAL OF CABINET IN 2009	RCE AS PER REVISED DPR (Rs in Crore)			
	Civil Works (Capital)	Equipment and Furniture	Recurring Expenditure	Total
250 (No Bifurcation Provided)	632.46	103.32	257.91	993.69



Like all NITs, the Permanent campus of NIT Sikkim will be fully residential with hostels, staff quarters, sports facilities and common facilities like Lecture hall complex, student activity center, guest house, Library Building & ICT etc.

A good infrastructure plays an important role in the holistic development of students. The state-of-the-art infrastructure of the new campus, well-equipped labs, and well-ventilated classrooms will indeed motivate the young aspiring students and the teachers alike in their studies, research and innovation. The new campus will house roughly 1260 students, 105 teaching staff and 116 non-teaching staff members. The map below shows the allotted land and the various buildings to be built in the permanent camps of NIT Sikkim.

The establishment of the permanent campus with state of art facilities and world class infrastructure will take the Institute to the new heights and aid in human capital formation and steer the aspiring students in becoming world leaders.



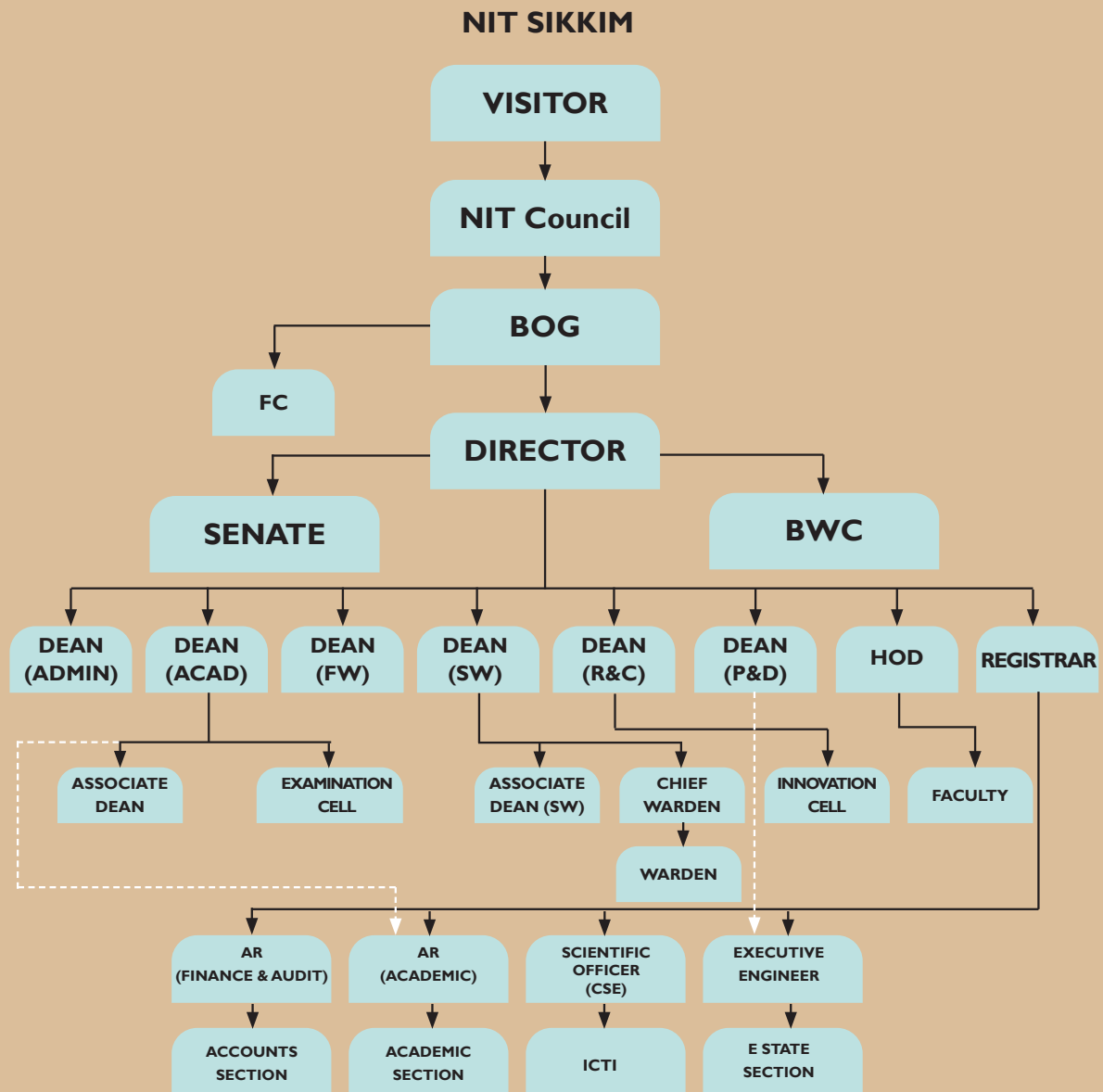
The foundation stone for the permanent campus of NIT Sikkim was laid by the Hon'ble President of India on 4th November 2022.)



# Administration

NIT Sikkim is an autonomous institution under the Government of India since 2010. As per NITSER Act 2007, the Institute is headed by a Director and administered by a Board of Governors. In the Board, there are representatives from the Government of India, the Government of Sikkim, industries, other institutions and the faculty members. The Director is the Principal Academic and Executive Officer of the Institute. He is assisted in his day-to-day work by Deans, Heads of the different Departments, Professor-in-Charges, Registrar and other officers and various committees of the Institute.

## Organizational Structure



The Institute provides certain opportunity to students to administer their own affairs affecting the co-curricular residential and recreational activities through various committees, such as Institute Canteen Committee, Student’s Aid Welfare Committee, Hostels and Mess Committee etc.

## Recruitment Drive- Teaching Positions

The 4<sup>th</sup> recruitment process for regular faculty positions was conducted from 14<sup>th</sup> December 2022 to 17<sup>th</sup> December 2022, following the prescribed recruitment rules laid down by the Ministry of Education and the recommendation of the Anomaly Committee received till date. A total of 26 teaching positions were filled in various cadres and at present, only 12 vacancies are remaining in the teaching cadre.

# THE BoG AND OTHER ADMINISTRATIVE COMMITTEES

## BOARD OF GOVERNORS

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### Joint Secretary & Financial Advisor,

Department of Secondary & Higher  
Education, MoE  
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### NIT Council Nominee – 1 (Vacant)

### NIT Council Nominee (Woman) – 2 (Vacant)

### Director IIT Guwahati/His Nominee

Director, IIT Guwahati  
Email: director@iitg.ac.in

### Dr. Ranjan Basak

Registrar (I/c) & Secretary, NIT Sikkim  
Ravangla, South Sikkim  
Email: registrar@nitsikkim.ac.in

## FINANCE COMMITTEE

### **Prof. Mahesh Chandra Govil**

Director, NIT Sikkim  
Ex-officio Member-cum Chairman  
Email: director@nitsikkim.ac.in  
govilmc@gmail.com

### **Shri G.P. Upadhyaya IAS**

BoG Nominee,  
Additional Chief Secretary,  
Govt. of Sikkim  
Email: gpupadhyaya@gmail.com

### **Dr. Sourav Mallick**

BoG Nominee,  
Associate Professor  
Department of Electrical and  
Electronics Engineering  
Email: s.mallick@nitsikkim.ac.in

### **Joint Secretary or his/ her Nominee**

Government of India  
Department of Secondary & Higher  
Education, Ministry of Education  
Shastri Bhawan, New Delhi – 110  
001  
Email: nit.edu@nic.in

### **Joint Secretary and Financial Advisor**

Department of Secondary and  
Higher Education,  
Ministry of Education  
Shastri Bhawan,  
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### **Dr. Ranjan Basak**

Registrar (I/c) & Secretary, NIT  
Sikkim  
Ravangla, South Sikkim 737139  
Email: registrar@nitsikkim.ac.in

## BUILDING AND WORKS COMMITTEE

### **Prof. Mahesh Chandra Govil**

Director, NIT Sikkim  
Ex-officio Member-cum Chairman  
Email: director@nitsikkim.ac.in

### **Shri Manish Kumar Jindal**

Chief Executive Officer (CEO),  
Quality Control of India  
Email: manishjindal.hsbte@gmail.  
com

### **Shri Raj Kamal Mittal**

Jt. Director General, CE Central  
Command, Lucknow  
Email: rkmittal123@gmail.com

### **Dr. Aurobinda Panda**

Dean Planning and Development,  
NIT Sikkim  
Email: dpd@nitsikkim.ac.in

### **Dr. Ranjan Basak**

Registrar (I/c) & Secretary, NIT  
Sikkim  
Ravangla, South Sikkim 737139  
Email: registrar@nitsikkim.ac.in

## MEMBERS OF THE SENATE

<b>A</b>	<b>Director</b>	
	<b>Prof. Mahesh Chandra Govil</b> Director, NIT Sikkim, Ex-officio Chairman	Chairman
<b>B</b>	<b>External Members</b>	
	<b>Prof. Adrijit Goswami</b> Department of Mathematics, IIT Kharagpur	Member
	<b>Prof. Nupur Tandon</b> Dept. of Humanities & Social Science, MNIT Jaipur	Member
	<b>Prof. Lalit Kumar Awasthi</b> Director, NIT Jalandhar	Member
	<b>Prof. Virendra Singh</b> Department of Electrical Engineering, IIT Bombay	Member
<b>C</b>	All HoDs & Deans, NIT Sikkim	Member
<b>D</b>	<b>Dr. Ranjan Basak</b> Registrar (I/c), NIT Sikkim	Secretary

## REGISTRAR

### Dr. Ranjan Basak

Registrar (I/c) & Secretary

NIT Sikkim, Ravangla, South Sikkim 737139

Email: registrar@nitsikkim.ac.in

## DEANS & HoDs

<b>Dean Administration</b>	Dr. Achintesh Narayan Biswas
<b>Dean Faculty Welfare</b>	Dr. Dhananjay Tripathi
<b>Dean Academic</b>	Dr. Ranjan Basak
<b>Dean Student Welfare</b>	Dr. Sourav Mallick
<b>Dean Research &amp; Consultancy</b>	Dr. Pratyay Kuilyay
<b>Dean Planning &amp; Development</b>	Dr. Aurobinda Panda
<b>Associate Dean Academic (PG)</b>	Dr. Molay Roy
<b>HoD Computer Science and Engineering</b>	Dr. Sangram Ray
<b>HoD Electronics and Communication Engineering</b>	Dr. Sanjay Kumar Jana
<b>HoD Electrical and Electronics Engineering</b>	Dr. Aurobinda Panda
<b>HoD Mechanical Engineering</b>	Dr. Anil Lal S
<b>HoD Civil Engineering</b>	Dr. Joy Pal
<b>HoD Mathematics</b>	Dr. Ravi Srivastava
<b>HoD Physics</b>	Dr. Md. Nurujjaman
<b>HoD Chemistry</b>	Dr. Achintesh N. Biswas
<b>HoD Humanities and Social Sciences</b>	Dr. Dhananjay Tripathi

## FACULTY-IN-CHARGE<sub>s</sub> (FIC<sub>s</sub>)

Sl. No.	Name of the Committee/ Cell/ Section	Faculty in-Charge
1	Examination Cell	Dr. Sumit Saha
2	Health Care Services	Dr. Om Prakash
3	Games and Sports	Dr. Sambhunath Barman
4	Cultural Activities	Dr. Richa Mishra & Dr. Kriti Tewari
5	Central Library	Dr. Taraknath Kundu
6	Entrepreneurship and Innovation Cell	Dr. Hemant Kr. Kathania
7	External Relations and Outreach Activities	Dr. Anindya Biswas
8	Training and Placement Cell	Dr. Dhananjay Tripathi
9	Store and Purchase Section	Dr. Aurobinda Panda
10	Alumni Affairs Cell	Dr. Sangram Ray
11	ICTI (FIICTI shall be the Convener/Chief Coordinator)	Dr. Pratyay Kuila, Coordinator, Computing Devices Dr. Md. Sarfaraj Iam Ansari, Coordinator, Campus Wide Networking Dr. Pankaj Kr. Keserwani, Advisor, Institute Website Development & Maintenance Mr. Gajendra S. Shekhawat, Coordinator, Institute Website Development & Maintenance
12	Publication and Printing	Dr. Dhananjay Tripathi
13	Community Development and Awareness Programme (CDAP)	Dr. Pankaj Kr. Keserwani
14	Promotion of Indian Language	Dr. Dhananjay Tripathi
15	Vehicle and Transport Management Cell	Dr. Sourav Mallick
16	Landscaping, Gardening and Environmental Protection Cell	Dr. Anjan Kumar Ray
17	Chief Warden	Dr. Ravi Srivastava
18	Swachh Bharat Abhiyan and Fit India Movement	Dr. Om Prakash
19	Fit India Movement and Ek Bharat Shrestha Bharat	Dr. Sanjay Kumar Jana Dr. Pratyay Kuila
20	Outsource Manpower	Dr. Rewa N. Sharma
21	Estate - Electrical	Dr. Pradeep Kumar
22	Estate - Civil	Mr. Rewa N. Sharma
23	Annual Report	Dr. Dhananjay Tripathi

## INTERNAL COMPLAINTS COMMITTEE

### Committee Members

1.	Dr. Reshmi Dhara,	Presiding Officer
2.	Dr. Nupur Tandon,	External Member
3.	Mr. Jaslal Pradhan,	External Member
4.	Dean Student Welfare,	Member
5.	Dean Faculty Welfare,	Member
6.	Ms. Chandra Kumari Rai,	Member
7.	Mrs. Nishita Chettri	Member

## Faculty and Staff Details

All of the Institute's faculty members are qualified, and committed to the overall development of the students. The faculty members at NIT Sikkim have Ph.D. or D.Phil. degrees in a variety of academic disciplines. Out of the thirty-eight (38) sanctioned teaching staff positions, the Institute has twenty-six (26) permanent faculty members currently engaged in the Institute. With the increase in student intake during the last few years, the present student intake is 960 (excluding the Ph.D. students) and the faculty student ratio is 1:37, which is way higher than the prescribed ratio of 1:12. Therefore, there is an urgent need for additional forty-two (42) faculty positions.

As the Institute is currently operating from a remote location in a temporary campus which lacks basic amenities like proper medical facility, accommodation, and proper schooling etc., retaining and recruiting quality teaching personnel has become a major challenge. Despite the shortcomings of a temporary campus, NIT Sikkim is making strenuous efforts to provide adequate facilities to students to maintain the quality of learning.

Despite the various challenges, the faculty members of NIT Sikkim have contributed to 91 journal papers, 34 conference papers, 20 book chapters, and one book in 2020-21. During the year 2021-22, the faculty members

and research scholars of the Institute have published 106 research articles in prestigious journals, 61 papers in conference proceedings, 10 book chapters and one book.

The research activities encompass multiple and diverse areas such as Geopolymer Composites, Sustainable Concrete, Green Materials, Waste Based Building Materials, Ground Water and wastewater treatment, Slope stability, unsaturated soil mechanics, dynamic analysis, Evolutionary Algorithms, Soft Computing, Cryptography And Information Security, Wireless communication, Digital Communication, Antenna development (Ultra-Wideband, MIMO, 5G etc.), Ground Penetrating Radar, Power System Operation, Control Systems, Multi-robot Coordination, Twentieth Century Fiction, Indian Writing in English, Spectral Graph Theory, Numerical Linear Algebra, Production Planning and Inventory Control (Operational Research), Experimental & Numerical Heat Transfer and Computational Fluid Dynamics, Machine Design, Echonophysics, Experimental nonlinear dynamics, Data assimilation, Quantum information and its interface with many-body physics, Synthetic Organic Chemistry, Bio-inorganic Chemistry. The current composition of the faculty members engaged in a regular capacity are as appended below: -

Cadre	Sanctioned Post as per Four-Tier flexible Cadre norms	In position Faculty
Assistant Professor	23	12
Associate Professor	15	14
Professor	00	00
Total	38	26

## List of Faculty Members

S.No.	Name	Department
1	Dr. Sangram Ray	Computer Science and Engineering
2	Dr. Pratyay Kuila	
3	Dr. Md. Sarfaraj Alam Ansari	
4	Dr. Pankaj Kumar Keserwani	
5	Dr. Sanjay Kumar Jana	
6	Dr. Hemant Kumar Kathania	Electronics & Communication Engineering
7	Dr. Reshmi Dhara	

S.No.	Name	Department
8	Dr. Anjan Kumar Ray	Electrical & Electronics Engineering
9	Dr. Sourav Mallick	
10	Dr. Aurobinda Panda	
11	Dr. Pradeep Kumar	
12	Dr. Molay Roy	
13	Dr. Nimai Charan Patel	
14	Dr. Shambhunath Barman	Mechanical Engineering
15	Dr. Ranjan Basak	
16	Dr. Anil Lal S	
17	Dr. Jai Gopal Gupta	Civil Engineering
18	Dr. Joy Pal	
19	Dr. Dhananjay Tripathi	Humanities & Social Sciences
20	Dr. Ravi Srivastava	Mathematics
21	Dr. Om Prakash	
22	Dr. Md. Nurujjaman	Physics
23	Dr. Anindya Biswas	
24	Dr. Taraknath Kundu	
25	Dr. Achintesh Narayan Biswas	Chemistry
26	Dr. Sumit Saha	

Moreover, as the infrastructure of the Institute and the number of activities in both Academics and Administration have increased significantly, working with temporary / ad-hoc staffs in the Officer's Cadre may invite several challenges in the future and hamper the proper functioning of the Institute. A significant lack in the number of staff has resulted in poor management of different sections of the institute like Accounts, establishment, Academics, Store and Purchase, etc. Therefore, to ensure proper functioning of the Institute, the Institute has sent repeated requests to the Ministry of Education, Government of India, to sanction at least Fifty-one (51) additional Non-Teaching positions as detailed below. The present sanctioned strength is only thirty-seven (37).

S.No.	Cadre	Post Sanctioned
1	Registrar	01
2	Deputy Registrar	00
3	Assistant Registrar	02
4	Librarian	00
5	Deputy Librarian	00
6	Assistant Librarian	00
7	Senior Students Activity & Sports Officer / Assistant Engineer	00
8	Students Activity & Sports Officer	00
9	Scientific Officer / Technical Officer	01
10	Executive Engineer	01
11	Medical Officer	00
12	Technical Assistant / Junior Engineer / SAS Assistant / Nurse	09
13	Superintendent / Accountant	03
14	Personal Assistant	00
15	Technician / Laboratory Assistant / Work Assistant	10
16	Senior Technician	00
17	Senior Assistant	00
18	Junior Assistant	06



S.No.	Cadre	Post Sanctioned
19	Stenographer	00
20	Pharmacist	00
21	Multi-Tasking Staff/ Office Attendant/ Lab Attendant	04
Total		37

## List of Staff Members

S.No.	Name	Designation
1	Mr. Ram Prasad Nepal	Assistant Registrar, Academics
2	Mr. Sahil Minda	Assistant Registrar (Finance/Audit)
3	Mr. Gajendra Singh Shekhawat	Scientific Officer
4	Mr. Rewa Nath Sharma	Executive Engineer (Estate, Civil)
5	Mr. Rahul Kumar Byahut	Accountant, Accounts Section
6	Miss. Chandra Kumari Rai	Accountant, Accounts Section
7	Mr. Vishnu Kumar Sharma	Superintendent
8	Mr. Amit Tamang	Technical Assistant, ECE
9	Ms. Deepika Chettri	Technical Assistant, EEE
10	Mr. Bhaskar Bhattarai	JE/TA (Estate, Civil)
11	Mr. Amrit Sharma	JE, (Estate, Electrical)
12	Ms. Saheli Saha	JE, (Estate, Civil)
13	Mr. Sumit Kumar	Technical Assistant, CE
14	Mr. Pawan Kumar Kathaniya	Technical Assistant, EEE
15	Mr. Anil Gurjar	Technical Assistant, EEE
16	Mr. Suneel Kumar Kushawaha	Technical Assistant, ME
17	Mrs. Chandrama Majumdar	Lab Assistant, CHEM
18	Mr. Tapan Chhetri	Lab Technician, CSE
19	Mr. Sidharth Pradhan	Lab Assistant, ECE
20	Mr. Manish Kumar	Lab Technician, EEE
21	Mr. Amit Maity	Technician, ME
22	Ms. Chanda Moktan	Technician, Civil
23	Mr. Suman Pathak	Lab Assistant, CHEM
24	Mr. Happy Mondal	Lab Assistant, PHY
25	Mr. Mahaveer Gurjar	Technician, EEE
26	Mr. Saikat Mistry	Technician
27	Mr. Bapi Mondal	Junior Assistant, Director Office
28	Mrs. Nishita Chettri	Junior Assistant, Registrar / Estb. Office
29	Mr. Bharat Pradhan	Junior Assistant, Accounts Section
30	Ms. Tshering Zangmo Bhutia	Junior Assistant, (SW)
31	Ms. Sonam Choden Tamang	Junior Assistant, (AA)
32	Mr. Rajesh Kumar Gupta	Junior Assistant, Registrar Office
33	Mrs. Punam Singh	MTS,
34	Mr. Arvind Gupta	Office Attendant (Accounts)
35	Ms. Dil Kumari Chettri	Lab Attendant
36	Mr. Bhavesh Chettri	Office Attendant, Director Office

**ACADEMIC  
PROGRAMS  
AND AWARD OF  
DEGREES**



# 1. Academic Programs

The Institute offers Four-year Undergraduate Programs leading to the Bachelor of Technology (B.Tech.) Degree in five disciplines, Two years Full-time Postgraduate Programs in specialized areas in the field of Engineering and Science leading to the Master of Technology (M. Tech.) and Master of Science (M.Sc.) Degrees. Similarly, Full-time/Part-time Research Programs leading to Ph.D. Degree in the areas of Engineering/Technology/Sciences/Humanities and Social Sciences are also offered.

**Table-I: Department wise Programs offered**

S. No	Departments	UG Programs	PG Programs	Ph.D. Programs
1	<b>Civil Engineering</b>	B.Tech. in Civil Engineering		
2	<b>Computer Science &amp; Engineering</b>	B.Tech. in Computer Science & Engineering	M.Tech. in Computer Science & Engineering	Ph.D. in Computer Science & Engineering
3	<b>Electronics &amp; Communication Engineering</b>	B.Tech. in Electronics and Communication Engineering	M.Tech. in Microelectronics and VLSI Design	Ph.D. in Electronics & Communication Engineering
4	<b>Electrical and Electronics Engineering</b>	B.Tech. in Electrical and Electronics Engineering	M.Tech. in Electrical Engineering (Control, Power and Electric Drives)	Ph.D. in Electrical and Electronics Engineering
5	<b>Mechanical Engineering</b>	B.Tech. in Mechanical Engineering		Ph.D. in Mechanical Engineering
6	<b>Chemistry</b>		M.Sc. in Chemistry	Ph.D. in Chemistry
7	<b>Mathematics</b>			Ph.D. in Mathematics
8	<b>Physics</b>			Ph.D. in Physics
9	<b>Humanities and Social Science</b>			Ph.D. in English

These Programs are planned and overseen by the Senate of the Institute. The Senate is the highest academic decision-making body of the Institute. The Senate is assisted by the Senate Standing Committee (SSC), the Senate Undergraduate Board (SUGB), and the Senate Postgraduate Board (SPGB) which also help in implementing the decisions of the Senate. The Programs are periodically reviewed by the departments in consultation with the Expert Committees constituted by the Senate. The Expert Committees review and moderate the curriculum, syllabi, evaluation process, etc. of the Programs. The medium of instruction and evaluation of all the Programs are done in English. All the Academic activities are carried out as per the Academic Calendar approved by the Senate.

There was a delay in new admission for UG and PG programs by two-three months as compared to the normal situation, through Centralized Counselling for M.Tech. (CCMT), Centralized Counselling for M.Sc. (CCMN) and Central Seat Allocation Board (CSAB) 2022.

## 1.1. Admission Procedure:

**Bachelor of Technology (B.Tech.):** Admission to the B.Tech. Programs is done as per the Common Policy of the Government of India for CFTIs/NITs, based on merit in a National Level Test, namely, Joint Entrance Examination (JEE) Mains, conducted by the National Testing Agency (NTA). The seats are allocated by the Joint Seat Allocation Authority (JoSAA)/ (CSAB) with 50% of the sanctioned seats filled under Home state quota from the state of Sikkim and the remaining

50% from candidates of other States, purely based on merit/ranking in JEE Main Examination through a Centralized Counseling System devised by the MoE, Govt. of India. Furthermore, a specified number of seats for foreign nationals/NRIs, selected under the policy laid down by Govt. of India (DASA/ICCR, etc.), are reserved for direct admission to 1<sup>st</sup> year of the Programs. Seats are also reserved for candidates belonging to the Scheduled Castes, Scheduled Tribes,

Persons with Disabilities (PwD), Other Backward Classes and Economically Weaker Sections as per the guidelines issued by the MoE.

**Master of Technology (M.Tech.):** The Admission to M.Tech. Degree Programs for the GATE qualified candidates are made through a Common Admission Process called Central Counseling for Masters' of Technology (CCMT). The Admission for Sponsored candidates from the Government Organizations/Industry/CFTIs etc., through a Test/Interview/GATE Score, on full-time basis, are also available. Sponsored candidates in M.Tech. Programs are not eligible to receive scholarship even if they qualify for GATE. Seats remaining

vacant after the CCMT allocation are filled through an Institute Admission Test (IAT) conforming to the eligibility criteria set by the CCMT.

**Master of Science (M.Sc.):** The Admission to the M.Sc. Course is made based on the IIT-JAM score through the process of Centralized Counseling for M.Sc. in NITs (CCMN). Seats remaining vacant after the CCMN allocation are filled through an Institute Admission Test (IAT) conforming to the eligibility criteria set by the CCMN.

**Doctoral Programs (Ph.D.):** Admissions to Ph.D. Programs (Regular/Part-time/Sponsored) are done through Institute Level Test/ Personal Interview conducted by the respective Departments.

## 1.2 Admission Data 2022-23:

Table-2: Students Admitted in the Academic Year 2022-23

S. No	Departments	B.Tech.		M.Tech.		M.Sc.		Ph.D.
		Intake Strength	Actual Admission	Intake Strength	Actual Admission	Intake Strength	Actual Admission	Actual Admission
1	Civil Engineering	30	28					
2	Computer Science and Engineering	40	39	22	0			11
3	Electronics & Communication Engineering	30	29	22	0			5
4	Electrical and Electronics Engineering	30	26	22	1			4
5	Mechanical Engineering	30	30					2
6	Chemistry					17	10	4
7	Physics							3
8	Mathematics							3
9	Humanities and Social Science							1
<b>TOTAL</b>		<b>160</b>	<b>152</b>	<b>66</b>	<b>01</b>	<b>17</b>	<b>10</b>	<b>33</b>

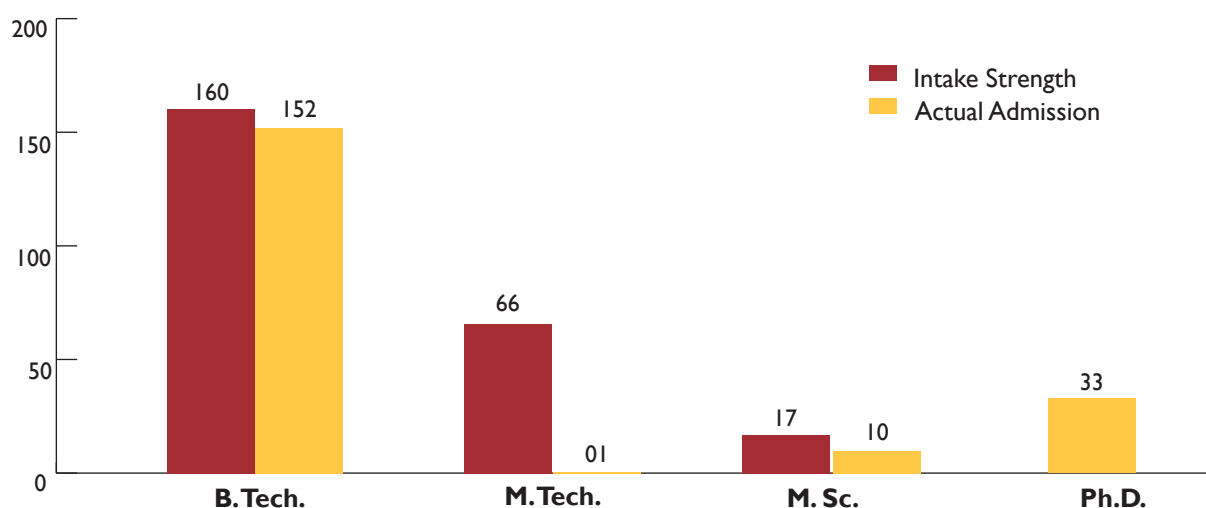


Table-3: Category and Gender wise breakup of Admission in the Academic Year 2022-23

Programs	Departments	Actual Admission in 2022-23	Category						Gender		Special Category
			SC	ST	OBCNCL	EWS*	GEN	Total	Male	Female	PwD
B.Tech.	CE	28	4	9	9	NA	6	28	23	5	0
	CSE	39	8	3	14	NA	14	39	32	7	1
	ECE	29	6	2	9	NA	12	29	22	7	0
	EEE	26	4	2	11	NA	9	26	21	5	0
	ME	30	6	1	12	NA	11	30	25	5	0
M.Tech.	CSE	00	0	0	0	NA	0	0	0	0	0
	ECE	00	0	0	0	NA	0	0	0	0	0
	EEE	01	0	0	0	NA	1	1	0	1	0
M.Sc.	Chemistry	10	2	2	2	NA	4	10	5	5	0
Ph.D.	All Dept.	33	2	1	10	NA	20	33	24	9	0
<b>TOTAL</b>		<b>196</b>	<b>32</b>	<b>20</b>	<b>67</b>	<b>NA</b>	<b>77</b>	<b>196</b>	<b>152</b>	<b>44</b>	<b>1</b>

\*Reservation of EWS to the Admission in B.Tech, M.Tech & M.Sc. Programs in the year 2022-23 were not considered as it is exempted for the NIT Sikkim by the MoE.

Chart-2: Category wise percentage of admission in 2022-23 across the programs

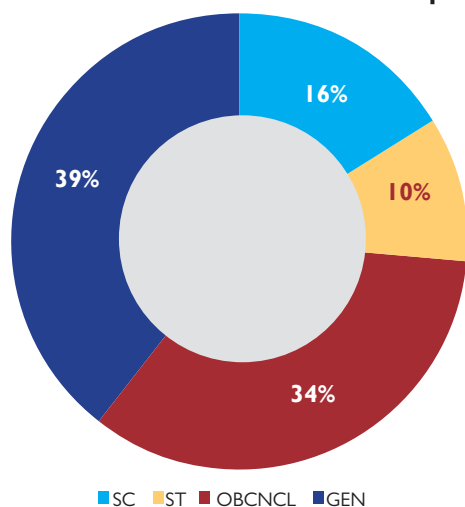


Chart-3: Gender wise distribution of Students admitted in 2022-23

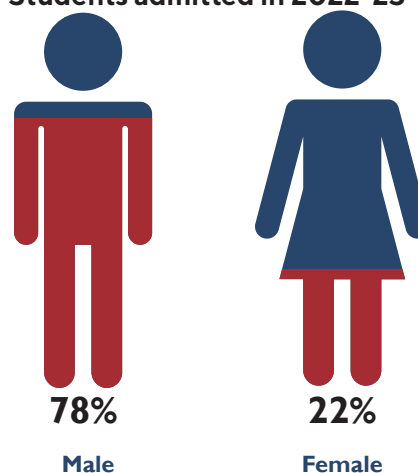
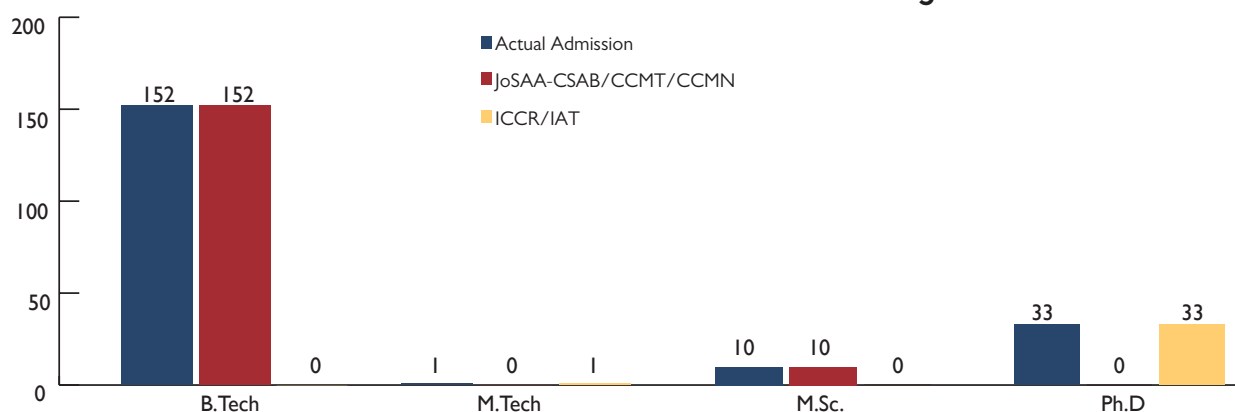


Chart-4: Modes of Admission in various Program



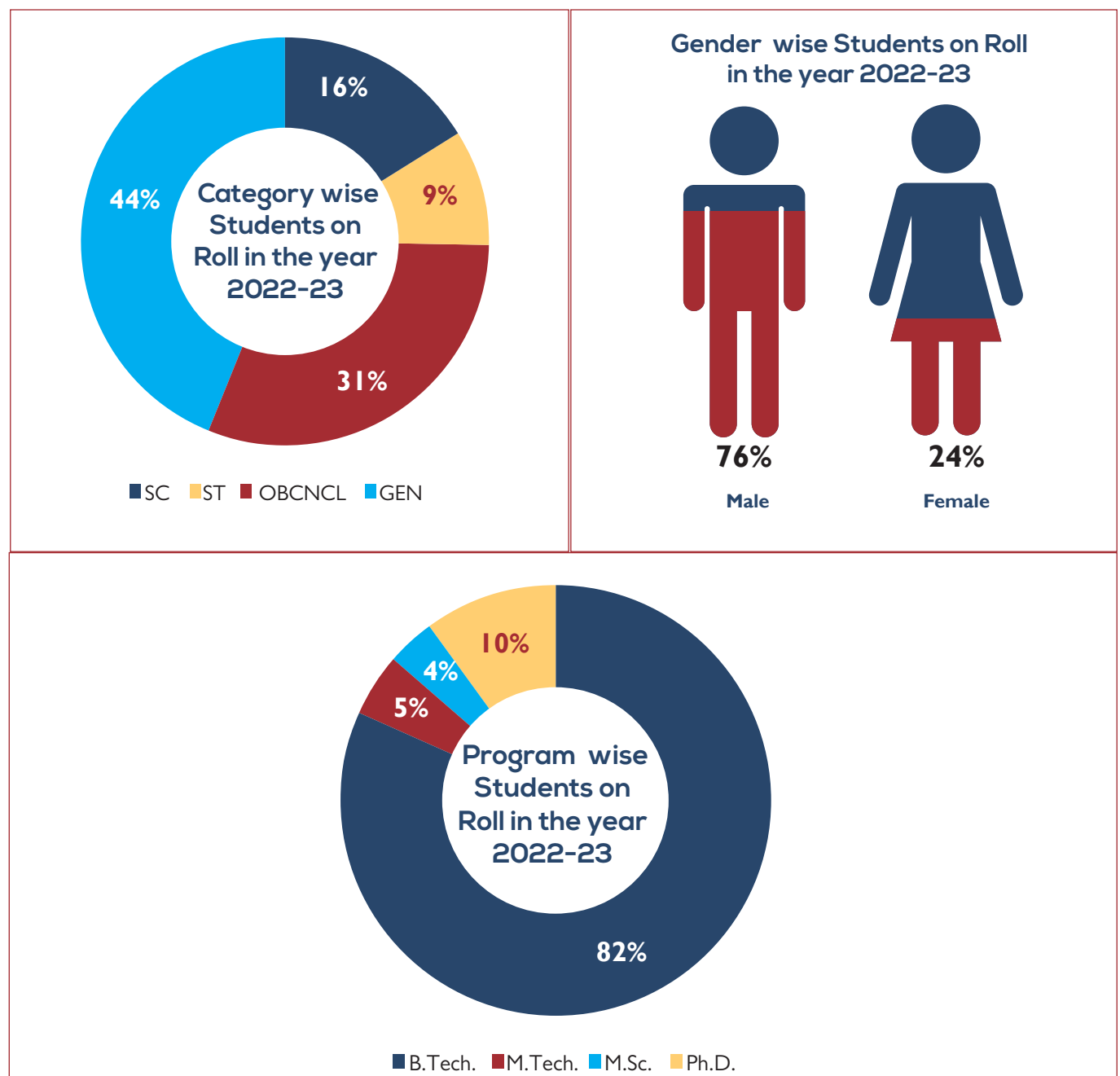
### 1.3 Total Students on Roll in the year 2022-23:

Table-4: Cumulative Strength of the Students during 2022-23

Program	Category				Gender			PwD
	SC	ST	OBC	GEN	TOTAL	Male	Female	
B.Tech.	97	60	195	239	591	463	128	5
M.Tech.	7	1	4	21	33	18	15	0
M.Sc.	3	2	5	16	26	15	11	0
Ph.D.	10	4	19	39	72	56	16	0
<b>TOTAL</b>	<b>117</b>	<b>67</b>	<b>223</b>	<b>315</b>	<b>722</b>	<b>552</b>	<b>170</b>	<b>5</b>

Note: \* Four student is pursuing B.Tech. Course under ICCR Sponsored Program.

Chart-5: Distribution of Students in percentile (Category, Gender and Program wise)



## 1.4 Academic Calendar :

The Academic Calendar is prepared in such a way that all the curricular, co-curricular and other related activities/Programs of the Students are well distributed over the Semester Period.

The Academic Calendar prepared by the Academic Office is approved by the Senate. The major activities of Academic Calendar for the 2022-23 Academic Sessions are:

**Table 5: Academic Calendar of Even Semester 2022-23**

Sl. No	Activities	B.Tech. 2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> year (IV/VI/VIII Sem), M.Tech. and M. Sc. II and IV Sem	B. Tech. I <sup>st</sup> year (II Sem)
1	Commencement of Class	January 23, 2023	March 13, 2023
2	First Mid-Term Examination	February 20-22, 2023	April 10-12, 2023
3	Mid- Semester Break	March 06-10, 2023	May 24-25 & 27, 2021
4	Second Mid-Term Examination	April 3-6, 2023	May 15-17, 2023
5	End Term Examination	May 8-20, 2023	June 12-24, 2023
6	Practical/Sessional Examination	May 22-27, 2023	June 26- July 01, 2023
7	Declaration of Result	June 02, 2023	July 10, 2023
8	Summers course and Supplementary Examination	May 29-July 21, 2023	NA
9	Commencement of Odd Semester 23-24	July 24, 2023	July 24, 2023

**Table 6: Academic Calendar of Odd Semester 2022-23**

Sl. No	Activities	B.Tech. 3 <sup>rd</sup> , 4 <sup>th</sup> year (V/VII Sem), M.Tech. and M. Sc. 2 <sup>nd</sup> year (III Sem)	B.Tech 2 <sup>nd</sup> Yr (III semester)	B. Tech. I <sup>st</sup> Year, I Semester
1	Orientation/ Induction Program			November 10, 2022
2	Commencement of Class	July 25, 2022	August 16, 2022	November 14, 2022
3	First Mid-Term Examination	August 29-31, 2022	September 19-21, 2022	December 10-12, 2022
4	Second Mid-Term Examination	October 17-19, 2022	October 31- November 02, 2022	January 16-18, 2023
5	End Term Examination	November 21- December 03, 2022	November 28- December 10, 2022	February 20-25, 2023
6	Practical/ Sessional Examination	December 05-10, 2022	December 12-17, 2022	February 27- March 04, 2023
7	Declaration of Result	December 23, 2021	December 23, 2021	March 10, 2023
8	Commencement of Even Semester	January 23, 2023	January 23, 2023	March 13, 2023

## 1.5 Institute Fees for 2022-23 Academic Session (per Semester):

Table-7

Programs	General/OBC {Annual Family Income 5 lakh and above} (in Rs.)	General/OBC {Annual Family Income between 1 to 5 lakh}** (in Rs.)	General/OBC {Annual Family Income less than 1 lakh}*** (in Rs.)	SC/ST/PwD** (in Rs.)
B.Tech.	70,160.00	28,494.00	7,660.00	7,660.00
M.Tech.	42,440.00	NA	NA	7,440.00
M.Sc.	14,940.00	NA	NA	7,440.00
Ph.D.	15,350.00 (FT) / 14,470.00 (PT)	NA	NA	7,850.00 (FT) / 6,970.00 (PT)

FT= Full time, PT= Part-time

Note: The above fee doesn't include the Hostels / Mess Charges

\*\***Tuition fee Waiver/Remission:** The tuition fees of B.Tech. Students belonging to SC, ST and PwD categories are fully waived as per MOE guidelines. Further, the General/ OBC Students whose Annual Family Income is less than one lakh get full tuition fee waiver and with Annual Family Income bracket between one lakh to five lakh get 2/3rd of the tuition fees remission from 2016 onward vide MOE notification no.33-4/2014-TS.III.

The GATE qualified M.Tech. Students receive Fellowships as do the Ph.D. Scholars. A good fraction of the remaining students of the Institute also receive Scholarships from various Agencies.

## 1.6 Beneficiaries of Tuition Fee Exempted, Full Waivers, 2/3rd Fee Remission Categories of Students across the Programs:

Table-8

Programs	Full Tuition Fee Exempted		Full Tuition Fee Waiver	2/3 <sup>rd</sup> Tuition Fee Remission	Tuition Fee Charged fully
	No. of SC/ST Students	No. of PwD Students	No. of OBC-NCL/GEN Students {Annual Family Income less than 1 lakh}	No. of OBC-NCL/GEN Students {Annual Family Income between 1 to 5 lakh}	No. of OBC-NCL/GEN Students {Annual Family Income 5 lakh and above}
B.Tech.	157	05	248	71	110
M.Tech.	8	00	NA*	NA*	25
M.Sc.	05	00	NA*	NA*	21
Ph.D.	14	00	NA*	NA*	58

## 1.7 Examination and Evaluation:

All Undergraduate, Postgraduate Examinations and Ph.D. Course Work of the Institute are conducted by the respective Departments and centrally monitored by the Academic Section/ Examination Cell. The medium of examination for all examinations including dissertations and thesis is in English.

The performance of a student is evaluated in terms of two indices viz; the Semester Grade Point Average (SGPA) for a Semester and Cumulative Grade Point Average (CGPA) which is the Grade Point Index for all the completed Semesters at any point of time. The Semester Grade Point Average (SGPA) is calculated based on Grades obtained in all courses in a Semester and Cumulative Grade Point Average (CGPA) is calculated based on Pass Grades in all completed Semesters.

For each course, a Grade is awarded based on Continuous Internal Assessment, Mid-Term Examinations, and End-Term Examinations for theory subjects with weightage of 20%, 30%, and 50% respectively. The paper setting and evaluation are done by the concerned Course Instructor of the Department. All evaluated answer scripts are shown to the students by the respective Course Instructors before submission of Grades to the Examination Cell.

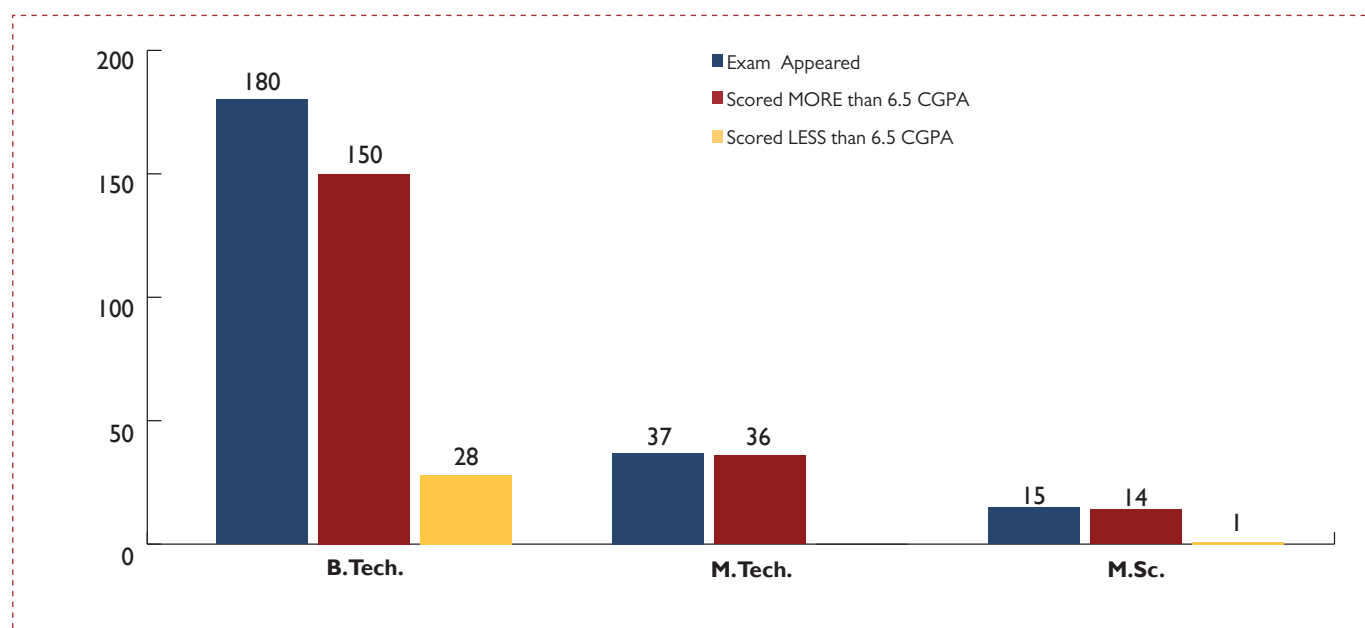


## 2. Award of Degrees

### 2.1 Final Year Result (June 2022):

Table-9

S. No.	Program and Departments	Exam Appeared	Scored MORE than 6.5 CGPA	Scored LESS than 6.5 CGPA	Total Pass	Pass Percentage
1	B.Tech. in Civil Engineering	28	23	5	28	98.8%
2	B.Tech. in Computer Science & Engineering	53	48	5	53	
3	B.Tech. in Electronics & Communication Engineering	35	32	03	35	
4	B.Tech. in Electrical & Electronics Engineering	40	28	10	38	
5	B.Tech. in Mechanical Engineering	24	19	05	24	
<b>B.Tech. Total</b>		<b>180</b>	<b>150</b>	<b>28</b>	<b>178</b>	
6	M.Tech in Computer Science & Engineering	10	10	0	10	97%
7	M.Tech in Microelectronics & VLSI Design	14	14	0	14	
8	M.Tech in Electrical Engineering (Control, Power and Electric Drives)	13	12	0	12	
<b>M.Tech. Total</b>		<b>37</b>	<b>36</b>	<b>0</b>	<b>36</b>	
9	M.Sc. in Chemistry	15	14	1	15	100%
<b>M.Sc. Total</b>		<b>15</b>	<b>14</b>	<b>1</b>	<b>15</b>	



### 2.2 Award of Ph.D. Degree in April 2021- March 2022

Table-10

S. No.	Department	Name	Title of Thesis
1	Electronics and Communication Engineering	Dr. Subhanil Maity	Design of Power and Area Optimised High-Speed Frequency Divider
2	Electronics and Communication Engineering	Dr. Priti Gupta	Design of transconductance-capacitance based drop loop filter for PLL application

S. No.	Department	Name	Title of Thesis
3	Mechanical Engineering	Mr. Saddam Hossain Mullick	Natural Convection and Entropy Formation inside the Enclosure: A Numerical Study
4	Mechanical Engineering	Mr. Lakshman R	Numerical modelling of neutral atmospheric boundary layer
5	Electrical and Electronics Engineering	Mr. Roshan Pradhan	Improved Power Quality Based Photovoltaic Distributed Generation System with Model Predictive Control
6	Mechanical Engineering	Mr. Virkunwar Anwesh Keshav	Some Studies on Mechanical and Tribological Behaviour of AL Composites Reinforced with Industrial Waste
7	Humanities & Social Sciences	Ms. Laxmi Rai	Cinematic Adaptations of the Select Shakespearean Tragedies in Bollywood
8	Electronics and Communication Engineering	Ms. Nigidita Pradhan	Design and Analysis of Phase-Frequency Detector and Charge Pump for Phase-Locked loop Application
9	Humanities & Social Sciences	Ms. Ankita Sharma	An Exploration on the Opportunities and Challenges of Micro Small and Medium Enterprises (MSMEs) in Assam
10	Computer Science and Engineering	Mr. Suman Majumder	Design of Provable Secure Communication Protocols for Internet- of- Things and Blockchain based e-Voting System
11	Electrical and Electronics Engineering	Mr. Debanjan Mukherjee	Enhancement of Maximum Loadability Limit of Power Networks Using a Novel Meta-Heuristic Technique
12	Electrical and Electronics Engineering	Mr. Arabinda Ghosh	Intelligent Load Frequency Controller for Power Systems
13	Electrical and Electronics Engineering	Mr. Amit Kumar	Performance Enhancement on Various Topologies of Custom Power Devices
14	Electrical and Electronics Engineering	Mr. Arindam Singha	Intelligent Networks Robotic System
15	Physics	Mr. Ajit Mahato	Time Scales and Characteristics of Stock Markets
16	Computer Science and Engineering	Ms. Dipanwita Sadhukhan	Development of Efficient and Secure Remote User Authentication Schemes for Internet of Things (IOT) and Its Applications Using Elliptic Curve Cryptography (ECC)
17	Humanities & Social Sciences	Mr. Bhaskar Chettri	Performance Enhancement on Various Topologies of Custom Power Devices
18	Computer Science and Engineering	Mr. Pintu Kumar Ram	Evolutionary Algorithms and Machine Learning Techniques for Processing and Analysis of Microarray Health Care Data



# 3. Other Academic Activities

## 3.1 Implementation of New Education Policy 2020:

The National Education Policy 2020 (NEP 2020), which was approved by the Union Cabinet of India on 29 July 2020, outlines the vision of India's new Education System. The new Policy replaces the previous National Policy on Education, 1986. The Policy is a comprehensive framework for elementary education to higher education as well as vocational training in both rural and urban India.

**i. The Institute is committed to implement the National Education Policy 2020 as envisioned by the Government of India. To study the Policy thoroughly and to recommend the implementation policies/ measures, various Sub-committees based on the different thematic areas were constituted as under:**

- Committee for Academic Reforms
- Committee for Research and Development Activities
- Committee for Internationalization
- Committee for the Promotion of Indian Language and Culture
- Committee for the National Innovation and Start-up Policy

These Committees have prepared exhaustive strategic plans by refining the short-term and long-term goals for the implementation mechanism.

**ii. A week long online Faculty Development Program (FDP) was organized by the Institute in collaboration with AICTE, New Delhi, inviting the distinguished speaker on NEP under the theme "NEP 2020- Towards Holistic Education". The objective is to enhance the knowledge of Faculty and Staff on opportunities and associate challenges on NEP.**

**iii. The Institute has adopted ONE the credit courses initiated by 'The Art of Living' based on the**

**concept of Lok Vidya (promotion of traditional arts) mentioned in the NEP 2020. The course namely 'Art of Living-LEAP' expected to make students mentally, physically and emotionally strong and help on stress management amongst the youngster.**

**iv. iv. The Senate of the Institute has accorded approval in principle for implementation of Multiple Entry and Exit Policy for UG and PG programs under the aegis of National Education Policy 2020.**

The highlights of the policy are briefed as under:

- a) Students are allowed to leave the academic program at any point of time and can join again after a certain period of break.
- b) The students are allowed to exit permanently from the program of study at any point of time with an academic award, if eligible.
- c) There will be three exit points to B.Tech. Students and one exit point in M.Tech./M.Sc. programs.

**v. The Institute has registered for the Academic Bank Credit under the direction of University Grant Commission (UGC). The committee constituted in this regards are preparing the policy/implementation modalities as per the schemes.**

**vi. The Curriculum and Syllabi of all the programs have been revised, modules incorporated in accordance with National Education Policy 2020 and further Institute is strive for development of curriculum with holistic approach duly considering the requirement of industry, sustainable employability, prservance of culture and languages etc.**

## 3.2 Induction Program:

A week long Online Induction Program for the newly admitted students of B.Tech. Program was conducted. It aims to help the students to acclimatize with the new teaching-learning environment, rediscover the joy of learning, absorb curricular material and the institutional ethos with greater ease, and enrich the quality of Faculty-Student interactions in the years to come. The program contains a series of activities including testing the ability of students in literary areas, departmental induction, lectures on effective handling of peer pressure, universal human values, extra-curricular activities such as yoga, meditation and lectures from eminent personalities from reputed industries, social activists and entrepreneurs.



### 3.3 Peer Group Learning:

The Institute has launched a novel initiative of Peer Group Learning wherein the senior Students/ Alumnus are invited to teach/ mentor the junior Students. The initiative has been envisaged to develop aspects of professionalism in student tutors, supplement the regular teaching-learning process and contribute to the development of fellowship in the student community.

### 3.4 Professional Practice:

Professional Practice forms an important part of the Undergraduate B.Tech curriculum. In order to broaden the horizon of the students, experts working in various professional organizations are been invited to deliver lectures to students as a part of this course. The initiative is likely to enhance the employability of the students in professional organizations.

### 3.5 Memorandum of Understanding (MOUs):

The Institute is striving to expand its horizons for the growth and development of Academic Research in diverse fields of science and technology. The Institute has already signed many Memorandum of Understanding (MoU) for Academic Research and Collaboration with reputed academic institutions and organizations viz, • IIT Bombay • IIT Bhilai • IIT Guwahati • IIT Delhi • IIT Roorkee • IIT Gandhinagar • MNIT Jaipur • The Chatterjee Group (TCG) Lifesciences, Kolkata, • NHIDCL

### 3.6 Digitization of Academic Awards under National Academic Depository (NAD):

The academic awards of the students in the form of grade sheets and degree certificates of pass-out batches of UG and PG programs and existing students till the year 2021 have been published in the National Academic Depository (NAD) through Digi-locker platform under the Ministry of Electronics and Information Technology (MeitY). This will facilitate the students to access the true certified copy of their awards as and when required.

### 3.7 Educational Exposure for School Students:

The Institute invites School Students for educational tours/ exposure visits from across the state of Sikkim. The purpose of this activity is to inspire and motivate students of the state to take up higher learning in Science and Engineering. The Technical Staffs of the Institute take them on a guided tour of the campus including various Laboratories and Workshops, the Super Computer and Smart Classrooms. The Faculty Members also interact with School Students and apprise them of the myriad opportunities available in the fields of Science and Engineering and the Entrance Examinations which lead to these opportunities.



### 3.8 Awareness Generation and career counseling for School Students:

Higher technical educational institutes in the state of Sikkim are few in number. Realizing the needs and interest of the school students, NIT Sikkim has developed and distributed posters, banners and leaflets to all the higher secondary schools of Sikkim with readymade information on the Joint Entrance Examination (JEE), admission procedure in the CFTIs/ University in the higher technical education. The information also contains professional advice on a student's career path based on their academic performance, aptitude, and interests. The objective is to encourage school children to pursue the subject of their choice and be better equipped to make more informed decisions about their future. It allows them to explore possible pathways and be more practical in their approach towards the desired goal.

**NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM**  
AN INSTITUTION OF NATIONAL IMPORTANCE

**ABOUT US**

The National Institute of Technology Sikkim is an institution of national importance established by the Government of India in 2015. At present we are offering B.Tech, M.Tech, MSc, & PhD courses to around 900 students.

- The Institute currently offers four-year B.Tech Courses in Computer science & Engineering, Electrical & Electronics Engineering, Electronics & Communication Engineering, Civil Engineering and Mechanical Engineering.
- The Institute admits students from all over the country through Joint Entrance Examination (JEE Main) only.
- 50% of seats are reserved under Home State quota for Sikkimese students pursuing their schooling from the state of Sikkim.
- The campus placement is outstanding and our students have been placed in various prestigious organizations such as:

Google, Amazon, Intel, IBM, Infosys, TCS, etc.

**Awareness on Joint Entrance Examination (JEE) Main 2022 for eligible students in engineering courses and seeking admission in reputed government Institutes like IITs, NITs, IITs and other centrally funded Institutes.**

**NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM**  
BIASED IN PUBLIC INTEREST UNDER COMMUNITY DEVELOPMENT INITIATIVES

**State of Eligibility:**

State code of eligibility means the code of the State from where the candidate has passed Class XII (or equivalent) qualifying examination by virtue of which the candidate becomes eligible to appear in JEE (Main) 2022. [For example, if a candidate appears for the Class XII (or equivalent) qualifying examination from a school situated in Sikkim and is a resident of Uttar Pradesh then the candidate's State code of eligibility will be that of Sikkim and NOT that of Uttar Pradesh.]

Events	Session - I	Session - II
Commencement of Online Application Form	01 March 2022	01 April 2022
Last date for Submission Application Form & Fees	05 April 2022	05 May 2022
Downloading of Admit Card from NTA Website	Second week of June 2022	Third week of July 2022
Date of Examination	28 to 29 June 2022	21 to 30 July 2022

**Eligibility Criteria:**

- For appearing in the JEE (Main) - 2022, there is no age limit for the candidates. The candidates who have passed the class 12/equivalent examination in 2020, 2021, or appearing in 2022 irrespective of their age can appear in JEE (Main) - 2022 examination. However, the candidates may be required to fulfill the age criteria of the Institute(s) in which they are desirous of taking admission.
- Only those candidates who have passed their Class 12/2 Exam (with PCM subjects) or any equivalent qualifying examination in 2020, 2021 or those who are appearing in their Class 12th Exam or any equivalent qualifying examination in 2022 are eligible to appear in JEE(Main)- 2022
- Candidates must have taken at least five subjects in class 12th/qualifying examination in order to be eligible for writing JEE (Main) - 2022.

**Schemes of Examination:**

Paper	Subjects	Paper	Mode of Exam
Paper 1: (B.E./B.Tech)	Physics, Chemistry & Mathematics	Objective Type - Multiple Choice Questions (MCQs)	Computer Based Test (CBT) mode only
Paper 2A: B. Arch.	Part I: Aptitude test		CBT mode only
Paper 2B: B. Planning	Part II: Drawing Test	Objective Type - Multiple Choice Questions (MCQs)	Pen and paper based * (Offline) mode to be attempted on a drawing sheet of A4 size
	Part I: Mathematics Part II: Aptitude Test Part III: Planning based questions		CBT mode only

**Examination Centres and Application fees**

JEE (Main) - 2022 will be conducted in major cities and towns of India as well as abroad, for details list of examination centres kindly read the information bulletin JEE-Mains 2022.

**How to Apply?**

All candidates must apply ONLINE. The application portal can be accessed at website: <https://jeemain.nita.nic.in>

**Important Instructions on filling Online Registration form:**

- Candidates are advised to exercise the utmost care in filling up correct details in the Online Application Form and ensure correct information's like father's name, mother's name, father's name, gender, date of birth, category, PWD status, mobile number, e-mail address, photograph and signature, choice of cities for exam Centre, etc.,
- Any request for change in the particulars and uploaded scanned images at any stage will not be considered by NTA under any circumstances.
- Candidates are requested to retain a copy of the Confirmation Page for future reference.

### 3.9 Senate Meeting:

The Senate is the highest Academic Body of the Institute. It is constituted under Section 14 of the NIT Act 2007. All the major decisions related to academic matters are considered and approved by the Senate. The Director of the Institute is the Chairman of the Senate. The Meetings of the Senate were convened on the following dates during 2022-23:

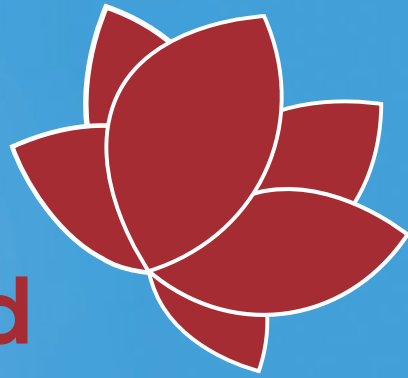
- 1<sup>st</sup> Emergent Senate Meeting on 13<sup>th</sup> June, 2022
- 21<sup>st</sup> Senate Meeting on 28<sup>th</sup> June 2022
- 22<sup>nd</sup> Senate Meeting on 24<sup>th</sup> September 2022
- 23<sup>rd</sup> Senate Meeting on 18<sup>th</sup> February, 2023



### 3.10 Convocation:

The 4th Convocation of the Institute was conducted on 16th April 2022 at Gangtok. The Hon'ble Chief Minister of Sikkim had consented to be the Chief Guest of the ceremony. However, due to an important meeting at Delhi, the deputed Hon'ble Minister of Education Shri Kunga Nima Lepcha was the Chief Guest of the Convocation. During the convocation, 370 students of 2020 and 2021 received their degrees. During Convocation a Doctor of Science (Honoris Causa) was awarded to Dr. Mani Kumar Sharma, Hon'ble Minister for Health and Family Welfare, Social Justice and Women Empowerment, Government of Sikkim for his immense contribution towards pro-community activities during the Covid-19 pandemic in the State during 2020 and 2021.





# Training and Placement



# Training and Placement Cell

The Training and Placement Cell of the National Institute of Technology Sikkim operates around the year with a rationale to build a robust interface between the corporate world and the Institute. The Cell equips students with the knowledge and skills that meet the requirements of top organizations and firms. To achieve this, the Cell fosters continuous interaction with these companies and works towards developing our students' technical excellence and global exposure. The Training and Placement Cell efficiently plans, organizes, and consolidates Training and Placement activities to ensure that students receive sufficient industrial training and secure employment in organizations that align with their aspirations and objectives. Through its collaborations with various companies and institutes, the Cell provides students opportunities to attend expert talks, workshops, alumni interaction sessions, group discussions, and seminars on the latest trends and technologies to enhance their technical and soft skills. By consistently setting new benchmarks every year, the T&P Cell has successfully facilitated students' employability skills, enabling them to pursue their career goals of securing employment at the most in-demand corporations

while also forging a strong bond and partnership among students, alumni, faculty members, and industries.

## ENHANCING CAREER PROSPECTS OF STUDENTS

The Training and Placement Cell has made numerous efforts to give our students the finest possibilities available in terms of their future career aspects. We offer our students the skillsets and knowledge needed to succeed in their studies with the help of challenging aptitude and coding assessments. The Training and Placement Cell provides the students the opportunity to work as interns in various reputed organizations so that they gain industry exposure. To further assist students in finding employment, the Cell has revised its tactics and put refined procedures in place to meet with evolving corporate expectations. It has also held a variety of virtual placement discussions and seminars to help students build their professional ethics and mentor them as they choose their career path.





## PLACEMENT CENTRIC DRILL

T&P activities in 2022-23 can broadly be described as

- Establishing a strong interface between the institute and industry to understand the current market trends, requirements, and expectations of recruiters.
- Providing career guidance and counseling to the students by conducting workshops, webinars, and training sessions to enhance their skills and knowledge.
- Providing assistance to students in finding suitable Internships, which helps them gain practical knowledge and experience in their respective fields.
- Organizing placement drives and inviting reputed companies and organizations to conduct placement drives.



## WEBINARS:

The Training and Placement Cell organized the following webinars and talks by eminent academicians and industry experts during the year 2022-23.

S No.	Resource person(s)	Topic	Date
1	Harshada Topale	Career Vision	6th May, 2023
2	Prateek Kathuria	Financial Awareness	6th May, 2023
3	Shri. Jitesh Choudhary Shri. Jasbir Singh	Career in VLSI Industry	11th Feb, 2023
4	Joseph Augustine	TOEFL & GRE General Test	15th Jan, 2023
5	-	Career In Tech	7th Jan, 2023
6	Lakshay Anand	Preparation Strategy for UPSC Civil Services Examination	2nd July, 2022
7	Soenil Soebedar Raj Kr Roy Rahul Sharma Shubham Sarawat Saroj Mala	Cyber Security	26th Mar, 2022

## Webinar On "Career In VLSI Industry" By C-DAC CINE

CDAC, the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY), Government of India, organized a webinar on the topic "Career in VLSI Industry" for students belonging to the electronics domain. Through this webinar, C-DAC CINE highlighted some of the highly sought-after career opportunities for those who aspire to work in the circuit design industry.

### Speakers/Experts

- Shri. Jitesh Choudhary, Director, C-DAC CINE.
- Shri. Jasbir Singh, Staff Engineer, Western Digital.

## Webinar on TOEFL & GRE GENERAL TEST

The Training and Placement Cell in collaboration with **DP Cube Learning** organized a webinar on the topic "TOEFL & GRE General Test". During the webinar, students received information about the structure, format, and content of the TOEFL & GRE General Test. Students also learnt about effective strategies for test preparation, test-taking tips, and resources available to help them succeed.

### Speakers/Experts

- Joseph Augustine (North & East India Regional Manager, ETS India)

## Webinar on Preparation Strategy for UPSC Civil Services Examination

The Training and Placement Cell in collaboration with **NEXT IAS** organized a webinar on the topic "Preparation Strategy for UPSC Civil Services Examination". During the webinar participants interacted with learned professionals like **Ajay Chauhan** (Faculty, Next IAS) and **Lakshay Anand** (AIR-101, CSE-2021). The students got a chance to know about one of India's most prestigious yet difficult jobs from an insider's perspective which will surely aid them in the future and inspire them towards the Civil services. Mr Chauhan and Mr Anand also delineated the roadmap for success in the Civil Services exams which will prove beneficial to the students in the coming days.

### Speakers/Experts

- Ajay Chauhan (Faculty, Next IAS)
- Lakshay Anand (AIR-101, CSE-2021)

## Webinar on Cyber Security by SOEBIT Cyber Security and Hypex Technology

The Training and Placement Cell, in collaboration with **SOEBIT Cyber Security** (Netherlands) & **Hypex Technology Private Limited** (Lucknow, Uttar Pradesh) has organized a webinar on the topic “**Cyber Security**”. During the webinar, Attendees were acquainted with the knowledge of Cyber Security and the career path as well as various opportunities in the field of Cyber Security.

### Speakers/Experts

- Soenil Soebedar (Founder of SOEBIT Cyber security, Sr Security Engineer at Govt. of The Netherlands)
- Raj Kr. Roy (Co-founder of Hypex Technology)
- Rahul Sharma (Co-founder of Blue Code Security Solutions)
- Shubham Saraswat (Information Security Engineer)
- Saroj Mala (Cyber Security Trainer)



## Free Webinar on Cybersecurity at NIT Sikkim

The form Free Webinar on Cybersecurity at NIT Sikkim is no longer accepting responses. Try contacting the owner of the form if you think this is a mistake.

## Webinar on “Career In Tech”

The Training and Placement Cell in collaboration with **Prepleaf by Masai**, organized an exclusive webinar on “**Career In Tech**”. The Masai is one of the largest outcome-driven institutions in the world. The main focus of the webinar was to offer new courses in different domains. Participants were allowed to sharpen skills in data structures, algorithms, and frontend development from the industry’s top trainers. The speaker gave immense focus on building an online presence and gaining the attention of top tech giants.

## Webinar on “Career Vision”

The Training and Placement Cell in collaboration with **Cloud Counselage**, organized an exclusive webinar on “**Career Vision**”. Cloud Counselage is one of the biggest IT & Management consulting with a social cause at heart. The main focus of the webinar was to offer Importance of Career Vision, Basis & Components of Career Vision, Steps and tools to develop Career Vision Statement.

### Speakers/Experts

Harshada Topale (Co-founder & Managing Partner, Cloud Counselage Private Limited).

Register at <https://IndustryAcademiaCommunity.com>

## Webinar on “Financial Awareness”

The Training and Placement Cell in collaboration with **Centre for Investment Education and Learning**, organized an exclusive webinar on “**Financial Awareness**”. CIEL is a leading Investment Education and learning solutions company focused on competency building for the investments and financial services sector in India. The main focus of the webinar was to enhance the awareness about investing in general and investment options in particular, better planning for important financial goals.

### Speakers/Experts

- Prateek Kathuria



CIEL is conducting a Workshop

Investor Awareness Program by BSE

Organized by

NIT Sikkim -Sikkim

ASSOCIATION WITH BSE & CIEL

#### Benefits of IAP for Students

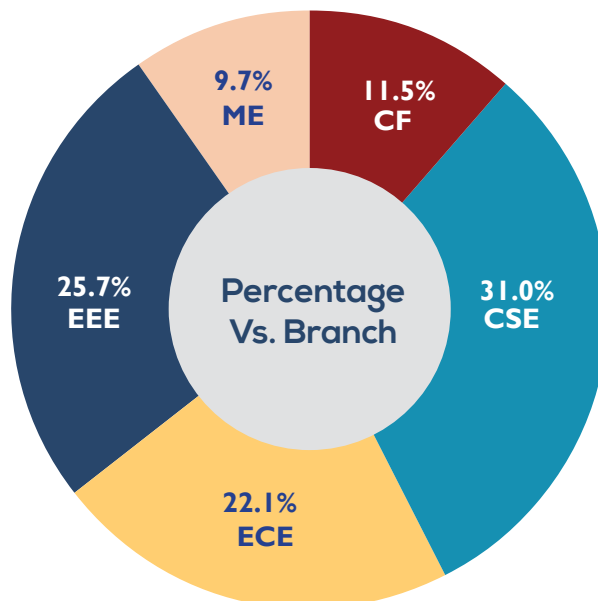
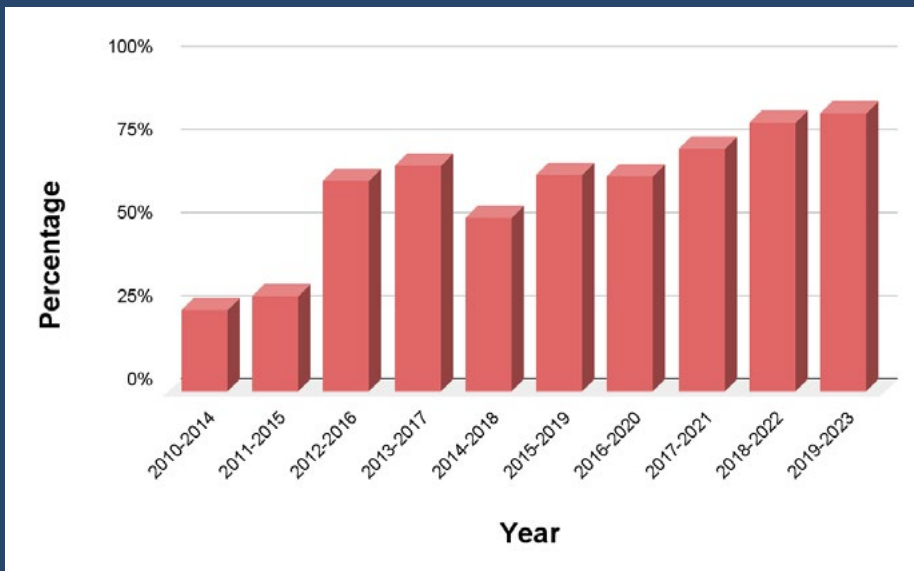
1. Ability to understand investments
2. Becoming investment ready
3. Developing healthy savings & investment habits

Workshop Details:

Trainer: Prateek Kathuria| Topic: **Be self-reliant-Financial Literacy workshop**

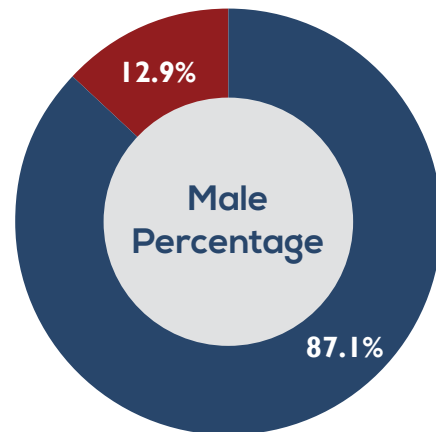
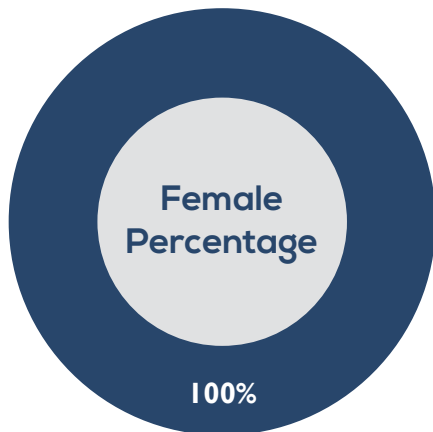
Date: 6<sup>th</sup> May '23|Time: 01:00PM

### Placement Statistics Year-wise:

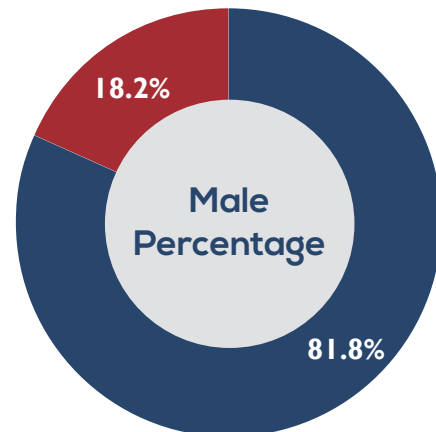
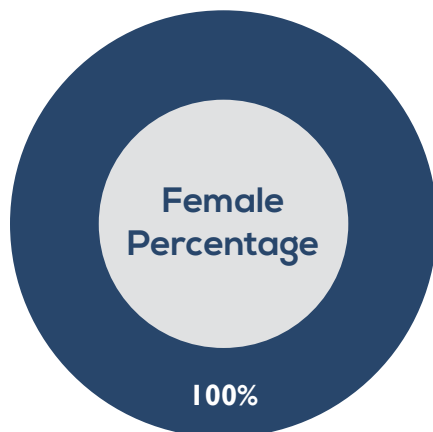


Placement Statistics Gender wise:

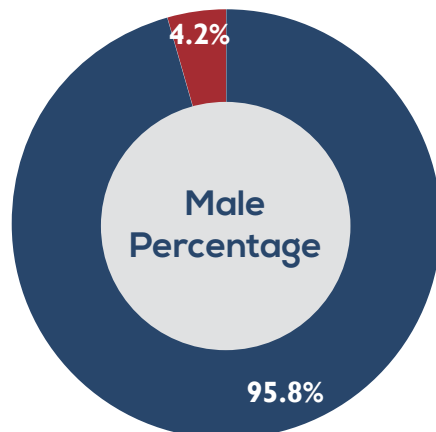
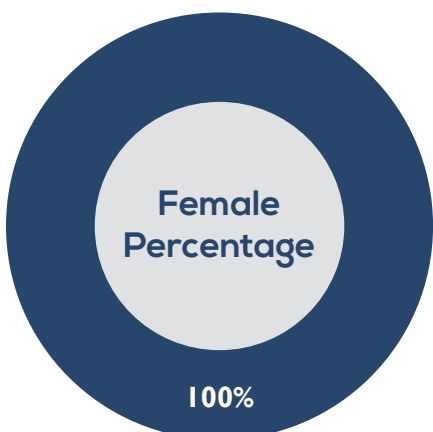
Computer Science and Engineering



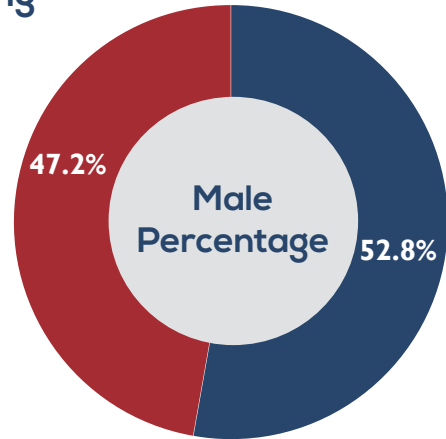
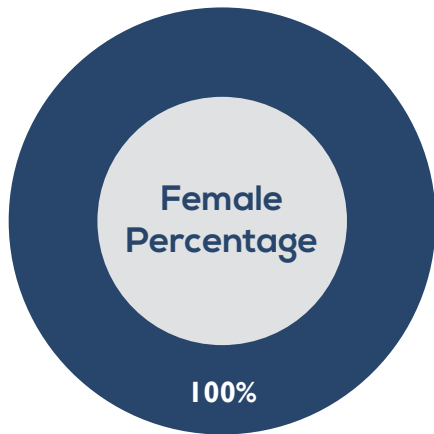
Electronics and Communication Engineering



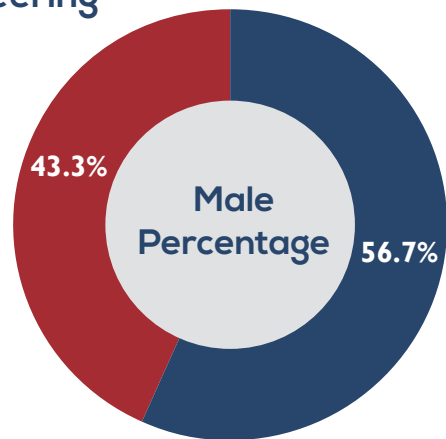
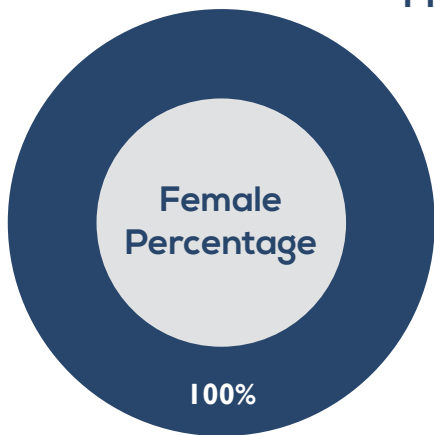
Electrical and Electronics Engineering



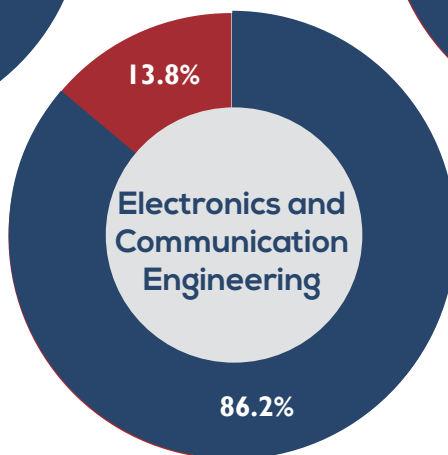
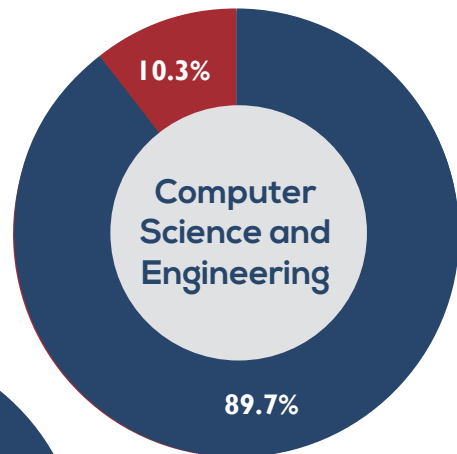
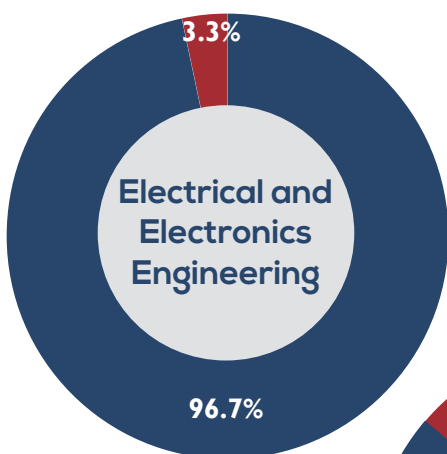
### Civil Engineering

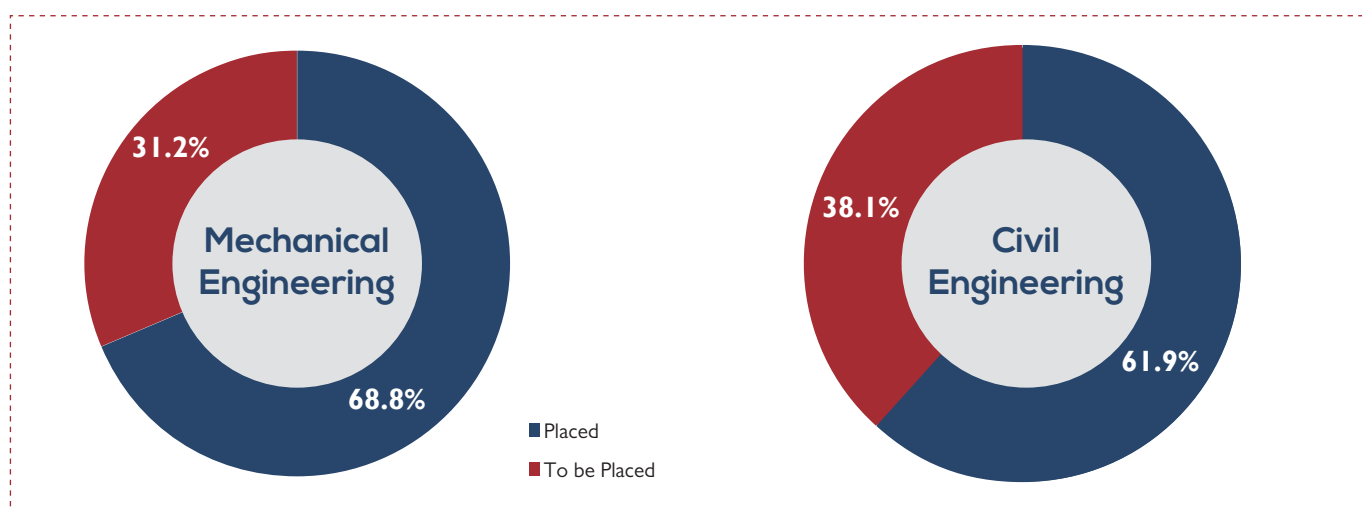


### Mechanical Engineering



### B.Tech Placement Statistics





### Detailed Placement Statistics 2022-23

Course	Branch	Total No. of Students	Number of Placed Students
B.Tech.	Civil Engineering	21	13
B.Tech.	Computer Science and Engineering	39	35
B.Tech.	Electronics and Communication Engineering	29	25
B.Tech.	Electrical and Electronics Engineering	30	29
B.Tech.	Mechanical Engineering	16	11
M.Tech.	Computer Science and Engineering	12	8
M.Tech.	Electronics and Communication Engineering	9	4
M.Tech.	Electrical and Electronics Engineering	11	7
<b>Total</b>		<b>167</b>	<b>132</b>

Companies from various sectors including those from core engineering domains, IT, consulting and non-technical etc. have recruited students from the Institute. The average package is recorded as **9.88 LPA** with **171 total placement offers** during the academic year 2022-23.

### Benchmark Placement Achievements in the Academic Year 2022-23

1. One student got selected at SanDisk with a package of 21 LPA.
2. Three students got selected by Autodesk with a package of 20 LPA.
3. Eleven students got selected for C-DOT with a package of 19 LPA.
4. Four students were selected in CradlePoint with a package of 16.63 LPA.
5. One student got selected in TruckX with a package of 14 LPA.
6. One student got selected in Valeo with a package of 14 LPA.
7. One student was selected in Teradata with a package of 13.58 LPA.
8. One student got selected in 3I4E IT Corporation with a package of 13.3 LPA.
9. Five students got selected in Publicis Sapient with a package of 12.47 LPA.
10. One student got selected in Winjit with a package of 12 LPA.
11. Two students got selected in Truminds with a package of 11 LPA.
12. One student got selected for IBM with a package of 11 LPA.
13. One student got selected for Maruti Suzuki with a package of 10.34 LPA.

## INTERNSHIPS

Internships enable students to gain first-hand experience of working in the Industry. It also allows students to improve skills, knowledge, and theoretical practices by implementing their academic learnings. Internships allow students to navigate the intricacies of the professional world. In the Academic year 2022-23, 262 students of B. Tech. (2020-24 batch, 5th & 6th Semester) have undertaken Internships during the Summer and Winter vacations.

S.No	Company	Branch(es)	No. of Students
1	Larsen and Toubro	CE	7
2	Yantromitra Technologies	CE,CSE,ECE,EEE,ME	17
3	Oil and Natural Gas Corporation	ME,ECE	5
4	Johns Electric	CE,ECE,EEE,ME	14
5	V S Informatics	CE,CSE,ECE,ME	7
6	Foxaisr Technology	CE,CSE,ECE,EEE,ME	42
7	Itify Business Services	CE,ECE,ME	3
8	Think2Exam Learning LLP	CSE,ECE,EEE	6
9	Putatoo Technologies	CSE,ECE	3
10	Asquare Infotech	CSE,ECE,ME	10
11	Power Grid Corporation of India Limited	EEE	11
12	Indian Oil Corporation Ltd.	ME	2
13	Microzensys private limited	CSE,ECE,EEE,ME	12
14	Servon Solutions	ECE	1
15	Evercons Technologies Pvt Ltd	CSE	2
16	Nanobiz India Private Limited	ME	1
17	Bharat Heavy Electricals Limited	ME	1
18	Dharaksha Ecosolutions Private Limited	ME	4
19	ITS Planners and Engineers Pvt Ltd	CSE	2
20	Univlabs Technologies Private Limited	CSE,ECE	2
21	Infineon	CSE,ECE	4
22	Cummins India	ME	4
23	Pradjna Intellisys Private Limited	CSE	3
24	Uilatech LLP	CSE,ECE	2
25	Mekuva Technologies	ME	1
26	Niseva Technologies Private Limited	ECE	1
27	TATA Motors	ME	4
28	Mahindra and Mahindra	ME	3
29	Xipaar Solutions Private Limited	CSE,ECE,EEE	6
30	MHTECHIN	CSE,EEE	2
31	HCP Project Management Private Limited	CE	3
32	Bagmo Private Limited	EEE	1
33	Devlofox Technologies Pvt Ltd.	EEE	1
34	National Hydroelectric Power Corporation Ltd.	CE	5
35	National Informatics Centre	CSE	1
36	Intellithink	CSE,ECE,EEE	4
37	Gammon Engineers and contractors	CE	1



S.No	Company	Branch(es)	No. of Students
38	Sun Run Motors Private Limited	ME	1
39	Identifyyou Technologies Private Limited	CSE	6
40	Igurus Consultancy Services LLP	CSE,ECE	7
41	NHIDCL	CE	4
42	Kenmark ITan Solutions	CSE,ECE,EEE,ME	1
43	CADD Crafter LLP	CE,ME	14
44	Charis Construction	CE	2
45	Colonelz Constructions Private Limited	CE	1
46	Analog Mix Media	CSE,ECE,EEE,ME	15
47	Grid Controller of India Limited	EEE	13
<b>Total</b>			<b>262</b>

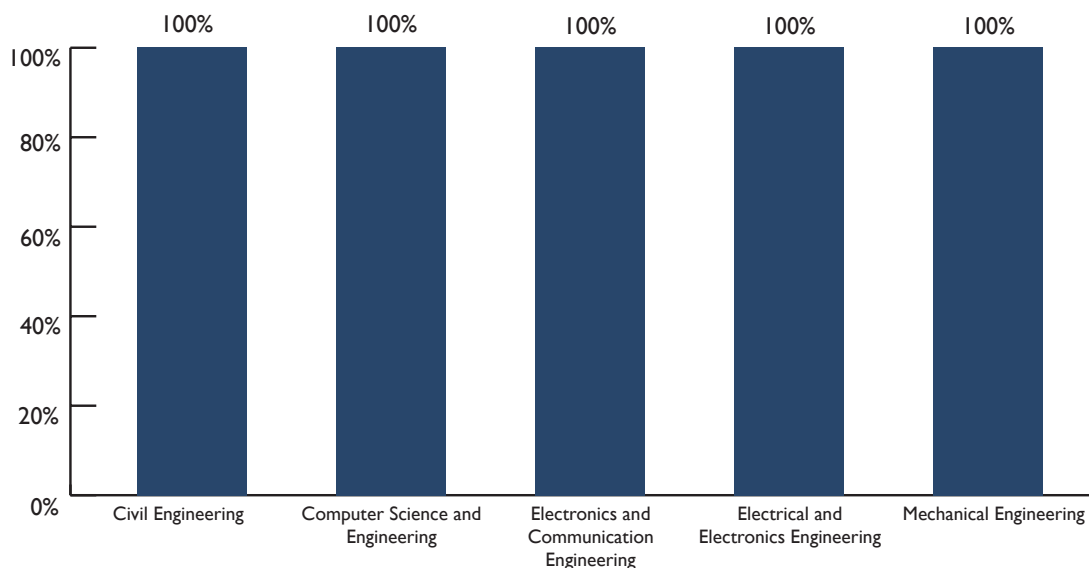
## Benchmark Internship Achievements in the Academic Year 2022-23

- (1) Four students from B.Tech have been offered a 6 months internship at Cummins India.
- (2) Four students from B.Tech have been offered an 11 months internship at Infineon.
- (3) Eight students from B.Tech have been offered a 2 months internship at ISRO.

### Branch-wise Winter Internship of (B.Tech 3rd Year) 2020-24 batch (Odd Semester, 2022)

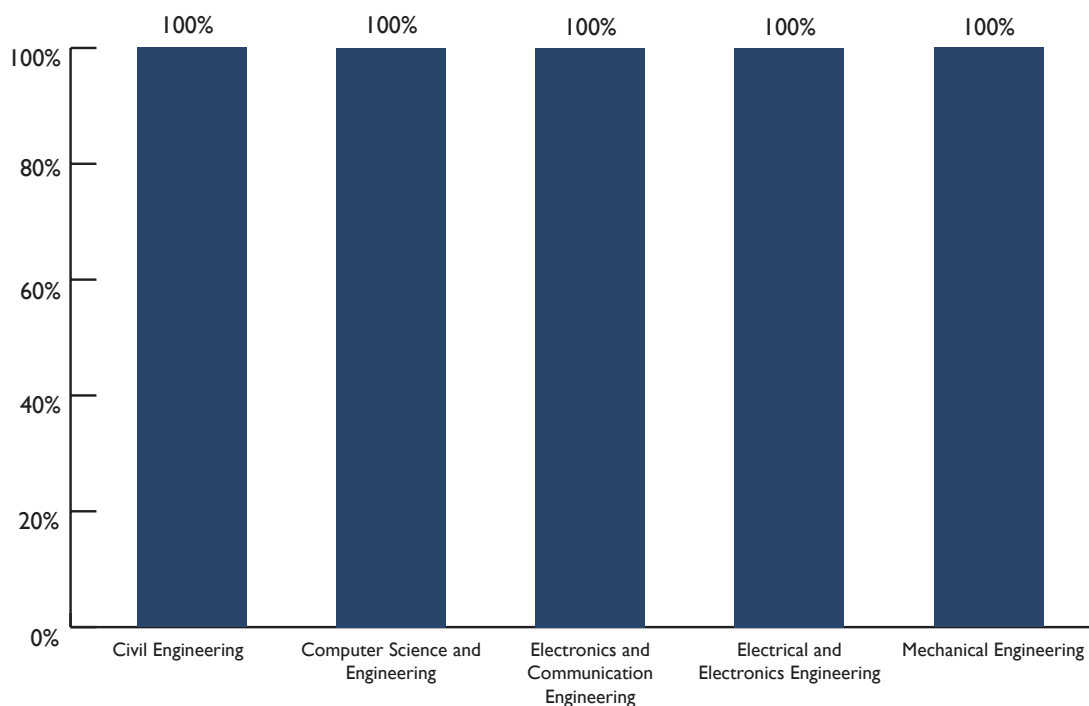
Course	Branch	Total Students	Number of students who received internship
B.Tech.	Civil Engineering	13	13
B.Tech.	Computer Science and Engineering	39	39
B.Tech.	Electronics and Communication Engineering	26	26
B.Tech.	Electrical and Electronics Engineering	27	27
B.Tech.	Mechanical Engineering	25	25
<b>Total</b>		<b>130</b>	<b>130</b>

### Winter Internship Statistics of 2020-2024 Batch



**Branch-wise Summer Internship of (B.Tech 3rd Year) 2020-24 batch (Even Semester, 2023)**

Course	Branch	Total Students	Number of students who received internship
B.Tech.	Civil Engineering	18	18
B.Tech.	Computer Science and Engineering	40	40
B.Tech.	Electronics and Communication Engineering	26	26
B.Tech.	Electrical and Electronics Engineering	28	28
B.Tech.	Mechanical Engineering	26	26
<b>Total</b>		<b>138</b>	<b>138</b>

**Summer Internship Statistics of 2020-2024 Batch****STUDENTS PURSUING HIGHER STUDIES**

- Mr. Ritwik A George is pursuing MS from Arizona State University, Phoenix, Arizona, USA.
- Mr. K Prem Swaroop has got admission at the Indian Institute of Technology Madras (IIT Madras) and is pursuing his M.Tech.
- Mr. Deepak Kumar has got admission at the National Institute of Technology Patna and is pursuing his M.Tech. in Structural Engineering.
- Mr. Kamal Kant Mahour has got admission in the National Institute of Technology Hamirpur and is pursuing his M.Tech. in Artificial Intelligence.
- Mr. Alok Tripathi has got admission in the Indian Institute of Technology (BHU) Varanasi and is pursuing his M.Tech in VLSI.
- Mr. Lohit Suriseti is pursuing his MS from University of Illinois, USA.
- Mr. Jaswanth Sai Mididodla is pursuing MS in Computer & Systems Engineering at The University of Houston.
- Miss. Aurunima Samaddar is pursuing her Masters from University of Pennsylvania, USA.



# STUDENT WELFARE



# STUDENT WELFARE

A conjugal way of living **student** life with an ample opportunity to study and showcase creativity in different platforms of cultural events and games & sports events at **the same time** led to a holistic and memorable college life. Despite the many constraints at the present temporary campus in a remote hill station, the Institute tries to match such requirements by organizing several cultural, and games/ sports events. Cleanliness drives, along with regular academic activities, in line with the directions of Ministry of Education (MoE), Government of India, are conducted throughout the year.

## Events and Activities

Various important and multi-dimensional events like Independence Day, Republic Day, Cultural Fest, Literary Events, Annual Games and Sports are organized by the Institute throughout the year. Students are encouraged and provided with the necessary assistance to participate in the Inter-NIT Sports, Cultural and Technical events. In line with the different campaigns of Government of India such as International Yoga Day, FIT India, Games, Sports and Cultural activities, Unity Day, Hindi Pakhwada, etc. the Institute organizes other events where students can involve themselves to remain healthy and united. Also, several Departmental Clubs organize diverse student events on different occasions.

### INDEPENDENCE DAY

The 76<sup>th</sup> Independence Day was celebrated in the campus with active participation of all students, faculties and staffs of the Institute. The celebration started with the March Past by the home guards of the Institute, followed by the National Flag hoisting ceremony and National Anthem. The Hon'ble Director Prof. M. C. Govil addressed the gathering about the importance of the day and the duties of faculty and staff members and student community of NIT Sikkim for holistic development of our country.



*March Past by the home guards of the Institute*

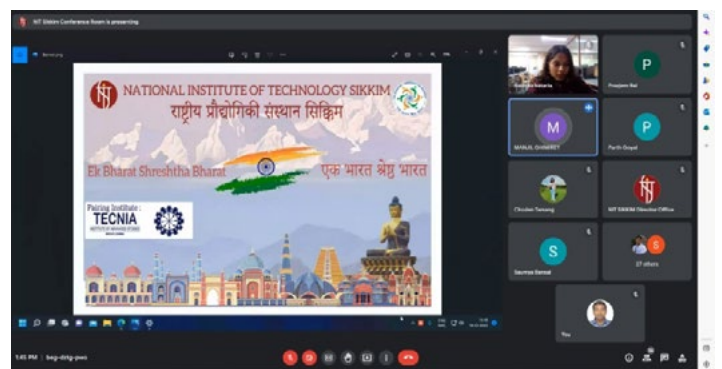
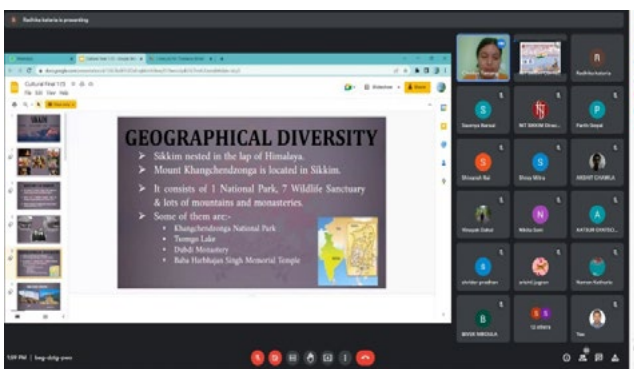
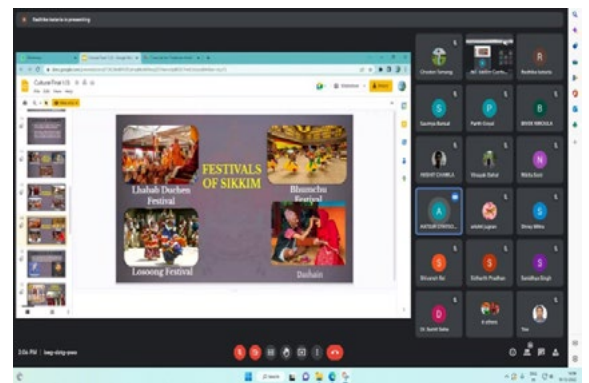
## EK BHARAT SHRESTHA BHARAT (EBSB)

NIT Sikkim hosted a five-day cultural exchange program under the aegis of Ek Bharat Shrestha Bharat with the pairing Institute Delhi School of Business between 15.11.2022 and 19.11.2022. Various cultural activities under EBSB were conducted to promote unity in diversity. Under the initiation of EBSB, 22 students along with 2 faculties Prof. Neerja Arora and Dr. Anurag Banerjee from Delhi School of Business visited NIT Sikkim to explore and understand the customs, cultures and traditions of Sikkim. NIT Sikkim, being the host Institute, arranged traditional dance, drama, one act play, exchange of dialect and food, field visit to Tathagata Tsal, Chardham, Temi Tea garden, visit to organic farms and meeting with the farmers and local NGOs.



## Glimpses of different EBSB activities

Furthermore, an online interaction program was held on 19th December 2022, between the students of **NIT Sikkim** and TECNIA Institute of Advance Studies, Delhi under the Ek Bharat Shreshtha Bharat (EBSB) flagship program. The main objective was to share the culture, tradition, language and other living practices between the students of Sikkim and Delhi. The program envisions portraying the unity amongst cultural diversity of the paired states and between the Institutions. The TECNIA is a pairing Institute with NIT Sikkim under the EBSB. Short speech, presentations, singing, and various activities to share the dialects- culture etc. formed the main part of the program.



## PRABHAT PHERI

PRABHAT PHERI-an assemblage (rally) to commemorate “HAR GHAR TIRANGA” under the aegis of Azadi ka Amrit Mahotsav (AKAM) was organized on 13th August 2022. The Prabhat Pheri started from Tathagata Tsal (Buddha Park), Ravangla to NIT Sikkim campus. Hon’ble Director Prof. M.C. Govil, all the students, faculty and staff members of the Institute participated in PRABHAT PHERI with great enthusiasm. Ravangla Administrative personnel, students from local schools and local youths also participated in the rally. The participants marched with display of Tiranga flags, banners, posters, singing patriotic songs, chanting of patriotic slogans, etc.



## INTERNATIONAL DAY OF YOGA

International Yoga Day is celebrated every year on 21<sup>st</sup> June all over the world to raise awareness about the benefits of practicing Yoga in our daily lives. The theme for International Yoga Day 2022 was “Yoga for Humanity”. NIT Sikkim organized 2 weeks yoga session which started from 7<sup>th</sup> June 2022 and concluded on 21<sup>st</sup> June 2022. The session was conducted under the guidance of yoga professional Shri R.P.Poudyal and it was participated by the Director, faculty, staff and students of the Institute.



## REPUBLIC DAY

The 74th Republic Day was celebrated on 26<sup>th</sup> January 2023 in the campus with active participation of students, faculty and staff members of the Institute. The day was celebrated by March Past by the home guards. Prof. M. C. Govil, Director, NIT Sikkim hoisted the National Flag followed by the National Anthem. Director addressed the gathering about the importance of the day. Students performed cultural dances and other activities were also organized.



## GAMES & SPORTS

Various Games and Sports events are organized by the Institute throughout the year. Students are encouraged and provided with necessary assistance to participate in the Inter-NIT Sports meet. For regular indoor games and sports activities, every hostel has facilities of Table Tennis and Carrom Board. In addition, there are two play grounds inside the campus where students can play Football, Volleyball, Kho-Kho, and Cricket. A well-maintained indoor Badminton Court is also available inside the old Academic Building. All fields and courts have proper

lighting facilities for the convenience of the students to play at night.

Apart from that, Annual Sports Meet of the Institute is organized every year to motivate students in games and sports activities. Students actively participate in the annual sports meet. Games & sports like Kho-Kho, tug of war, football, cricket and many other exciting activities are organized for the students to enjoy the annual sports meet.



## YUVA SANGAM

An initiative of Government of India under the aegis of EK BHARAT SHRESHTHA BHARAT, Yuva Sangam focuses on conducting exposure tours for the youth, mainly students of higher education, to various states of India. The Ministry of Education selected NIT Sikkim as the nodal implementing Institute for the state of Sikkim paired with NIT Rourkela for the state of Odisha.

25 students from Sikkim were shortlisted for the exposure tour to Odisha and 5 coordinators from NIT Sikkim accompanied them. The tour was flagged off from M.G. Marg, Gangtok by Shri Kunga Nima Lepcha, Hon'ble Education Minister, Govt. of Sikkim in presence of Shri Indra Hang Subba, MP Lok Sabha, Sikkim, Prof. M.C.Govil, Director NIT Sikkim on 24th February

2022. The event was also graced by the Arjuna Awardee and renowned boxer Shri Jaslall Pradhan and Dronacharya Awardee Smt. Sandhya Gurung and local Administrative officials.



Flagged off event from M.G. Marg, Gangtok



Yuva & coordinators from Sikkim with the guests



Being the host Institute, NIT Sikkim welcomed 31 students and 5 coordinators from Odisha for 5 days educational cum cultural exposure tour for Yuva Sangam program. The yuva were received and welcomed at NJP station and at Melli checkpoint (border of Sikkim) by the team from NIT Sikkim. Later, a grand reception was organized for the delegates from Odisha, Army, Railway and Media personnel at the NIT Sikkim campus by the Director, faculty, staff members and students of the Institute. As a traditional welcome, tilak was applied and the Director offered khada (traditional ceremonial scarf) and as a mark of love roses were given to all the delegates.



At Melli checkpoint (border of Sikkim)



Reception of delegates at NIT Sikkim campus



On the 1<sup>st</sup> day of yuva sangam program, a day long cultural event was organized by NIT Sikkim in collaboration with NYK Namchi and JNV Ravangla to showcase the rich culture and traditions of Sikkim to the yuva team from Odisha. The yuva of Odisha also performed the Odissi dance.



Cultural dance from Sikkim



Cultural dance from Odisha



Odisha team with Hon'ble Director NIT Sikkim

On the 2nd day of yuva sangam, the team from Odisha visited Temi Tea Estate; they were briefed about the processing unit and manufacturing of organic tea of Sikkim. They also visited the local home stay at Temi Tarku. Later, they visited and offered their obeisance at Siddheswara Dham also known as Char Dham, Namchi, and also interacted with the progressive organic farmers on their way back at Jaubari.



At Siddheswara Dham, Namchi



At Temi Tea Processing unit



At organic vegetable stall, Jaubari

On 5.03.2023, the yuva from Odisha along with the Hon'ble Director Prof. M. C. Govil and staff from NIT Sikkim called on the Hon'ble Governor of Sikkim Shri Laxman Prasad Acharya at Raj Bhawan, Gangtok. The Hon'ble Governor briefed about the importance of knowing one's culture and tradition and further added that the youth will play an important role in taking India ahead. The Yuva from Odisha also expressed their gratification on being selected for the yuva sangam tour to Sikkim.



With Hon'ble Governor of Sikkim, Shri Laxman Prasad Acharya at Raj Bhawan, Gangtok



Next day the team from Odisha visited Gnathang valley located at an altitude of 13,200 ft. above the sea level.



Some glimpses from Gnathang valley

The team from Odisha concluded their exposure tour to Sikkim on 7<sup>th</sup> March 2023. The team thanked Hon'ble Prime Minister Shri Narendra Modi and Hon'ble Education Minister Shri Dharmendra Pradhan for the visionary concept of Yuva Sangam. They also thanked NIT Sikkim fraternity, IRCTC and the Govt. of Sikkim for warm hospitality and comfortable travel arrangements during the tour.



## PARIKSHA PE CHARCHA

An interactive program under Pariksha Pe Charcha with the Hon'ble Prime Minister Shri Narendra Modi was held on 27<sup>th</sup> January 2023 through online mode. Students, parents and faculties were encouraged to register online and participate in Pariksha Pe Charcha 2023 contest. Hon'ble Prime Minister Shri Narendra Modi has been doing this interactive session with the students under this program every year to make the learning more joyful for our future nation builders.



## WOMEN PAKHWADA

Women pakhwada was celebrated from 25th November to 10th December 2022 under the eve of 'International Day for the Elimination of Violence against Women'. As a part of it, a sensitization workshop for employees was conducted on 25th November where Mrs. Prasuna Sharma, Senior Advocate of Namchi District Court gave an informative talk on "Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013". A series of activities were conducted to sensitize and generate awareness on Sexual Harassment of Women at Workplace for the employees of the Institute:

1. Special interactive session on "Swasth Mahila Sasaktarastra" with Dr. Prana Sharma.
2. Motivational session by Shri Atul Kothari, National Secretary, Shiksha Sanskriti Utthan Nyas, New Delhi.
3. Health check-up program for students and employees
4. Poster competition amongst the employees on theme "Sexual Harassment of Women at Workplace"
5. Open quiz competition for the employees

The event was graced by the Hon'ble Director Prof. M.C. Govil, Registrar, Deans, HoDs and attended by the Faculty and Staff members of NIT Sikkim.



## JANJATIYA GAURAV DIVAS

The Government of India declared 15th November as Janjatiya Gaurav Divas. The date is the birth anniversary of Sri Birsa Munda who is revered as Bhagwan by tribal communities across the country. NIT Sikkim celebrated Janjatiya Gaurav Divas to pay respects to all Janjati Mahanayak who had immensely contributed during the freedom struggle of India. Competitions on short speech/debate, Q&A session, display of documentary videos of janjati heroes, lecture etc were conducted. Hon'ble Director Prof. Mahesh Chandra Govil addressed the students and urged the gathering regarding the contribution of Janjati Mahanayak and to pay respect to all the freedom fighters. The Program was attended by the students, faculty and staff members of the Institute.



## INTERNATIONAL DAY OF SIGN LANGUAGES

NIT Sikkim organized "International Day of Sign Languages" in collaboration with Special School for Speech and Hearing Impaired, Gangtok. The program was graced by the Hon'ble Director Prof. Mahesh Chandra Govil in presence of faculty members of special education, staff and other members of the school. The conceptual video/photography of NIT Sikkim was screened for special children to motivate and encourage them for higher education and highlight the importance of technology. Videos on sign languages, symbols, theme and other publicity materials were also displayed and handed to the school management. The special children beautifully sang the National Anthem and the State song of Sikkim. Useful stationeries and activities kits were handed to all the special children and signage materials to school management as a gifts.

## BLOOD DONATION CAMP

NIT Sikkim organized blood donation camp at Ravangla campus on 18th June 2022 in collaboration with Blood Bank of Namchi District Hospital and Voluntary Blood Donor Association of Sikkim. The faculty members, staff and students of the Institute voluntarily donated 74 units of blood. The camp was conducted under the supervision of Medical teams headed by Dr. Rachana Lamichaney from Namchi Blood bank. The district and state president of VBDAS Sikkim had arduously worked to generate awareness on the importance of blood donation. The Hon'ble Director Prof. M. C. Govil encouraged the donors and extended his gratefulness to the Medical Team and VBDAS for organizing the camp as a noble cause for humanity.





NIT Sikkim has been established with the aim of providing holistic education to students. The Regnant Ink is continuously striving since 24th February 2018 to create an upsurge in the extracurricular activities of each student and to make them familiar with the exquisite journey of learning and exploring through literary events. The Regnant Ink organizes an array of activities throughout the academic year, including Book Reviews, Poetry Competitions, Writing workshops, and Literary Festivals.

The Regnant Ink aims to create a platform where students can express themselves freely, share their literary works, and engage in meaningful discussions on various literary themes and topics. By fostering a love for literature and creative writing, the club encourages students to become well-rounded individuals with strong communication skills and critical thinking abilities.

## LIST OF ORGANISED EVENTS:

S.No.	Event	Date
1.	Har Ghar Tiranga	15/08/2022
2.	Hindi Pakhwada	29/09/2022
3.	Talk Session by Dr. Sanjay Shankar Mukherjee	13/10/2022
4.	Rangoli Competition on Diwali	24/10/2022
5.	"Abhyudaya" - The Cultural Event	25/10/2022
6.	Drawing Competiton under Ek Bharat Shreshtha Bharat	30/10/2022
7.	Unity Day Celebration	31/10/2022
8.	Quiz Competiton	26/11/2022
9.	Next Pitchers	12/02/2023
10.	Seminar on Indian Capital Market	20/03/2023
11.	Events under International Year of Millet 2023	26/03/2023 - 27/03/2023

### 1. Har Ghar Tiranga

The strength of any country is measured by the degree of its Independence. To celebrate the day which marked the freedom for the tied wings of our country, National Institute of Technology Sikkim in collaboration with The Regnant Ink organized various events under the umbrella of "Har Ghar Tiranga" like Jigyasa - a quiz competition and Pravaah - an essay writing competition to showcase the literary skills and awareness of students regarding the nation, its ideals, values, and symbols. "Rashprabandh" a platform to display the artistic side proved not only a zealous way to celebrate the Independence day but it also made everyone realized and be grateful for the land that we dwell on. "Khazane Ki Talash", a treasure hunt game, motivated all to come together to find the treasure but also reminisce the treasure of freedom that we have.

The event list under this grand celebration is as follows:

S.No.	Name	Event	Date
1.	Chalchitra	Patriotic Movie	6th August 2022
2.	Pravaah	Essay Writing Competition	7th August 2022
3.	Jigyasa	Quiz Competition	7th August 2022
4.	Khazane Ki Talash	Treasure Hunt	9th August 2022
5.	Prabhat Pheri	Assemblage	13th August 2022
6.	Rasprabandh	Skit Competition	14th August 2022
7.	Trivarnam	Cultural Event	14th August 2022
8.	Freedom Badminton Championship	Badminton Competition	6th August - 14th August 2022



## 2. Hindi Pakhwada

Hindi, as a language, has taken a special place in the hearts of every individual in this country. The language has become the fourth most spoken language in the entire world as the elegance and simplicity of the language have touched the hearts of everyone throughout the world. The importance of this language is innumerate and to share our love for the language the students of The Regnant Ink proudly organized a week portraying the talent of students as they expressed their inner feelings through the might of their words. Students put forth their opinions on how privatization has influenced the Indian economy through means of a debate competition where floors were swept with excellent remarks.

The soothing tunes of students in the chorus as they rhymed together with the Hindi tunes that melted their hearts made a unique stand in the week-long event. There were letters

and essays written where talents were well depicted and the importance of the language was highlighted. Language is just a means to express one's thoughts and the students of NIT Sikkim proudly showed their affection for the language as with their words in Hindi they reminded us of the reason why this nation is also recognised as 'Hindustan'.

The list of events is as follows:

S.No.	Name	Event
1.	Andaz-e-Bayan Aur	Kavi Sammelan
2.	Loksabha	Debate Competition
3.	Kavya Manjari	Poem Submission
4.	Antakshari	Antakshari
5.	Vritant	Story Writing Competition
6.	NibandhLekhan	Essay Writing Competition



## 3. Talk session by Dr. Sanjay Shankar Mukherjee

On 13th October 2022, The Regnant Ink hosted a talk session by Dr. Sanjay Shankar Mukherjee, a distinguished Professor in the Department of English and CLS at Saurashtra University. He emphasized that engineers should know the depth of words in literature and their impact on our life apart from knowledge in their respective technical fields. During the talk, Dr. Mukherjee introduced the audience to the works of several literary legends, including William Shakespeare's "Sonnet 18" and Robert Frost's "Stopping by Woods on a Snowy Evening". By analyzing these timeless pieces of literature, he highlighted how they express the emotions and experiences that shape our human existence. His talk was a reminder that literature plays a vital role in our personal growth and development, regardless of our profession. By appreciating and understanding literature, engineers and individuals from all walks of life can broaden their perspectives, enhance their communication skills, and shape their approach to problem-solving.





#### 4. Rangoli Competition

On the auspicious occasion of Deepawali Mahotsav, The Regnant Ink organised “Rang-Abira” a rangoli-making competition. It was organized on 24th October 2022. Each participant was filled with joy while parallely maintaining our customs and culture and valuing the effects that colour have on us. People who participated made astonishing rangolis and while rangolis are very beautiful to look at, they gave our college a homely look.



#### 5. Abhyudaya- The Cultural Event

On October 25th, 2022, the auspicious occasion of the festival of lights, Diwali was celebrated and the whole campus was decorated with lights, a beautiful display of Rangoli, a great portrait of shiny-flashy things, and lit the whole institute with the ritual of Diyas. To enlighten this occasion, The Regnant Ink, the literary club of the National Institute of Technology Sikkim, hosted a cultural event named “Abhyudaya”, the most

prestigious cultural event of the club. The event aimed at developing cultural harmony and nurturing a bunch of talent. Numerous performances including dances, extremely amusing drama, and alluring musical performances by the students of the institute not only showcased the talent of the students but also engaged the audience in their mesmerizing performance. The event successfully ended by spreading the spirit of brotherhood amongst the students.



## 6. Drawing Competition - Under Ek Bharat Shrestha Bharat

Art acts as a channel that connects the human consciousness with the supreme and is considered one of the few media through which a person can creatively exhibit their opinions and perceptions. It is not only a creative display but also a therapeutic encounter that liberates one's mind, freeing it from anxiousness and overwhelming feelings that cloud the vision and blur the clarity of one's thought process.

The Regnant Ink takes into account all the forms of literature, and drawing is one of them.

We organized a drawing competition to make the people's talent come out in the form of colours.



## 7. Unity Day Celebration

In the glorious view of Unity Day, the National Institute of Technology Sikkim, in collaboration with The Regnant Ink - the literary club of the Institute - took the initiative to organize a "Run for Unity". The run was conducted to spread a sense of brotherhood among the various cultures and religions of our highly diversified India. Students from the institution participated in the event with fervour high enough to break any limits the skies can set. The run began with a soaring spirit among the participants from Buddha Park and followed a preset route to the main gate of the institute. The participants ran while being refreshed by the continuous supply of energy drinks at multiple checkpoints.

The 'Run for Unity' was followed by a pledge-taking ceremony for the students where they pledged to preserve the unity and integrity of the nation. On the same day, various events like Speech Competition, Quiz, and exhibition were held for the students to display their skills, knowledge, and awareness of the topic. Students participated in all these events with great enthusiasm and gained a lot of information and insights from these events.





### 8. Quiz on Constitution Day

Every year the Regnant Ink celebrates Constitution Day on 26th November by organising different events. Questions make an individual more knowledgeable and wise. First and foremost, quizzes are meant to test your knowledge. Quizzes can help you to have a positive attitude towards learning. Therefore, the club organized a quiz this year as well to enhance the knowledge of the students regarding the Constitution. The students participated with full enthusiasm making the event a great success.





### 9. Seminar on Indian Capital Market

The influence of trading can be felt across social domains. It has become a major source of both active and passive income in recent years. To ensure the security of the traders within the institute, The Regnant Ink took the initiative to invite senior representatives of SEBI, NSDL, and NSE to provide the students an enriching insight into the India Capital Market amongst the students and scholars of the institute. The seminar commenced on the 25th of March, 2023. The seminar was addressed by Mr. Subhashish Sen Gupta from NSDL, Kolkata, and Mr. Kinjal Ghosh, the assistant general manager at SEBI, Kolkata. The Honorable Director of the institute Shri Mahesh Chandra Govil chaired the session as the chief guest. The students and scholars of the institute left the MPH after the session with more informed knowledge of the present market securities and more awareness than before.

### 10. International Year of Millet

In recognition of the International Year of Millets (IYOM) 2023, The Regnant Ink organized a two-day workshop comprising a series of events. The programs were aimed at raising awareness about millets and their importance. To embark on this year's event, Mr. K. V. Ram Subba Reddy was invited. He did a Training Program on Millet-based Food Recipes.

Along with this, the following events were also organized:

- The Millet's Trap: A Cooking competition where students showcased their cooking talent intertwined with the inclusion of different kinds of millets
- Quizbuzz: A quiz Competition aimed to encourage students to gain more knowledge about millets
- Presentation on Millet: Students prepared and presented slides covering all aspects of Millet from its production to its benefits encouraging all to adapt Millet in their daily food routine.
- Word's on Fire: An Essay Competition that provided students with an opportunity to open their insight about possible ways of popularizing millets among the masses.

- Speech Competition: A stage where the students shared their experience and recipe for eating Millet and their benefits.
- Feast on Millet's Pakoda and Payasam: Finally to give a taste of how tasty Millets can taste, Pakoda and Payasam made of Millets were distributed among the College students and Faculties.



### 11. The Next Pitcher

The Next Pitchers was one of the most astounding events organized by The Regnant Ink for those creative minds who can sell anything to anyone. It was organized on 12th February 2023. The Next Pitchers was a mixup of on-the-spot marketing and also with some pre-planned pitching. This propelled the participants to learn how to pay attention to little things and convert them into a selling point. Expressing our thoughts in a short time is a hallmark of a good marketing person and that too if you have to sell something in front of an audience. The event was well enjoyed by every participant and they gained a lot from the same.

# FACILITIES FOR STUDENTS

## SCHOLARSHIPS

Institute Nodal Officer (Scholarship) - Mr. Ram Nepal

The students of NIT Sikkim are benefitted by Scholarships under different schemes of Central and State Government. NIT Sikkim is registered on many scholarship portals and different state scholarship portals that provide financial assistance to the students based on their family income and academic performance under various categories and accordingly the students are benefitted.

The details for the Scholarships have been mentioned below:

### A. National Fellowship and Scholarship Scheme for Higher Education of ST students

Under this scheme, the students get financial assistance incurred on the following -

- Tuition Fees: All the ST students get full Tuition Fee waiver as per the Institute rule.
- Books & Stationery: Rs.5,000/- per annum per student.
- Living Expenses: Rs. 36,000/- per annum per student.
- Computer & Accessories: Rs.45,000/- One-time assistance during the Course.
- Other Non-Refundable Charges: Other Institute Non-Refundable Fees paid by the student for all academic/non-academic purposes. This amount may vary year wise.

### B. Central Sector Scholarship Scheme of Top Class Education for SC Students

Under this scheme, the students get financial assistance incurred on the following -

- Tuition Fees: All the SC students get full Tuition Fee waiver as per the Institute rule.
- Books & Stationery: Rs.5,000/- per annum per student.
- Living Expenses: Rs. 36,000/- per annum per student.
- Computer & Accessories: Rs.45,000/- One-time assistance during the Course.
- Other Non-Refundable Charges: Other Institute Non-Refundable Fees paid by the student for all academic/non-academic purposes. This amount may vary year wise.

### C. Central Sector Scheme of Scholarship for College and University Students

The Scholarship amount is Rs.10,000/- per annum.

### D. Merit Cum Mean Based Scholarship for Students belonging to Minority Communities

Under this Scheme, the students get financial assistance incurred on the following -

- Course Fee: Rs. 20,000/- per annum.
- Maintenance Allowance: Rs. 10,000/- per month for a duration of 10 months in Academic Year.

### E. Central Sector Scheme of Scholarships for Students with Disabilities

Under this Scheme, the students get financial assistance incurred on the following -

- Maintenance Allowance: Rs. 1600/- per month.
- Disability Allowance: This amount may vary depending upon the disability criteria of the candidate.
- Book Allowance: Rs. 1500/- per annum.
- Reimbursement of Compulsory Non-Refundable Fees: Other Institute Non-Refundable Fees paid by the student for all academic/non-academic purposes. This amount may vary year wise.

### F. Scholarships from other States:

Students belonging to the following states avail Scholarship from their respective state government Scholarship schemes: Bihar, Madhya Pradesh, Rajasthan, Jharkhand, Assam, Sikkim.

### G. Scholarships from other Funding Agencies:

- Swami Dayanand Charitable Education Foundation
- Samsung Star Scholarship
- Foundation for Academic Excellence and Access (FAEA)
- S.R Jindal Scholarship
- NHFDC

Other than these, there are many more Scholarship Schemes of Central & State Govt. of India where the students are directly benefitted. After verification at the Institute level, students' applications are forwarded to their respective state and then to the respective Ministry. If selected by the Awarding Authority, the students directly receive their Scholarship in their bank accounts.

**No. of Students recommended for Scholarship during the year 2022-23 through the Central Schemes, UGC Schemes and respective States schemes is given below:**

Sl.No.	Scholarship Schemes	No. of Students
1	Central Sector Scholarship of Top-Class Education for SC Students	42
2	National Fellowship and Scholarship for Higher Education for ST Students- Scholarship (Formally Top-Class Education for Schedule Tribe Students)	39
3	ISHAN UDAY - Special Scholarship Scheme for North Eastern Region	4
4	Central Sector Scheme of Scholarships for College and University Students	5
5	Merit Cum Means Scholarship for Professional and Technical Courses CS	1
6	Post Matric Scholarship Schemes Minorities CS	3
7	Scholarship for Top Class Education for Students with Disabilities	2
8	Financial Support to the Students of NER for Higher Professional Courses (NEC Merit Scholarship)	2
9	PG Indira Gandhi Scholarship for Single Girl	2
10	PG Scholarship for University Rank Holders (1st and 2nd Rank Holders)	1
11	Arunachal Pradesh State Stipend Scheme	1
12	Umbrella Scheme for Education of ST Children -Post Matric Scholarship (PMS) for ST Students Arunachal Pradesh	1
13	Post Matric Scholarship For SC Students - Assam	1
14	PM Yasasvi Post Matric Scholarship For OBC,EBC and DNT Students-Sikkim	14
15	Centrally Sponsored Post Matric Scholarship For SC Students - Sikkim	3
16	Post Matric Scholarship Scheme For ST Students-Sikkim	1
17	Post Matric Scholarship For SC Students- Bihar	6
18	e-Medhabruti PG Merit- Odisha	1
19	Mukhya Mantri Sarvjan Uchha Shiksha Chhatravriti Yojana- Rajasthan	1
20	Scheme of Post Metric Scholarship For the Scheduled Tribes- Rajasthan	1
<b>Total Students</b>		<b>131</b>



# HOSTEL ACCOMMODATION

At present, the Institute is located in a temporary campus and hostel accommodation within the campus is limited. Institute accommodation within and outside the campus is available for UG (B. Tech) and PG (M. Tech, M. Sc. and Ph. D) Students. Separate hostel accommodation is also available for Girl students within the campus. All the hostel rooms are equipped with necessary furnitures such as Cot, Chair-Table, Almirah etc. In-Campus hostels are fully Wi-Fi enabled. The students are also facilitated with basic amenities like Geyser, Washing Machine, TV, Gymnasium, and indoor games in the hostels.

## A. In Campus Hostels Details

Chief Warden In-Campus - Dr. Ravi Srivastava

### (i) Boys Hostel

Sl. No.	Name of the Hostel	No. of residents	Name of Wardens
1.	BH 1	146	Dr. Sangram Ray (Proctor) Dr. Avinash Kumar (Resigned) Mr. Gajendra Singh Sekhawat Dr. Md. Sarfaraj Alam Ansari (from 22.02.23)
2.	BH 2	160	Dr. Dhananjay Tripathi (Proctor) Dr. Shambhunath Barman Dr. Sumit Saha
3.	BH 3 & 4	30	Dr. Sanjay Kumar Jana (Proctor) Dr. Dipmalya Basak Dr. Abhishek Rajan

### (ii) Girls Hostel

Sl. No.	Name of the Hostel	No. of residents	Name of Wardens
1	GH-1	29	Dr. Reshmi Dhara
2	GH-2	28	Dr. Richa Mishra
3	GH-4	5	Dr. Kriti Tewari
4	GH-5	28	
5	GH-6	26	
6	GH-7	15	
7	GH-8	11	

## B. Off- Campus Boys Hostel

Three (03) buildings are hired on rental basis at Ravangla town to accommodate the UG 1<sup>st</sup> year and PG Boys Students. Further, bus facility is provided to the students residing at off- campus hostels for their convenience.

Assistant Chief Warden Off-Campus – Dr. Debajit Saha

Sl. No.	Name of the Hostel	No. of residents	Name of Wardens
1.	OH-1	75	Dr. Md. Nuujjaman (Proctor)
2.	OH-2	21	Dr. Dipayan Das Dr. Sudip Banerjee
3.	OH-3	21	Dr. Neelanjan Dutta Dr. Suresh Kr. Choubey Dr. Vishnu T.B. Dr. Souvik Patra

## MESS FACILITIES

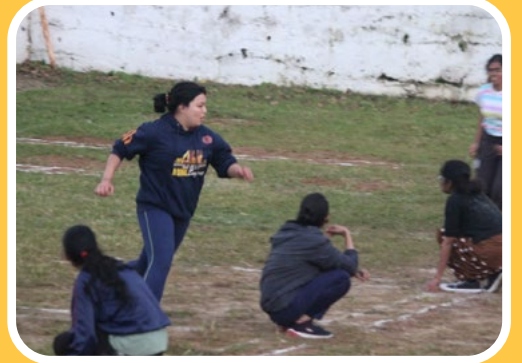
Three separate student messes are running at NIT Sikkim. Two messes are located separately within the campus, which are dedicated and catered to facilitate In-campus Girls and Boys Students. One mess is located at Off-campus hostel, which is catered to students residing at Off-campus hostels. The Student Mess Committee under the supervision of Chief Warden and other Wardens oversees the smooth functioning and quality of the services provided by the Mess Contractor.

## NIT SIKKIM SPORTS WEEK

Like every year, the institute's games and sports committee organized the "ANNUAL SPORTS MEET" on 27th-29th October 2022 in the institute's own ground. Most of the games conducted during the annual sports meet like cricket (girls and boys both), football (girls and boys both), volley ball (girls and boys both), kho-kho (girls and boys both), Long jump (girls and boys both), shot put (girls and boys both), Discus throw (girls and boys both), 4x100 meter relay race (girls and boys both), 100-meter race (girls and boys both), 50-meter race (girls only), chess (girls and boys both), carrom (girls and boys both), Tug of War (girls and boys both). Some photographs of annual sports meet are highlighted below.







Sports are an essential part of student life, and they play a vital role in shaping young minds. To promote physical activity, the institute encourages students to participate in various sports activities every year.

This year in the month of February our college students have participated at two different colleges:

1. BIT Patna – For Chess and Badminton
2. NIT Rourkela – For INTER NIT Football tournament

Our students played well and enjoyed themselves a lot during the event.

### BIT Patna

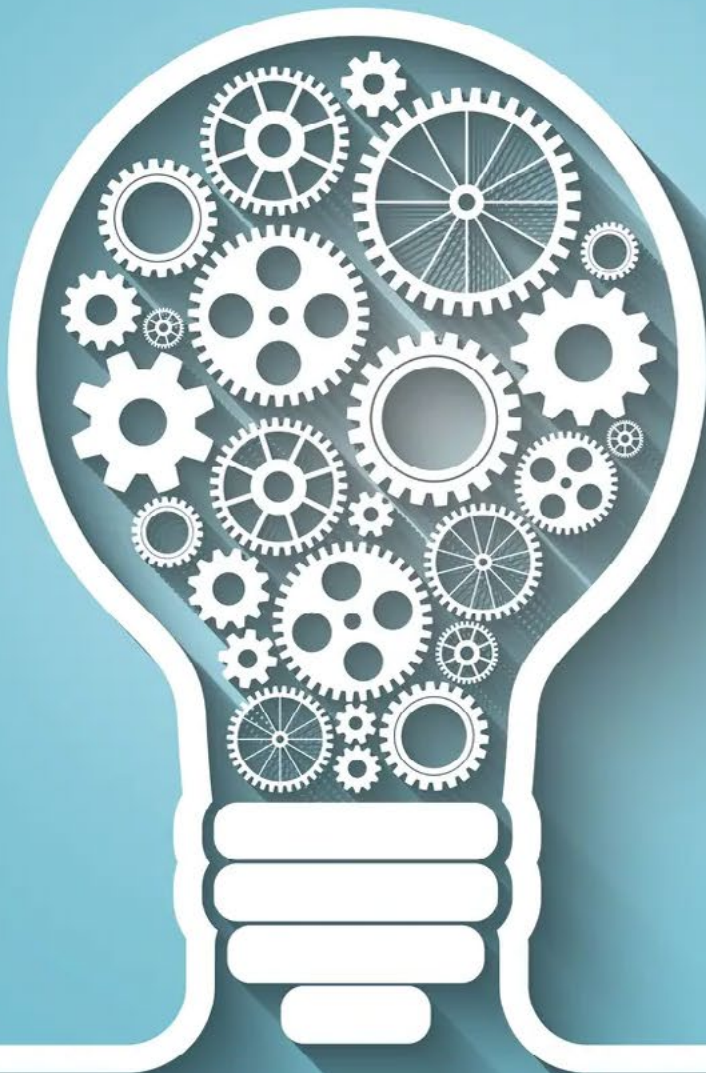


### NIT Rourkela





# Infrastructure Development in the Temporary Campus



Due to lack of space and basic amenities in the current temporary campus of the Institute, efforts have been put to create basic necessary infrastructure and regular maintenance works of old conventional and temporary shed structures. The Estate Section of institutes has managed all infrastructure related activities. The Institute has been operating from the temporary campus since the past decade and the campus is in need of regular repairs and maintenance to discharge the necessary academic and administrative activities. Further, with the approval of the BWC and the BoG, constructions of temporary sheds are initiated to provide the necessary and basic laboratories/ class rooms and other infrastructure. In the year 2022-23, the Institute has taken up the following projects, which are repaired and fabricated.

### a) Extension of Sheds in the pathway near academic block

As Ravangla experiences heavy rainfall which lasts for around 6 to 7 months in a year, it becomes very difficult for the Faculty/ Students/ Staff to reach the class rooms and laboratories. The pathway leading to the abovementioned areas is open and becomes extremely slippery and dangerous for the pedestrians to walk through it. In this context the concerned pathway areas were covered by transparent sheets supported by Mild steel structural sections. The work was carried out by Estate Department under the supervision of Civil Engineering Department and the picture of the same is given in Fig.1.



Fig.1 Extension of Shed pathway near academic block

### b) Fabrication of Shed for Washing Machines near Girls Hostel

There was no designated place for washing of clothes for the hostel boarding Girl students of the institute. The space available inside the hostel is limited and hence Washing Machines were installed outside. Ravangla, being prone to heavy rainfall throughout the year, the washing machines were exposed to rain which led to corrosion and rusting in the body. In light of the above, it has become necessary to provide a dedicated space with roof covering as for washing area. The estate department had identified the location near the hostel block for this purpose. The floor of the washing area was laid with anti-skid ceramic tiles to avoid slippery floors and waterlogging. The structure was made using Mild Steel structural sections and PVC transparent Sheet to accommodate at least three machines in the washing place. The work is carried out by the Estate Department of NIT Sikkim under the supervision of Civil Engineering Department. The picture of the same is given in Fig.2.



Fig.2 Shed for Washing Area near Girls Hostel Block

### c) Construction of single unit room for the ATM

The students, faculty, and staff of the institute were relying solely on the ATMs located in Ravangla Bazar, roughly 4 Km away from the campus. Considering the same, various banks were approached to set up an ATM on the campus. However, only the Union Bank of India, Namchi had considered the request to install an ATM to provide easy access of the facilities to the faculties, staff and students of NIT Sikkim. It was agreed to provide the space with a suitable structure in accordance with the Bank's requirements without charging rent or electricity charge. For the same the space near main gate had been identified and as per the requirements, an RCC Structure of 10'x6' has been constructed. The construction work has been carried out by the Estate Department of the Institute under the guidance of Civil Engineering Department. The picture of the same is given in Fig.3.



Fig.3 Single Unit Room for ATM facility

## d) Refurbishment of the Park and nearby passage areas

The existing park has been refurbished with required path way using paver blocks and anti-skid tiles. In addition to this there was a need of repair and maintenance of nearby passage, etc. The works are carried out by the Estate department under the supervision of Civil Engineering Department and the picture of the same is given in Fig.4.



Fig.4: Refurbishment of the Park and nearby passage areas

## e) Repair of CC approach road from main gate to academic block staircase

The present campus of NIT Sikkim witnesses heavy rainfall in monsoon seasons which last for around 6 to 7 months and due to this, the road behind the academic block which was constructed 12 years ago had severely deteriorated by potholes, storm drain water etc. in monsoon, and was unsafe for the pedestrians and vehicular movements. The same has been repaired and maintained by using cement concrete. The work has been carried out by the Estate Department under the supervision of Civil Engineering Department and labour hired on daily basis by institute and the picture of the same is given in Fig.5.



Fig.5: Repair of Road by using Cement concrete

## f) Extension of Training and placement Cell

The temporary campus of the institute has limited built up space and currently T&P cell is operating in the smaller section of institute. The aluminium extrude section and particle boards are utilized to form an additional chamber for the T&P cell to provide some more space for the representatives of T&P to carry out necessary work related to placements and internship. The said work is carried out by the Estate Section under the supervision of Mechanical and Civil Engineering Department. institute and the picture of the same is given in Fig.6.

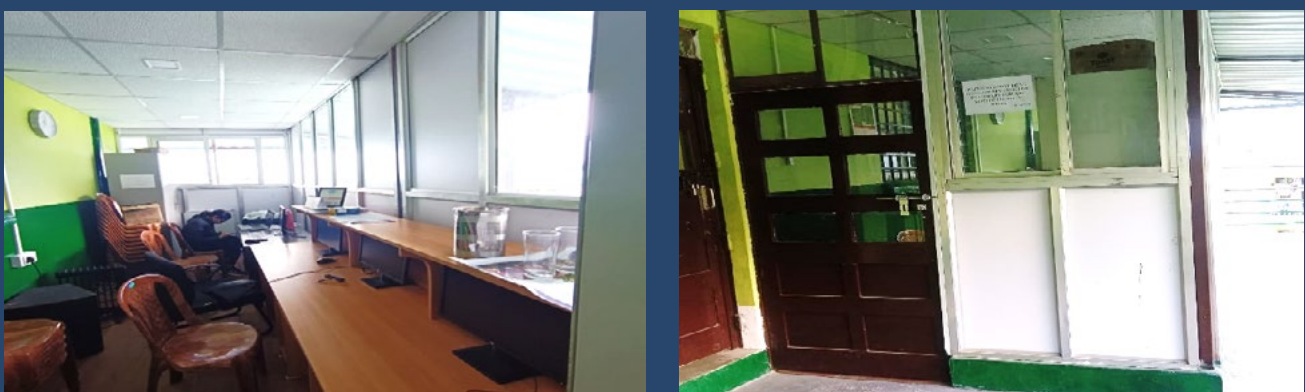


Fig.5: Extended Section of T&P Cell.

## CENTRAL LIBRARY

The Central Library is an integral part of academic and research activities of the Institute. It was established in 2012 as the Knowledge and Information Center (KIC), providing access to scholarly information, research support, and study facilities. It aims to offer effective services to its users for the fulfillment of their learning needs through its necessary facilities.

### Library Collection

The library has grown steadily from its early days and has a reasonable number of quality learning resources for the academic fraternity of the Institute, both in print and digital format. It has a good collection of text books, fiction books, reference books, encyclopedias, dictionaries, journals and magazines. The Institute subscribes to journals and magazines such as Springer-Nature, ACM Digital Library, American Physical Society (APS), JSTOR, ASCE, ISID database, NDL e-Resources and Digit to cater to the needs of the students and researchers. To fulfil the need for e-books and other e-resources, the central library is further engaged with DELNET. Users may explore various e-resources from DELNET. Research scholars may also use the platform "QuillBot", which provides various services like a paraphraser, grammar checker, citation generator, plagiarism checker, and many more. We are also taking the positive initiative to build an institutional digital repository.



### E-Resources:

Resource	Remarks
ACM Digital Library	IP Based Access
American Physical Society - eSS Collection	IP Based Access
ASCE Journals Online	IP Based Access
Institute for Studies in Industrial Development (ISID) Database	IP Based Access
JSTOR	IP Based Access
Springer Link 1700 Collection + Nature Journal	IP Based Access
Trunitin	Remote Access
QuillBot	Remote Access
DELNET	Remote Access
Digit e-Magazine	Remote Access



## Library Services

The Central Library is automated with KOHA library automation software which is an open source Integrated Library System (ILS). Patrons can easily search the availability of books and other resources of library using OPAC (Online Public Access Catalogue). Students can even check their own library account using their mobile or PC through OPAC. The circulation process is time efficient as circulation of books is executed through the barcode scanning system. Books are well organized and arranged according to the DDC classification system so it is easy to find out the book which one is looking for.

Despite space limitations, special arrangement is made for a reading room for students at the multi-purpose hall. Proper room heating facilities are provided for convenience.

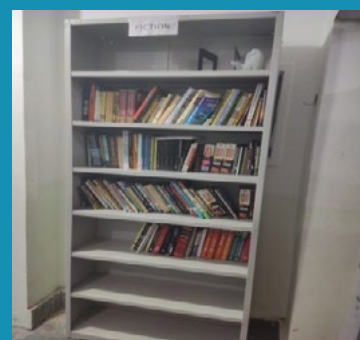
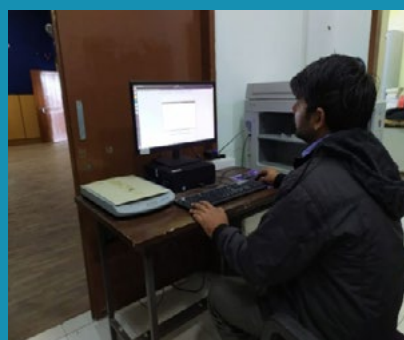
Library is well-equipped with photocopy, printing and scanning facilities. Two big size canon printer-cum-scanners with computer are assigned for this purpose.



Central Library provides Book Bank services on limited titles throughout the year. Central Library also consists of books regarding competitive examinations like GATE, CAT and IIT-JEE etc. Library consist reference room separately. CAS, SDI and referral services are provided here. Students can also avail e magazine and e news papers from the library. Students are encouraged to access the NDL (National Digital Library) to avail e-resources on their area of interest.

*“Library is a heart of an institution”*

**-Radhakrishnan, 2nd president of India**



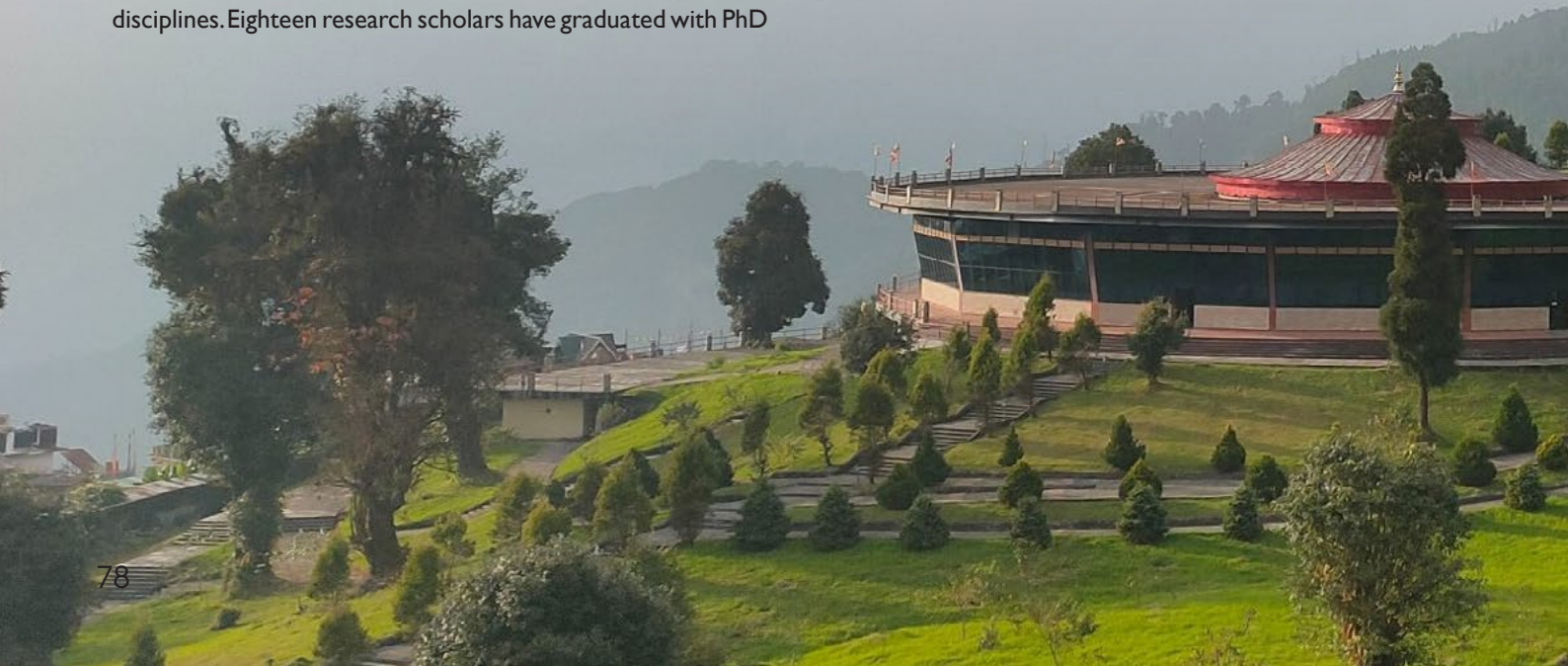
# Research & Consultancy

During the last two years the Institute has signed Memorandum of Understandings (MoUs) with 14 academic, research and industrial organizations, which include seven premier IITs and two NITs, for academic and research collaborations. In the financial year 2022-23 MoUs have been signed with Indian Institute of Technology Hyderabad, TCG Lifesciences Private Limited Kolkata, National Highways and Infrastructure Development Corporation Limited, National Institute of Pharmaceutical Education and Research Kolkata, and Sardar Vallabhbhai National Institute of Technology Surat. Some of these MoUs have enabled our most outstanding students to complete their B.Tech programs in premier IITs and begin their Ph.D. programs immediately after the completion of their undergraduate programs. Two of our students, Ms. Swati from the Department of Civil Engineering and Ms. Srishti Sharma from the Department of Electrical and Electronics Engineering are currently pursuing their final year B.Tech programs at IIT Hyderabad. Some of our students are also pursuing their M.Tech and PhD programs at IIT Gandhinagar. There are myriad opportunities available within the scope of these MoUs for academic development of the students, faculty, and staff of the Institute. Notably, these academic, research and industrial organizations are also providing our students with internship opportunities. Furthermore, the MoUs provide a fillip to our faculty members to initiate collaborative research programs with academicians and researchers of other organizations, thus enabling them to expand their horizons and contribute towards the development of the Nation. As part of the joint collaboration between DRDO and NIT Sikkim, a Doppler Weather Radar (DWR) and Radiometer have been recently installed at the Institute. The data collected will be used for developing various algorithms and models for weather forecast in Sikkim. The data will be utilized by both DRDO and NIT Sikkim for various research and development works.

The Institute, which is still functioning from a temporary campus, has built up reasonably good research infrastructure over the years. Research scholars pursuing PhD are supervised by faculty members of almost all the engineering, science and humanities disciplines. Eighteen research scholars have graduated with PhD

degrees in the year 2022-23. The number of research scholars graduating with PhD degrees is expected to grow exponentially over the next few years. The Institute is committed towards the exploration of emerging research areas like Artificial Intelligence, Machine Learning, Semiconductor Devices, Electric Vehicles, Renewable Energy, and Quantum Computation and has procured necessary equipments for several such laboratories. The computational facilities have been augmented by adding new server class machines, GPUs and high-end computer terminals to promote cutting-edge research. The faculty members are encouraged to take up projects for the generation of knowledge and for innovation beneficial to the people of the country. The Institute actively participates in implementation of various manpower developments and quality improvement of education projects. Faculty members regularly submit research proposals against calls from funding agencies like SERB, DBT, DST and ISRO. Despite severe scarcity of resources, the faculty members and scholars are engaged in good quality research work which is evident from their efforts and publications in top-class journals and conferences. During the year 2022-23, the faculty members and research scholars of the Institute have published 76 research articles in prestigious journals, 57 papers in conference proceedings, 11 book chapters and 1 book. The Institute needs to improve its research facilities further to nurture and foster high-quality research. It is envisaged that with proper resources, the research credibility of the Institute will improve, and it will show its worth through global recognition. Two advanced entrepreneurship and skill development programmes (Adv. ESDP) were successfully conducted by the Department of Computer Science and Engineering and Department of Electrical and Electronics Engineering in collaboration with the Ministry of MSME, Govt. of India.

The faculty members are also encouraged to take up consultancy projects. The consultancy projects aid the faculty members to enhance their knowledge and expertise of the subject apart from being a source of revenue for the Institute. The following extra-mural research projects were ongoing/ completed in the year 2022-23.





## Research Projects:

### 1. Development of efficient and secure Content Centric Network (CCN) Architecture with Communication Protocols using Elliptic Curve Cryptography (ECC)

Principal Investigator -- Dr. Sangram Ray

Funding Agency – Department of Science and Technology (DST)

### 2. Design of Efficient and Secure Internet of Things (IoT) Communication Framework in context of Content Centric Network (CCN) using Elliptic Curve Cryptography (ECC) – A next generation smart communication technology

Principal Investigator -- Dr. Sangram Ray

Funding Agency – Ministry of Electronics and Information Technology (MeiTy)

### 3. Design and Development of WBG devices based High current converters for Industry Applications (WBG-CONV) Sub-title: High Frequency Power Electronics Converters for Induction Heating

Principal Investigator: Dr. Molay Roy, Co-PI: Dr. Aurobinda Panda

Funding Agency: National Mission on Power Electronics Technology Phase-III (NaMPET-III, MeiTy)

### 4. Dynamics of Power Grids through Complex Network Theory: A Study of Vulnerability, Stability, and Synchronization

Principal Investigator: Dr. Anjan Kumar Ray

Funding Agency: Science and Engineering Research Board (SERB)

### 5. Electrochemically generated oxometal complexes for water remediation

Principal Investigator: Dr. Achintesh Narayan Biswas

Funding Agency: Department of Science and Technology (DST)



# Research Publication

## Department of Computer Science

### Journals

1. Bhaumik, Gopa, Monu Verma, M. C. Govil and Santosh Kumar Vipparthi. "Hyfinet: hybrid feature attention network for hand gesture recognition." *Multimedia Tools and Applications* Pp. 1-20, 2022.
2. Patel, R. B., Lalit Awasthi, M. C. Govil, and Rachita. "n-Layer Platform for Hi-Tech World." In *Role of Data-Intensive Distributed Computing Systems in Designing Data Solutions*, pp. 83-96. Cham: Springer International Publishing, 2023.
3. Mishra, Anand K., Emmanuel S. Pilli, and M. C. Govil. "CONTAIN4n6: a systematic evaluation of container artifacts." *Journal of Cloud Computing*, vol. 11, no. 1, Pp. 1-14, 2022.
4. Jain, Vinesh Kumar, Arka Prokash Mazumdar, Parvez Faruki, and **M. C. Govil**. "Congestion control in Internet of Things: Classification, challenges, and future directions." *Sustainable Computing: Informatics and Systems*, vol. 35, pp. 100678, 2022.
5. Choudhary, Anita, **M. C. Govil**, Girdhari Singh, Lalit K. Awasthi, and Emmanuel S. Pilli. "Energy-aware scientific workflow scheduling in cloud environment." *Cluster Computing*, pp. 1-30, 2022.
6. Dipanwita Sadhukhan, **Sangram Ray**, Mou Dasgupta and Joel J.P.C.Rodrigues, "CLAACS-IOD: Certificate-Embedded Lightweight Authentication and Access Control Scheme for Internet of Drones", *Journal of Software: Practice and Experience*, **Wiley**, 2023. (<https://doi.org/10.1002/spe.3196>, **SCI, 2021 Impact Factor – 3.2**).
7. Uddalak Chatterjee, **Sangram Ray**, Sharmistha Adhikari, Muhammad Khurram Khan and Mou Dasgupta, "Efficient and Secure e-voting scheme using elliptic curve cryptography", *Security and Privacy*, **Wiley**, vol. 6, no. 3, pp. e283, 2023. (<https://doi.org/10.1002/spy2.283>, **ACM, 2022 Impact Factor – 1.4**).
8. Anindya Kumar Biswas, Mou Dasgupta, **Sangram Ray**, Dipanwita Sadhukhan, Ashok Kumar Das and Youngho Park, "LCAM: Lightweight Certificate Authority for MANET and Securing DSR Routing Protocol", *Wireless Personal Communication*, **Springer**, 2023. (<https://doi.org/10.21203/rs.3.rs-2380078/v1>, **SCI, 2021 Impact Factor – 2.017**).
9. Anindya Kumar Biswas, Mou Dasgupta and **Sangram Ray**, "Cryptanalysis and improvement of Q. Peng et al.'s PVSS scheme", *Cryptologia*, **Taylor & Francis**, pp. 1-14, 2023. (<https://doi.org/10.1080/01611194.2023.2175185>, **SCI, 2021 Impact Factor – 0.680**).
10. Uddalak Chatterjee, **Sangram Ray**, Muhammad Khurram Khan, Mou Dasgupta and Chien-Ming Chen, "An ECC-based lightweight remote user authentication and key management scheme for IoT communication in context of fog computing", *Computing*, **Spinger**, vol. 104, no. 6, pp.1359-1395, 2022. (<https://doi.org/10.1007/s00607-022-01055-8>, **ESCI, 2021 Impact Factor – 2.420**).
11. Anindya Kumar Biswas, Mou Dasgupta, **Sangram Ray** and Muhammad Khurram Khan, "A probable cheating-free (t, n) threshold secret sharing scheme with enhanced blockchain", *Computers and Electrical Engineering*, **Elsevier**, vol. 100, pp. 107925, 2022. (<https://doi.org/10.1016/j.compeleceng.2022.107925>, **SCIE, 2021 Impact Factor – 4.152**).
12. Vivek Kumar, **Sangram Ray**, Dipanwita Sadhukhan, Jayashree Karmakar and Mou Dasgupta, "Enhanced Pairing-free Identity-based Broadcast Authentication Protocol in WSN using ElGamal ECC", *Security and Privacy*, **Wiley**, vol. 6, no. 3, pp. e278, 2022. (<https://doi.org/10.1002/spy2.278>, **ACM, 2022 Impact Factor – 1.4**).
13. Vivek Kumar and **Sangram Ray**, "Pairing-free identity-based digital signature algorithm for broadcast authentication based on modified ECC using battle royal optimization algorithm", *Wireless Personal Communications*, **Springer**, vol. 123, no. 3, pp. 2341-2365, 2022. (<https://doi.org/10.1007/s11277-021-09244-y>, **SCI, 2021 Impact Factor – 2.017**).
14. Suman Majumder, **Sangram Ray**, Dipanwita Sadhukhan, Muhammad Khurram Khan and Mou Dasgupta, "ESOTP: ECC-based secure object tracking protocol for IoT communication", *International Journal of Communication Systems*, **Wiley**, vol. 35, no. 3, pp. e5026, 2022. (<https://doi.org/10.1002/dac.5026>, **SCI, 2022 Impact Factor – 1.822**).
15. Mou Dasgupta Uddalak Chatterjee, **Sangram Ray**, Sharmistha Adhikari and Muhammad Khurram Khan, "Efficient and secure e-voting scheme using elliptic curve cryptography", *Security & Privacy*, **Wiley**, vol. 6, no. 3, pp. e283, 2022. (<https://doi.org/10.1002/spy2.283>, **ACM, 2022 Impact Factor – 1.4**).
16. Daya Sagar Gupta, **Sangram Ray**, Tajinder Singh and Madhu Kumari, "Post-quantum lightweight identity-based two-party authenticated key exchange protocol for internet of vehicles with probable security", *Computer Communications*, **Elsevier**, vol. 181, pp. 69-79, 2022. (<https://doi.org/10.1016/j.comcom.2021.09.031>, **SCIE, Impact Factor – 5.047**).
17. Pintu Kumar Ram and **Pratyay Kuila**, "GAEE: a novel genetic algorithm based on autoencoder with ensemble

- classifiers for imbalanced healthcare data,” *Journal of Supercomputing (Springer)*, Vol. 79, pp. 541-572 (2023). (SCI/SCIE)
18. Pintu Kumar Ram and **Pratyay Kuila**, “Dynamic Scaling Factor based Differential Evolution with Multi-layer Perceptron for Gene Selection from Pathway Information of Microarray Data,” *Multimedia Tools and Applications (Springer)*, Vol. 82, pp. 13453–13478 (2023). (SCI/SCIE)
  19. Ansari, Md Sarfaraj Alam, Kunwar Pal, Prajval Govil, and Mahesh Chandra Govil. “A fuzzy based hierarchical flash crowd controller for live video streaming in P2P network.” *Peer-to-Peer Networking and Applications* (2023): 1-22. DOI:<https://doi.org/10.1007/s12083-023-01463-3>
  20. Ansari, Md Sarfaraj Alam, Kunwar Pal, Prajval Govil, Mahesh Chandra Govil, and Lalit Kumar Awasthi. “A statistical analysis of SAMPARK dataset for peer-to-peer traffic and selfish-peer identification.” *Multimedia Tools and Applications* 82, no. 6 (2022): 8507-8535. DOI: <https://doi.org/10.1007/s11042-022-13556-x>
  21. Sarkar, Nairita, Rajan Gupta, Pankaj Kumar Keserwani, and Mahesh Chandra Govil. “Air Quality Index prediction using an effective hybrid deep learning model.” *Environmental Pollution* 315 (2022): 120404.
  22. Sagar, Sakshi, Anita Choudhary, Md Sarfaraj Alam Ansari, and M. C. Govil. “A Survey of Energy-Aware Server Consolidation in Cloud Computing.” In *Evolution in Computational Intelligence: Proceedings of the 10th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA 2022)*, pp. 381-391. Singapore: Springer Nature Singapore, 2023.
  23. Keshaw, Konark, Abhishek Pandey, Gopa Bhaumik, and **M. C. Govil**. “ReEDNet-An Encoder–Decoder Framework for Single Image Dehazing.” In *Intelligent Data Engineering and Analytics: Proceedings of the 10th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA 2022)*, pp. 249-258. Singapore: Springer Nature Singapore, 2023.
  24. Mittal, Mridul, Saurav Gupta, Pankaj Kumar Keserwani, and **M. C. Govil**. “Security Enhancement using Vectoring, Cryptography and Steganography.” In *2023 International Conference on Intelligent Systems, Advanced Computing and Communication (ISACC)*, pp. 1-8. IEEE, 2023.
  25. Kumain, Sandeep Chand, Maheep Singh, **M. C. Govil**, and Emmanuel Shubhakar Pilli. “An Efficient Salt and Pepper Noise Reduction Approach for Video (s) Using Optimized Filter Approach.” In *2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET)*, pp. 1-6. IEEE, 2022.
  26. Kundan Kanti Saha, **Sangram Ray** and Dipanwita Sadhukhan, “A Lightweight and Precise Information Retrieval System for Organisational Wiki”, *Evolution in Computational Intelligence: Proceedings of the 10th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA 2022)*, National Institute of Technology Mizoram, India, June 18 - 19, 2022, **Springer**, vol. 326, pp. 495–507. ([https://link.springer.com/chapter/10.1007/978-981-19-7513-4\\_43](https://link.springer.com/chapter/10.1007/978-981-19-7513-4_43)).
  27. Anindya Kumar Biswas, Mou Dasgupta and **Sangram Ray**, “Secure Management of Digital Academic Certificates Using Blockchain Technology”, *Machine Learning, Image Processing, Network Security and Data Sciences: Select Proceedings of 3rd International Conference on MIND 2021*, National Institute of Technology Raipur, India, December 11-12 2021, **Springer**, vol. 946, pp. 805-813. ([https://doi.org/10.1007/978-981-19-5868-7\\_60](https://doi.org/10.1007/978-981-19-5868-7_60)).
  28. Priyanka Das, **Sangram Ray**, Dipanwita Sadhukhan and Mou Dasgupta, “5G-Enabled VANET Architecture Incorporating Security and Trust Management Mechanism”, *2022 IEEE 6th Conference on Information and Communication Technology (CICT)*, ABV Indian Institute of Information Technology and Management Gwalior, Gwalior, India, November 18-20, 2022, **IEEE**, pp. 1-6. (<https://ieeexplore.ieee.org/abstract/document/9997842>)
  29. Santanu Ghosh, Pratyay Kuila and Tarun Biswas, “An Energy Efficient Offloading Technique for UAV-Assisted MEC using Nature Inspired Algorithm,” *10<sup>th</sup> Int. Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2022)*, *Smart Innovation, Systems and Technologies (Springer)*, Vol. 327, pp. 309-318 (2022). (Organized by NIT Mizoram)
  30. Abisek Dahal, Santanu Ghosh, Pratyay Kuila and Tarun Biswas, “Trajectory Planning and Data Collection of UAVs over Disaster Affected Areas,” *10<sup>th</sup> Int. Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2022)*, *Smart Innovation, Systems and Technologies (Springer)*, Vol. 327, pp. 319-326 (2022). (Organized by NIT Mizoram)
  31. Pintu Kumar Ram and Pratyay Kuila, “FCPSO: Evaluation of Feature Clustering using Particle Swarm Optimization for Health Data,” *10<sup>th</sup> Int. Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA 2022)*, *Smart Innovation, Systems and Technologies (Springer)*, Vol. 327, pp. 419-428 (2022). (Organized by NIT Mizoram) (Best paper award)
  32. Abhishek Kumar, Santanu Ghosh, B Balaji Naik and Pratyay Kuila, “Energy Efficient Workflow Scheduling in Cloud Computing Systems using Particle Swarm Optimization,” *Int. Conf. on Signal Processing and Computer Vision (SIPCOV)-2023, IEEE Xplore*, 2023. (Organized by NIT Silchar)

## Conferences

33. Saket Kumar and Pratyay Kuila, "Particle Swarm Optimization based Efficient Cluster Formation in Vehicular Networks," *Int. Conf. on Signal Processing and Computer Vision (SIPCOV)-2023, IEEE Xplore*, 2023. (Organized by NIT Silchar)(Best paper award)
34. Suman Som, Marlom Bey and **Pratyay Kuila**, "Particle Swarm Optimization for Efficient Placement of Relay Nodes in Cluster-Based Wireless Sensor Networks," *Int. Conf. on Signal Processing and Computer Vision (SIPCOV)-2023, IEEE Xplore*, 2023.(Organized by NIT Silchar)
35. Ansari, Md Sarfaraj Alam, Kunwar Pal, Mahesh Chandra Govil, Prajval Govil, and Adarsh Srivastava. "P2P Traffic Identification Using Machine Learning and Feature Selection Techniques." In *Edge Analytics: Select Proceedings of 26th International Conference—ADCOM 2020*, pp. 393-407. Singapore: Springer Singapore, 2022. DOI: [https://doi.org/10.1007/978-981-19-0019-8\\_30](https://doi.org/10.1007/978-981-19-0019-8_30)
36. Biswas, Soham, Chandan Kumar, Suman Som, Md.Sarfaraj Alam Ansari, Mahesh Chandra Govil. "AI-enabled IDS for Identifying Malicious Traffics in Cloud Systems" *In Fourth International Conference on Advanced Computational and Communication Paradigms (ICACCP 2023), Springer*. (Accepted and presented).
37. Khanal, Bipal, Chandan Kumar, Md. Sarfaraj Alam Ansari. "NITSDN: Development of SDN dataset for ML-based Intrusion Detection System" *In Fourth International Conference on Advanced Computational and Communication Paradigms (ICACCP 2023), Springer*. (Accepted and presented).
38. Kiran, Katta Uday, Manvendra Singh, Md. Sarfaraj Alam Ansari, Mahesh Chandra Govil. "Deep learning approach to recognize yoga posture for ailment of the low back pain" *In 4th International Conference on Communication, Devices & Computing (ICCDC 2023), Springer*. (Accepted and presented).

### Book Chapters

39. Dipanwita Sadhukhan, Sangram Ray and Mou Dasgupta, "Data Fusion in Internet of Medical Things: Towards Trust Management, Security and Privacy", *Data Fusion for Smart Healthcare*, CRC Press, Taylor & Francis. (Accepted)
40. Dipanwita Sadhukhan, Mou Dasgupta and Sangram Ray, "Cyber Threat Intelligence: A Standardized Protective Approach for Industrial Cyber Defence", *Digital Image Security: Techniques and Applications*, CRC Press, Taylor & Francis. (Accepted)
41. Priyanka Das, Sangram Ray, Dipanwita Sadhukhan and Mahesh Chandra Govil, "6G Communication Technology for Industry 5.0: Prospect, Opportunities, Security Issues and Future Directions", *Secure and Smart Cyber-Physical Systems*, CRC Press, Taylor & Francis. (Accepted)

## Department of Electronics and Communication Engineering

### Journals

1. Das, K., Dandapat, A. and Jana, S.K., 2022. "Design of a 1.29–1.61 GHz LC-VCO with Improved Phase Noise and Figure-of-Merit (FoM T) for GPS and Satellite Navigation". *Journal of Circuits, Systems and Computers*, **31**(16), p.2250274.
2. Pradhan, N. and Jana, S.K., 2022. "Improved phase noise performance of PFD/CP operating in 1.5 MHz–4.2 GHz for phase-locked loop application". *Circuits, Systems, and Signal Processing*, **41**(12), pp.6651–6671.
3. Gupta, P. and Jana, S.K., 2023. "Design of a Configurable Third-Order G m-C Filter Using QFG and BD-QFG MOS-Based OTA for Fast Locking Speed PLL". *Journal of Circuits, Systems and Computers*, **32**(03), p.2350040.
4. Pradhan, N. and Jana, S.K., 2023. "Design of PFD with free dead zone and minimized blind zone for high speed PLL application". *International Journal of Electronics*, **110**(9), pp.1614–1632.
5. Kathania, H.K., Kadyan, V., Kadiri, S.R. and Kurimo, M., 2022. "Data Augmentation Using Spectral Warping for Low Resource Children ASR". *Journal of Signal Processing Systems*, **94**(12), pp.1507–1513.
6. Kathania, H.K., Kadiri, S.R., Alku, P. and Kurimo, M., 2022. "A formant modification method for improved ASR of children's speech". *Speech Communication*, **136**, pp.98–106.
7. Singh, J. and Verma, C., 2022. "Modeling methods for nanoscale semiconductor devices". *Silicon*, **14**(10), pp.5125–5132.
8. Verma, C. and Singh, J., 2022. "Design and self-consistent Schrodinger-poisson model simulation of ultra-thin Si-channel nanowire FET". *Silicon*, **14**(11), pp.6185–6191.
9. Singh, J., Chakraborty, D. and Kumar, N., 2022. "Design and parametric variation assessment of Doping less nanotube field-effect transistor (DL-NT-FET) for high performance". *Silicon*, **14**(8), pp.4097–4105.
10. Singh, J., Verma, A., Tewari, V.K. and Singh, S., 2022. "Design and parametric analysis of GaN on silicon high electron mobility transistor for RF performance enhancement". *Silicon*, **14**(11), pp.6311–6319.
11. Verma, C., Singh, J., Tripathi, S.K. and Kumar, R., 2022. "Design and performance analysis of ultrathin nanowire FET ammonia gas sensor". *Silicon*, **14**(11), pp.6321–6327.
12. Singh, J., Wadhwa, G. and Raj, B., 2023. "Design and sensitivity estimation of linear graded work function gate electrode hetero junction vertical TFET biosensor". *Microsystem Technologies*, **29**(2), pp.279–287.

13. Maity, S. and Jana, S.K., 2023. "Design of a Power-Performance-Area (PPA) Optimized MOS Current Mode Logic Pre-scaler". *Circuits, Systems, and Signal Processing*, pp.1-16.
14. Som, A. and Jana, S.K., 2023. "Performance Assessments of Gate Engineered Dopingless Schottky Tunnel MOSFET in Presence of Interfacial Trap Charges". *Silicon*, pp.1-14.
15. Pandey, D. and Kundu, S., 2023. "A Christmas Tree-Shaped Quadband Compact Antenna with Triple Slots for Various Wireless Technologies". *IETE Journal of Research*, pp.1-10.
16. Santra, A., Mahato, S., Kundu, S. and Bose, A., 2023. "NavIC Positioning from the Secondary Service Region and Beyond: A Study Using Compact NavIC Modules". *Proceedings of the National Academy of Sciences, India Section A: Physical Sciences*, pp.1-8.
17. Kar, G.N., Verma, P., Mahato, S., Santra, A., Kundu, S. and Bose, A., 2023. "An IoT-Enabled Multi-Sensor System with Location Detection for Agricultural Applications". *MAPAN*, pp.1-8.
18. Mahato, S., Goswami, M., Kundu, S. and Bose, A., 2023. "Single-Baseline Long-Distance RTK using a CLS GNSS Module and Open-Source Software: A Case Study from India". *IETE Journal of Research*, pp.1-12.
19. Mahato, S., Dutta, D., Goswami, M., Kundu, S. and Bose, A., 2023. "QZSS regional navigation system visibility and solution experience from India". *National Academy Science Letters*, 46(1), pp.61-64.
20. Mahato, S., Sarkar, S., Goswami, M., Kundu, S. and Bose, A., 2023. "GLONASS-NavIC Hybrid Operation from India Towards Seamless and Improved Performance". *National Academy Science Letters*, 46(3), pp.245-250.
21. Kundu, S. and Chatterjee, A., 2022. "A new compact ultra-wideband frequency selective surface with angular stability and polarization independence for antenna radiation enhancement in microwave imaging application". *AEU-International Journal of Electronics and Communications*, 155, p.154351.
22. Kundu, S. and Chatterjee, A., 2022. "A compact super wideband antenna with stable and improved radiation using super wideband frequency selective surface". *AEU-International Journal of Electronics and Communications*, 150, p.154200.
23. Santra, A., Dan, S., Banerjee, P., Kundu, S. and Bose, A., 2022. "On Timing Performance of NavIC Receiver Through PPP Time Transfer Technique". *MAPAN*, 37(1), pp.207-214.
24. Dhara, R., Yadav, S., Mahato, S., Sharma, M.M. and Govil, M.C., 2022. "An Antipodal Antenna with Improved Axial Ratio Bandwidth". *IETE Journal of Research*, pp.1-9.
25. Dhara, R., Kundu, T. and Sanoj, M., 2022. "Circularly Polarized Hexa-Band Planar Slot Antenna for WLAN and Wireless Communication Application". *Radioelectronics and Communications Systems*, 65(1), pp.48-59.
26. Dhara, R. and Kundu, T., 2022. "Wideband Circularly Polarized P-Shaped Monopole Antenna for C-Band Application". *Radioelectronics and Communications Systems*, 65(3), pp.129-141.

## Conferences

1. Maity, Subhanil; Kundu, Lokenath; Jana, Sanjay Kumar, "A Divide-By-5 Pre-scaler Design Approach for 5G Applications Micro and Nanoelectronics Devices", Circuits and Systems: Select Proceedings of MNDCS 2021, 2022, Springer, Singapore.
2. Gupta, Priti; Jana, Sanjay Kumar; Govil, Mahesh Chandra, "Design of Low Power Two-Stage OTA Based Second-Order Gm-C Filter for Fast Locking PLL Based Frequency Synthesizer", Advances in VLSI, Communication, and Signal Processing: Select Proceedings of VCAS 2021 2022, Springer Nature Singapore, Singapore.
3. Pradhan, Nigidita; Jana, Sanjay Kumar; "Design and Analysis of Fast Frequency Acquisition Phase Frequency Detector", Advances in VLSI, Communication, and Signal Processing: Select Proceedings of VCAS 2021, 2022 Springer Nature Singapore, Singapore.
4. Gupta, Priti; Jana, Sanjay Kumar, Govil, Mahesh Chandra; "Design of Low Power Two-Stage OTA Based for Fast Second-Order Locking PLL", Advances in VLSI, Communication, and Signal Processing: Select Proceedings of VCAS 2021, 2022, Springer Nature.
5. Som, Arnab; Jana, Sanjay, "Performance Assessments of Gate Engineered Dopingless Schottky Tunnel MOSFET in presence of Interfacial Trap Charges", 2023.
6. Som, Arnab; Jana, Sanjay Kumar; "Performance Enhancement of Dielectric Engineered Doping Less InGaN Tunnel FET for Low Power Analog/Radio Frequency Applications", Emerging Electronic Devices, Circuits and Systems: Select Proceedings of EEDCS Workshop Held in Conjunction with ISDCS 2022, 2023, Springer Nature Singapore, Singapore.
7. Das, Sudipta; Rimjhim, Ritu; Mandal, Durbadal; Kar, Rajib, "Evolved Multiobjective Low Side-lobe Taper for Beam Steerable Arrays", 2022 16th European Conference on Antennas and Propagation (EuCAP) 2022, International (IEEE Flagship Conference).
8. Dheeraj Pandey, Anusha Dogra, Surajit Kundu, "Rectangular Patch, U & H Slot Triple Band Antenna for Different Wireless Applications", 2022, IEEE Microwaves,

- Antennas, and Propagation Conference (MAPCON), 2022.
9. Dheeraj Pandey, **Surajit Kundu**, "Compact Dual Band Antenna for Sub-6GHz Applications", 2022 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON), 2022.
  10. Somnath Mahato, **Surajit Kundu**, "A Dual Polarized Super-Wideband Frequency Selective Surface with Equivalent Circuit Model", 2022 3rd URSI Atlantic and Asia Pacific Radio Science Meeting (AT-AP-RASC), 2022.
  11. S. Mahato, M. Goswami, A. Bose, **Surajit Kundu**, "On usability of dual-frequency, compact GNSS modules for long baseline RTK", 2022 3rd URSI Atlantic and Asia Pacific Radio Science Meeting (AT-AP-RASC), 2022.
  12. Alok Kumar, **Surajit Kundu**, "Development of Web Page and Android Application for IoT-Enabled Agricultural System", NERC-2022, 2022, Springer Nature Singapore, Singapore.
  13. A. Kumar, A. Mandal, A. Dogra, P. Govil, D. Pandey, **Surajit Kundu**, "Development of IoT-Enabled Multi-sensor Unit for Agricultural Applications", NERC-2022, 2022, Springer Nature Singapore, Singapore
  14. **R. Dhara**, "Theory of Characteristics Mode Based Design of a Planar Monopole Antenna with Polarization Diversity for FSS and SAR Application", In International Conference on Optical and Wireless Technologies (pp. 89-98). Springer, Singapore. DOI: 10.1007/978-981-19-1645-8\_10, 2023, Springer.
  15. Singh, N., **Dhara, R.** and Paul, S., "A Single-Band Ultrathin Polarization-insensitive Metamaterial Absorber for X-Band Applications". In 2023 5th International Conference on Power, Control & Embedded Systems (ICPCES) (pp. 1-4). IEEE, 2023, January. IEEE
  16. **R. Dhara**, "Theory of Characteristics Mode Based Design of a Planar Monopole Antenna with Polarization Diversity for FSS and SAR Application", In International Conference on Optical and Wireless Technologies (pp. 89-98). Springer, Singapore. DOI: 10.1007/978-981-19-1645-8\_10, 2023, Springer.
  17. Mahato, S. and **Dhara, R.**, "Mushroom Shaped Printed Monopole Antenna for UWB Application". In 2022 IEEE Microwaves, Antennas, and Propagation Conference (MAPCON) (pp. 2046-2050). IEEE, 2022, December, IEEE
  18. **Dhara, R.**, Kundu, T. and Jana, S.K., "Dual-Band Dual Polarized Circularly Polarized and Linearly Polarized L-Shaped Patch Antenna Loaded with Strip and Square Slot", In Optical and Wireless Technologies (pp. 47-61). Springer, Singapore. DOI: 10.1007/978-981-16-2818-4\_6, 2022, Springer
  19. **R. Dhara**, "Quad Band Planar Monopole Antenna with Polarization Diversity for FSS and SAR Application", In Emerging Technology Trends in Electronics, Communication and Networking: Select Proceedings of the Fourth International Conference, ET2ECN 2021 (pp. 85-93). Singapore: Springer Nature Singapore, 2022, Springer.
  20. Prasad, S., **Dhara, R.**, Shekawath, G. S., "Asymmetric CPW – FED ground plane with circularly polarized printed monopole antenna with SRR 27th International Advanced Computing and Communications Conference (ADCOM 2022)", International Institute of Information Technology, 9 - 10 March 2023, IIIT Bangalore (Paper presented and accepted for publication), 2023.
  21. Santosh, V. J. R., Vivek, A., **Dhara, R.**, and Shekhawat, G. S., "Circular polarized multi-band dual sense square slot antenna fed by coplanar waveguide" 27<sup>th</sup> International Advanced Computing and Communications Conference (ADCOM 2022), International Institute of Information Technology, 9 - 10 March 2023, IIIT Bangalore (Paper Presented and Accepted for Publication), 2023.
  22. Marin, M., **Dhara, R.**, Mahato S., "Circularly Polarized Modified P-Shaped Microstrip Antenna with Slotted Modified Ground Plane", North East Research Conclave (NERC 2022), Indian Institute of Technology, Guwahati, May 20-22, 2022. (Abstract presented and published), 2023.
  23. Marin, M., **Dhara, R.**, Mahato S., "Design and Analysis of An Asymmetric CPW Fed Compact Dual Band Circularly Polarized Monopole Antenna", International Conference on Science, Technology and Engineering (ICSTE 23), National Institute of Technology Manipur, 17 -18 February 2023. (Paper presented and accepted for publication), 2023.
  24. Kumar, T., **Dhara, R.**, Mahato S., "A Circularly Polarized Asymmetric Wide Slot Microstrip Antenna for Wireless Communication", Application North East Research Conclave (NERC 2022), Indian Institute of Technology, Guwahati, May 20-22, 2022. (Abstract presented and published), 2023.
  25. Kumar, T., **Dhara, R.**, Mahato S., "A Miniaturized Modified Koch Fractal Antenna with Partial Ground Plane for Wideband Application", International Conference on Science, Technology and Engineering (ICSTE 23), National Institute of Technology Manipur, 17 -18 February 2023. (Paper presented and accepted for publication), 2023

26. Singh, A. K., **Dhara, R.**, Mahato S, "Circularly polarized modified F-shaped compact microstrip antenna with symmetrically inverted F-shaped ground plane", North East Research Conclave (NERC 2022), Indian Institute of Technology, Guwahati, May 20-22.
27. Singh, A. K., **Dhara, R.**, Mahato S. "A Dual Band Dual Polarized Coupled Asymmetric T-Shaped Monopole Antenna for Linear and Circular Polarization", International Conference on Science, Technology and Engineering (ICSTE 23), National Institute of Technology Manipur, 17-18 February 2023. (Paper presented and accepted for publication), 2023.

### Book Chapters

1. Dr. Surajit Kundu, Alok Kumar, "Development of Web Page and Android Application for IoT-Enabled Agricultural System", 2023, Springer Nature, Singapore.
2. Dr. Surajit Kundu, A. Kumar, A. Mandal, A. Dogra, P. Govil, D. Pandey, "Development of IoT-Enabled Multi-sensor Unit for Agricultural Applications", 2023, Springer Nature, Singapore.

## Department of Electrical and Electronics Engineering

### List of Publications

1. Ghosh, A. K. Ray, O. Singh, and M. Jamshidi, "Optimized Load Frequency Controller Performances with a Reduced Number of Decision Variables: A Gravitational Search Algorithm-Based Method", IEEE Systems, Man and Cybernetics Magazine, vol. 9, issue 1, pp 48-57, IEEE, 2023.
2. Singha, A. K. Ray, and A. B. Samaddar, "Formation Control of Multi-UAV under Fixed and Variable Adjacency-based Directed Network Topologies", Journal of Scientific & Industrial Research, 81(12) 1285-1296, CSIR-NIScPR, 2022.
3. O. Singh, A. Ghosh, and A. K. Ray, "Two, Four, and Five Parameters Estimation based Modelling of Si Cell, Monocrystalline and Poly-crystalline PV Modules", Silicon, Springer, 2022.
4. A. Ghosh, O. Singh, and A. K. Ray, "Inverse Kinematic Solution of a 7 DOF Robotic Manipulator using Boundary Restricted Particle Swarm Optimization", IFAC-PapersOnLine, vol. 55, issue 1, pp 101-105, 2022.
5. S. J. Sarkar, P. K. Kundu, S. K. Sahoo, T. K. Panigrahi, P. S. Patro, A. Rajak, "Development of utility assisting controllers for solarised irrigation system", Renewable Energy Focus, Vol. 45, June, 2023, pp. 53-67.
6. H. Malik, A.K. Yadav, F.P.G. Márquez, and J.M. Pinar-Pérez, "Novel application of Relief Algorithm in cascaded artificial neural network to predict wind speed for wind power resource assessment in India", Energy Strategy Reviews, vol. 41, pp. 1-14, May 2022.
7. Roshan Pradhan, Aurobinda Panda, "Modelling and Simulation of a MPC Based Grid-Tied PVDG system," International Journal of Renewable Energy Research, Vol.12, no.1, pp. 422-432, 2022.
8. R. Sahoo and M. Roy, "Balancing of Capacitor Voltage for 5-level Inverter by Using Modified Reference Wave," 2021 National Power Electronics Conference (NPEC), Bhubaneswar, India, 2021, pp. 01-06.
9. Sudhansu Sekhar Das, Aurobinda Panda, "Design and Analysis of Enhanced Boost Active Switch Controlled Based ZSI for Photovoltaic DG System" International Journal of Renewable Energy Research, Vol.12, no.3, pp. 1651-1661, 2022.
10. Pradeep Kumar, Islavatu Srikanth, Power quality performance enhancement by PV-based distribution static compensator under incremental conductance maximum power point tracking algorithm, Cleaner Energy Systems, Volume 4, 100062, 2023.
11. Islavatu, Srikanth, Pradeep Kumar, Amit Kumar, and Surender Reddy Salkuti. Power Quality Analysis by H-Bridge DSTATCOM Control by  $I_{cos\theta}$  and ESRF SOGI-FLL Methods for Different Industrial Loads. Smart Cities, vol.5, no. 4, 1590-1610, 2022.
12. Pradeep Kumar, Comparative Power Quality Analysis of SRF and UVT Control Based DSTATCOM. Power Electronics and High Voltage in Smart Grid. Lecture Notes in Electrical Engineering, vol 817. Springer, Singapore (2022).
13. Amit Kumar, Pradeep Kumar, Comparative power quality analysis of Conventional and Proposed enhance SRF SOGI-FLL control based DSTATCOM. Journal of Engineering Research (JER), 10 (3A), pp. 145-174, 2022.
14. S. Sharma, A. K. Singh, O. Singh, A. K. Ray, "Trajectory Tracking and Control of Unmanned Aerial Vehicle (UAV): A Particle Swarm Optimization based Approach", North-East Research Conclave, IIT Guwahati, May, 2022.
15. A. Ghosh, O. Singh, A. K. Ray, "Surveillance in Disaster Management: PSO based Task Assignments for UAVs", North-East Research Conclave, IIT Guwahati, May, 2022.
16. Ayush Chauhan; Kuntal Mandal ;Aurobinda Panda, "Performance Improvement of Electric Vehicle using Reset Switch and Bias," 7th International Conference on Advances in Control and Optimization of Dynamical Systems (ACODS), Volume 55, Issue 1, 2022, Pp.144-149, 2022.
17. Avismit Dutta, Nilanjan Das, Aurobinda Panda, Sukanta Haldhar, "Mitigation of torque ripple in ZSI based BLDC motor with direct torque control technique" in IEEE 19th

India Council International Conference, held during 24th - 26th November, Kochi Kerala

18. Sudhansu Sekhar Das, Aurobinda Panda, Avismit Dutta "Reduced capacitor voltage based high boost active switch-controlled z source inverter," in IEEE 19th India Council International Conference, held during 24th - 26th November, Kochi Kerala
19. Santu Shit and Pradeep Kumar, Modeling of STATCOM to resolve power system problem under linear and non-linear loading conditions. International Conference on Power Electronics and Sustainable Development (ICPESD-2022) National Institute of Technology, Jamshedpur, India, 23rd-24th April, 2022.
20. Rajesh Ranjan, Amit Yadav and Pradeep Kumar, Performance Evaluation of two stage power conversion-based Grid connected PV System. International Conference on Power Electronics and Sustainable Development (ICPESD-2022) National Institute of Technology, Jamshedpur, India, 23rd-24th April, 2022.
21. R. Atha, S. Mallick and A. Rajan, "Optimal Integration of Distributed Energy Resources in Radial Distribution Networks using Levy Flight based Adaptive Particle Swarm Optimization," 2022 International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP), pp. 1-6, 2022.
22. D. Mukherjee and S. Mallick, "A Reduced switch multilevel inverter connecting PV system with power grid through an islanding switch," IFAC-PapersOnLine, vol. 55, pp. 955-960, 2022. Impact Factor: 1.132.

#### Book Chapter:

1. Himanshu, A. Singha, A. Kumar, and A. K. Ray, "Path Planning of Mobile Robot Using Adaptive Particle Swarm Optimization". In: Roy, S., Sinwar, D., Perumal, T., Slowik, A., Tavares, J.M.R.S. (eds) Innovations in Computational Intelligence and Computer Vision. Advances in Intelligent Systems and Computing, vol 1424, Springer, 2022.
2. Islavatu Srikanth and Pradeep Kumar, Neural Network Based DSTATCOM Control for Power Quality Enhancement, International Conference on Robotics, Control and Computer Vision (ICRCCV-2022), National Institute of Technology Uttarakhand, India in association with Eötvös Loránd University, Hungary, 19th – 20th February, 2022.
3. D. Mukherjee and S. Mallick, "Modified BBO-based PV integrated reduced component multilevel inverter for mitigating THD," In Recent Advances in Power Electronics and Drives, Springer, pp. 15-29, 2022.

## Department of Mechanical Engineering

### Journal

1. Lakshman, R., and **R. Basak**. "Numerical Simulation of Atmospheric Boundary Layer Over Laboratory Scale Two-Dimensional Hill Using Pressure-Driven Boundary Condition." *Journal of Computational Applied Mechanics* 53, no. 3 (2022): 379-392
2. **S Some**, "Analysis of the steady-state pressure profile of a double-layered porous journal bearing under turbulent regimes", *Proc IMechE Part E: Journal of Process Mechanical Engineering*, 2022, 1-9.
3. **Banerjee, S.**, & Sahoo, P. (2022). Fabrication and Investigation of Abrasive Wear Behavior of AZ31-WC-Graphite Hybrid Nanocomposites. *Metals*, 12(9), 1418.
4. **Dipayan Das & Ashish Kumar Singh** (2022) Ergonomic design and evaluation of gemstone polishing workstation, *International Journal of Occupational Safety and Ergonomics*.
5. **Mohanty, U.K.**, Kapil, A., Abe, Y., Suga, T., Tanaka, M. and Sharma, A., 2022. A resource-efficient process design for heavy fabrication: A case of single-pass-per-layer narrow gap welding. *Sustainable Materials and Technologies*, 33.

### Conference

1. **Debajit Saha**, Aditya Prakash Ghosh, Anil K Prajapati, Anand Prasad. "Analysis of Turbulent Fluid Flow through a Circular Duct by Varying the height of Baffles Attached at the Lower Wall". 4th International Conference on Recent Innovations in Science and Technology (RIST-2022), Jul 2022.
2. Hiranmoy Samanta **Debajit Saha**, Kamal Golui, Rajesh Dey. "Experimental Investigation and the CFD modelling of a INVELOX type wind Turbine". 1st International Conference in Fluid Thermal and Energy Systems (ICFTES-2022), Jun 2022.
3. Hiranmoy Samanta, Kamal Golui, Sk Tarif Ali and **Debajit Saha**. "Numerical Study of the Unsteady Flow in Simplified and Realistic Bifurcation Arterial Models". International Conference on Evolutionary Manufacturing, Design, and Operational Practices for Sustainability (ICEMDOPS-2022), Dec 2022.
4. Joydip Paul, Hiranmoy Samanta, **Debajit Saha**, Binoy Mnadal, Abhijit Majumder, "Thermal Convection in Porous Cavity with Heated Block, International Conference on Engineering Design and Computing (ICEDC-2023), Jan 2023.



5. Ghosh, H., Mukhopadhyay, S., Saha, M., **Banerjee, Sudip.**, & Panja, B. (2023). Study of machining characteristics of 45C8 carbon steel alloy in CNC turner. *Materials Today: Proceedings*.
6. Rohan Kumar Sahu, Chatraj Manger, **Kirti Tewari** and **Shambhunath Barman**. Modified PVT System Design and Performance Study. *Proceedings of the International Conference on Science, Technology and Sustainability (ICSTS), 5 th -6 th November 2022, Maulana Mukhtar Ahmad Nadvi Technical Campus, India. (Best Paper Award-Track A).*
7. Somil Gupta, Prajwal Chettri, **Kirti Tewari** and **Shambhunath Barman**. Comparative Exergo – Economics Analysis of a Modified Domestic Solar Water Heating Systems *Proceedings of the International Conference on Science, Technology and Sustainability (ICSTS), 5 th -6 th November 2022, Maulana Mukhtar Ahmad Nadvi Technical Campus, India.*
8. Manish Kumar and **Shambhunath Barman**. Numerical Analysis of Phase Change Material (SiC) Used for Energy Storage (ICFTES2022–ES–191), *Proceedings of the 1st International Conference in Fluid Thermal and Energy Systems, June 9-11, 2022, NIT Calicut, Kerala, India.*
9. A K Singh, V P Mishra, **S Barman, K Tiwari**, P Mondal and N Barman. Study of emission characteristics and performance analysis of ethanol diesel blend. *Proceedings of the International Conference on Innovations in Mechanical and Material Engineering (IMME-2022), 4-6 November, 2022, MNNIT Allahabad, Prayagraj, India.*
10. A K Singh, V P Mishra, **S Barman** and P Mondal. Comparative study of emission characteristics and performance and emission characteristics for different blended Diesel Fuel. *Proceedings of the 3 rd International Conference on Future Technologies in Manufacturing, Automation, Design & Energy in Mechanical and Material Engineering (ICoFT-2022), 14-16 December, 2022, NIT Puducherry, Karaikal, India*
11. A K Singh, V P Mishra, **S Barman**, P Mondal. Performance Analysis and Emission Characteristic of Ethanol-Diesel Blend. *Proceedings of the National Conference on Internal Combustion Engines and Combustion (NCICEC 2022), 5-7 November, 2022, VIT Chennai, India.*
12. A K Singh, V P Mishra, **S Barman**. Investigation of Performance and Emission Characteristic of VCR diesel engine using blends of 1-pentanol with diesel fuel. *Proceedings of the National Conference on Recent Trends in Green Energy Technologies (NCRTGET 2022), 08<sup>th</sup> & 9 th December, 2022, Pondicherry University, India.*
13. **Mohanty, U.K.**, Sharma, A., Abe, Y., Fujimoto, T., Nakatani, M., Kitagawa, A., Tanaka, M. and Suga, T., 2022. Parametric study on AC square waveform welding. *Materials Today: Proceedings*, 56, pp.2980-2987

### Book Chapter

1. **Bibhuti Bhusan Nayak**, Subham Kumari Thakur and Upashana Sah, Thermal management of thermo-electric refrigeration system applying nanofluids through a minichannel heat sink, *Recent Advances in Mechanical Engineering*, Springer Nature, 2022, DOI : 10.1007/978-981-19-9493-7.
2. **Banerjee, S.**, Panja, B., & Sahoo, P. (2022). 6 Parametric optimization of machining characteristics of titanium alloy in WEDM. In *Nonconventional Machining* (pp. 171-188). De Gruyter.
3. **Das, D.** (2022). A Systematic Review of the Effects of Noise Characteristics on Human Mental Performance. In: Chakrabarti, D., Karmakar, S., Salve, U.R. (eds) *Ergonomics for Design and Innovation. HWWE 2021. Lecture Notes in Networks and Systems*, vol 391. Springer, Cham.

### Department of Chemistry

#### Peer-reviewed SCI journals (2022-23)

1. Das R, Kundu T\*, Basumatary J. 2023. Visible light mediated organocatalytic dehydrogenative aza-coupling of 1, 3-diones using aryldiazonium salts. *RSC Advances*. 13(5):3147-3154. [IF: 4.036]
2. Lepcha P, Biswas S, Chowdhury SN, Bose S, Debgupta J, Paul S, Biswas AN\*. 2023. A Cobalt (III)  $\square$  Hydroxo Complex Bearing a Pentadentate Amidate Ligand as an Electrocatalyst for Water Oxidation. *Eur. J. Inorg. Chem*. 26(7): e202200611. [IF: 2.551]
3. Rasaily S, Baruah K, Sharma D, Lepcha P, Biswas S, Biswas AN, Tamang S, Pariyar A\*. 2023. Rationally Designed Manganese-Based Metal–Organic Frameworks as Altruistic Metal Oxide Precursors for Noble Metal-Free Oxygen Reduction Reaction. *Inorg. Chem*. 62(7):3026-3035. [IF: 5.436]
4. Ghosh S\*, Sarkar S, Paul S, Shil S, Mohapatra S, Biswas AN, De GC\*. 2023. Highly Luminescent and Semiconducting Supramolecular Organic Charge Transfer Complex Generated via H-Bonding Interaction Pathway. *Cryst. Res. Technol*. 58(4):2200228. [IF: 1.599]
5. Maiti B\*. 2022. Frontispiece: Cross-talk Between (Hydrogen)Sulfite and Metalloproteins: Impact on Human Health. *Chem. Eur. J*. 28, e202104342.
6. Subba S, Saha S\*, Mandal S, Ghosh AJ, Saha T. 2022. First total synthesis of aspergillolide. *Tetrahedron Lett*.

106:154081. [IF: 2.032]

7. Singh G, Gahtori J, Poddar MK, Samanta C, Bhattacharya S, Biradar AV, Bordoloi A\*. 2022. Studies on Synthesis of Sub-Nanometre Size Pt Particles Stabilized on ZrO<sub>2</sub> Matrix for Formic Acid Mediated Synthesis of  $\gamma$ -Valerolactone. *Chem. Select.* 7(20):e202200029. [IF: 2.307]
8. Sengupta M, Das S, Bhattacharya S, Gazi J, Prasad VV, Islam SM\*, Bordoloi A\*. 2022. Sustainable synthesis of drug intermediates via simultaneous utilization of carbon monoxide and ammonia over Pd@ La-MOF. *Mol. Catal.* 522:112212. [IF: 5.089]
9. Dhara R\*, Kundu T. 2022. Wideband Circularly Polarized P-Shaped Monopole Antenna for C-Band Application. *Radioelectron. Commun. Syst.* 65(3):129-141.
10. Dhara R\*, Kundu T, Sanoj M. 2022. Circularly Polarized Hexa-Band Planar Slot Antenna for WLAN and Wireless Communication Application. *Radioelectron. Commun. Syst.* 65(1):48-59.

#### International Conference (2022 -23)

1. Dhara R\*, Kundu T, Jana SK. 2022. Dual-Band Dual Polarized Circularly Polarized and Linearly Polarized L-Shaped Patch Antenna Loaded with Strip and Square

Slot. *Optical and Wireless Technologies: Proceedings of OWT 2020.* 771:47-61.

#### Books/Chapters (2022-23)

1. Sachidulal Biswas and Achintesh N. Biswas, 'High-Valent Oxomanganese Complexes of Relevance in Oxyfunctionalization of Hydrocarbons' in 'Handbook of C-H functionalization' (Editor: D. Maiti), 2022, Wiley-VCH (Online ISBN: 9783527834242).
2. Charu Arora and Sumantra Bhattacharya, 'Advanced Physical Chemistry Practical Guide', 2022, Bentham Books (ISBN: 978-1-68108-911-9)

#### Student Achievements

- Dr. Sachidulal Biswas (Ph.D. 2021 from NIT Sikkim) joined School of Chemistry, Trinity College Dublin, Ireland as a Postdoctoral Research Associate.
- Ganesh Kondare and Paragjyoti Gohain (2019-21) have qualified CSIR-NET in 2022
- Amrit Das, (M.Sc. 2022-24), Kushal Dubey (M.Sc. 2021-23) Sweety Gupta (M.Sc. 2019-21), Sidhant Gupta, Kumar Yashvardhan, Surendranath Barman (M.Sc. 2020-22) have qualified GATE in 2022-23.



- Apurba Adhikary (M.Sc. 2020-22) got selected in the University of Kansas for doctoral studies.
- Sanhita Chowdhury and Bithika Barman (MSc. 2021-23) bagged the 2<sup>nd</sup> position in presentation competition in the International Seminar on Advance Research in Molecular & Material Science (ARM2S-2022) jointly organized by Indian Chemical Society and Sikkim Manipal Institute of Technology.
- Sanhita Chowdhury (M. Sc. 2021-23) has published an article based on her research internship work at NIPER Kolkata entitled “Making Grignard reactions safer and cleaner in continuous flow synthesis and applying for synthesis and applying for synthesis of active pharmaceutical ingredients (APIs) and key starting materials (KSMs)” in “CRIPS, 2022, 16, 5”.
- Amit Banerjee (M,Sc. 2021-23) has qualified WBSET (State Eligibility Test) in 2022-23.
- Amit Banerjee (M,Sc. 2021-23) bagged Expert/Gold certificate in Forensic Science and Forensic Medicine from IFS Education Department.
- Sampurna Roy received Gold Medal for securing highest CGPA in the M.Sc. program (2020-22) during the 5<sup>th</sup> Convocation of the Institute

## Department of Humanities and Social Sciences

1. Chakraborty, Sanjana., and Tripathi, Dhananjay. (2023) “Influenced Gender Identities: The Study of Masculinity and its intersectionality through The Carpet Weaver”. Accepted at **Boyhood Studies Journal**.
2. Mishra, R., & Tripathi, D. (2022) Decoding Gerard Genette’s Narrative Quotes in Mythical Retellings of Arun Kolatkar’s Sarpa Satra and Girish Karnad’s Yayati. Accepted at **Jordan Journal of Modern Languages**.
3. Marxia, Oli Sigo (2022). In the realm of FinTech (2022): India and the World. **International Business Congress organized by Kahramanmaras Sulcu Imam University, Turkey**. 12<sup>th</sup> -14<sup>th</sup> May.
4. Rai, L., & Tripathi, D. (2022). From text to film: a comparative study of Macbeth and Maqbool. **Cogito**, 14(1), 135-153.
5. Sarmah, A., Saikia, B., & Tripathi, D. (2022). Does Entrepreneur Gender Matter for Entrepreneurial Motivation: Answers from Micro Small and Medium Enterprises (MSMEs) of Assam. **Journal of International Women’s Studies**, 23(5), 20-40.



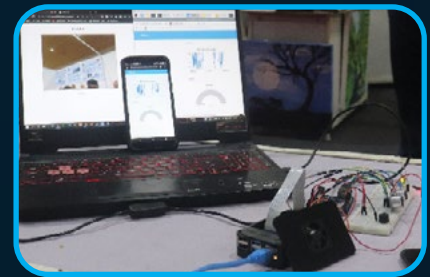
# Institute's Innovation Council (IIC) and Entrepreneurship and Innovation (E&I) Cell

The IIC and E&I cell encourage and support students to explore their technical creativity. Students are engaged in innovative works and the Institute supports them to showcase their talents in various platforms across the country. Various events and workshops are being organized on a regular basis to provide prerequisite knowledge, nurture the skills of the students and to boost their confidence.

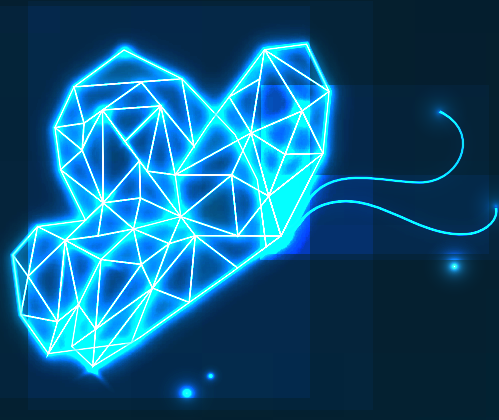
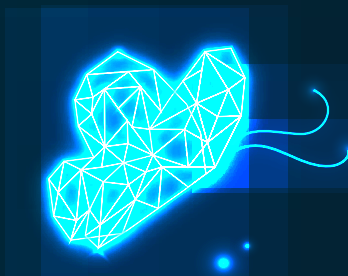
Led by Prof. M. C. Govil, the Director, NIT Sikkim, a team of twenty-five students and six faculty members had participated in different events at the North East Research Conclave (NERC) 2022 at IIT Guwahati such as plenary talk session, technical paper presentation (both oral and poster), innovative model demonstration and exhibition etc. Apart from models, eleven number of technical papers (posters and oral) were also presented at NERC-2022, IIT Guwahati by the students of NIT Sikkim.

- Mr. Somnath Mahato and his Ph. D supervisor Dr. Surajit Kundu, Dept. of ECE, NIT Sikkim received “Springer Best Paper Award” for their research paper entitled “Compact GNSS Modules for Disaster Monitoring System” at North-East Research Conclave (NERC) 2022, IIT Guwahati in May, 2022.
- Four technical and innovation models were demonstrated in the EXPO at North-East Research Conclave (NERC) 2022, IIT Guwahati in May 22, 2022.

Some photographs of NIT Sikkim stall at NERC-2022, IIT Guwahati:



A roadshow was also organized to promote the NERC-2022 among stakeholders. Prof. M. C. Govil, the Director NIT Sikkim delivered a brief talk mentioning the significance of the event. A few NERC-2022 Roadshow event photographs are presented.



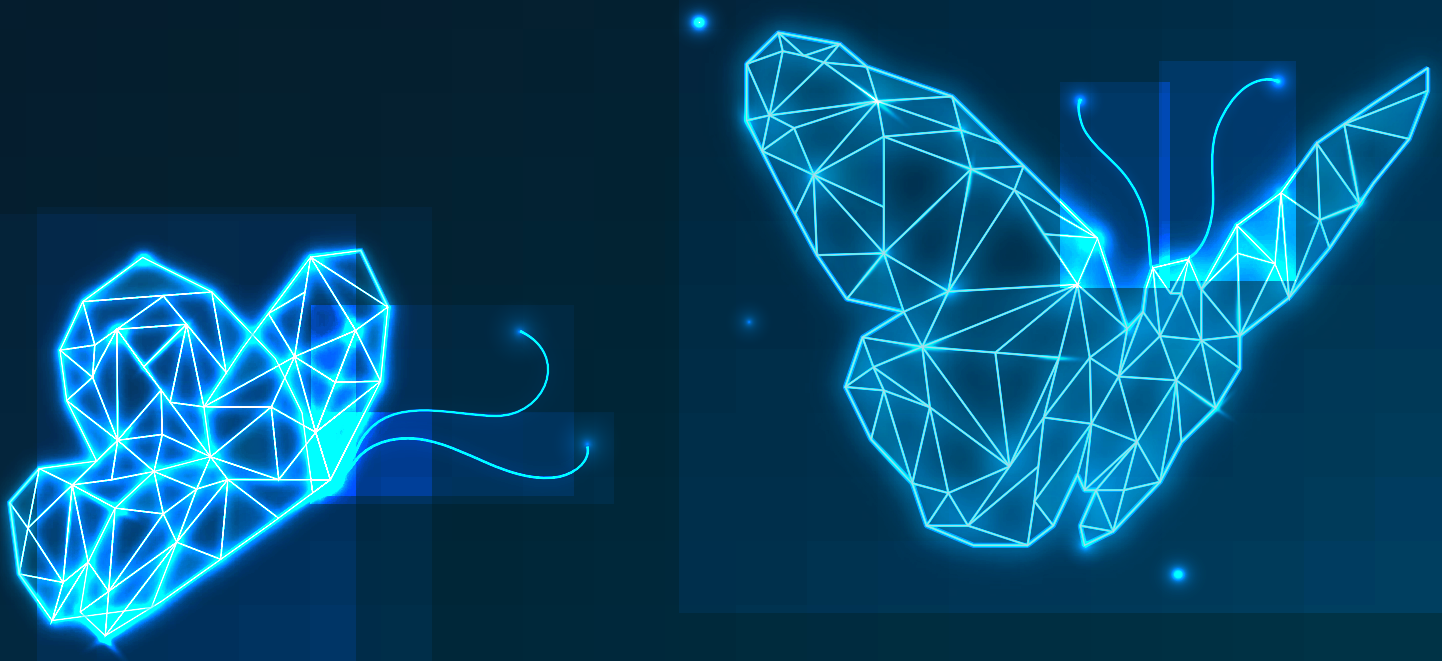


An Institute committee has been formed for the implementation of National Innovation and Startup Policy (NISP) to support the mission of NEP 2020. NIT Sikkim is fostering innovative eco-systems through various training programmes for its internal students as well as for students and professionals from the North-Eastern states.

The following programmes were conducted under the Entrepreneurship and Skill Development Programme (ESDP) in collaboration with the Ministry of MSME, Government of India at NIT Sikkim:

- 5-Days Advanced Entrepreneurship and Skill Development Training Programme on “Automation and Energy Management in Agriculture and Animal Husbandry” during 16-20 March, 2023. The training programme was conducted by the Department of EEE, NIT Sikkim.
- 5-Days Advanced Entrepreneurship and Skill Development Training Programme on “Applications of IoT and AI/ML in Industries and Agriculture” during 18-22 March, 2023. The training programme was conducted by the Department of CSE, NIT Sikkim.

Participants from the North-East received extensive training from experts from reputed Institutes and industries including IIT Delhi, IIT Guwahati, IIT Patna, IIT Gandhinagar, University of Hyderabad, Jadavpur University, National Institute of Hydrology (NIH), NIT Sikkim.



# Medical Facilities:

The primary health care services are accessible in the medical unit of the Institute which is located within the campus, amidst the residential zone and the academic zone. The medical unit remains open for 24 hours regularly; however it is functional round the clock in emergency. The visiting doctors visit the campus four times a week providing general consultation in OPD basis for 3 hours per visit.

The doctors are as follows:

S.No.	Name and Designation of the Doctors.
1	Dr. D. Deokata M.S. Principal Chief Consultant ( ORTHO)
2	Dr. Sudeep Pradhan, MBBS
3	Dr. Pratik Rasaily, MOTC, DTC
4	Dr. Sangeeta Subba, Consultant Medicine

There are also three nurses to provide general medical services that include first aid, dressing, intravenous fluid infusion, blood pressure, pulse rate, SPO2, weight measurement and oxygen therapy. The students, employees, and other beneficiaries which is approximately 1024 in member of the Institute can avail free outdoor medical treatment, medicines, first-aid, dressing, nebulisation, and intravenous fluid infusion services in the medical unit.

One Ambulance with first aid kit and oxygen cylinder is available for students and employees of the Institute.

Medical Insurance facility is available to the students for IPD treatment.

There have been recent add up of various new and general medication and the medical centre has also been equipped with most of the instruments required for minor procedures.

The medical unit also helped all the beneficiaries to be updated with preventive measures of COVID-19 by educating them about the importance of maintaining social distancing, wearing mask and getting vaccinated.

However, being located in a remote hill station, the overall medical facilities of the Institute need to upgrade and enhance to ensure the smooth medical services to the beneficiaries.



Ambulance facility at NIT Sikkim



Pic: Medical Store in Medical Unit



Minor Procedures in Medical Unit



Dr.Om Prakash (FI-HCS)

# Academic Departments



# Computer Science and Engineering

“

*A computer would deserve to be called intelligent if it could deceive a human into believing that it was human.*

~ Alan Turing

”

The Department of Computer Science and Engineering (CSE) at National Institute of Technology Sikkim has been functioning since the inception of the Institute in the year 2010. The Department provides an outstanding teaching environment complemented by excellence in research.

The Department offers four years B. Tech degree, two years M. Tech degree and Ph. D in Computer Science and Engineering. The Department has a comprehensive curriculum on topics related to all aspects of Computer Science with special emphasis on applicability that is provided using latest techniques of engineering. The course structure is up-to-date and includes courses on state-of-the-art curriculum to equip the students and teachers with the latest developments in the field. The Department aspires to develop interdisciplinary and multidisciplinary projects based on the expertise of faculty members.

The major areas of on-going research in the Department include Artificial Intelligence, Machine Learning, Cryptography, Cyber Security, Parallel-Distributed and High-Performance Computing, Algorithms, Cloud Computing, Wireless and Sensor Networks, Content Centric Network, Internet-of-Things, Blockchain Technology, Post Quantum Cryptography, etc. The Department and the Institute collectively focus on building research groups and leverage the research activities in Sikkim in particular, and North-East region in general using a coordinated effort of various other organizations working in the field of community development using science and technology. The Department has state-of-the-art infrastructure supported by high-speed Ethernet and Wireless Network.

The Faculty and Students often collaborate on projects, working side-by-side with Researchers from other Departments across the campus, colleges of North-East region in India and with institutes abroad. In addition to the excellent environment and quality research opportunities available in the Department, there is also a real sense of community and teamwork. The Department enjoys a rich culture of research through various projects under schemes such as Visvesvaraya Ph. D scheme, Research Grants from MeitY and DST, National Mission on Himalayan Studies, specific developmental projects for North-East region, etc. The Department also contributes towards community developments through Unnat Bharat Abhiyan and scientific lifestyle development of local community (as per the scheme of the Department of Atomic Energy).

The Department aims to become worthy in imparting high-quality knowledge and develops research attitude in Computer Science and Engineering domains as well as inter-disciplinary research with a purpose to serve humanity. These serviceable attitudes can be developed by imparting knowledge in cutting-edge technologies at par with prevalent industry standards, while at the same time the department wishes to instill societal responsibilities steeped in ethics for all professional activities.

## Programs / Courses offered by the Department

- B.Tech in Computer Science and Engineering
- M.Tech in Computer Science and Engineering
- Ph. D in Computer Science and Engineering



## Faculty Details

### **Prof. Mahesh Chandra Govil**

#### **Professor & Director**

Ph. D. (IIT Roorkee), M.Tech. (IIT Roorkee), B.Tech. MNIT Jaipur (formerly MREC)

**Area of Interest:** Real Time Systems, Parallel & Distributed Systems, Fault Tolerant Systems, Cloud Computing, Networks, Internet of Things.

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### **Dr. Sangram Ray**

#### **Associate Professor & HoD**

Ph. D. (IIT(ISM) Dhanbad), M.Tech. (IIT(ISM) Dhanbad), M.Sc M&C (IIT(ISM) Dhanbad), B.Sc. Maths. Hons. (BU), All India Rank – 49 in GATE 2006

**Area of Interest:** Cryptography, Public Key Infrastructure, Elliptic Curve Cryptography, Content Centric Network, Internet of Things, Cyber Security, Blockchain Technology, Post Quantum Cryptography.

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### **Dr. Pratyay Kuila**

#### **Associate Professor & Dean (Research & Consultancy)**

Ph. D (IIT (ISM) Dhanbad), M.Tech (NITTTR Kolkata), B.Tech (Govt. College of Engg. & Ceramic Tech., Kolkata)

**Area of Interest:** Artificial Intelligence, Machine Learning, Soft Computing, Evolutionary Algorithms, Computational Complexity, Wireless Sensor Networks, Distributed Computing.

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### **Dr. Md. Sarfaraj Alam Ansari**

#### **Assistant Professor**

Ph.D. (NIT Sikkim), M. Tech (NIT Durgapur), B.E (Magadh University)

**Area of Interest:** Network Technology, Information Security & Risk Management.

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### **Dr. Pankaj Kumar Keserwani**

#### **Assistant Professor**

Ph. D (NIT Sikkim), MS (IIIT, Allahabad), B.Sc. (Ewing Christian College, Allahabad), MCA (UPTU, Lucknow)

**Area of Interest:** Information Security, Cyber Forensics

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## Temporary Faculty Members

Dr. Krishna Kumar

Mr. Prashant Gupta

Mr. Arunangshu Pal

## Laboratory Facilities

### I. Computer Networks Laboratory

**No. of Computers: 28**

### Activities and Objectives

- To build an understanding of the fundamental concepts of Computer Networking.
- To describe the general principles of Data Communication, organization of Computer with the concept of Layered Approach (OSI model and TCP/IP).
- To implement a simple LAN with hubs, bridges and switches and describe how packets in the Internet are delivered.
- To introduce the students to advanced networking concepts, preparing the students for advanced courses in Computer Networking.
- To understand basic Computer Network Technology, different types of Network Topologies and Protocols.

## Staff

### **Mr. Tapan Chhetri**

Technician

MCA

- To assess how the choice of Data Structures and Algorithm Design Methods impacts the performance of programs.
- To choose the appropriate Data Structure and Algorithm Design Method for a specific application.
- To solve problems using Data Structures such as linear lists, stacks, queues, hash tables, binary trees, heaps, tournament trees, binary search trees, and graphs and writing programs for these solutions.

### Laboratory Courses Conducted:

- Data Communication
- Computer Networks
- Adv. Computer Networks
- Internet of Things
- Wireless Sensor Networks
- Wireless Network Security
- Cyber Forensics
- Blockchain Technology



View of Computer Laboratory 1 (Computer Network Laboratory) Inside

## 2. Data Science Laboratory

**No. of Computers: 27**

### Activities and Objectives

- To apply Quantitative Modeling and Data Analysis Techniques to the solution of real-world business problems, communicate findings, and effectively present results using Data Visualization Techniques.
- To demonstrate knowledge of Statistical Data Analysis Techniques utilized in business decision making.
- To apply principles of Data Science to analyze the business problems.
- To develop a basic understanding of the building blocks of Artificial Intelligence as presented in terms of intelligent agents: search, knowledge representation, inference, logic, and learning.

- To apply Algorithms to build machine intelligence.
- To characterize Machine Learning Algorithms as supervised, semi-supervised, and unsupervised.
- To effectively use Machine Learning Toolboxes.

### Laboratory Courses Conducted

- Artificial Intelligence
- Machine Learning
- Deep Learning
- Big Data
- Natural Language Processing
- Data Analytics



Inside View of Computer Laboratory 2 (Data Science Laboratory)

### 3. Computing Laboratory

**No. of Computers: 70**

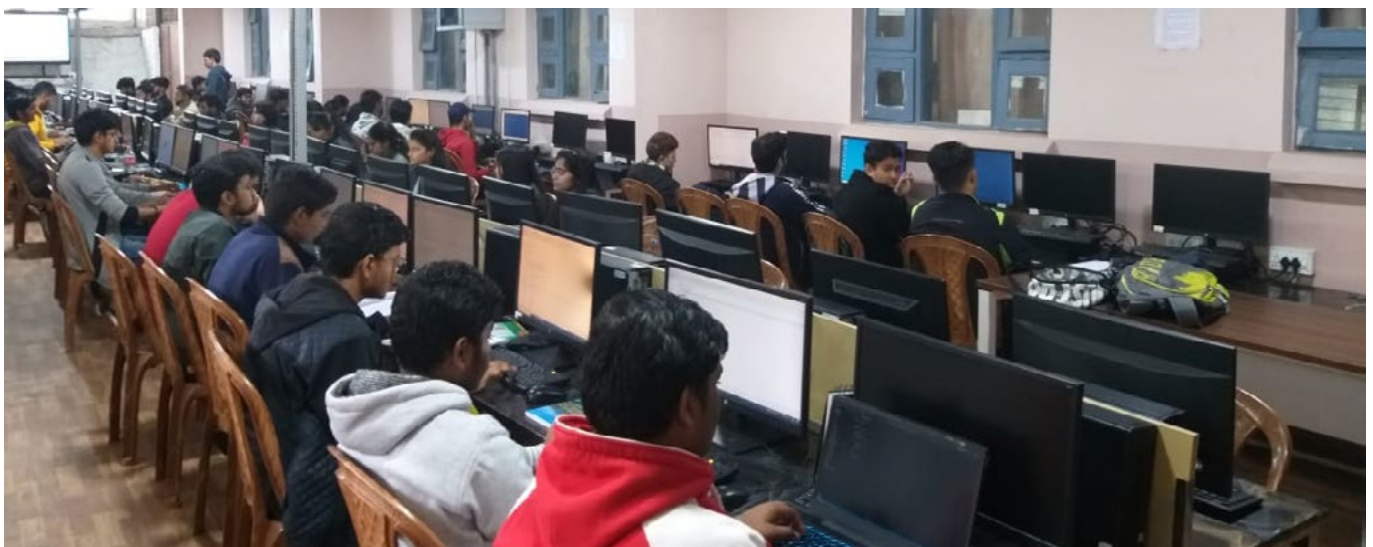
#### Activities and Objectives

- To learn various Computer Programming Languages.
- To analyze the asymptotic performance of Algorithms.
- To understand mathematical formulation, complexity analysis and methodologies to solve recurrence relations for Algorithms.
- To apply important Algorithm Design Paradigms and methods of analysis.
- To design Algorithms using advance data structures.
- To understand Non-deterministic Polynomial (NP) class problems and formulate solutions using standard approaches.
- To provide students with contemporary knowledge in Parallel and Distributed Computing.
- To introduce a variety of methodologies and approaches for reasoning about concurrent and distributed programs.

- To understand Database concepts, structures and query language.
- To understand the E-R model and Relational model.
- To design and build a simple Database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
- To understand Functional Dependency and Functional Decomposition.

#### Laboratory Courses Conducted

- Programming in C, Python, JAVA
- Design and Analysis of Algorithms
- Adv.Algorithms
- Data Structure
- Image Processing
- Operating System
- DBMS



*Inside View of Computer Laboratory 3 (Computing Laboratory)*

### 4. Simulations & Modeling Laboratory

**No. of Computers: 40**

#### Activities and Objectives

- To recognize the concepts and principles of Operating Systems.
- To provide comprehensive introduction to understand the underlying principles, techniques and approaches which constitute a coherent body of knowledge in Operating Systems.
- To introduce Computer Graphics and Image Processing.

- 2D object visualization, Geometrical transformation of 2D objects.
- 3D objects visualization, Projections.

#### Laboratory Courses Conducted

- Software Modeling and Design
- Soft Computing
- Evolutionary Computing
- Computer Graphics
- Image Processing
- Computer Vision



Inside View of Computer Laboratory 4 (Simulations & Modeling Laboratory)

## 5. Advanced Computing and Research Laboratory

### GPU Facility

No. of GPUs: 08 nos.

#### Specifications:

Processor: Intel Xeon 5122 3.6Ghz, 4C, 16.5MB Cache, 105W

Memory: 64GB (2 X 32GB) DDR4 2666 DIMM ECC REGRAM expandable up to 768GB

Hard Disk: 512GB 2.5in SATA SSD, 2TB 7200 SATA Hard Disk

Graphics: 2\*Nvidia 2080TI 11GB

OS: Windows 10 Pro Workstations Plus India

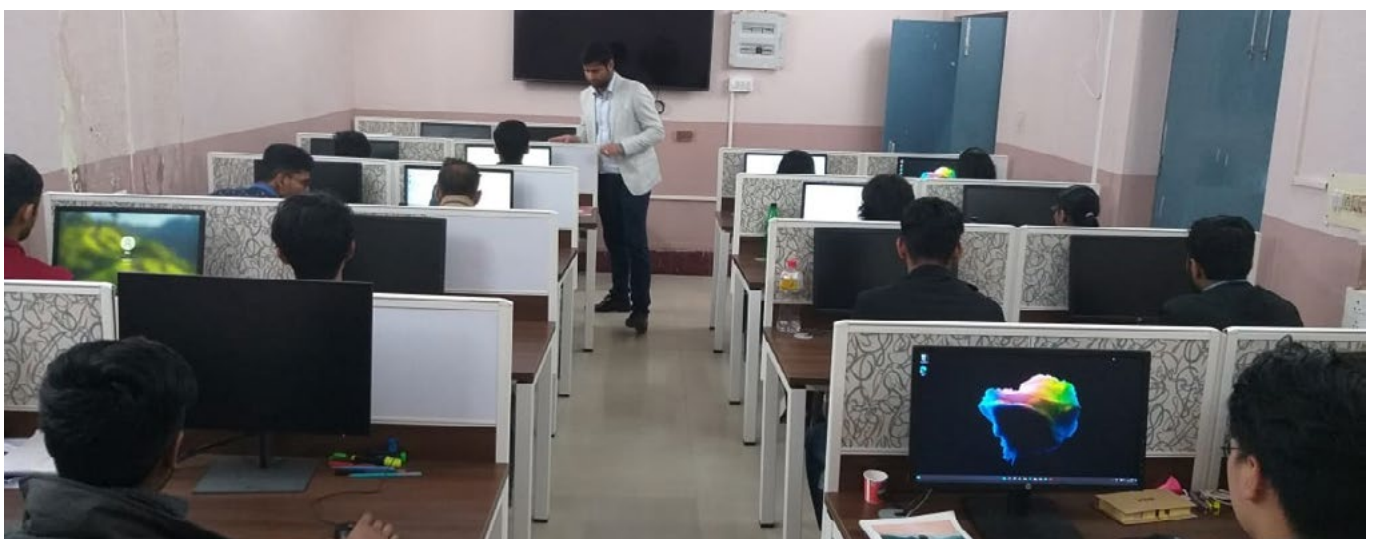
### Laboratory Courses conducted

- Fog Computing
- Edge Computing

- Cloud Computing
- Quantum Computing
- Nature-Inspired Computing
- Parallel and Distributed Computing

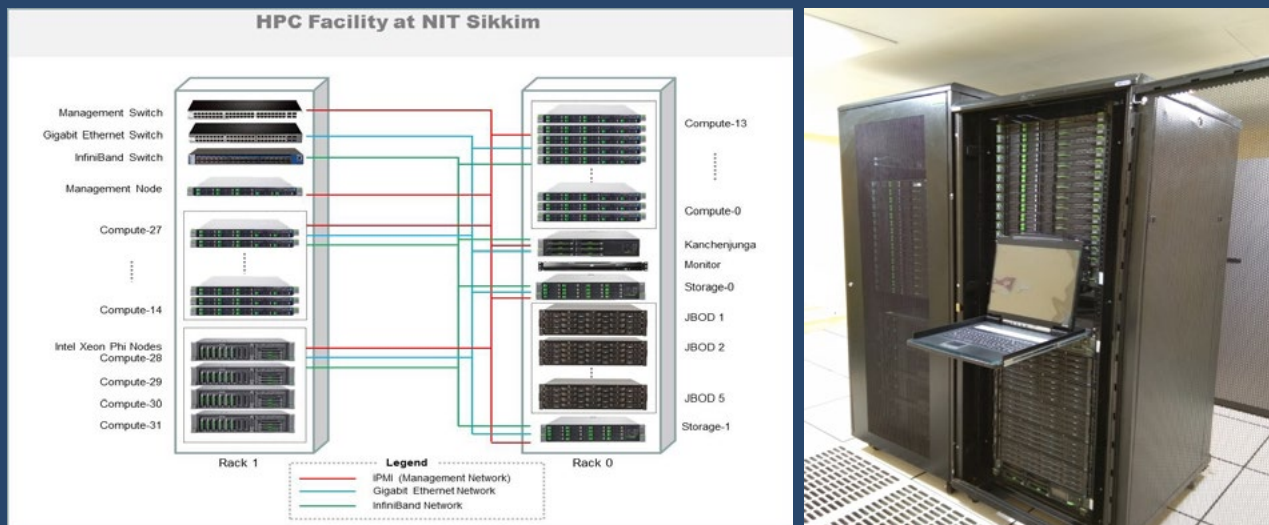
### Activities and Objectives

- To provide HPC PaaS with OpenMP, MPI and Map-Reduce parallel environments
- To select HPC application available as Golden images SuMegha Stack
- IaaS-MPI Cluster, Hadoop Cluster OpenMp servers, virtual servers, virtual storage.
- PaaS-Linux based MPI, Hadoop, OpenMP, GlusterFS, popular programming language and libraries
- SaaS-select applications (e.g. PSE for seasonal forecast model) and sample parallel programs



Inside View of Computer Laboratory 5 (Advanced Computing and Research Laboratory)

## HPC Architecture



PARAM KANCHENJUNGA



## HPC Specifications

- 66 Number of Intel Xeon Ivy bridge (E5-2650V2) processor
- Peak Performance of 15.02 TFLOPS
- 528 x86\_64 based processing cores
- 2.112 TB (2112 GB) of Total Memory (64 GB per Node)
- 6 X 600 GB, 15K RPM, SAS 6GBPS hot-plug HDD's in Master Node
- 2 X 250 GB, 7.2RPM, Enterprise SATA HDD's in Compute Nodes
- 4 X Intel Xeon Phi 5110P Accelerator (8 GB, 60 Co-processing Cores)
- 50 TB of NL-SAS and 20 TB of SAS storage configured as RAID6 Storage
- 36-port 56GBPS 4X FDR InfiniBand as Primary Network
- 48-port Gigabit Ethernet as a Secondary Network
- 48-port Gigabit Ethernet as a Management Network
- Visualization / Management Node

## R&D Project completed on using HPC: SMDP-C2SD Project at NIT Sikkim

### Researchers worked/working on HPC

1. Dr. George Biswas, Research Scholar, Department of Physics
2. Dr. Nigidata Pradhan, Research Scholar, Department of Electronics and Communications Engineering
3. Dr. Priti Gupta, Project Faculty, Department of Electronics

and Communications Engineering

4. Dr. Reshmi Dhara, Research Scholar, Department of Electronics and Communications Engineering

### External Organizations carrying out research work on HPC at NIT Sikkim

The following organizations are provided access to HPC at NIT Sikkim to carry out their research work:

1. INST Mohali
2. Sikkim University
3. Central University, Punjab
4. Ashutosh College, Kolkata

List of running applications (Software Tools) on HPC System

1. Onama (Parallel Application Suite)
2. CHReME (for HPC Resource Management)
3. ROMS (Regional Ocean Modeling System)
4. Gaussian9 and Gauss View5
5. OpenFOAM (Open source Field Operation and Manipulation)
6. VASP & WANNIER90
7. Cadence
8. Mentor
9. MATLAB
10. Ansys I9R (EM & CFD)
11. Anaconda & Python
12. Intel Parallel Studio (Intel MPI, Fortran, OpenMP compiler)
13. Ganglia (Cluster Monitoring)

## Ongoing/Completed R&D Projects / Schemes in the Department

- **Development of Efficient and Secure Content Centric Network (CCN) Architecture with Communication Protocols using Elliptic Curve Cryptography (ECC)**, funded by ICPS Division, DST, Ministry of Science and Technology, Govt. of India (Rs. 20 lacs).
- Design of Efficient and Secure Internet of Things (IoT) Communication Framework in context of Content Centric Network (CCN) using Elliptic Curve Cryptography (ECC) – A next generation smart communication technology, funded by Ministry of Electronics & Information Technology, Govt. of India (Rs. 68 lacs).

## Collaboration with other Departments / Institutes

- University of Bremen, Germany
- Indian Institute of Technology, Kharagpur
- Indian Institute of Technology, Guwahati
- Indian Institute of Technology, Gandhinagar
- Indian Institute of Technology, Hyderabad
- Indian Institute of Technology, Delhi
- CDAC, Pune
- Malviya National Institute of Technology, Jaipur
- Dr. B. R. Ambedkar National Institute of Technology, Jalandhar

## Departmental Committees

Sl. No.	Committee Name	Members
1	Academic Performance Evaluation Committee (APEC)	(i) Dr. Sangram Ray, Convener & HoD (ii) Dr. Pratyay Kuila, Convener DUGC (iii) Faculty Advisor of the concerned student(s) (iv) Dr. MSA Ansari, HoD Nominee (v) Dr. Molay Roy, Nominated by the Dean Academic
2	Departmental Undergraduate Committee (DUGC)	(i) Dr. Pratyay Kuila, Convener (ii) Dr. Sangram Ray, Convener DPGC & HoD (iii) Dr. MSA Ansari, Member (iv) Dr. Pankaj Kumar Kesarwani, Member
3	Departmental Postgraduate Committee (DPGC)	(i) Dr. Sangram Ray, Convener & HoD (ii) Dr. Pratyay Kuila, Convener DUGC (iii) Dr. MSA Ansari, Member (iv) Dr. Pankaj Kumar Kesarwani, Member (v) Dr. Sanjay Kumar Jana, Nominated by the Chairperson Senate.
4	Departmental Examination Committee	(i) Dr. Pankaj Kumar Keserwani, Convener (ii) Mr. Krishna Kumar, Member (iii) Mr. Prashant Gupta, Member (iv) All Faculty Advisors, Member
5	Departmental Result Committee	(i) Dr. MSA Ansari, Convener (ii) All Faculty Advisors, Member
6	Departmental Time Table Committee	(i) Dr. Pankaj Kumar Keserwani, Convener (ii) Mr. Krishna Kumar, Member
7	Departmental Library Committee	Mr. Prashant Gupta, Convener
8	Departmental Reports Preparation, Convocation, and Records committee	(i) Dr. Sangram Ray, Convener (ii) Mr. Arunangshu Pal, Member

Sl. No.	Committee Name	Members
9	Coordinator, Community Developments	Dr. Pankaj Kumar Keserwani, Convener
10	Faculty Advisor	(i) B.Tech 2 <sup>nd</sup> Year- Dr.Pankaj Kumar Keserwani (ii) B.Tech 3 <sup>rd</sup> Year- Dr. MSA Ansari (iii) B.Tech 4 <sup>th</sup> Year- Mr.Arunangshu Pal (iv) M.Tech- Dr. Pratyay Kuila
11	Laboratory In-charge CL-1	Dr. MSA Ansari
12	Laboratory In-charge CL-2	Dr. Pratyay Kuila
13	Laboratory In-charge CL-3	Dr. Pankaj Kumar Keserwani
14	Laboratory In-charge CL-4	Mr. Prashant Gupta

## Administrative Responsibilities of Faculty Members (Institute Level)

Sl. No.	Name of Faculty Member	Institute Level Responsibilities
1	Prof. M. C. Govil	<b>Director</b>
2	Dr. Sangram Ray	<ul style="list-style-type: none"> <li>Head of the Department, Computer Science and Engineering - 08.09.2022 to present</li> <li>Dean Student Welfare – 16.07.2019 to 07.09.2022</li> <li>Nodal Officer, RTI Cell – 20.02.2023 to present</li> <li>Faculty In-charge, Alumni Affairs Cell – 14.09.2022 to present</li> <li>Chairman, Effective Publicity Team – 30.07.2019 to present</li> <li>Proctor/Warden, Boys Hostel I – 28.09.2022 to present</li> </ul>
3	Dr. Pratyay Kuila	<ul style="list-style-type: none"> <li>Dean Research &amp; Consultancy – 07.09.2022 to present</li> <li>Faculty In-Charge, Information and Communication Technology (FIICTI)– 09.12.2016 to present</li> <li>Faculty Coordinator, Computing Devices – 18.08.2021 to present</li> <li>Faculty In-Charge, Fit India Movement and Ek Bharat Shrestha Bharat (EBSB) – 08.09.2022 to present</li> <li>Chief Information Security Officer (CISO)– 28.02.2023 to present</li> <li>Nodal Officer, Samarth E-Gov. Suite an initiative of Ministry of Education (MoE)– 07.02.2023 to present</li> </ul>
4	Dr. Md. S. Alam Ansari	<ul style="list-style-type: none"> <li>Coordinator, Campus Wide Networking – 08.09.2022 to present.</li> <li>Warden, Boys Hostel -I – 22.02.2023 to present.</li> </ul>
5	Dr. Pankaj Kumar Keserwani	<ul style="list-style-type: none"> <li>Faculty In charge, Community Development and Awareness Program - 14.09.2022 to present</li> </ul>

## Workshop Organized

- Advanced ESDP on “Applications of IoT and AI/ML in Industries and Agriculture” during 18-22<sup>nd</sup> March, 2023 funded by Ministry of MSME with funding amount of Rs. 10 lakhs.
- AICTE/ATAL sponsored Online FDP on “Computer Vision and Image Processing using Deep Learning: Research Issues and Applications” during December 19 – 30, 2022.
- A 5-day Advanced Entrepreneurship and Skill Development program on “Automation and Energy Management in Agriculture and Animal Husbandry”, sponsored by the MSME, Govt. of India was successfully conducted by the Department of EEE, NIT Sikkim, Ravangla during March 16-20, 2023.

## Keynote Speaker / Expert Lectures Arranged

- **Mr. Brijnandan Pathak, Member of Zila Ganga Suraksha Samiti District Environment Committee** has delivered an expert talk on “**Clean Water and Sanitation**” on 13.09.2022.
- **Prof. Ajay Kumar Ray, Former Director, IEST Shibpur** has delivered an expert talk on “**Critical Thinking**” on 13.11.2022.

## Keynote Speaker / Expert Lectures Delivered

- **Prof. M. C. Govil** has delivered an expert lecture on IoT in the Short Term Training Program on “**Emerging Technology for Intelligent System & Python Programming**” with the collaboration of iHub Divyasampark, IIT Roorkee on 29<sup>th</sup> May 2023.
- **Prof. M. C. Govil** was Expert-cum-Panelist on University Education in Mother Tongue: Game Changer for Global Literacy in the “**International Education Conclave Mission Education 2.0 organized by Trigyn Technologies**” on 20<sup>th</sup> January 2023.
- **Prof. M. C. Govil** has delivered an expert lecture at International Faculty Development Programme on “**Smart – Future Technologies in AI/ML & Data Analytics**” organised by the Dept. of Information Technology and Engineering, Amity University in Tashkent 3<sup>rd</sup> – 07<sup>th</sup> April 2023.
- **Prof. M. C. Govil** was Expert-cum-Panelist at 4<sup>th</sup> APAC: Global Education and Skill Conclave at New Delhi on “**Industry-Academia Collaboration**”.
- **Dr. Sangram Ray** has delivered two expert lectures in Advanced ESDP on “**Applications of IoT and AI/ML in Industries and Agriculture**” during 18-22<sup>nd</sup> March, 2023 at NIT Sikkim.

- **Dr. Pratyay Kuila** has delivered two expert lectures in Advanced ESDP on “**Applications of IoT and AI/ML in Industries and Agriculture**” during 18-22<sup>nd</sup> March, 2023 at NIT Sikkim.
- **Dr. Pratyay Kuila** has delivered expert lectures on “**Particle Swarm Optimization and Case Study**” on 25<sup>th</sup> August, 2022 in Online Faculty Development Programme (FDP) on **Optimization Techniques: Theory, Practice and Emerging Applications (OT2PEA)** during 22<sup>nd</sup> - 31<sup>st</sup> August, 2022, organized by NIT Warangal.

## Involvement in Community Development

- Lectures by Faculty members in nearby schools.
- Computer exposure to the children from nearby villages and schools.
- Department / Laboratory visit by the nearby school students.
- Teaching and Technical support to ITI Kewzing

## Internship Achievements

The students from the department of CSE got **100% internship offers** in various esteemed organizations. The organizations include Platform9 Systems, ZS Associates, GRAB, Samsung Research etc.

## Placement Achievements

The students from the department of CSE got placement offers in various esteemed organizations. The organizations include Platform9 Systems, ZS Associates, GRAB, Samsung Research etc. 92% of outgoing students of the department got placed through the campus interview. The highest placement offer received is 24 LPA.

## B.Tech. Degree Awarded

SL No	Name of the Student	Title of the Project Report	Supervisor
1	Adarsh Srivastava	Quantum Inspired Particle Swarm Optimization for Task Offloading	Dr. Pratyay Kuila
2	Ruchi Kumari Thakur	Multimode Speech Transformation	Dr. Kumud Tripathi
3	Sidthyant Roy	Intrusion Detection in Cloud Computing Environment using Machine Learning and Deep Learning Methods	Dr. Anand Kumar Mishra
4	Neelava Chatterjee	Quantum Inspired Particle Swarm Optimization for Task Offloading	Dr. Pratyay Kuila
5	Ashis Chatterjee	A Simple Approach of Deep Convolutional Neural Network for Multi-Class Crop Pest classification	Dr. Pratyay Kuila



SL No	Name of the Student	Title of the Project Report	Supervisor
6	Achira Raychaudhuri	Simulation And Analysis Of Real Time Social Distance And Face Mask Detection System	Dr. Sangram Ray
7	Srijana Bhattarai	Signature based IDS using Snort, Zeek, Wireshark and detecting intrusions using ML on UNSW-NB15 dataset	Dr. Pankaj Kumar Keserwani
8	Anupa Pokhariya	Graphical Representation Of UAV Spannable Area Based On Geo-Spatial Distribution And Dynamic Battle Environment For Enemy Avoidance Based Path Allocation	Dr. Pratyay Kuila
9	Sumit Kumar Sharma	xDB Net: Adapting Dense Block Design For Image Captioning	Dr. Gopa Bhaumik
10	Sudarshan Timshina	Information Retrieval From Speech	Dr. Kumud Tripathi
11	Bijay Subba	Vulnerability Assessment In Web Based Application	Dr. Md. Sarfaraj Alam Ansari
12	Aman Raj	Heuristic Based Cost Aware Workflow Scheduling	Dr. B. Balaji Naik
13	Pallavi Gupta	Design Of Real Time Social Distance And Face Mask Detection System	Dr. Sangram Ray
14	Dasari Hemanth Kumar	Audio Search Expression	Dr. Kumud Tripathi
15	Shanu Tyagi	Facial Expression Recognition in Videos Using Neural Networks	Dr. Md. Sarfaraj Alam Ansari
16	Rohit Kumar Rajak	xDB Net: Adapting Dense Block Design For Image Captioning	Dr. Gopa Bhaumik
17	Sonam Gyaltzen Lachenpa	Delay Optimization in Mobile Edge Computing	Dr. B. Balaji Naik
18	Shubham Chhetri	Intrusion Detection in Cloud Computing Environment using Machine Learning and Deep Learning Methods	Dr. Anand Kumar Mishra
19	Bodige Venkat Sai Goud	A Simple Approach of Deep Convolutional Neural Network for Multi-Class Crop Pest classification	Dr. Pratyay Kuila
20	Nizam Krishna Chaitanya	DB4n6 – SQLite File Carving, Standardization and Data Visualization	Dr. Anand Kumar Mishra
21	Aidan	Sentiment Analysis of Amazon Reviews using BiLSTM	Dr. Pankaj Kumar Keserwani
22	Bikash Prasad	NET4N6: An Analysis of Network Attack and Prevention Mechanism	Dr. Anand Kumar Mishra
23	Shubham Agarwal	DensXNet – A Deep tailored neural network for COVID – 19 Detection	Dr. Gopa Bhaumik
24	Jatin Kumar	Multimode Speech Transformation	Dr. Kumud Tripathi
25	Rajan Gupta	Air Quality Index Prediction Using a Hybrid Deep Learning Model	Dr. Pankaj Kumar Keserwani
26	Abhishek Pandey	ReEdNet – An Encoder – Decoder Framework for Single Image Dehazing	Dr. Gopa Bhaumik
27	Varsha Rani	Level Wise Priority Aware Workflow Scheduling Algorithm for Cloud Computing Environment	Dr. B. Balaji Naik
28	Aman Kumar Sahani	Information Retrieval From Speech	Dr. Kumud Tripathi
29	Manisha Ranjan	Design of Biometric Based Authentication in m-Wallet using NFC	Dr. Sangram Ray
30	Arjun Kumar	Analysis and Prevention of 51% Attack on Blockchain	Dr. Md. Sarfaraj Alam Ansari
31	Ankush Yadav	Stack Overflow Tag Prediction Using Machine Learning	Dr. Pankaj Kumar Keserwani

SL No	Name of the Student	Title of the Project Report	Supervisor
32	Divyanshu Gautam	Unmanned Aerial Vehicle Enabled Delay Optimization in Edge Computing	Dr. Pratyay Kuila
33	Kakarla Rohit Venkata Karthik	An SQL query generator for cross-domain human language based questions based on NPL model	Dr. B. Balaji Naik
34	T. Jaya Venkata Rama Reddy	An SQL query generator for cross-domain human language based questions based on NPL model	Dr. B. Balaji Naik
35	Sabbiseti Amarnadh	DB4n6 – SQLite File Carving, Standardization and Data Visualization	Dr. Anand Kumar Mishra
36	Divyanshu Talan	Audio Search Expression	Dr. Kumud Tripathi
37	Shashi Saurabh Sinha	“Multi-modal Biometric Verification Using Face, Finger and Voice”	Dr. Pankaj Kumar Keserwani
38	Debolina Mandal	Unmanned Aerial Vehicle Enabled Delay Optimization in Edge Computing	Dr. Pratyay Kuila
39	Avinash Gautam	ILAAS-IoD: An Improved Lightweight Anonymous Authentication Scheme for Internet of Drons Framework (Part-2)	Dr. Sangram Ray
40	Himanshu Gaur	Delay Optimization in Mobile Edge Computing	Dr. B. Balaji Naik
41	Pintu Sharma	Unmanned Aerial Vehicle Enabled Delay Optimization in Edge Computing	Dr. Pratyay Kuila
42	Anirudh Vaish	Graphical Representation Of UAV Spannable Area Based On Geo-Spatial Distribution And Dynamic Battle Environment For Enemy Avoidance Based Path Allocation	Dr. Pratyay Kuila
43	Nishant Kumar	ILAAS-IoD: An Improved Lightweight Anonymous Authentication Scheme for Internet of Drons Framework (Part-1)	Dr. Sangram Ray
44	Harmesh Mahaur	DensXNet – A Deep tailored neural network for COVID – 19 Detection	Dr. Gopa Bhaumik
45	Rajnish Kumar	NET4N6: An Analysis of Network Attack and Prevention Mechanism	Dr. Anand Kumar Mishra
46	Yanamadala Naga Venkat	Design of Secure e-Voting System	Dr. Sangram Ray
47	Dileep Kumar Yadav	Building a Quantum Variational Classifier Using Real-World Data	Dr. Pratyay Kuila
48	Monika	Network Intrusion Detection System for Imbalanced Dataset using LSTM	Dr. Pankaj Kumar Keserwani
49	Rohit Kumar	Analysis and Prevention of 51% Attack on Blockchain	Dr. Md. Sarfaraj Alam Ansari
50	Sakshi Sagar	Energy-efficient load-balanced server consolidation in cloud computing environment	Dr. Md. Sarfaraj Alam Ansari
51	Dheeraj Upadhyay	Development of Space Optimized BDNA Data Encryption Technique For Uploading Data On Cloud	Dr. Sangram Ray
52	Konark Keshaw	ReEdNet – An Encoder – Decoder Framework for Single Image Dehazing	Dr. Gopa Bhaumik
53	GV Saicharandeeep	Facial Expression Recognition in Videos Using Neural Networks	Dr. Md. Sarfaraj Alam Ansari

## M.Tech. Degree Awarded

SL No.	Name of the student	Title of Thesis	Supervisor
1	Marlom Bey	Task Offloading Optimisation Using Particle Swarm Optimisation And Task Caching In Mobile Edge Computing	Dr. B. Balaji Naik
2	Shreya Ranjan	Task Offloading Delay Minimization Using Evolutionary Algorithm In Mobile Edge Computing	Dr. Pratyay Kuila
3	Shuaraya Ranjan	A Novel Smart Contract Based Communication Protocol For IOT And Blockchain Fusion	Dr. Sangram Ray
4	Rajesh	Task Offloading Using Edge Computing Device In Internet Of Vehicle	Dr. B. Balaji Naik
5	Aman Dharmendrasing Sikarwar	Path planning for UAVs through radar region using convex hull method	Dr. Pratyay Kuila
6	Soujanya Ray	Synthesis Of Video Using Novel Temporal Feedback System	Dr. Pratyay Kuila
7	Pubali Halder	Securing Content Centric Network Using Pairing-Free IBC and MAC-OTP	Dr. Sangram Ray
8	Soumyajit Biswas	Fake News Detection Using Machine Learning And Deep Learning	Dr. Pankaj Kumar Keserwani
9	Abisek Dahal	Trajectory Planning And Data Collectio9n Of UAVS Over Disaster Affected Areas	Dr. Pratyay Kuila
10	Sancha Bir Gurung	Machine Learning And Deep Learning Technique For Fake News Detection	Dr. Pankaj Kumar Keserwani

## Ph. D. Degree Awarded/Submitted

SL No.	Name of the scholar	Title of Thesis	Supervisor	Awarded / Submitted
1	Uddalak Chatterjee	Development of Lightweight Authentication and Key Management Scheme for Internet of Things Frameworks and Its Applications using Elliptic Curve Cryptography	Dr. Sangram Ray	Submitted
2	Vivek Kumar	Design of Efficient and Secure Authentication Schemes using Identity Based Cryptography (IBC) and Behavioural Biometric	Dr. Sangram Ray	Submitted
3	Suman Majumder	Design of Provable Secure Communication Protocols for Internet-of-Things and Blockchain based e-voting Systems	Dr. Sangram Ray	Awarded
4	Dipanwita Sadhukhan	Development of Efficient and Secure Remote User Authentication Schemes for Internet of Things (IoT) and Its Applications using Elliptic Curve Cryptography (ECC)	Dr. Sangram Ray	Awarded
5	Pintu Kumar Ram	Evolutionary Algorithms and Machine Learning Techniques for Processing and Analysis of Microarray Healthcare Data	Dr. Pratyay Kuila	Awarded

## Present Research Scholars

SL No	Name of Scholar	Research Area	Supervisor(s)
1	Dhananjay Kumar	Content Centric Network	Dr. Sangram Ray
2	Deepak Kumar Khandelwal	Computer Science and Productivity	Prof. M.C. Govil
3	Santanu Ghosh	Task Offloading Using UAV-Assisted Edge Computing	Dr. Pratyay Kuila

SL No	Name of Scholar	Research Area	Supervisor(s)
4	Biswadip Bandyopadhyay	Computation Offloading in Edge-Fog Computing	Prof. M.C. Govil Dr. Pratyay Kuila
5	Kundan Kanti Saha	Content Centric Network	Dr. Sangram Ray
6	Priyanka Das	Remote Server Authentication and Blockchain Technology	Dr. Sangram Ray Prof. M. C. Govil
7	Narita Sarkar	AIR Quality Index	Dr. Pankaj Kumar Keserwani Prof. M. C. Govil
8	Manvendra Singh	Efficient Healthcare Monitoring for Internet of Medical Things (IoMT)	Prof. M. C. Govil Dr. Md. S.A. Ansari
9	Madhusmita Samal	Design of Secure Authentication Schemes Using ECC and Blockchain Technology	Dr. Sangram Ray
10	Suman Das	Detection and Defense against Adversarial Attacks	Dr. Pankaj Kumar Keserwani Prof. M. C. Govil
11	Marlom Bey	Quantum-Inspired Evolutionary Algorithms in Edge Computing Environment	Dr. Pratyay Kuila Dr. B. Balaji Naik
12	Suman Banerjee	Blockchain Assisted Mobile Edge Computing	Dr. Pratyay Kuila Dr. B. Balaji Naik
13	Chandan Kumar	Enhancing Software Defined Network Security	Dr. Md. Sarfaraj Alam Ansari
14	Arti Bahugnan	Hand Gesture Recognition Using Deep-Learning	Prof. M. C. Govil Dr. Gopa Bhaumik
15	Rajma Ali	Design of Efficient and Secure Communication Protocols for Integration of Content Centric Network in Internet of Things	Dr. Sangram Ray
16	Atanu Sarkar	Design of Efficient and Secure Communication Protocols for IoT in Contest of Content Centric Network (CCN)	Dr. Sangram Ray

## Membership in Professional Bodies

Sl. No.	Name of Faculty Member	Membership in Professional Bodies
1	Prof. M. C. Govil	<ul style="list-style-type: none"> <li>Senior Member, The Institute of Electrical and Electronics Engineers (IEEE)</li> <li>Member, The Institution of Electronics &amp; Telecommunication Engineers (IETE)</li> <li>Life Member, Indian Society for Technical Education, India (ISTE)</li> </ul>
2	Dr. Sangram Ray	<ul style="list-style-type: none"> <li>Senior Member of <b>IEEE</b></li> <li>Senior Member of <b>IEEE Computer Society</b></li> <li>Senior Member of <b>IEEE Communication Society</b></li> <li>Life Member of <b>CSI</b></li> <li>Life Member of <b>ISTE</b></li> <li>Life Member of <b>ISCA</b></li> <li>Life Member of <b>IEI</b></li> <li>Life Member of <b>CRSI</b></li> <li>Life Member of <b>IAENG</b></li> <li>Member of <b>ACM</b></li> </ul>

## Reviewership of International/National Journals

Sl. No.	Name of Faculty Member	Journals Name
1	Dr. Sangram Ray	<ul style="list-style-type: none"> <li>• <b>IEEE Transaction</b> on Parallel and Distributed Systems.</li> <li>• <b>IEEE Transaction</b> on Information Technology in BioMedicine.</li> <li>• <b>IEEE Transaction</b> on Emerging Topics in Computational Intelligence</li> <li>• <b>IEEE Transaction</b> on Cognitive and Developmental Systems</li> <li>• <b>IEEE Transaction</b> on Network and Service Management</li> <li>• <b>IEEE Systems Journal</b>.</li> <li>• <b>IEEE Internet of Things Journal</b></li> <li>• <b>IEEE Access</b></li> <li>• <b>IETE Journal of Research</b>.</li> </ul>
2		<ul style="list-style-type: none"> <li>• Wireless Personal Communications, <b>Springer</b>.</li> <li>• International Journal of Communication Systems, <b>Wiley</b>.</li> <li>• Transaction on Emerging Telecommunication Technologies, <b>Wiley</b>.</li> <li>• IETE Journal of Research, <b>Taylor &amp; Francis</b>.</li> <li>• International Journal of Innovation Science, <b>Emerald</b>.</li> <li>• Indian Journal of Science and Technology.</li> <li>• Security and Communication Networks, <b>Hindawi</b>.</li> <li>• International Journal of Electronic Security and Digital Forensics, <b>Inderscience</b>.</li> <li>• International Journal of Information and Computer Security, <b>Inderscience</b>.</li> <li>• Journal of Ambient Intelligence and Humanized Computing, <b>Springer</b>.</li> <li>• Journal of Information Security and Applications, <b>Elsevier</b>.</li> <li>• Future Generation Computer Systems, <b>Elsevier</b>.</li> <li>• CSI Transaction on ICT, <b>Springer</b>.</li> <li>• Clinical Epidemiology and Global Health, <b>Elsevier</b>.</li> <li>• Journal of Medical Systems, <b>Springer</b>.</li> <li>• Journal of Supercomputing, <b>Springer</b>.</li> <li>• SN Computer Science, <b>Springer</b>.</li> <li>• Journal of Network and System Management, <b>Springer</b>.</li> <li>• Artificial Intelligence in agriculture, <b>Elsevier</b>.</li> <li>• Ain Shams Engineering Journal, <b>Elsevier</b>.</li> <li>• IGI Global</li> <li>• Indonesian Journal of Electrical Engineering and Computer Science</li> <li>• Journal of Engineering and Technological Sciences</li> <li>• Journal of Healthcare Engineering</li> <li>• Journal of Network and Computer Applications, <b>Elsevier</b></li> <li>• PLOS ONE Journal</li> <li>• TELKOMNICA</li> <li>• Peer J Computer Science</li> <li>• Journal of Medical Imaging and Health Informatics</li> <li>• Frontiers in Computer Science</li> <li>• Frontiers in Big Data</li> </ul>

Sl. No.	Name of Faculty Member	Journals Name
3	Dr. Pratyay Kuila	<ul style="list-style-type: none"> <li>• IEEE/ACM Transactions on Networking</li> <li>• ACM Trans. on Sensor Networks</li> <li>• IEEE Communication Letter</li> <li>• IEEE Access</li> <li>• Ad Hoc Networks (Elsevier)</li> <li>• Computer Networks (Elsevier)</li> <li>• Swarm and Evolutionary Computation (Elsevier)</li> <li>• Applied Soft Computing (Elsevier)</li> <li>• Journal of Supercomputing (Springer), etc.</li> </ul>
4	Dr. Md. S. Alam Ansari	<ul style="list-style-type: none"> <li>• International Journal of Computers and Applications (IJCA), Taylor &amp; Francis.</li> <li>• International Journal of Peer-to-peer Networking and Applications, Springer.</li> </ul>
5	Dr. Pankaj Kumar Keserwani	<ul style="list-style-type: none"> <li>• Process Safety and Environmental Protection, Elsevier</li> <li>• Engineering Applications of Artificial Intelligence, Elsevier</li> <li>• Concurrency and Computation: Practice and Experience, Wiley</li> </ul>

## Google Scholar Citations

Sl. No.	Name of Faculty Member	Citations
1	Prof. M. C. Govil	Total Citation: 1374 h-Index: 18 i10 Index: 35
2	Dr. Sangram Ray	Total Citation: 774 h-Index: 17 i10 Index: 23
3	Dr. Pratyay Kuila	Total Citation: 2678 h-Index: 21 i10 Index: 37
4	Dr. Md. S. Alam Ansari	Total Citation: 45 h-Index: 5 i10 Index: 1
5	Dr. Pankaj Kumar Keserwani	Total Citation: 191 h-Index: 9 i10 Index: 6



# Department of Electronics and Communication Engineering

*The highest education is that which does not merely give us information but makes our life in harmony with all existence.*

~ **Rabindranath Tagore**

## Introduction

The Department aims to provide its students the essential technical knowledge and skills of contemporary and futuristic technologies in the field of Electronics and Communication Engineering to match the global requirements. The Department offers B. Tech program in Electronics and Communication Engineering, M. Tech program in Electronics and Communication Engineering and Ph.D. Degree. Proper weightage of theory and practical learning are given in the curriculum to all the offered programmes. The perspective of all the stakeholders i.e. renowned academician, students, their parents, industrial partners and the agencies involved in quality education are considered in the curriculum.

The research focus of the Department is in the areas of VLSI Design, Application Specific Integrated Circuits (ASIC) Design & Modeling, Optimization of High-Performance Semiconductor Devices, Microwave Engineering & Antenna Design, Wireless Communication, Satellite Systems & Navigation, Signal Processing, and Solar Cell.

The Department has basic laboratory facilities to provide hands-on experience in with the latest technologies. The Department comprises a diverse group of young, enthusiastic and dynamic Faculty members. Continuous evaluation of teaching and learning are carried out in the Department by collecting necessary feedback from the students. Special care and attention are taken for holistic development of the students to help them in academics, research and career aspects. Moreover, internship, industrial projects and interaction with leading academicians and industry professionals are also arranged for the students to help them gain leadership skills,

competitive skills, and entrepreneurial skills. Students are also encouraged to take part in various Departmental and Institute level Committees to actively participate in the organization of Placement Drives, Workshops, Technical Festival, Cultural Festival and Sports Events. Anuvrat, the Departmental Technical Club organizes many technical events such as Alumni Talk Series namely Vimrshyotsava, National Science Day Lecture, Quiz Competition etc. on regular basis.

## Aspiration

To contribute in finding solutions to the challenges faced by the nation and the world by furnishing new thoughts and talents.

## Mission

- To generate new knowledge by engaging in cutting-edge research and to promote academic growth by offering state-of-the-art undergraduate, postgraduate and doctoral programs.
- To nurture the national and international competitiveness in the students by facilitating international internships, industrial project opportunities and research on futuristic technologies.

## Vision

- Achieving excellence in teaching and research in the field of Electronics and Communication Engineering through balance in theory and practice, and thereby contributing to our society and be a source of pride for all Indians.

## Salient Features

Various measures are taken to impart and adapt attributes like critical thinking, innovation, global competitiveness, introduction to new technology, industry trends etc. Some of them are:

- Technical support to carry out research, projects and patent related work.
- Guidance for excelling in Placement and Competitive examinations.
- Exposure to latest technologies and research areas through Seminars, Workshops and Summer Trainings.
- Online Learning through various platforms such as NPTEL, SWAYAM etc.

## Faculty Details:

### **Dr. Sanjay Kumar Jana**

#### **Assistant Professor and HOD**

Ph.D (IIT Kharagpur), M.Tech (Jadavpur University), M. Sc. (Vidyasagar University)

**Area of Interest:** Design of Nano scale Devices for VLSI IC, Analog MOS IC Design.

### **Dr. Surajit Kundu**

#### **Assistant Professor**

Ph.D (NIT Sikkim), M.Tech (IIT Kharagpur), B.Tech. (WBUT)

**Area of Interest:** Digital Communication, Wireless Communication, RF, Microwave and Antenna Engineering, Metasurfaces, Periodic Reflective Surfaces (FSS, AMC), Global Navigation Satellite Communication, Ground Penetrating Radar

### **Dr. Hemant Kumar Kathania**

#### **Assistant Professor**

Ph.D (NIT Sikkim), M.Tech (IIT Guwahati), B.Tech. (University of Rajasthan)

**Area of Interest:** Signal and Speech Processing.

### **Dr. Reshmi Dhara**

#### **Assistant Professor**

Ph.D ( NIT Sikkim), M.Tech. (IIT Kharagpur), B.Tech. (WBUT)

**Area of Interest:** Polarized Microstrip Antenna.

## Temporary Faculty Members

### **Dr. Sukanta Dhar**

#### **Assistant Professor**

Ph.D (IEST Shibpur), M.Tech (Jadavpur University), B.Tech. (WBUT)

**Area of Interest:** Solar Photovoltaic, Light Trapping, Study of Nano-materials.

### **Dr. Avinash Kumar**

#### **Assistant Professor**

Ph.D (NIT Patna), M.Tech (Jadavpur University), B.Tech.

**Area of Interest:** Signal Processing (Speech Processing, Image Processing).

### **Dr. Jeetendra Singh**

#### **Assistant Professor**

Ph.D (NIT Jalandhar), M.Tech (University of Delhi ), B.Tech.

**Area of Interest:** VLSI Design, Microelectronics, Semiconductor Devices, Memristor.

### **Dr. Sudipta Das**

#### **Assistant Professor**

Ph.D (NIT Durgapur), M.Tech (NIT Durgapur), B.Tech. (WBUT)

**Area of Interest:** Antennas and Antenna Arrays, Evolutionary Algorithms, Multiobjective Optimization

## Support Staff

Mr. Amit Tamang, Technical Assistant

Mr. Siddarth Pradhan, Technician

## Departmental Committees:

S. No.	Name of the Committee	Name of the Faculty Members
I	Academic Performance Evaluation Committee (APEC)	(i) Dr. Sanjay kumar Jana, HoD and Convener (ii) Dr. Hemant Kumar Kathania, Convener, DPGC & HoD Nominee (iii) Dr. Reshmi Dhara, Convener DUGC, Member (iv) Faculty Advisor of the concerned student(s) Member (v) Dr. Aurobinda Panda, Department of EEE



S. No.	Name of the Committee	Name of the Faculty Members
2	Departmental Undergraduate Committee (DUGC)	(i) Dr. Sanjay kumar Jana, HoD, ECE (ii) Dr. Reshmi Dhara, Convener DUGC (iii) Dr. Hemant Kumar Kathania, Member (iv) Dr. Sudipta Das, Member (v) Dr. Sukanta Dhar, Member (vi) Dr. Jeetendra Singh, Member
3	Departmental Postgraduate Committee (DPGC)	(i) Dr. Sanjay kumar Jana, HoD, ECE (ii) Dr. Hemant Kumar Kathania, Convener DPGC (iii) Dr. Reshmi Dhara, Convener DUGC (iv) Dr. Sukanta Dhar, Member (v) Dr. Sudipta Das, Member (vi) Dr. Jeetendra Singh, Member (vii) Dr. Molay Roy, Dept. of EEE

## Membership of Technical Association/ Society

Faculty members of the Department of ECE are allied with various Technical Associations/Societies like IEEE, URSI, IEEE Antennas and Propagation Society (AP-S), ISPRS, Internet Society, Kolkata Chapter, IAENG, SDIWC, FOSET, IEEE Signal Processing Society, International Speech Communication Association (ISCA), International Speech Communication Association (ISCA), Institution of Engineers (India) etc.

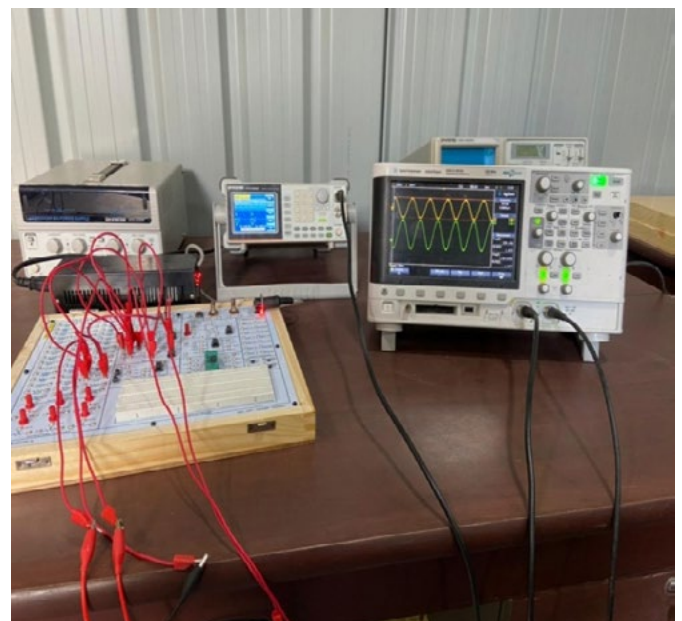
## Laboratory Facilities

The Department has basic laboratory facilities and each of them are equipped with some of the modern technical instruments which are useful for the UG and PG students.

## Analog Circuits Laboratory:

Analog Circuit Design Laboratory course exposes the students to the world of analog from a system design perspective and enables the students to understand and address the challenges as a System Designer. The goal of the course is to develop the student's ability in state-of-the-art design and conduct experiments, analyze and interpret data, enhance his ability to design a system which meets the desired specifications, while also develop one's ability to identify, formulate, and solve engineering problems, ability to use the techniques, skills and modern engineering tools necessary for Engineering practices.

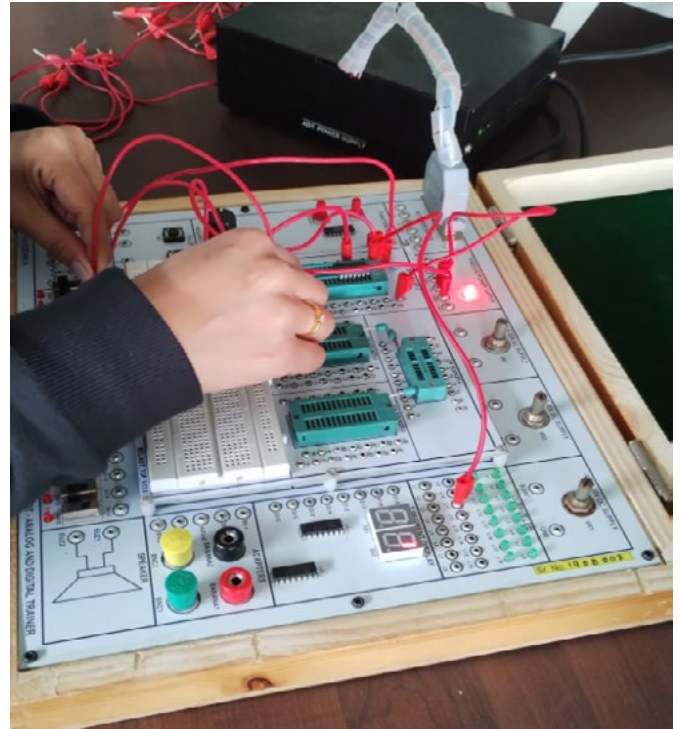
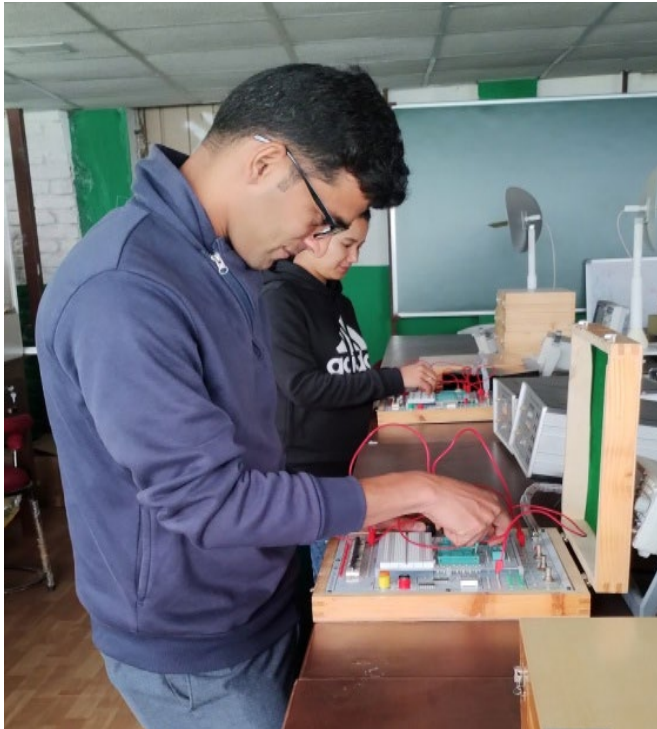
Each laboratory experiment has a design part, simulation and an actual experimental verification in the laboratory (bread-boarding/soldering). The basic objective is to give hands-on experience in design and implementation of analog and mixed-signal circuits.



### Digital Electronics Laboratory:

The experiments corresponding to the Digital Electronics Laboratory are Combinational Logic design using basic gates (Code Converters, Comparators), Combinational Logic design using decoders and MUXs, Arithmetic circuits - Half and Full Adders and Subtractors, Flip flop circuit (RS latch, JK & master slave) using basic gates, Counters, Transfer Characteristics, Measurement of Sinking and Sourcing currents of TTL gates

etc. Digital Electronics Laboratory is well equipped with Digital Logic Trainer kits where various experiments can be performed. Through the experiments being performed at this laboratory, the students would be able to design the simple logic circuits and test/verify the functionality of the logic circuits. The students will gain a thorough understanding of the fundamental concepts and techniques used in digital electronics that will make them analyze and design various combinational and sequential circuits.



### Microprocessor and Microcontroller Laboratory:

The corresponding Laboratory is equipped with various microprocessor/microcontroller training systems that can be utilized for performing relevant experiments such as Assembly Language and Timer Programming using status check and interrupts, LCD interfacing to 8051, Motor Speed control

using microcontroller, studying current microcontroller e.g. AT mega, Arduino etc. This Laboratory enables the students to develop the Assembly Level Programming using instruction set, analyze how different I/O devices can be interfaced to processor and will explore several techniques of interfacing, design projects for practical applications like home automation system, Digital Clock etc.



### Communication Engineering Laboratory:

The experiments corresponding to the Analog Communication and Digital Communication techniques are performed in this Laboratory. The experiments are primarily performed in simulation using MATLAB tool for initial understanding and visualization. Afterwards, the hands-on experiments are performed using hardware such as discrete components, ICs, breadboards and hardware equipment like signal generator, DC power supply, Oscilloscopes, Spectrum Analyzer etc. Trainer Kits are also available for the students mainly for performing some comparatively complex experiments and to study the output waveforms for various inputs in different channel conditions.

Some experiments performed in Analog Communication Laboratory involve generation and detection of different continuous wave modulation techniques: amplitude modulation (e.g., DSB-FC, DSB-SC, SSB), frequency modulation (FM) and phase modulation (PM); pulse modulation techniques: pulse amplitude modulation (PAM), pulse width modulation (PWM) and pulse positioning modulation (PPM); Frequency Division Multiplexing and Demultiplexing schemes etc. Experiments to study digital communication systems are carried out in this laboratory such as generation and detection of different pulse code modulation techniques (e.g., PCM, DPCM, and DM). Besides, different line coding methods used to transmit digital data over a transmission line are experimentally studied such as unipolar, polar and bipolar coding. Further, to study inter-symbol interference (ISI) over a noisy channel, EYE

pattern is generated and analyzed in the oscilloscope. On the other hand, to transmit data over a channel, different digital modulation schemes, i.e., amplitude shift keying (ASK), frequency-shift keying (FSK), phase-shift keying (PSK), are experimentally studied. Multiplexing and multiple access techniques like TDM, and CDMA are also performed. Familiarization with the conventional and advanced wireless communication systems are pursued in this laboratory. Some advanced wireless communication engineering set up such as 2x2 MIMO (NI USRP), Satellite uplink and downlink data transmission, Ad-hoc Wireless Communication (Bluetooth, Wi-Fi and Zigbee) Kit, Global Position System (GPS) kit, Global System for Mobile communication (GSM) kit are also available in this laboratory. Model to determine the free space loss, the power received and BER-SNR graphs for different types of channels (e.g., AWGN and fading channel) with different types of digital modulation techniques (e.g., ASK, FSK, BPSK, QPSK) are performed using programming. Apart from that, some of the advanced wireless technologies, spread spectrum modulation and demodulation techniques (DSSS and FHSS), and orthogonal frequency division multiplexing (OFDM) modulation and de-modulation are also studied and performed using programming in this laboratory. These help the students to cope with the modern wireless communication technologies and standards used in various applications. With such a variety of experimental learning opportunity, students can develop the knowledge of design and analysis of various components of modern communication systems to succeed as efficient engineers in the near future.



### Electromagnetics and Antenna Laboratory:

The Electromagnetics and Antenna Laboratory familiarize the students with the fundamental principles and applications of electromagnetic wave propagation which is essential in the field of wireless communication. The corresponding laboratory aims to develop the students' ability to implement their knowledge achieved from electromagnetic field theory and antennas in practical domain. This laboratory develops the hands-on skill of the students about the electromagnetic

phenomenon such as propagation of fields in various guided mediums and characterization of radiation of fields from various antennas. With the use of transmission line systems as well as coaxial cables, students can study and characterize the standing waves and its effect on signal propagation. In this laboratory the students can observe the radiation patterns of various planar and non-planar antennas followed by evaluation of the antenna parameters that lead them to acquire the ability to distinguish between different types of antennas with respect to the field of applications.



### Microwave Engineering Laboratory:

Microwave Engineering Laboratory is suitable for performing experiments such as studying the characteristics of various microwave passive components including Directional Coupler, Branch line Coupler, Rat Race Coupler, attenuator, ring resonator, power divider etc. in the microwave frequencies up to 3 GHz. Besides, frequency response of microwave oscillator such as GUNN diode and Reflex Klystron is observed in the waveguide test bench. Design and simulation

of various planar and non-planar antennas operating in the microwave frequencies (microstrip patch antenna, slot antenna) are carried out in this laboratory followed by analysis of the antenna parameters (VSWR, radiation pattern, gain) using High frequency simulators. Measurement of radiation, scattering parameters, impedance of microwave antennas is also performed using network analyzer that makes the students aware of the characteristics of the antennas used in various high frequency applications.



### VLSI Design Laboratory:

The VLSI Design Laboratory is equipped with state-of-the-art computational facilities and has access to industry-standard EDA tools like Cadence Virtuoso, Mentor Graphics, Xilinx Vivado, Synopsis, etc. B.Tech and M.Tech practical courses related to VLSI are conducted in this laboratory. The M.Tech students with the specialization on Microelectronics & VLSI Design access the lab facilities heavily during their One-year dissertation period. Apart from that, Institute Research Scholars working in analog/

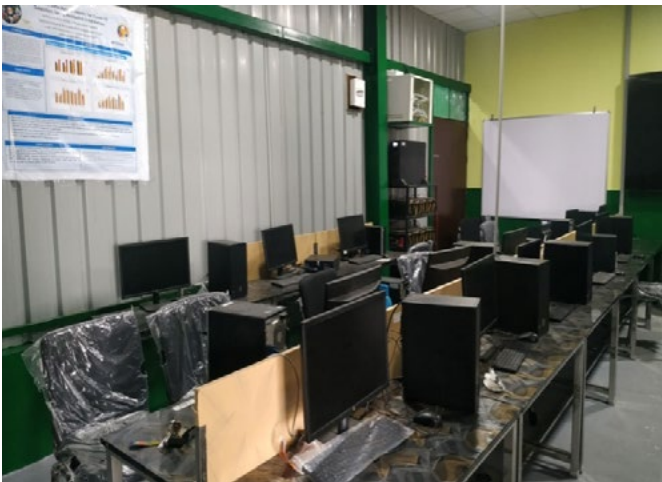
digital VLSI or device modelling access this lab on a regular basis for their computational and research purposes. In this lab, the complete VLSI design cycle consisting of the steps like schematic design, floor-planning, placement, routing, parasitic extraction, and post-layout simulation can be performed for analog, digital or mixed-signal circuits. Students can also perform experiments related to the design and synthesis of combinational circuits, sequential circuits, FSM using VHDL or Verilog in this laboratory. The lab has all the facilities necessary for semiconductor device modelling and process simulations.



### Signal Processing Laboratory:

The experiments corresponding to the Signals and Systems and Digital Signal Processing are performed in this Laboratory. The experiments including fundamental signal operations,

analysis of LTI systems (linear convolution), Fourier analysis of periodic and non-periodic signals both in continuous and discrete-time and frequency domain representation of signals etc. are performed for the Signals and Systems Laboratory.

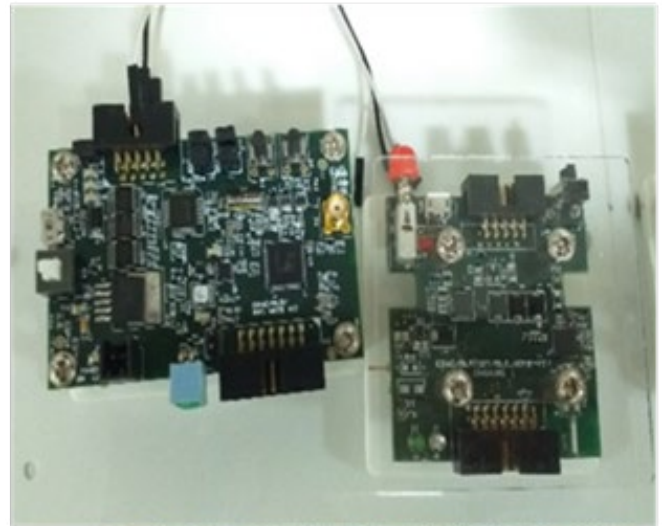
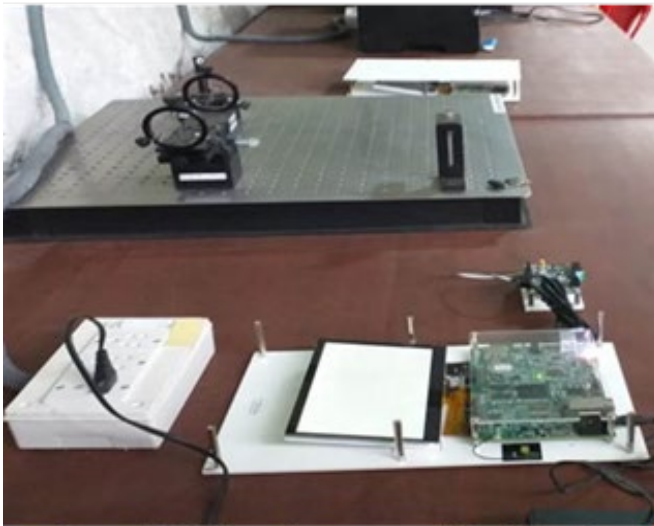


The Digital Signal Processing (DSP) Laboratory has both software and hardware components. In the software part, students carry out a number of simulations, illustrating some of the fundamental concepts and applications of digital signal processing, such as quantization, sampling and aliasing, signal generation and manipulation, block processing by convolution using overlap save and overlap add method, signal enhancement and noise reduction filters, direct, canonical, and cascade realizations of digital filters, spectral analysis by the DFT and FFT, the design of IIR, and FIR filters for band pass, band stop, low pass and high pass filters, and digital audio effect applications. The hardware part of the laboratory illustrates the programming of real-time signal processing algorithms. This course enables the students to understand handling of discrete/digital signals, the basic operations of signal processing, the design and analyzing the linear time-invariant (LTI) systems and compute its response, analyze the

spectral characteristics of signals using Fourier analysis, analyze the systems using Laplace transform and Z-transform, the design IIR, and FIR filters for bandpass, band stop, low pass, and high pass filters and design the signal processing algorithm.

### Optical Communication Laboratory:

Various experiments related to Optical Communication can be performed in this laboratory with training systems such as optical network system, Erbium Doped Fiber Amplifier Training System, Fiber Optic Trainer Kit for glass and plastic fiber, Fiber Optic, Connector and Splicing Kit etc. Such equipments are useful for studying chromatic dispersion, Diode laser characterization, Bragg Grating characterization, observation of various modes, Numerical Aperture Measurement of Optical Glass Fiber etc. The experiments are useful for the students in implementing their knowledge regarding optical communication systems practically.



### Internet-of-Things (IoT) and Artificial Intelligence (AI) Laboratory:

The Internet-of-Things (IoT) laboratory is useful for both UG and PG students to cope with current technologies. This laboratory is equipped with systems such as IoT mote with highly integrated system on Chip compliant to IEEE 802.15.4, RF subsystem and Security subsystem, Wi-Fi mote with wireless MCU with built-in Wi-Fi protocol stack targeted for IoT, SOC based device for Bluetooth Low Energy based applications, Sensor mote with various sensors such as Temperature & Relative Humidity Light Intensity, Proximity Sensing.

**Artificial Intelligence Laboratory** facilitates UG and PG students to smartly deal with various real-world problems or models thereof. This laboratory is equipped with Python and Tensor flow to conduct experiments on Search operations following Search algorithms, Multi-agent games, Genetic Algorithms and Optimization, Neural Network and Fuzzy Logic Applications and Planning. Also, MATLAB based experiments on Genetic Algorithms, Neural Network and Fuzzy Logic are included in this Laboratory.

### Outreach Activities:

1. Dr. Sanjay Kumar Jana delivered a keynote lecture entitled “A roadmap for Integrated Circuit (IC) Design with nanoscale emerging devices” on 16 February 2022 at ICPMT 2022.
2. Dr. Surajit Kundu delivered an invited online lecture in the short-term course on “Microwave and beyond: Present and Futuristic Wireless Communication Systems” during 4th to 8th April, 2022 organized by Kalimpong Government Polytechnic, West Bengal.
3. Dr. Surajit Kundu delivered an invited online lecture on “5G Communication Technology from Antenna Engineer’s perspective” in April, 2022, organized by Dept. of ECE, University of Engineering and Management (UEM) Kolkata.

### Awards / Achievements:

1. Dr. Surajit Kundu Received the best paper award in the North East Research Conclave (NERC), May 20-22, 2022 at IIT Guwahati.

### Ph.D. Awarded:

Scholar	Research Topic	Supervisor(s)
Mr. Subhanil Maity	Design of Power and Area Optimized High Speed Frequency Divider	Dr. Sanjay Kumar Jana
Ms. Nigidita Pradhan	Design and analysis of phase-frequency detector and charge pump for phase-locked loop application	Dr. Sanjay Kumar Jana
Ms. Priti Gupta	Design of transconductance-capacitance based loop filter for PLL application	Dr. Sanjay Kumar Jana

### Research Scholars in the Department

Scholar	Research Topic	Supervisor(s)
Mr. Keshab Das	Design and Analysis of Wideband LC Voltage-Controlled Oscillator (VCO) for High Frequency Applications	Dr. Sanjay Kumar Jana

Scholar	Research Topic	Supervisor(s)
Mr. Arnab Som	Modeling and Design of Semiconductor Devices towards Analog IC Design Applications.	Dr. Sanjay Kumar Jana
Mr. Somnath Mahato	GNSS RealTime Kinematics (RTK) for towards enhance solution accuracy	Dr. Surajit Kundu
Mr. Atanu Santra	Indian Navigation System (NavIC) and Its Advantages	Dr. Surajit Kundu
Mr. Dheeraj Pandey	Multifunctional Antenna	Dr. Surajit Kundu/ Dr. Reshmi Dhara
Ms. Tshering Sangmo Sherpa	VLSI Design	Dr. Sanjay Kumar Jana
Mr. Sanoj Mahato	Design, Analysis and Performance Evolution of Wide Band /Multiband Microstrip Antenna	Dr. Reshmi Dhara
Ms. Neelam Singh	Single/ Multi/ Ultra- Wideband Metamaterial Absorber	Dr. Reshmi Dhara
Ms. Sriparna Sarma	Mixed Signal RF IC Design	Dr. Sanjay Kumar Jana
Mr. Udara Laxman Kumar	Automatic Speech Recognition for Low resource data	Dr. Hemant Kumar Kathania
Mr. Paban Sapkota	Automatic Speech Recognition (ASR) systems for Dysarthric Speech	Dr. Hemant Kumar Kathania

### Projects of Final Year PG (M. Tech) Students:

Name of the Supervisor	Project Title	Roll no.	Name of the Student
Dr. Sanjay Kr. Jana	Automating Digital Design Verification using Machine Learning	M200023EC	Nilotpal Chakraborty
Dr. Sanjay Kr. Jana	Timing analysis in physical design backend flow.	M200026EC	Debashree Chakraborty
Dr. Sanjay Kr. Jana	A RISC-V instruction set process microarchitecture analysis and RTL Design	M200028EC	Gopalkrishna swain
Dr. Hemant Kr. Kathania	Towards Prediction of COVID-19 with Acoustics based on Multilayer Perceptions Neural Network	M200030EC	Paban Sapkota
Dr. Hemant Kr. Kathania	Automatic Speech Recognition System for English Language	M200025EC	Dasari Vineethchandra
Dr. Reshmi Dhara	Design and Simulation of a MEMS Piezoelectric Transducer	M200039EC	Sriparna Sarma
Dr. Surajit Kundu	Design of stacked power amplifier for 5G technology using 180nm CMOS technology	M200036EC	Serbum Nungaesha Moyon
Dr. Sukanta Dhar	Smart Voice Assisted Walking Stick For Blind and Elderly People	M200037EC	Mrinal Kausik
Dr. Sukanta Dhar	Testing and Verification of IP designs using spyglass tools in frontend flow	M200038EC	Devasish Bhagawati
Dr. Sukanta Dhar	Designing an Arduino-based Nondispersive Infrared (NDIR) Gas sensor	M200024EC	Kotha Venkata Ramakrishna
Dr. Jeetendra Singh	Hardware design of ECC in NAND Flash memory	M200031EC	Patel Vikas Hargovindbhai
Dr. Jeetendra Singh	Memory Failure and Repair Analysis Post Silicon Yield Improvement	M200029EC	Sravanthi Ghanta
Dr. Avinash Kumar	Automatic Speech Recognition System for Hindi Language	M200032EC	U Laxman Kumar
Dr. Avinash Kumar	I.O.T. Based Smart Room Using Raspberry PI.	M200034EC	Binay Raj

## Projects of Final Year UG students:

Name of the Supervisor	Project Title	Roll no.	Name of the Student
Dr. Sanjay Kr. Jana	Design and Optimization of 555 timer based Multivibrators	BI80065EC	Chinnapogula Dinesh
	Design of an Op-Amp for 4-bit R-2R DAC using 180 nm Technology	BI80063EC	Sovan Mandal
	Design and Optimization of 555 timer based Multivibrators	BI80093EC	Khushbu Gupta
	Design of an Op-Amp for 4-bit R-2R DAC using 180 nm Technology	BI80077EC	Chandan Kumar Sharma
	Development of webpage and android application for IoT enabled agricultural system	BI80062EC	Sushant
Dr. Surajit Kundu	Development of IOT Enabled Multi-sensor unit for Agricultural Applications	BI80098EC	Thatigiri Arunkumar
	Development of webpage and android application for IoT enabled agricultural system	BI80097EC	Alok Kumar
	Development of IOT Enabled Multi-sensor unit for Agricultural Applications	BI80071EC	Anusha Dogra
	Development of IOT Enabled Multi-sensor unit for Agricultural Applications	BI80069EC	Arjun Mandal
Dr. Hemant Kr. Kathania	COVID-19 Detection using Acoustics Information (cough)	BI80085EC	Shivam
	COVID-19 Detection using Acoustics Information (cough)	BI80091EC	Gourav Kumar Prasad
	COVID-19 Detection using Acoustics Information (speech, breath)	BI80078EC	Adhitiya Sharma
	COVID-19 Detection using Acoustics Information (speech, breath)	BI80086EC	Ruten Basnet
Dr. Reshmi Dhara	Design and Analysis of Multiband Microstrip Antenna with Polarization Diversity for Wireless Communication Applications	BI80066EC	Mididodla Jaswanth Sai
	Design and Analysis of Multiband Microstrip Antenna with Polarization Diversity for Wireless Communication Applications	BI80095EC	Aman Raj
	Design and Analysis of Miniaturized wide band microstrip antenna	BI80092EC	Jitendra Singh
	Design and Analysis of Miniaturized wide band microstrip antenna	BI80084EC	Manjay Kumar Anand
Dr. Sukanta Dhar	Design and Optimization of Absorber, ETL and HTL of Perovskite solar cell	BI80088EC	Pawan Kumar
	Efficiency Modelling of Hot Carrier Solar Cell	BI80090EC	Sanjeev Kumar Sharma
	Efficiency Modelling of Hot Carrier Solar Cell	BI80073EC	Rohit Kumar Gupta
Dr. Avinash Kumar	Design and Optimization of Absorber, ETL and HTL of Perovskite solar cell	BI80080EC	Beetu Sharma
	Formal Verification of logic blocks relating to PCI Express	BI80087EC	Ashwani Saikiran
	Generative Adversarial Network based Image Enhancement	BI80067EC	Rituparna Biswas
	Generative Adversarial Network based Image Enhancement	BI80094EC	Abadhesh
	Image Analysis using Web Technology	BI80072EC	Bishal Kumar Saha
Dr. Jeetendra Singh	Image Analysis using Web Technology	BI80079EC	Deepak Gupta
	Data driven Gross to Net Revenue Analysis and Modelling	BI80099EC	Anjali Roy
	Design and Performance Analysis of I2C Protocol	BI80068EC	Shivam Maurya
	Design and Performance Analysis of AHB Lite Protocol	BI80081EC	Shagir Husain
	Design and Performance Analysis of AHB Lite Protocol	BI80075EC	Pravesh Sharma
	Design and Performance Analysis of I2C Protocol	BI70152EC	Pankaj Kumar



Name of the Supervisor	Project Title	Roll no.	Name of the Student
Dr. Sudipta Das	Reconfigurable Pattern Synthesis of Antenna Arrays using Genetic Algorithm	BI80083EC	Yashwant Kumar
	Low Sidelobe Pattern Synthesis of Time Modulated Antenna Arrays	BI80074EC	Prashant Prasad
	Low Sidelobe Pattern Synthesis of Time Modulated Antenna Arrays	BI80082EC	Yashwant Sharma
	Reconfigurable Pattern Synthesis of Antenna Arrays using Genetic Algorithm	BI80076EC	Zigdel Sherpa

### Workshop/FDP/STC/IEP/Webinar Attended:

SN	Name of Participants	Title	Organizer	Date	Category
1.	Arnab Som	Analog Circuit Design	IIT Delhi	27 <sup>th</sup> June-1 <sup>st</sup> July, 2022	Workshop
		Mixed Signal Design	IIT Delhi	4 <sup>th</sup> July-8 <sup>th</sup> July	Workshop
		3rd International Conference on Micro/Nanoelectronics Devices, Circuits, and Systems (MNDCS-2023)	NIT Silchar	29-31 January, 2023	Conference
2	Dheeraj Pandey	North East Research Conclave	IIT Guwahati	20-22 May 2022	Conference
		Designing and Analysis of Equivalent Circuit in ADS Tool	MNIT Jaipur	20 July 2022	Webinar
		MAPCON	IEEE MTT/AP Society	12-15 Dec 2022	Conference
		ICORT	DRDO, Chandipur	23-25 Feb 2023	Conference
3.	Tshering Sangmo Sherpa	Analog Circuit Design	IIT Delhi	27 <sup>th</sup> June-1 <sup>st</sup> July, 2022	Workshop
		Mixed Signal Design	IIT Delhi	4 <sup>th</sup> July-8 <sup>th</sup> July 2022	Workshop
		Advanced ESDP program	NIT Sikkim	16 <sup>th</sup> March-20 <sup>th</sup> March 2023	Workshop
4.	Sanoj Mahato	Advanced ESDP program	NIT Sikkim	16 <sup>th</sup> March-20 <sup>th</sup> March 2023	Workshop
		MAPCON	IEEE MTT/AP Society	12-15 Dec 2022	Conference
5.	Neelam Singh	ICPCES-2023	IEEE/MNNIT Allahabad	6-8 Jan 2023	Conference

### Technical Events organized by Anuvrat, the Departmental Club:

The ECE Society ANUVRAT was established in February 2013 to motivate the students towards research and development works in the field of Electronics and Communication. An environment of enthusiasm toward technology and innovation is promoted here for the young minds of NIT Sikkim to think out of the box and lead to new discoveries and inventions. The club aims to provide these young engineers with a platform to put forward their ideas, innovations, and thought processes to the world. We encourage them to prove their talents in challenging arenas in this world of technological progression. The students here also equip themselves with the necessary technical skills required for making them exemplary engineers. The club promises to develop technically competent engineers in electronics and communication by organizing various activities and events that support the students to excel in their careers. The tagline of the club - "Where innovation never ends..." - symbolizes the continuing process of 'learning and innovating' that forms the core of this club.

## VIMRISHYOTSAVA 2.0:

An Alumni Talk Series Team ANUVRAT had organized the second season of the series of interesting talk sessions called Vimrishyotsava. The aim of the series was to take information about various fields in the branch from the alumni of this prestigious institution. The primary aim of this event was to acquire knowledge about prerequisites for our future career options and to get a glimpse of the job profile in this field. **Platform: Google Meet**

1. Ms. Ruchika Prasad 26th June 2022 11:00 A.M. - 12:30 P.M. **“Artificial Intelligence Landscape in The Indian Market”**.
2. Mr. Animesh Raj 03rd July 2022 11:00 A.M. - 12:15 P.M. **“Technology Changing the Way We Live”**
3. Ms. Puja Pal 10th July 2022 11:00 A.M. - 12:15 P.M. **“Design Thinking Led Business Analysis and Data Visualization for A Better User Experience”**
4. Mr. Sabharish Padmanabham 24th July 2022 11:00 A.M. - 12:30 P.M. **“Aviation”**
5. Ms. Aurunima Samaddar 31st July 2022 7:00 P.M. - 8:15 P.M. **“Autonomous Systems, Intelligence, And Beyond”**.

## BUG QUEST 2.0: A Debugging Competition

Team ANUVRAT came up with another intriguing technical event, named BUG QUEST 2.0. The event aspired to bring all coding enthusiasts together and give them a competitive environment to test their debugging skillfulness. The participants faced codes containing errors, which were to be figured out and rectified using the most suitable approach they could think of within the stipulated time. With each passing minute, the enthusiasm of the students kept rising as the participants continued to solve one question after the other. **Date: September 15, 2022**

## RE-INITIATION & NATIONAL SCIENCE DAY CELEBRATION

As a technical club passionate about facilitating practical

education and encouraging scientific curiosity, we believe National Science Day delivers an excellent opportunity to celebrate the achievements of our research and development community. On the eve of National Science Day and 2 years of re-initiation of the club, Team ANUVRAT organized a presentation session on technical achievements and opportunities in the club along with the interaction session with the students of Electronics and Communication Engineering department. The event was graced by the presence of the Honorable Director of the institute Prof. Mahesh Chandra Govil and the entire Faculty members of department. **Date: February 28, 2023**

## TECH INTELLECT: A TECH QUIZ

Tech Intellect was a successful quiz competition that tested participants' knowledge of technology. The competition had a quiz of two rounds. Participants demonstrated impressive expertise, and the event was praised for its organization and quality of questions. The success of the event showcased people's interest in technology and provided a platform to showcase skills. **Date: February 28, 2023**

## CIRCUIT TINKERING: A CIRCUIT COMPETITION

Circuit Tinkering is a team-based competition where 10 teams of enthusiastic students compete to design and build a circuit. Each team is provided with a series of intricate clues that they must decipher in order to advance to the next stage of the competition. Once all clues have been solved, the team must build the circuit in the shortest amount of time possible and verify that it is working properly. A maximum of three attempts were there to check the circuit using output-checking devices. **Date: February 28, 2023**

## Workshop on VLSI design:

ANUVRAT had organised a workshop on Very Large-Scale Integration (VLSI) design on **April 27, 2023**. The purpose of the workshop was to provide students with an insight into the practical aspects of VLSI technology, including its design and implementation.



# Department of Electrical and Electronics Engineering

*“The beauty of electricity or of any other force is not that the power is mysterious, and unexpected, touching every sense at unawares in turn, but that it is under law, and that the taught intellect can even now govern it largely.”*

~ Michael Faraday

The Department of Electrical and Electronics Engineering is one of the principal and significant departments in National Institute of Technology Sikkim and started functioning since the inception of the Institute in 2010. The faculty members and staff of the Department are completely focused on maintaining education of the highest standards through quality teaching and research in multidisciplinary fields. Endowed with a plethora of faculty members striking the right balance between dynamism and experience, the Department offers an entire palette of undergraduate (B.Tech in Electrical and Electronics Engineering), postgraduate (M.Tech in Electrical Engineering with specialization in Control, Power, and Electric Drives) and Research Programs (Ph.D).

## Vision

To impart quality teaching and research to overcome the challenges of the present times, pave the path for development of a better future and thereby add values to the society.

## Mission

The Department aims to realize the vision through the following mission:

- To provide outcome-based teaching and research for practical engineering skills on social needs.
- To create an environment for students, staff and faculty members to nurture and develop all-round capabilities along with moral and ethical values.

The highly accomplished faculty members of the Department have expertise in manifold cutting-edge research fields. The broad areas of research in the Department encompass, but do not limit itself to, Control Systems, Robotics, Power Electronics, Power Quality, Power Systems, Hybrid Micro-grids, Smart Grid Technologies, Electric Vehicles, Application

of Nonlinear Dynamics in Engineering, Renewable Energy, and Development and Application of Soft Computing Techniques. The Department takes immense pride in its strong Industry-Institute interactions, and has committed itself to adoption and accomplishment of multifarious potential projects.

The Department also aims to develop active collaboration with various industries in the power sector. The Department has earned wide reputation in the national and global academic network. Currently, the Department has an annual intake of 30 students in B.Tech. program in Electrical and Electronics Engineering.

At postgraduate level, the Department offers M.Tech program in Electrical Engineering (Control, Power, and Electric Drives) with an intake of 25 students. Since 2020, the department has been admitting students in the vacant seats of M.Tech. through Institute Admission Test. The department got good response from students across India. In future, the Department is planning to offer separate M.Tech specialization in the field of Control Systems, Power Electronics & Drives and Power Systems. In addition to the above, the Department offers regular Ph.D. program in various areas of specialization in Electrical and Electronics Engineering. These include Power Electronics, Control Systems, Power System Operation, Power Quality, Renewable Energy Sources, Smart Grids, Optimization, Power System Dynamics and Stability, Flexible AC Transmission, High Voltage Direct Current, Electric Drives and Electric Vehicles.

Presently, the Department has almost all laboratories equipped with state-of-the-art equipment and latest version of software platforms. With inputs from eminent personalities invited in various workshops organized, the Department has modified the laboratory infrastructure to enhance the understanding of the theoretical concepts. The laboratories are equipped with sophisticated equipment, test setups, embedded controllers, digital signal processors, power inverter-converters, various electrical drives, etc. to name a few. The Department is

involved in carrying out several sponsored R&D projects funded by national agencies like MeitY and TEQIP III, Govt. of India. The Department also organizes Faculty Development Programs, Workshops, Expert Lectures, etc. from time to time. With the hard labour of the students and faculty members of the department, the number of published technical papers in reputed journals, conferences have reached to a new height. The department wants to extend its research facilities further in the coming years which will increase the publications of the students and faculty members.

The faculty members of the Department have been regularly contributing to International and National Journals of repute like IEEE Transactions and IEEE Proceedings, IET, Journals on Electrical Engineering from Elsevier, etc. along with Proceedings of National and International Conferences. In this year the department has set up new laboratories considering the technical requirement of the modern era viz., Micro-grid Laboratory, Electric Vehicle Laboratory, Power Electronics Laboratory, Electric Drives laboratory. The department has also strengthened its previously set up Power Systems Laboratory, Control System Laboratory. The Department is planning to have new laboratories for Testing, Calibration and Standardization, Power Quality and Energy Conservation. The Department has gradually developed into one of the best departments of NIT Sikkim. The placement record has shown that the students of the Department were successful in getting

lucrative placements based on their interests in different fields. Top recruiters such as Qualcomm, L&T, Power Grid Corporation of India Ltd., etc. have offered appointments to the students with a pay package of over Rs. 10 Lakh per annum. Other recruiters from core engineering and allied sectors like Vedanta group, Wipro, Tata Power, Reliance etc. have recruited students from the Department with attractive pay packages. Consistent placement record reflects the dedication and contribution of the Department. The graduates of the Department occupy prestigious positions in both government as well as private organizations. The students are encouraged to go for higher studies and build their career in R&D sector. Some of our past students have completed their post-graduate degrees from eminent and premier institutes in India and abroad. The students are motivated to pursue technical and creative activities besides classroom teaching and laboratory exercise through technical fests like 'Abhiyantran' organized by the Institute. They are also encouraged to participate in various learning activities including attending and presenting research papers at International/National Conference/Seminars.

Programs/courses offered by the Department

- B.Tech in Electrical and Electronics Engineering
- M.Tech in Electrical Engineering (Control, Power and Electric Drives)
- Ph.D in Electrical Engineering

## Faculty Details:

### **Dr. Aurobinda Panda, HoD**

Assistant Professor, Ph.D (IIT Roorkee, 2016)

Area of Interest: Power Electronics, Electric Vehicle, Electric Drives

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### **Dr. Anjan Kumar Ray**

Associate Professor, Ph.D (IIT Kanpur, 2009)

Area of Interest: Control Systems, Robotics and Intelligent Systems, Machine Learning, Sensor Fusion and Smart Home/Environment.

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### **Dr. Sourav Mallick**

Associate Professor, Ph.D (NIT Durgapur, 2014)

Area of Interest: Power System State Estimation, Power System Transmission and Distribution, Power System Stability and Control, Soft Computing.

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## Temporary Faculty

### **Dr. Amit Kumar Yadav**

Assistant Professor, Ph.D (NIT Hamirpur, 2016)

Area of Interest: Power System, Renewable Energy, Engineering Optimization, Artificial Neural Network, Solar Photovoltaics

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### **Dr. Kuntal Mandal**

Assistant Professor, Ph.D (IIT Kharagpur, 2013)

Area of Interest: Circuits & Systems, Nonlinear Control & Dynamics Stability of Switching Systems

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### **Dr. Molay Roy**

Assistant Professor, Ph.D (IEST Shibpur, 2017)

Area of Interest: Power Electronics Converter and Controller.

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### **Dr. Pradeep Kumar**

Assistant Professor, Ph.D (NIT Jamshedpur, 2017)

Area of Interest: Power Quality, Control Systems, Renewable Energy Systems, Power Electronics.

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### **Dr. Nimai Charan Patel**

Assistant Professor, Ph.D (Utkal University, 2021)

Area of Interest: Electrical Machine, Power system, Computational Intelligence and Optimization Techniques

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### **Dr. Abhishek Rajan**

Assistant Professor, Ph.D (NIT Silchar, 2018)

Area of Interest: Optimal power flow, Renewables integration in power system, Power system deregulation, Power system operation and control, soft computing techniques.

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### **Dr. Prasenjit Dey**

Assistant Professor, Ph.D (NIT Agartala, 2020)

Area of Interest: Power system stability

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**Dr. Anulekha Saha**

Assistant Professor, Ph.D (NIT Agartala, 2020)

Area of Interest: flexible ac transmission systems, optimal power flow, evolutionary algorithm optimization techniques

**Dr. Subhra Jyoti Sarkar**

Assistant Professor, Ph.D (Jadavpur University, 2016)

Area of Interest: Smart Grid, Energy Management for renewable fed distribution system, Low computational data compression and data security

**Dr. Sujay Dilip Kadam**

Assistant Professor, Ph.D (IIT Gandhinagar, 2021)

Area of Interest: Robotics, Control Theory, Autonomous Ground and Underwater Vehicles, Human Motor Learning, Learning Controllers, Subspace State-Space System Identification

**Staff Details:**

Ms. Deepika Chettri (Technical Assistant)

Mr. Pawan Kumar Kathaniya (Technical Assistant)

Mr. Anil Gurjar (Technical Assistant)

Mr. Manish Kumar (Technician)

Mr. Mahaveer Gurjar (Technician)

Mr. Saikat Mistry (Technician)

**Membership of Technical Association/Society**

S. No.	Name	Technical Societies	Membership Type
	Dr. Sourav Mallick	IEEE, IEEE Power and Energy Society, Institution of Engineers (India).	Member Member Associate Member
	Dr. Anjan Kumar Ray	IEEE, Smart Cities Community, IEEE, Internet of Things Community, IEEE, IEEE Systems Council, IEEE Sensors Council, Systems, Man, and Cybernetics Society, IEEE Robotics and Automation Society, IEEE Control Systems Society.	Member
	Dr. Aurobinda Panda	IEEE	Member
	Dr. Pradeep Kumar	System Society of India, International Association of Computer Science and Information Technology (IACSIT), International Association of Engineers (IAENG), International Association for Cyber Science and Engineering (IACSE), International Society for Research and Development (ISRDR).	Life Membership
	Dr. Nimai Charan Patel	IEEE, IE(I)	Member

**Laboratory Facilities****1. Basic Electrical Engineering Laboratory**

The Basic Electrical Engineering Laboratory helps the students to develop a strong foundation on the basics of Electrical Engineering. Each experiment is curated to show the practical aspect of theories learnt in earlier semesters. Through the experiments, the students learn the applications of different

network theorems, different types of loads and their voltage-current characteristics, power measurements of balanced and unbalanced loads, designing DC power supplies and sources, and also safety issues such as fuse rating for circuits. The students are made capable to apply the knowledge gained from the laboratory to all other areas of Electrical Engineering. The picture of the lab is given in Fig. 1.



Fig. 1 Basic Electrical Engineering Laboratory



## 2. Measurement Laboratory

The Measurement Laboratory in the Department attempts to familiarize the students with the operation of basic laboratory instrumentation such as energy meter, multi meter, voltmeter, ammeter etc. Another goal is to re-enforce the practical knowledge with practice and analysis of result obtained, and to learn correct laboratory procedures and techniques. This is accomplished by building, testing, and taking measurements on simple circuits. While conducting the experiments, the students can distinguish between performance and the methodology behind the various parts of an instrument. The picture of the lab is given in Fig.2.



Fig. 2 Electrical Measurement Laboratory

## 3. Control Systems and Robotics Laboratory

The Control Systems Laboratory course provides conceptual and hands-on practice of various aspects of control systems including advanced control, nonlinear control, and intelligent control. Here, the students get familiarized with various open source platforms e.g. SCILAB, C/C++ to carry out simulations. It also has hardware setups which includes linear double inverted pendulum and rotary double inverted

pendulum. Students are also trained for future trends of uses of microcontrollers and sensors. Through these simulation and hardware facilities, students get familiarized with different aspects of system modeling and simulations. They study system responses and stability aspects. Students are trained to design controllers and observers for different systems. Moreover, they are given exposure to utilize machine intelligence to incorporate into system modeling and control. The picture of the lab is given in Fig.3.



Fig. 3 Control System and Robotics Laboratory

#### 4. Electrical Machines Laboratory

The Electrical Machines Laboratory is one of the major subjects in EEE discipline. By performing several experiments on DC and AC machines, the students can correlate their theoretical understanding of the principles of operation and construction of

direct current machines and alternating current machines with the practical one. For better understanding, the Department has procured open machine setup which has become a very useful tool to enhance the knowledge of machines of the UG and PG students. The picture of the lab is given in Fig.4.



Fig. 4 Electrical Machine Laboratory

#### 5. Power Systems Laboratory

The Power System Laboratory in the current UG curricula is taught in three semesters, considering the importance of the subject in the present society. By performing various experiments in power systems the students will be able to design, to analyze and to solve various relevant engineering problems related to power transmission and distribution systems, faults, system stability etc. The department had already procured a transmission line analyzer set up which gives the students an insight towards the power transmission line. At present, 200 km three phase single circuit and 600 km single phase circuit can be simulated for different types of conductors and cables. Moreover, three phase and single fault simulations are also possible in that analyzer. The department is planning to expand this laboratory with a complete set up of analog and digital relays. The department has set up one microgrid setup comprising of Wind, Solar energy sources laboratory equipment considering the present-day power scenario. The picture of the lab is given in Fig.5.



66/11 Substation Visit



Fig. 5 Power Systems Laboratory

## 6. Power Electronics Laboratory

The students of the Department can perform different experiments on the operation and characteristics of power semiconductor devices and other passive/active components and their application in solving practical engineering problems. The Department has set up the Power Electronics laboratory with all basic/ advanced setups. This aid the students to gain practical experience in the operating principles, design and synthesis of different power electronic converters. The curricula of the laboratory course have been designed in such a way that it introduces students to the industrial control of power electronic circuits as well as safe electrical connection and measurement practices. In order to interface between software and hardware of different engineering models of the department, the department had procured dSPACE which would be helpful for students for developing/testing different prototypes. The picture of the lab is given in Fig.6.



Fig. 6 Power Electronics Laboratory

## 7. Electric Drives laboratory

The Department was in need to set up an Electric Drives laboratory for the B.Tech, M.Tech and PhD students. This lab is important for the students' laboratory classes (as per the curriculum), hands-on training and project works related to their curriculum. In order to establish a bridge between the theoretical subjects in the curriculum (B. Tech and M. Tech) and their practical implementation, this laboratory has been set up to carry out the different experiments on Electric drives such as DC Motor drives, AC Motor drives and Special motor drives. With these experiments, students are able to perform the motoring and electric braking operation of different types of motors by using



Fig. 7 Electric Drives Laboratory



various types of power electronic converters. With the help of this laboratory, the UG, PG and PhD students can also carry out their project/research related works. Some of the pictures of the newly set up Electric Drives laboratory are given in the subsequent section. The picture of the lab is given in Fig.7.

### 8. Electric Vehicle laboratory

After the inception of NEP-2020 by the union government the department setup an Electric Vehicle (EV) laboratory for UG, PG and PhD courses by focusing on Industry 4.0. This lab is not only important for the students' laboratory classes (as per

the curriculum), hand-on training and project works related to their curriculum but also to carry out the research related works by both the students and faculties. This laboratory has been set up to perform different experiments on EV motor control. With the help of this laboratory students are able to visualize the steady and dynamic performance under forward motoring, reverse motoring, Forward braking and reverse braking of the motors which are in used in the industry for EV applications. Some of the pictures of the newly set up Electric Drives laboratory are given in next section. The picture of the lab is given in Fig.8.



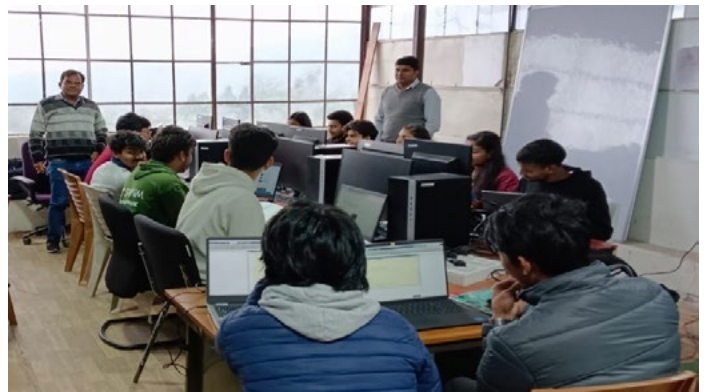
Fig. 8 Electric Vehicle Laboratory



9. Department has also recently setup a Microgrid laboratory to demonstrate different type of distribution system such as Photovoltaic Distributed Generation system, Wind Power system etc. In addition to this department is also having Simulation laboratory and Microprocessor laboratory. Few pictures of these laboratories are given below,



(a) Simulation Laboratory



(b) Microprocessor Laboratory



Fig.9 (c) Microgrid Laboratory



## Keynote Speaker/ Expert Lectures:

- Dr. Sanjoy Kumar Parida, IIT Patna has delivered an expert Lecture on “Introduction to Power System Automation” on 16.03.2023
- Mr. Shail Jadav, Co-founder Tesseract Robotics Gandhinagar has delivered an expert Lecture on “A Perspective on Robotics in Automation and Energy Management in Agriculture and Animal Husbandry” on 17.03.2023
- Dr. Sujay Dilip Kadam, NIT Sikkim has delivered an expert lecture on “System Identification: An Agricultural Automation Perspective” on 17.03.2023
- Dr. Subhendu Dutta, IIT Delhi has delivered an expert lecture on “Solar PV based Water Pumping System” on 18.03.2023
- Dr. Subhendu Dutta, IIT Delhi has delivered an expert lecture on “Installation and Operation of a Grid-Tied Solar PV String Inverter” on 18.03.2023
- Prof. Santosha K. Dwivedy, IIT Guwahati has delivered an expert lecture on “Entrepreneur Activities and Recent Advances in Robotics and Agriculture Sector” on 18.03.2023
- Prof. Santosha K. Dwivedy, IIT Guwahati has delivered an expert lecture on “Entrepreneur Activities and Advances in Technologies for Automation and Smart Monitoring of Aquaculture Ecosystem” on 18.03.2023
- Prof. Santosha K. Dwivedy, IIT Guwahati has delivered an expert lecture on “Drone: Foundations, Assembly, and Practical Experience” on 18.03.2023
- Dr. Ausgul Garg, IIT Guwahati has delivered an expert lecture on “Drone: Foundations, Assembly, and Practical Experience” on 19.03.2023
- Dr. Ranjan Kumar Behera, IIT Patna has delivered an expert lecture on “Advanced converter control for solar integration” on 19.03.2023
- Dr. Ranjan Kumar Behera, IIT Patna has delivered an expert lecture on “IoT based solar energy based smart irrigation and home management system” on 19.03.2023
- Dr. Prabhash Kumar Mishra, Scientist D NIH Roorkee has delivered an expert lecture on “Python based Water Accounting Plus (WA+) for Water Resources Management” on 19.03.2023
- Dr. Prabhash Kumar Mishra, Scientist D NIH Roorkee has delivered an expert lecture on “Watershed Management Plus: An Approach Towards Livelihood Security” on 19.03.2023
- Dr. Prabhash Kumar Mishra, Scientist D NIH Roorkee has delivered an expert lecture on “A Demonstration on Python based WA+” on 20.03.2023
- Prof. Amitava Chatterjee, Jadavpur University has delivered an expert lecture on “Computer Vision based Autonomous Navigation of Mobile Robots” on 20.03.2023
- Prof. Amitava Chatterjee, Jadavpur University has delivered an expert lecture on “Learning Strategies for Human Robot Collaboration” on 20.03.2023
- Prof. Mahesh Chandra Govil, Director NIT SIKKIM has delivered an expert lecture on “Application of IoT” on 20.03.2023

## Departmental Committees

S. No.	Name of the Faculty Members	Name of the committee
1	Dr. Aurobinda Panda, HoD and Convenor Dr. Molay Roy (Convenor, DUGC) Faculty Advisor of each batch Dr. Subhra Jyoti Sarkar, Faculty Coordinator, 1st Year B.Tech Dr. Pradeep Kumar, Faculty Coordinator, 2nd Year B.Tech Dr. Amit Kumar Yadav, Faculty Coordinator, 3rd Year B.Tech Dr. Abhishek Rajan, Faculty Coordinator, 4th Year B.Tech Dr. Molay Roy, Faculty Coordinator, 1 <sup>st</sup> Year M.Tech Dr. Molay Roy, Faculty Coordinator, 2 <sup>nd</sup> Year M.Tech Dr. Anjan Kumar ray, Faculty Coordinator, PhD Dr. Ranjan Basak, Nominee of Dean Academic	Academic Performance Evaluation Committee (APEC)
2	Dr. Molay Roy (Convenor, DUGC) Dr. Aurobinda Panda, HoD, EEE Dr. Anjan Kumar Ray (Convenor, DPGC) Dr. Sourav Malik {Nominee of HOD} Dr. Pradeep Kumar {Nominee of HOD} Dr. Pratyay Kuila {Nominee of HOD}	Departmental Undergraduate Committee (DUGC)

S. No.	Name of the Faculty Members	Name of the committee
3	Dr. Anjan Kumar Ray (Convenor, DPGC) Dr. Aurobinda Panda, HoD, EEE Dr. Molay Roy (Convenor, DUGC) Dr. Sourav Mallick, Nominee of HoD Dr. Pradeep Kumar, Nominee of HoD Dr. Pratyay Kuila, Nominee of Chairperson Senate	Departmental Postgraduate Committee (DPGC)

### The list of Laboratory In-charge is appended hereunder:

S. No.	Name of Laboratory	Faculty in-charge	Lab in-Charge (staff)
1	Basic Electrical Laboratory	Dr. Abhishek Rajan Dr. Sujay Dilip Kadam	Ms. Deepika Chettri Mr. Saikat Mistry Mr. Mahaveer Gurjar
2	Electrical Measurements Laboratory	Dr. Pradeep Kumar Dr. Subhra Jyoti Sarkar	Ms. Deepika Chettri Mr. Saikat Mistry Mr. Mahaveer Gurjar
3	Electrical Workshop	Dr. Amit Kumar Yadav Dr. Subhra Jyoti Sarkar	Ms. Deepika Chettri Mr. Saikat Mistry Mr. Mahaveer Gurjar
4	Power Electronics Laboratory	Dr. Aurobinda Panda Dr. Molay Roy	Mr. Pawan Kathaniya Mr. Saikat Mistry
5	Drives Laboratory	Dr. Aurobinda Panda Dr. Molay Roy	Mr. Pawan Kathaniya Mr. Manish Kumar
6	Electrical Vehicle Laboratory	Dr. Aurobinda Panda	Mr. Pawan Kathaniya Mr. Manish Kumar
7	Electrical Machines Laboratory	Dr. Molay Roy Dr. Abhishek Rajan Dr. Subhra Jyoti Sarkar	Mr. Anil Gurjar Mr. Manish Kumar Mr. Mahaveer Gurjar
8	Power System Laboratory	Dr. Sourav Mallick Dr. Abhishek Rajan	Mr. Pawan Kathaniya Mr. Anil Gurjar Mr. Manish Kumar
9	Control System Laboratory	Dr. Anjan Kumar Ray Dr. Sujay Dilip Kadam	Ms. Deepika Chettri Mr. Saikat Mistry
10	Microgrid Laboratory	Dr. Molay Roy Dr. Amit Kumar Yadav	Ms. Deepika Chettri Mr. Manish Kumar Mr. Mahaveer Gurjar

### Ongoing Projects/schemes in the Department

- Dr. Anjan Kumar Ray received Visvesvaraya Ph.D project "Intelligent Networked Robotic Systems" along with Prof. Arun Baran Samaddar. One full time Ph.D scholar is working in the Department under this project.
- Dr. Anjan Kumar Ray – Development of a prototype of a quadruped and a high dexterity robotic platform.
- Dr. Aurobinda Panda – Development of Integrated power quality based photovoltaic distributed generation system.
- Dr. Molay Roy – Design and Development of cascaded multi-level inverter for industry applications.
- Dr. Anjan Kumar Ray: Principal Investigator, *Dynamics of Power Grids through Complex Network Theory: A Study of Vulnerability, Stability, and Synchronization*, funded by MATRICS, SERB, Government of India. 2022-2025.
- Dr. Anjan Kumar Ray: Principal Investigator, *UAV-UGV Coordination and Formation Control for Unmanned Delivery Services: An Experimental Study*, funded by ARTPARK, IISc Bangalore. 2021-2022.

## Invited Speech:

1. Dr. Aurobinda Panda, "Improved Power Quality Based Grid-tie PV System for Plug-in Electric Vehicle", Online FDP organized by EEE Department, GRIET Hyderabad in association with Dept. of EE, NIT Warangal and sponsored by AICTE, ATAL Academy on 14th February, 2023.
2. A. K. Ray, Advanced AI and System Engineering for Industries and Agriculture, Advanced Entrepreneurship and Skill Development Training Programme on Advanced AI for Industries and Agriculture, Department of CSE, NIT Sikkim, March, 2023.
3. A. K. Ray, Design of a State Feedback Controller: From Pole Placement to Intelligent Control, Department of Electrical Engineering, Gargi Memorial Institute of Technology, IEEE SPS, Kolkata Section, Feb, 2023.
4. Delivered an expert lecture in Webinar entitled "APPLICATIONS OF MATLAB IN SCIENTIFIC INNOVATIONS AND TECHNOLOGY" held on 21/02/2023 by School of Agricultural Sciences, IIMT University, Meerut Uttar Pradesh India.

## Ph.D Scholars

### A. Awarded

S. No.	Name of Scholar	Supervisor(s)	Area of Research (Topic)
1	Mr.Arindam Singha	Dr.Anjan Kumar Ray	Intelligent Networked Robotic Systems
2	Mr. Roshan Pradhan	Dr.Aurobinda Panda	PVDG System
3	Mr.Amit Kumar	Dr. Pradeep Kumar	Power Quality Improvement Using Custom Power Devices
4	Mr.Arabinda Ghosh	Dr.Anjan Kumar Ray	Intelligent control systems
5	Mr. Debanjan Mukherjee	Dr. Sourav Mallick	Power Line Harmonic Reduction using FACTS.

### B. Submitted

S. No.	Name of Scholar	Supervisor(s)	Area of Research (Topic)
1	Mr. Sudhansu Sekhar Das	Dr.Aurobinda Panda	Design And Development Of Novel Zsi/Qzsi Topologies And Its Applications

### C. Ongoing

S. No.	Name of Scholar	Supervisor(s)	Area of Research (Topic)
1	Mr. Rajnikant Sahoo	Dr. Molay Roy	Design and control of multilevel inverter for home appliances
2	Mr. Romio Atha	Dr. Sourav Mallick	Power System Protection
3	Mr. Omkar Singh	Dr.Anjan Kumar Ray	Control applications in robotics and intelligent systems
4	Mr.Avismit Dutta	Dr.Aurobinda Panda	Performance analysis of motor drives in Electric Vehicle
5	Mr. Pratik Pradhan	Dr.Aurobinda Panda	Electric vehicle
6	Mr. Islavatu Srikanth	Dr. Pradeep Kumar	Power Quality
7	Ms. Deepika Chettri	Dr. Molay Roy	Electrical Power Transfer using Electromagnetic Induction and its Analysis
8	Ms.Tumpa Das	Dr. Molay Roy	Fabrication and Performance Analysis of Domestic Induction Heating
9	Mr.Tapas Mondal	Dr. Sourav Mallick	Power System
10	Mr.Chandan Kumar	Dr. Anjan Kumar Ray	Application Of Intelligent Control
11	Mr. Saurav Ghosh	Dr. Sourav Mallick	Power System
12	Mr. Chayan Chakraborty	Dr.Anjan Kumar Roy	AI based Robotics
13	Ms. Promila Das	Dr. Pradeep Kumar	Power Quality Analysis

## Projects of Final Year UG students

S. No.	NAME OF THE SUPERVISOR	PROJECT TITLE	PROJECT AREA	Name of The Student
1	Dr.Sourav Mallick	Challenges on Microgrid Integration	Renewable Energy	Arunaa S, Ritesh Chettri, Debash Sharma
		Load Frequency Control of PSO Based Pid Controller In Two Area System	Power System	Undinti Akhil Kumar
2	Dr.Molay Roy	Design, fabrication and analysis of multi-coil induction cooking system	Power Electronics	Deepanshu Dubey, Kunal Kumar, Pawan Kumar Chettri
3	Dr.Pradeep Kumar	Power Quality Compensation by Three-Leg VSI based DVR Topology	Power System	Sachin Kumar Singh, Pankaj Kumar, Shivani Priya
		Performance Improvement by STATCOM Under Linear and Nonlinear Load Condition	Power System	Pawan Kumar Prasad
4	Dr.Anulekha Saha	P&O Based MPPT Applied to Solar Powered Water Pumping System Using BLDC Motor	Power Electronics	Atul Kumar, Shivam Kumar, Dilip Tamang
5	Dr.Aurobinda Panda	Performance Analysis of BLDC Motor for EV applications	Power Electronics & Drives	Sachin Kumar, Nidhi Bharti
		Ground Surveillance Radar		Aditya Kumar
6	Dr.Anjan Kumar Ray	UAV-UGV Coordination and Trajectory Control	Control Systems	Prashant Kumar, Shreyansh Sharma, Abhinav Kumar Singh
		Participation of Virtual Inertia In LFC	Control Systems	Nizampatnam Sai Md Mukarram Ruchi Kumari Bhagat
7	Dr Amit Kumar Yadav	Design of Smart Solar Powered System for Agricultural Sector	Renewable Energy	Adarsh Ranjan, Ujawal Kumar, Talluru Sai Vinil Kumar
8	Dr.Abhishek Rajan	Solution of optimal active power dispatch problem on single and multiobjective framework	Power Systems	Preeti Kumari, Subham Kumar, Neeha Kumari
9	Dr.Kuntal Mandal	Virtual Impedance based Lyapunov Controller for Converter-fed Constant Power Load	Control System	Saumya Karan
		Application of Optimization methods to provide Resource Planning and Deployment Related Solutions	Industry	Surbhi Kumari
		Design and analysis of Multi Input Single Output DC-DC Converter	Control Systems	Pummy Kumari Gupta
10	Dr.Sourav Mallick & Dr.Abhishek Rajan	“Solution of Economic Load Dispatch Problems using Particle Swarm Optimization”	Power System	Tunna Baitha
	Dr.Aurobinda Panda & Dr.Molay Roy	Simulation and analysis of 1-phase and 3-phase 4 wire shunt active power filter	Power Electronics & Drives	Chebathini Maximus, Pem Tshering Lepcha
11	Dr.Pradeep Kumar & Dr Amit Kumar Yadav	Assessment and Economics of Wind Power Generation for Indian sites	Renewable Energy	Prince Prasad, Avinash Jambekar
12	Dr Amit Kumar Yadav & Dr.Kuntal Mandal	Design and Analysis of Constant Current Charging Circuit	Power Electronics	Yaswanth Madina, Karma Dadul Bhutia

S. No.	NAME OF THE SUPERVISOR	PROJECT TITLE	PROJECT AREA	Name of The Student
13	Dr.Anulekha Saha & Dr.Prasenjit Dey	Double Stage Single Phase Grid Connected Solar PV Inverter	Power Electronics	Takendra Regmi, Manish Kumar Paswan

## Project of Final Year PG students :

S. No.	NAME OF THE SUPERVISOR	PROJECT TITLE	PROJECT AREA	Name of the Student
1	Dr.Aurobinda Panda	Performance Analysis Of Direct Torque Controlled Induction Motor Drive For Electric Vehicle Application Performance Analysis Of 12-Vector Based Z-Source Inverter Fed Bldc Motor Drive For Ev Application	Electric Vehicle	Satyabrata Behera Nilanjan Das
2	Dr.Sourav Mallick	Performance Analysis Of Artificial Neural Network (ANN) And PI Based Controlled Dynamic Voltage Restorer (DVR)	Power System	Ankit Singh
3	Dr.Molay Roy	Design, Implementation Of Transformerless UPS As A Backup And Reactive Power Compensation	Power Electronic	Satadal Bhowmik
4	Dr.Pradeep Kumar	Comparative Power Quality Performance By Modified-Srf, Uvt & Dq Theory Control Upqc	Power Quality	Ayesha Jahan
5	Dr.Kuntal Mandal	A unified switched non-linear model of EV for advanced controller design Identification of Power and thermal challenges in class testing of Silicon chip	Control System Control System	Dibyendu Khan Sayon Karmakar
6	Dr.Sourav Mallick & Dr.Molay Roy	Design and Analysis Of BLDC Motor And Drive System For 3-Wheeler Electric Vehicle Application	Power Electronic	Nirvan Rohan Anil Kumar
7	Dr.Pradeep Kumar & Dr.Amit kumar Yadav	Comparative Power Quality Performance Evaluation of Grid Connected Solar PV System	Power System	Rajesh Ranjan
8	Dr.Abhishek Rajan & Dr.Sourav Mallick	Solution of VAR Planning Problem Using A Meta-Heuristic Optimization Technique	Power System	Deepak Kumar
9	Dr.Pradeep Kumar & Dr.Anulekha Saha	Improvement of Power Factor And Voltage Quality Event By VSI Based DVR.	Power System	K. Dikiila
10	Dr.Kuntal Mandal & Dr.Molay Roy	Design and Analysis of Digitally Controlled PV Emulator	Power Electronics	Parthasarathi Panuya

## Workshop Organized

A 5-day Advanced Entrepreneurship and Skill Development programme on “Automation and Energy Management in Agriculture and Animal Husbandry”, sponsored by the MSME, Govt. of India was successfully conducted by the Department of EEE, NIT Sikkim, Ravangla during 16<sup>th</sup> -20<sup>th</sup> March 2023. The co-ordinators of the programme are Dr. Aurobinda Panda and Dr. Anjan Kumar Ray. Participants, majorly from the North-East states having inclination towards entrepreneurship had received intensive training on this programme. Eminent persons from Academia and Industry including IITs and NIT, NIH, Jadavpur University interacted with the participants and shared their knowledge and expertise through lectures as well as hands-on sessions.





## Major Achievement from the Department of EEE in the year 2022

(a) Mr. Sachin Kumar Secured highest CGPA (9.06) in the Department



(c) Soumya Karan (B.Tech 2018-2022 batch), selected at IIT Gandhinagar for direct PhD program



(b) Mr. Shreyansh Sharma (B.Tech 2018-2022 batch) has secured AIR-12 in GATE 2023



(d) Ms. Shristy (B.Tech 2019-2023 batch), has been selected to pursue her final year UG programme at IIT Hyderabad



# Department of Mechanical Engineering

*“As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality*

~ **Ahlibert Einstein**

*The thermal agency by which mechanical effect may be obtained is the transference of heat from one body to another at a lower temperature.*

~ **Sadi Carnot**

Mechanical Engineering is concerned with the responsible development of products, processes, and power at scales ranging from molecules to large and complex systems. Many innovations crucial to our future will have their roots in the world of mass, motion, forces, and energy—the world of Mechanical Engineers. The Department of Mechanical Engineering endeavours to be recognized globally for outstanding education and research leading to well qualified, innovative, entrepreneurial and successful engineers to cater to the ever-changing industrial demands and social needs. The Department aims to conduct innovative research and to provide world-class education that instills the professional, technical, critical-thinking and communication skills necessary to make impactful contributions to the society.

The Department started its journey in 2014. Since its inception, the Department has produced globally competent Mechanical Engineers capable of contributing to society through innovation and working in multidisciplinary fields. The Department aims to provide the students with the perfect blend of intellectual and practical experiences that help them to serve the society and address a variety of needs of human beings.

Primary goals of the Department are as follows:

- To maintain a high standard of education through outstanding teaching, innovative curricula, and research training that reflect the changing needs of the society.
- To attract highly motivated students with enthusiasm,

aptitude and interest in Mechanical Engineering.

- To pursue excellence in Research and Technology Transfer.
- To recruit and retain faculty members in the Department.
- To increase the public awareness of Departmental activities and the Mechanical Engineering profession.
- To provide the latest knowledge and research as well as the opportunity to consult and share best practices.
- To update with understanding of modern Mechanical Engineering fields like Artificial Intelligence, Robotics and Automation, Additive manufacturing, Computer-aided Design (CAD), Computer-aided Manufacturing (CAM), Product Life Cycle Management to design and analyze manufacturing plants, industrial equipment and machinery.
- To cater to the modern knowledge of heating and cooling systems, transport systems, aircraft, robotics, medical devices, weapons etc.
- To conduct multidisciplinary and collaborative research works with various industries and academic institutes.

## Programs / Courses Offered

- B.Tech. in Mechanical Engineering
- Ph. D. in Mechanical Engineering



## Students Strength (B. Tech.)

	Sanctioned Intake	Number of Students (2022-23)
1 <sup>st</sup> Year	30	30
2 <sup>nd</sup> Year	30	24
3 <sup>rd</sup> Year	30	28
4 <sup>th</sup> Year	30	20

## Faculty Details

Members of the Department value professionalism and integrity, teaching excellence as well as students' initiative and innovation. Departmental Faculty members hold these values as an integral frame of reference to realize the decisions and actions at every level and in every situation.

### Dr. Shambhunath Barman

#### Associate Professor and HOD

Ph.D. (Jadavpur University, 2014), M.E. (BESU Shibpur, 2008)

**Area of Interest:** Study of Transport Phenomena in Material, Processing, Experimental & Numerical Heat Transfer and Computational Fluid Dynamics.

### Dr. Ranjan Basak

#### Associate Professor

Ph.D. (Jadavpur University, 2012), M.M.E. (Jadavpur University, 2000)

**Area of Interest:** Fluid Mechanics and Machine Design.

### Dr. Anil Lal S

#### Associate Professor

Ph.D. (IIT Madras, 2002), M.Tech. (IIT Madras, 1996)

**Area of Interest:** Computational Methods in Fluid Mechanics & Heat transfer, Mathematical Methods for Engineering, Machine Learning Techniques, Research Methodology, Optimization Techniques, Economics

### Dr. Jai Gopal Gupta

#### Assistant Professor

**Research Interest:** Performance, Emission, Combustion in Internal Combustion Engines, Alternative Fuels and Renewable Energy Resources

## Temporary Faculty

Dr. Debajit Saha

Dr. Kirti Tewari

Dr. Bibhuti Bhusan Nayak

Dr. Shitendu Some

Dr. Dipayan Das

Dr. Uttam Kumar Mohanty

Dr. Sudip Banerjee

## Staff Details

### 1 Mr. Suneel Kumar Kushawaha

#### Technical Assistant

B.Tech. (Mechanical Engineering), FGIET

### Mr. Amit Maity

### 2 Lab Technician

ITI, Diploma (Mechanical)

## Membership of Technical Association / Society

- Dr. Anil Lal S, Member of Indian Society of Technical Education (ISTE)
- Dr. Anil Lal S, Member of Aeronautical Society of India
- Dr. Anil Lal S, Member of Indian Society of Heat and Mass Transfer

## Laboratory Facilities

Since its inception, the Department is emphasizing to establish state-of-the-art as well as modern Laboratories to cater to the societal needs. The Department is now well equipped with the following Laboratories:

- Mechanical Workshop
- Fluid Mechanics and Machinery Laboratory
- Elements of Solid Mechanics Laboratory
- Machining Science Laboratory
- Advanced Manufacturing Processes Laboratory
- Computer Graphics Laboratory
- CAD / CAM Laboratory
- Machine Drawing Laboratory
- Metrology and Instrumentation Laboratory
- Heat Transfer Laboratory

- IC Engine Laboratory
- Refrigeration and Air-Conditioning Laboratory
- Energy Conversion Laboratory
- Kinematics and Dynamics of Machinery Laboratory
- Metal Cutting Laboratory
- Vibration & Rotor Dynamics Laboratory

### 1. Mechanical Workshop

The main objective of this course is to develop a machining skill in dignity of labour, precision, while also ensuring safety at the workplace with an encouragement in teamwork that pertains to professional attitude. This course also enhances the skill of measurements and improves the skills in basic engineering practices with hand tools and instruments which are commonly used in the basic workshop practice.



Sheet Bending Machine



Electric Furnace



Pedestal Grinder



MIG Welding Machine



MIG Welding Machine



Spot Welding Machine



Power Saw



MMAW Machine

## 2. Fluid Mechanics and Machinery Laboratory

The purpose of this Laboratory is to reinforce and enhance understanding of the fundamentals of Fluid Mechanics and Hydraulic Machines. The experiments here are designed to demonstrate the applications of the basic Fluid Mechanics principles and to provide a more intuitive and physical understanding of the theory. The prime objective of this Laboratory is to discuss and practice standard measurement techniques of Fluid Mechanics and their applications. It also includes the performance of various apparatus at different operating points. After completion of this Laboratory class,

the students will be able to understand the concept of Fluid Machinery such as different types of turbines and pumps and various non-dimensional parameters applicable to hydraulic machines. The students are made capable of verifying Bernoulli's Theorem and calibrating a venturi-meter, Orifice meter, Nozzle, Pitot tube etc. The students will be able to characterize laminar, Turbulent flows and analyze the stability of floating bodies at the end of this Laboratory class. The facilities in the laboratory are of extremely high quality and some of the setups are modifiable to conduct research level experiments of PhD students.

Pictorial views of some of the instruments are given below:



Flow Measuring Device



Turbine Setup



Reciprocating Pump Test Rig



Series and parallel Centrifugal Test Rig



Pelton Wheel Setup



## 3. Elements of Solid Mechanics Laboratory

The objective of this Laboratory is to practice students about the evaluation of different mechanical properties of metals viz. a) Limit of proportionality b) Elastic limit c) Yield strength d) Ultimate strength e) Young's modulus of elasticity f) Percentage elongation g) Percentage reduction etc. A major facility in this laboratory is a Universal Testing Machine (UTM) which is used to conduct four experiments: tension, compression, bending and shear on standard test specimens, Furthermore, Torsion test, Hardness Test, Izod & Charpy test, Compressive strength tests are also conducted in this Laboratory. Pictorial views of some of the instruments are shown below:



Hardness Testing Machine



Universal Testing Machine



Torsion Testing Machine



Impact Testing Machine



Spring Testing Machine

#### 4. Computer Graphics Laboratory

The objective of this Laboratory is to provide skills to the students about the basics of AUTOCAD, 2D modeling and

isometric drawings of different mechanical parts. 3D modeling of different types of mechanical components is carried out in this Laboratory.



Computer Graphics Laboratory

#### 5. Production Engineering Laboratory I

The objective of this course is to provide training on working with machine tools such as lathe, shaper, planner, slotter, milling, hobbing, and grinding and to familiarize with the selection of suitable production process for the manufacturing of desired

components. This course also reveals the basic concepts of NC and CNC machine tool programming and computer aided part programming. Pictorial views of the some of the instruments are shown below:



Precision Conventional Lathe



Shaping Machine



CNC Lathe

## 6. Production Engineering Laboratory II

The objective of this course is to study the cutting forces, average cutting temperature in machining processes under different feed rates and speeds. The course is delineated particularly to understand chip formation mechanism and relevant matters (type, color & thickness) during different machining processes and evaluate the role of variation of cutting speed and feed on chip reduction coefficient / cutting ratio and shear angle. Pictorial views of the some of the instruments are shown below:



TIG Welding set-up



MIG Welding set-up

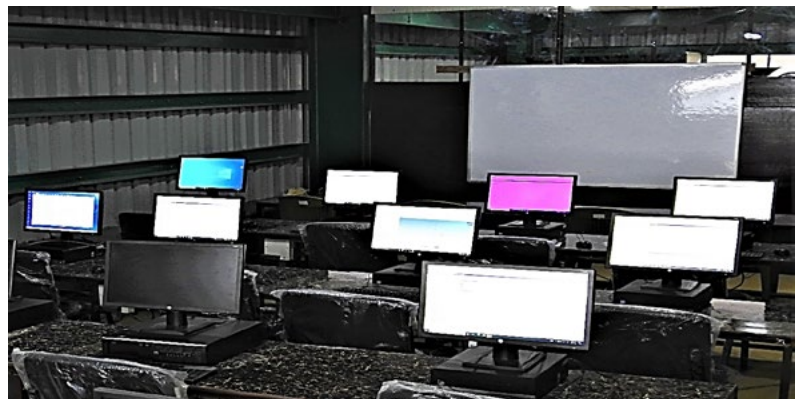


Horizontal Surface Grinder



## 7. CAD / CAM Laboratory

CAD/ CAM Laboratory of the institute provide training on various types of design software which are useful for designing various types of machine components. In this Laboratory, students can develop 2D and 3D Models in CAD Software (Solid Works/Solid Edge). This laboratory introduces the students to the basic Boolean Operations: shell, sweep, revolve, loft, extrude, filleting, chamfer, splines etc., for 3D Models. They are given practice training to do manual part programming for CNC Lathe and NC Milling.



Pictorial view of CAD / CAM Laboratory

## 8. Machine Drawing Laboratory

The objective of this Laboratory is to give practice to students about the representation of elements of machine drawing, introduction to Engineering Materials, Surface finishes, tolerances, sectional views, and screw threads. Component drawings of bolts and nuts, locking devices, keys and cotter joints, knuckle joints, riveted joints, shaft couplings, bearings and pipe joints are also taught to the students. Furthermore, assembly drawing, drawing of the assembly of stuffing box, and pedestal bearing using the component drawings are practised by the students in this Laboratory.



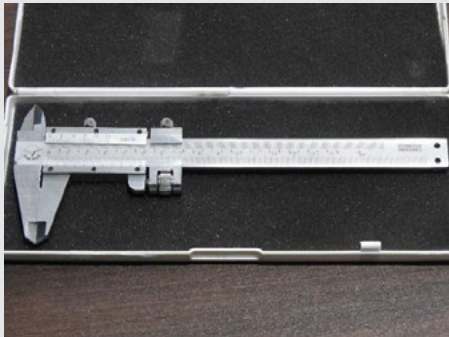
Machine Drawing Laboratory

Pictorial view of Machine Drawing Laboratory

### 9. Metrology and Instrumentation Laboratory

The objectives of Mechanical Measurements & Metrology Lab are to demonstrate the theoretical concepts taught in Mechanical Measurements & Metrology and also to practice the use of various measuring tools with calibration. Thread

profile measurement, usage of autocollimator, profile projector, surface roughness tester, thermal imaging device are being taught to the students. Pictorial views of some of the instruments are shown below:



Vernier Calliper



Micrometre



Digital Micrometre



Dial Gauge



Bevel Protractor and Combination Set



Bore Gauge



Autocollimator



Surface Roughness Tester



Slip Gauge



Sine Bar

### 10. Heat Transfer Laboratory

The Heat Transfer Laboratory is well equipped with modern instruments to strengthen the knowledge of students in this particular domain. Instruments of this Laboratory are procured with the support from TEQIP-III of the Institute. This Laboratory is aimed to equip the students with proper

knowledge on the Conductive, Convective and Radiative Heat Transfer. The broad objectives of this laboratory include familiarizing the students with heat transfer, heat exchangers, different temperature measurement modules etc. Pictorial views of some of the instruments are shown below:



Boiling and Condensation Apparatus



Calibration of Thermo-couple Apparatus



Radiation Apparatus with Radiation Shield Arrangement

## 11. IC Engine Laboratory

The Internal Combustion Engine Laboratory is well equipped with numerous instruments to enhance the knowledge of the students and the instruments are bought with full financial support from TEQIP-III of the Institute. In this Laboratory, cut-sections models of different engines along with VTD plotting are presented to the students. The performance tests on single cylinder diesel, petrol engines, multi-cylinder engines are performed in this Laboratory.



Bomb Calorimeter

In addition to the above-mentioned test facilities, one multi-fuel VCR engine with open ECU is available in this Laboratory for conducting research level experiments. Performance and combustion testing can be conducted with the available instruments, using different alternative fuels. This Laboratory is also well equipped with a Multi-gas Analyser to check the emission characteristics of the engine. Pictorial views of some of the instruments are depicted below:

:



Cut section Models of Engines and Boilers



The Engines



Multi-gas Analyzer

## 12. Refrigeration and Air-conditioning Laboratory

Refrigeration & Air-conditioning Laboratory consists of equipments and instruments to do hands-on training and experiments on the subject. Recently, new instruments related to refrigeration experiments were added to this Laboratory with the financial aid from TEQIP-III. Cut-section models of compressor, domestic refrigerator are used for demonstrating

the working of the RAC system. Determination of COP of domestic type refrigerator, small ice plant (computerized), VAR system are taught to the students. Experimentation on refrigerant leak detection is carried out in this Laboratory. Furthermore, the Laboratory is equipped with an AC Test Rig, Thermo-electric refrigerator, different types of compressor models etc. Pictorial views of some of the instruments are depicted below:



VCR Test Rig (domestic refrigerator)  
-Manual Mode



VAR Test Rig



AC Test Rig

### 13. Energy Conversion Laboratory

The Energy Conversion Laboratory is equipped with many state-of-the-art facilities to acquire knowledge about different types of basic energy conversion processes. Cut-section Models

of different types of boilers are presented to the students in this Laboratory. Experimentation on Blower Test Rigs is also carried out in this Laboratory. Pictorial views of some of the instruments are depicted below:



Cut-section Model of Stirling Boiler



Cut-section Model of Lancashire Boiler



Assembling and dismantling set-up of 4-S 4-C Petrol Engine (working)



Centrifugal Blower with data logging facility

### 14. Kinematics and Dynamics of Machinery Laboratory

The principal objectives of Kinematics & Dynamics of Machinery Laboratory are to impart practical knowledge on design and analysis of mechanisms for the specified type of motion in a machine. With the study of rigid bodies, motions and forces

for the transmission systems, machine kinematics and dynamics can be well understood. Various experiments with governors, gyroscopes, and epicyclic gear trains are available to understand machine dynamics. This Laboratory also provides hands-on knowledge on static and dynamic balancing of machine components. Pictorial views of some of the instruments are depicted below:



Static and Dynamic Balancing Machine



Whirling of Shaft Apparatus





Gyroscope Apparatus



Epicyclic Gear Train Apparatus

## 15. Metal Cutting Laboratory

This course introduces specialized knowledge and skills in machining processes using the principles and methods of Engineering Analysis, Merchant's theories of Machining. This Laboratory is aimed at introducing the know-how of common processes used in industries for manufacturing parts by material removal in a controlled manner. Auxiliary devices as well as methods for machining to desired accuracy and quality are also covered. The emphasis throughout the Laboratory course is on understanding the basic features of the processes rather than details of constructions of machines, or common practices in manufacturing or acquiring skill in the operation of machines. Pictorial views of some of the instruments are depicted below:



Radial Drill Machine



Radial Drill Machine

## 16. Kinematics and Dynamics of Machinery Laboratory



Gear Models



Cam Analysis Apparatus



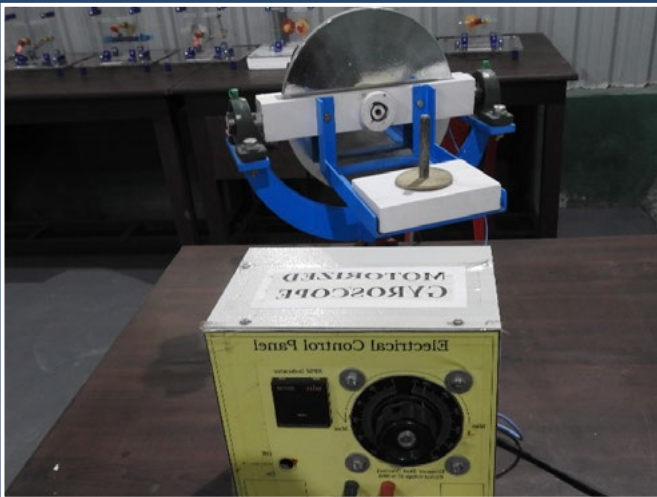
Governor Apparatus



Epicyclic Gear Train



Journal Bearing Apparatus



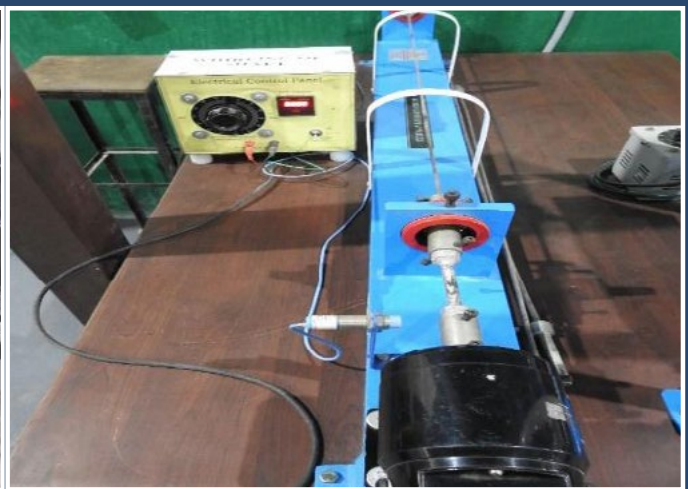
Gyroscope Apparatus



Statics and Dynamics Balancing Apparatus



Whirling Shaft Apparatus



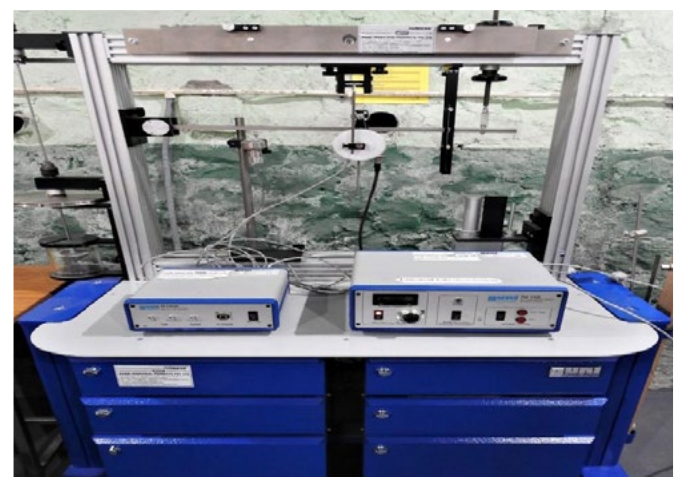
## 16. Vibration & Rotor Dynamics Laboratory

Objectives of the Vibration and Rotor Dynamics Laboratory are to impart practical knowledge on free and forced vibrations analysis for various types of mechanical components. This Laboratory demonstrates the experiments on damping, resonance and absorber effects in forced vibrations,

determination of the oscillation period depending on torsion wire length, diameter and rotating mass. This Laboratory also provides hands-on knowledge on free and damped torsional vibrations. Various experiments with governors, elastic shafts, cam mechanisms are available to understand machine dynamics. Pictorial views of some of the instruments are depicted below:



Free and Forced Vibration Apparatus



Universal Vibration Apparatus

## HPC and Software

- Undergraduate project works are being carried out through HPC platform as well as Institutional ANSYS software.
- Ph.D. Students and Faculty members of the Department are availing the HPC facility as well as ANSYS and open source software for conducting their research works.
- Online Integrative Learning / program tool is also being used by the Department for different laboratories, such as; Basic Workshop, Metrology and Measurement, Production Engineering to teach the students in a more effective way during the pandemic era.

## Conference / Special Lecture / Seminar / Workshop organized

### Professional Practice

The Department is conducting Professional Practice classes regularly in order to strengthen the soft skills of the students from Second Year onwards. This is substantially improving the performance of the students in placement as well as in competitive examinations.



### Involvement in Community Development

The students of near-by schools visit the Departmental Laboratories and Workshops to get exposure to Mechanical Engineering. Furthermore, Faculty members regularly visit neighbouring/ native places to interact with the local inhabitants.

Departmental Faculty members and Staff have participated in “SWACHH BHARAT ABHIYAN” and participated in the Community Development Program. Glimpses of Community Development Program is shown below:



## Projects completed in the Department

- **Analysis of atmospheric boundary layer using enhanced wall function and improved inlet condition, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India (Rs. 2 lacs).**
- **Design and development of Solar–PV based winter air conditioning system for typical classrooms, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India (Rs. 2 lacs).**

## Details of Ph.D. Scholars

Name of the Student	Thesis Title / Research area	Supervisor (s)	Status
Mr. Lakshman R	Numerical Modeling of Neutral Atmospheric Boundary Layer	Dr. Ranjan Basak	Awarded
Mr. Anwesh Virkunwar	Some Studies on Mechanical and Tribological Behavior of AI Composites Reinforced with Industrial Waste	Dr. Ranjan Basak Dr. Shouvik Ghosh (JU, Kolkata)	Awarded
Mr. Saddam Hossain Mullick	Natural Convection and Entropy Formation inside the Enclosure: A Numerical Study	Dr. Pranab Kumar Kundu Dr. Ranjan Basak Dr. Debabrata Dasgupta (IIT Delhi)	Awarded
Mr. Prasan Dewan	Non-traditional Machining (EDM)	Dr. Pranab Kumar Kundu Dr. Ranjan Basak	Pursuing

Name of the Student	Thesis Title / Research area	Supervisor (s)	Status
Mr. Debayan Mandal	Tribological Analysis of Composite Materials	Dr. Ranjan Basak	Pursuing
Mr. Aditya Kumar Singh	Thermo-Fluid	Dr. Shambhunath Barman	Pursuing
Mr. Ved Prakash Mishra	Biofuels, IC engine, Thermal Analysis and Waste Heat Recovery	Dr. Shambhunath Barman Dr. Pradip Mondal, IEST Shibpur	Pursuing
Mr. Mannu Yadav	Investigation on Flow Over Protruding Objects	Dr. Anil Lal S	Pursuing
Ms. Moumita Roy	Alternative Fuels	Dr. Shambhunath Barman Dr. Prokash Ch. Roy (JU, Kolkata)	Pursuing

## Undergraduate Students Internship Details

### UG-4th Year Students

Roll No	Name	Details
BI90122ME	Abinesh Chettri	Six Sigma Quality International
BI90123ME	Aman Prasad	Panna Infotech
BI90126ME	Ashish Kumar Meena	Baba Automobile Pvt. Ltd, Jaipur
BI90127ME	Bedhya Lochan Limbu	Six Sigma Quality International
BI90128ME	Bhavy Sharma	Unique Car Scanners
BI90130ME	Chatraj Manger	Six Sigma Quality International
BI90131ME	Gauri Kumar Mandal	NHPC Ltd, Singtam
BI90134ME	Kushagra Anand	FOXAIRS
BI90136ME	Om Prakash Sharma	Intershape Pvt. Ltd.
BI90137ME	Pahana Vamsi Krishna	Thermal Power Station, Kothagudem
BI90138ME	Pankaj Joshi	ONGC Academy, Dehradun
BI90140ME	Prajwal Chhetri	Six Sigma Quality International
BI90141ME	Raja Kumar	CADD CRAFTER
BI90142ME	Ramineni Shaili	ONGC Academy, Dehradun
BI90143ME	Rohan Kumar Sahu	ONGC Academy, Dehradun
BI90144ME	Rohit Jaiswal	NHPC Ltd, Singtam
BI90145ME	Samsher Ali	NHPC, Rangit Nagar
BI90147ME	Soka Samanth Kumar	Six Sigma Quality International
BI90148ME	Somil Gupta	ITIFY Business Corporation
BI70150ME	Yesupaga Raj Kiran	Sky Rider Institutions Pvt. Ltd

### UG-3rd Year Students

Roll No	Name	Details
B200131ME	Amit Prasad	Foxair, NHPC
B200132ME	Sangey Tsomu	IOCL, Johns Electriv Pvt LTD.
B200133ME	Jitendra Kumar	BHEL, ONGC
B200134ME	Akhil	Asquare Infotech
B200135ME	Abhijeet Keshari	ONGC
B200136ME	Himanshu Kumar	IOCL, Foxair

Roll No	Name	Details
B200137ME	Anugrah Singh	Johns Electric Pvt Ltd.
B200138ME	Durgesh Verma	Foxaisr, ONGC
B200139ME	Yogesh Kumar Meena	INDIAN RAILWAYS
B200141ME	Sujal Raj	ONGC
B200142ME	Shaurav Chettri	VS Informatics
B200143ME	Sourabh Kumar	Johns Electric Pvt Ltd.
B200144ME	Shivendra Pratap Singh	Nanobiz India Private Limited, ONGC
B200145ME	Tushar Kumar Roy	BHEL
B200146ME	Manav Mani Tripathi	BHEL
B200147ME	Diwakar Singh	Varun Beverages Ltd
B200148ME	Sakshi	IOCL
B200150ME	Saugam Deshmukh	IOCL, ONGC, Foxaisr
B200151ME	Gajjelamma Gari Madhu	Johns Electric Pvt Ltd.
B200152ME	Rishi Raj Tiwari	Dharaksha Ecosolutions Private Limited
B200153ME	Bhawana Sankhwar	Microsensys private limited
B200154ME	Navraj Thakuri	Johns Electric Pvt Ltd.
B200155ME	Vishnu Kumar	Foxaisr
B200156ME	Priya Jain	Foxaisr
B200158ME	Swetha Patel	Foxaisr
B200159ME	Yadla Tejesh	Microsensys private limited
B190135ME	Nunavath Sona Jayasree	BHEL

### UG-2nd Year Students

Roll No	Name	Details
B210128ME	Ayush Maity	IOCL
B210147ME	Vaibhav Bagrodia	JSW Steel Plant, Chandi Steel Plant
B210131ME	Debajit Chatterjee	NHPC LTD

### Projects of Final Year Students

Roll No	Name	Project Title
B190122ME	Abinesh Chettri	Analysis of Contraction Cone Profile of Open Circuit Wind Tunnel
B190123ME	Aman Prasad	Design of Anthropometric Classroom Furniture: An Artificial Neural Network Approach
B190126ME	Ashish Kumar Meena	Performance Analysis of Engine using Different Blended Fuel
B190127ME	Bedhya Lochan Limbu	Analysis of Wide-Angle Diffuser Profiles of an Open Circuit Wind Tunnel
B190128ME	Bhavy Sharma	Design of Anthropometric Classroom Furniture: An Artificial Neural Network Approach
B190130ME	Chatraj Manger	Polycarbonate Solar Dryer Design and Performance Analysis
B190131ME	Gauri Kumar Mandal	Experimental and Numerical analysis of Fluid Flow Over Various Notches
B190134ME	Kushagra Anand	Experimental and Numerical analysis of Fluid Flow Over Various Notches
B190136ME	Om Prakash Sharma	Computational Study on Biogas Production using Biogas Digester

Roll No	Name	Project Title
BI90137ME	Pahana Vamsi Krishna	Experimental investigation of machining of Ti-6Al-4V Alloy and AISI 1040 Carbon Steel using 3-Axis Vertical Milling Machine
BI90138ME	Pankaj Joshi	Temperature and Steady State Characteristics Analysis of a Journal Bearing Lubrication System under the Turbulent Flow of Non-Newtonian Lubricant
BI90140ME	Prajwal Chhetri	Application of Vacuum in Silencer ( Novel Design)
BI90141ME	Raja Kumar	Temperature and Steady State Characteristics Analysis of a Journal Bearing Lubrication System under the Laminar Flow of Non-Newtonian Lubricant
BI90142ME	Ramineni Shaili	Fluid Flow Analysis of De-Laval Nozzle
BI90143ME	Rohan Kumar Sahu	Polycarbonate Solar Dryer Design and Performance Analysis
BI90144ME	Rohit Jaiswal	Analysis of Exhaust Heat Recovery from IC Engine
BI90145ME	Samsher Ali	Design of Anthropometric Classroom Furniture: An Artificial Neural Network Approach
BI90147ME	Soka Samanth Kumar	Optimization of Machining Parameters of AL Alloy
BI90148ME	Somil Gupta	Application of Vacuum in Silencer (Novel Design)
BI70150ME	Yesupaga Raj Kiran	Computational Study on Biogas Production using Biogas Digester

## Undergraduate Students Achievements

### Campus Placement Status

Roll No	Name	Organization
<b>UG 4<sup>th</sup> Year Students</b>		
BI90130ME	Chatraj Manger	Larsen & Tourbo
BI90134ME	Kushagra Anand	KEC International
BI90137ME	Pahana Vamsi Krishna	JSW Group
BI90138ME	Pankaj Joshi	Deloitte
BI90141ME	Raja Kumar	JSW Group
BI90142ME	Ramineni Shaili	Reliance BP Mobility
BI90143ME	Rohan Kumar Sahu	Deloitte
BI90144ME	Rohit Jaiswal	Larsen & Tourbo
BI90145ME	Samsher Ali	Skolar
BI90148ME	Somil Gupta	O9 Solutions
<b>UG 3<sup>rd</sup> Year Students</b>		
B200134ME	Akhil	Cummins India Private Limited
B200146ME	Manav Mani Tripathi	Cummins India Private Limited
B200148ME	Sakshi	Cummins India Private Limited
B200152ME	Rishi Raj Tiwari	Dharaksha Ecosolutions Private Limited
B200158ME	Swetha Patel	Cummins India Private Limited

The following students of UG-3<sup>rd</sup> year (Mechanical Engineering Department) have qualified in GATE 2023.

- Mr. Shivendra Pratap Singh
- Mr. Manav Mani Tripathi
- Mr. Abhijeet Keshari
- Mr. Sujal Raj
- Mr. Himanshu Kumar

## Student Events

### Yantrika: The Departmental Club

Faculty In-Charge: Dr. Dipayan Das

Students Convener: Mr. Rohan Kumar Sahu, 4<sup>th</sup> Year, ME Dept.

Yantrika was established in 2015 as the Departmental Club of Mechanical Engineering Department. Its primary objective is to foster the development of essential skills among students while recognizing the need to equip them with the necessary tools and software for thriving in the technology-driven era. The society hosts various activities aimed at enhancing the core and technical competencies of participants. Yantrika firmly believes that a brilliant idea remains futile unless it can be conveyed successfully. Thus, the society emphasizes the significance of communication skills, enabling individuals to transform their ideas into practical possibilities. By acknowledging the value of such skills, Yantrika ensures the holistic growth of participants, encompassing their core, technical, and soft skill sets. Since its establishment, Yantrika has been dedicated to creating a conducive learning environment for students. The society encourages active participation and engagement, fostering a sense of camaraderie among its members. Students are

provided with opportunities to collaborate, share ideas, and learn from one another. Yantrika also serves as a platform for networking and connecting with industry professionals, creating avenues for future career prospects.

The students of the Mechanical Engineering Department organized a Program to celebrate Teachers Day. Dr. Shambhunath Barman (HoD), Dr. Ranjan Basak Dean Academics, and all the faculties and staff of ME Dept. graced the occasion. The HoD, Dr. Shambhunath Barman gave a speech with a motive to spread a message about the significance of scientific applications in the daily life of Mechanical Engineering students. He also spoke briefly on Dr Sarvepalli Radhakrishnan and his contributions. B.Tech students of second, third and fourth years participated actively in the event. This was followed by a Cultural Event. The programme included singing, recitation, story-telling, beat boxing and instrument-play. This event provided a platform to the students to demonstrate their talent and acted as a stepping-stone to connect with each other in their academic life.



Program organized by Departmental Club "Yantrika"



Teacher Day Celebration in the Dept. of Mechanical Engineering



## Departmental Committees

S. No	Name of Faculty Members	Name of the Committee
1	i) Dr. Anil Lal S, Convener ii) Dr. Shambhunath Barman, HOD iii) Dr. Ranjan Basak, Convener, DPGC iv) Ms. Kirti Tewari, Member v) Dr. Debajit Saha, Member	Departmental Undergraduate Committee (DUGC)
2	i) Dr. Ranjan Basak, Convener ii) Dr. Shambhunath Barman, HOD iii) Dr. Anil Lal S, Convener (DUGC) iii) Dr. Bibhuti Bhusan Nayak, Member iv) Dr. Kirti Tewari, Member v) Dr. Shitendu Some, Member v) Dr. Aurobinda Panda, Nominated Member by Chairperson Senate	Departmental Postgraduate Committee (DPGC)
3	i) Dr. Shambhunath Barman, HOD ii) Dr. Anil Lal S, Convener DUGC iii) Faculty Advisors 1st Year Advisor: Dr. Sudip Banerjee 2nd Year Advisor: Dr. Uttam Kumar Mohanty 3rd Year Advisor: Dr. Bibhuti Bhusan Nayak 4th Year Advisor: Dr. Debajit Saha iv) Dr. Ranjan Basak, Nominated by HOD v) Dr. Anindya Biswas, Nominated by Dean, Academic	Academic Performance Evaluation Committee (APEC)
4	i) Dr. Shambhunath Barman, HOD ii) Dr. Ranjan Basak (Convener, DPGC) iii) Dr. Anil Lal S, Member iv) Dr. Debajit Saha, Member v) Dr. Kirti Tewari, Member vi) Dr. Molay Roy, Member	Departmental Admission Committee (DAC)
5	i) Dr. Shambhunath Barman, HOD ii) Dr. Anil Lal S, Convener, DUGC iii) Faculty Advisor (s) 1st Year Advisor: Dr. Sudip Banerjee 2nd Year Advisor: Dr. Uttam Kumar Mohanty 3rd Year Advisor: Dr. Bibhuti Bhusan Nayak 4th Year Advisor: Dr. Debajit Saha iv). Faculty Member from Examination Cell: Dr. Shitendu Some	Departmental Students Grievance Cell (DSGC)
6	1st Year Advisor: Dr. Sudip Banerjee 2nd Year Advisor: Dr. Uttam Kumar Mohanty 3rd Year Advisor: Dr. Bibhuti Bhusan Nayak 4th Year Advisor: Dr. Debajit Saha	Faculty Advisor
7	i) Dr. Shambhunath Barman, Convener <b>ii) Members:</b> a) Dr. Prokash Ch. Roy, Professor, MED, Jadavpur University (Joint Supervisor) b) Dr. Anil Lal S, Associate Professor, NIT Sikkim c) Dr. Achintesh Narayan Biswas, Associate Professor, NIT Sikkim	Doctoral Guidance Committee (DGC) (Research Scholar: Ms. Moumita Roy)
8	i) Dr. Anil Lal S, Convener <b>ii) Members:</b> a) Dr. Shambhunath Barman, Associate Professor, NIT Sikkim b) Dr. Jai Gopal Gupta, Assistant Professor, NIT Sikkim c) Dr. Md. Nurujjaman, Associate Professor, NIT Sikkim	Doctoral Guidance Committee (DGC) (Research Scholar: Mr. Mannu Yadav)
9	i) Dr. Ranjan Basak, Convener <b>ii) Members:</b> a) Dr. Shitendu Some, Assistant Professor, NIT Sikkim b) Dr. Aurobinda Panda, Assistant Professor, NIT Sikkim	Doctoral Guidance Committee (DGC) (Research Scholar: Mr. Debayan Mandal)

S. No	Name of Faculty Members	Name of the Committee
10	i) Dr. Pranab Kumar Kundu, Asst. Professor, ME Dept. MNNIT Allahabad, Convener <b>ii) Members:</b> a) Dr. Ranjan Basak, (Joint Supervisor) b) Dr. Dipayan Das, Asst. Professor, ME Dept. NIT Sikkim c) Dr. Anindya Biswas, Asst. Professor, Physics Dept. NIT Sikkim	Doctoral Guidance Committee (DGC) (Research Scholar: Mr. Prasan Dewan)
11	i) Dr. Shambhunath Barman, Convener <b>ii) Members:</b> a) Dr. Pradip Mondal, Assistant Professor, IEST Shibpur (Joint Supervisor) b) Dr. Kirti Tewari, Asst. Professor, NIT Sikkim c) Dr. Molay Roy, Asst. Professor, NIT Sikkim	Doctoral Guidance Committee (DGC) (Mr. Ved Prakash Mishra)
12	Dr. Shitendu Some, Convener <b>Members:</b> 1st Year Advisor: Dr. Sudip Banerjee 2nd Year Advisor: Dr. Uttam Kumar Mohanty 3rd Year Advisor: Dr. Bibhuti Bhusan Nayak 4th Year Advisor: Dr. Debajit Saha Research Scholar: Dr. Kirti Tewari	Departmental Examination and Result Committee
13	i) Dr. Debajit Saha, Convener <b>ii) Members:</b> a) Dr. Sudip Banerjee b) Dr. Uttam Kumar Mohanty c) Bibhuti Bhusan Nayak d) Mr. Amit Maity	Time Table/Class Rooms/ Load Distribution
14	i) Dr. Bibhuti Bhusan Nayak, Convener <b>Members:</b> Dr. Uttam Kumar Mohanty Dr. Sudip Banerjee	Departmental Library Committee
15	i) Dr. Dipayan Das, Convener <b>ii) Members:</b> 1st Year Advisor: Dr. Sudip Banerjee 2nd Year Advisor: Dr. Uttam Kumar Mohanty 3rd Year Advisor: Dr. Bibhuti Bhusan Nayak 4th Year Advisor: Dr. Debajit Saha	Training and Placement, GATE, Professional Practice
16	Dr. Shambhunath Barman, Convener <b>Members:</b> Dr. Ranjan Basak; Dr. Anil Lal S Dr. Kirti Tewari Dr. Debajit Saha; Dr. Sudip Banerjee Dr. Uttam Kumar Mohanty Dr. Shitendu Some	Departmental Disciplinary Committee (DDC)

## Workshop / STC / FDP Attended by the Faculty Members

### Dr. Bibhuti Bhusan Nayak

- Workshop on Multiphase Flow- Research and Applications (MFRA-2023), 11 March, 2023, IIT Kharagpur.
- STC on CFD For Applied Engineering Problems With Hands-On Practice, December 19-23, 2022, NIT Rourkela.
- FDP on Mentoring for Institutional Social Responsibility and Facilitation for Community Engagement, Feb, 8- 12, 2022, MGNCRE, Govt. of India.

# Department of Mathematics

“The only way to learn mathematics is to do mathematics.”

~ Paul R. Halmos

*I've always enjoyed mathematics. It is the most precise and concise way of expressing an idea.*

~ N.R. Narayana Murthy, Indian IT industrialist

Mathematics has been an active ingredient in the world's scientific revolution, and India has played a vital role in this endeavour. Ancient India is famous for its mathematical geniuses and their revolutionary ideas. Aryabhatta, Varahimihira, Brahmagupta, and Bhaskara II were the leading trailblazers of their times. From Indus Valley Civilization to the Vedic period, India has pioneered 'practical mathematics', which consists of mathematical tools with a significant impact on real life.

Mathematics is an integral and fundamental part of Sciences, Engineering, and Technology disciplines. The Department of Mathematics has been an integral part of the Institute since its inception in 2010. Right from beginning, the Department has been on a strenuous journey to provide students a platform for building their essential background of the subject. A solid foundation in this subject enables students to tackle academic problems, real-life problems, and research problems. Overall a student with an excellent mathematical skill-set, in general, tends to make a better and well-informed decision. The Department actively participates in the teaching of Undergraduate, Postgraduate, and Ph.D students. The Department currently offers two compulsory courses for the UG students of all branches – namely Mathematics-I and Mathematics-II. It also offers two more compulsory courses, namely Mathematics-III (for the UG students of Mechanical and Civil Engineering) and Computation Mathematics (for the UG students of CSE, EEE, and ECE). Computational Mathematics and Linear Algebra, Stochastic Process & Optimization Techniques are two obligatory courses taught by the Department to the PG students in the Departments of CSE and ECE, respectively. For Ph.D students, the Department offers several elective courses tailored according to their research and professional requirements.

Department also offers a Ph.D program in Operation Research, and Spectral Graph Theory. Operations Research consists of analytical methods to make a better decision; thus, it is considered one of the most important subjects for practical purposes. Spectral Graph Theory studies the properties of graphs through the eigenvalues and eigenvectors of matrices associated with graphs.

The Department offers a compulsory course on professional practice to all UG students to prepare them for their placements and career in general. The main goal of Professional Practice is to strengthen aptitude, computational efficiency, and communication skills. To accomplish this goal, we conduct quantitative aptitude tests and reasoning tests frequently. Group discussions, personal interviews, and public speaking are conducted on a regular basis. With this preparation, students tend to perform well in competitive exams like GATE as well.

## Vision

The vision of the Department is to become one of the best places to nurture mathematical skills in the North-East region of the country. The Department wishes to admit more Ph.D. students to pave the path for excellent research and collaboration. As we advance further, we will be keen on taking up projects based on Applied Mathematics and Statistics for the growth and benefit of the country and the state of Sikkim.

## Mission

The Department strives for excellence in the field of mathematics for faculty members and students alike. Our mission is to spark keen interest in young learners to explore the world of mathematics independently. Moreover, the Department gives equal priority to teaching, research, and real-life applications of mathematics. All courses of the department are periodically reviewed and updated by renowned institutes and industry experts.

## Values

We believe in the philosophy of inclusive learning and open discussions while imparting good ethical and moral values to our students. From teaching a class to publishing research and developing an algorithm, our department believes in inclusivity and equal opportunity for all sections of the society. Besides, we also try to nurture a holistic point of view towards education.

## Faculty Details

### Dr. Ravi Srivastava

#### Assistant Professor & HOD

Ph.D (IIT Guwahati-2012), NET-JRF, M. Sc (BHU, Varanasi),  
B. Sc (Udai Pratap Autonomous College, Varanasi)

**Area of Interest:** Spectral Graph Theory, Numerical Linear Algebra.

### Dr. Om Prakash

#### Assistant Professor

Ph.D (IIT Kharagpur-2013), NET-JRF, M. Sc (BHU),  
B. Sc (V.B.S. Purvanchal University)

**Area of Interest:** Production Planning and Inventory Control, Operational Research, Mathematical Finance.

## Temporary Faculty Members

### Dr. Suresh Kumar Choubey

#### Assistant Professor

Dr. Prashant Jha

Assistant Professor

## Departmental Committees

S. No.	Name of the Faculty Members	Name of the committee
1.	i) Dr. Om Prakash (Convenor) ii) Dr. Ravi Srivastava (Member and HoD) iii) Dr. Anindya Biswas (Member) iv) Dr. Pradeep Kumar (Member)	Departmental Post Graduate Committee (DPGC)

## Research Scholar Details

S. No.	Scholar	Guide(s)	Research Area
1.	Ms. Nipa Biswas	Dr. Om Prakash	Inventory Models
2.	Mr. Satyam Gurgain	Dr. Ravi Srivastava	Spectral Graph Theory
3.	Mr. Abhishek	Dr. Om Prakash	Operational Research
4.	Mr. Shubham Priyadarshi	Dr. Om Prakash	Operational Research
5.	Mr. Bishal Sonar	Dr. Ravi Srivastava	Spectral Graph Theory



# Department of Physics

*Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand.*

~ Albert Einstein

The Department of Physics has been an integral part of the National Institute of Technology Sikkim since its establishment in the year 2010. The faculty members of the Department are actively engaged in the Institute's teaching, research and administration. The Department is engaged in the following areas of research – quantitative finance, time series analysis of the stock market, nonlinear dynamics, low-temperature physics, quantum information and its interface with many-body physics.

At present, The Department offers a Ph.D. program and aspires to offer an M.Sc. program very soon. Following the National Education Policy 2020, the department also aims to offer a B.Sc. program in Physics. The proposed expansion program of the Department requires the induction of quality faculty members capable of strengthening teaching and research faculties. The department, which has some expertise in new-age research areas such as quantum information, computation, and dynamical systems, plans to seek expertise in diverse cutting-

edge research areas in the near future. The objective of the department is to ignite the curiosity of students, equip them with in-depth knowledge in their subject areas, prepare them to thrive in a rapidly evolving world, and empower them to live fulfilling and prosperous lives.

As of now, the Department offers Engineering Physics course to different engineering branches of the B.Tech. program. Over the past few years, the department has provided courses such as Electromagnetic Field Theory, Introduction to Electronics Engineering Profession, Mathematics, Solid State Devices, and more to B.Tech students across various engineering disciplines. The Department has used high-quality NPTEL and other MOOCs courses to aid in the teaching-learning process. Despite the limitations of the temporary campus, the department provides essential laboratory experiments to facilitate an understanding of the fundamental laws of physics, using high-quality equipment.

## Faculty Details

### Dr. Anindya Biswas

Associate Professor

Postdoc at HRI Allahabad (Prayagraj), IMSc Chennai, IACS Kolkata, Ph.D (University of Calcutta)

M.Sc (University of Calcutta)

Area of Interest: Low temperature physics, BEC, Quantum information and its interface with many-body physics

### Dr. Md. Nurujjaman

Associate Professor

Postdoc at Tata Institute of Fundamental Research Centre for Applicable Mathematics Bangalore, Ph.D (Homi Bhabha National Institute, BARC), M.Sc (Jadavpur University)

Area of Interest: Experimental nonlinear dynamics, quantitative finance, stock market dynamics

## Staff Details

### Mr. Happy Mondal

Laboratory Assistant

## Laboratory Facilities

**Engineering Physics Laboratory:** The Engineering Physics Laboratory of the Department is equipped with necessary instruments to facilitate the freshmen to experience the wide scope of the subject. There are experimental facilities to investigate the properties of semiconductors, laser diode, Hall Effect, magnetic field due to current carrying coils, magnetic susceptibility of liquids, etc. The students are also exposed to some optical phenomena like the total internal reflection of light and interference of light through experiments involving optical fibers, Newton's ring apparatus and the Michelson interferometer. The fiber optics apparatus is used to measure the numerical aperture of optical fiber while the Michelson Interferometer apparatus can be used to determine the wavelength of the light source.



Members of the Department of Physics

## Departmental Committees

S. No.	Name of the committee	Name of Faculty members
1	Departmental Faculty Board (DFB)	1. Dr. Md. Nurujjaman, HOD 2. Dr. Anindya Biswas, Member
2	Departmental Post Graduate Committee (DPGC)	1. Dr. Anindya Biswas, Convener 2. Dr. Md. Nurujjaman, Member 3. Dr. Om Prakash, Member
3	Laboratory In-Charge	Dr. Md. Nurujjaman

## Project:

- Innovative and sustainable decision support system for drinking water security in Indian Himalayan region of Sikkim and West Bengal**, funded by The Ministry of Environment, Forest & Climate Change (MoEF&CC) (Rs.50 lacs).

## Collaboration with other Departments / Institutes

The Department has active research collaborations with Saha Institute of Nuclear Physics, Kolkata, Jadavpur University, Presidency University and Harish-Chandra Research Institute, Prayagraj. Radon gas monitoring system, a possible avenue for early earthquake detection, has been installed at NIT Sikkim in collaboration with Jadavpur University.

## Research Scholars Details

S. No.	Research Scholars	Guide(s)	Area of Research	Remarks
1	Ajit Mahata	Dr. Md. Nurujjaman	Nonlinear time series analysis of stock market.	PhD Degree awarded
2	George Biswas	Dr. Anindya Biswas	Entanglement and other quantum correlations in many-body systems.	PhD Degree awarded
3	Anish Rai	Dr. Md. Nurujjaman	Nonlinear Time-series Analysis, Characterization of Stock Market	Ongoing
4	Santanu Sarkar	Dr. Anindya Biswas	Quantum Information and Computation	Ongoing
5	Salam Rabindrajit Luwang	Dr. Md. Nurujjaman	Nonlinear Time-series Analysis, Characterization of Stock Market	Ongoing
6	Sayan Sengupta	Dr. Anindya Biswas	Quantum Information and Computation	Ongoing
7	Ritwija Roy	Dr. Anindya Biswas	Quantum Information and Computation.	Ongoing
8	Kundan Mukhia	Dr. Md. Nurujjaman	Machine learning and Non-linear time series analysis.	Ongoing

# Department of Chemistry

*I believe that the science of Chemistry alone almost proves the existence of an intelligent creator.*

~ Thomas A. Edison

The Department of Chemistry is an integral part of National Institute of Technology Sikkim (NIT Sikkim) since its inception. The department has always strived hard to attain academic excellence by imparting quality education and research exposure to the students. The Department of Chemistry at NIT Sikkim is now a comprehensive department granting Masters Degree (two-year M. Sc. program in Chemistry) and Ph.D. degrees with specialization in synthetic organic chemistry, inorganic chemistry, catalysis, renewable energy etc.

The faculty members of the department are young, dynamic, motivated, extremely well qualified and are keen to impart quality education to the students and carry out cutting edge research to solve problems having societal importance. Their commitment is well reflected in the quality of publications, research projects funded by the Department of Science & Technology (DST), Council of Scientific & Industrial Research (CSIR), Department of Biotechnology (DBT), etc.

Thanks to the generous support from the Institute and other funding agencies, the department is now equipped with several state-of-the-art instrumental and computational facilities. The

instruments available with the department include, (but are not limited to) Gas Chromatography (GC) System, Electrochemical Workstation, Potentiostat with Spectroelectrochemistry set up, Rotary Evaporators, Diode-array UV-Vis Spectrophotometers, FT-IR spectrophotometers, Low-temperature (-80°C) baths, Autoclaves, etc. The Computational Chemistry Laboratory has access to high-end servers and software packages (Gaussian, Amsterdam Density Functional (ADF), Turbomole, etc).

The admission to the 2-year M.Sc. course (Chemistry) is managed centrally by Centralized Counselling for M.Sc./ M.Sc. (Tech) (CCMN) platform, based on the JAM score of the candidates. The Institute also conducts Institute Admission Test (IAT) to fill the vacant seats. The department offers fundamental and advanced courses covering different areas of chemistry and closely related areas and provides comprehensive hands-on research training to the students to help them become technical professionals in the field. Department of Chemistry is fully committed to cultivate a safe, inclusive, gender-neutral and a fair environment to foster innovation in the field of chemical science.



## VISION

Our *vision* is to enhance our reputation as a nationally acclaimed teaching and research institution which is recognized for its innovation, excellence, and discovery, and attract the best students, faculty and staff nationwide. The curriculum is designed for holistic development of the students and imparts practical trainings to make them industry ready. The Department aspires to be regarded as the best in North-East NITs, and in the Top 10 amongst the NITs in India and in the Top 50 Chemical Sciences teaching institutions in India.

## MISSION

Our *mission* is to maintain a department that stands equal to any in terms of its relevance of teaching and research, facilities as well as the learning opportunities and working experience. The Department endeavours to advance the society through chemistry education, research, and service via multidisciplinary and international collaborative discovery, mentoring and leadership, and economic impact through technology transfer and entrepreneurship. The Department enables Student/Faculty team achievement, professional service, recognition, and global engagement via unique Molecular Science & Technology Centers of Excellence leveraging NIT Sikkim's core strength. The Department defines and delivers exemplary contributions to the mission, goals, and research focus areas of NIT Sikkim.

## VALUES

We aspire to *values* which are based on the highest professional and academic standards in terms of personal growth and satisfaction offered to our Students, Faculties and Staffs, excellence in what we do, teamwork that is based on respect, trust, integrity, and moral ethics.

## Programs offered by the Department.

### Master of Science (M.Sc. in Chemistry)

- The Department of Chemistry at NIT Sikkim is now a comprehensive department granting Masters degree (two-year M. Sc. program in Chemistry). The admission

to the 2-year M.Sc. (Chemistry) is managed centrally by Centralized Counselling for M.Sc./ M.Sc. (Tech) (CCMN) platform, based on the JAM score of the candidates. The Institute also conducts Institute Admission Test (IAT) to fill the vacant seats. The department offers fundamental and advanced courses covering different areas of chemistry and closely related areas and provides comprehensive hands-on research training to the students to help them become technical professionals in the field.

### Doctoral program (Ph. D.)

- Department of Chemistry at NIT Sikkim offers multiple opportunities to carry out graduate research work in various areas of chemistry and related disciplines. Students completing their M.Sc. in Chemistry can apply to this program. The fellowship options available include (a) Institute funded Ph.D., (b) funding by other funding agencies, SERB (DST), CSIR, INSPIRE, etc.

## Research Areas

- Synthetic Organic Chemistry (Photoredox Catalysis, Synthesis of Natural Products, Macrolides, Synthetic Methodologies, C-H activation, Heterocycles, Carbohydrate Chemistry, Green Organic Synthesis, Electrosynthesis, etc.)
- Inorganic Chemistry (Bioinspired Catalysis, Dioxygen activation/reduction, Artificial Photosynthesis, High-valent metal oxo, Electrocatalysis, Degradation of Micropollutants, C-H activation by transition metal complexes, etc.)

## Courses offered by the Department to B. Tech Students

- Engineering Chemistry, Engineering Chemistry Laboratory, and Health, Safety and Environment.

## Current Students' Strength

PG students (M.Sc.)	Ph.D. Scholars
27	09

## Faculty & Staff details



**Dr. Achintesh N. Biswas**  
Associate Professor & Head of the Department  
Postdoc (University of Minnesota, USA 2012-13),  
Ph.D (University of North Bengal, 2011),  
M.Sc. (University of North Bengal, 2003)  
Area of Interest: Water Remediation,  
Artificial Photosynthesis, Small Molecule  
Activation, Bio-inspired Catalysis



**Dr. Taraknath Kundu**  
Associate Professor  
Postdoc (Bose Institute, 2008-09, IISc. Bangalore, 2009-12),  
Ph.D (Bose Institute / Jadavpur University, 2008) M.Sc. (University of Calcutta, 2001)  
Area of Interest: Synthetic Organic Chemistry; Medicinal Chemistry



**Dr. Sumit Saha**

Associate Professor  
Ph.D (IACS / Jadavpur University, 2012), M.Sc. (IIT Kharagpur, 2007)  
Area of Interest: Synthetic organic chemistry, Total synthesis of natural products

**Dr. Nidhi Govil**

Ph.D (MNIT Jaipur), M.Sc. (IIT Roorkee)  
Area of Interest: Analytical Chemistry, Electroanalytical methods

**Dr. Sumantra Bhattacharya**

Ph.D (NCL Pune, 2013), M.Sc. (BHU, 2005)  
Area of Interest: Theoretical Chemistry, Excited State structure of properties of molecules, Homogeneous and heterogeneous catalysis. Development of Highly Accurate Quantum Chemical method for Calculation of Low-lying Excited States of molecules using Fock Space Multi-Reference Coupled Cluster Method.

**Dr. Dipmalya Basak**

Ph.D (IIT Kharagpur, 2021), M.Sc. (NIT Durgapur, 2013)  
Area of Interest: Heterometallic 3d-4f complexes with aesthetically pleasing topologies to investigate their magnetic properties (Single Molecular Magnets, Magnetocaloric effect, etc.) along with other properties like Photoluminescence, catalytic properties.

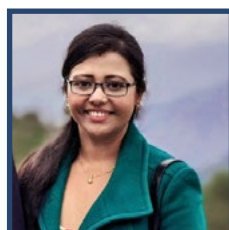
**Dr. Arun Kr. Pal**

Ph.D (IIT Bombay, 2015), M.Sc. (Univ. of Burdwan, 2011)  
Area of Interest: Computational Chemistry, Quantum Chemistry, Molecular Magnetism and Electronic Structure, Non-linear Optical Properties, Spectroscopic Properties, Periodic Structure Calculations, Density Functional Theory (DFT), Time-dependent DFT, Ab-initio Methods: Organic/Inorganic Systems

## Staff Details



Mr. Suman Pathak



Ms. Chandrama Majumdar

## Ph.D Scholars

Sl.	Name of the Ph. D Scholar	Topic	Supervisor
1	Ms. Srijana Subba (Thesis submitted)	Total Synthesis of Natural Products	Dr. Sumit Saha
2	Mr. Srijan Narayan Chowdhury	Dioxygen Reduction	Dr. Achintesh N. Biswas
3	Mr. Panjo Lepcha	Catalytic Water Oxidation	Dr. Achintesh N. Biswas
4	Mr. Ramanand Das	Synthesis of C-glycosides	Dr. Taraknath Kundu
5	Mr. Ravan Kumar	Total Synthesis of Natural Products	Dr. Sumit Saha
6	Ms. Malati Das	Photo-redox reactions	Dr. Taraknath Kundu
7	Mr. Saikat Das	Water Remediation	Dr. Achintesh N. Biswas
8	Mr. Gunturu Prabhakar Rao	Directed C-H Activation	Dr. Taraknath Kundu
9	Mr. Kanchan Chakraborty	Organic synthesis	Dr. Sumit Saha

PG & Ph.D. Students at the 4<sup>th</sup> Convocation

## Laboratories and Research Facilities

S. No.	Name of the Laboratory	Objectives	Available Instruments	Faculty In-charge
1	Engineering Chemistry	To equip all first-year students of B.Tech program with the knowledge of material science, qualitative and quantitative estimations, and environmental impacts.	Microbalance, Microcentrifuge, pH meters, Conductometers, Hot air oven, vacuum pumps, fridges, etc.	Dr. Taraknath Kundu
2	M.Sc. Organic Chemistry	To teach M.Sc. students about organic qualitative & quantitative estimations, functionalization of organic molecules, isolation and characterization of natural products, multistep syntheses, and biochemistry experiments.	Eyela Rotary Evaporator with -20°C chiller, Eyela PSL1810 (-) 80°C reaction chamber, Metler-Toledo 0.01 mg microbalance, Glove box, etc.	Dr. Sumit Saha
3	M.Sc. Inorganic Chemistry	To teach M.Sc. students about identification of salts, qualitative & quantitative estimations, catalytic activities, bioinorganic chemistry.	Diode-array UV-visible Spectrophotometer with Peltier, Electrochemical Workstation, Hansatech Oxygraph, Spectro Electrochemical Workstation	Dr. Achintesh N. Biswas
4	M.Sc. Physical Chemistry	Quantitative estimations of physical constants, biophysical experiments.	Potentiometers, Polarimeter, Colorimeter, Electrode assembly, Water purification set up	Dr. Arun Kr. Pal and Dr. Sumantra Bhattacharya
5	M.Sc. Analytical and Environmental Chemistry	Qualitative and quantitative analysis of environmental pollutants	BOD incubator, COD digester, As/F detectors, Muffle furnace, Dissolved oxygen (DO) sensor, Microbalance, etc.	Dr. Nidhi Govil
5	Computational Chemistry Laboratory	Molecular simulations, quantum chemical energy calculation, prediction of reaction pathways.	Gaussian, Amsterdam Density Functional (ADF), Turbomole, etc	Dr. Sumantra Bhattacharya & Arun Kr. Pal
6	Instrument Laboratory	Analysis of synthesized and natural compounds.	Gas chromatography system, UV-visible Spectrophotometer, FT-IR Spectrometer, Gel electrophoresis system, Biosafety cabinet, etc.	Dr. Taraknath Kundu
7	Research Laboratory	For PhD research	Three fume hoods, IKA Rotary evaporator, other experimental set-ups.	Dr. Sumit Saha

## Laboratories



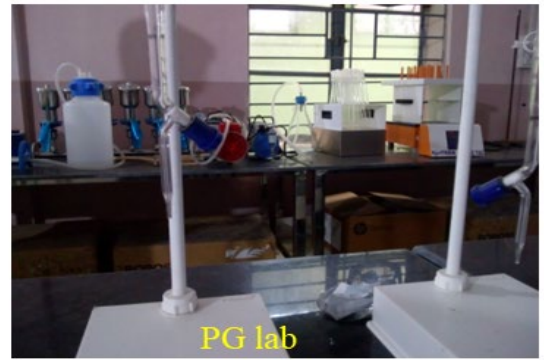
Research lab



PG lab



Research lab



PG lab



View from the lab



View from the lab

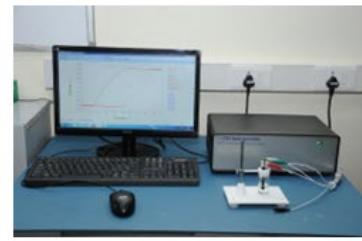
## Research Facilities



Gas Chromatography with FID & TCD Detectors



Rotary Evaporators



Electrochemical Workstation



Diode array Spectrophotometer with Peltier



Oxygraph from Hausatech



-80°C Bath



Spectroelectrochemistry Set-up

### Other facilities

- ❖ IR Spectrometer
- ❖ Autoclaves
- ❖ Sonicators
- ❖ Muffle furnace
- ❖ BOD Incubator
- ❖ COD Digester
- ❖ Gel Electrophoresis

.....and many more

### Softwares

- ❖ Gaussian09
- ❖ GaussView
- ❖ ADF
- ❖ Turbomole

## Ongoing Projects in the Department

- Electrochemically generated oxometal complexes for water remediation (CRG/2021/002064) funded by Science & Engineering Research Board (SERB), New Delhi of Rs. 43 lacs; P.I. Dr. Achintesh N. Biswas.

## Collaborations with other Institutes

To conduct laboratory classes and research the Department has collaborated with the following Institutes:

- University of York, UK – Dr. Achintesh Narayan Biswas
- University of North Bengal, Siliguri – Dr. Achintesh Narayan Biswas / Dr. Sumit Saha
- Central University of Sikkim, Sikkim – All Faculty of the Department
- IIP Dehradun – Dr. Sumantra Bhattacharya
- Indian Association for the Cultivation of Science, Kolkata – Dr. Achintesh Narayan Biswas /
- Dr. Sumit Saha
- National Chemical Laboratory, Pune – Dr. Sumantra Bhattacharya
- CSIR- Indian Institute of Petroleum, Dehradun – Dr. Sumantra Bhattacharya
- University of Calcutta, Kolkata - Dr. Taraknath Kundu
- Sister Nivedita University, Kolkata - Dr. Taraknath Kundu
- IIT Kharagpur- Dr. Taraknath Kundu and Dr. Dipmalya Basak

## Departmental Responsibilities

Sl.	Responsibility	Faculty In-charge
01.	Head of the Department	Dr. Achintesh N. Biswas
02.	M.Sc Admission (Dy. In-charge, Centralized Counseling for M.Sc. in NITs 2022)	Dr. Taraknath Kundu
03.	Convener, Institute Admission Test 2022 for admission in M.Tech / M.Sc. programs	Dr. Taraknath Kundu
04.	Department Post-Graduate Committee (DPGC)	Dr. Sumit Saha (Convener) Dr. Achintesh N. Biswas (HoD) Dr. Taraknath Kundu (Member) Dr. Nidhi Govil (Member) Dr. Sumantra Bhattacharya (Member) Dr. Dhananjay Tripathi (Nominated Member by Chairperson Senate)
05.	Academic Performance Evaluation Committee	Dr. Taraknath Kundu (Convener) Dr. Achintesh Narayan Biswas (Member) Dr. Sumit Saha (Member) Dr. Nidhi Govil (Member)
06.	M.Sc. Physical Chemistry Laboratory	Dr. Nidhi Govil
07.	M.Sc. Inorganic Chemistry Laboratory	Dr. Achintesh N. Biswas
08.	M.Sc. Organic Chemistry Laboratory	Dr. Sumit Saha
09.	M.Sc. Analytical and Environmental Chemistry Laboratory	Dr. Dipmalya Basak
10.	M.Sc. Computational Chemistry Laboratory	Dr. Sumantra Bhattacharya and Dr. Arun Kr. Pal
11.	B.Tech Engineering Chemistry Laboratory	Dr. Taraknath Kundu
12.	Departmental Member in Examination Cell	Dr. Achintesh N. Biswas
13.	Departmental Member in Institute Research Committee	Dr. Sumit Saha
14.	Departmental Record Keeping	Dr. Achintesh N. Biswas
15.	Faculty Advisors	Dr. Achintesh N. Biswas Dr. Taraknath Kundu Dr. Sumit Saha



Students with faculty and staff members



M.Sc. 2020-22 Batch Farewell

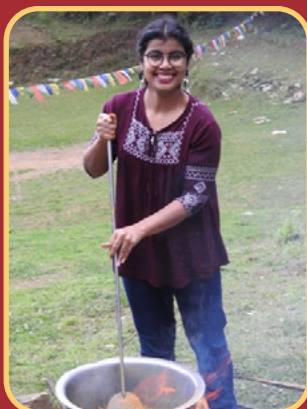


M.Sc. 2021-23 Batch



M.Sc. 2022-24 Batch

## Department Picnic





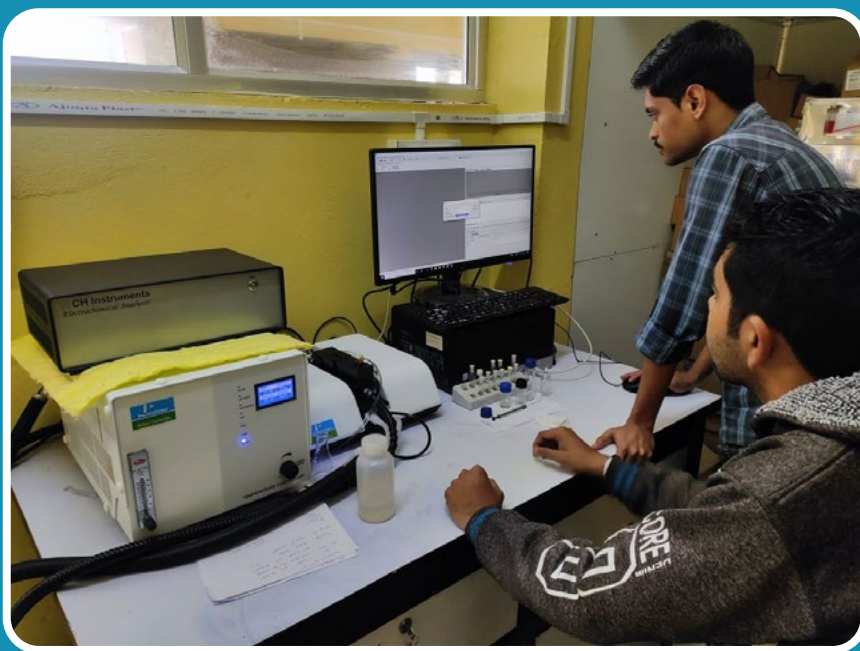
B.Tech 2021-25 Batch 1st Year Engineering Chemistry Laboratory



Ms. Srijana Subba, PhD scholar using rotary evaporator for synthetic organic chemistry research.



Dr. Sumantra Bhattacharya with students in B.Tech 1st Year Engineering Chemistry Laboratory



Mr. Srijan Narayan Chowdhury, PhD scholar and Mr. Saikat Das, Project JRF are using Electrochemical workstation connected with UV-visible spectrophotometer.

# Department of Humanities and Social Sciences

*Literature is one of the most interesting and significant expressions of humanity.*

~ P.T. Barnum

The Department of Humanities and Social Sciences (HSS) formulates to be an important part of the Institute which strives to offer students a platform for their integrative orientation. It aims to provide knowledge that roots an overall impact on the academic and professional excellence of the students. The Department comprises of enthusiastic and highly qualified faculties who encourage discussions on learning new techniques of imparting knowledge about human values and literature. They are focused on extending the parameters of research with extensive studies on varied spectrum of English and Economics.

The Department of HSS offers undergraduate courses to Engineering students in English, Economics, and Management. These courses focus on the overall development of the students who will be able to execute themselves as engineers who value conservational strategies.

The Department also offers a research program which was initiated in the year 2014. The current areas of research interest explored by the Departmental faculty and research scholars are, *Modern Indian Fiction, Film Studies in Shakespearean Drama Adaptations, North-Eastern Literature, Gender Studies and Literature* in the subject field of English, and *Industrial Economics & Entrepreneurship* in the subject field of Economics. The faculty and research scholars of the Department work extensively towards research publications and their efforts are echoed through paper publications in national and international journals. They also focus on research paper presentations and proceeding publications in reputed conferences on a global spectrum.

## Departmental Literary Club:

*The Regnant Ink*, was established on 24th February, 2018 with a vision to offer an integrated advancement of students inclusive of literary and vocal temper at National Institute of Technology

Sikkim. The club organizes various literary events which includes but not limited to Quiz Competitions, Movie Nights, Writing Competitions, Talk Sessions by esteemed guests, and this year the club has been the prominent organizer in the Institute to promote the Government of India's celebration of International Year of Millets 2023.

## OBJECTIVES:

- Certain courses on Communicative Skills, Phonetics, Linguistics, and Certificate Courses in foreign and regional languages are part of the long-term agenda of the Department.
- The Department fosters to inculcate an integrative approach among the students by collaborating with other premier educational institutes in the country.
- The Department is also responsible for equipping the undergraduate students to be at par with the global industrial working environment.
- Consistent upgradation of the syllabus is prepared to cater the needs of the students in competing in the industrial market at a national and global spectrum.
- To produce extensive research work on interdisciplinary disciplines through its Ph.D. program to aid in widening its research spectrum.

## Upgradations in the Course Syllabus of the Department:

The Department updates its course syllabus in every two years through Curriculum Development Workshops which are advocated by the Senate of the Institute. Based on the contents Curriculum Development Workshop of 2017, two

new courses, *English Language and Literature* and *Human Values and Effective Communication* in English were introduced in the Department. Furthermore, previous courses on Economics and Management were also reformulated into *Engineering Economics* and *Principles of Management*. In May 2019, another Curriculum Development Workshop was organized with profound academicians who helped with their knowledge to improve and update the existing curriculum which would best suit to the needs of the students. The Department also introduced an audit course entitled *Professional Practice* (English) to boost the proficiency of communication skills of the students which is explored through group discussions, debates, and extempore. The Department has also developed a Language Lab to focus on teaching students the subtleties of pronunciation, stress patterns, intonation, and accent to equip them with speaking abilities and confidence that will help them prepare for higher placement.

## Courses offered by the Department

### Courses for Undergraduate Program (B. Tech):

- English Language and Literature (HS11101) - B.Tech 1<sup>st</sup> Year
- Human Values and Effective Communication (HS12101) - B.Tech 1<sup>st</sup> Year
- Professional Practice (ZZ12402) – B.Tech 1<sup>st</sup> Year
- Engineering Economics (HS15101) – B.Tech 3<sup>rd</sup> Year
- Principles of Management (HS16101) – B.Tech 3<sup>rd</sup> Year

### Courses for PhD Program:

- **Research Methodology (HS31101)**
- **Literary Theory-I (HS31102)**
- **Literary Theory-II (HS31103)**

## Research Areas

Subjects	Major Thrust Area of Research
English	<ul style="list-style-type: none"> <li>• Modern Indian Fiction</li> <li>• Film Studies</li> <li>• Gender Studies and Literature</li> <li>• Literary Criticism</li> <li>• Myth and its Retelling</li> <li>• Indian English Writing</li> </ul>
Economics	<ul style="list-style-type: none"> <li>• Industrial Economics &amp; Entrepreneurship</li> <li>• Financial Management</li> <li>• Big Data Analytics</li> <li>• Managerial Economics</li> </ul>

## Research Scholars

### Degree Awarded:

Sl. No.	Name	Supervisor	Title of Thesis
1	Mrs. Laxmi Rai	Dr. Dhananjay Tripathi	Cinematic Adaptations of the Select Shakespearean Tragedies in Bollywood
2	Mr. Bhaskar Chettri	Dr. Dhananjay Tripathi	Multiculturalism in the Select Raj Novels
3	Ms. Ankita Sarmah	Dr. Dhananjay Tripathi & Dr. Bedabrat Saikia (Co-supervisor)	An Exploration on the Opportunities and Challenges of the Micro Small and Medium Enterprises (MSMEs) in Assam

### Ongoing Research:

Sl. No.	Name	Supervisor	Area of Research
1	Ms. Sanjana Chakraborty	Dr. Dhananjay Tripathi	Male Body & Identity Politics in South Asian Literature



## Research Projects:

Sl. No	Project Title	Principal Investigator	Funding Agency	Status
1	<b>The Occult Tradition of Shamanism in Sikkim:</b> <i>A study of its core belief and Tribal Nature.</i>	Dr. Dhananjay Tripathi	ICSSR	Completed
2	<b>Covid-19 and its impact on Sikkim:</b> <i>A study of how and why Sikkim became an exception.</i>	Dr. Dhananjay Tripathi	ICSSR	Completed

## Faculty Details

### Dr. Dhananjay Tripathi

Associate Professor

D. Phil (University of Allahabad, 2013), M.A. (University of Allahabad, 2006)

**Area of Interest:** Literary Criticism, Myth and its Retelling, Indian English Writing.

### Dr. Richa Mishra

Assistant Professor (Temporary)

D. Phil (University of Allahabad, 2016), M.A. (University of Allahabad, 2011)

**Area of Interest:** Indian Writing in English, Mythological Retelling.

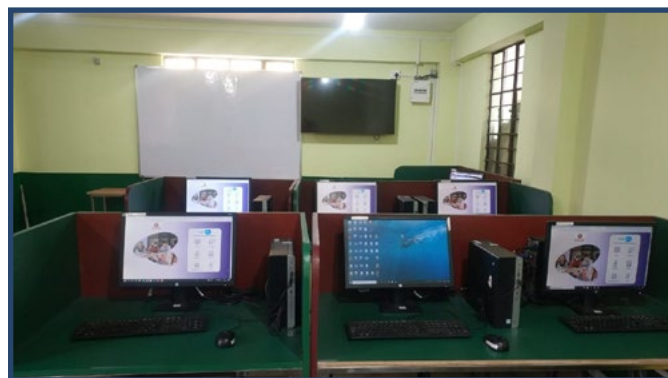
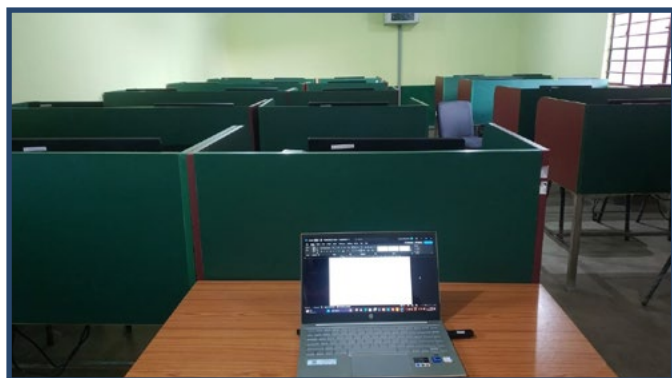
### Dr. Marxia Oli. Sigo

Assistant Professor (Temporary)

Ph.D (Bharathidasan University, Tiruchirappalli, 2019), MBA (BSMED– Bharathiar University, Coimbatore, 2006)

**Area of Interest:** Financial Management, Big Data Analytics, Managerial Economics.

## Language Laboratory for Undergraduate students



In order to cater to the needs of the students and enhance their language learning capability an Orell Talk Digital Language Laboratory with state-of-the-art facilities was established in December 2019. The Language lab software is result-oriented and not only aids in language learning, but also enhances students' overall personality through advanced courses in grooming and personality development.

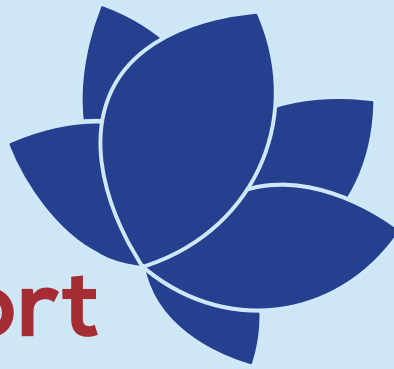
Students can not only enhance their personality but also develop confidence by taking these highly beneficial courses. The software includes the following components: -

- **ASL-** Tool to assign speaking and listening activities to students.
- **Intercom-** Enables two-way communication between the teacher and students.
- **Live Classroom-** Performs live classes and allows evaluation of students' learning activities.
- **Lesson Studio-** Allows teacher to create study materials in video, audio and text format.
- **E-Writer-** To assign writing assignments to students.
- **E-Reader-** To send reading assignments to individual or group of students.
- **E-Exam-** To assign exam to individual or group of students.
- **ScreenViewer-** Teacher can capture the students' screen and monitor their activities even without their knowledge.
- **Alert-** An aid for students to call the teacher.

## Departmental Committees

Sl. No.	Name of Faculty Member	Name of Committee
1	Dr. Dhananjay Tripathi	Head of the Department
2	Dr. Dhananjay Tripathi, Dr. Richa Mishra, Dr. Marxia Oli. Sigo	Departmental Faculty Board
3	Dr. Dhananjay Tripathi (Convener) Dr. Richa Mishra Dr. Marxia Oli. Sigo Dr. Achintesh N Biswas (External) Dr. Rajiv Ranjan Dwivedi (External) Dr. Sangram Ray (External)	Department Post Graduate Committee (DPGC)
4	Dr. Richa Mishra	Faculty Mentor B.Tech 1 <sup>st</sup> Year
5	Dr. Dhananjay Tripathi Dr. Richa Mishra Dr. Marxia Oli. Sigo	Committee for Promotion of Indian Language and Culture under NEP 2020
6	Dr. Dhananjay Tripathi	Faculty In Charge- Training and Placement Cell
7	Dr. Richa Mishra	Department Annual Report Committee
8	Dr. Dhananjay Tripathi Dr. Richa Mishra Dr. Marxia Oli. Sigo	Department Grade Moderation Committee
9	Dr. Dhananjay Tripathi	Public Information Officer
10	Dr. Dhananjay Tripathi	Faculty In-charge Publication and Web Information System





# Audit Report and Annual Accounts





गन्धमत्र जयन्ते

कार्यालय प्र. महालेखाकार , (लेखापरीक्षा )  
लेखापरीक्षा भवन, देवराली, सिकिम  
गान्तोक - 737 102

**Office of the Pr. Accountant General (Audit),  
Lekha Pariksha Bhawan, Deorali,  
Sikkim, Gangtok - 737 102**

No: Comm/NIT/SAR/22-23/2023-24/77

Dated: 3 November 2023

To,

**The Director  
National Institute of Technology  
Ravangla Campus,  
Ravangla, Barfung Block  
South Sikkim- 737139**

**Subject: Forwarding of Separate Audit Report for the year ended 31<sup>st</sup> March 2023**

Sir,

This is to forward herewith the Separate Audit Report on the Accounts of the NIT, Sikkim, Ravangla for the year ended 31 March 2023 for necessary action at your end.

The audited accounts and the Separate Audit Report should be duly considered and adopted by the Institute before the same are placed in both houses of Parliament.

Further, the date of laying of the audited accounts/ Separate Audit Report may be intimated to this office. Two copies each of Hindi and English version of the approved annual report may be furnished to this office for onward transmission to the C&AG of India.

The receipt of this letter may kindly be acknowledged.

Yours faithfully,

  
Dy. Accountant General

**SEPARATE AUDIT REPORT ON THE ACCOUNTS OF  
NATIONAL INSTITUTE OF TECHNOLOGY, SIKKIM,  
RAVANGLA  
FOR THE YEAR ENDED 31 MARCH 2023**

(Vide Section 22 (4) of the National Institute of Technology Act, 2007)

**SEPARATE AUDIT REPORT OF THE COMPTROLLER AND AUDITOR GENERAL  
OF INDIA ON THE ACCOUNTS OF NATIONAL INSTITUTE OF TECHNOLOGY  
SIKKIM, RAVANGLA FOR THE YEAR ENDED 31 MARCH, 2023**

We have audited the attached Balance Sheet of National Institute of Technology Sikkim, Ravangla, as on 31 March 2023, the Income & Expenditure Account and Receipts and Payments Account for the year ended on that date under Section 19(2) of the Comptroller and Auditor General's (Duties, Power & Conditions of Service) Act, 1971 read with Section 22(2) of the National Institute of Technology Act, 2007. Preparation of these financial statements is the responsibility of the Institute's Management. Our responsibility is to express an opinion on these Financial Statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller and Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules and Regulations (Propriety and Regularity) and efficiency-cum-performance aspects, etc., if any, are reported through Inspection Reports/CAG's Audit Reports separately.
3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the Financial Statements are free from material misstatements. An audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the Financial Statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.
4. Based on our audit, we report that:
  - i. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit;
  - ii. The Balance Sheet, Income and Expenditure Account and Receipts and Payments Account dealt with by this report have been drawn up in the format prescribed by the Ministry of Human Resource Development, Government of India.

- iii. In our opinion, proper books of accounts and other relevant records have been maintained by the National Institute of Technology Sikkim as required under Section 22(1) of the National Institute of Technology Act, 2007 in so far as it appears from our examination of such books;
- iv. We further report that:

#### **A. General**

1. The CPWD had executed various works for the Institute over the period of time. As per the progress report of CPWD, the administrative approval of seven works amounted to ₹ 11.98 crore. For these works, the Institute had deposited ₹ 8.61 crore out of which the CPWD had incurred ₹ 8.44 crore. The MPR also stated that in some works balance funds were required to dispose off the liability. However, since the CPWD had not furnished completion certificates along with the final costs of the respective works, the Institute had capitalized only ₹ 8.62 crore. Moreover, the progress report furnished by CPWD for different periods are also inconsistent in terms of expenditure incurred. At the Institute level also, the capitalization method varied between different works as in some cases the amount deposited with CPWD had been capitalized and in others, the amount of expenditure incurred had been capitalized. Thus, a thorough reconciliation is required to be undertaken by the Institute with the CPWD pertaining to all the works executed by CPWD for the Institute and correct amount may be capitalised under intimation to audit.

#### **2. Grants in Aid**

The Institute has received ₹ 26.17 crore during the year as Grant. Institute had utilized ₹ 26.17 crore (out of which ₹ 3.29 crore has been refunded to MOE) leaving an unspent grant of ₹ Nil crore.

#### **B. Revision of Accounts**

The accounts of the institute were revised at the instance of audit. The impact of revision of accounts is that the Assets and Liabilities are increased by ₹ 0.26 crore and the deficit is increased by ₹ 0.79 crore.

- v. Subject to our observation in the preceding paragraphs, we report that the Balance Sheet, Statement of Income & Expenditure Account and Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.
- vi. In our opinion and to the best of our information and according to the explanations given to us, the said Financial Statements read together with the Accounting Policies and Notes on Accounts, and subject to the significant matters stated above and other matters mentioned in **Annexure-I** to this Audit Report, give a true and fair view in conformity with accounting principles generally accepted in India:
- (a) in so far as it relates to the Balance Sheet of the state of affairs of the National Institute of Technology as at 31 March 2023; and
- (b) in so far as it relates to the Income & Expenditure Account of the surplus for the year ended 31 March 2023

**For and on behalf of**  
**The Comptroller and Auditor General of India**



**Principal Accountant General (Audit),**

**Sikkim, Gangtok**

**Place: Gangtok**

**Date:**



**ANNEXURE****1. Adequacy of Internal Audit System:**

The Institute has appointed a Chartered Accountant as an Internal Auditor on 24 January 2023. With submission of report (half yearly) on 30 Jan 2023 and 30 May 2023. The firm had submitted the final report on 30 May 2023. Further, the final report is yet to be placed before BoG and Finance Committee for discussion. Moreover, the same firm was also involved in the preparation/compilation of financial statements. Thus, the independence of internal audit was compromised.

**2. Adequacy of Internal Control System:**


Internal Control System was not commensurate with the size and nature of the Institute to the extent as detailed below:

1. As per the Statute, the Board of Governors of the Institute shall meet at least four times in a year. During 2022-23, six meetings of the Board of Governors were held.
2. As per clause 10 (2) the statute, the finance committee shall ordinarily meet at least four times in a year preferably before the meeting of the Board of Governors. During the year 2022-23, four meetings of the finance committee were held.

**3. Regularity in payment of statutory dues**

The Management is regular in payment of statutory dues with appropriate authorities.

Place:  
Date



Principal Accountant General (Audit),  
Sikkim, Gangtok

# NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

## BALANCE SHEET AS AT 31<sup>st</sup> MARCH 2023

Amount in Rupees

SOURCES OF FUNDS	Sch No	Current Year 31.03.2023	Previous Year 31.03.2022
<b>Corpus/ Capital Fund</b>	1	425,115,379.00	434,663,190.00
<b>Designated/ Earmarked/ Endowment Fund</b>	2	9,424,289.00	9,753,505.00
<b>Current Liabilities &amp; Provisions</b>	3	70,945,088.00	73,317,088.00
<b>Total</b>		<b>505,484,756.00</b>	<b>517,733,783.00</b>
<b>APPLICATION OF FUNDS</b>			
<b>Fixed Assets</b>	4		
Tangible Assets		369,638,047.00	388,771,085.00
Intangible Assets		776,194.00	2,296,712.00
Capital Work in Progress		3,866,000.00	23,808,030.00
<b>Investments from Earmarked / Endowment Fund</b>	5		
Long Term		-	-
Short Term		-	-
Investments-Others	6	-	-
<b>Current Assets</b>	7	127,584,844.00	98,743,476.00
Loans, Advances and Deposits	8	3,619,671.00	4,114,480.00
<b>Total</b>		<b>505,484,756.00</b>	<b>517,733,783.00</b>

Significant Accounting Policies	23	-
Contingent Liabilities and Notes to Accounts	24	

For and on behalf of National Institute of Technology Sikkim



Director



Registrar



Assistant Registrar

Date: 07.08.2023

Place: Ravangla, South Sikkim

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## INCOME AND EXPENDITURE ACCOUNT

FOR THE YEAR ENDED 31st MARCH 2023

Amount in Rupees

Particulars	Sch No	Current Year 31.03.2023	Previous Year 31.03.2022
<b>INCOME</b>			
Academic Receipts	9	45,321,653.00	30,760,080.00
Grants/ Subsidies	10	201,195,608.00	88,228,043.00
Income from Investments	11	2,947,130.00	4,281,359.00
Interest Earned	12	306,250.00	416,035.00
Other Income	13	1,457,801.00	2,028,967.00
Prior Period Income	14	788,168.00	-
<b>Total (A)</b>		<b>252,016,610.00</b>	<b>125,714,484.00</b>
<b>EXPENDITURE</b>			
Staff Payments and Benefits (Establishment Expenses)	15	126,783,555.00	101,606,864.00
Academic Expenses	16	22,300,496.00	17,805,496.00
Administrative and General Expenses	17	53,844,232.00	46,136,356.00
Transportation Expenses	18	1,584,132.00	1,054,165.00
Repairs and Maintenance	19	7,287,632.00	13,925,926.00
Finance Costs	20	62,788.00	19,855.00
Depreciation	4	68,158,202.00	68,679,306.00
Other Expenses	21	-	-
Prior Period Expenses	22	9,106,000.00	194,107.00
<b>Total (B)</b>		<b>289,127,037.00</b>	<b>249,422,075.00</b>
Balance being excess of Income over Expenditure (A-B)		-37,110,427.00	-123,707,591.00
Transfer to/ from Designated Fund		-	7,178,764.00
Building Fund		-	-
Other (Specify)		-	-
Balance being surplus/deficit carried over to Capital Fund		-37,110,427.00	-130,886,355.00

Significant Accounting Policies 23

Contingent Liabilities and Notes to Accounts 24

For and on behalf of National Institute of Technology Sikkim



Director



Registrar



Assistant Registrar

Date: 07.08.2023

Place: Ravangla South Sikkim

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## RECEIPT AND PAYMENTS ACCOUNT

FOR THE YEAR ENDED 31st MARCH 2023

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
	31.03.2023	31.03.2022		31.03.2023	31.03.2022
I. Opening Balance			I. Expenses		
a) Cash Balances	53,000.00	3,000.00	a) Establishment Expenses	115,925,754.00	92,831,184.00
b) Bank Balances-Project	3,385,614.00	899,157.00	b) Academic Expenses	20,593,893.00	16,454,348.00
c) Bank Balances			c) Administrative Expenses	53,550,137.00	42,334,503.00
i) Current Accounts	5,689,760.00	10,004,406.00	d) Transportation Expenses	1,394,894.00	964,916.00
ii) in Deposit Accounts	62,463,082.00	88,075,435.00	e) Repairs and Maintenance	7,287,632.00	6,052,624.00
iii) Savings Accounts	25,558,978.00	42,169,944.00	f) Prior period expenses	9,106,000.00	-
iv) Project a/c	-	-	g) Finance Cost	62,788.00	19,855.00
iv) Grant in Transit	-	-			
2. Grants received			2. Payments against earmarked/		
a) From Government of India	261,700,000.00	179,992,000.00	Endowment fund	2,909,403.00	871,150.00
b) From Other Sources (Details)	-	-			
(Grants for capital & revenue expenditure to be shown separately if available)			3. Payments against sponsored projects/ Schemes	7,039,183.00	4,173,239.00
3. Academic Receipts	46,727,985.00	32,921,302.00	4. Payments against sponsored fellowship / Scholarships	424,922.00	265,380.00
4. Receipts against Earmarked / Endowment fund	2,859,403.00	8,066,933.00			
5. Receipts against Sponsored projects/ Schemes	67,465.00	8,542,998.00	5. Investments and deposits made		
			a) Out of Earmarked / Endowment funds	-	-
			b) Out of own funds	-	-
6. Receipt against sponsored fellowship and scholarship	58,117.00	423,422.00	6. Term Deposits with scheduled banks	-	-
7. Income on Investments from			7. Refund of Grants	-	-
a) Earmarked funds			8. Expenditure on Fixed Assets and		
			Intangible Fixed Assets		
			Computer Software	-	420,225.00
			Capital work in progress	3,866,000.00	-
			Tangible Fixed Assets		
8. Interest received on			a) Computer and peripherals	5,919,136.00	21,237,816.00
a) Bank Deposits	2,947,130.00	4,281,359.00	b) Office Equipments	1,009,528.00	173,288.00
b) Flexi Deposit	-	-	c) Lib Books & Scientific Journals	1,005,866.00	169,591.00

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## RECEIPT AND PAYMENTS ACCOUNT

FOR THE YEAR ENDED 31st MARCH 2023

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
	31.03.2023	31.03.2022		31.03.2023	31.03.2022
c) Savings bank account	9,408,610.00	606,804.00	d) Scientific and Lab Equipments	11,164,659.00	49,295,006.00
			e) Plant & Machinery	578,990.00	-
9. Investments encashed	-	-	f) Other Fixed Assets	-	23,062.00
			g) Furniture Fixture and Fittings	3,385,031.00	3,605,238.00
10. Term deposits with scheduled banks encashed			h) Site Development	-	-
			i) Temporary Shed	166,742.00	751,076.00
			j) Audio Visual Equipment	179,991.00	2,499,923.00
			k) Electrical Installation and Equip.	29,324.00	4,664,294.00
			l) Buildings	-	555,387.00
			m) Vehicle	-	882,342.00
			n) Sports Equipment	257,349.00	
			9. Other payments inc. Statutory payments	34,238,667.00	29,453,770.00
	420,919,144.00	375,986,760.00		280,095,889.00	277,698,217.00
			10. Deposits and advances	1,072,293.00	4,889,063.00
11. Other Income (excluding prior period)	669,633.00	2,028,967.00	11. Other Payments ( Grants trf. to MHRD)	32,941,776.00	14,202,117.00
12. Deposits, Debtors and Advances	733,471.00	2,857,733.00	12. Closing Balance		
13. Miscellaneous receipts including			a) Cash Balances	50,000.00	53,000.00
Statutory Receipts	17,889,202.00	11,795,266.00	b) Bank Balances		
			i) Current Accounts	8,363,129.00	5,689,760.00
14. Earnest Money Deposit	693,016.00	350,000.00	ii) in Deposit Accounts	97,382,622.00	62,463,082.00
			iii) Savings Accounts	21,384,308.00	25,558,978.00
15. Any other Receipts	409,828.00	921,105.00	iv) Project a/c	24,277.00	3,385,614.00
			iv) Grant in Transit	-	-
	441,314,294.00	393,939,831.00		441,314,294.00	393,939,831.00

For and on behalf of National Institute of Technology Sikkim



Director



Registrar



Assistant Registrar

Date: 07.08.2023

Place: Ravangla, South Sikkim

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-I: CORPUS/ CAPITAL FUND

		Amount in Rupees	
		Current Year	Previous Year
		31.03.2023	31.03.2022
	Balance at the beginning of the year	434,663,190.00	487,987,704.86
Add:	Contribution towards Corpus/ Capital fund		
Add:	Grants from UGC, Government of India and State Government to the extent utilized for Capital Expenditure	27,562,616.00	77,561,840.00
Add:	Assets purchased out of Earmarked fund	-	-
Add:	Assets purchased out of Sponsored Projects, where ownership vests in the institutions	-	-
Add:	Assets donated/ gifts received	-	-
Add:	Other Additions	-	-
Add:	Excess of Income over Expenditure transferred from Income and Expenditure Account	-37,110,427.00	-130,886,355.00
	Balance at the year end	425,115,379.00	434,663,189.86

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-2 : DESIGNATED / EARMARKED/ ENDOWMENT FUND

PARTICULARS		FUNDWISE BREAKUP										Current Year	Previous Year	
		Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund	Fund	31.03.2023	31.03.2022	
		CSAB	DOE & SM Workshop	DASA	CCMT	Sustability	CUET Project	CSTT MHRD	ESDP	Funds			(Rs)	
<b>A)</b>														
a)	Opening Balance	50,000.00	4,124.00	283,933.00	-	9,424,289.00	-	-8,841.00	-	-	-	-	9,753,505.00	2,524,641.00
b)	Additions during the year	298,542.00		-	157,500.00	-	368,793.00	-	2,034,568.00	-	-	-	2,859,403.00	8,100,014.00
c)	Income from Investments made of the funds													
d)	Accrued interest on Investments/ Advances													
e)	Interest on Savings Bank A/c													
f)	Other Additions (Employer contribution)							8,841.00					8,841.00	
	<b>Total (A)</b>	<b>348,542.00</b>	<b>4,124.00</b>	<b>283,933.00</b>	<b>157,500.00</b>	<b>9,424,289.00</b>	<b>368,793.00</b>	<b>-</b>	<b>2,034,568.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12,621,749.00</b>	<b>10,624,655.00</b>
<b>B)</b>														
	Utilization. Expenditure towards objective of funds													
i)	Capital Expenditure													
ii)	Revenue Expenditure	348,542.00	4,124.00	283,933.00	157,500.00	-	368,793.00	-	2,034,568.00	-	-	-	3,197,460.00	871,150.00
iii)	Refund													
	<b>Total (B)</b>	<b>348,542.00</b>	<b>4,124.00</b>	<b>283,933.00</b>	<b>157,500.00</b>	<b>-</b>	<b>368,793.00</b>	<b>-</b>	<b>2,034,568.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,197,460.00</b>	<b>871,150.00</b>
	<b>Closing Balances at the year end (A-B)</b>												<b>9,424,289.00</b>	<b>9,753,505.00</b>
<b>Represented by</b>														
	Cash and Bank Balances												9,424,289.00	9,753,505.00
	Investments													
	Interest accrued but not due													
	<b>Total</b>												<b>9,424,289.00</b>	<b>9,753,505.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-2A: ENDOWMENT FUND

Amount in Rupees

I	2	Opening Balance		Additions during the year		Total		Expenditure on the object during the year	Opening Balance		Total
		Endowment	Accumulated Interest	Endowment	Interest	Endowment	Accumulated Interest		Endowment	Accumulated Interest	
		3	4	5	6	7	8	9	10	11	12
						(3+5)	(4+6)				(10+11)
A)											
a)		-	-	-	-	-	-	-	-	-	-
b)											
c)											
d)											
e)											
f)											



# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-3: CURRENT LIABILITIES AND PROVISIONS

		Amount in Rupees	
		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>A</b>	<b>CURRENT LIABILITIES</b>		
1	Deposits from Suppliers	1,769,528.00	1,704,634.00
2	Deposits from Students	13,636,061.00	11,154,471.00
3	Sundry Creditors		
a)	For Goods and Services	2,593,629.00	6,832,189.00
b)	Others	992,708.00	5,618,175.00
4	Deposit-Others (including EMD, Security Deposit)	2,259,790.00	2,332,250.00
5	Statutory Liabilities	3,130,805.00	2,098,811.00
	(GPF,TDS,WC Tax,CPF,GIS, NPS)		
a)	Overdue	-	-
b)	Others	2,622.00	2,622.00
6	Other Current Liabilities		
a)	Salary & Wages	61,259.00	6,304,907.00
b)	Receipts against Sponsored projects	1,177,184.00	8,148,901.50
c)	Receipts against Sponsored fellowship and scholarship	58,117.00	423,422.00
d)	Unutilised Grants	-	-
e)	Medical Board Fund	361,001.00	231,842.00
f)	CPF Fund	411,455.00	411,455.00
g)	Fellowship/Scholarship Payable	-	1,503,259.00
h)	Chief Warden Fund	9,172,922.00	7,635,554.00
i)	Other Liabilities	488,981.00	1,179,669.00
g)	Alumini Association Fees	125,805.00	125,805.00
h)	Hostel Mess & Staff Welfare Fund	1,118,055.00	1,118,055.00
i)	Society Fee	202,903.00	62,903.00
j)	Advance Fees	1,222,027.00	2,379,976.00
k)	Fees Remission Payable	932,093.00	639,093.00
l)	Saving Interest payable to Ministry	9,102,360.00	190,769.00
	<b>Total (A)</b>	<b>48,819,305.00</b>	<b>60,098,762.50</b>
<b>B)</b>	<b>PROVISIONS</b>		
1	For Taxation	-	-
2	Gratuity	11,981,320.00	7,094,032.00
3	Superannuation Pension	-	-
4	Accumulated Leave Encashment	10,144,463.00	6,124,293.00
5	Trade Warranties/ Claims	-	-
6	Others (Specify)	-	-
	<b>Total (B)</b>	<b>22,125,783.00</b>	<b>13,218,325.00</b>
	<b>Total (A+B)</b>	<b>70,945,088.00</b>	<b>73,317,087.50</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-3A: SPONSORED PROJECTS

Amount in Rupees

1	2	3	4	5	6	7	8	9
Sl No	Name of Project	Opening Balance		Receipts/ Recoveries during the year	Total	Expenditure during the year	Closing Balance	
		Credit	Debit				Credit	Debit
1	SERB Matrix	220,000.00		-	220,000.00	219,270.00	730.00	
2	Others	295,758.00		-	295,758.00	-	295,758.00	
3	SERB-T Kundu	200,000.00		-	200,000.00	-	200,000.00	
5	SMDP Project	-			-	-	-	
6	Visvesvaraya	-	503,535.00	-	-503,535.00	-	-503,535.00	
7	Meity - CCBT	2,663,668.00	-	35,577.00	2,699,245.00	2,697,232.00	2,013.00	
8	DST - Achintesh Narayan	83.00		-	83.00	-	83.00	
9	UDHD Project	73,318.00		-	73,318.00		73,318.00	
10	DST - ICPS	703,188.50		9,991.00	713,179.50	711,099.00	2,080.50	
11	NMHS Project	-	111,301.00	1,152.00	-110,149.00	-	-110,149.00	
12	CSSR - COVID	-	12,245.00	20,745.00	8,500.00	8,240.00	260.00	
13	NAMPET	2,586,461.00	-	-	2,586,461.00	1,335,460.00	1,251,001.00	
14	SERB Project	2,033,506.00	-	-	2,033,506.00	2,067,882.00	-34,376.00	
	<b>Total</b>	<b>8,775,982.50</b>	<b>627,081.00</b>	<b>67,465.00</b>	<b>8,216,366.50</b>	<b>7,039,183.00</b>	<b>1,177,183.50</b>	-

### Schedule-3B : SPONSORED FELLOWSHIP AND SCHOLARSHIPS

Amount in Rupees

1	2	3	4	5	6	3	4
Sl No	Name of Sponsor	Opening Balance as on 01.04.2022		Transactions during the year		Closing Balance as on 31.03.2023	
		Credit	Debit	Credit	Debit	Credit	Debit
	University Grants Commission						
	Ministry						
	Top Class Scholarship for ST	-1,000.00	-	1,500.00	500.00	-	-
	Top Class Scholarship for SC	404,400.00	-	-	404,400.00	-	
	Others Regional states	-	-	-	-	-	
	Others (Specify)	20,022.00	-	-	20,022.00	-	
	<b>Total</b>	<b>423,422.00</b>		<b>1,500.00</b>	<b>424,922.00</b>	-	

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-3C: UNUTILISED GRANT FROM UGC, GOVERNMENT OF INDIA AND STATE GOVERNMENTS

		Amount in Rupees	
		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>A</b>	<b>Plan Grants: Government of India</b>		
	Balance B/f	-	-
	Add: Receipts during the year	261,700,000.00	165,789,883.00
	Less: Refund	32,941,776.00	-
	Less: Utilized for Revenue Expenditure	201,195,608.00	88,228,043.00
	Less: Utilized for Capital Expenditure	27,562,616.00	77,561,840.00
	<b>Unutilized Carried Forward Total (A)</b>	-	-
<b>B</b>	<b>UGC Grant: Plan</b>		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	<b>Unutilized Carried Forward Total (B)</b>		
<b>C</b>	<b>UGC Grant: Non Plan</b>		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	<b>Unutilized Carried Forward Total (C)</b>		
<b>D</b>	<b>Grants from State Govt.</b>		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	<b>Unutilized Carried Forward Total (D)</b>		
	<b>Total (A+B+C+D)</b>	-	-

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-4 : FIXED ASSETS

Sl No	Asset Heads	Rate %	GROSS BLOCK				DEPRECIATION				NET BLOCK			
			Op Balance	Additions/	Deductions	Cl. Balance	Op Balance	Dep. For	Deductions/	Cl. Balance	As On	As On		
			01.04.2022	Deletion	31.03.2023	01.04.2022	the year	Adjustments	31.03.2023	31.03.2023	31.03.2023	31.03.2022		
1	Land		-	-	-	-	-	-	-	-	-	-	-	-
2	Site Development		56,491,485.00	-	-	56,491,485.00	-	-	-	-	-	-	56,491,485.00	56,491,485.00
3	Buildings	2%	24,473,433.00	10,363,162.00	-	34,836,595.00	5,214,646.80	696,732.00	5,911,378.80	-	-	-	28,925,216.00	19,258,786.00
4	Roads & Bridges	2%	17,366,015.00	-	-	17,366,015.00	347,320.00	347,320.00	694,640.00	-	-	-	16,671,375.00	17,018,695.00
5	Temporary Shed	33%	19,638,960.00	166,742.00	-	19,805,702.00	19,504,479.00	189,506.00	19,693,985.00	-	-	-	111,717.00	134,481.00
6	Prefab	20%	154,682,947.00	-	-	154,682,947.00	58,865,789.00	30,936,589.00	89,802,378.00	-	-	-	64,880,569.00	95,817,158.00
7	Tubewells and Water Supply	2%	424,809.00	-	-	424,809.00	44,083.00	8,496.00	52,579.00	-	-	-	372,230.00	380,726.00
8	Sewerage and Drainage	2%	-	-	-	-	-	-	-	-	-	-	-	-
9	Electrical Installation and Equip.	5%	36,797,544.00	13,474,192.00	-	50,271,736.00	11,406,126.00	2,513,587.00	13,919,713.00	-	-	-	36,352,023.00	25,391,418.00
10	Plant and Machinery	5%	2,763,691.00	578,990.00	-	3,342,681.00	900,668.10	167,134.00	1,067,802.10	-	-	-	2,274,879.00	1,863,023.00
11	Scientific and Laboratory Equip.	8%	100,355,728.00	11,164,659.00	-7,761,920.00	103,758,467.00	26,974,981.55	8,300,677.00	32,170,890.55	-3,104,768.00	-	-	71,587,576.00	73,380,746.00
12	Office / Mess Equipment	7.50%	15,101,132.00	1,009,528.00	-	16,110,660.00	9,178,178.08	1,208,300.00	10,386,478.08	-	-	-	5,724,182.00	5,922,954.00
13	Audio Visual Equipment	7.50%	20,269,244.00	179,991.00	-	20,449,235.00	4,230,918.00	1,533,693.00	5,764,611.00	-	-	-	14,684,624.00	16,038,326.00
14	Computer and Peripherals	20%	108,016,259.00	5,919,136.00	-	113,935,395.00	64,622,975.00	9,862,484.00	74,485,459.00	-	-	-	39,449,936.00	43,393,284.00
15	Furniture Fixture and Fittings	7.50%	51,985,147.00	3,385,031.00	-	55,370,178.00	23,452,537.80	4,152,763.00	27,605,300.80	-	-	-	27,764,877.00	28,532,609.00
16	Sports Equipments	10%	2,308,679.00	257,349.00	-	2,566,028.00	1,629,059.45	256,603.00	1,885,662.45	-	-	-	680,366.00	679,620.00
17	Lib Books & Scientific Journals	10%	17,870,383.00	1,005,866.00	-7,880,679.00	10,995,570.00	16,835,419.00	1,099,557.00	10,054,297.00	-7,880,679.00	-	-	941,273.00	1,034,964.00
18	Vehicle	10%	7,070,910.00	-	-	7,070,910.00	3,638,100.00	707,091.00	4,345,191.00	-	-	-	2,725,719.00	3,432,810.00
19	Small Value Assets	100%	380,159.00	-	-	380,159.00	380,159.00	-	380,159.00	-	-	-	-	-
	<b>Total (A)</b>		<b>635,996,525.00</b>	<b>47,504,646.00</b>	<b>-15,642,599.00</b>	<b>667,858,572.00</b>	<b>247,225,439.78</b>	<b>61,980,532.00</b>	<b>298,220,524.78</b>	<b>-10,985,447.00</b>	<b>-</b>	<b>-</b>	<b>369,638,047.00</b>	<b>388,771,085.00</b>
20	Capital Work in Progress - Building		10,363,162.00	-10,363,162.00	-	-	-	-	-	-	-	-	-	10,363,162.00
21	Capital Work in Progress- Electrical		13,444,868.00	-13,444,868.00	-	-	-	-	-	-	-	-	-	13,444,868.00
22	Pre Construction Expenses (New Campus)		-	3,866,000.00	-	3,866,000.00	-	-	-	-	-	-	3,866,000.00	-
	<b>Total (B)</b>		<b>23,808,030.00</b>	<b>-19,942,030.00</b>	<b>-</b>	<b>3,866,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,866,000.00</b>	<b>23,808,030.00</b>
23	Computer Software	40%	5,247,447.00	-	-	5,247,447.00	4,477,362.00	770,084.00	5,247,446.00	-	-	-	1.00	770,085.00
24	E. Journals	40%	24,712,543.00	-	-	24,712,543.00	23,185,916.00	5,407,586.00	39,578,949.00	10,985,447.00	-	-	776,193.00	1,526,627.00
	<b>Total (C)</b>		<b>29,959,990.00</b>	<b>-</b>	<b>-</b>	<b>45,602,589.00</b>	<b>27,663,278.00</b>	<b>6,177,670.00</b>	<b>44,826,395.00</b>	<b>10,985,447.00</b>	<b>-</b>	<b>-</b>	<b>776,194.00</b>	<b>2,296,712.00</b>
	<b>Total (A+B+C)</b>		<b>689,764,545.00</b>	<b>27,562,616.00</b>	<b>-</b>	<b>717,327,161.00</b>	<b>274,888,717.78</b>	<b>68,158,202.00</b>	<b>343,046,919.78</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>374,280,241.00</b>	<b>414,875,827.00</b>

Amount in Rupees

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-4A : PLAN

Sl No	Asset Heads	Rate %	GROSS BLOCK			DEPRECIATION			NET BLOCK			
			Op Balance 01.04.2022	Additions	Deductions	Cl. Balance 31.03.2023	Op Balance 01.04.2022	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2023	As On 31.03.2023	As On 31.03.2022
1	Land		-	-	-	56,491,485.00	-	-	56,491,485.00	-	56,491,485.00	56,491,485.00
2	Site Development		56,491,485.00	-	-	34,836,595.00	10,363,162.00	-	5,911,378.80	696,732.00	28,925,216.00	19,258,786.00
3	Buildings	2%	24,473,433.00	10,363,162.00	-	17,366,015.00	347,320.00	-	694,640.00	347,320.00	16,671,375.00	17,018,695.00
4	Roads & Bridges	2%	17,366,015.00	-	-	19,805,702.00	166,742.00	-	19,693,985.00	189,506.00	111,717.00	134,481.00
4	Temporary Shed	33%	19,638,960.00	166,742.00	-	154,682,947.00	-	-	89,802,378.00	30,936,589.00	64,880,569.00	95,817,158.00
5	Prefab	20%	154,682,947.00	-	-	424,809.00	-	-	52,579.00	8,496.00	372,230.00	380,726.00
6	Tubewells and Water Supply	2%	424,809.00	-	-	-	-	-	-	-	-	-
7	Sewerage and Drainage		-	-	-	-	-	-	-	-	-	-
8	Electrical Installation and Equip.	5%	36,797,544.00	13,474,192.00	-	50,271,736.00	11,406,126.00	2,513,587.00	13,919,713.00	2,513,587.00	36,352,023.00	25,391,418.00
9	Plant and Machinery	5%	2,763,691.00	578,990.00	-	3,342,681.00	900,668.10	167,134.00	1,067,802.10	167,134.00	2,274,879.00	1,863,023.00
10	Scientific and Laboratory Equip.	8%	100,355,728.00	11,164,659.00	-	111,520,387.00	26,974,981.55	8,921,631.00	35,896,612.55	8,921,631.00	75,623,774.00	73,380,746.00
11	Office Equipment	7.50%	15,101,132.00	1,009,528.00	-	16,110,660.00	9,178,178.08	1,208,300.00	10,386,478.08	1,208,300.00	5,724,182.00	5,922,954.00
12	Audio Visual Equipment	7.50%	20,269,244.00	179,991.00	-	20,449,235.00	4,230,918.00	1,533,693.00	5,764,611.00	1,533,693.00	14,684,624.00	16,038,326.00
13	Computer and Peripherals	20%	108,016,259.00	5,919,136.00	-	113,935,395.00	64,622,975.00	9,862,484.00	74,485,459.00	9,862,484.00	39,449,936.00	43,393,284.00
14												
15	Furniture Fixture and Fittings	7.50%	51,985,147.00	3,385,031.00	-	55,370,178.00	23,452,537.80	4,152,763.00	27,605,300.80	4,152,763.00	27,764,877.00	28,532,609.00
16	Sports Equipments	5%	2,308,679.00	257,349.00	-	2,566,028.00	1,629,059.45	256,603.00	1,885,662.45	256,603.00	680,366.00	679,620.00
17	Lib Books & Scientific Journals	10%	17,870,383.00	1,005,866.00	-	18,876,249.00	16,835,419.00	1,887,625.00	18,723,044.00	1,887,625.00	153,205.00	1,034,964.00
18	Vehicle	10%	7,070,910.00	-	-	7,070,910.00	3,638,100.00	707,091.00	4,345,191.00	707,091.00	2,725,719.00	3,432,810.00
19	Small Value Assets	100%	380,159.00	-	-	380,159.00	380,159.00	-	380,159.00	-	-	-
	<b>Total (A)</b>		<b>635,996,525.00</b>	<b>47,504,646.00</b>	-	<b>683,501,171.00</b>	<b>247,225,439.78</b>	<b>63,389,554.00</b>	<b>310,614,993.78</b>	<b>63,389,554.00</b>	<b>372,886,177.00</b>	<b>388,771,085.00</b>
20	Capital Work in Progress - Building		10,363,162.00	-10,363,162.00	-	-	-	-	-	-	-	10,363,162.00
21	Capital Work in Progress - Electrical		13,444,868.00	-13,444,868.00	-	-	-	-	-	-	-	13,444,868.00
22	Pre Construction Expenses (New Campus)		-	3,866,000.00	-	3,866,000.00	-	-	-	-	3,866,000.00	-
	<b>Total (B)</b>		<b>23,808,030.00</b>	<b>-19,942,030.00</b>	-	<b>3,866,000.00</b>	-	-	-	-	<b>3,866,000.00</b>	<b>23,808,030.00</b>
23	Computer Software	40%	5,247,447.00	-	-	5,247,447.00	4,477,362.00	770,084.00	5,247,446.00	770,084.00	1.00	770,085.00
24	E Journals	40%	24,712,543.00	-	-	24,712,543.00	23,185,916.00	5,407,586.00	28,593,502.00	5,407,586.00	-3,880,959.00	1,526,627.00
	<b>Total (C)</b>		<b>29,959,990.00</b>	-	-	<b>29,959,990.00</b>	<b>27,663,278.00</b>	<b>6,177,670.00</b>	<b>33,840,948.00</b>	<b>6,177,670.00</b>	<b>-3,880,958.00</b>	<b>2,296,712.00</b>
	<b>Total (A+B+C)</b>		<b>689,764,545.00</b>	<b>27,562,616.00</b>	-	<b>717,327,161.00</b>	<b>274,888,717.78</b>	<b>69,567,224.00</b>	<b>344,455,941.78</b>	<b>69,567,224.00</b>	<b>372,871,219.00</b>	<b>414,875,827.00</b>

Amount in Rupees

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-4B: NON PLAN

Sl No	Asset Heads	Rate %	GROSS BLOCK			DEPRECIATION			NET BLOCK		
			Op Balance 01.04.2022	Additions	Deductions	Cl. Balance 31.03.2023	Op Balance 01.04.2022	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2023	As On 31.03.2023
1	Land										
2	Site Development										
3	Buildings										
4	Roads and Bridges										
5	Tubewells and Water Supply										
6	Sewerage and Drainage										
7	Electrical Installation and Equip.										
8	Plant and Machinery										
9	Scientific and Laboratory Equip.										
10	Office Equipment										
11	Audio Visual Equipment										
12	Computer and Peripherals										
13	Furniture Fixture and Fittings										
14	Vehicles										
15	Library Books & Scientific Journals										
16	Small Value Assets										
	<b>Total (A)</b>										
17	Capital Work in Progress										
	<b>Total (B)</b>										
18	Computer Software										
19	E. Journals										
20	Patents										
	<b>Total (C)</b>										
	<b>Total (A+B+C)</b>										

Amount in Rupees

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-4C: INTANGIBLE ASSETS

Sl No	Asset Heads	Rate %	GROSS BLOCK			DEPRECIATION				NET BLOCK		
			Op Balance 01.04.2022	Additions	Deductions	Cl. Balance 31.03.2023	Op Balance 01.04.2022	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2023	As On 31.03.2023	As On 31.03.2022
1	Patents & Copyrights		-									
2	Computer Software	40%	5,247,447.00	-		5,247,447.00	4,477,362.00	770,084.00				937,317.60
3	E. Journals	40%	24,712,543.00	-		24,712,543.00	23,185,916.00	5,407,586.00				1,761,492.69
	Total (A)	40%	29,959,990.00	-		29,959,990.00	27,663,278.00	6,177,670.00	-	33,840,948.00	-3,880,958.00	2,698,810.29

### Schedule-4C (i): PATENTS AND COPYRIGHTS

Sl No	Particulars	Op Balance 01.04.2022	Additions	Gross	Amortization	Net Block 01.04.2023	Net Block 01.04.2022
<b>A</b>	<b>Patents Granted</b>						
1	Balance as on 31.03.2023 of patents obtained in (Original value Rs.....)						
2	Balance as on 31.03.2023 of patents obtained in (Original value Rs.....)						
3	Balance as on 31.03.2023 of patents obtained in (Original value Rs.....)						
4	Patents granted during the Current Year						
	<b>Total (A)</b>						

Sl No	Particulars	Op Balance 01.04.2022	Additions	Gross	Amortization	Net Block 01.04.2023	Net Block 01.04.2022
<b>B</b>	<b>Patents pending in respect of Patents applied for</b>						
1	Expenditure incurred during						
2	Expenditure incurred during						
3	Expenditure incurred during						
	<b>Total (A)</b>						
	<b>Grand Total (A+B)</b>						

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-4D : NON PLAN

Sl No	Asset Heads	Rate %	GROSS BLOCK			DEPRECIATION			NET BLOCK		
			Op Balance 01.04.2022	Additions	Deductions	Cl. Balance 31.03.2023	Op Balance 01.04.2022	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2023	As On 31.03.2023
1	Land										
2	Site Development										
3	Buildings										
4	Roads and Bridges										
5	Tubewells and Water Supply										
6	Sewerage and Drainage										
7	Electrical Installation and Equip.										
8	Plant and Machinery										
9	Scientific and Laboratory Equip.										
10	Office Equipment										
11	Audio Visual Equipment										
12	Computer and Peripherals										
13	Furniture Fixture and Fittings										
14	Vehicles										
15	Library Books & Scientific Journals										
16	Small Value Assets										
	<b>Total (A)</b>										
17	Capital Work in Progress										
	<b>Total (B)</b>										

Amount in Rupees



# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-5: INVESTMENTS FROM EARMARKED ENDOWMENT FUNDS

Amount in Rupees

		Current Year	Previous Year
		31.03.2023	31.03.2022
1	In Central Government Securities		
2	In State Government Securities		
4	Other Approved Securities		
3	Shares		
4	Debenture and Bonds		
5	Term Deposit with Banks		
6	Others (to be Specify)		
<b>Total (A+B+C+D)</b>		-	-

### Schedule-5A: INVESTMENTS FROM EARMARKED ENDOWMENT FUNDS (FUND WISE)

		Current Year	Previous Year
		31.03.2023	31.03.2022
1			
2			
3			
4			
5			
	Endowment Fund Investments		
	<b>Total</b>	-	-

### Schedule-6: INVESTMENTS-OTHERS

		Current Year	Previous Year
		31.03.2023	31.03.2022
1	In Central Government Securities		
2	In State Government Securities		
4	Other Approved Securities		
3	Shares		
4	Debenture and Bonds		
5	Term Deposit with Banks		
6	Others (to be Specify)		
	<b>Total</b>	-	-

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-7: CURRENT ASSETS

Amount in Rupees

		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>1</b>	<b>Stock</b>		
a)	Stores and Spares	-	-
b)	Loose Tools	-	-
c)	Publications	-	-
d)	Laboratory Chemicals, Comumables and glassware	-	-
e)	Building Materials	564,813.00	1,374,288.00
f)	Electrical Material	-	-
g)	Stationery	-	-
h)	Water supply Material	-	-
<b>2</b>	<b>Sundry Debtor</b>		
a)	Debts outstanding for a period of six months	-	-
b)	Others	-184,305.00	218,754.00
<b>3</b>	<b>Cash and Bank Balances</b>		
a)	With Scheduled Banks		
	- In current account	8,363,129.00	5,689,760.00
	- In term deposit account	97,382,622.00	62,463,082.00
	- In savings account	21,408,585.00	28,944,592.00
	- Grant in Transit	-	-
b)	With Non-Scheduled Banks		
	- In term deposit account	-	-
	- In savings account	-	-
c)	Cash in hand	50,000.00	53,000.00
<b>4</b>	<b>Post Office Savings Account</b>	-	-
	<b>Total</b>	<b>127,584,844.00</b>	<b>98,743,476.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Annexure-A

		Amount in Rupees	
		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>I)</b>	<b>Saving Account</b>		
1	Grants from MHRD A/c	-	-
2	University receipts A/c	15,175,830.00	12,732,106.00
3	Scholarship A/c		
4	Academic Fee Receipt A/c	3,643,055.00	8,568,373.00
5	Development (Plan) A/c		
6	Combined Entrance Exams (CBT) A/c		
7	UGC Plan fellowship A/c		
8	Corpus Fund A/c (EMF)		
9	Sponsored Projects Fund A/c	24,277.00	3,385,614.00
10	Sponsored Fellowship A/c		
11	Endowment & Chair A/c (EMF)		
12	UGC JRF Fellowship A/c (EMF)		
13	HBA Fund A/c (EMF)		
14	Conveyance A/c (EMF)		
15	UGC Rajiv Gandhi National Fellowship A/C (EMF)		
16	Academic Development Fund A/c (EMF)		
17	Deposit A/c (Designated fund)		
18	Student Fund A/c	2,565,423.00	4,258,499.00
19	Student Aid Fund A/c		
20	CPF Account	-	-
<b>II)</b>	<b>Current Account</b>	8,363,129.00	5,689,760.00
<b>III)</b>	<b>Term Deposit with Schedule Banks</b>	97,382,622.00	62,463,082.00
		<b>127,154,336.00</b>	<b>97,097,434.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-8 : LOANS,ADVANCES AND DEPOSITS

Amount in Rupees

		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>1</b>	<b>Advances to Employees (Non Interest Bearing)</b>		
a)	Salary		
b)	Festival		
c)	Medical Advance		
d)	Leave Travel Concession	-	-
e)	Others (Specify)	320,400.00	131,433.00
<b>2</b>	<b>Long Term Advances to Employees (Interest Bearing)</b>		
a)	Vehicle Loan		
b)	Home Loan		
c)	Others (Specify)		
<b>3</b>	<b>Advances and other amounts recoverable in cash or In kind or for value to be received</b>		
a)	On Capital Account - CPWD	91,908.00	562,954.00
b)	To Suppliers	10,000.00	10,000.00
c)	NIT Calicut	118,150.00	118,150.00
c)	Tax Deducted at Sources	144,793.00	275,296.00
d)	CDAC	-	-
e)	Uncleared Cheques	6,781.00	6,781.00
<b>4</b>	<b>Prepaid Expenses</b>		
a)	Insurance		
b)	Other Expenses ( Annual Maintenance Charge)	-	-
<b>5</b>	<b>Deposits</b>		
a)	Telephone		
b)	Lease Rent		
c)	Electricity		
d)	AICTE, if applicable		
f)	Others (Specify)		
<b>6</b>	<b>Income Accrued</b>		
a)	On investments from Earmarked/ Endowment fund		
b)	On Investments-Others	2,927,639.00	3,009,866.00
c)	On Loans and Advances		
d)	Others (Includes income due unrealized)		
<b>7</b>	<b>Other-Current assets receivable from UGC /sponsored projects</b>		
a)	Debit balances in sponsored Projects		
b)	Debit balances in sponsored Fellowship and Scholarship		
c)	Grants receivable		
d)	Other receivable froms from UGC		
<b>8</b>	<b>Claims Receivables</b>		
	<b>Total</b>	<b>3,619,671.00</b>	<b>4,114,480.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-9: ACADEMIC RECEIPTS

		Amount in Rupees	
		Current Year	Previous Year
		31.03.2023	31.03.2022
<b>Fees From Students</b>			
<b>A) Academics</b>			
1	Tuition Fee	23,555,937.00	22,124,852.00
2	Admission Fee	126,710.00	227,250.00
3	Enrolment Fee	-	-
4	Library Fee	1,298,560.00	1,149,000.00
5	Laboratory Fee	785,730.00	266,400.00
6	Art & Craft Fee	-	-
7	Registration Fee	534,446.00	337,350.00
	<b>Total (A)</b>	<b>26,301,383.00</b>	<b>24,104,852.00</b>
<b>B) Examination</b>			
1	Admission Fee	-	-
2	Annual Examination Fee	1,010,110.00	749,500.00
3	Marksheet, Certificate Fee	13,850.00	-
	<b>Total (B)</b>	<b>1,023,960.00</b>	<b>749,500.00</b>
<b>C) Other Fees</b>			
1	Identity Card Fee	-	86,450.00
2	Fines/ Miscellaneous fees	482,034.00	172,778.00
3	Medical Fee	814,880.00	825,300.00
4	Training & Placement Fees	418,830.00	115,200.00
5	Hostel Fee	10,144,250.00	1,430,250.00
6	Bus Fees	679,140.00	-
7	Hostel Admission Fee	68,500.00	-
	<b>Total (C)</b>	<b>12,607,634.00</b>	<b>2,629,978.00</b>
<b>D Other Fees</b>			
1	Sale of Publication	-	-
2	Sale of Admission Form	-	-
3	Sale of syllabous, Question paper,etc	-	-
4	Sale of prospectus including admission form	-	-
	<b>Total (D)</b>	-	-
<b>E Other Academic Receipts</b>			
1	Verification Fees	127,257.00	-
2	Grade Card Fee	171,900.00	-
3	Developemnt Fee	1,677,470.00	1,262,950.00
4	Mess Establishment Fee	719,409.00	126,750.00
5	Student Activity Fee	1,243,670.00	1,222,100.00
6	Convocation	202,650.00	235,000.00
7	Insurance Charges	465,450.00	-
8	Internet Fee	394,180.00	-
9	Others	386,690.00	428,950.00
	<b>Total (E)</b>	<b>5,388,676.00</b>	<b>3,275,750.00</b>
	<b>Total (A to E)</b>	<b>45,321,653.00</b>	<b>30,760,080.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-10 : GRANTS/ SUBSIDIES (IRRECOVERABLE GRANT RECEIVED)

Amount in Rupees

Particulars	PLAN				Total Plan	Non Plan UGC	Current Year	Previous Year
	Govt. of India	UGC		Specific Schemes				
		Plan						
<b>Balance B/f</b>	-	-	-	-	-	-	-	-
Add: Receipts during the year	261,700,000.00	-	-	-	261,700,000.00	261,700,000.00	179,992,000.00	179,992,000.00
Total	261,700,000.00	-	-	-	261,700,000.00	261,700,000.00	179,992,000.00	179,992,000.00
Less: Refund to MOE	32,941,776.00				32,941,776.00	32,941,776.00	14,202,117.00	14,202,117.00
Balance	228,758,224.00	-	-	-	228,758,224.00	228,758,224.00	165,789,883.00	165,789,883.00
Less: Utilized for Capital								
<b>Expenditure (A)</b>	<b>27,562,616.00</b>				<b>27,562,616.00</b>	<b>27,562,616.00</b>	<b>77,561,840.00</b>	<b>77,561,840.00</b>
Balance	201,195,608.00	-	-	-	201,195,608.00	201,195,608.00	88,228,043.00	88,228,043.00
Less: Utilized for Revenue								
<b>Expenditure (B)</b>	<b>201,195,608.00</b>				<b>201,195,608.00</b>	<b>201,195,608.00</b>	<b>88,228,043.00</b>	<b>88,228,043.00</b>
<b>Balance C/f (C)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-11: INCOME FROM INVESTMENTS

Amount in Rupees

Particulars	Earmarked/Endowment Fund		Other Investments	
	Current Year	Previous Year	Current Year	Previous Year
<b>1. Interest</b>				
a) Government Securities				
b) Other Bonds / Debentures				
<b>2. Interest on Term Deposits</b>	-		<b>464,726.00</b>	<b>1,628,042.00</b>
<b>3. Income accrued but not due on Term Deposits/ interest bearing advance to employees</b>			2,482,404.00	2,653,317.00
4. Interest on Savings Bank Accounts	-		-	-
5. Others (Specify)			-	-
	-	-	2,947,130.00	4,281,359.00
Transferred to Earmarked/ Endowment Fund				
<b>Balance</b>			<b>2,947,130.00</b>	<b>4,281,359.00</b>

### Schedule-12: INTEREST EARNED

Amount in Rupees

Particulars	Current Year	Previous Year
1. On Savings Account with schedule bank	306,250.00	416,035.00
2. On Loans		
a) Employees / Staff	-	-
b) Others	-	-
3. Other Debtors and Other Receivables	-	-
<b>Balance</b>	<b>306,250.00</b>	<b>416,035.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-13: OTHER INCOME

Amount in Rupees

Particulars	Current Year	Previous Year
<b>A Income from Land and Building</b>		
1 Hostel Room Rent	-	-
2 License Fee	66,590.00	62,525.00
3 Hire Charges of Auditorium/ playground /convention centre etc.	-	-
4 Electricity Charges recovered	266,160.00	179,116.00
5 Water Charges recovered	-	-
<b>Total (A)</b>	<b>332,750.00</b>	<b>241,641.00</b>
<b>B Sale of Institute's publications</b>	-	-
<b>Total (B)</b>		
<b>C Income from Holding Events</b>	-	-
1 Gross receipts from annual function/ sports carnival Less: direct expenditure incurred on the annual function /sports carnival	-	-
2 Gross receipts from fetes Less: Direct expenditure incurred on the fetes	-	-
3 Gross receipts for Educational Tour Less: Direct expenditure incurred on the tours	-	-
4 Others. (Students contribution)	-	-
<b>Total (C)</b>	-	-
<b>D Others</b>		
1 Income from Consultancy	516,933.00	83,755.00
2 RTI Fees	-	-
3 Income from Royalty	-	-
4 Sale of application form (Recruitment)	8,000.00	955,000.00
5 Misc. Receipts (Sale of tender form, waster paper, etc)	35,294.00	152,182.00
6 Profit on sale/ disposal of Assets a) Owned Assets b) Assets received free of cost	-	-
7 Grants/ Donations from institutions, welfare bodies and International organizations.	-	-
8 Recovery of Salary	7,000.00	44,054.00
9 PHD Enrollment Fees	129,300.00	187,076.00
10 Tender Fees	-	-
11 Transportation Charges recovered	-	-
12 Fines & Penalties	42,806.00	-
13 Other Income	-	-
14 Sale of Scrap	4,337.00	16,658.00
15 Overheads from Project	381,381.00	348,601.00
<b>Total (D)</b>	<b>1,125,051.00</b>	<b>1,787,326.00</b>
<b>Grand Total (A to D)</b>	<b>1,457,801.00</b>	<b>2,028,967.00</b>



# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-14 ; PRIOR PERIOD INCOME

Amount in Rupees

Particulars		Current Year	Previous Year
1	Academic Receipts	188,622.00	-
2	Income from Investments	-	-
3	Interest Earned	-	-
4	Other Income	599,546.00	-
5	Reversal of Cheques	-	-
6	Recovery of HRA	-	-
<b>Total</b>		<b>788,168.00</b>	<b>-</b>

### Schedule-15: STAFF PAYMENTS AND BENEFITS (ESTABLISHMENT EXPENSES)

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Salaries and Wages	74,683,392.00		74,683,392.00	80,150,609.00		80,150,609.00
b) Allowances and Bonus	25,660,400.00		25,660,400.00	9,888,939.00		9,888,939.00
c) Contribution to Provident Fund	-		-	-		-
d) Contribution to other fund (NPS)	9,313,210.00		9,313,210.00	6,474,384.00		6,474,384.00
e) EL Encashment	682,832.00		682,832.00	-		-
f) Retirement and terminal benefits	9,969,020.00		9,969,020.00	2,470,773.00		2,470,773.00
g) LTC Facility	1,105,462.00		1,105,462.00	529,946.00		529,946.00
h) Medical Facility	838,907.00		838,907.00	595,640.00		595,640.00
i) Children Education Allowance	543,857.00		543,857.00	459,000.00		459,000.00
j) Honarium	204,700.00		204,700.00	30,426.00		30,426.00
k) Transport Allowance	2,777,511.00		2,777,511.00	540,861.00		540,861.00
l) Arrear	868,715.00		868,715.00	410,532.00		410,532.00
m) CPDA to Faculties	135,549.00		135,549.00	55,754.00		55,754.00
<b>Total</b>	<b>126,783,555.00</b>		<b>126,783,555.00</b>	<b>101,606,864.00</b>		<b>101,606,864.00</b>

### Schedule-15A: EMPLOYEES RETIREMENT AND TERMINAL BENEFITS

Amount in Rupees

Particulars	Pension	Gratuity	Leave Eacashment	Total
Opening Balance as on 01.04.2022				-
Add: Captilized value of contributions received from other Organizations				
Total (A)				
Less: Payments made during the year				-
Balance available as on 31.03.2023				-
Provisions required on 31.03.2023 as per actual valuation				-
A. Provision to be made in the current year	-	4,887,288.00	4,020,170.00	8,907,458.00
B Contribution to New Pension Scheme	8,510,688.00			8,510,688.00
C Medical reimbursement to retired employees				-
D Travel to hometown retirement				-
E Deposit Link Insurance payment				-
<b>Total (A+B+C+D+E)</b>	<b>8,510,688.00</b>	<b>4,887,288.00</b>	<b>4,020,170.00</b>	<b>17,418,146.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-16: ACADEMIC EXPENSES

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Laboratory Expenses	116,989.00		116,989.00	22,048.00		55,971.00
b) Curriculum Development Workshop Expenses	49,644.00		49,644.00	-		53,941.00
c) Expenses on Seminars/ Workshops	75,899.00		75,899.00	-		-
d) Payment to visiting faculty	-		-	-		-
e) Examination	298,000.00		298,000.00	-		-
f) Student Medical Insurance	658,185.00		658,185.00	883,285.00		891,684.00
g) Admission Expenses	-		-	-		-
h) Convocation Expenses	1,141,280.00		1,141,280.00	373,606.00		212,400.00
i) Publications	-		-	-		-
j) Stipend/means-cum merit scholarship / PHD Scholarship	12,750.00		12,750.00	125,000.00		-
k) Mixed Signal & RF Circuit Design Project	-		-	-		-
l) Student hostel fees refund	-		-	-		-
m) Academic Expenses	156,409.00		156,409.00	366,103.00		208,181.00
n) Sporting Activities	-		-	-		-
o) M.Tech / PHD Fellowship	16,850,474.00		16,850,474.00	15,726,760.00		3,964,480.00
p) Library Expenses	-		-	-		-
q) Cultural Activities	2,372,351.00		2,372,351.00	280,378.00		220,754.00
r) Registration Charges	76,682.00		76,682.00	11,800.00		-
s) Training & Placement	229,730.00		229,730.00	16,516.00		20,710.00
t) PHD Scholar Contingency Expenses	-		-	-		-
u) Other Miscellaneous Academic Expenses	262,103.00		262,103.00	-		-
<b>Total</b>	<b>22,300,496.00</b>		<b>22,300,496.00</b>	<b>17,805,496.00</b>		<b>17,805,496.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-17: ADMINISTRATIVE AND GENERAL EXPENSES

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
<b>A) Infrastructure</b>						-
a) Electricity and power	1,534,590.00		1,534,590.00	504,980.00		504,980.00
b) Water charges	3,840.00		3,840.00	19,560.00		19,560.00
c) Insurance	-		-	-		-
d) Rent, rates and taxes (including property tax)	3,589,296.00		3,589,296.00	3,044,367.00		3,044,367.00
<b>B) Communication</b>	-		-	-		-
e) Postage and stationery	-		-	-		-
f) Telephone , fax and Internet charges	2,888,387.00		2,888,387.00	3,034,496.00		3,034,496.00
<b>C) Others</b>	-		-	-		-
g) Printing and Stationery (Consumption)	833,658.00		833,658.00	758,465.00		758,465.00
h) Travelling and Conveyance Expenses	2,604,642.00		2,604,642.00	-		-
i) Hospitality	388,651.00		388,651.00	191,725.00		191,725.00
j) Auditors Remuneration	405,240.00		405,240.00	461,072.00		461,072.00
k) Annual Maintenance Charges	537,055.00		537,055.00	617,375.00		617,375.00
l) Advertisement and Publicity	-		-	-		-
m) BWC Meeting	110,631.00		110,631.00	151,940.00		151,940.00
n) Office Expenses	11,464,825.00		11,464,825.00	17,713,614.00		17,713,614.00
o) Honorarium to Outside Experts	2,007,123.00		2,007,123.00	1,022,671.00		1,022,671.00
p) Campus Maintenance and House keeping	19,965,424.00		19,965,424.00	12,095,183.00		12,095,183.00
q) Gardening & Landscape	-		-	-		-
r) Security Services and Others	2,511,144.00		2,511,144.00	2,429,364.00		2,429,364.00
s) Community Development	-		-	-		-
t) Medical Centre Expenses	1,285,526.00		1,285,526.00	683,849.00		683,849.00
u) Computer Centre Expenses	-		-	-		-
v) Recuritment Expenses	2,591,838.00		2,591,838.00	2,720,023.00		2,720,023.00
w) BOG & FC Meeting	1,034,663.00		1,034,663.00	571,783.00		571,783.00
x) Miscellaneous Expenses	87,699.00		87,699.00	115,889.00		115,889.00
<b>Total</b>	<b>53,844,232.00</b>		<b>53,844,232.00</b>	<b>46,136,356.00</b>		<b>46,136,356.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-18: TRANSPORTATION EXPENSES

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
<b>1 Vehicles (Owned by Institutions)</b>						
a) Running Expenses	1,425,487.00		1,425,487.00	890,403.00		890,403.00
b) Insurance Expenses	158,645.00		158,645.00	163,762.00		163,762.00
<b>2 Vehicles taken on rent/ lease</b>			-			-
a) Rent/lease expenses	-		-	-		-
<b>3 Vehicle (taxi) hiring expenses</b>			-			-
<b>Total</b>	<b>1,584,132.00</b>		<b>1,584,132.00</b>	<b>1,054,165.00</b>		<b>1,054,165.00</b>

### Schedule-19: REPAIRS AND MAINTAINENCE

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Buildings	5,352,528.00		5,352,528.00	11,676,972.00		11,676,972.00
b) Furniture and Fixtures	476,408.00		476,408.00	298,250.00		298,250.00
c) Plant and Machinery			-			-
d) Office / Mess Equipments	181,906.00		181,906.00	141,336.00		141,336.00
e) Network/Internet	19,470.00		19,470.00	44,840.00		44,840.00
f) Construction and Maintanance of Campus	-		-	-		-
g) Audio visual equipments	-		-	-		-
h) Cleaning materials and services	-		-	-		-
i) Book binding charges	-		-	-		-
j) Gardening	-		-	-		-
k) Estate Maintainence	-		-	-		-
l) Software Maintenance / Support	503,651.00		503,651.00	-		-
m) Road & Connection repairs	-		-	-		-
n) Electrical Maintenance	343,778.00		343,778.00	1,336,307.00		1,336,307.00
o) Vehicle Maintenance	409,891.00		409,891.00	428,221.00		428,221.00
<b>Total</b>	<b>7,287,632.00</b>		<b>7,287,632.00</b>	<b>13,925,926.00</b>		<b>13,925,926.00</b>

### Schedule-20: FINANCE COSTS

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Bank Charges	62,788.00		62,788.00	19,855.00		19,855.00
b) Others (specify)	-		-	-		-
<b>Total</b>	<b>62,788.00</b>		<b>62,788.00</b>	<b>19,855.00</b>		<b>19,855.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF BALANCE SHEET

### Schedule-21: OTHER EXPENSES

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Provision for Bad and Doubtful Debts/Adv.						-
b) Irrecoverable balances written off.						-
c) Grants/Subsidies to other institutions organisations						-
d) Others (specify)				-		-
<b>Total</b>				-		-

### Schedule-22: PRIOR PERIOD EXPENSES

Amount in Rupees

Particulars	CURRENT YEAR			PREVIOUS YEAR		
	Plan	Non Plan	Total	Plan	Non Plan	Total
1 Establishment Expenses	-		-	-		-
2 Academic Expenses			-			-
3 Administrative Expenses			-			-
4 Caution Deposit			-			-
5 Repairs and Maintenance	-		-	-		-
6 Other Expenses	9,106,000.00		9,106,000.00	194,107.00		194,107.00
7 Reversal of Cheques	-		-	-		-
<b>Total</b>	<b>9,106,000.00</b>		<b>9,106,000.00</b>	<b>194,107.00</b>		<b>194,107.00</b>

# NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

## SCHEDULES FORMING PART OF FINANCIAL STATEMENTS

### SCHEDULE 23

#### SIGNIFICANT ACCOUNTING POLICIES

1. The accounts are prepared under Historical Cost Convention unless otherwise stated and generally on the accrual method of accounting.

#### 2. REVENUE RECOGNITION

2.1 Fees from students (Except tuition fee and hostel fee), sales of admission forms, royalty and interest on savings bank account are accounted for on cash basis. Tuition fees and hostel fees collected separately for each semester is accounted for on accrual basis and tuition fees and hostel fee received in advance as on 31<sup>st</sup> march 2022 has been shown under the head advances as a liability.

2.2 Interest on interest bearing advances to staff for House Building, Purchase of vehicles and computers is accounted on accrual basis every year, though the actual recovery of interest starts after the full repayment of principle.

#### 3. FIXED ASSETS AND DEPRECIATION.

3.1 Fixed assets are stated at cost of acquisition including inward freight, duties and taxes and incidental and direct expenses related to acquisition, installation and commissioning.

3.2 Gifts / donated assets are valued at the declared value where available; if not available, the value is estimated based on the present market value adjusted with reference to the physical condition of the assets. They are set up by credit to Capital Fund and merged with the Fixed Asset on the Institution. Depreciation is charged as rates applicable to the respective assets.

3.3 Fixed Assets are valued at cost less accumulated depreciation. Depreciation on fixed assets is provided on Straight line method at the following rates:-

Sl. No	TANGIBLE ASSETS	RATE
1	Land	0%
2	Site Development	0%
3	Buildings	2%
4	Roads and Bridges	2%
5	Tube wells and Water supply	2%
6	Sewerage and Drainage	2%
7	Electrical Installation and Equip.	5%
8	Plant and Machinery	5%
9	Scientific and Laboratory Equip.	8%
10	Office Equipment	7.5%
11	Audio Visual Equipment	7.5%
12	Computer and Peripherals	20%
13	Furniture Fixture and Fittings	7.5%
14	Sports Equipment's	10%
15	Library Books & Scientific Journals	10%

Sl. No	INTANGIBLE ASSETS (AMORTIZATION)	RATE
1	E. Journals	40%
2	Computer Software	40%
3	Patents	9 years

- 3.4 Depreciation is provided for the whole year on additions during the year.
- 3.5 Where an assets is fully depreciated, it will be carried at a residual value of Re 1 in the Balance Sheet and will not be further depreciated. Thereafter depreciation is calculated on the additions of each year separately at the rate of depreciation applicable for the asset head.
- 3.6 Assets created out of Earmarked fund and funds Sponsored Projects, where the ownership of such assets vests in the Institutions are setup by credit to Capital Fund and merged with Fixed Assets of the Institutions. Depreciation is charged at the rates applicable to the respective rates. Assets created out of sponsored project funds where the ownership is retained by the sponsors but held and used by the Institution are separately disclosed in the Notes on Accounts.
- 3.7 Assets, the individual vale of each of which is Rs 2,000.00 or less (except Library Books) are treated as Small Value Assets, 100% depreciation is provided in respect of such assets at the time of their acquisition. However, the holders of such assets continue physical accounting and control.

#### **4. INTANGIBLE ASSETS:-**

- 4.1 Patents and copyrights, E Journals and Computer Software are grouped under Intangible Assets.
- 4.2 Electronic Journals (E-Journals) are separated from Library Books in view of the limited benefit that could be derived from the provided. E-journals are not in a tangible form, but temporarily capitalized and in view of the magnitude of expenditure and the benefit derived in terms of perpetual knowledge acquired by the Academic and Research Staff; Depreciation is provided in respect of E-journals at a higher rate of 40% as against depreciation of 10% provided in respect of Library Books.
- 4.3 Expenditure on acquisition of software has been separated from computers and peripherals, as apart from being intangible of obsolescence in respect of these is very high. Depreciation is provided in respect of software at a higher rate of 40% as against depreciation of 20% provided in respect of Computers & Peripherals.

#### **5. STOCKS:**

Expenditure on purchase of chemicals, glassware, publications and other stores is accounted as revenue expenditure. The stocks for civil and hardware materials for minor construction and repairs and maintenance are maintained. The closing stock of such items as on 31<sup>st</sup> March 2023 is Rs. 5,64,813.00

#### **6. RETIREMENT BENEFITS**

Retirement benefits i.e., New Pension Scheme has been adopted by the Institute for all its regular employees. The director is on deputation from MNIT Jaipur, his retirement benefits are paid to MNIT Jaipur as, and when the MNIT Jaipur makes the demand.

#### **7. EARMARKED/ENDOWMENT FUNDS**

Funds received for specific purposes have been kept as Earmarked funds. The Receipt and Expenditure are accounted for on cash basis. The unspent balance is kept in the bank account.

##### **7.1 CORPUS/ CAPITAL FUND**

The Institute maintains a Capital Fund. The fund is made up of the value of grants utilized for the purpose of fixed assets during the year and the excess of income over expenditure as on 31<sup>st</sup> March.

The balance in the fund, which is carried forward, is represented by the balance in a separate Bank account, and Fixed Deposits with the Bank and Accrued interest on Fixed Deposits.

#### **8. ENDOWMENT FUNDS**

There is no endowment fund maintained by the Institute.

#### **9. GOVERNMENT AND UGC GRANTS**

- 9.1 Government Grants and UGC grants are accounted on realization basis. However, a sanction for release of grant pertaining to the financial year is received before 31<sup>st</sup> March and the grant is actually received in next financial year, the grant is accounted on Cash basis and recognised to the extent utilised during the year. The balance of unutilised grant in RBI account as on 31<sup>st</sup> March 2023 is lapsed and reverted to the ministry.
- 9.2 To the extent utilized towards capital expenditure, (on accrual basis) government grants and grants from UGC are transferred to the Capital Fund.

9.3 Government and UGC grants for meeting Revenue Expenditure (on accrual basis) are treated, to the extent utilized, as income of the year in which they are realized.

9.4 Unutilized grants (including advances paid out of such grants) are carried forward and exhibited as liability in the Balance Sheet.

## **10. INVESTMENTS OF EARMARKED FUNDS AND INTEREST INCOME ACCRUED**

To the extent not immediately required for expenditure, the amounts available against such funds are deposited for fixed term with Banks, leaving the balance in the Savings Bank Accounts

Interest received, interest accrued and due and interest accrued but not due on such funds are not treated as income of the Institution.

## **11. SPONSORED PROJECTS**

11.1 In respect of ongoing Sponsored Projects, the amounts received from sponsored are credited to the head "Current Liabilities and Provisions -Current Liabilities -Other Liabilities -Receipts against ongoing sponsored projects" As and when expenditure is incurred /advances are paid against such projects, or the concerned project is debited with allocated overhead charges, the liability account is debited.

11.2 In addition to the Earmarked Fund for the Junior Research Fellowships funded by University Grants Commission, Fellowships and Scholarships are also sponsored by various organizations. These are accounted in the same way as Sponsored Projects except that the expenditure generally is only on disbursement of Fellowship and Scholarships, which may include allowances for contingent expenditure by the Fellows and scholars.

11.3 The Institution itself also awards Fellowships and Scholarships, which are accounted as Academic expenses.

## **12. INCOME TAX**

The income of the Institution is exempt from Income Tax under Section 10(23c) (iiiab) of tax is therefore made in the accounts.



# NATIONAL INSTITUTE OF TECHNOLOGY-SIKKIM

## SCHEDULES FORMING PART OF FINANCIAL STATEMENTS

### SCHEDULE: 24

#### NOTES TO ACCOUNTS

1. The 'National Institute of Technology Sikkim' was formed by way of an Act passed by Parliament titled "The National Institutes of Technology Act 2009".

The Financial Statements has been prepared based on the 'format of financial statements for central higher educational institutions' as has been provided by the Ministry of Human Resource Development Department, Government of India.

#### 2. TAXATION:

The University is exempt from payment of income tax as per the provision of Section 10(23C)(iiiab) of the Income Tax Act, 1961.

#### 3. FIXED ASSETS:

- 3.1 Fixed assets are stated at cost of acquisition including inward freight, duties and taxes and incidental and direct expenses related to acquisition, installation and commissioning.
- 3.2 Capital Expenditure incurred on renovation and construction of new building and structures has been done on land provided by the State Government. The ownership of such land is with the State Government.
- 3.3 A High-Performance Computer setup and donated to the institute by CDAC Pune is on trial run and is being currently managed by engineers from CDAC. The asset shall be taken into the assets of the institute after the High-Performance Computer is handed over to the institute fully.
- 3.4 Under the project Technical Education Quality Improvement Programme (TEQIP) the institute has procured assets worth Rs. 9.99 crore. The asset shall be taken into the assets of the institute after the assets are handed over to the institute fully.
- 3.5 The value of Capital Assets is Rs. 37.73 Lakhs as on 31st March 2022 of which the ownership is yet to be transferred.
- 3.6 Works undertaken by CPWD electrical and Civil division appearing as CWIP in the Annual Accounts amounting to Rs 1.34 crore and 1.03 crore respectively have been capitalised in the current FY 2022-23 as the works pertain to old minor works executed by the CPWD. The works constitute minor works at the temporary campus of the Institute.
- 3.7 The Institute has been handed over 99.67 acres of land for construction of permanent campus. The handed over land is free from all encumbrances as provided by the Government of Sikkim. However minor issues associated with the establishment of the permanent campus remains such as diversion of road within the campus area, electric substation, widening of existing road, provision of water supply etc which is being actively addressed by the Institute through extensive discussions and representations at appropriate levels of the Central and State Government.

#### 4. DEPRECIATION:

- 4.1 Depreciation on fixed assets is provided on Straight line method at the following rates:-

Sl. No	TANGIBLE ASSETS	RATE
1	Land	0%
2	Site Development	0%
3	Buildings	2%
4	Roads and Bridges	2%
5	Tube wells and Water supply	2%
6	Sewerage and Drainage	2%
7	Electrical Installation and Equip.	5%
8	Plant and Machinery	5%

Sl. No	TANGIBLE ASSETS	RATE
9	Scientific and Laboratory Equip.	8%
10	Office Equipment	7.5%
11	Audio Visual Equipment	7.5%
12	Computer and Peripherals	20%
13	Furniture Fixture and Fittings	7.5%
14	Sports Equipment's	10%
15	Library Books & Scientific Journals	10%

Sl. No	INTANGIBLE ASSETS (AMORTIZATION)	RATE
1	E. Journals	40%
2	Computer Software	40%
3	Patents	9 years

3.8 Depreciation is provided for the whole year on additions during the year.

3.9 Assets, the individual vale of each of which is Rs 2,000.00 or less (except Library Books) are treated as Small Value Assets, 100% depreciation is provided in respect of such assets at the time of their acquisition.

3.10 The institute has fabricated Temporary Shed whose life expectancy is for three years since the institute is functioning from a temporary campus thus the assets has not been capitalised into additions of Buildings. Accordingly depreciation at rate 33% per annum is charged.

3.11 The institute has built a Prefab Hostel I & II whose life expectancy is for five years since the institute is functioning from a temporary campus thus the assets has not been capitalised into additions of Buildings. Accordingly depreciation at rate 20% per annum is charged.

## 5. RELATED PARTY DISCLOSURE

Name of the Transaction : Dr. Nidhi Govil

Nature of Transaction : Temporary Faculty Member – Honorarium

Amount : Rs. 6,75,000.00

## 6. CAPITAL COMMITMENT:

Estimated number of contracts remaining to be executed on capital account and not provided for is.

NIL.

## 7. CONTINGENT LIABILITY:

There is no contingent liability as on the date of Balance Sheet.

## 8. PROJECT ACCOUNTS:

The project accounts have been shown in the schedules to the Financial Statements and the balance as on 31st March 2023 of each project is taken into consideration under current liabilities.

## 9. CURRENT ASSETS, LOANS, ADVANCES AND DEPOSITS:

In the opinion of the Management, the current assets, Loans, Advances and Deposits have a value on realisation in the ordinary course, equal at least to the aggregate amount shown in the Balance Sheet.

10. Schedules I to 24 are annexed to and forms an integral part of the Balance Sheet at 31st March 2023 and the Income and Expenditure account for the year ended on that date.

## 10. RE-GROUPING:

Previous years' figures have been re-grouped and re-arranged wherever necessary.





राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम  
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