Annual Report 2019-20

राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
National Institute of Technology Sikkim

ANNUAL REPORT

2019-2020

National Institute of Technology Sikkim

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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.

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.

Message from the Director

> We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world
>
> *- David Warlick*

It is with much pleasure that I share with you the Annual Report of the financial year 2019-20. It contains glimpses of efforts and information about the Institute. This year the Institute has seen many academic activities in the departments, such as holding of workshops, conferences, training programmes etc.

It would be worth to mention that the Institute is fulfilling its responsibility to its best; specifically, it nurtures a large number of students those who come from adverse geographical and social backgrounds. The institute is constantly engaged in improving quality of academics and upgrading its academic programmes to the higher levels. Persistent efforts are also made towards making the campus-life comfortable and academically convenient, construction works of sheds for classrooms and laboratories, and relevant academic and administrative amenities are initiated and many of them are complete which has given us some space to fulfil the long pending demands of students of setting up of some of the most basic laboratories.

Being a public funded education and research Institution, the Institute is mandated to connect with all stakeholders at various levels, not only through the knowledgebase it creates

and nurture but also through the various specialized services it aspires to provide; human resources it enriches; and social challenges that it aspires to address. The government has stressed upon galvanizing this connection between the Institute and its stakeholders, the institute has responded proactively to make this happen at all possible level. The Institute has participated in various Societal initiatives of the government which aims to improve the connectivity with all stakeholders and helps in the dream of AatmaNirbhar Bharat.

The Institute has received research projects from various bodies of Govt. of India viz, DST, SMDP, DBT, ICSSR, etc. Number of eminent personalities from academia and industry from diverse disciplines have delivered lectures during the year of report, thereby enriching the knowledge ecosystem and it is my privilege to present a compilation of the significant academic, administrative and research activities of the Institute through the Annual Report for the year 2019-20.

To achieve the stated objectives, the curricular structure has been thoroughly revised, bringing in more scope of breadth of knowledge through open interdisciplinary electives and more scope of industry interactions through internships. The Institute aims to take more such novel initiatives to establish centres of excellence in the emerging fields of science and technology which would be first of their kind in the state of Sikkim. To realize these aspirations, I would seek the help of all concerns and strongly believe that with these collective efforts we shall be able to blossom and evolve into better technical Institute, an Institute which would be host of some of the finest academic and research initiatives of the country.

Jai Hind
Jai Bharat

(Prof. Mahesh Chandra Govil)

Introduction

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

During its inception, it 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 endeavor to win recognition by keeping alive the traditional unique 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 in complete apathy to the use of chemicals.

The splendor 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 owing to its identical cognitive development grounded on their rich cultural heritage. 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 the 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 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 endeavor 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 educational Institution catering to the needs of the 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 by an Act of the Parliament as a part of the 11th Five-year Plan 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 the status of an "Institution of National Importance" keeping in view of its role in developing human resources of highest skill and caliber in the field 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 MoE, the 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 of an extreme climate, poor transport, small space of the campus and many more to count; 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 balanced development of the nation; in this view 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 the other academic institutions across the state by being actively involved in social developmental activities. A remarkable feature of the institute is its endeavor to bestow a sense of societal responsibility and belongingness to the people associated with it. This has paved the way to a slew of 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 intake of thirty (30) students each. Presently 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. The postgraduate programs are offered in Computer Science & Engineering, Electrical Engineering, Microelectronics & VLSI Design 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 as they are empowered with an insight on inculcating a strong inclination towards co-curricular and extracurricular activities like technical, cultural, literary and sports events. Under the guidance of able leadership of staff and faculty member events like *Abhiyantran* – the annual technical event, *Udgam* – the annual cultural event and the annual sports have been organized. Such events abound in a plethora of talents by the young and energetic students at 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 the absolute necessity of the time.

As an institute of higher learning, along with imparting technical knowledge, the Institute instils moral values so that the graduating students become good citizens and good human beings benefitting the society and the nation. It is interesting to note 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 their intellect through a holistic development. Students at the institute have displayed such 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 cultural 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 of students. In the fast-changing world of technology and rapid modernization, it is but commendable to develop in students a judgment of living with and not without our rich biodiversity. Along with the learning programs offered, the Institute thus offers a platform to the students to recognize and protect nature, breaking the myth of technical institutes in not catering 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 snowcapped 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 South Sikkim district of the Indian state of Sikkim. It witnesses 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. The small town has been widely acclaimed for the construction of 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 Airport which is approximately one hundred and thirty-two (132) kms 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 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 to make use of. Overpowering such hurdles of limited resources and hardships of space and environment through strong determination and reformative measures to enhance its aura and growth, NIT Sikkim is definitely an inspiration.

NIT Sikkim has invested arduous efforts to renovate existing structures to 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 note 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 is a huge challenge before the Institute administration. The number 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 that even it would not be as per even 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 campus, at present, accommodates sixteen three-storied blocks, each with sixty two small room apartments, to taling to ninety-six apartments which are utilized as boys' hostels, girls' hostels, and faculty and staff apartments and as various departments and offices. The hostels are all equipped with geysers for providing warm water to the inmates.

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 Academic Building. Besides, the Training and Placement Cell of the Institute is also housed in the same Academic block. However, the Supercomputer center is now old and need up-gradation. The classrooms are now converted into smart classrooms and are equipped with room heaters and projectors.

The Administrative Building of the Institute is 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 Junior Engineer Civil and Electrical is now fully functional.

To cater to the number of enrolled students, two Prefabricated buildings were constructed as hostels and are being efficiently used as boarding for approximately three hundred forty students. However, due to the increase of student intake, NIT Sikkim fails to accommodate all the students within its campus and therefore, the Institute has hired several well-constructed and semi-furnished buildings in the Ravangla town and using them as hostels.

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 are 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 all-around rapid growth and to meet the desire of the Ministry to diversify the branches and departments of the Institute, these temporary arrangements are still inadequate. The temporary campus hinders the growth of the Institute. The establishment of the permanent campus for the Institute is the only viable solution to solve 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 aid in human-capital formation and steer our students to world leaders.

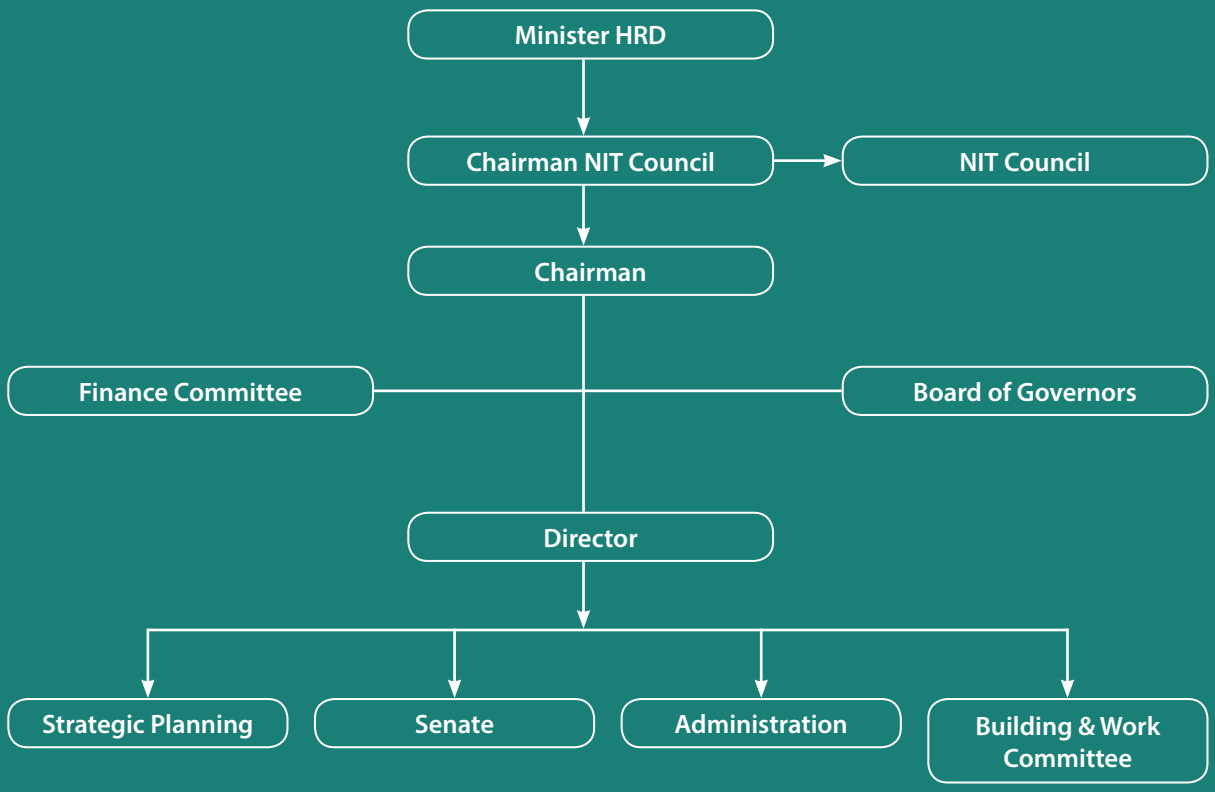
The Government of Sikkim has assured the allocation of 100 acres of land for the construction of permanent campus of NIT Sikkim at Dung Dung Block, Khamdong, East Sikkim. The Additional Chief Secretary of Government of Sikkim has given his consent through a letter of approval for acquisition of the land that was received on 12th December 2019 by the institute. The Institute awaits the physical attainment of the land so that the Institute can deliver more to the technical education and contribute to the development of the country with full caliber which the present temporary campus prohibits to undertake. However, strenuous efforts are made to provide adequate facilities to students to maintain the quality of learning.

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 but being a small town, it has limited amenities and health care facilities. The Institute is housed at 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 varied largely due to variation in altitude. Moreover, the remote location and inadequate infrastructure pose huge challenges to the management of the Institute through its temporary campus.

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. 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

Administrative Herarchy of NIT Sikkim



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.

The BoG and Other Committees

Board of Governors

Prof. Mahesh Chandra Govil
Director, NIT Sikkim
Ex-officio Member-cum Chairman (I/c)
Ravangla, South Sikkim 737139
Email: director@nitsikkim.ac.in
govilmc@gmail.com

Shri G. P. Upadhyaya, IAS
Member
Additional Chief Secretary
HRDD, Govt. of Sikkim
Email: gpupadhyaya@gmail.com

Shri Ugyen Chopel
Member
State nominee
Email: ugyenchopel@gmail.com

Prof. Chandan Mahanta
Member
Dean Student Affairs
IIT Guwahati, Assam
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Dr. Achintesh N. Biswas
Member
Assistant Professor
Department of Chemistry, NIT Sikkim
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Email: achintesh@nitsikkim.ac.in

Dr. Sangram Ray
Member
Assistant Professor
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Joint Secretary or his/her nominee,
Government of India, Department of Secondary & Higher Education,
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Email: nit.edu@nic.in

Joint Secretary & Financial Advisor
Department of Secondary & Higher Education, MHRD
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Email: jsfa.edu@gov.in

Dr. Md. Nurujjaman
Secretary
Registrar (I/c) & Secretary
NIT Sikkim
Ravangla, South Sikkim 737139
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 Ugyen Chopel
BOG nominee
Email: ugyenchopel@gmail.com

Dr. Achintesh Narayan Biswas
Assistant Professor, Department of Chemistry,
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Email: achintesh@nitsikkim.ac.in

Joint Secretary or his/her nominee Government of India, Department of Secondary & Higher Education, MHRD. Shastri Bhawan, New Delhi – 110 001
Email: nit.edu@nic.in

Joint Secretary and Financial Advisor
Department of Secondary and Higher Education, MHRD
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Email: jsfa.edu@gov.in

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

Building & Work 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), NABET
Email: manishjindal.hsbte@gmail.com

Shri Vikram Pant
Executive Engineer (Civil), CPWD
Gangtok Division
Email: ee_gcd01@yahoo.com

Shri Rodan Thapa
Chief Engineer, Energy & Power Department
Government of Sikkim, Expert in Electrical Engineering from State Government (nominated by BOG)
Email: rodanthapa@gmail.com

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

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

Members of the Senate

A	**Director**	
	Prof. Mahesh Chandra Govil Director, NIT Sikkim, Ex-officio Chairman	Chairman
B	**External Members**	
	Prof. Krishna Kumar Department of Physics, IIT KGP	Member
	Prof. Supriya Agarwal Department of English, Central University of Rajasthan	Member
	Prof. K. R. Niyazi Department of Electrical Engineering, MNIT Jaipur	Member
	Prof. Lalit Kumar Awasthi Director, NIT Jalandhar	Member
	Prof. Virendra Singh Department of Electrical Engineering, IIT Bombay	Member
C	**All HoDs & Deans, NIT Sikkim**	Member
D	**Dr. Md. Nurujjaman** Registrar (I/c), NIT Sikkim	Secretary

Registrar

Dr. Md. Nurujjaman

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

Deans & HoDs

Dean Academic	Dr. Ranjan Basak
Dean Administration	Dr. Achintesh Narayan Biswas
Dean Faculty Welfare	Dr. Achintesh Narayan Biswas
Dean Student Welfare	Dr. Sangram Ray
Dean Research & Consultancy	Dr. Anjan Kumar Ray
Dean Planning & Development	Dr. Aurobinda Panda
Associate Dean Academic	Dr. Anindya Biswas
Associate Dean Student Welfare	Dr. Surajit Kundu
HOD Computer Science and Engineering	Dr. Pratyay Kuila

HOD Electronics and Communication Engineering	Dr. Sanjay Kumar Jana
HOD Electrical and Electronics Engineering	Dr. Sourav Mallick
HOD Mechanical Engineering	Dr. Shambhunath Barman
HOD Civil Engineering	Dr. Anindya Biswas
HOD Mathematics	Dr. Om Prakash
HOD Physics	Dr. Anindya Biswas
HOD Chemistry	Dr. Taraknath Kundu
HOD Humanities and Social Sciences	Dr. Dhananjay Tripathi

Faculty-in-Charges (FICs)

Alumni Affairs & Resource Generation	Mr. Md. Sarfaraj Alam Ansari
Information and Communication Technology Infrastructure	Dr. Pratyay Kuila
Knowledge, Information and Learning Enablement	Dr. Ranjan Basak
Library	Dr. Anjan Kumar Ray
Controller In-charge Examination	Dr. Sourav Mallick
Landscaping, Gardening and Environmental Protection	Mr. Neelanjan Dutta
Publications and Web Information System	Dr. Dhananjay Tripathi
Chairperson Women Grievance Cell	Ms. Gopa Bhaumik
Games, Sports and Cultural Activities	Dr. Ravi Srivastava
Promotion of Indian Language & Culture	Dr. Dhananjay Tripathi
Training and Placement Activities	Dr. Dhananjay Tripathi
Health Care Services	Dr. Surajit Kundu
Chairperson Innovation Cell	Dr. Anjan Kumar Ray
SC/ST Cell Chairperson	Ms. Gopa Bhaumik
Store & Purchase Activities	Dr. Taraknath Kundu
Vehicle and Transport Management Activities	Dr. Sourav Mallick
Community Development and Awareness Program	Dr. Shambhunath Barman
Construction and Maintenance Activities	Mr. Debashish Roy
Power and Energy Conservation Initiative	Dr. Pradeep Kumar

Faculty and Staff Details

The Institute has highly qualified, dedicated and well-trained faculty of academic repute with proven capabilities. More than 90% of the faculty possess Ph.D./D.Phil degree in various disciplines. The institute is gradually becoming a premier center of technical learning in North-east region by attracting young minds from across the country. Student intake has increased considerably during the last few years and according to the existing norms laid down by the Ministry, NITs should maintain a student-faculty ratio of 12:1. As per the present student intake at NIT Sikkim (960 excluding the Ph.D. students), the total number of faculty members should be eighty (80). At present, only 38 faculty positions have been sanctioned by MoE and 26 faculty positions are filled leading to present student-faculty ratio that is 37:1.

In order to meet the minimum requirement of students - faculty ratio atleast 42 additional faculty positions are to be sanctioned by the Ministry of Education. Due to the general lack of facilities in the temporary campus, the Institute is facing problems in recruitment as well as retention of the faculty members. It is to note that several faculty members have already resigned due to poor facilities and other location specific disadvantages such as improper housing facility, lack of medical facility, schools, and other basic essential services. The recruitment of additional faculty members is envisaged to solve the problem of faculty shortage. Despite these unavoidable glitches the Institute has invested its efforts in imparting quality education and therefore, considering the growth of the Institute and further expansion into permanent settlement (that the Institute is highly hopeful to attain this year), sanction of additional faculty posts is highly desired. Several requests to sanction additional faculty positions have been sent to the Ministry of Education, Government of India, so that the Institute can function properly.

Cadre	Sanctioned Post as per four-tier flexible cadre norms	Imposition Faculty
Assistant Professor	22	27
Associate Professor	11	00
Professor	05	00
Total	**38**	**27**

List of Faculty Members

Sl. No.	Name	Department
1	Prof. Mahesh Chandra Govil, Director	Computer Science & Engineering
2	Dr. Sangram Ray	
3	Dr. Pratyay Kuila	
4	Mr. Md. Sarfaraj Alam Ansari	
5	Ms. Gopa Bhaumik	
6	Mr. Banavath Balaji Naik	
7	Mr. Tarun Biswas	
8	Mr. Pankaj Kumar Keserwani	
9	Dr. Sanjay Kumar Jana	Electronics & Communication Engineering
10	Dr. Hemant Kumar Kathania	
11	Dr. Surajit Kundu	
12	Ms. Reshmi Dhara	
13	Dr. Anjan Kumar Ray	Electrical & Electronics Engineering
14	Dr. Sourav Mallick	
15	Dr. Aurobinda Panda	
16	Dr. Pradeep Kumar	
17	Dr. Molay Roy	
18	Dr. Shambhunath Barman	Mechanical Engineering
19	Dr. Ranjan Basak	
20	Dr. Pranab Kumar Kundu	
21	Dr. Ravi Srivastava	Mathematics
22	Dr. Om Prakash	

Sl. No.	Name	Department
23	Dr. Md. Nurujjaman	Physics
24	Dr. Anindya Biswas	
25	Dr. Taraknath Kundu	Chemistry
26	Dr. Achintesh Narayan Biswas	
27	Dr. Sumit Saha	
28	Dr. Dhananjay Tripathi	Humanities & Social Sciences

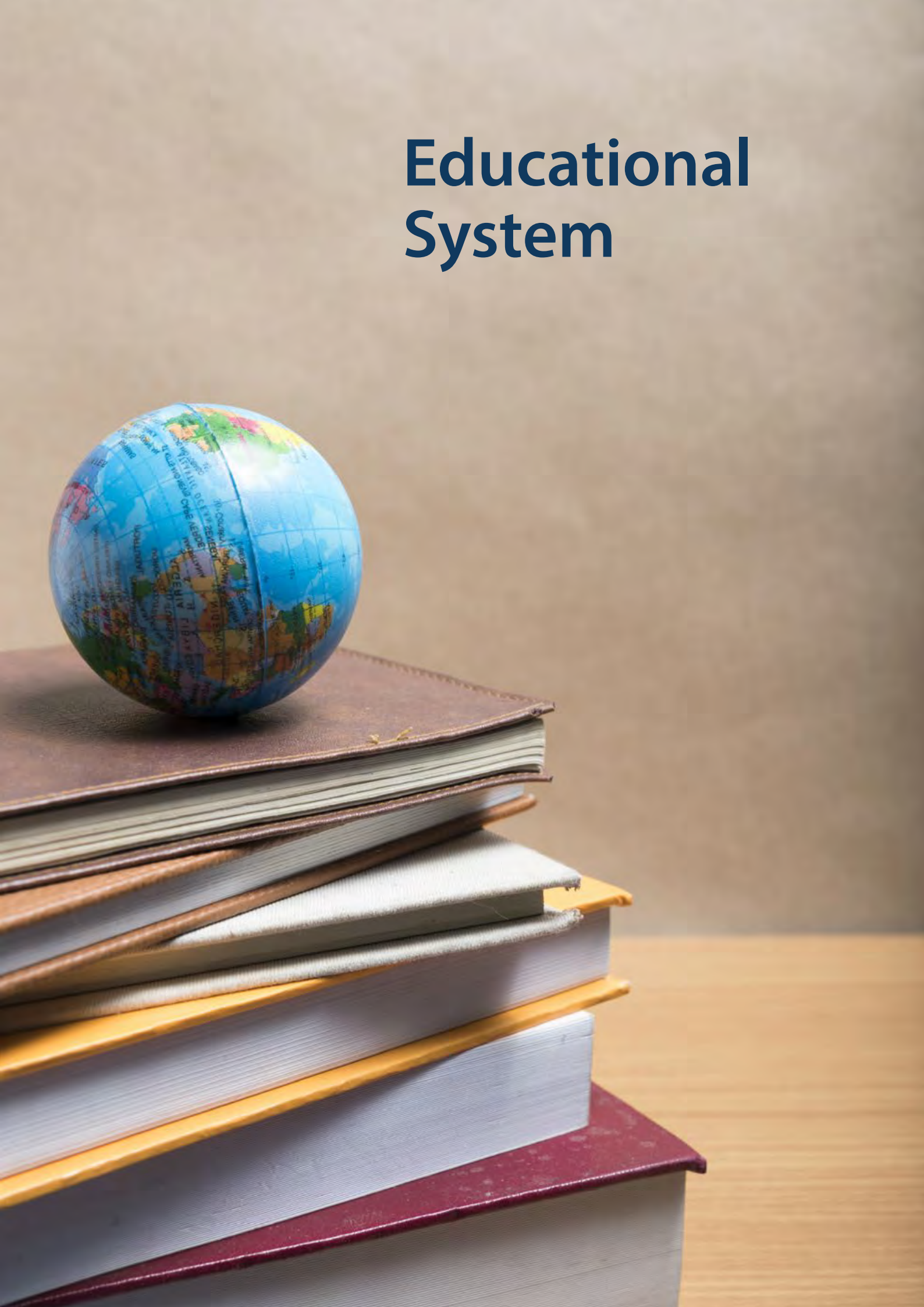
Moreover, as the infrastructure of the Institute and the number of activities in both academics and administration have increased significantly, working with temporary/ ad-hoc staffs in the officer's cadre may invite several challenges in future and hamper the proper functioning of the Institute. The Institute lacks a proper set-up due to insufficient number of staff. It makes even the important sections like Accounts, Establishment, Academics, Store and Purchase etc. to suffer. Therefore, to ensure proper functioning of the Institute, the Institute has sent repeated requests to 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).

Sl. No.	Cadre	Post Sanctioned
1	Registrar	01
2	Deputy Registrar	00
3	Assistant Registrar	01
4	Librarian	00
5	Deputy Librarian	00
6	Assistant Librarian	01
7	Senior Students Activity & Sports Officer/Assistant Engineer	00
8	Students Activity & Sports Officer	01
9	Scientific Officer/Technical Officer	00
10	Executive Engineer	01
11	Medical Officer	00
12	Technical Assistant/Junior Engineer/SAS Assistant/Nurse	9
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	05
19	Stenographer	01
20	Pharmacist	00
21	Multi-Tasking Staff	04
	Total	**37**

List of Staff Members

Sl. No.	Cadre	Post Sanctioned
1	Mr. Bapi Mondal	Junior Assistant, Director Office
2	Mr. Ram Prasad Nepal	Assistant Registrar
3	Ms. Sujata Dhungana	Junior Assistant, Registrar Office
4	Mrs. Nishita Chettri	Junior Assistant, KIC Office
5	Mr. Bharat Pradhan	Junior Assistant, Accounts Section
6	Mr. Rahul Kumar Byahut	Accountant
7	Mrs. Jeneeta Joseph	Accountant
8	Miss. Chandra Kumari Rai	Accountant
9	Ms. Tshering Zangmo Bhutia	Junior Assistant, DIC (SW)
10	Ms. Sonam Choden Tamang	MTS, DIC(AA)
11	Mrs. Punam Singh	MTS, FICMA Office
12	Mrs. Chandrama Majumdar	Technician, BIO.
13	Mr. Tapan Chhetri	Lab Technician, CSE
14	Mr. Amit Tamang	Technical Assistant, ECE
15	Mr. Sidharth Pradhan	Lab Assistant, ECE
16	Ms. Deepika Chettri	Technical Assistant, EEE
17	Mr. Manish Kumar	Lab Technician, EEE
18	Mr. Amit Maity	Technician, ME
19	Mr. Bhaskar Bhattarai	JE/TA (CE)
20	Mr. Rewa Nath Sharma	JE/TA (CE)
21	Mr. Amrit Sharma	JE, (Electrical)
22	Ms. Chanda Moktan	Technician, CE
23	Mr. Subho Das	Technical Assistant, CE
24	Ms. Saheli Saha	JE, CIVIL
25	Mr. Suman Pathak	Lab Assistant, CHEM
26	Mr. Happy Mondal	Lab Assistant, PHY

Educational System



The Institute offers four-year undergraduate programs leading to the Bachelor of Technology (B.Tech) degree and 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. The Institute also offers full time/part time research programs leading to Ph.D Degree in the areas of Engineering/Technology/Sciences/ Humanities and Social Sciences.

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 and curriculum workshops are also organized. The experts from the academia and industry are invited to deliberate on the scheme and the content. The medium of instruction and evaluation of all programs is in English. All academic activities are carried out as per the Academic Calendar approved by the Senate. The comprehensive rules to govern the academic programs were not in place. The Senate deliberated and decided to prepare the academic rules comprehensively. The rules and regulations for the UG, PG and Ph.D Programs are developed and implemented.

1. Academic Programs

1.1. Undergraduate Program

Bachelor of Technology (B.Tech.), (4 years / 8 semesters)

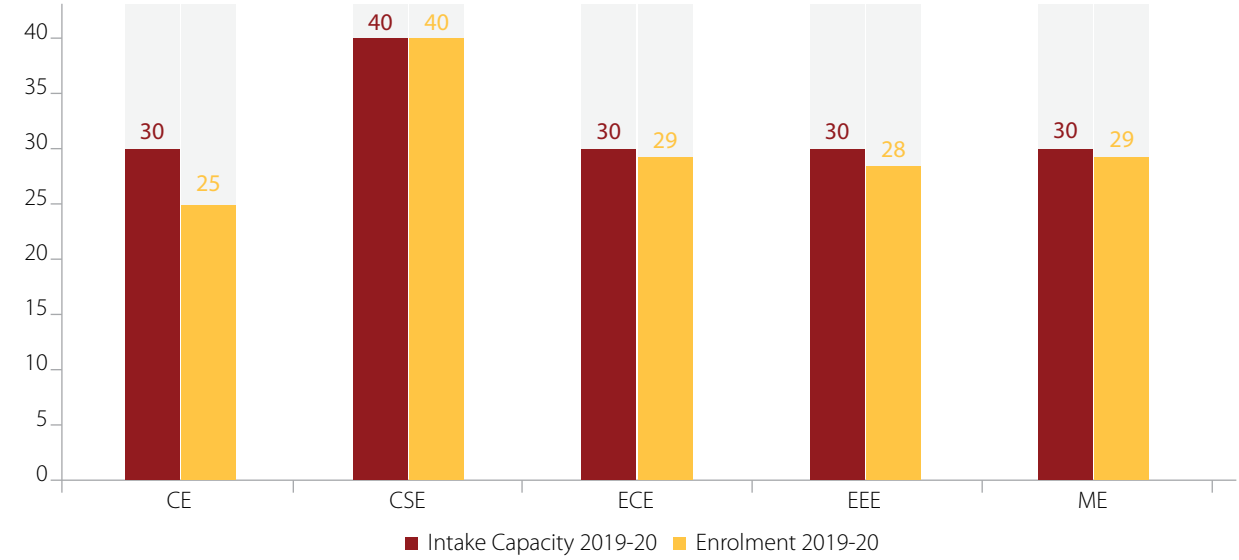
Sl. No.	Departments	Program	Year of Starting
1	Civil Engineering	B.Tech. in Civil Engineering	2013
2	Computer Science and Engineering	B.Tech. in Computer Science and Engineering	2010
3	Electronics and Communication Engineering	B.Tech. in Electronics and Communication Engineering	2010
4	Electrical and Electronics Engineering	B. Tech. in Electrical and Electronics Engineering	2010
5	Mechanical Engineering	B. Tech. in Mechanical Engineering	2014

1.1.1. Admission Procedure

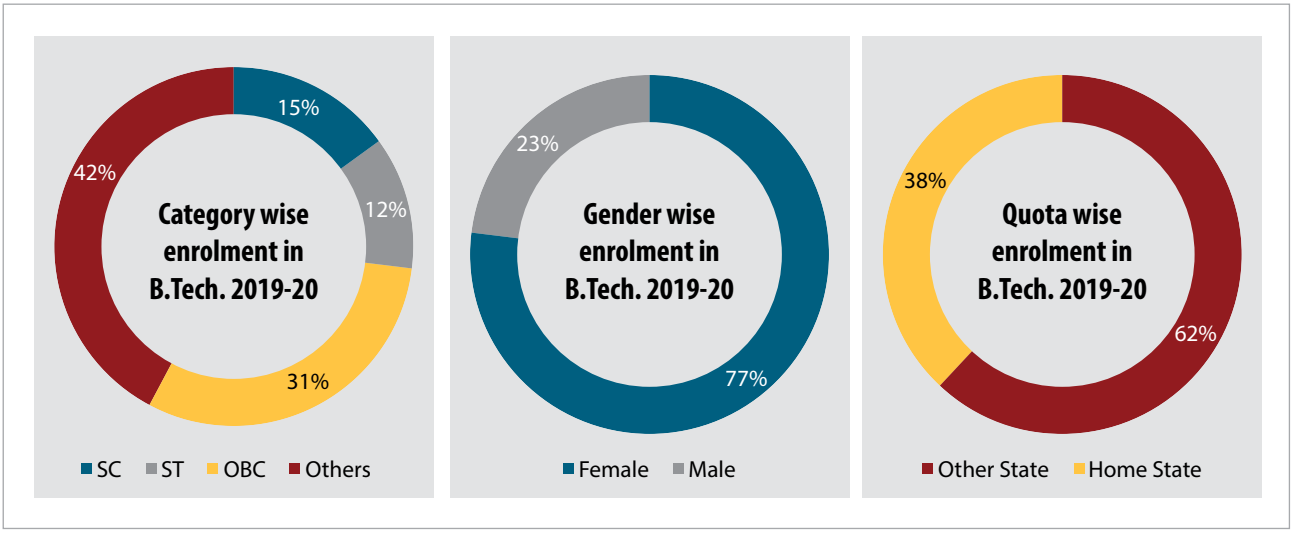
Admission to the B.Tech. programs are made as per the common policy of the Government of India for CFTIs/NITs, on the basis of merit in the National Level Test namely Joint Entrance Examination (JEE) Mains, conducted by the Central Board of Secondary Education (CBSE), New Delhi. The seats are allocated by the Joint Seat Allocation Authority (JoSAA) / Central Seat Allocation Board (CSAB) with 50% of sanctioned seats filled under the Home State quota reserved for the state of Sikkim and remaining 50% candidates from other States, purely based on the merit/ranking in JEE Main Examination through a centralized counseling system devised by the MHRD, Govt. of India. Furthermore, a specified seat of foreign nationals/NRIs selected under the policy laid down by Govt. of India, are admitted directly to the 1st year of the courses. Seats are reserved for candidates belonging to Scheduled Castes, Scheduled Tribes, Persons with Disabilities (PwD), Economical Weaker Sections (EWS) & Other Backward Classes (OBCs) as per the guidelines issued by the MHRD, Govt. of India.

1.1.2. Enrolment in B. Tech. Program- 2019-20

Discipline	Intake Capacity 2019-2020	Actual Enrolment 2019-20					Home State Quota	Other State Quota	Male	Female	PwD
		SC	ST	OBC	OPEN	TOTAL					
CE	30	02	06	10	07	25	10	15	18	07	00
CSE	40	08	05	13	14	40	17	23	32	08	01
ECE	30	05	01	08	15	29	11	18	21	08	00
EEE	30	05	03	07	13	28	12	16	21	07	00
ME	30	02	03	09	15	29	08	21	24	05	00
Total	**160**	**22**	**18**	**47**	**64**	**151**	**58**	**93**	**116**	**35**	**01**



CE- Civil Engineering, **CSE-** Computer Science & Engineering, **ECE-** Electronics & Communication Engineering, **EEE-** Electrical & Electronics Engineering, **ME-** Mechanical Engineering



1.2. Postgraduate Program

1.2.1. Master of Technology (M.Tech) (2 years/ 4 semesters)

Sl. No.	Department	Program	Year of Starting
1	Computer Science and Engineering	M.Tech. in Computer Science & Engineering	2015
2	Electronics and Communication Engineering	M.Tech. in Microelectronics and VLSI Design	2016
3	Electrical and Electronics Engineering	M.Tech. in Electrical Engineering (Control, Power and Electric Drives)	2017

1.2.2. Master of Science (M.Sc) (2 years/ 4 semesters)

Sl. No.	Department	Program	Year of Starting
1	Chemistry	M.Sc. in Chemistry	2017

1.2.3. Admission Procedure

Master of Technology (M.Tech.)

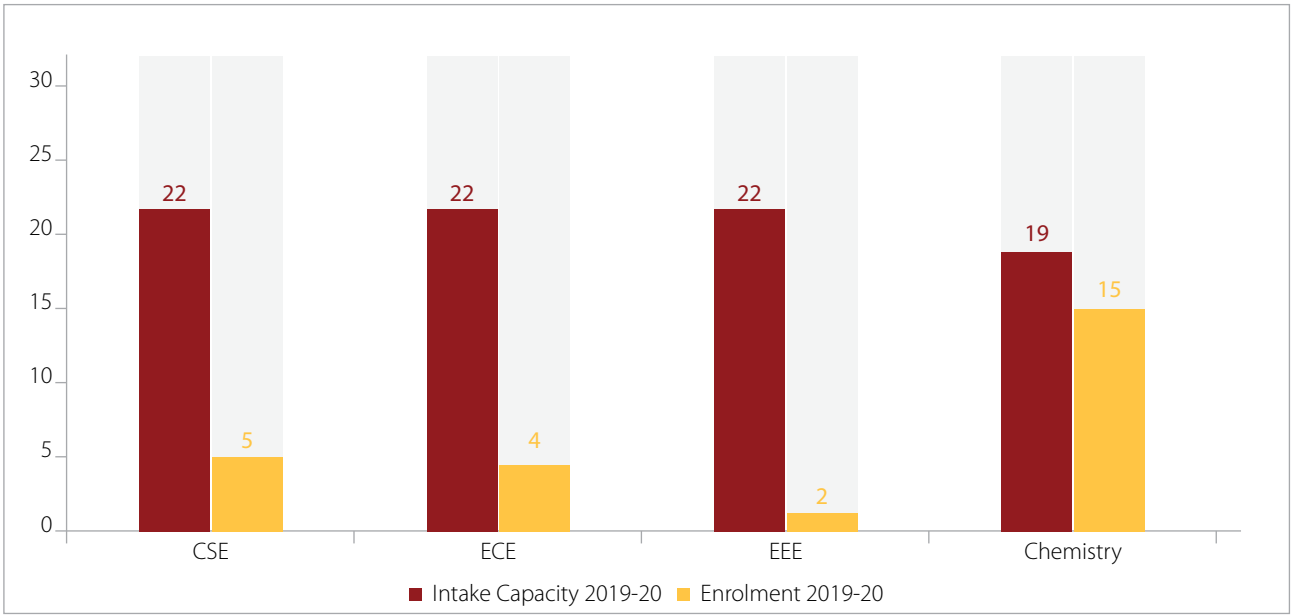
The admission leading to M.Tech. degree for the GATE qualified candidates is made through Common Admission Process called Central Counseling for Masters' of Technology (CCMT). The admission for sponsored candidates from the Government organizations/Industry/ CFTIs etc. through a Test/Interview/GATE Score on full time basis is also available. Sponsored candidates in M.Tech program are not eligible to receive scholarship even if they are qualified in GATE.

Master of Science (M.Sc.)

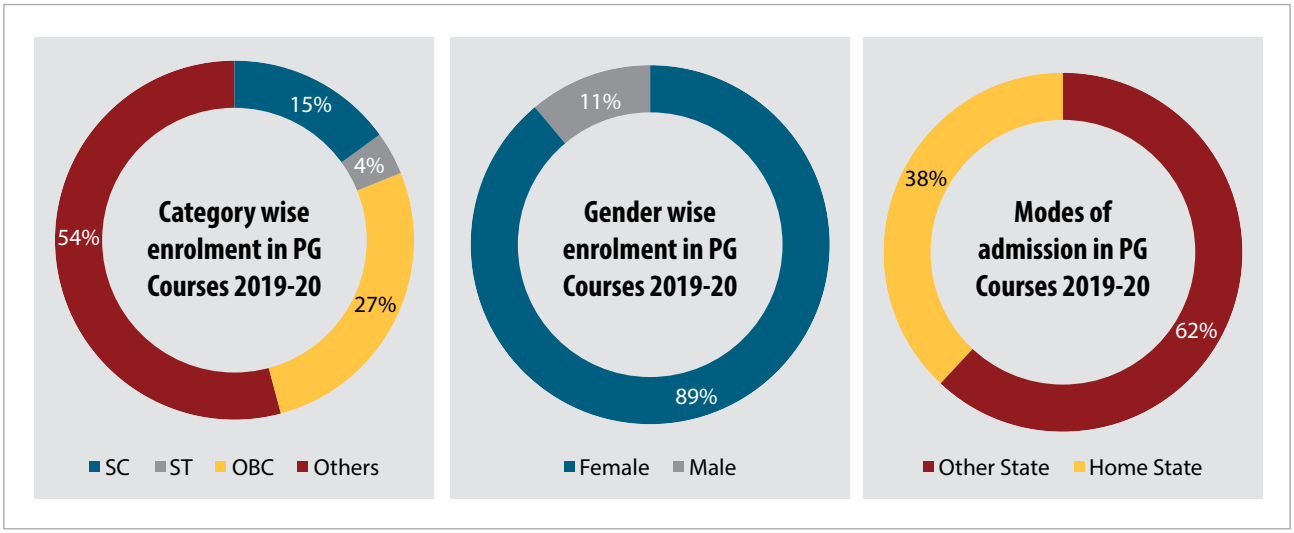
The admission to the M.Sc. course is made on the basis of IIT-JAM score through the process of Centralized Counseling for M.Sc. in NITs (CCMN). Seats remaining vacant after the CCMN allocation are filled through an Institute Admission Test (IAT) conforming to the eligibility criteria set by CCMN.

1.2.4. Enrolment in M.Tech/ M.Sc Program : 2019-20

Discipline	Intake Capacity 2019-2020	Actual Enrolment 2019-20					Admission through CCMT/ CCMN	Sponsored/ IAT	Male	Female	PwD
		SC	ST	OBC	OPEN	TOTAL					
CSE	22	02	00	00	03	05	04	01	05	00	00
ECE	22	01	00	01	02	04	04	00	02	02	00
EEE	22	01	00	00	01	02	02	00	02	00	00
Chemistry	19	00	01	06	08	15	11	04	06	09	00
Total	**85**	**04**	**01**	**07**	**14**	**26**	**21**	**05**	**15**	**11**	**00**



CSE- Computer Science & Engineering, **ECE**- Electronics & Communication Engineering, **EEE**- Electrical & Electronics Engineering



1.3. Doctoral Program (Ph.D.)

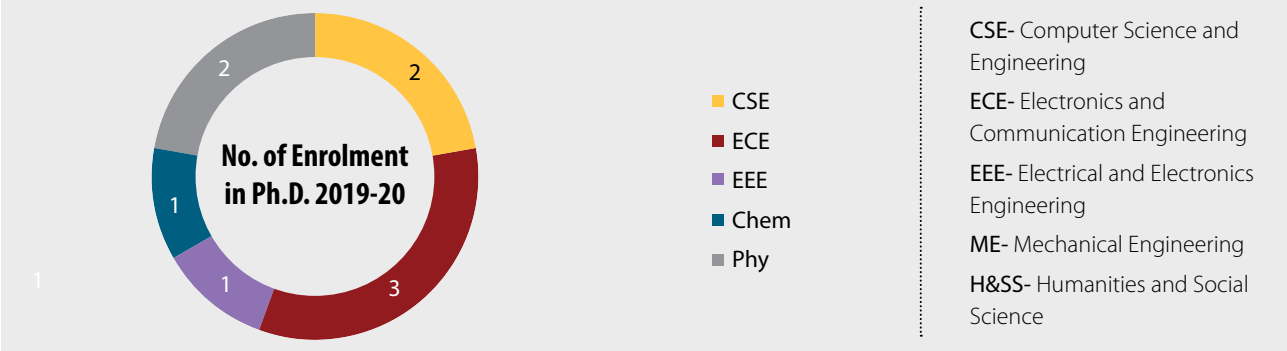
Sl. No.	Department	Program	Year of Starting
1	Computer Science and Engineering	Ph.D. in Computer Science and Engineering	2014
2	Electronics and Communication Engineering	Ph.D. in Electronics and Communication Engineering	2014
3	Electrical and Electronics Engineering	Ph.D. in Electrical and Electronics Engineering	2014
4	Mechanical Engineering	Ph.D. in Mechanical Engineering	2015
5	Humanities and Social Sciences	Ph.D. in English/Economics	2015
6	Chemistry	Ph.D. in Chemistry	2016
7	Mathematics	Ph.D. in Mathematics	2017
8	Physics	Ph.D. in Physics	2016

1.3.1. Admission Procedure

Admissions to Ph.D. program (Regular/Part-time/Sponsored) are done through Institute level test/personal interview conducted by the respective Department.

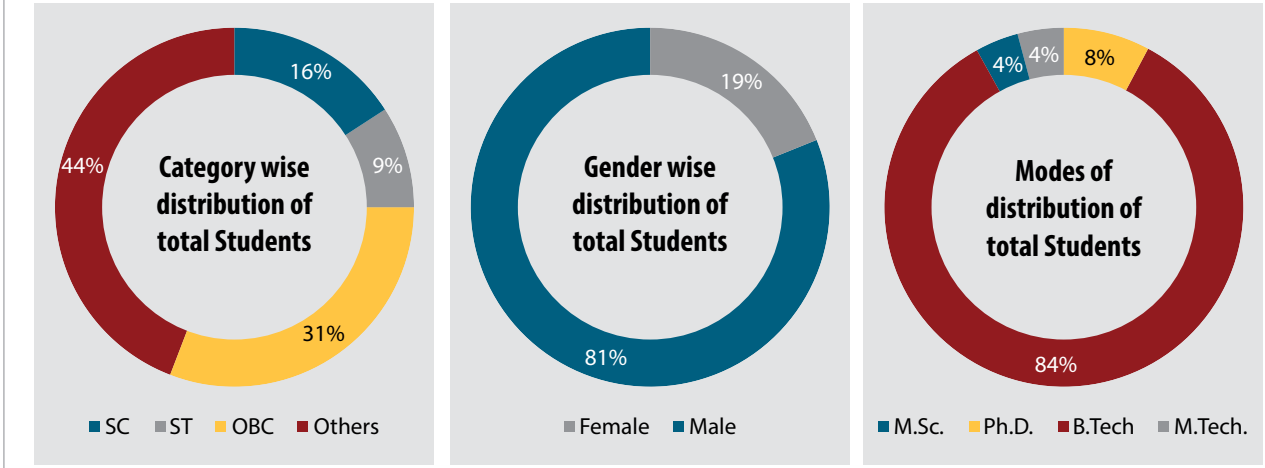
1.3.2. Enrolment in Ph.D. Program: 2019-20

Discipline	Actual Enrolment 2019-20					Ph.D. Category		Male	Female	PwD
	SC	ST	OBC	OPEN	TOTAL	Full-Time	Part-Time			
CSE	00	00	01	01	02	02	00	02	00	00
ECE	00	00	01	02	03	01	02	03	00	00
EEE	00	00	00	01	01	01	00	01	00	00
Chemistry	00	00	01	00	01	01	00	01	00	00
Physics	00	00	01	01	02	02	00	02	00	00
Total	**00**	**00**	**04**	**05**	**09**	**07**	**02**	**09**	**00**	**00**



2. Cumulative Students' Strength: 2019-20

Program	Category				Gender			PwD
	SC	ST	OBC	GEN	TOTAL	Male	Female	
B.Tech.	109	59	195	261	624	516	108	07
M.Tech.	03	00	06	20	29	25	04	00
M.Sc.	03	01	12	14	30	14	16	00
Ph.D.	06	03	18	30	57	44	13	00
Total	**121**	**63**	**231**	**325**	**740**	**599**	**141**	**07**



All undergraduate, postgraduate Examinations and Ph.D. course work of the Institute are conducted by the respective Department and centrally monitored by the Academic Section/ Examination Cell. The medium of examination for all examinations including dissertations and thesis is 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 on the basis of grades obtained in all courses in a semester and Cumulative Grade Point Average (CGPA) is calculated on the basis of pass grades in all completed semesters.

For each course, a grade is awarded on the basis of 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 is 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 grade to the examination cell.

3.1. Declaration of final year result- 2019

B.Tech.

Sl. No.	Departments	Exam appeared	First Division	Second Division	Total pass	Pass percentage
1	Biotechnology	07	07	00	07	100
2	Civil Engineering	19	16	03	19	100
3	Computer Science and Engineering	27	23	03	26	96.29
4	Electronics and Communication Engineering	20	18	02	20	100
5	Electrical and Electronics Engineering	11	11	00	11	100
6	Mechanical Engineering	17	16	01	17	100
	Total	**101**	**91**	**09**	**100**	**99.38**

M.Tech.

Sl. No.	Program	Exam appeared	First Division	Second Division	Total pass	Pass percentage
1	M. Tech in Computer Science and Engineering	04	04	00	04	100
2	M. Tech in Microelectronics and VLSI Design	06	06	00	06	100
3	M. Tech in Electrical Engineering (Control, Power and Electric Drives)	09	09	00	09	100
	Total	**19**	**19**	**00**	**19**	**100**

M.Sc.

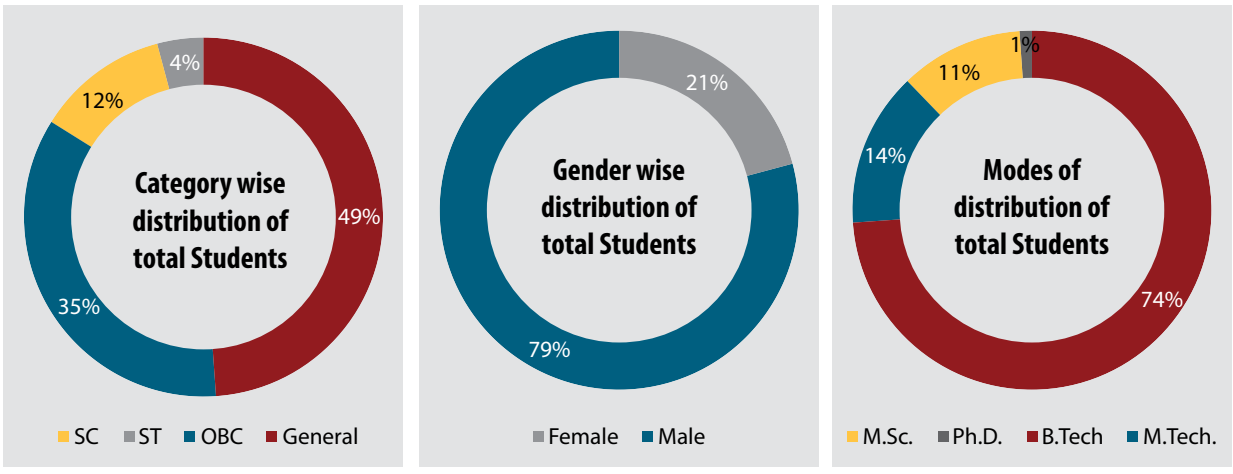
Sl. No.	Department	Exam appeared	First Division	Second Division	Total pass	Pass percentage
1	Chemistry	15	15	0	15	100

3.2. Program wise cumulative final year results-2019

Program	Category					Gender	
	SC	ST	OBC	GEN	TOTAL	Male	Female
B.Tech.	12	06	38	45	100	80	20
M.Tech.	01	00	05	13	19	17	02
M.Sc.	03	00	05	07	15	08	07
Ph.D.	00	00	00	01*	01	01	00
TOTAL	**16**	**06**	**48**	**66**	**135**	**106**	**29**

*The Ph.D. Degree of Mr. Manish Mukhopadhyay was awarded on 24th September 2019, titled "Experimental Investigation and Analysis of the Results on Enhanced Grind ability of Ti-6AL-4V".

Pie Charts showing the Gender, Category and Program wise distribution of results -2019



4. Academic Calendar

The Academic Calendar is prepared in such a way that all curricular, co-curricular, extra-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 2019 academic session are:

Odd Semester 2019-20

Sl. No.	Activities	Dates
1	Commencement of Academic Session	24th July 2019
2	Mid Term I Examination	2nd-4th& 16th-18th (for 1styr) Sept.2019
3	Mid Term II Examination	21st-25th Oct & 18th-22nd Nov (for 1styr) 2019
4	End Term Theory/Practical Examination	25th Nov -21st Dec 2019
5	Publication of Results	26th Dec 2019

Even Semester 2019-20

Sl. No.	Activities	Dates
1	Commencement of Academic Session	22nd Jan. 2020
2	Mid Term I Examination	24th-26th Feb. 2020
3	Mid Term II Examination	20th -25th April 2020
4	End Term Theory/Practical Examination	11th May- 1st June 2020
5	Publication of Results	5th June 2020

5. Institute fees for 2019-20 academic session (per semester)

Program	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 lakh}** (in Rs.)	SC/ST/PwD** (in Rs.)
B.Tech.	66400	24734	3900	3900
M.Tech.	38900	NA	NA	3900
M.Sc.	11400	NA	NA	3900
Ph.D.	11400 (FT)/ 9000 (PT)	NA	NA	4100 (FT)/ 1500 (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 the B. Tech. Students belonging to SC, ST and PwD categories are fully exempted as per MHRD guidelines. Further, the General/OBC students with annual family income less than one lakh would get full tuition fee waiver and with annual family income bracket between one lakh to five lakh can avail 2/3rd of the tuition fees remission from 2016 onwards vide MHRD notification no.33-4/2014-TS.III.

The GATE qualified M.Tech. students and Ph.D. (with NET/GATE) scholars receive fellowships. Apart from this a good fraction of the remaining students of the Institute also receive scholarships from various agencies.

5.1: Distribution of students across the programs and their category-wise Tuition fees

Program	Full tuition fee exempted			Full tuition fee waiver	2/3rd tuition fee remission	Full tuition fee charged
	No. of SC Students	No. of ST Students	No. of PwD Students	No. of OBC-NCL/GEN Students {Annual family income less than lakh}	No. of OBC-NCL/GEN Students{Annual family income between 1 to 5 lakhs}	No. of OBC-NCL/GEN Students{Annual family income 5 lakh and above}
B.Tech	109	59	03	199	63	191
M.Tech	03	00	00	NA*	NA*	26
M.Sc	03	01	00	NA*	NA*	26
Ph.D	06	03	00	NA*	NA*	48
Total	**121**	**63**	**03**	**199**	**63**	**291**

NA*: Not applicable for M.Tech., M.Sc. and Ph.D. program.

6. Special events

6.1 Induction Program

The Program aims to help students acclimatize to their new 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 makes the students feel comfortable, sensitize them towards exploring their academic interests and activities, reducing competition and making them work for excellence, promote bonding within them and build relations between teachers and students. The program contains a series of activities including testing the ability of students in literary, cultural and physical activities, Department-related induction, lectures on handling of peer pressure, universal human values, extra-curricular activities such as creative arts, yoga, game sessions and lectures from eminent personalities from reputed organizations, social activists and entrepreneurs. The Induction Program was conducted from 24th July to 10th August 2019. ***

6.2 Curriculum Development Workshop

The course structures and syllabi of Undergraduate & Postgraduate programs were reviewed and revised for all the courses by conducting the Curriculum Development Workshop from 28th May to 5th June 2019. The various external experts from Academia and Industry of repute were invited for deliberation and finalization of the course structures and detailed syllabi. The revised curriculum has been made effective from 2019-20 academic session. ***

6.3 Revision of UG and PG Rules and Regulations

The Institute's academic rules and regulations were framed initially in 2011. Considering the growth in the academia and in the interest of the students, the revision in the rules and regulations were inevitable to fill the prospective gaps in the academic administration. The committee was constituted consisting of the experts from IITs, NITs and other reputed Institutes for drafting of rules and regulations. A workshop was organized from 27-30th May, 2019 for detailed discussion on rules and regulations. The manual for rules and regulations of UG, PG and Ph.D. programs were finalized separately and made effective from 2019-20 academic session.

6.4 Senate Meeting

The Senate is the highest academic body of the Institute. It is constituted under Section 14 of the NIT Act 2007. All major decisions of the academic matters are considered and approved by the Senate. The Director of the Institute is the Ex-Officio Chairman of the Senate. The meeting of the Senate was convened on the following dates during 2019-20:

- 9th Senate meeting on 27th July 2019
- 10th Senate meeting on 25th January 2019
- 11th Senate meeting on 29th February 2020

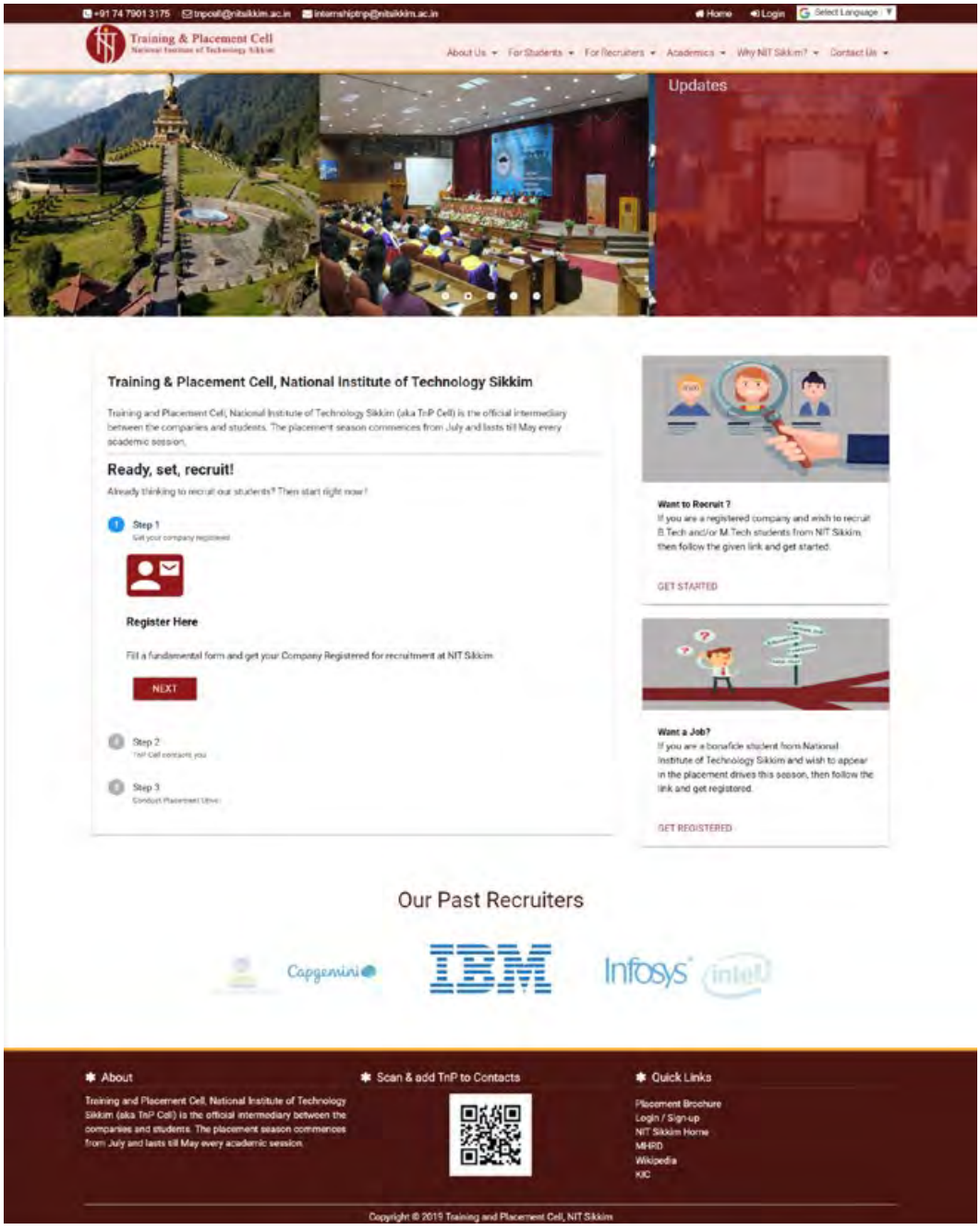
11th Senate Meeting 2019-20

Training and Placement Cell

The Training and Placement Cell at National Institute of Technology Sikkim is the official intermediary between industry and the Institution with the aim to connect students from Undergraduate and Postgraduate to various companies, MNCs for their bright and prosperous career through various placements and internships drives. T&P Cell endeavors to manage expert talks, workshops, webinars, motivational and professional sessions in collaboration with various companies, institutes and TEQIP III under Ministry of Education to improve the technical and soft skills of students. Despite the fact that the Institute is remotely located and operating from a small temporary campus which lacks adequate infrastructural facilities, the T&P Cell has been actively coordinating all industry-related activities and is able to achieve desired results. The Cell is managed by faculty members and student coordinators and with persistent efforts, it has grown manifold over the years and delivered the best results among the new NITs in the Northeastern region.

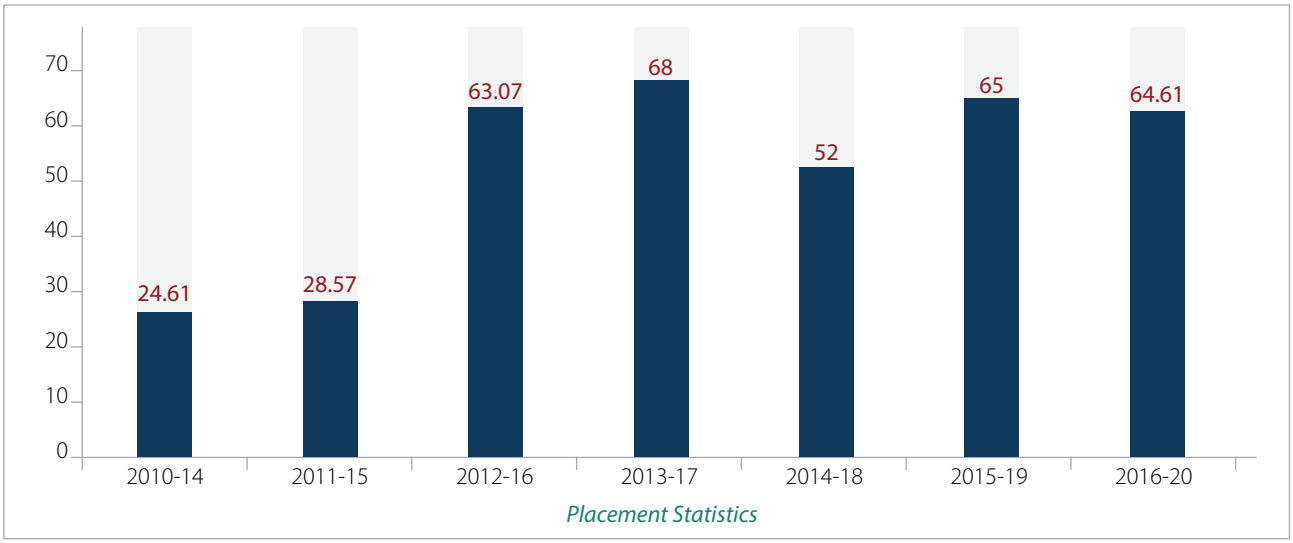
The Website of Training and Placement

The Website of Training and Placement is fully functional. The website marks the cell's online presence and makes it convenient for the prospective recruiters to carryout placement process. The website not only provides updates about the placement related activities, but it also helps us connect to the corporate world in a click. Several MNCs like Adobe, IBM, etc. approached the Training and Placement Cell through JAF available on the website. The website is updated on a regular basis.

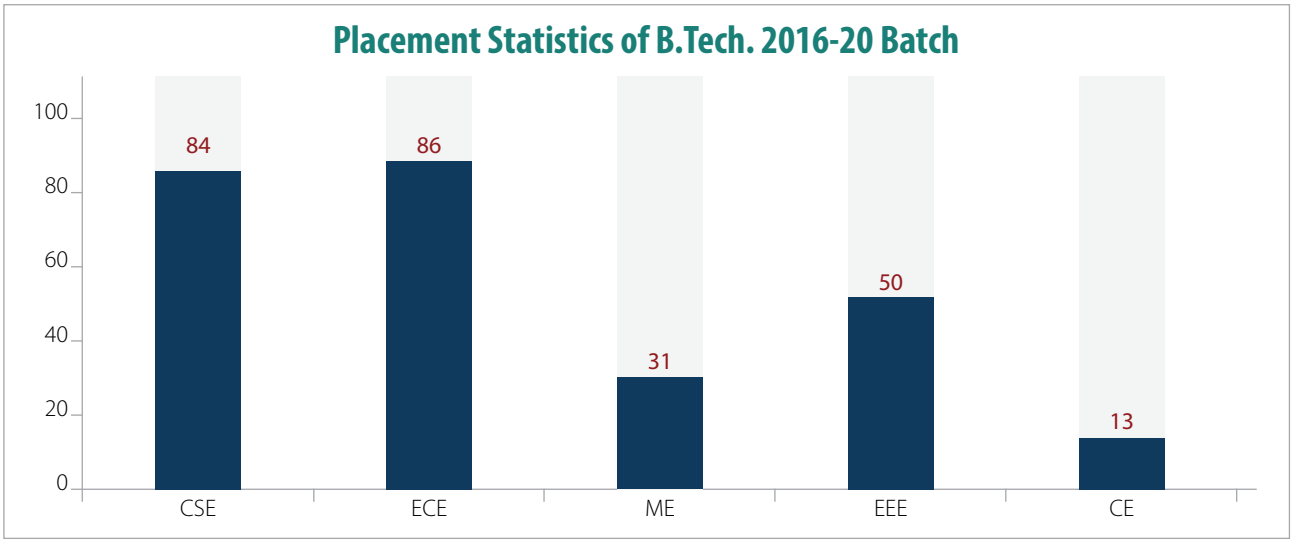


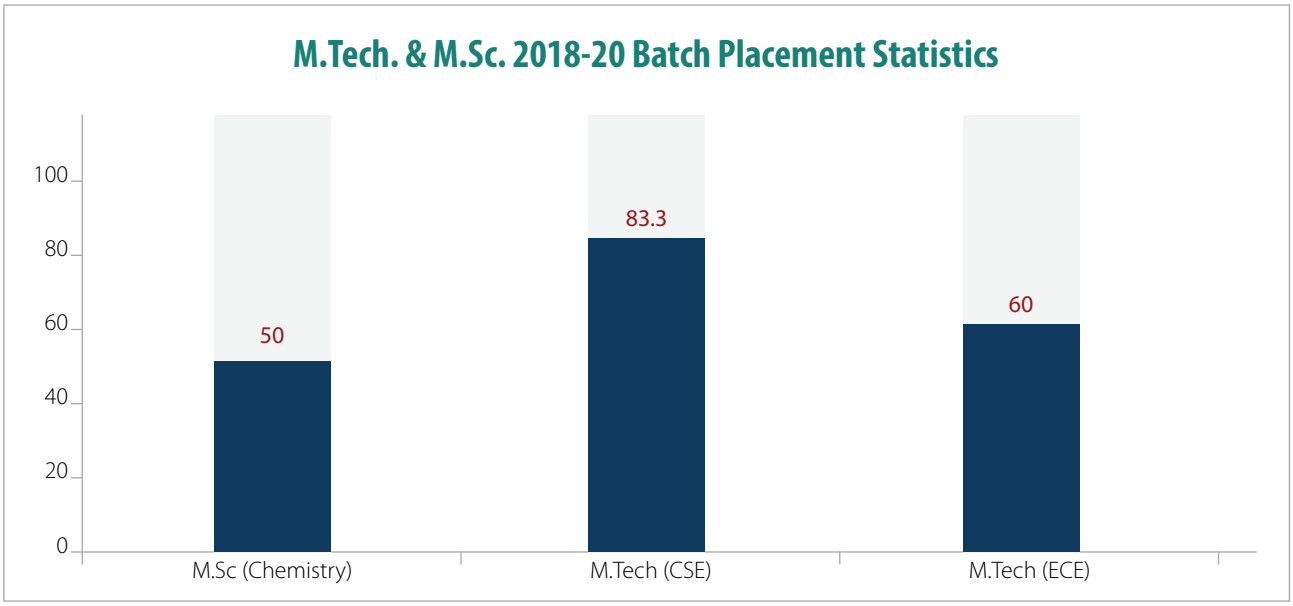
Home page of website of the Training and Placement Cell

Placement Statistics Year-wise



Branch-wise placement percentage in the Academic Year 2019-20





Detail Placement Statistics 2019-20

Course	Branch	Total Number of Students	Number of Placed Students
B.Tech	CSE	38	32
B.Tech	ECE	22	19
B.Tech	ME	16	5
B.Tech	EEE	20	10
B.Tech	CE	8	1
M.Sc	Chemistry	14	7
M.Tech	CSE	6	5
M.Tech	ECE	5	3
	Total	**129**	**82**

Companies from various sectors including those from core engineering domains, IT, consulting, etc. have recruited students from the Institute. The average package is recorded as **6.38 LPA** with 20 students receiving multiple placement offers during the academic year 2019-20.

Benchmark Placement Achievements in the Academic Year 2019-20

(1) Three students got selected in Marvell Semiconductor Pvt. Ltd. with a package of 15.5 LPA.

(2) One student got selected in Clear Tax Pvt. Ltd. with a package of 13 LPA.

(3) One student got selected in Samsung India Pvt. Ltd. with a package of 11 LPA.

(4) Five students got selected in McAfee India Pvt. Ltd. with a package of 11 LPA.

(5) Two students got selected in IBM India Pvt. Ltd. with a package of 11 LPA.

Workshops and Talks

The Training and Placement Cell organized following workshops and expert lectures by eminent academicians and industry experts during the year 2019-20.

Workshop

Sl. No.	Resource person	Topic	Date
1	Mr. Aviral Sinha	Soft Skills	16th and 17th October 2019

Workshop on Soft Skills: The Training and Placement Cell, in collaboration with Image Boosterz, New Delhi has organized two days workshop for the students. The workshop focused on the development of Soft Skills and its importance along with specific focus on Curriculum Vitae writing and Group Discussion.

Mr. Aviral Sinha, (Image Boosterz) during his presentation

Talks

Sl. No.	Resource Person	Beneficiary Department(s)	Date
1	Prof. R. K. Singh	CSE, ECE, EEE, ME, CE	3rd March 2020
2	Prof. Supriya Agarwal	CSE, ECE, EEE, ME, CE	27th February 2020
3	Prof. Anjali Gera Roy	CSE, ECE, EEE, ME, CE	01st October 2019

- **Talk on Development of creative and Critical thinking:** The Training and Placement Cell, in collaboration with the Central University of Rajasthan organized a talk on ***"Development of Critical and Creative Thinking"*** by Prof. Supriya Agarwal. The talk focused on developing a method to perceive problems and situa tions from different perspectives with logic and rationale to conceive something new and original. The talk highlighted the role of decision making in various situations viz Interviews and Group Discussions.

Prof. Supriya Agarwal during her talk

Prof. R. K. Singh during his talk

- **Talk on Language through Literature:** The Training and Placement Cell, in collaboration with the Department of Humanities and Social Sciences, organized a lecture by Prof. R. K. Singh, Department of English and Modern European Languages, University of Allahabad on ***"Language through Literature"***. The session helped the students to understand language and its uses in various technical assignments and interviews.

- **Talk on Soft Skills:** The Training and Placement Cell, in collaboration with the Indian Institute of Technology, Kharagpur organized a talk on Soft Skills by Prof. Anjali Gera Roy, Department of Humanities and Social Sciences, IIT KGP. The talk was on Soft Skills, Interview Skills and Presentation Skills. The talk helped students to identify the fundamental areas where students face problems in interviews and presentations and helped to improve the same.

Prof. Anjali Gera Roy during her talk

Internships

Internships enable the students to gain first-hand exposure of working in the Industry. It also allows students to improve their skills, knowledge, and theoretical practices that they learn in the classrooms. Internships provide opportunity to witness the practical experiences of the professional world. In the Academic year 2019-20, 204 students of B.Tech (2017-21 batch, 5th & 6th Semester) and B.Tech (2018-22 batch, in 4th Semester) have undergone Internships during the summer and winter vacations.

Sl. No.	Organization	Branch(es)	Number of Students
1	Toyo Engineering	CE	2
2	7 R Engineers Construction	CE	2
3	Bridge and Roof Co. Ltd., Bermiok	CE	10
4	Bridge and Roof Co. Ltd, Kolkata	CE	5
5	L&T Construction	CE	2
6	NCC Yangyang	CE	3
7	IIT Madras	CE	1
8	Vizag Steel Plant	CE, ECE, ME	12
9	EightPlusSixteen LLC	CSE	5
10	DANeS Lab	CSE	5
11	IIT Delhi	CSE	2
12	Alphonic Network Solutions	CSE	4
13	Alluvium IoT Solutions	CSE	1
14	Salazar E-Commerce	CSE	5
15	IIT Bhilai	CSE	3
16	PaSay	CSE	5
17	NE Taxi	CSE	4
18	MNIT Jaipur	CSE	4
19	Simple Guest Coliving	CSE	1
20	Think2Exam	CSE	7

Sl. No.	Organization	Branch(es)	Number of Students
21	IIT Guwahati	CSE	3
22	Ficuslot	CSE	1
23	Arwanize Solutions	CSE	6
24	IIT Guwahati (SRFP)	CSE	1
25	NIT Warangal	CSE	5
26	NIT Durgapur	CSE	2
27	Bit Mapper	CSE & ECE	4
28	CDAC	CSE, ECE & EEE	6
29	INTEL	CSE, ECE & EEE	4
30	IIT Patna	CSE, EEE	8
31	IIT Hyderabad	ECE	7
32	Olatus	ECE	4
33	University of Burdwan	ECE	9
34	Airport Authority of India	ECE	4
35	Sinope Integrated	ECE, CSE	15
36	NIT Andhra Pradesh	EEE	1
37	Institute of Plasma Research	EEE	1
38	Diesel Locomotive Ghaziabad	EEE	5
39	Schindler India Pvt LTD	EEE, ME	13
40	Bhilai Steel Plant	ME	1
41	Mejia Thermal Power Plant	ME, EEE	6
42	Foxaiser	CSE	5
43	POSOCO	EEE	10
	Total		**204**

Benchmark Internships Achievements in the Academic Year 2019-20

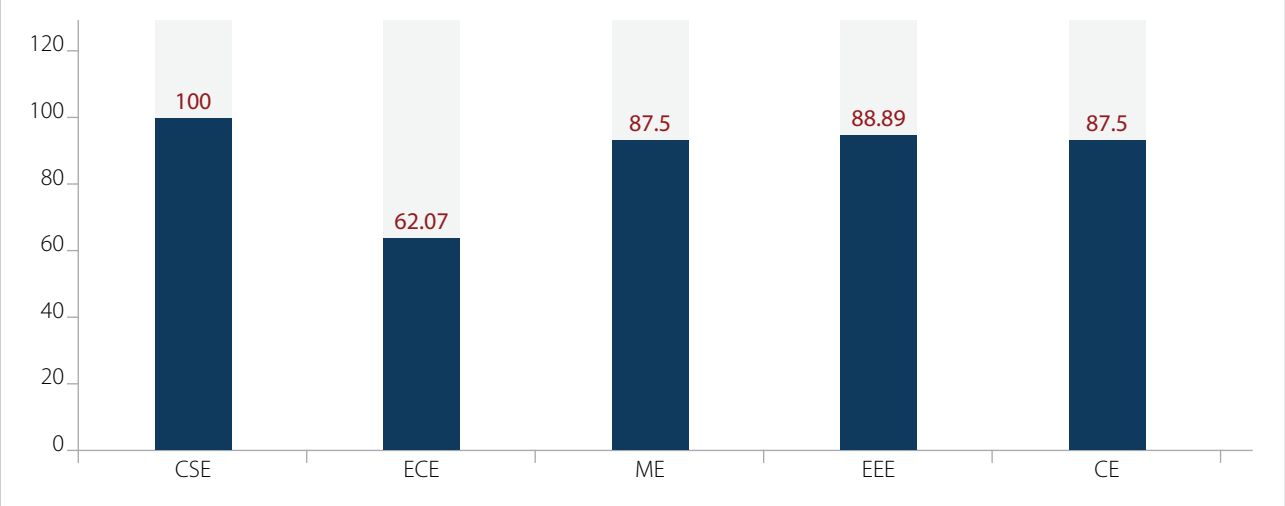
(1) Four students were offered a PPO by Intel India Corp. Pvt. Ltd. with a package of 14.84 LPA.

(2) Four students were offered a PPO by Bit Mapper Pvt. Ltd. with a package of 8 LPA (tentative).

Branch-wise Winter Internship of (B. Tech 3rd Year) 2017-21 Batch (Odd Semester, 2019)

Course	Branch	Total Students	Number of students who received internship
B.Tech	Computer Science and Engineering	31	31
B.Tech	Electronics and Communication Engineering	29	18
B.Tech	Mechanical Engineering	16	14
B.Tech	Electrical and Electronics Engineering	9	8
B.Tech	Civil Engineering	24	21
	Total	**109**	**92**

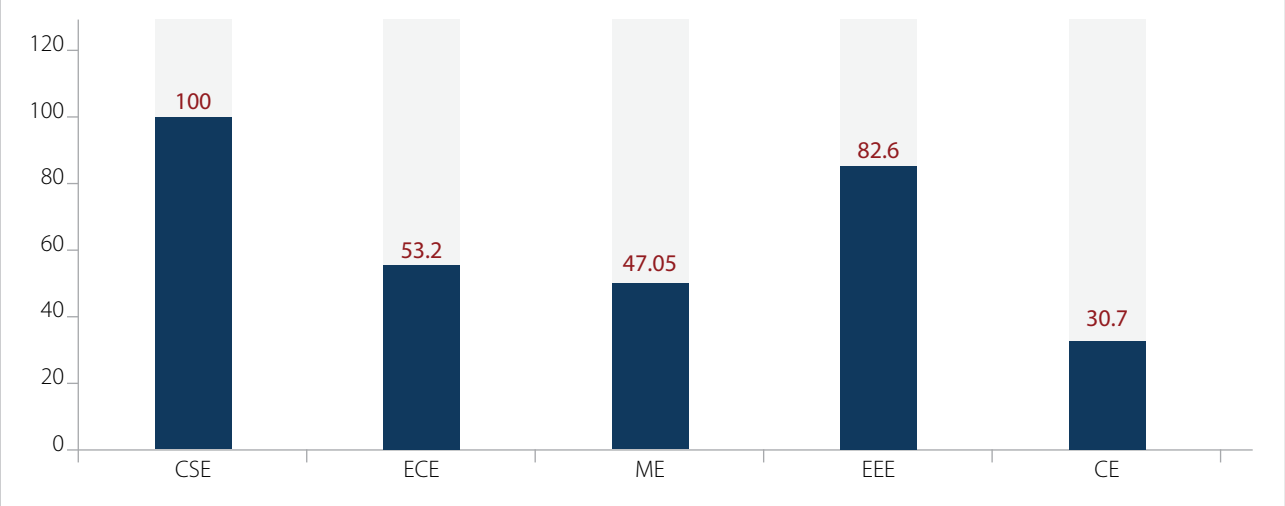
Winter Internship Statistics of 2017-21 Batch



Branch-wise Summer Internship of (B. Tech 3rd Year) 2017-21 Batch (Even Semester, 2020)

Course	Branch	Total Students	Number of students who received internship
B.Tech	Computer Science and Engineering	34	34
B.Tech	Electronics and Communication Engineering	32	17
B.Tech	Mechanical Engineering	17	8
B.Tech	Electrical and Electronics Engineering	23	19
B.Tech	Civil Engineering	13	4
	Total	**119**	**82**

Summer Internship Statistics of B.Tech. 2017-21 Batch



Branch-wise Summer Internship of (B. Tech 2nd Year) 2018-22 batch in (Even Semester, 2020)

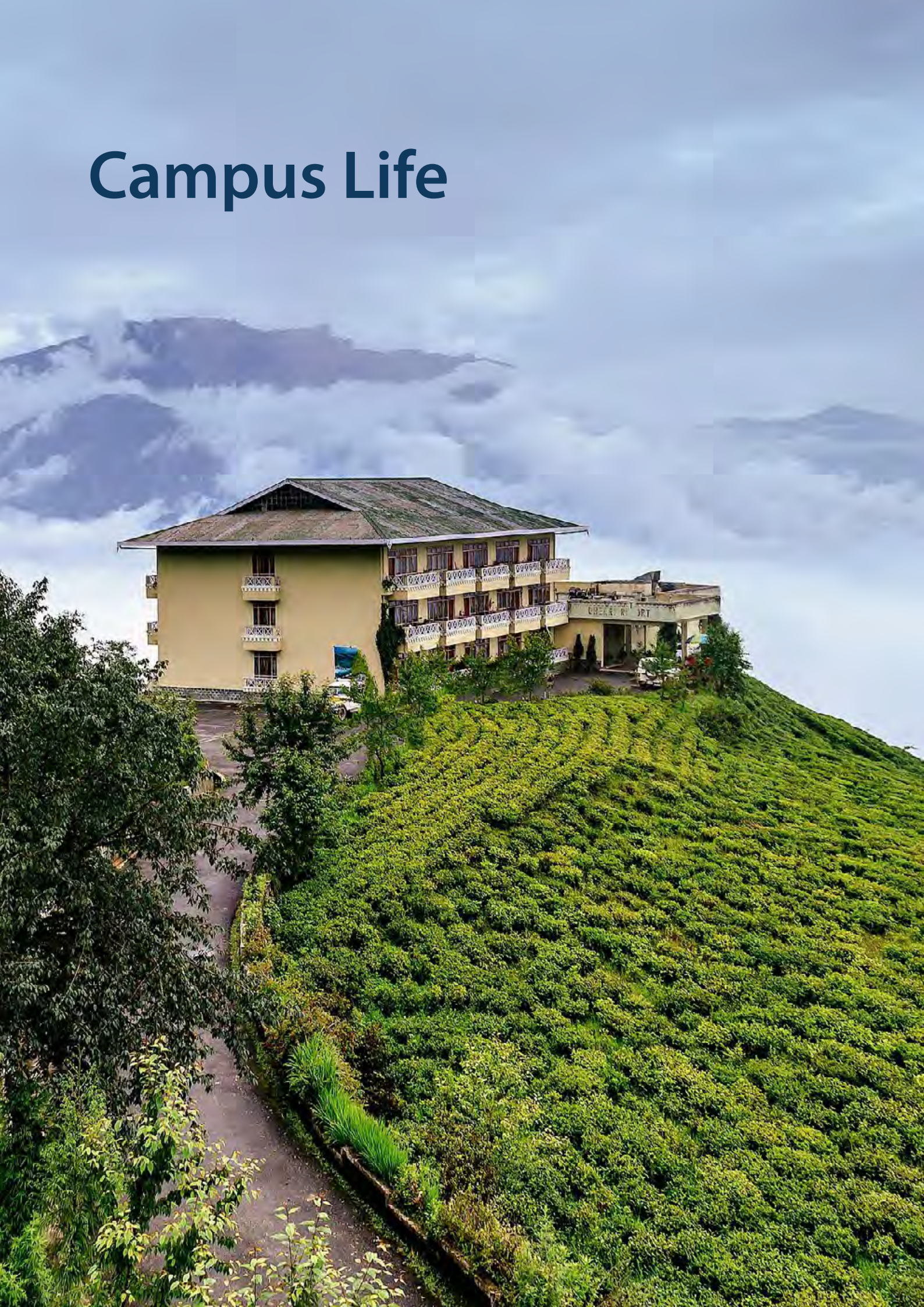
Course	Branch	Total Students	Number of students who received internship
B.Tech	Computer Science and Engineering	28	24
B.Tech	Electronics and Communication Engineering	11	0
B.Tech	Mechanical Engineering	19	0
B.Tech	Electrical and Electronics Engineering	9	5
B.Tech	Civil Engineering	3	1
	Total	**70**	**30**

Students Perusing Higher Studies

- Mr. Pachigolla S. S. Yatish (B.Tech) of the Department of Electronics and Communication Engineering (2015-19 Batch) and a lead coordinator of T&P Cell got selected in MS program at the University of British Columbia, Canada and at the Technical University of Munich, Germany. Mr. Yatish has joined TU Germany for his MS program.
- Ms. Divyanshi Verma (B.Tech) of the Department of Computer Science and Engineering (2016-20 Batch) and a lead coordinator of T&P Cell qualified CAT-2020 and got admission in IIM Bangalore.
- Mr. Kota Hemanth Kumar (B.Tech) of the Department of Electronics and Communication Engineering (2016-20 Batch) and a coordinator of T&P Cell qualified GATE-2020 and got admission in IIT Kharagpur to pursue M.Tech in Visual Information and Embedded Systems.
- Mr. Adarsh Singh (B.Tech) of the Department of Civil Engineering (2016-20 Batch) and a coordinator of T&P Cell qualified GATE-2020 and got admission in IIT Kanpur for Ph.D program in Geotechnical Engineering.




Campus Life



Hostel Accommodation

At present the Institute is operating from a temporary campus and the hostel accommodation within the campus is limited. B.Tech, M.Tech. and M.Sc students are provided Institute accommodation within and outside the campus. Separate hostel accommodation is also available for girl students within the campus. All hostel rooms are equipped with necessary furniture and facilities. In-campus hostels are fully Wi-Fi enabled. The students are also facilitated with amenities like TV, Gymnasium, and indoor games.

A. In Campus Hostels Details

Chief Warden In-campus - Dr. Om Prakash

(i) Boys Hostel Details:

Sl. No.	Name of Hostel	No. of Rooms	No. of residents	Wardens
1	Prefab-1	34 +1 (Common room)	138	Dr. Dhananjay Tripathi Mr. Sumit Kumar
2	Prefab-2	34 +1 (Common room)	155	Dr. Shambhunath Barman Dr. Kuntal Mandal Mr. Gajendra S. Shekhawat
3	BH- 10	6	19	Dr. Anjan Kr. Ray Dr. Molay Roy Mr. B. Balaji Naik
4	BH- 11	6	26	
5	BH-12	6	26	

(ii) Girls Hostel Details:

Sl. No.	Name of Hostel	No. of Rooms	No. of residents	Wardens
1.	GH-3	2	5	Mrs. Gopa Bhaumik Dr. Sangita Deb Barman Mrs. Reshmi Dhara Ms. Anulekha Saha Mrs. Chandrama Majumdar, Matron I/c
2.	GH-4	6	25	
3.	GH-5	6	24	
4.	GH-6	4	16	
5.	GH-7	4	18	
6.	GH-9	6	24	

B. Off-campus Boys Hostel

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

Chief Warden Off-campus – Dr. Debajit Saha

Sl. No.	Name of the Hostel	No. of Rooms	No. of residents	Wardens
1.	OH-04	14	28	Dr. Sukanta Dhar Dr. Abhishek Ranjan Dr. Pradip Mondal Mr. Manohar Kumar Mr. Pratik Kumar Shaw Mr. Prasenjit Dey Mr. Avinash Kumar Mr. N. Vignesh Kumar (till 13.11.2019) Mr. Pankaj Kr. Keserwani Mr. Shitendu Some
2.	OH-05	27	81	
3.	OH-06	20	36	

C. Mess Facilities

Three separate student mess are operating in the Institute, out of which two mess are located separately within the campus and are dedicated to cater to the in-campus girls and boys students. One mess is located at off-campus hostel which caters to students residing at off-campus hostels. The student mess committee under the supervision of Chief Warden and other wardens oversee the smooth functioning and quality of the services provided by the mess contractors.

D. Scholarships

The students are benefitted by Scholarships under different schemes of Central and State Governments. SC category students are awarded 10 scholarships per batch per year under "Top Class Education for SC students" from Ministry of Social Justice & Empowerment. All the ST category students are eligible to apply for scholarship under "Top Class Education for ST students" from Ministry of Tribal Affairs, however, the scholarship is awarded to the students being shortlisted by the respective Ministry. The Institute has registered on the scholarship portal of many states that provides financial assistance-ship to the students based on their family income and academic performance under various categories and accordingly the students are benefitted from their respective States. Students belonging to Minority communities receive scholarships from Ministry of Minority Affairs (MOMA).

Department of Empowerment of Persons with Disabilities provides scholarship to especially-able students. Apart from the mentioned schemes the students may also apply for central sector schemes of scholarships for college and university students under Department of Higher Education, MoE, Government of India. Students are also benefitted by the scholarship schemes assisted by the University Grant Commission – MoE under the schemes of Ishan Uday - Special scholarship scheme for North Eastern Region and Postgraduate Indira Gandhi Scholarship for Single Girl Child. Students also receive scholarships from other funding agencies like Foundation for Academic Excellence and Access (FAEA), Swami Dayanand Charitable Education Foundation, S.R Jindal Scholarship, Samsung Star Scholarship, etc.

The details for the Scholarships have been mentioned below:

A) National Fellowship and Scholarship Schemes for Higher Education to ST students

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

a. Tuition Fees: All ST students get full Tuition fee waiver as per the Institute rule.

b. Books & Stationery: Rs. 3000/- per annum per student

c. Living expenses: Rs. 2200/-per month

d. Computer and Accessories: Rs. 45,000/- One-time assistance during the course.

e. 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 Schemes for Top Class Education to SC Students

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

a. Tuition Fees: All SC students get full Tuition fee waiver as per the Institute rule.

b. Books & Stationery: Rs. 3000/- per annum per student

c. Living expenses: Rs. 2220/-per month

d. Computer and Accessories: Rs. 45,000/- One-time assistance during the course.

e. 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 rate of scholarship is Rs.10000/- 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 -

a. Course Fee: Rs. 20,000/- per annum.

b. Maintenance Allowance: Rs. 10,000/- per month for a duration of 10 months in an academic year.

E) Central Sector Schemes of Scholarships for Students with Disabilities

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

a. Maintenance Allowance: Rs. 1600/- per month.

b. Disability Allowance: This amount may vary depending upon the disability criteria of the candidate.

c. Book Allowance: Rs. 1500/- per annum.

d. 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 other states such as Bihar, Madhya Pradesh, Rajasthan, Jharkhand, Assam and Sikkim, avail the scholarship from their respective State Government's scholarship schemes.

G) Scholarships from other funding agencies:

a. Swami Dayanand Charitable Education Foundation

b. Samsung Star Scholarship

c. Foundation for Academic Excellence and Access (FAEA)

d. S.R. Jindal Scholarship

e. NHFDC

Other than these, there are many more scholarship schemes of Central and State Govt. of India where the students are directly benefited. After verification at Institute level, student's application is forwarded to their respective state and then to the respective Ministry. If selected by the awarding authority, the students directly receive the scholarship in their bank accounts.

Railway concession service is also provided to students of the Institute from Dean (SW) Office.

Students benefitted with scholarships during the year 2019-20 through Central Schemes and UGC are given below:

Sl. No.	Scholarship Scheme	No. of Beneficiaries
1	Central Sector Scholarship of Top Class Education for SC Students	23
2	National Fellowship and Scholarship for Higher Education for ST Students- Scholarship (Formally Top-Class Education for Schedule Tribe Students)	25
3	ISHAN UDAY - Special Scholarship Scheme for North Eastern Region	02
4	Central Sector Scheme of Scholarships for College and University Students	12
5	Merit Cum Means Scholarship for Professional and Technical Courses CS	04
6	Post-matric Scholarship for Students with Disabilities	03
7	Post Matric Scholarship Schemes Minorities CS	02
8	Scholarship for Top Class Education for Students with Disabilities	01
	Total no. of students	**72**

Students benefitted with scholarships during the year 2019-20 from the other States are given below:

Sl. No.	Scholarship Scheme	No. of Beneficiaries
1	Mukhya Mantri Medhavi Vidyarthi Yojna	02
2	Post Matric Scholarship, Uttar Pradesh	12
3	eKalyan, Govt. of Jharkhand	06
4	Post Matric Scholarship, Government of Sikkim	25
5	Post Matric Scholarship to OBC Students, Assam	02
6	Post Matric Scholarship for ST Students, Manipur	01
	Total no. of students	**48**

E. Recreation & Sports

Despite the dearth of space in the temporary campus, efforts have been made to provide necessary recreation, games and sports facilities to the students. A multi-gymnasium has been provided to the students. Various multidimensional functions like Cultural fest, Technical fest, Literary events, Annual Games and Sports were 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, Khelo India, Physical Education, Games, Sports and Cultural activities, Drug and Tobacco Free India, Unity Day, Vigilance Awareness Week, Hindi Pakhwada, Pariksha-pe-Charcha, etc. are the other events of the Institute where students can involve themselves to remain healthy and united.

For regular indoor games and sports activities, every hostel has the facilities of Table Tennis, Carrom board, etc. In addition, there are three well-maintained fields where student can play Football, Volleyball, Kho-Kho, and Cricket. A well maintained indoor badminton court is also there inside the Academic Building. All fields and courts are having proper lightning facilities for the convenience and to play at night.

Students also participate in the different Inter-NIT tournaments hosted by several NITs at different parts of the country and improve the performance every year.

Well-equipped gymnasium is there for the boys inside the campus where all modern gymnasium equipments are housed. A separate gymnasium is also maintained parallelly to cater the needs of the girl students.

International Day of Yoga is observed every year on 21st of June in the Institute with enthusiastic participation of the students, staff and faculty members. Students and teachers of nearby schools are invited to participate in these events.

International Day of Yoga on 21st June 2019

Further, Annual Sports meet of the Institute is organized every year to motivate students in games and sports activities. A number of athletic events along with all indoor and outdoor games and sports events are organized every year.

Inauguration of Sports Week 2019

Games and Sports Facilities

Outdoors Games Facilities

Outdoor Games (Girls/Boys)	Facility Available
Cricket	Standard playground with concrete pitches for practice
Volleyball	Standard Volleyball Court
Football	Standard playground near student hostel

Indoors Games Facilities

Indoor Games (Girls/Boys)	Facility Available
Badminton	Standard Badminton Court
Table Tennis	TT Table in Hostels
Carrom	Carrom Board in Hostels

Community Development

As per the instruction by MoE, Government of India, the Institute takes active participation in promoting Swachh Bharat Abhiyan, Rashtriya Ekta Diwas, Ek Bharat Shreshtha Bharat, Unnat Bharat Abhiyan, etc. Every year the Institute conducts cleanliness drive, painting competition, Run for Unity marathon, etc. All students, faculty and staff members under the supervision of Director come together to promote these events. The Institute also invites eminent personalities and guests from various places to encourage and motivate the students.

Students and faculty members with The Chief Guest Shri Jas Lal Pradhan & Hon'ble Director during Annual Sports Week 2019

Students and faculty members with the Hon'ble Director during Cleanliness drive on the campus on the occasion of 71st Republic Day 2020

Run for Unity on Rashtriya Ekta Diwas Celebration conducted on 31st October, 2019

Udgam2019

UDGAM is an annual Socio-Cultural fest of the Institute, heralded as the 'Biggest Debutant Fest of Sikkim' by The Sikkim Express in its maiden year 2014. Udgam has grown to become a beacon of culture and social change. With 5K+ footfall, shimmering personalities of pop stars, Udgam has made a mark unprecedented and unachievable by its contemporaries. An epitome of celebration, Udgam organizes events of dance, music, dramatics and fine arts, workshops like Salsa, Paper quilling, Clay modelling. The Fest has gone a long way since its inception.

Major Event: Battle of Bands, Cultural Dance, NIT Idol, Flash Mob, DJ Night, etc.

Students' participation in Udgam 19

Induction Program 2019

Induction Program for 2019-2023 batch students was conducted on August 2019. The main objective to conduct this program for the new-comers is to give them friendly environment in the campus and to make the good bond between new-comers and their seniors as well as faculty members. Highly distinguished guests and other guests were invited in the Induction Program to motivate the students.

NIT Sikkim fraternity with The Chief Guest Shri Indra Hang Subba, Hon'ble MP Lok Sabha, Sikkim and Special Guest Shri Dhruba Lohagan, Nepali literati during Induction Program 2019

Flag Hoisting Ceremony on the Republic Day 2020

Flag Hoisting Ceremony on the Independence Day 2019

Diwali Celebration 2019

Student Activity during Induction Program 2019

Infrastructure Development in the Temporary Campus

Due to the lack of space and extreme climatic condition in Ravangla where the temporary campus of the Institute is housed, the wear and tear is very high; therefore, efforts have been made to create minimum necessary infrastructure and regular repair/ maintenance works of the old and existing structures. The Estate Section of NIT Sikkim manages all infrastructure related activities. The Institute has been operating from the temporary campus for the last 9 years and the campus is in the need of regular repairs and maintenance work 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 infrastructures. In the year 2019-20, the Institute has taken up the following projects, which are either under construction or completed:

a) Fabrication of Laboratory Sheds for the Department of Electrical and Electronics Engineering adjacent to the Academic Building

NIT Sikkim is functioning from a temporary campus located at Ravangla, South Sikkim. There is a scarcity of built-up space for basic laboratories for the students. The students are in demand of more space for laboratories and institute does not have proper space for the same. Although some laboratory spaces are under construction, the same are not sufficient to support the requirement. In view of this and to meet the urgent requirement of laboratories, spaces were created near Academic Building by fabricating sheds. These works were executed in-house by Estate Office under the supervision of Civil and Mechanical Engineering Departments. The pictures of these newly constructed laboratories sheds are given below:

Fabrication of Laboratory Sheds near Academic Building

b) Construction of Machine foundation and railing works at Prefabricated shed-I

For the proper installation of the heavy-duty machines, it was required to construct the machine foundation on urgent basis for the proper functioning of Mechanical laboratory at prefabricated Shed-I. Further, the area in front of the prefabricated laboratory shed as well as the surrounding areas are just at the edge of the retaining wall therefore, to ensure the safety of students, faculty, staff/other users railing work along the edge of the retaining wall was necessary. In view of this, works were assigned to CPWD with the approval of BWC. Most of the works have been completed by CPWD and the pictures of the same are given below :

(a) Construction of machine foundation

(b) Railing in front of Shed-I

NIT Sikkim is operating from the temporary campus at Ravangla, South Sikkim. To provide better academic facilities to the students laboratory-spaces have already been created in the last few years and the construction work of some more laboratories are under progress. In addition to this, many office rooms are also created recently. Therefore, the electrical load demand has been significantly increased in the recent past and it is expected to be increased further. With the increase in electrical load demand, the Electrical Section of the Institute, after making a total load survey, (i) replaced the existing low rating electric panel with a higher rating one, (ii) laid a parallel cable from transformer to main panel and (iii) laid cables from main panel to prefabricated Shed-I and Shed-III. The work has been carried out with the approval of BWC. The picture of the same is given below:

Fig 3. Installation of Electric Panel

c) False ceiling work at the newly fabricated laboratories/class room sheds

NIT Sikkim is running at its temporary campus at Ravangla, South Sikkim for the last 9 years. To meet the urgent requirement of space for laboratories, classes, office rooms etc. few sheds have been fabricated after approval of the BWC. As Ravangla witnesses heavy rain fall which lasts for around 6 to 7 months in a year, with MS/PVC sheet roofing, the noise level is too high and it is nearly impossible to teach in classes and laboratories, therefore, to have sound and thermal insulation, false ceiling was fixed in the newly fabricated sheds. The picture of the same is given below:

Fig 4. False ceiling work at the newly fabricated laboratories/ class room sheds

d) Fabrication of Store room adjacent to the old academic building

At the temporary campus of NIT Sikkim, the space for storage of materials is highly insufficient to accommodate all items like plumbing, carpentry, electrical, tools and machineries etc. Since Ravangla experiences heavy rainfall for 6-7 months, storage of these items in open spaces not only damages the material but also invites theft. In order to provide proper storage space to the various civil/electrical related items, academic related items etc., it was required to fabricate sheds on urgent basis. In view of this, fabrication of Store room has been completed adjacent to the old Academic Building. This work was executed in-house by Estate Office under the supervision of Civil and Mechanical Engineering Departments. The pictures of these newly constructed laboratory sheds are given below:

Fabrication of Storerooms near old Academic Building

CENTRAL LIBRARY

The Central Library is an integral part of academic and research activities of NIT Sikkim. It was established in 2012 as the Knowledge and Information Center, 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. It has been growing and expanding in the aspects of collection of resources both in the print and digital forms to meet the requirements of the academic fraternity and students of NIT Sikkim. The library is providing various services to the patrons such as circulation of text and reference books, photocopy, printing and scanning services to mention a few. However, the space is highly limited and needs immediate solution to house more learning resources and access for students. Some of the facilities are summarized as follows:

Collection: Central Library has print as well as electronic resources in its collection. It has a good collection of text books, reference books, encyclopedias, dictionaries, journals/magazines.

It possesses rich electronic resources to meet the requirement of respective departments including both engineering as well as basic science departments such as Springer-Nature, ACM Digital Library, NDL e-Resources. It also has access to a number of titles of e-books.

Library facilities: Collections of books; students' extended reading space with room heating facility; photocopy, printing and scanning facilities

Other Facilities: It is well-equipped with photocopy, printing and scanning facilities. Library is automated with Koha which is an open source Integrated Library System (ILS). Circulations of books are executed through the barcode system. Despite space limitations, special arrangement is made for a reading room for students at the Multi-Purpose Hall. Proper room-heating facilities are provided so that students can utilize the library facilities during evening/night times.

Library Details:

1. Total no. of Title- 2097
2. Total no. of Hard copy books- 14303
3. Kindle e-books- 788
4. CDs/DVDs- 702
5. One Amazon Kindle
6. Books are arranged according to the DDC classification system.
7. Replacement of old card system to digital barcode scanner system for book issue and return policy.
8. Introducing new library automation software Koha for better service.
9. Introducing with book bank service.
10. Subscribes to the electronic databases of -

    *Science Direct,

    *Science Direct,

    *ACM Digital Library,

    *JSTOR,

    *Springer,

    *Nature,

    *APS,

    *ASCE

Research and Consultancy

NIT Sikkim is focusing on its contribution to different research and development related works. In a globalized scenario, the role of research and consultancy in an academic institution is significant for its sustainability and development. It is essential to have knowledge-driven growth based on innovation and inspiration from the requirements of industries and social sectors. The quest for knowledge is the driving force to innovation in research. A high-quality research work directly translates to the quality of teaching and learning in the classroom. It brings benefits to the students, society and to the country at large.

The promotion of research and consultancy in a huge and diverse country like India will help the nation evolve as a knowledge reservoir in the international arena. NIT Sikkim being an Institution of National Importance steps forward in this direction of building and supporting the nation through a number of project works.

A number of project works are ongoing at NIT Sikkim as mentioned below:

Research Projects/Schemes

1. SMDP-C2SD: Design of class C power amplifier as an individual project for RF applications

   Principal Investigator - Prof. Mahesh Chandra Govil

   Funding Agency – The Ministry of Electronics and Information Technology (MeitY)

2. Tuning the reactivity of metal-oxygen intermediates in C-H activation and water oxidation

   Principal Investigator - Dr. Achintesh Narayan Biswas

   Funding Agency – Department of Science and Technology (DST) (completed)

3. Molecular water oxidation catalysts based on earth abundant transition metals

   Principal Investigator - Dr. Achintesh Narayan Biswas

   Funding Agency – The Council of Scientific and Industrial Research (CSIR) (completed)

4. Visvesvaraya Project: Content centric network: its security aspects and design of some security solutions using Elliptic Curve Cryptography

   Principal Investigator - Dr. Sangram Ray

   Funding Agency – The Ministry of Electronics and Information Technology (MeitY)

5. Visvesvaraya Project: Design of a secured border gateway protocol and router

   Principal Investigator - Dr. Shefalika Ghosh Samaddar

   Funding Agency – The Ministry of Electronics and Information Technology (MeitY)

6. Visvesvaraya Project: Design of frequency synthesizer and VCO for RF applications

   Principal Investigator - Dr. Sanjay Kumar Jana

   Funding Agency – The Ministry of Electronics and Information Technology (MeitY)

7. Visvesvaraya Project: Intelligent networked robotic systems

   Principal Investigator - Dr. Anjan Kumar Ray

   Funding Agency – The Ministry of Electronics and Information Technology (MeitY)

8. Innovative and sustainable decision support system for drinking water security in Indian Himalayan region of Sikkim and West Bengal

   Principal Investigator - Dr. Md. Nurujjaman

   Funding Agency – The Ministry of Environment, Forest & Climate Change (MoEF&CC)

9. The Occult Tradition of Shamanism in Sikkim: A Study of its Belief and Tribal Nature

   Principal Investigator - Dr. DhananjayTripathi

   Funding Agency – Indian Council of Social Science Research (ICSSR)

10. 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)

11. **The following projects were approved under TEQIP-III**

    Department of Computer Science and Engineering

    1 Design and development of scheme(s) for handling flash crowd in live video streaming in Peer-to-Peer network

      PI: Prof. M. C. Govil | Co-PI: Dr. Kunwar Pal

    2 Development of particle swarm optimization based scheme(s)for improving coverage and connectivity in mobile wireless sensor networks

      PI: Dr. Pratyay Kuila

    3 Design of efficient and secure key management scheme for Internet of Things (IoT) using Elliptic Curve Cryptography (ECC)

      PI: Dr. Sangram Ray

    4 Design of an approach for monitoring of water quality in large reservoir using underwater sensor network

      PI: Prof. M. C. Govil | Co-PI: Mr. Gajendra Singh Shekhawat

Department of Electrical and Electronics Engineering

5 Development of a prototype of a quadruped and a high dexterity robotic platform

PI: Dr. Anjan Kumar Ray

6 Development of integrated power quality based photovoltaic distributed generation system

PI: Dr. Aurobinda Panda

7 Design and development of cascaded multi-level inverter for industry applications

PI: Dr. Molay Roy

Department of Electronics and Communication Engineering

8 Design of an all rate clock divider without a phase mismatch or duty cycle distortion

PI: Dr. Sanjay Kumar Jana

9 Design and development of high gain ultra-wideband antenna with sharp multiple notches for surface penetrating radar application

PI: Dr. Surajit Kundu

Department of Mechanical Engineering

10 Analysis of atmospheric boundary layer using enhanced wall function and improved inlet condition

PI: Dr. Ranjan Basak

11 Design and development of Solar-PV based winter air conditioning system for typical classrooms.

PI: Dr. Shambhunath Barman | Co-PI: Dr. PradipMondal

Department of Physics

12 Investigation of "shared purity" of quantum states

PI: Dr. Anindya Biswas

13 Identification of earthquake-induced anomalies in complex soil Rn-222 time series
PI: PI: Dr. Md. Nurujjaman

Department of Chemistry

14 Synthesis of Condensed Heterocycles with Bioactive Potential

PI: Dr. Taraknath Kundu | Co-PI: Dr. Nidhi Govil

15 BioinspiredMetal Complex as Electrocatalysts for Oxygen Reduction Reaction

PI: Dr. Achintesh Narayan Biswas | Co-PI: Dr. Nidhi Govil

16 Medicinally potent Biologically Active Macrolactone: Initiative to Search Industrial Scale Synthesis

PI: Dr. Sumit Saha

Department of Mathematics

17 Hybrid Production System with Uncertain Return Quality and Different Remanufacturing Policies

PI: Dr. Om Prakash

18 On Corona Product of Signed Graph with Respect to HK Marking

PI: Dr. Ravi Srivastava

Department of Humanities and Social Science

19 The Significance of PASHU (Animals) in Indian Mythology and Culture

Dr. Dhananjay Tripathi

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2. Santanusardar, Susanta K Pradhan, Santanu K Karmakar, Debdulal Das. Modeling of Abraded Surface Roughness and Wear Resistance of Aluminum Matrix Composites. Journal of Tribology, 2019, 141(7):1.
3. Santanusardar, Susanta K Pradhan, Santanu K Karmakar, Debdulal Das Experimental analysis on tribo-performance of aluminum composites. Journal of Composite Materials, 2020.
4. Mullick S.H., A. Kumar and Kundu, P.K., 2020. Numerical Study of Natural Convection Inside a Square Cavity with Non-uniform Heating from Top. Journal of The Institution of Engineers (India): Series C, pp.1-8

International Conference

1. Mondal P., SSamanta., S.Ghosh, S.N.Barman, Bio-waste fired gas turbine and transcritical CO2 cycle based combined power plant: Thermodynamic, economic and environmental performance assessment. TFRE 2020, November 26-28 2020, NIT Arunachal Pradesh (Accepted).
2. Mondal P., S. Ghosh, D.Saha and S.N.Barman, Econo-Environ performance study of an efficient combined cycle plant fuelled via MSW of Indian cities, International Conference on Energy and Sustainable Development (ICESD 2019), 14-15th February 2020, Jadavpur University and The Institution of Engineers, India.
3. Mondal P., S.Samanta, S. Ghosh and S.N.Barman. Bio-Waste Fired Combined Air Turbine-CO2 Turbine Plant: Part A - Energy AndExergy based Performance Assessment. ICARRET-2019, 23-24th October 2019, Velagapudi Ramakrishna Siddhartha Engineering College
4. Mondal P., S.Samanta, S. Ghosh and S. N.Barman. Bio-Waste Fired Combined Air Turbine-CO2 Turbine Plant: Part B - Environment And Economy based Performance Assessment. ICARRET-2019, 23-24th October 2019, Velagapudi Ramakrishna Siddhartha Engineering College.
5. Mullick S.H., D.Das Gupta and P.K. Kundu, 2019. Transient heat transfer analysis during natural convection at high Ra number and small period of heating from bottom wall. In Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019). Begel House Inc.
6. Mullick S.H., Kaushik, P., Mondal, P.K. and Kundu, P.K., 2019. Entropy Generation in a Viscoelastic Fluid Squeezed and Extruded Between Two Parallel Plates. In Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019). Begel House Inc.
7. Mullick S.H. and S. Dasmahapatra, 2019, September. Combined Motion Generation by Electro-Hydraulic Stewart Platform for Manufacturing Industries. In International Conference on Innovation in Modern Science and Technology (pp. 596-604). Springer, Cham.
8. AnweshK., S. Ghosh, R. Basak, Friction performance optimization of Al6061-rice husk ash metal matrix composite using Taguchi method, Materials Today: Proceedings, Vol 19, Part 2, pp. 415-419.
9. Anwesh K.,S. Ghosh, R. Basak, Wear characteristics optimization of Al6061-Rice husk ash metal matrix composite using Taguchi method, Materials Today: Proceedings, Vol. 19, Part 2, pp. 546-550.

Book Chapter

1. Lakshman R., R. Basak Analysis of Transformed Sixth-Order Polynomial for the Contraction Wall Profile by Using Open FOAM. In Recent Advances in Theoretical, Applied, Computational and Experimental Mechanics 2020 (pp. 133-144). Springer, Singapore.
2. Mondal P., S.N. Barman, S.Samanta, Integrated MSW to Energy and Hot Water Generation Plant for Indian Cities: Thermal Performance Prediction, Lecture notes in Mechanical Engineering, Springer (in press) [SCOPUS & Web of Science]
3. Lakshman R., N.Pal, R.Basak, Comparative Analysis of Inlet Boundary Conditions for Atmospheric Boundary Layer Simulation Using Open FOAM, Lecture notes in Mechanical Engineering, Springer (in press) [SCOPUS & Web of Science]

4. Lakshman R., BinodJ. R., R. Basak, Implementation of Improved Wall Function for Buffer Sub-layer in Open FOAM, Lecture notes in Mechanical Engineering, Springer (in press) [SCOPUS & Web of Science]

Department of Physics

International Journal

1. MahataA., D. P. Bal, M Nurujjaman - Identification of short-term and long-term time scales in stock markets and effect of structural break, Physica A: Statistical Mechanics and its Applications, 2020.
2. Biswas G.,A BiswasarEntanglement in first excited states of some many-body quantum spin systems: detection of quantum phase transition, Xiv:1909.12531 (Submitted)

Department of Chemistry

International Journal

1. Biswas Sachidulal, Suranjana Bose, Joyashish Debgupta, Purak Das and Achintesh Narayan Biswas* Redox-Active Ligand Assisted Electrocatalytic Water Oxidation by A Mononuclear Cobalt Complex. ***Dalton Transction*****,** 2020,49, 7155-7165. (I.F. – 4.174).
2. Das Purakand Achintesh Narayan Biswas. Synthesis, Characterization and Molecular Structure of Iron(III) Complex with Tridentate Diazene Ligand Having O,N,S Donor Set: Coexistence of Octahedral and Tetrahedral Iron(III) Sites in the Asymmetric Unit. ***Journal of Chemical Crystallography*****,**2020, 50, 147–154. (I.F. – 0.589)
3. BiswasSachidulal, AmritaMitra, Sridhar Banerjee, Reena Singh, Abhishek Das, TapanKanti Paine, PinakiBandyopadhyay, Satadal Paul, and Achintesh Narayan Biswas*A High Spin Mn(IV)-Oxo Complex Generated via Stepwise Proton and Electron Transfer from Mn(III)–Hydroxo Precursor: Characterization and C–H Bond Cleavage Reactivity, ***Inorganic Chemistry*****,** 2019, 58, 15, 9713–9722. (I.F. – 4.840)
4. PramanikSabyasachi*, Shilaj Roy, Satyapriya Bhandari. Quantum Dot-FRET-based Detection of Vitamin B12 at Picomolar Level. ***Nanoscale Advances*****,** 2020, DOI: 10.1039/D0NA00540A (I.F. –Pending)
5. Pramanik Sabyasachi*, Shilaj Roy, Satyapriya Bhandari. Luminescence Enhancement Based Sensing of L-Cysteine by Doped Quantum Dot. ***Chemistry - An Asian Journal*****,2020,** DOI: 10.1002/asia.202000466(I.F. – 4.056)
6. Shet SachinM., Meena Bisht, Sabyasachi Pramanik, Shilaj Roy, Sarath Kumar T., S. K. Nataraj, Dibyendu Mondal, Satyapriya Bhandari. Engineering Quantum Dots with Ionic Liquid: A Multifunctional White Light Emitting Microgel for Enzyme Packaging. Advanced Optical Material,2020, 8(8), 1902022. (I.F. – 8.286)
7. Gogoi Kasturi, Sabyasachi Pramanik and Arun Chattopadhyay. Ambipolar Thin Film Transistor from White Light Emitting Quantum Dot Complexes: Carrier Mobility and Charge Transport Characteristics. ***Advanced Materials Interfaces*****,** 2020, 7(4), 1901665. (I.F. – 4.96)
8. Roy Shilaj, Sabyasachi Pramanik, Prasenjit Mandal, Mihir Manna, Satyapriya Bhandari. Hue and Chromaticity based Exploring of Surface Complexation Induced Tunable Emission from a Non-luminescent Quantum Dot.***Chemistry - An Asian Journal*****,**2019, 14(21), 3823-3829. (I.F. – 4.056)
9. Bhandari Satyapriya, Shilaj Roy, Sabyasachi Pramanikand Arun Chattopadhyay. Chemical Reactions Involving the Surface of Metal Chalcogenide Quantum Dots. ***Langmuir*****,** 2019, 35(45), 14399-14413 (selected as Front Cover of the Journal) (I.F. – 3.70)
10. GhoshalndrajitK., ZafarIqbal, Sumantra Bhattacharya, Ankur Bordoloi. Insight of Boron Induced Single-Step Synthesis of Short-Chain Olefins From Bio-Derived Syngas. ***Fuel*****,2020,** 263, 116663. (I.F. – 5.128)
11. Mallick Suhita Basu, Sumantra Bhattacharya, Irina Jana,NayanaVaval and Sourav Pal. Shape Resonance of Sulphur Dioxide Anion Excited States Using The CAP-CIP-FSMRCCSD Method. ***Molecular Physics*****,** 2020, (DOI: 10.1080/00268976.2020.1726521). (I.F. – 1.774)

International Conference

1. Biswas Sachidulal in Modern Trends in Inorganic Chemistry-XVIII Conference, IIT Guwahati held in January 2020.
2. PramanikSabyasachi in 6th International Conference on Advanced Nanomaterials and Nanotechnology (ICANN) held at IIT Guwahati during Dec 18-21, 2019.

Book Chapter / Book: Two (02)

1. AroraCharu*, Sumantra Bhattacharya, Sanju Soni and Pathik Maji, Essential Techniques for Medical and Life Scientists, 2020, 117-123 Publisher: Bentham Science, UAE
2. Bhattacharya Sumantra, Study of Response Properties using Coupled Cluster Method, ISBN: 978-620-2-66737-1 LAP-Lambert Academic Publishing, Mauritius.

Department of Humanities and Social Sciences

International Journal

1. Tripathi Dhananjay and BhaskarChettri, (2020). Humour and Anti-colonial discourse in the early novels of R. K. Narayan. ***Agathos*: *An International Review of the Humanities and Social Sciences*,** 11(2), 151-160.
2. Chettri Bhaskar, & Dhananjay Tripathi (2019). Multiculturalism in Raj Novel: Rereading Paul Scott's The Jewel in the Crown, ***Rupkatha Journal on Interdisciplinary Studies in Humanities, 11*(2).** 1-19. (ISSN: 0975-2935). Doi: https://dx.doi.org/10.21659/rupkatha.v11n2.11
3. Sarmah Ankita., SaikiaBedabrat., & Tripathi, Dhananjay (2019). Business Success Factors of Micro Small and Medium Enterprises (MSMEs): Findings from Kamrup-Rural of Assam. ***Advances in Economics and Business Management, 6*(5),** 418-424. (ISSN: 2394-1545).
4. Marxia Oli. Sigo, Murugesan Selvam, Sankaran Venkateswar&ChinnaduraiKathiravan (2019). Application of Ensemble Machine Learning in the Predictive Data Analytics of Indian Stock Market, ***Webology, 16*(2),** 128-150. (ISSN: 1735-188X; Scopus); Doi: https://www.webology.org/data-cms/articles/20200515034658pma195.pdf
5. SankarAmirdhavasani Kumar, SelvamMurugesan, KathiravanChinnaduraiandMarxia Oli. Sigo (2019). Causal Relationship between Real Exchange Rate and Economic Growth in Asia – Pacific Region, ***Adalya Journal,*** 8(9), 29-39. (ISSN: 1301-2746; Peer Reviewed); Doi:16.10089.AJ.2019. V8I9.285311.6123
6. KathiravanChinnadurai, SelvamMurugesan, J. Gayathri, Raja Mariappan&Marxia Oli. Sigo (2019). Air Pollution and Stock Returns: Evidence from NSE and BSE of **India,** ***International Journal of Recent Technology and Engineering,*** 8(3), 2569-2573. (ISSN: 2277-3878; Scopus); Doi: 10.35940/ijrte. C4767.098319
7. KathiravanChinnadurai, SelvamMurugesan, Marxia Oli. Sigo&Indulekha K (2019). An Empirical Note on Delhi Weather Effects in the Indian Stock Market. ***International Journal of Recent Technology and Engineering, 8*(4),** 1203-1208. (ISSN: 2277-3878; Peer Reviewed); Doi:10.35940/ijrte. C4727.118419
8. KathiravanChinnadurai, SelvamMurugesan, ManiamBalasundram, VenkateswarSankaran andMarxia Oli. Sigo (2020). Does Temperature Influence the Carbon Index? Evidence from India. ***Journal of Public Affairs*, 1-8. (ISSN: 1472-3891; *Web of Science, Scopus, ABDC- 'B');*** Doi: 10.1002/pa.2117
9. SankarkumarAmirdhavasani, SelvamMurugesan, Marxia Oli Sigo, Amrutha Pavithran&ChinnaduraiKathiravan (2020). Martingale Difference Hypothesis in Asia – Pacific Foreign Exchange Market, ***International Journal of Management, 11*(3),** 633-641. (ISSN: 0976-6510; Scopus); Doi: 10.34218/IJM.11.3.2020.065

Book Chapter

1. Oli SigoMarxiaandSelvamMurugesan (2020). Big Data Analytics and Business Architecture of Indian Stock Market**,** ***Lambert Academic Publishing, Germany*,** ISBN: 978-620-0-58634-6.
2. Sarmah Ankita, SaikiaBedabrat., &, Dhananjay Tripathi (2020). Employment Creation & Growth Constraints of Micro Small and Medium Enterprises (MSMEs) in Kamrup-Metro District of Assam: An Empirical Analysis, Rural Development in India-Challenges and the Tasks Ahead, Eds. BedabratSaikia&Shrinibas Jena. (pp. 129-156). Guwahati (India): EBH Publishers. (ISBN: 978-93-88881-29-6).
3. Sarmah Ankita, SaikiaBedabrat, & DhananjayTripathi (2020). Micro Small & Medium Enterprises as a Strategy for Women Entrepreneurship: An Empirical Analysis of Kamrup-Metro District of Assam, Gender and Development, Eds. Dinesh Das. (pp. 143-148). New Delhi (India): Mittal Publications, (ISBN: 81-8324-965-5).

Medical Facilities

The primary health care services are accessible in the Medical Unit of the Institute which is housed within the campus, amidst the residential and academic zones. The Medical Unit operates from 08 A.M. to 08 P.M. regularly for its beneficiaries; however, it is accessible round the clock in case of an emergency. Three visiting medical consultants namely Dr. Sanjay Rai (General Physician, Namchi District Hospital), Dr. Pallavi Pariyar (General Physician, Ravangla PHC) and Dr. Dilli Deokota (Orthopaedic Surgeon, Namchi District Hospital) are available in the Medical Unit with altered visiting hours throughout the week.

A dedicated nursing team led by Ms. Hymavathi is also there to provide general medical services that include first-aid, dressing, intravenous fluid infusion, blood-pressure, pulse-rate, weight measurement and oxygen therapy. The students, employees, and other beneficiaries of the Institute can avail free outdoor medical treatment, prescribed general medicines, first-aid, dressing, nebulization, and intravenous fluid infusion services in the Medical Unit.

An 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.

Medical Unit organizes different awareness campaigns and seminars wherein the doctors talk about common preventive measures, protections and precautions for health and environment. The doctors also give lectures during Induction Program for newly joined 1st year students. The essential preventive measures to cope-up with the climatic conditions on the hills are also addressed in the seminars.

Medical treatment at Medical Unit

Ambulance Facility at NIT Sikkim

Innovation Cell

The Innovation Cell encourages and supports students to explore their technical creativity. Students were engaged in innovative works and Institute supports them to showcase their talents. Our education system faces a number of constraints and challenges - quality research is one of them. Academia, management, and industries are focused on innovative products of disruptive technologies which would eventually bring the new era of Industry 4.0. Our students also need to be involved in such dynamic changes. Their imagination, talents are closely involved in driving institutional growth in the future.

NIT Sikkim has envisaged such requirements of future and encourages its students to be involved in innovative works to bring academic excellence and technologies for the future. The prime goal is to develop a new academic community that is market ready and knowledge driven.

Students' Innovative Activities

- B.Tech. students, Mr. Pravesh Sharma, Mr. Bishal Kumar Saha, Mr. Prashant Prasad, Mr. Chandan Sharma and Mr. Beetu Sharma participated in the Texas Instrument IICDC 2019 contest.
- B.Tech. students, Mr. Akash Kumar, Mr. Manish Kumar, Mr. Abhishek Sagar and Mr. Mukesh Kumar participated in NTPC Electron Quiz 2019 in Kolkata.
- M.Tech. students, Omkar Singh and Arjun Kumar represented their innovative work in GRIDTECH- 19 by Power Grid in Delhi in 2019.
- B.Tech. students, Mr. Pravesh Sharma, Mr. Chandan Sharma, Mr. Abishek Prasad, Mr. Sanjeev Sharma participated in NC-RISE in Dehradun in 2019.
- B.Tech. student, Mr. Prince Raj participated in the workshop on 'Agri Startups-Roles of Innovation and Technology in Corporate Development in India' organized at D.N.S. Regional Institute of Co-operative Management in 2019.
- B.Tech. student, Mr. Prince Raj started Agridhaan Global Private Limited which is recognized as a start-up by the Department for Promotion of Industry and Internal Trade, Government of India in 2020.

Academic Departments

Department of 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 started operating 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 an 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, Network Security, Parallel-Distributed and High-Performance Computing, Algorithms, Cloud Computing, Wireless and Sensor Networks, etc. The object is to build research groups and leverage the research activities in Sikkim in particular, and North-East region in general, using a coordinated efforts of various other organization 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 available excellent environment and quality research opportunities 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 DeitY 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 develop research attitude in Computer Science and Engineering domains as well as inter-disciplinary research with the aim to serve humanity. These serviceable attitudes can be developed by imparting knowledge in cutting edge technologies with collaborating industrial standards as well as by instilling societal and ethical responsibilities in 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 & Engineering

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Prof. Mahesh Chandra Govil*** Professor and Director Ph.D (IIT Roorkee), M.Tech (IIT Roorkee) ***Area of Interest:*** Real Time Systems, Parallel & Distributed Systems, Fault Tolerant Systems, Cloud Computing.
2	***Dr. Pratyay Kuila*** Assistant Professor and HOD Ph.D (IIT (ISM) Dhanbad), M.Tech (NITTTR Kolkata) ***Area of Interest:*** Artificial Intelligence, Machine Learning, Soft Computing, Evolutionary Algorithms, Computational Complexity, Wireless Sensor Networks, Distributed Computing.
3	***Dr. Sangram Ray*** Assistant Professor Ph.D (IIT (ISM) Dhanbad), M.Tech (IIT (ISM) Dhanbad) ***Area of Interest:*** Cryptography and Information Security, Public Key Infrastructure, Elliptic Curve Cryptography, Content Centric Network, Internet-of-Things.
4	***Mr. Md. Sarfaraj Alam Ansari*** Assistant Professor Ph.D. (pursuing from NIT Sikkim), M.Tech (NIT Durgapur), ***Area of Interest:*** Network Technology, Information Security & Risk Management.
5	***Mr. Pankaj Kumar Keserwani*** Assistant Professor Ph.D (pursuing from NIT Sikkim), MS (IIIT, Allahabad) ***Area of Interest:*** Information Security, Machine Learning.
6	***Ms. Gopa Bhaumik*** Assistant Professor Ph.D (pursuing from NIT Sikkim), M.Tech (NIT Durgapur) ***Area of Interest:*** Image Processing, Computer Vision, Deep Learning.
7	***Mr. Tarun Biswas*** Assistant Professor Ph.D (pursuing from NIT Sikkim), M.Tech (NIT Durgapur) ***Area of Interest:*** Nature-Inspired Algorithms, Distributed Computing, Big Data, Edge Computing.
8	***Mr. Banavath Balaji Naik*** Assistant Professor Ph.D (pursuing from NIT Sikkim), M.Tech (NIT Trichy) ***Area of Interest:*** Cloud Computing, Internet-of-Things, Computer Network.
Temporary Faculty Members	
1	***Mr. Gajendra Singh Shekhawat*** Assistant Professor Ph.D (pursuing from MNIT Jaipur), M.Tech (CURaj) ***Area of Interest:*** Computer Networks, Underwater Sensor Networks, Computer Organization and Architecture, Database Management System, Network Security
2	***Mr. Uddalak Chatterjee*** Assistant Professor Ph.D (pursuing from NIT Sikkim), M.Tech (IIEST Shibpur) ***Area of Interest:*** Database Management system, Network Security.
3	***Ms. Anamika Sharma*** Assistant Professor Ph.D (pursuing from NIT Hamirpur), M.Tech (PTU, Jalandhar) ***Area of Interest:*** Computer Networks, Wireless Sensor Networks, Internet-of-Things, Compiler Design, Design and Analysis of Algorithms.

Sl. No.	Name, Designation and Research Interest(s)
4	***Mr. Suman Bhattacharjee*** Assistant Professor Ph.D (IIEST Shibpur), M.Tech (WBUT) ***Area of Interest:*** Wireless Networks.
5	***Mr. Samya Muhuri*** Assistant Professor Ph.D (IIEST Shibpur), M.Tech (WBUT) ***Area of Interest:*** Complex Network Analysis, Social Networking, Graph Theory.
6	***Ms. Sayani Mondal*** Assistant Professor Ph.D (pursuing from IIT Kharagpur), M.Tech (IIT Kharagpur) ***Area of Interest:*** Software Engineering, Computer Vision.

Laboratory facilities

1. Computer Networks Laboratory (powered by NetSim)

   No. of computers: 36

   Specifications: Intel i7 (8th Gen) Processor, 3.60 GHz 8 GB RAM, 1 TB HDD, Windows 10 (64 bit) Operating system.

Laboratory Conducted

- Data Communication Laboratory
- Computer Networks Laboratory
- Advanced Computer Networks Laboratory
- Data Structure and Algorithms

Inside View of Computer Laboratory 1 (Computer Network Laboratory)

Activities and Objectives

- To build an understanding of the fundamental concepts of computer networking.
- To describe the general principles of data communication, how computer networks are organized 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 entry Advanced courses in computer networking.
- To understand basic computer network technology, different types of network topologies and protocols.
- To allow 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 specified 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.
- To efficiently implement the different data structures and solutions for specific problems.

2. Data Analytics Laboratory (powered by Hadoopand, Aneka Openstack)

No. of computers: 36

Specifications: Intel i7 (8th Gen) Processor, 3.60 GHz 8 GB RAM, 1 TB HDD, Windows 10 (64 bit) Operating system.

Laboratory Conducted

- Data Analytics Laboratory
- Artificial Intelligence Laboratory
- Machine Learning Laboratory

Inside View of Computer Laboratory 2 (Data Analytics Laboratory)

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.

3. Computing Laboratory

No. of computers: 36

Specifications: Intel i7 (8th Gen) Processor, 3.60 GHz 8 GB RAM, 1 TB HDD, Windows 10 (64 bit) Operating system.

Laboratory Conducted

- Design and Analysis of Algorithms Laboratory
- Advance Algorithms Laboratory
- Parallel & Distributed Computing Laboratory
- Programming Languages using C, Python, Java, C++

Inside View of Computer Laboratory 3 (Computing Laboratory)

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.

4. Operating Systems Laboratory

No. of computers: 36

Specifications: Intel i7 (8th Gen) Processor, 3.60 GHz 8 GB RAM, 1 TB HDD, Windows 10 (64 bit) Operating System, Ubuntu.

Laboratory conducted

- Operating Systems Laboratory
- Data Base Management Systems Laboratory
- Computer Graphics Laboratory
- Image Processing Laboratory

Inside View of Computer Laboratory 4 (Operating Systems Laboratory)

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 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.
- To introduce Computer Graphics and Image Processing.
- 2D object visualization. Geometrical transformation of 2D objects.
- 3D objects visualization. Projections.

5. Cloud Computing Laboratory

No. of computers: 18

Specifications: Intel i7 (8th Gen) Processor, 3.60 GHz 8 GB RAM, 1 TB HDD, Windows 10 (64 bit) Operating System, Ubuntu.

SuMegha – the Cloud Server: SuMegha is a scientific cloud providing cost effective and scalable High-Performance Computing (HPC) for individual researchers and organizations. It offers convenient access to reliable HPC clusters and storage, without the need to purchase and maintain sophisticated hardware. It provisions

virtual resources (servers, storage, network software and application) on demand for research to solve computation and data intensive problems.

Laboratory conducted

- Cloud Computing Laboratory
- Research and Development Activities

Inside View of Cloud Computing Laboratory

Activities and Objectives

- Creation of virtual clusters and virtual machines on demand.
- Facilitates cloud administration.
- Offers virtual infrastructure of various image sizes.
- SuMegha portal provides secure access and management of cloud services for multiple users.
- IaaS-MPI Cluster, Hadoop Cluster OpenMp servers, virtual servers, virtual storage.

6. High Performance Computing Laboratory

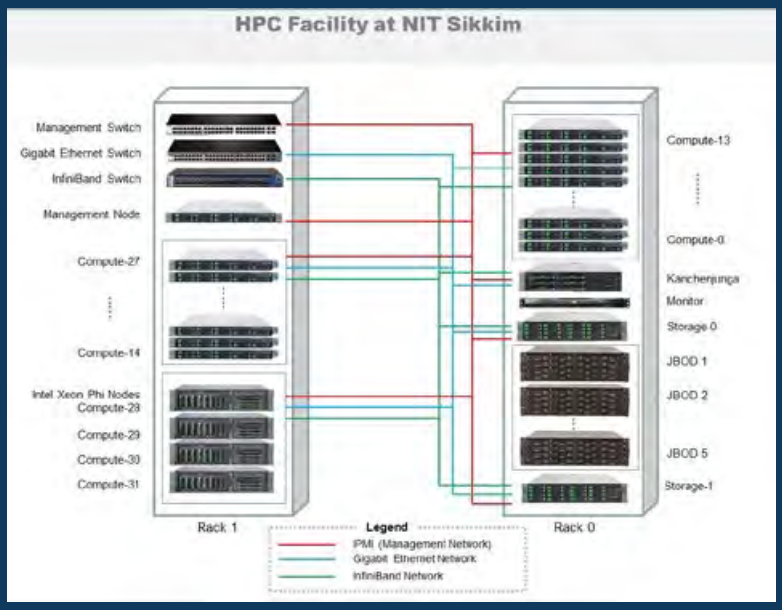
Specifications

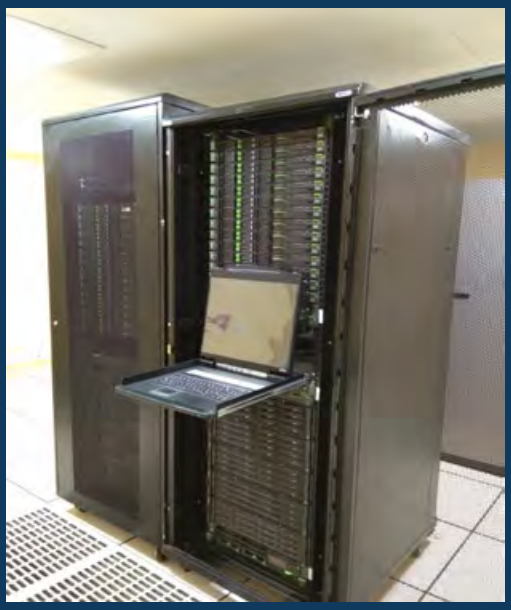
- 66 Number of Intel Xeon Ivy bridge (E5-2650V2) processor
- Peak Performance of 15.02 TFLOPS
- 528 x86_64 based processing cores
- 2.112 TB (2112 GB) of Total Memory (64 GB per Node)
- 6 X 600 GB, 15K RPM, SAS 6GBPS hot-plug HDD's in Master Node
- 2 X 250 GB, 7.2RPM, Enterprise SATA HDD's in Compute 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

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.

HPC Architecture





PARAM KANCHENJUNGA

Ongoing 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).
- **Visvesvaraya Ph.D Scheme in Electronics and IT** *funded by* DeitY, Ministry of Electronics and IT, Govt. of India **(*Rs.* 30 lacs).**
- **Design of Efficient and Secure Key Management Scheme for Internet-of-Things (IoT) using Elliptic Curve Cryptography (ECC)**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India **(*Rs.* 2 *lacs*).**
- **Design and development of scheme(s) for handling flash crowd in live video streaming in Peer-to-Peer network**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India **(*Rs.* 2 *lacs*)**
- **Design of an approach for monitoring of water quality in large reservoir using underwater sensor network,** *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India **(*Rs.* 2 *lacs*).**
- **Development of Particle Swarm Optimization Based Scheme for Improving Coverage and Connectivity in Mobile Wireless Sensor Networks**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India **(*Rs.* 2 *lacs*).**

Collaboration with other Departments/ Institutes

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

Special lecture/seminar/workshop organized by the Department

- **One Week Workshop on *"Cyber Security"*** at National Institute of Technology Raipur, Chattisgarh, India, October 14-18, 2019.
- Talk delivered on "***Importance of Nature-Inspired Computing***" at National Institute of Technology Sikkim on 01-08-2019.
- Lecture by Prof. K Chandrasekaran, NIT Suratkal on "***Cloud Computing Security***" at National Institute of Technology Sikkim on 30.05.19.
- Lecture by Prof. C. Ramakrishna, NITTTR Chandigarh on "***Wireless Security"*** at National Institute of Technology Sikkim on 02.06.19.

- Lecture by Prof. Mayank Dave, NIT Kurukshetra on "***Algorithms in cloud computing"*** at National Institute of Technology Sikkim on 01.06.19.
- Lecture by Prof. Jitendra Kumar Chhabra, NIT Kurukshetra on "***Advanced Algorithm***" at National Institute of Technology Sikkim on 30.05.19.
- Lecture by Prof. Devendra Tayal, DTU Women, Delhi on "***Advance Database Applications"*** at National Institute of Technology Sikkim on 30.06.19.
- Lecture by Prof. Md. Sarosh Umar, AMU, Aligarh on "***Graphics Theory"*** at National Institute of Technology Sikkim on 29.05.19.
- Lecture by Dr. E.S Pilli, MNIT Jaipur on "***Modern Computing"*** at National Institute of Technology Sikkim on 30.05.19.
- Lecture by Dr. Manu Madhukar, IBM, Delhi on "***Industrialization Technologies"*** at National Institute of Technology Sikkim on 03.06.19.
- Lecture by Prof. Bijay Kumar, USA on "***Advance Database Applications"*** at National Institute of Technology Sikkim on 01.06.19.
- Interactive session by Mr. Deepansh Rastogi, Alumni & Industrialist, Intel Tech Ltd. Bengaluru at National Institute of Technology Sikkim on 01.06.19.

Involvement in Community Development

- Lectures by Senior Faculty members at neighboring schools.
- Computer exposure to the children at local schools.
- Department/Laboratory visit by local school students.

Departmental committees

Sl. No.	Name of the Faculty members	Name of the Committee
1	(i) Dr. Pratyay Kuila, Convener and HoD, Convener DUGC (ii) Faculty Advisor of the concerned student(s) Member (iii) Dr. Sangram Ray, HoD Nominee (iv) Dr. Molay Roy, Nominated by the Dean Academic.	Academic Performance Evaluation Committee (APEC)
2	(i) Dr. Pratyay Kuila, Convener and HoD (ii) Dr. Sangram Ray, Convener DPGC (iii) Ms. Gopa Bhaumik, Member (iv) Mr. B Balaji Naik, Member	Departmental Undergraduate Committee (DUGC)
3	(i) Dr. Sangram Ray, Convener DPGC (ii) Dr. Pratyay Kuila, HoD and Convener DUGC (iii) Mr. Tarun Biswas, Member (iv) Ms. Gopa Bhaumik, Member (v) Dr. Sanjay Kumar Jana, Nominated by the Chairperson Senate.	Departmental Postgraduate Committee (DPGC)
4	(i) Dr. Suman Bhattacharya, Convener (ii) Mr. Uddalok Chatterjee (iii) Mr. Samya Muhuri	Departmental Examination and Result Committee
5	(i) Mr. Tarun Biswas, Convener (ii) Ms. Anamika Sharma (iii) Ms. Sayani Mondal	Departmental Time Table Committee
6	(i) Dr. Pratyay Kuila, Convener (ii) Md. Alam Ansari, Member (iii) Mr. Gajendra Singh Shekhawat, Member (iv) Indenter	Departmental Purchase Committee
7	(i) Ms. Gopa Bhowmik (ii) Ms. Anamika Sharma (iii) Ms. Sayani Mondal	Departmental Library Committee
8	(i) Dr. Pratyay Kuila, Convener (ii) Mr. Pankaj Kumar Keserwani	Departmental Networking and Internet Committee
9	(i) Mr. B. Balaji Naik, Convener (ii) Mr. Samya Muhuri	Departmental Website Development Committee

Sl. No.	Name of the Faculty members	Name of the Committee
10	Md. Alam Ansari	Coordinator, Training and Placement
11	Mr. Pankaj Kumar Keserwani	Coordinator, Community Developments
12	Ms. Gopa Bhaumik	Coordinator, Reports Preparation, etc.
13	Mr. Tarun Biswas	Laboratory In-charge, HPC
14	Mr. Pankaj Kumar Keserwani	Laboratory In-charge, CL-1, CL-2
15	Ms. Gopa Bhaumik	Laboratory In-charge, CL-3
16	Mr. B. Balaji Naik	Laboratory In-charge, Cloud Computing Lab. and CL-4
17	Mr. Pankaj Kumar Keserwani	Faculty Advisor, 1st year, B.Tech(CSE)
18	Ms. Gopa Bhaumik	Faculty Advisor, 2nd year, B.Tech(CSE)
19	Mr. B. Balaji Naik	Faculty Advisor, 3rd year, B.Tech(CSE)
20	Mr. Tarun Biswas	Faculty Advisor, 4th year, B.Tech(CSE)
21	Dr. Pratyay Kuila	Faculty Advisor, M.Tech(CSE)

List of the Institutes/Organizations where the students have undergone Internships

WinStaPro (WSP) - California	MNIT Jaipur
CDAC - Silchar	Intel Corporation - Bengaluru
SRFP - IIT Guwahati	IIT Bhilai
NE Taxi - Gangtok	Simple Guest Coliving
Sinope Integrated	Sinope Integrated
Salazar E-Commerce	Think2Exam
Foxiser	Vizag Steel Plant (Database Center)
PaSay	

Students Achievements

The students of the Department received placement offers in the following organizations with maximum package of 13 LPA.

1. Clear tax	8. Byju's
2. Marvel Semi Conductor	9. Virtusa
3. McAfee	10. LTI
4. Capgemini	11. IBM
5. Samsung	12. BitMapper
6. Cimpress	13. Invenio
7. Zensar	14. Value Labs

Research Scholars

Sl. No.	Name of Scholar	Supervisor	Research Area
1	Mr. Rahul DeoVerma	Dr. Shefalika G. Samaddar	Routing Protocols
2	Ms. Sharmistha Adhikari	Dr. Sangram Ray	Content Centric Network
3	Mr. Hanuman Godara	Prof. M. C. Govil	High Performance Computing
4	Mr. Vivek Kumar	Dr. Sangram Ray	Identity Based Cryptography

Sl. No.	Name of Scholar	Supervisor	Research Area
5	Mr. Subhash Harizan	Dr. Pratyay Kuila	Wireless Sensor Network
6	Mr. Pintu Kumar Ram	Dr. Pratyay Kuila	Machine Learning
7	Ms. Dipanwita Sadhukhan	Dr. Sangram Ray	Information Security
8	Mr. Ujjal Kumar Das	Dr. Shefalika G. Samaddar	Network Security
9	Mr. Deo Dutta Ishwar	Prof. Arun B. Samaddar	Multimedia
10	Mr. Suman Majumder	Dr. Sangram Ray	IoT Security
11	Mr. Santanu Kumar Misra	Dr. Pratyay Kuila	Quantum Inspired Algorithm Design
12	Mr. Dhananjay Kumar	Dr. Sangram Ray	Content Centric Network
13	Mr. Deepak K. Khandelwal	Prof. M.C. Govil	Computer Science and Productivity

Projects of Final Year UG students

Sl. No.	Name of Supervisor	Title of Project	Name of the student
1	Mr. Uddalak Chatterjee	Novel Approach for key Management and Authentication in Generic IoT Architecture using Elliptic Curve Cryptography.	Palzang Norgay Bhutia
2	Mr. Pankaj Kumar Keserwani	Cancer Recovery Through Yoga.	Manish Kumar
3	Ms Anamika Sharma	Information Fusion In Wireless Sensor Network For Resource Optimization.	Supriyo Banerjee
4	Ms. Anamika Sharma	Information Fusion In Wireless Sensor Network For Resource Optimization.	Rupesh Kumar Chaudhary
5	Dr. Sangram Ray	Improvement Of User Experience On Cleartax India Online Platform.	Aman Bansal
6	Mr. Gajendra Singh Shekhawat	Routing For Underwater Wireless Sensor Network.	Abisek Dahal
7	Dr. Pratyay Kuila	Screening and analysis of specific language impairment in young children by analyzing the textures of speech signal.	Deepak Prasad
8	Mr. Samya Muhuri	A Novel Method For Community Detection In Airport Network.	Meraj Ahmad
9	Md. Sarfaraj Alam Ansari	Classification of Internet Traffic and Identification of P2P Application by Analysing it's Behaviour.	Ravi Kumar
10	Pankaj Kumar Keserwani	Intrusion Detection In Wireless Networks.	Anurag Dwivedi
11	Md. Sarfaraj Alam Ansari	Selfish Peer Detection and Mitigation Measures.	Rishabh Mishra
12	Mr. Samya Muhuri	Community Detection using Game Theory.	Sandeep Jadon
13	Mr. Uddalak Chatterjee	Desktop Voice Assistant.	Rabindra Kumar
14	Dr. Sangram Ray	Forwarding Strategy In SDN Based Content Centric Network.	Divyanshi Verma
15	Mr.Gajendra Singh Shekhawat	Underwater Wireless Sensor Network.	Sunil Poddar
16	Mr. Pankaj Kumar Keserwani	Network Intrusion Detection System.	Amit Kumar Jatav
17	Mr. Pankaj Kumar Keserwani	Network Intrusion Detection System.	Shyam Kumar
18	Dr. Suman Bhattacharjee	Multicasting And Broadcasting On One Simulator.	Priyanka Kumari
19	Mr. Pankaj Kumar Keserwani	Intrusion Detection System.	Reshab Gupta
20	B. Balaji Naik	Patient Data Encryption Using DNA Cryptography And Cloud.	Abhinandan Lamsal Sharma

Sl. No.	Name of Supervisor	Title of Project	Name of the student
21	Dr. Suman Bhattacharjee	McAfee Ecommerce Payment Enhancements and System Anomaly Detection.	Anshu Priya Jain
22	Ms Gopa Bhaumik	Texture Descriptor For Face Recognition.	Rahul Meena
23	Mr. Pankaj Kumar Keserwani	Feature Selection Using Genetic Algorithm.	Kumar Akshay Gupta
24	Md. Sarfaraj Alam Ansari	Optimizing Energy Consumption With Task Co-Ordination In Clouds.	D.J.V. Pavan Kumar
25	Mr. Gajendra Shekhawat	Windows Device Driver Validation.	Prashant Agarwal
26	Mr. Uddalak Chatterjee	Novel Approach for key Management and Authentication in Generic IoT Architecture using Elliptic Curve Cryptography.	Sancha Bir Gurung
27	Dr. Pratyay Kuila	Tool For Finding The Semantic Difference Between Tweets And Reviews.	Aman Yadav
28	Mr. Tarun Biswas	Deep Learning based Multi-Class Crop Pest Classification.	Joydeep Halder
29	Mr. Tarun Biswas	A Yolo Based Image- Text Detector.	Kinthali Sai Lakshman
30	Md. Sarfaraj Alam Ansari	Flash Cloud Management in P2P network	Govardhan Misra
31	Mr B Balaji Naik	Blast Radius for Terraform	Nishu Bharti
32	Mr B Balaji Naik	Heuristic Task Scheduling Algorithm for Heterogeneous Cloud Computing Environment.	Ashwani Kumar Dwivedi
33	Ms Gopa Bhaumik	Window Server vNext 2k19 Inbox Driver Validation.	Mithun Singh
34	Ms Anamika Sharma	DRM System in Media Streaming	Sandeep Kumar Sah
35	Ms Anamika Sharma	DRM System in Media Streaming	Ravi Prakash Mishra

Projects of Final Year PG students

Sl. No.	Name of Supervisor	Title of Project	Name of the student
1	Dr. Sangram Ray	An ECC based lightweight anonymity preserving authentication scheme for smart-grid environment.	Rajesh Chilukamari
2	Dr. Pratyay Kuila	One class classification and medical image data augmentation using generative adversarial network.	Rahul Tripathi
3	Dr. Pratyay Kuila	Feature Selection From Healthcare Data Based On Deep Learning Approach And Evolutionary Algorithm	Nabendu Bhui
4	Ms Gopa Bhaumik	Computational analysis of optimizers for a convolutional neural network on Intel hardware.	Abhishek Kumar
5	Mr. Tarun Biswas	Deep Learning based Daily Stock Price Prediction Using Bidirectional Long Short Term Memory and Transfer Learning	Siddharth Pandey
6	Dr. Sangram Ray	A Lightweight And Provable Secure Mutual Authentication And Key Agreement Protocol For Smart Healthcare In Smart City Environment	Rahul Kumar

Thesis of Ph.D Scholar

Sl. No.	Name of Supervisor	Title of Thesis	Name of the student
1	Dr. Pratyay Kuila Dr. Anjan K. Ray	Multi-Criteria Workflow Scheduling Based on Nature-Inspired Algorithms for Heterogeneous Computing Systems	Tarun Biswas

Department of Electronics and Communication Engineering

> *"It is the supreme art of the teacher to awaken joy in creative expression and knowledge."*
>
> *~Albert Einstein*

Introduction

The Department aims to provide the essential technical knowledge and skills to the students during the course. Our course curriculum is designed in such a way that the students can get a strong foundation both theory wise and practically. In addition to this, students are groomed to gain leadership skills, competitive skills, and entrepreneurial skills through various activities such as expert talks, industry-visits, and industrial projects; especially through their internships and our knowledge partners.

Presently the Department is offering B.Tech in Electronics and Communication Engineering, M.Tech in Microelectronics and VLSI Design, and Ph.D. program in engineering. The candidates for admission to B.Tech and M.Tech programs were selected through JEE and GATE score, respectively. The selection for Ph.D. program was done through test/interview.

The Department focuses on industry-oriented perspective and aims to provide an edge to the students helping them to become an accomplished technocrat. While developing the course curriculum, the perspective of all the stakeholders is considered i.e. renounced academician, students, their parents, industrial partners and the agencies involved in quality education.

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, MEMS, and Solar Cells.

The Department has basic laboratory facilities to provide the students a hands-on experience with the latest technologies. The Department comprises a diverse group of young, enthusiastic and dynamic faculty members. Continuous evaluation of teaching and learning is carried 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.

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.

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.

Program Objectives (PO)

1. Precise aptitude for Academic, Research and Industry as per the proficient career selection.
2. Practical attitude for engineering and scientific approach for solving and impending technical challenges.
3. Professional ethics and positive attitude to work in a team.
4. Unremitting upgrading, growth and lifelong learning.
5. Preparing manpower for the organized, unorganized sector and for self-employment.

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 supports to carry out research, projects and patent related work.
- Guidance to excel in placement and competitive exams.
- 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

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Sanjay Kumar Jana*** Assistant Professor and HOD Ph.D (IIT Kharagpur), M.Tech (Jadavpur University) ***Area of Interest:*** High Speed Semiconductor Devices, Analog IC Design.
2	***Dr. Surajit Kundu*** Assistant Professor Ph.D (NIT Sikkim), M.Tech (IIT Kharagpur) ***Area of Interest:*** Antennas for Ultra-Wideband Communication, MIMO, 5G etc., Ground Penetrating Radar, Frequency Selective Surfaces, Satellite Communication, Remote Sensing and Navigation.
3	***Dr. Hemant Kumar Kathania*** Assistant Professor Ph.D (NIT Sikkim), M.Tech (IIT Guwahati) ***Area of Interest:*** Signal and Speech Processing
4	***Ms. Reshmi Dhara*** Assistant Professor Ph.D (pursuing from NIT Sikkim), M.Tech. (IIT Kharagpur), ***Area of Interest:*** Polarized Microstrip Antenna.
Temporary Faculty Members	
5	***Dr. Sukanta Dhar*** Assistant Professor Ph.D (IIEST Shibpur), M.Tech (Jadavpur University) ***Area of Interest:*** Solar Photovoltaic, Light Trapping, Study of Nano-materials.
6	***Dr. Ayan Chatterjee*** Assistant Professor Ph.D (IIEST Shibpur), M.Tech (Kalyani University) ***Area of Interest:*** Wideband Planar Antennas, Periodic Bandgap Structures (Frequency Selective Surfaces, Artificial Magnetic Conductors etc.).
7	***Dr. Shashank Dwivedi*** Assistant Professor Ph.D (IIT Guwahati), M.Tech (MNNIT Allahabad) ***Area of Interest:*** Analog VLSI, Biomedical circuits and systems.
8	***Dr. Avinash Kumar*** Assistant Professor Ph.D (NIT Patna), M.Tech (Jadavpur University) ***Area of Interest:*** Signal Processing (Speech Processing, Image Processing).
9	***Dr. Jeetendra Singh*** Assistant Professor Ph.D (NIT Jalandhar), M.Tech (University of Delhi) ***Area of Interest:*** VLSI Design, Microelectronics, Semiconductor Devices, Memristor.

Sl. No.	Name, Designation and Research Interest(s)
10	***Dr. Gopinath Samanta*** Assistant Professor Ph.D (IIEST Shibpur), M.E. (BESU) ***Area of Interest:*** Biomedical Antenna, THz Antenna, Electromagnetic absorber, Cloaking, Wireless Power Transfer.
11	***Dr. Sudipta Das*** Assistant Professor Ph.D (NIT Durgapur), M.Tech (Durgapur) ***Area of Interest:*** Antennas and Antenna Arrays, Evolutionary Algorithms, Multiobjective Optimization.
12	***Mr. Rahul Pal*** Assistant Professor Ph.D (IIT BHU), M.Tech (DTU, Delhi) ***Area of Interest:*** Wireless Communication (Physical Layer).
13	***Mr. Indrajit Das*** Assistant Professor Ph.D (Pursuing- IIT Guwahati),M.Tech (IIEST Shibpur) ***Area of Interest:*** Analog and RF Integrated Circuits.
14	***Ms. Priti Gupta*** Project Faculty (SMDP-C2SD), M.E (NITTTR Chandigarh) ***Area of Interest:*** Analog IC design.

Staff Details

1	***Mr. Amit Tamang*** Technical Assistant
2	***Mr. Siddarth Pradhan*** Technician

Membership of Technical Association/Society

Sl. No.	Faculty Name	Technical Societies	Membership Type
1	Dr. Surajit Kundu	URSI	Senior Member
		IEEE Indian Radio Science Society (InRaSS) Forum of Scientists, Engineers & Technologists (FOSET)	Member
2	Dr. Hemant Kumar Kathania	IEEE IEEE Signal Processing Society International Speech Communication Association (ISCA)	Member
3	Dr. Sukanta Dhar	FOSET	Member
4	Dr. Ayan Chatterjee	Institution of Engineers (India)	Associate Member
		IEEE, FOSET	
5	Dr. Sudipta Das	IEEE	Member
6	Dr. Jeetendra Singh	IEEE	Member
7	Mr. Rahul Pal	IEEE	Member
8	Mr. Indrajit Das	IEEE	Member

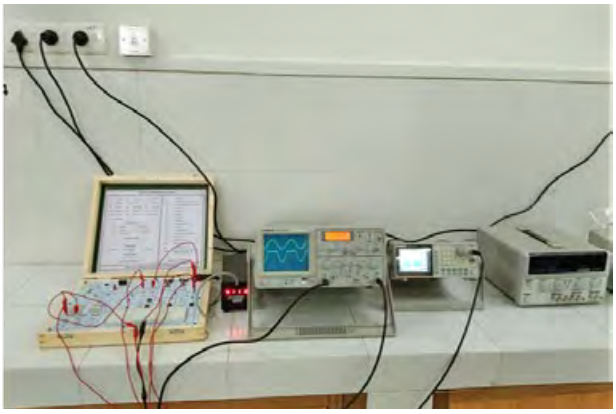
Laboratory Facilities

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

Analog Circuits Laboratory

Analog Circuit Design Laboratory course exposes the students to the world of analog from system design perspective and enables the student to understand and address the challenges as a System Designer. The goal of the course is to develop the students' ability to state-of-the-art design and conduct experiments, analyze and interpret data, ability to design a system which meets the desired specifications, 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 the design and implementation of analog and mixed-signal circuits.



Analog Circuits Laboratory

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, student will 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 to analyze and design various combinational and sequential circuits.

Digital Electronics Laboratory

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. ATmega, Arduino etc. This Laboratory enable 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.

Microprocessor and Microcontroller Laboratory

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 components 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 students mainly for performing some comparatively complex experiments and to study the output waveforms for various inputs in different channel conditions.

Some experiments in Analog Communication Laboratory are 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 also 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 techniques like TDM, and CDM are also performed. With such a variety of experiments, students can develop the knowledge of design and analysis of various parts of a communication system.

Communication Engineering Laboratory

Familiarization with the conventional and advanced wireless communication systems are pursued in this laboratory. Experiments related to current wireless technologies are carried out such as global position system (GPS), global system for mobile communication (GSM),Bluetooth, Zigbee and Wi-Fi standard. In this laboratory students can also experiment to realize the satellite communication system. Besides, 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 advance 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 up with the modern wireless communication technologies and standards used in various applications.

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.

Electromagnetics and Antenna Laboratory

Microwave Engineering Laboratory

Microwave Engineering Laboratory is suitable for performing experiments such as studying the characteristics of various microwave passive components including Directional Coupler, Branchline 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 (micro strip 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.

Electromagnetics and Antenna Laboratory

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 modeling 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 modeling and process simulations.

VLSI Design Laboratory

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.

Signal Processing Laboratory

The Digital Signal Processing (DSP) Laboratory has both software and a hardware component. 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 enable the students to understand the handling of discrete/digital signals, the basic operations of signal processing, the design and analyze 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.

Optical Communication and IoT Laboratory

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

The Internet-of-Things (IoT) laboratory is useful for the UG, PG students to cope up with the 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 model 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.

Special lecture/seminar/workshop organized by the Department

- A one-week workshop entitled, **"Recent Advances in Engineering Science and Technology (RAEST)"** was organized by the Department of Electronics and Communication Engineering, NIT Sikkim (sponsored by TEQIP-III) in association with INAE, Kolkata Chapter during March 01-05, 2020 at NIT Sikkim.
- **Curriculum workshop** organized by the Department of Electronics and Communication Engineering, NIT Sikkim on 29th May to 01st June 2019.
- **Prof. Ghanshyam Singh,** Department of Electronics and Communication Engineering, MNIT, Jaipur, delivered a special lecture organized in the Department of Electronics and Communication Engineering, NIT Sikkim in 2019.
- **Prof. Parthasarathi Chakrabarti,** Director, IIEST Shibpur visited and interacted with the Faculty members of the Department of Electronics and Communication Engineering, NIT Sikkim in 2019.
- **Prof. Pradip Kumar Jain,** Director, NIT Patna visited and interacted with the Faculty members of the Department of Electronics and Communication Engineering, NIT Sikkim in 2019.
- **Prof. Ajoy Kumar Ray,** Padma Shri and Former Director, IIEST Shibpur delivered a special lecture organized in the Department of Electronics and Communication Engineering, NIT Sikkim in 2019.
- **Prof. Ranjan Maheshwari,** Professor, Department of Electronics and Communication Engineering, Rajasthan Technical University, Kota, delivered a special lecture organized in the Department of Electronics and Communication Engineering, NIT Sikkim in June, 2019.

Ongoing project details in the Department

- SMDP C2SD: **Versatile Data Acquisition & Signal Processing Platform for Seismic Application**, funded by MeitY, Govt. of India.
- **Visvesvaraya Project: Design of application specific IC (ASIC)**, funded by MeitY, Govt. of India.
- **Design of an All Rate Clock Divider without a Phase Mismatch or Duty Cycle Distortion,** *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***
- **Design and Development of High Gain Ultra-Wideband Antenna with Sharp Multiple Notches, for Surface Penetrating Radar Application**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***

Research Activities in the Department

Scholar	Thesis Title/Research area	Supervisor(s)
Ms. Reshmi Dhara	Design of Circular Polarized Microstrip Antenna	Dr. Sanjay Kumar Jana
Mr. SubhanilMaity	Design of Power and Area Optimized High Speed Frequency Divider	Dr. Sanjay Kumar Jana
Mr. Keshab Das	Design and Analysis of Wideband LC Voltage-Controlled Oscillator (VCO) for High Frequency Applications	Dr. Sanjay Kumar Jana
Ms. Nigidita Pradhan	Design and Analysis of Phase Frequency Detector with Minimized Dead Zone for High Frequency PLL	Dr. Sanjay Kumar Jana
Ms. Priti Gupta	Transconductance – Capacitance Filter Design for the PLL applications	Dr. Sanjay Kumar Jana
Ms. Jayati Rauth	Design and Optimization of High Electron Mobility Transistor	Dr. Sanjay Kumar Jana
Mr. Arnab Som	Modelling and Design of Semiconductor Devices	Dr. Sanjay Kumar Jana
Mr. Somnath Mahato	GNSS Real Time Kinematics (RTK) for towards enhance solution accuracy	Dr. Surajit Kundu
Mr. AtanuSantra	Indian Navigation System (NavIC) and Its Advantages	Dr. Surajit Kundu

Awards/Achievements

- **Mr. Somnath Mahato** (Ph.D. scholar of **Dr. Surajit Kundu**) received URSI (International Union of Radio Science) Young Scientist Award (YSA) in the URSI Regional Conference on Radio Science (URSI-RCRS) organized at IIT-BHU in February 2020.
- **Mr. Palash Patra** and **Mr. Asit Kumar** (PG students) got selected for project internship in Intel Corporation, Bangalore in 2019.
- **Mr. Sanyam Chauhan** and **Mr. Kota Hemant Kumar** qualified GATE 2020.

Departmental Committees

Sl. No.	Name of the Faculty Members	Name of the committee
1	(i) Dr. Sanjay Kumar Jana, HoD and Convener (ii) Dr. Surajit Kundu, Convener DUGC, Member (iii) Faculty Advisor of the concerned student(s) Member (iv) Dr. Jeetendra Singh, HoD Nominee (v) Mr. Tarun Biswas, Department of CSE	Academic Performance Evaluation Committee (APEC)
2	(i) Dr. Surajit Kundu, Convener DUGC (ii) Dr. Sanjay Kumar Jana, HoD (iii) Ms. Reshmi Dhara, Member (iv) Dr. Sukanta Dhar, Member (v) Dr. Ayan Chatterjee, Member	Departmental Undergraduate Committee (DUGC)
3	(i) Dr. Sanjay Kumar Jana, HoD, ECE, Convener DPGC (ii) Dr. Surajit Kundu, Convener DUGC (iii) Dr. Sukanta Dhar, Member (iv) Dr. Sudipta Das, Member (v) Dr. Ayan Chatterjee, Member (vi) Dr. Avinash Kumar, Member (vii) Dr. Shashank Dwivedi, Member (viii) Dr. Shambhunath Barman, Department of Mechanical Engineering	Departmental Postgraduate Committee (DPGC)

Projects of Final Year UG students

Sl. No.	Name of Supervisor	Title of Project	Name of the student
1	Dr. Jitendra Prajapati	Analysis of Photoconductive Antenna for the Terahertz Radiation	Manjay Roy B150003EC
2	Dr. Jitendra Prajapati	Analysis of Photoconductive Antenna for the Terahertz Radiation	Rabi Shanker Prasad B150009EC
3	Dr. Shashank Dwivedi	Design of Low Pass Filter using OTA	Bikash Kumar Pandey B150021EC
4	Dr. Ayan Chatterjee	Some Studies on Multi-band Frequency Selective Surfaces	Anil Sharma B150023EC
5	Dr. Deepak Joshi	Study on Simulation-Based Optimization Techniques: Fireworks Algorithms & GUI Simulator of PSO Algorithm	Ankur Roy B150025EC
6	Dr. Hemant Kumar Kathania	Building a Simple Speech Recognizer	Vishesh Dab B150035EC
7	Dr. Ayan Chatterjee	Some Studies on Multi-band Frequency Selective Surfaces	Reyaz Ahmad B150041EC
8	Mrs. Reshmi Dhara	Design of Wide Slot Monopole Patch Antenna with Polarization Diversity	Sarita Kumari Gupta B150043EC

Sl. No.	Name of Supervisor	Title of Project	Name of the student
9	Dr. Deepak Joshi	Study of Two Stage CMOS Operational Amplifier	Nitu Kumari B150055EC
10	Dr. Hemant Kumar Kathania	Pressure Monitoring in Wireless Sensor Network using Zigbee Transceiver	Ayush Kumar B150065EC
11	Dr. Sanjay Kumar Jana	MOS2ALU	Vishwapriya Gautam B150081EC
12	Mr. Surajit Kundu	Design, Analysis and Performance Evaluation of Printed Ultra-Wideband Antennas	Pachigolla S S Yatish B150082EC
13	Dr. Sanjay Kumar Jana	Design and Analysis of Low Power Phase Frequency Detector (PFD) for S Band (2-4 GHz) Application	Sanghmitra Maurya B150083EC
14	Mrs. Reshmi Dhara	Design of Circularly Polarized Monopole Antenna	Akanksha Kumari B150102EC
15	Dr. Ripudaman Singh	Cross-Layer Contention based Synchronous MAC protocols for Event-Driven Wireless Sensor Networks	Shivani B150118EC
16	Dr. Sukanta Dhar	Understanding and Modeling of Silicon Based Hetero-Junction Solar Cell Using AFORS-HET	Sunil Kumar Prasad B150119EC
17	Dr. Surajit Kundu	Performance Evaluation of Printed Ultra-Wideband Antenna in Proximity of Various Surfaces	Pradeep Gupta B150120EC
18	Dr. Hemant Kumar Kathania	Pressure Monitoring in Wireless Sensor Network using Zigbee Transceiver	C.Venkata Sudheer B150121EC
19	Dr. Sanjay Kumar Jana	Design and Analysis of 2/3 Dual Modulus Prescaler (DMP) using TSPC In180nm Process Technology	Antra Pramanik B150136EC
20	Dr. Sukanta Dhar	Understanding and Modeling of Silicon Based Hetero-Junction Solar Cell Using AFORS-HET	Suresh Meena B150140EC

Projects of Final Year PG students

Sl. No.	Name of Project Supervisor	Title of Project	Name of Students and Roll No.
1	Dr. Sanjay Kumar Jana and Mr. Jn Raghavendra	Toggle Coverage for Image Processing Block(IPB)& Utility To Map Bit last To Bus Net list For GLS and Formal Verification Of Arbiter	Debajit Paul M170006EC
2	Dr. Sanjay Kumar Jana and Dr. Ashudeb Dutta	FPGA Based Digital Fir Filter	Manish Kumar M170011EC
3	Dr. Sanjay Kumar Jana and Dr. Pankaj B.Agarwal	Fabrication of Graphene-Based Devices for Gas Sensing	Piyush Lohani M170014EC
4	Dr. Sanjay Kumar Jana and Mr. Kousik Debnath	PV Wall Indicator For Optimizing The Design Quality and Analysis of SOC	Rakesh Kumar Keshari M170019EC
5	Dr. Sanjay Kumar Jana and Dr. Darshan Hurakadli	Enhancement in Validation Environment For Fixed Function Graphics Pipeline	Ghanshyam Chhetri M170020EC

Department of Electrical and Electronics Engineering

> *Electrical science has disclosed to us the more intimate relation existing between widely different forces and phenomena and has thus led us to a more complete comprehension of Nature and its many manifestations to our senses*
>
> ~Nikola Tesla

The Department of Electrical and Electronics Engineering started its operation since inception of the Institute in 2010. This Department is one of the principal and significant departments in National Institute of Technology Sikkim. The Department has been totally involved in imparting education of the highest standards through quality teaching and research in multidisciplinary fields. Endowed with a plethora of faculty members striking the right balance of 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 haveexpertise 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, 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 eminent reputation in the national and global academic network. Currently, the Department has an annual first year intake of 40 students in the B.Tech program in Electrical and Electronics Engineering.

At the postgraduate level, the Department is offering M.Tech program in Electrical Engineering (Control, Power, and Electric Drives) with intake of 22students. In future, the Department is planning to offer separate M.Tech specialization in the field of Control Systems, Electrical 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 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 Hybrid Electric Vehicles.

Presently, the Department has almost all laboratories equipped with state-of-the art equipment and latest version of software platforms. With the inputs from the 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.

The faculty members of the Department have been regularly contributing towards 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. The Department is planning to have new laboratories for Testing, Calibration and Standardization, Photovoltaic and Energy Storage, Power Quality and Energy Conservation and Electric Drives.

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, Relianceetc. have recruited students from the Department with attractive pay packages. The consistent placement record reflects the dedication and contribution of the Department. The graduates of the Department are occupying important 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-graduates 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

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Sourav Mallick*** Assistant Professor and HOD Ph.D (NIT Durgapur, 2014) ***Area of Interest:*** Power System State Estimation, Power System Transmission and Distribution, Power System Stability and Control, Soft Computing.
2	***Dr. Anjan Kumar Ray*** Assistant Professor Ph.D (IIT Kanpur,2009) ***Area of Interest:*** Control Systems, Robotics and Intelligent Systems, Machine Learning, Sensor Fusion and Smart Home/ Environment.
3	***Dr. Aurobinda Panda*** Assistant Professor Ph.D (IIT Roorkee, 2016) ***Area of Interest:*** Application of Power Electronics in Renewable Energy Sources.
4	***Dr. Molay Roy*** Assistant Professor Ph.D (IIEST Shibpur, 2017) ***Area of Interest:*** Power Electronics Converter and Controller.
5	***Dr. Pradeep Kumar*** Assistant Professor Ph.D (NIT Jamshedpur, 2017) ***Area of Interest:*** Power Quality, Control Systems, Renewable Energy Systems, Power Electronics.
Temporary Faculty Members	
6	***Dr. Amit Kumar Yadav*** Assistant Professor Ph.D (NIT Hamirpur, 2016) ***Area of Interest:*** Power Systems, Soft Computing, Renewable Energy, Photovoltaic Condition Monitoring.

Sl. No.	Name, Designation and Research Interest(s)
7	***Dr. Kuntal Mandal*** Assistant Professor Ph.D(IIT Kharagpur, 2013) ***Area of Interest:*** Control of Power Electronics Circuit, Nonlinear Control and Dynamics, Circuits and Systems.
8	***Dr. Abhishek Rajan*** Assistant Professor Ph.D (NIT Silchar, 2018) ***Area of Interest:*** Power System Optimization, Operation and Control, Soft Computing Methods, Power System Planning.
9	***Dr. Anulekha Saha*** Assistant Professor Ph.D(NIT Agartala, 2020) ***Area of Interest:*** Power Systems, Soft Computing Methods of Optimization.
10	***Dr. Prasenjit Dey*** Assistant Professor Ph.D (NIT Agartala, 2020) ***Area of Interest:*** Small Signal Stability in Power Systems.
11	***Mr. Jogi Paul*** Assistant Professor M.Tech (MNIT Bhopal, 2016) ***Area of Interest:*** Perovskite Solar Cells.

Staff Details

1	***Ms. Deepika Chettri*** Technical Assistant
2	***Mr. Manish Kumar*** Technician

Membership of Technical Association/Society

Sl. No.	Name	Technical Societies	Membership Type
1	Dr. Sourav Mallick	IEEE. IEEE Power and Energy Society. Institution of Engineers (India).	Member Member Associate Member
2	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 Member Member Member Member Member Member Member
3	Dr. Aurobinda Panda	IEEE	Member
4	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 (ISRD).	Life Membership Life Membership Life Membership Life Membership Life Membership
5	Dr. Kuntal Mandal	IEEE. IEEE CAS (Circuits and Systems Society) IEEE IES (Industrial Electronics Society)	Member Member Member
6	Dr. Anulekha Saha	Institution of Engineers (India)	Associate Member

Laboratory Facilities

1. **Basic Electrical Engineering Laboratory**
   The Basic Electrical Engineering Laboratory will help 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 madecapable to apply the knowledge gained from the laboratory to all other areas of Electrical Engineering.

2. **Measurement Laboratory**
   The Measurement Laboratory in the Department has the objective to familiarize the student with the operation of basic laboratory instrumentation such as Energy meter, multi meter, voltmeter, Ammeter etc. Another goal is to re-enforce theoretical knowledge with practice and analysis of result obtained, and also to learn correct laboratory procedures and techniques. This is accomplished by building, testing, and taking measurements on simple circuits. In the execution of the experiment, the students can distinguish between performance and the methodology behind the various parts of an instrument.

3. **Control Systems 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.

4. **Electrical Machines Laboratory**
   The Electrical Machines Laboratory is one of 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 set up which has helped to enhance the knowledge of machines of the UG and PG students.

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 solvevarious relevant engineering problems related to power transmission and distribution systems, faults, system stability etc.

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 components and their application in solving practical engineering problems. The Department is in the process of improving the facilities provided in this laboratory which will give higher practical exposure to 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.

Images of Laboratories

Fig. 1 Control System Laboratory

Fig. 2 Electrical Machine Laboratory

Fig. 3 Open Machine Laboratory

Fig. 4 Power Systems Laboratory

Fig. 5 Basic Electrical Laboratory

Fig. 6 Simulation Laboratory

Fig. 7 Electrical Measurement Laboratory

Fig. 8 Power Electronics Laboratory

Special lectures/seminars/workshops organized by the Department

- In order to shape the students according to present day requirements of industry as well as academia, the Department organized afive-day Curriculum Development workshop from 30thMay, 2020 to 3rd June, 2020 to modify its UG and PG syllabus. In the workshop, well-known personalities from different premier institutes of India as well industry participated. One alumni of the Department, who is in PGCIL, also shared his view to improve the syllabi according to the needs of industry.
- Prof. Debapriya Das, Department of Electrical Engineering, IIT Kharagpur delivered a special lecture on power systems in the Department in November, 2019.

Departmental Committees

Sl. No.	Name of the Faculty Members	Name of the committee
1	1. Dr. Sourav Mallick, HoD and Convenor 2. Dr. Molay Roy (Convenor, DUGC) 3. Faculty Advisor of each batch i. Dr. Abhishek Rajan, Faculty Coordinator, 1st Year B. Tech ii. Dr. Kuntal Mandal, Faculty Coordinator, 2nd Year B. Tech iii. Dr. Amit Kumar Yadav, Faculty Coordinator, 3rd Year B. Tech iv. Dr. Aurobinda Panda, Faculty Coordinator, 4th Year B. Tech 4. Dr. Anjan Kumar Ray, Member 5. Ms. Anulekha Saha, Member 6. Dr. Pradeep Mondal, Nominee of Dean Academic	Academic Performance Evaluation Committee (APEC)
2	1. Dr. Molay Roy (Convenor, DUGC) 2. Dr. Sourav Mallick, HoD, EEE 3. Dr. Anjan Kumar Ray (Convenor, DPGC) 4. Dr. Kuntal Mandal, Nominee of HoD 5. Mr. Prasenjit Dey, Nominee of HoD	Departmental Undergraduate Committee (DUGC)
3	1. Dr. Anjan Kumar Ray (Convenor, DPGC) 2. Dr. Sourav Mallick, HoD, EEE 3. Dr. Molay Roy (Convenor, DUGC) 4. Dr. Aurobinda Panda, Nominee of HoD 5. Dr. Pradeep Kumar, Nominee of HoD 6. Dr. Pratyay Kuila, Nominee of Chairperson Senate	Departmental Postgraduate Committee (DPGC)

Ongoing Projects/Schemes in the Department

1. **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.
2. **Dr. Anjan Kumar Ray** – Development of a prototype of a quadruped and a high dexterity robotic platform.
3. **Dr. Aurobinda Panda** – Development of integrated power quality based photovoltaic distributed generation system.
4. **Dr. Molay Roy** – Design and Development of cascaded multi-level inverter for industry applications.

Software Contest

Dr. Kuntal Mandal secured the second position in **DSWeb 2019 Tutorials on DS Software Contest**, Junior Faculty Category, November, 2019.

Participation in Faculty Development Programs

Dr. Anjan Kumar Ray has attended the following FDPs:

1. Internet-of-Things (IoT), MHRD-TEQIP-III KITE course, IIT Bombay, 27-31 January, 2020.
2. Course on Entrepreneurship, TEQIP-III course, IIT Bombay, 08 - 12 July, 2019.

Ph.D Scholars

Sl. No.	Name of Scholar	Supervisor(s)	Area of Research
1	Mr. Arindam Singha	Dr. Anjan Kumar Ray and Prof. Arun Baran Samaddar	Intelligent Networked Robotic Systems
2	Mr. Arabinda Ghosh	Dr. Anjan Kumar Ray and Dr. Md. Nurujjaman	Dynamics and Stability of Complex Network
3	Mr. Sudhansu Sekhar Das	Dr. Aurobinda Panda	Application of Multilevel Inverter to Renewable Energy Systems
4	Mr. Amit Kumar	Dr. Pradeep Kumar	Power Quality Improvement using Custom Power Devices
5	Mr. Debanjan Mukherjee	Dr. Sourav Mallick	Power Line Harmonic Reduction Using FACTS
6	Mr. Rajnikant Sahoo	Dr. Molay Roy	Cascaded Multi-Level Inverter
7	Mr. Romio Atha	Dr. Sourav Mallick	Power System Protection
8	Ms. Shrabani Pal	Dr. Sourav Mallick and Dr. Anjan Kumar Ray	Power System Stability and Control
9	Mr. Roshan Pradhan	Dr. Aurobinda Panda	Distributed PV Generation System

Projects of Final Year UG students

Sl. No.	Name of Project Supervisor	Title of Project	Name of the Students
1	Dr. Sourav Mallick	Application of Artificial Bee Colony Algorithm to Find Optimal Power Flow Solution for IEEE 30-Bus	Nikhil Saini
2		Fault Analysis of Medium Transmission Network	Jalpa Ghimirey
3	Dr. Anjan Kumar Ray	Modelling and simulation of a three link Snake-Like Robot	Akshay Kumar Gour
4		Serpentine locomotion simulation and analysis of Snake Robot	Bittu Jaiswal
5	Dr. Aurobinda Panda	CHBMLI based single-stage PVDG System	Pritam Kumar
6		Performance evaluation of 4-legged shunt active power filter for 3-φ 4-wire system	Deepak Kumar
7	Dr. Pradeep Kumar	Power factor improvement by DVR in three phase Distribution systems	Snehal M Panchal
8		Power factor improvement by DSTATCOM	Roshan Kumar Ray
9		UPQC for power quality improvement using SRF theory	Annesh Sanga

Sl. No.	Name of Project Supervisor	Title of Project	Name of the Students
10	Dr. Molay Roy	Design and implementation of bidirectional converter for UPS operation	Jahir Hussain Ahmed
11		Modified converter and its controller for UPS to get better performance and maximum utilization	Intasam Anjum
12	Dr. Kuntal Mandal	Modeling and stability analysis of DC Microgrids	Aditi Anupam
13		Dynamics and control of drive train DC-DC Converter	Kovvuri Sainath Reddy
14	Dr. Abhishek Rajan	Effect of location of VAR injection in voltage stability	Dinesh Meena
15		Economic load dispatch using gravitational search algorithm	Prasun Kumar
16		Analysis of Power system using load flow solution technique	Kanhaiya Roy
17	Dr. Amit Kumar Yadav	Techno-economic comparative study of grid-connected PV power systems for different climatic zones in India	Koshik Kumar
18		Degradation analysis of photovoltaic module	Rinzing Gyatso Bhutia
19	Dr. Anulekha Saha	Study on the effects of adding series facts device to a transmission line	Abhishek Giri
20		Study on the effect of addition of shunt compensating device to a power system network	Emmanuel Dezong Lepcha
21	Dr. Presenjit Dey	Parameter tuning of power system stabilizer using salp swarm algorithm	Vivek Kumar
22	Mr. Jogi Paul	Extraction of dye solutions for the construction of a dye sensitized solar cell	Raushan Kumar
23			Janga Anvesh Reddy

Project of Final Year PG students

Sl. No.	Name of Supervisor(s)	Title of Project	Name of student
1	Dr. Kuntal Mandal, Dr. Aurobinda Panda	Small signal analysis of power electronics circuits interfaced motor and generator	Ravi Vardhan
2	Dr. Anjan Kumar Ray	A two-stage task assignment and optimization for a multi-agent system	Mukund Ghole
3	Dr. Kuntal Mandal, Dr. Pradeep Kumar	Automated algorithm to determine design curves in parameter space for interconnected converters	Swati Priya
4	Dr. Aurobinda Panda	Enhanced Power quality-based Grid-connected PV system with battery back-up	Anurag Tiwari
5	Dr. Kuntal Mandal, Dr. Molay Roy	Design and analysis of PV emulator fed MPPT controlled boost converter for battery charging	Chinmay Das
6	Dr. Sourav Mallick, Dr. Abhishek Rajan	Solution of Optimal Reactive Power Dispatch Using Enhanced Metaheuristic Algorithm	Bimal K Dora

Department of Mechanical Engineering

> *Design is not how it looks like and feels like. Design is how it works*
>
> ~Steve Jobs

The Department of Mechanical Engineering endeavors to be recognized globally for outstanding education and research leading to well qualified, innovative, entrepreneurial and successful engineers to cater 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 the 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 our society and address a variety of needs of good 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 the 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 an understanding of modern mechanical engineering field like artificial intelligence, computer-aided design (CAD), computer-aided manufacturing (CAM), product life cycle management to design and analyze manufacturing plants, industrial equipment and machinery.
- To cater the modern knowledge of heating and cooling systems, transport system, aircraft, robotics, medical devices, weapons etc.
- To conduct multi-disciplinary 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 (2018-19)
1st Year	30	29
2nd Year	30	27
3rd Year	30	30
4th Year	30	18

Faculty Details

Members of the Department value the 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.

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Shambhunath Barman*** Assistant Professor and HOD Ph.D(Jadavpur University, 2014), M.Tech(BESU Shibpur, 2008) ***Area of Interest:*** Experimental and Numerical Heat Transfer and CFD.
2	***Dr. Ranjan Basak*** Assistant Professor Ph.D(Jadavpur University, 2012) M.M.E. (Jadavpur University, 2000) ***Area of Interest:*** Fluid Mechanics and Machine Design.
3	***Dr. Pranab Kumar Kundu*** Assistant Professor Ph.D(IIT Kharagpur), M.M.E. (Jadavpur University) ***Area of Interest:*** Microfluidics, Non-traditional Machining.
Temporary Faculty Members	
4	***Dr. Debajit Saha*** Assistant Professor Ph.D (Jadavpur University, 2017), M.M.E.(Jadavpur University, 2010) ***Area of Interest:*** Fluid Mechanics, Turbulence, CFD.
5	***Mr. Susanta Kumar Pradhan*** Assistant Professor Ph.D(Pursuing from IIEST Shibpur)M.Tech(IIEST Shibpur, 2008) ***Area of Interest:*** Production Technology, Tribology.
6	***Mr. Pratik Kumar Shaw*** Assistant Professor M.Tech(Kalyani Govt. Engineering College, 2017) ***Area of Interest:*** Production and Industrial Engineering.
7	***Mr. Manohar Kumar*** Assistant Professor M.Tech(Kalyani Govt. Engineering College,2017) ***Area of Interest:*** Design, Dynamics, Mechatronics.
8	***Dr. Arun Kumar Kadian*** Assistant Professor Ph.D(IIT Guwahati, 2019) ***Area of Interest:*** Solid State Joining Processes, FEM, Flow Analysis.
9	***Dr. Pradip Mondal*** Assistant Professor Ph.D(IIEST Shibpur, 2017), M.Tech(BESU Shibpur, 2011) ***Area of Interest:*** Renewable Energy, Solid Waste Management.
10	***Dr. Bibhuti Bhusan Nayak*** Assistant Professor Ph.D(NIT Durgapur, 2018), M.Tech (BPUT, 2009) ***Area of Interest:*** CFD, Modeling of Heat Transfer and Multiphase Flow.

Sl. No.	Name, Designation and Research Interest(s)
11	***Ms. Kirti Tewari*** Assistant Professor Ph.D(pursuing from MNNIT Allahabad) ***Area of Interest:*** Renewable Energy.
12	***Mr. Shitendu Some*** Assistant Professor Ph.D (pursuing from IIEST Shibpur) M.M.E.(IIEST Shibpur-2014) ***Area of Interest:*** Steady-state and Dynamic Characteristics of Lubricated Bearings, Porous bearing lubrication, Non-Newtonian lubricant.
13	***Mr. Dipayan Das*** Assistant Professor Ph.D(pursuing from MNIT Jaipur), M.Tech(MNIT Jaipur- 2015) ***Area of Interest:*** Ergonomics and Occupational Safety, Human Factors Engineering.
14	***Mr. Ayan Pramanick*** Assistant Professor Ph. D(pursuingfromIIESTShibpur), M.E. (BESU Shibpur, 2013) ***Area of Interest:*** Ceramic material processing, and Non-conventional machining.

Staff Details

1	***Mr. Amit Maity*** Lab Technician

Membership of Technical Association/Society

Sl. No.	Name	Technical Societies	Membership Type
1	Mr. Susanta Kumar Pradhan	Indian Society of Technical Education (ISTE)	Member
2	Dr. Pradip Mondal	International Association of Academicians (IAASSE)	Member

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
- Production Engineering Laboratory I
- Production Engineering Laboratory II
- 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

1. Mechanical Workshop

The main objective of this course is to develop a machining skill in dignity of labor, precision, and safety at workplace, teamwork and development of right attitude. This course also enhances the skill of measurements and improves the skills in basic engineering practices with hand tools and instruments which is commonly used in the basic workshop practice.

Pictorial View of Mechanical Workshop

2. Fluid Mechanics and Machinery Laboratory

The purpose of this laboratory is to reinforce and enhance your 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 for the laboratory the students will 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 will able to verify Bernoulli's Theorem and calibrate venturimeter, Orifice meter, Nozzle, Pitot tube etc. The students will able to characterize laminar, Turbulent flows and analyze the stability of floating bodies at the end of this laboratory class.

Pictorial views of some of the instruments are depicted below:

Turbines (Pelton and Francis) Test-Rig

Venturimeter, Orifice meter, Nozzles Test Rig.

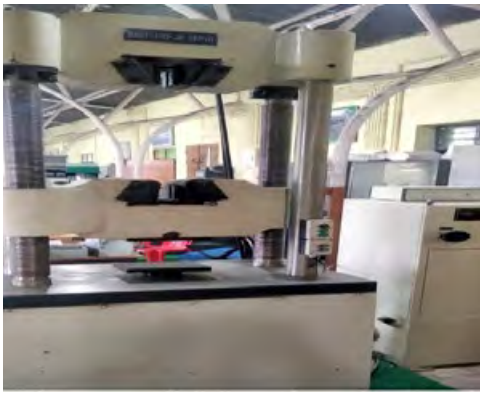
Bernoulli's Principle Demonstrator

Reynolds Apparatus

3. Elements of Solid Mechanics Laboratory

The objective of this Laboratory is to teach the 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. Furthermore, Torsion test, Hardness Test, Izod & Charpy test, Compressive strength tests are also conducted under the laboratory. Pictorial views of some of the instruments are shown below:

Torsion Testing Machine



Universal Testing Machine

Hardness Testing Machine

Spring Testing Machine

4. Computer Graphics Laboratory

The objective of this Laboratory is to teach the students about the basics of AUTOCAD, 2D modeling and isometric drawings of different mechanical parts. 3D modeling of different types of mechanical components are carried out in this laboratory.

Computer Graphics Laboratory

5. Production Engineering Laboratory- I

The objective of this course is to understand the working of 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 component. 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 understand the cutting forces, average cutting temperature in machining processes under the different feed and speeds. The course is delineated particularly to understand chip formation mechanism and relevant matters (type, colour & 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


Horizontal surface grinder


MIG welding set-up


Horizontal surface grinder

7. CAD/CAM Laboratory

CAD/CAM laboratory of the institute introduces various types of design software which are very useful for design the various types of machine component. This laboratory provides the basic concepts of CAD. In this laboratory, students can develop 2D model and 3D model on CAD software (Solid Works), various 3D Models using basic Boolean operations: shell, sweep, revolve, loft, extrude, filleting, chamfer, splines etc. To impart the knowledge on manual part programming for CNC lathe and NC milling are the major objectives of this laboratory.

Pictorial view ofCAD/CAM Laboratory

8. Machine Drawing Laboratory

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

Pictorial view ofMachine 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 understand and use various measuring tools with calibration of various measuring devices. 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:

Optical Bevel Protractor

Portable Surface Roughness

Sine Bar

Slip Gauge

Vernier Height Gauge

Thermal Imaging Camera

10. Heat Transfer Laboratory

Heat transfer laboratory of the Institute is well equipped with the modern instruments to strengthen the knowledge of students in this particular domain. Instruments of this laboratory are procured under the aegis of TEQIP-III of the Institute. This laboratory is aimed to equip the students with proper knowledge on the Conductive, Convective and Radiative heat transfer. To impart ideas on heat exchangers, different temperature measurement modules etc are also the broad objectives of this laboratory. Pictorial views of some of the instruments are shown below:

Determination of thermal conductivity of metal rod apparatus

Temperature measurement module

Heat Exchanger with Parallel Flow and Counter Flow Arrangement

Radiation Apparatus with Radiation Shield Arrangement

11. IC Engine Laboratory

Internal Combustion Engine laboratory is also well numerous instruments to enhance the knowledge of the students and the instruments are bought with the full financial support of TEQIP-III of the Institute. In this laboratory, cut-sections models of different engines along with VTD plotting are presented to the students. Performance measurement test on single cylinder diesel, petrol engines, multi-cylinder engines are also being performed in this laboratory.

Along with these above-mentioned test facilities, one multi fuel VCR engine with open ECU is there in this laboratory for carrying out research activities. Performance, combustion testing can be conduction with the available instruments using different alternative fuels. Pictorial views of some of the instruments are depicted bellow:

Fig: Diesel engine test Rig with variable test facilities and digital panel

Cut section models of engines and boilers

Fig: Flash point, fire point apparatus and digital bomb calorimeter

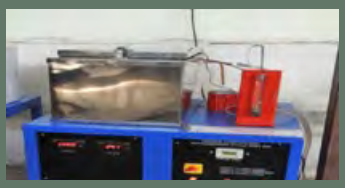
Fig: VCR multi fuel engine test Rig with variable test facilities and digital panel (ECU)

Fig: Petrol engine test Rig with variable test facilities and digital panel

12. Refrigeration and Air-conditioning Laboratory

Refrigeration & Air-conditioning laboratory is consisting of several instruments to provide hands-on knowledge on the subject. Recently in this laboratory, instruments related to refrigeration experiments are there and they are bought with the financial aid of TEQIP-III of the Institute. Cut-section models of different type compressors, domestic refrigerator is shown to the students to impart ideas about different components as well as their working. 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. This laboratory is about to be equipped with several other experimentations (especially AC test rig and thermo-electric test rig), very soon. Pictorial views of some of the instruments are depicted bellow:

VCR test rig (domestic refrigerator)-manual mode



VCR test rig (ice plant)-computerized mode

VAR test Rig

Refrigerant Leak Detector

13. Energy Conversion Laboratory

Energy conversion laboratory of the Institute is well 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 are also carried out in this laboratory. This laboratory is about to be equipped with several other experimentations, very soon. Pictorial views of some of the instruments are depicted bellow:

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

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, epicyclic gear train are available to understand machine dynamics. This laboratory also provides hands-on knowledge on static and dynamic balancing of a machine component. Pictorial views of some of the instruments are depicted bellow:

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 skill 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 removal of material in a controlled manner. Auxiliary devices as well as methods for machining to desired accuracy and quality will also be covered. The emphasis throughout the laboratory course will be on understanding the basic features of the processes rather than details of constructions of machine, or common practices in manufacturing or acquiring skill in the operation of machines. Pictorial views of some of the instruments are depicted bellow:

Radial Drill Machine

Universal Milling Machine

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.

Conference/Special Lecture/ Seminar/Workshop organized

- The Department jointly organized 6th International Conference on Production and Industrial Engineering (CPIE2019), 8-10 June at Dr. B R Ambedkar National Institute of Technology, Jalandhar with Department of Industrial and Production Engineering, Dr. B R Ambedkar National Institute of Technology, Jalandhar, Punjab, India, IKG PTU Jalandhar, NIT Srinagar, NIT Mizoram and NIT Agartala.

Special Lecture

- Dr. Ram Dayal, Assistant Professor, MNIT Jaipur, delivered lectures on Computational Fluid Dynamics from 1st May, 2019 to 3rd May2019 at Department of Mechanical Engineering, NIT Sikkim.
- Dr. Suman Chakraborty, Professor, IIT Kharagpur, delivered lectures on Computational Fluid Dynamics from 22nd April,2019 to 26th April,2019 at IIT Kharagpur.

Three days curriculum development workshop was held during 28th of May to 30th of May, 2019. At this workshop the UG curriculum was discussed, deliberated and finalized and keeping in view the following points:

- Location of the institute and faculty strength.
- Coverage of diverse area of application of Mechanical Engineering.
- Provision of enough laboratory courses in all the semesters.
- Provision of adequate number of courses on ethics and value addition.
- Employability of graduates.
- Motivation of lifelong learning.

The course content of various subjects of existing B. Tech program of Mechanical Engineering were thoroughly examined with reference to above mentioned points. In the workshop the following experts were invited.

- Prof. Dilip Sharma, MNIT Jaipur
- Prof. M L Mittal, MNIT Jaipur
- Prof. M L Meena, MNIT Jaipur
- Dr. Suril Vijay Shah, IIT Jodhpur
- Mr. Arun Kumar Goyal, Consultant and Director, A and S Engineers

Prof. (Dr.) Shailendra Sharma from Department of Aerospace Engineering of IIT Bombay delivered special lectures/talks during 18th February to 20th February in his research area including Experimental Aero-Hydrodynamics with focus on shear flows, vortical flows, turbulent mixing, and drag reduction. Prof. Sharma has also shared his experience regarding various types of industrial consultancy projects to motivate all and to think out of bounds.

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 has substantially improved the performance of the students in placement as well as in competitive examinations.

Involvement in Community Development during 2019-20

The students of near-by schools visited the Departmental Laboratories, workshops to get exposure of Mechanical Engineering. Furthermore, faculty members regularly visit neighboring/ native places to interact with the local inhabitants.

Departmental faculty members and staff participated in "SWACHH BHARAT ABHIYAN" and participated in the community development program.

Departmental Committees

Sl. No.	Name of Faculty Members	Name of the Committee
1	1. Convener (DUGC): Dr. Shambhunath Barman 2. HOD: Dr. Shambhunath Barman 3. Convener (DPGC): Dr. Ranjan Basak 4. Ms. Kirti Tewari 5. Dr. Debajit Saha	Departmental Undergraduate Committee (DUGC)
2	1. Convener DPGC: Dr. Ranjan Basak 2. HOD: Dr. Shambhunath Barman 3. Convener DUGC: Dr. Shambhunath Barman 4. Dr. Bibhuti Bhusan Nayak 5. Dr. Pradip Mondal 6. Dr. Aurobinda Panda	Departmental Postgraduate Committee (DPGC)
3	1. HOD: Dr. Shambhunath Barman 2. DUGC Convener: Dr. Shambhunath Barman 3. Faculty Advisors 1st Year Advisor: Dr. Debajit Saha 2nd Year Advisor: Mr. Manohar Kumar 3rd Year Advisor: Ms. Kirti Tewari 4th Year Advisor: Dr. Pradip Mandal 4. Dr. Ranjan Basak 5. Dr. Sukanta Dhar	Academic Performance Evaluation Committee (APEC)
4	1. Convener: Dr. Ranjan Basak 2. HOD: Dr. Shambhunath Barman 3. Faculty Advisor (s) 1st Year: Dr. Debajit Saha 2nd Year: Mr. Manohar Kumar 3rd Year: Ms. Kirti Tewari 4th Year: Dr. Pradip Mandal 4. Faculty Member from Examination Cell: Mr. Susanta Kumar Pradhan	Departmental Students Grievance Cell
5	1st Year: Dr. Debajit Saha 2nd Year: Mr. Manohar Kumar 3rd Year: Ms. Kirti Tewari 4th Year: Dr. Pradip Mandal	Faculty Advisor
6	Prof. Dilip Sharma, MNIT Jaipur Prof. M.L. Mittal, MNIT Jaipur Mr. Arun Kumar Goyal, Consultant and Director, A and S Engineers Dr. Shambhunath Barman, HoD, ME Dr. Ranjan Basak, Dean Academic	Industrial Consultancy Committee
7	1. Convener: Dr. Ranjan Basak 2. Members: a) Dr. Shambhunath Barman, b) Dr. Debajit Saha c) Dr. Sangita Deb Barman d) Dr. S D Sharma, Professor, Dept. of Aerospace Engineering, IIT Bombay	Doctoral Guidance Committee (PhD Scholar: Mr. Lakshman R)
8	1. Convener: Dr. Shambhunath Barman 2. Members: a) Dr. Pradip Mondal, b) Dr. Bibhuti Bhusan Nayak, c) Dr. Aurobinda Panda	Doctoral Guidance Committee (Mr. Aditya Kumar Singh)

Sl. No.	Name of Faculty Members	Name of the Committee
9	1. Convener: Dr. Pranab Kumar Kundu, Asst. Professor, Mechanical Engineering Department, MNNIT Allahabad (Supervisor) 2. Members: a) i] Dr. Ranjan Basak, (Joint Supervisor) ii] Dr. Debabrata Dasgupta, Mechanical Engineering Department, IIT Delhi (Joint Supervisor) b) Ms. Kirti Tewari c) Dr. Anindya Biswas	Doctoral Guidance Committee (Ph.D Scholar: Mr. Saddam Hossain Mullick)
10	1. Convener: Dr. Pranab Kumar Kundu, Asst. Professor, Mechanical Engineering Department, MNNIT Allahabad (Supervisor) 2. Members: a) Dr. Ranjan Basak, (Joint Supervisor) b) Mr. Dipayan Das c) Dr. Anindya Biswas	Doctoral Guidance Committee (Ph.D Scholar: Mr.Prasan Dewan)
11	1. Convener: Dr. Shouvik Ghosh, Asst. Professor, Mechanical Engineering Department, Jadavpur University (Supervisor) 2. Members: a) Dr. Ranjan Basak (Joint Supervisor) b) Dr. Shambhunath Barman c) Dr. Kuntal Mandal	Doctoral Guidance Committee (Mr. Virkunwar Anwesh)
12	Fluid Mechanics Lab: Dr. Debajit Saha and Ms. Kirti Tiwari Elements of Solid Mechanics Lab: Mr. Manohar Kumar and Dr. Ranjan Basak Mechanical Workshop: Mr. Pratik Kumar Shaw and Dr. Shambhunath Barman Production Engineering Lab: Mr. Susanta Kumar Pradhan and Mr. Pratik Kr. Shaw CAD/CAM Lab: Dr. Shambhunath Barman and Dr. Bibhuti Bhushan Nayak Machine Drawing Lab: Mr. Shitendu Some and Mr. Susanta Kumar Pradhan Metrology and Instrumentation Laboratory: Mr. Manohar Kumar and Mr. Susanta Kumar Pradhan Casting, Forming and Welding Laboratory: Mr. Susanta Kumar Pradhan and Mr. Pratik Kumar Shaw IC Engine Laboratory: Dr. Pradip Mondal and Dr. Shambhunath Barman Heat Transfer Laboratory: Dr. Shambhunath Barman and Dr. Pradip Mondal Heat Engine Laboratory: Dr. Pradip Mondal and Dr. Shambhunath Barman Fluid Machinery Laboratory: Dr. Debajit Saha and Ms. Kirti Tewari Computer Graphics Laboratory: Mr. Manohar Kumar and Mr. Susanta Kumar Pradhan Energy Conversion Laboratory: Ms. Kirti Tewari and Dr. B B Nayak Machine Design Laboratory: Mr. Shitendu Some and Mr. Susanta Kumar Pradhan Refrigeration and Air-Conditioning Laboratory: Dr. Pradip Mondal and Dr. Bibhuti Bhusan Nayak Machining Science Laboratory: Mr. Susanta Kumar Pradhan and Mr. Pratik Kumar Shaw Metal Cutting Laboratory: Mr. Ayan Pramanick and Mr. Susanta Kumar Pradhan Engineering Graphics: Ms. Kirti Tewari Workshop Practice: Mr. Pratik Kumar Shaw	Laboratory In-Charge
13	Departmental Representatives: Mr. Susanta Kumar Pradhan and Ms. Kirti Tewari	Examination Cell
14	Convenor: Dr. Debajit Saha Faculty Member: a) Dr. Ranjan Basak b) Mr. Pratik Kr. Shaw c) Ms. Kirti Tewari; Staff Members: Mr. Manoj Kumar	Time Table/Class Rooms/Load Distribution

Ongoing Project 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).***

List of the Institutes/Organizations where the students had undergone internship

Nuclear Fuel Complex, Hyderabad, Department of Atomic Energy, Govt. of India.

Mitacs Globa link Research Internship at Ecole Polytechnic de Montreal, Canada.

IIT Guwahati
IIT Chennai
Goa Shipyard Limited
IIT Delhi
NFC Hyderabad
DLW Varanasi
NESAC Shillong
L and T Metro Hyderabad
TATA Steel

Internship by Outside Students to the Department

- Two Students from IEM, Kolkata completed their internship at the Mechanical Engineering Department.
- One Student of Chemical Engineering, from Rajabazar Science College, Calcutta University completed his internship during September-October 2019.

Students Achievements

- Mr. Krishna Kumar Shukla scored 505 in GATE 2019 and was recruited by Larsen and Toubro Limited (ECC Division).
- Mr. Arijit Mandal scored 545 in GATE 2019 and was recruited by Larsen and Turbo Limited.
- Mr. Yash Anand Parihar, Mr. Jha Rahul Binod, Mr. Nitin Pal, Mr. Vibhu Priyadarshi and Mr. Amit Kumar attended seminar on Aeronautical System at Tezpur University.

Student Publication

- Lakshman R., Pal N., Basak R., Comparative Analysis of Inlet Boundary Conditions for Atmospheric Boundary Layer Simulation Using Open FOAM, Lecture notes in Mechanical Engineering, Springer [SCOPUS and Web of Science].
- Lakshman R., Binod JR., Basak R., Implementation of Improved Wall Function for Buffer Sub-layer in OpenFOAM, Lecture notes in Mechanical Engineering, Springer [SCOPUS and Web of Science].

Ph.D Scholars

Name of the Student	Thesis Title/Research area	Supervisor (s)	Status
Mr. Lakshman R	Simulation of Atmospheric Boundary Layer	Dr. Ranjan Basak	Pursuing
Mr. Manish Mukhopadhyay	Grinding of Titanium Alloy	Dr. Pranab Kumar Kundu	Completed
Mr. AnweshVirkunwar	Material Characterization	Dr. Ranjan Basak Dr. Shouvik Ghosh (JU, Kolkata)	Pursuing
Mr. PrasanDewan	Non-traditional Machining (EDM)	Dr. Pranab Kumar Kundu Dr. Ranjan Basak	Pursuing
Mr. Saddam HussainMallick	Natural Convection in Enclosure	Dr. Pranab Kumar Kundu Dr. Ranjan Basak Dr. Debabrata Dasgupta (IIT Delhi)	Pursuing
Mr. Aditya Kumar Singh	Thermo-Fluid	Dr. Shambhunath Barman	Pursuing

Projects of Final Year students

Sl. No.	Name of Student	Project Title	Supervisor
1	Suraj Kumar Prasad	Design of Quadcopter Drone	Dr. Shambhunath Barman
2	Saurabh Shukla	Steady State Analysis of Single Layered Porous Bearing Under Coupled Stress Lubrication	Mr. Shitendu Some
3	Nitin Pal	Optimization of the Length of Wind Tunnel Test Section for the Atmospheric Boundary Layer Simulation	Dr. Ranjan Basak
4	Rishabh Anand	Fluid Flow Analysis through Square Duct with Rectangular Baffles	Dr. Debajit Saha
5	Sourav Kumar	Performance Characteristics of a Stationary Petrol Engine Fuelled with Blended Petrol: Numerical and Experimental Investigation	Dr. Pradip Mondal
6	B. Surya Nihant	Aerodynamic Study of Vehicles	Mr. Manohar Kumar
7	Yash Anand Parihar	Performance of Diesel engine at different load fuelled with blend of diesel and ethanol	Dr. Pradip Mondal and Mr. Shitendu Some
8	Vibhu Priyadarshi	Design and Analysis of Hybrid Heat Pump For a typical classroom	Dr. Pradip Mondal
9	Saurabh Kumar	Study of Surface Integrity and Tool Life during Turning of TI6AL4V under the Different Machining Parameters with MQL	Mr. Pratik Kumar Shaw
10	Amit Kumar	Study and analysis of material property and Surface finishing by optimizing machining parameter on VMC	Mr. Susanta Kumar Pradhan
11	Jha Rahul Binod	Determining the value of Power-law exponent for different terrain using flow simulation in wind tunnel.	Dr. Ranjan Basak
12	Pawan Kumar	Study Analysis of CLADDING using MIG welding	Mr. Manohar Kumar
13	Prerna Tamang	Milling of Grade **V** Titanium Alloy	Mr. Pratik Kumar Shaw
14	Vikash Kumar	Performance evaluation of material property by optimizing machining parameter on VMC	Mr. Susanta Kumar Pradhan
15	Seera Mahanti Rao	Three Dimensional Laminar Fluid Flow Analysis with Opposing Laminar Side Jets	Dr. Debajit Saha
16	Binod Rawat	Modified Solar water heating system	Ms. Kirti Tewari
17	Sandeep Sharma	Numerical Analysis of natural convection in cold climates in buildings with eave	Dr. Shambhunath Barman
18	N.B.V.S. Rammohan Rao	A Study on Applications of Nanofluids in Solar Thermal Systems	Dr. Bibhuti Bhusan Nayak

Department of Civil Engineering

> *The story of civilisation is, in a sense, the story of engineering – that long and arduous struggle to make the forces of nature work for man's good*
>
> ~Lyon Sprague DeCamp

Civil Engineering is all about finding solutions to help shape a perfect world around us. They are the engineers who directly deal with the safety and betterment of daily life of the people. Civil engineering is not only restricted to building structures that inspire awe, rather it spreads out to diverse domains like Structural Engineering, Surveying, Environmental Engineering, Earthquake Engineering, Geotechnical Engineering, Water Resources Engineering and Transportation Engineering. There is a huge scope for Civil Engineering in any developing nation. In India, infrastructure is growing at a rapid pace and needs significant number of Civil Engineers to improve the lifestyle of the society.

The Department was established in the year 2013. The Department offers B.Tech program in Civil Engineering with a current intake of 30 students. The curriculum of the Civil Engineering Department is designed to produce good practicing engineers as well as inculcate an aptitude for research in the students as it will help them flourish in various industrial and research organizations. The Department currently has four laboratories namely Surveying Laboratory, Material Testing Laboratory, Geotechnical Engineering Laboratory and Environmental Engineering Laboratory. The Geotechnical Engineering Laboratory was upgraded recently. The procurement process for setting up the Structural Engineering Laboratory, Software Analysis Laboratory is under way. The Department is planning to offer M. Tech courses in different fields of Civil Engineering soon. The Department is also planning to start Ph.D program. The alumni of the Department are working in various government sectors and reputed private sectors. Along with that, significant number of students are also pursuing higher education in various fields of Civil Engineering. Faculty members of the Department are actively associated with the construction and maintenance activities of NIT Sikkim campus. The Department also contributes in the landscaping, gardening and environmental protection of the Institute campus at Ravangla.

Course offered

- B. Tech in Civil Engineering

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Mr. Neelanjan Dutta*** Assistant Professor (Temporary Faculty) M.E. (IIEST Shibpur, 2015) ***Area of Interest:*** Water Treatment, Solid Waste Management.
2	***Dr. Sangita Deb Barman*** Assistant Professor (Temporary Faculty) Ph.D (NIT Meghalaya, 2017), M.Tech (NIT Silchar, 2012) ***Area of Interest:*** Flood Modelling, Water Resources Management, Soil Erosion, GIS Techniques.

Sl. No.	Name, Designation and Research Interest(s)
3	***Mr. Debashish Roy*** Assistant Professor (Temporary Faculty) M.E. (IIEST Shibpur, 2014) ***Area of Interest:*** Traffic, Transportation Engineering and Transportation Structures.
4	***Dr. Sanjit Biswas*** Assistant Professor (Temporary Faculty) Ph.D (IIT Delhi, 2018), M.Tech (IIT Delhi, 2012) ***Area of Interest:*** Pile Dynamics, Soil Dynamic, Machine Foundation, Finite Element Analysis, Soil Mechanics and Foundation Engineering.
5	***Mr. Shantanu Kumar Singh*** Assistant Professor (Temporary Faculty) M. Tech (NIT Durgapur, 2017) ***Area of Interest:*** Geotechnical Engineering.
6	***Mr. Sumit Kumar*** Assistant Professor (Temporary Faculty) M.Tech (NIT Jamshedpur, 2016) ***Area of Interest:*** Geotechnical Engineering.
7	***Mr. N. Vignesh Kumar*** Assistant Professor (Temporary Faculty) M.E. (Anna University, 2013) ***Area of Interest:*** Material Science.
8	***Dr. Kushal Ghosh*** Assistant Professor (Temporary Faculty) Ph.D (Jadavpur University, 2018) ***Area of Interest:*** Geopolymer Composites, Sustainable Concrete, Green Materials, Waste Based Building Materials.
9	***Dr. Amit Kumar Rathi*** Assistant Professor (Temporary Faculty) Ph.D (IIT Guwahati, 2019), M.Tech (IIT Guwahati, 2011) ***Area of Interest:*** Composite Materials, Reliability Analysis and Design, Uncertainty Quantification, Stochastic Modelling and Computation, Surrogate Modelling, Robust Design.
10	***Dr. Dooradarshi Chatterjee*** Assistant Professor (Temporary Faculty) Ph.D (IIT Guwahati, 2019) ***Area of Interest:*** Slope stability, unsaturated soil mechanics, dynamic analysis.
11	***Dr. Souvik Patra*** Assistant Professor (Temporary Faculty) ***Area of Interest:*** Geotechnical Engineering, Transportation Geotechnique, Application of natural fibres in Geotechnical applications.
12	***Mr. Rahul Biswas*** Assistant Professor (Temporary Faculty) M.Tech (NIT Patna, 2016) ***Area of Interest:*** Concrete, Sustainable Material, Construction Material, Green Concrete.
13	***Mr. Bikram Paul*** Assistant Professor (Temporary Faculty) M.Tech (Jadavpur University, 2018) ***Area of Interest:*** Repair and Rehabilitation of concrete structures, Repair materials, Sustainable and eco-friendly construction materials.

Staff Details

1	***Mr. Subho Das*** Technical Assistant
2	***Ms. Chanda Moktan*** Laboratory Technician

Membership of Technical Association/Society

Sl. No.	Technical Societies	Type of Membership	Name of Faculty
1	Institute of Public Health Engineering (Membership No. AM-786)	Associate Member	Mr. Neelanjan Datta
2	International Association of Hydrological Sciences (IAHS Membership No. 16519)	Life Member	Dr. Sangita Deb Barman
3	Indian Geotechnical Society (Membership No. LM 3346)	Life Member	Dr. Sanjit Biswas
	International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE Membership No. LM-3346)	For the block period of 2018 – 2021)	
4	Indian Concrete Institute	Life Member	Dr. Kushal Ghosh
5	The Institution of Engineers (India)	Associate Member & Chartered Engineer	Mr. Sumit Kumar
6	ISTE (Membership No. LM 96220)	Life Member	Mr. N. Vignesh Kumar
7	The Institution of Engineers (India) (Membership No. AM 190344-9)	Associate Member	Dr. Amit Kumar Rathi
8	Indian Geotechnical Society, IGS Member Code: LM4497	Life Member	Dr. Souvik Patra
	Associated with Deep Foundations Institute (DFI) of India		

Laboratory Facilities

Sl. No.	Name of Laboratory	Faculty In-Charge	Staff In-Charge
1	Material Testing Laboratory	Dr. Kushal Ghosh	Ms. Chanda Moktan
2	Surveying Laboratory	Mr. Bikram Paul	
3	Environmental Engineering Laboratory	Mr. Neelanjan Dutta	Mr. Subho Das
4	Geotechnical Engineering Laboratory	Dr.Souvik Patra	

1. Surveying Laboratory

Surveying is the means of determining the relative position of points and the relative distance. It is an integral part of Civil Engineering education and training. Surveying of an area is essential for the design of all civil engineering projects such as highways, bridges, railways, water supply, sewage disposal, reservoirs and dams, building constructions, transmission tower, irrigation canal etc. The objectives of surveying may vary depending upon the type of projects and requirements. The economic feasibility of the engineering projects cannot be properly ascertained without undertaking a survey work. The objective of surveying laboratory is to make students familiar and competent enough to draw map in suitable scale by using different surveying instruments like total station, theodolite, auto level, global positioning system (GPS), plane table, compass, etc. Students learn to survey from conventional as well as contemporary methods and technology. The Surveying Laboratory provides students with hands-on experience of using sophisticated surveying equipment which will attune them to the technologies currently being used in the industry. In addition to standard minor equipment, the following major equipment are available in the laboratory:

Sl. No.	Name of Equipment	Experiments performed
1	Dumpy level, Auto level	Finding out the elevations of given points with respect to a given datum.
2	Transit Theodolite, Digital Theodolite	Measurement of horizontal angle by method of repetition and reiteration and by establishing control points, their position being determined by measuring the distance between the traverse stations and the angles subtended at the various stations by their adjacent stations.

Sl. No.	Name of Equipment	Experiments performed
3	Total Station	The instrument can be used to measure horizontal and vertical angles as well as sloping distance of object to the instrument.
4	GPS	GPS is rapidly adapted for surveying, as it can give a position (Latitude, Longitude and Height) directly, without the need to measure angles and distance between intermediate points.

Auto Level

Transit Theodolite

Total Station

2. Material Testing Laboratory

The Material Testing Laboratory introduces students to the various characteristics of construction materials and helps them understand the short term as well as long term mechanical and durability characteristics when subjected to different forms of loads and environmental exposure. Importance is also given to non-destructive test of structures by demonstrating the use of equipments such as ultrasonic pulse velocity testing machine and rebound hammer. Emphasis is also given on the concept of sustainability and the impact of materials with respect to it. The laboratory course is designed with the aim of acquainting the students with the prevalent testing standards of the construction industry as well as introducing them to the enormous possibilities related to the field of material science. In addition to standard minor equipment, the following major equipment are available in the laboratory:

Sl. No.	Name of Equipment	Experiments performed
1	Aggregate Impact Tester	Determination of Aggregate Impact Value (AIV) of aggregates which provides a relative measure of the resistance of an aggregate to sudden shock or impact.
2	Air Permeability Apparatus	Determination of fineness of Portland Cement by measuring the specific surface area of fine materials in square centimetres per gram of test sample.
3	Concrete Mixer (Motorised)	Concrete mixer is a machine for mixing cement, aggregate and water and turning it into concrete.
4	Compaction Factor Apparatus	Determines the compaction factor of concrete with low, medium and high workability.
5	Vee Bee Consistometer	Determination of workability of the freshly mixed concrete. The Vee-Bee test gives an indication about the mobility and the compactibility aspect of the freshly mixed concrete.
6	Rebound Hammer	Measurement of elastic properties or strength of concrete or rock, mainly surface hardness and penetration resistance.

Sl. No.	Name of Equipment	Experiments performed
7	Ultra-Sonic Pulse Velocity Testing Machine	Performs an in-situ, non-destructive test to check the quality of concrete and natural rocks. Here, the strength and quality of concrete or rock is assessed by measuring the velocity of an ultrasonic pulse passing through a concrete structure or natural rock formation.
8	Digital Compression Testing Machine	Determination of compressive strength of cube and cylinder (i.e. hardened concrete).
9	Flow Table Apparatus	It is used to identify transportable moisture limit of solid bulk cargoes. It is used primarily for assessing concrete that is too fluid (workable) to be measured using the slump test because the concrete will not retain its shape when the cone is removed.

Compression Testing Machine Hot Air Oven

3. Geotechnical Engineering Laboratory

The Geotechnical Engineering Laboratory is a space for undergraduate students to learn the fundamentals about soil mechanics, standard soil testing and build a foundation for further understanding. The Laboratory also provides state of the art facility for excellent research to the students. The laboratory is well equipped with facilities for research on the characterization of granular materials, expansive soils, shallow foundations and ground improvement techniques. In addition to standard minor equipment, the following major equipment are available in the laboratory:

Sl. No.	Name of Equipment	Experiments performed
1	Soil Hydrometer	Determination of particle size distribution of fine-grained soils passing 75 μ sieve
2	Permeability Apparatus	Determination of permeability by direct laboratory method.
3	Consolidation Apparatus	Determination of the settlements due to primary consolidation of soil by conducting one dimensional oedometer test.
4	California Bearing Ratio Test Apparatus	Evaluation of the subgrade strength for roads and pavements by conducting the penetration test.

Sl. No.	Name of Equipment	Experiments performed
5	Direct Shear Apparatus, Motorised 12 speeds with data acquisition system	Measurement of the shear strength properties of soil or rock material, or of discontinuities in soil or rock masses.
6	Triaxial Shear Test Apparatus with data acquisition system	Determination of stress-strain characteristics of soil and shear strength of soil i.e. Cohesion (c) and Angle of Internal Friction (ϕ) required for design of slopes, calculation of bearing capacity of any strata, and in many other analyses.
7	Laboratory Vane Shear Test Apparatus, motorised	Measurement of shear strength of cohesive soils, is useful for soils of low shear strength of less than about 0.5 kgf/cm2. This test gives the undrained strength of the soil, in undisturbed as well as remolded conditions both.
8	Universal Soil Sample Extruder(Electronic cum Hand Operated)	It is widely used for infiltrating specimen of soil, asphalt and concrete.
9	Unconfined Compression Tester - (Motorised)	Estimation of unconfined compressive strength and shear parameters of cohesive soil.
10	Relative Density Apparatus	Determination of the relative density of coarse grained soil
11	Swell Pressure Test Apparatus with Proving Ring and Dial Gauge	Estimation of swelling pressure of expansive soils by Constant Volume Method.
12	Standard Penetration Test Apparatus	Determination SPT value (N) of soils (especially for granular soils)

Triaxial Shear Testing Machine Direct Shear Apparatus

4. Environmental Engineering Laboratory

The purpose of the Environmental Engineering Laboratory is to make the students aware of the dangerous effects of environmental pollution that happen from water and air. The instruments like pH meter, TDS meter, DO meter, UV Spectrophotometer, BOD incubator, COD measuring instruments, water bath, autoclave, microbial analysis assembly, arsenic tester machine, electrodes for fluoride, nitrate and ammonia, titration test kit, shaker, filtration assembly and jar test apparatus help the students to understand the fundamental concepts of Environmental Engineering. The Laboratory also comprises of cutting-edge research equipment such as the dual-beam UV

Spectrophotometer which is used for the quantitative determination of different analytics such as metal ions, highly conjugated organic compound and biological macro molecules. In addition to standard minor equipment, the following major equipment are available in the laboratory:

Sl. No.	Name of Equipment	Experiments performed
1	TDS meter	To determine the total dissolved solids of a given water sample.
2	UV-Spectrophotometer	It is used for the quantitative determination of different analytics such as metal ions, highly conjugated organic compound and biological macro molecules.
3	Microprocessor Dissolved Oxygen Meter	To determine the oxygen present in a given water sample.
4	Electrodes for nitrate, fluoride and ammonium ion concentration test	It is used to measure nitrate, fluoride and ammonium ion concentration of water sample.
5	Incubator	Very important equipment to determine BOD of given water sample. It has also versatile application in different environmental analysis.
6	Microbiological analysis assembly	To determine the total coliform bacteria present in water.

UV- Spectrophotometer Microbiological Analysis Assembly

Keynote Speaker / Expert Lectures organized by the Department

To enhance the technical skill and thinking of the students, the Department organized following lectures:

- One day Lecture delivered by Prof. N. G. Bhagavan, 7th August, 2019.
- One day Lecture delivered by Prof. B. K. Dubey, 5th August, 2019.
- One day Lecture delivered by Prof. Arkopal K. Goswami, 2nd August, 2019.
- One day Lecture delivered by Prof. B. K. Dutta, 2nd October, 2019.

Departmental Committees

Sl. No.	Name of the Faculty members	Name of the Committee	Task Assigned
1	1. Dr. Anindya Biswas, Convener 2. Dr. Sangita Deb Bar-man, Member 3. Mr. Neelanjan Dutta, Member 4. Mr. Debashish Roy, Member 5. Dr. Kushal Ghosh, Member 6. Dr. Souvik Patra, Member 7. Dr. SumitSaha, Mem-ber from allied department	Academic Performance Evaluation Committee (APEC)	To take appropriate measures for academically weak students in their program of study depending upon their performance.

Sl. No.	Name of the Faculty members	Name of the Committee	Task Assigned
2	1. Dr. Sangita Deb Bar-man, Convener 2. Dr. Anindya Biswas, HOD (I/C) 3. Dr. Kushal Ghosh, Member 4. Mr. Neelanjan Dutta, Member	Departmental Undergraduate Committee (DUGC)	To look after all academic matters pertaining to the undergraduate program(s) offered by the Department.
3	All the faculty members of Department of Civil Engineering	Departmental Faculty Board (DFB)	To discuss various issues and ensure the proper discharge of all duties and responsibilities at department level to ensure holistic development of the students.

Faculty Advisor of the Department

Sl. No.	Year	Name of the Faculty Advisor
1	First Year	Dr. Sangita Deb Barman
2	Second Year	Mr. Neelanjan Dutta
3	Third Year	Mr. Debashish Roy
4	Fourth Year	Dr. Kushal Ghosh

Faculty Coordinator of various cells

Sl. No.	Year	Name of the Faculty Advisor
1	Examination Cell	1. Mr. Sumit Kumar 2. Dr. Dooradarshi Chatterjee 3. Mr. Bikram Paul
2	Training and Placement Cell	Dr. Sangita Deb Barman

Student Societies/Internship/ Extra-Curricular Activities

Student Society

The Department of Civil Engineering runs a non-profit organization "NIRMAAN". The members of the society include the undergraduate students, faculty members and alumni of the Civil Engineering Department. The society works to help and facilitate the overall development of students pursuing Civil Engineering. NIRMAAN provides a platform to showcase and sharpen students' talents through a variety of events and activities planned throughout the year. The platform is also extended to the students of other departments, whenever possible.

List of the Institutes/Organizations where the students have completed training/ internship

IT Kanpur-SFRP	BRPNNL
Powergrid Corporation of India Limited	DRAIPL
NHPC	IIM, Ahmedabad
L&T and DAEWOO JV	PWD, Meghalaya
Centre for Science and Environment, Delhi	AK Construction
Adroit Consultants	Indian Railways
NBCC	Bridge and Roof
NCC	DMRC
VIZAG STEEL PLANT	Aashray Constructions

Projects of Final Year UG students

Sl. No.	Name of Project Supervisor	Title of Project	Name of Students and Roll No.
1	Mr. Neelanjan Dutta	Study of pyrolysis of plastic fuel for production of liquid fuel	Arindam Bhattacharjee B160003CE
			Deepak Meena B160036CE
			Rajesh Kumar B150085CE
2	Dr. Sangita Deb Barman	Impact of climate change in the hydrology of a river system	Prem Narayn Ku-mar 160102CE
3	Dr. Sangita Deb Barman	Promoting start-ups in agriculture	Prince Raj B160088CE
4	Mr. Bikram Paul and Mr. Rahul Biswas	Effects of Masonry Infill Wall on the Seismic Performance of a Building	Ravi Ranjan Kumar B160044CE
			Ratan Thakur B160030CE
			Zigdal Bhutia B160016CE
5	Mr. Sumit Kumar	Effect of addition of Rice Husk on various properties of soil	Anmol Chhetri B160006CE
			Priyadarshi Rai B160107CE
6	Dr. Souvik Patra	A Study on Unreinforced and Reinforced Low Volume Roads Based on Finite Element Method Using ABAQUS	Abhishek Kumar B160080CE
			Satyam Tiwari B160100CE
			Adarsh Singh B160110CE
7	Mr. Debashish Roy	Assessment of Level of Service Criteria for Two-Lane Highways of India Under Heterogeneous Traffic Conditions	Avinash Kumar Gautam B160087CE
			Luit Baro B160123CE
			Atul Singh B160129CE
8	Dr. Kushal Ghosh	Effect of Plan Irregularities on the Seismic Performance of Reinforced Concrete Structures	Tshering Palden Bhutia B160095CE
			Meghraj Chhetri B150018CE
			Ankur Kumar B150031CE
9	Dr. Kushal Ghosh	Effect of Structural Configuration on Seismic Performance of Buildings.	Sonu Anand B160071CE

Extra-Curricular Activities

- Mr. Chandan Kumar of batch 2017-2021 represented the Sikkim State Cricket team in C.K. Nayudu Trophy 2019-2020.

Department of Mathematics

> *Mathematics is the queen of the sciences*
>
> ~Lyon Sprague DeCamp
>
> *Without mathematics, there's nothing you can do. Everything around you is mathematics Everything around you is numbers*
>
> ~Shakuntala Devi

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. Aryabhata, Varahimihira, Brahmagupta, and Bhaskara II were the leading trailblazers of their times. From Indus Valley Civilization era to the Vedic period, India has pioneered "practical mathematics," which consists of mathematical tools with a significant impact on real life.

The Department of Mathematics has been an integral part of the Institute since its inception in 2010. Mathematics is the backbone of sciences, engineering, and technology disciplines. Since its establishment, the Department has been on a strenuous journey to fulfil the students' needs in terms of specific courses offered and building their essential background to the subject. A solid foundation in the subject of mathematics, in particular, 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 (UG), postgraduate (PG), and Ph.D students. The Department currently offers two compulsory courses for the UG students of all engineering 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). For PG and 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 Numerical Linear Algebra, Operation Research, and Spectral Graph Theory. Numerical Linear Algebra is at the intersection of Linear Algebra and Numerical Methods, and it involves the study of matrix operations to generate efficient algorithms. 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 is actively involved in collaboration with some of the best institutes in the country. For instance, one of our faculty and Ph.D student is currently working with Dr. G. P. Singh of the Department of Mathematics, JNU, New Delhi.

The Department offers a compulsory course on professional practice for all UG students to prepare them for their placements. This course is one of the essential practices for enhancing the careers of undergraduate students. 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. Students can also perform very well in competitive exams like GATE with this kind of preparation.

Vision

The vision of the Department is to be seen as one of the best places to nurture mathematical skills, in the North-East region of the country. The Department wishes to acquire more Ph.D students to pave the path for excellent research and collaboration. The Department also aspires to become one of the top 10 centres for mathematics among all NITs, through its teaching and research. Going forward, 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 aims to develop an excellent natural environment of mathematics and encourage young engineers and science students to be proficient in mathematical sciences. Training students with interest in computational sciences to take up the challenging real-life problems is another agenda. However, most importantly, the Department wants to spark enough interest in young learners to independently explore the world of mathematics. All courses of the Department are periodically reviewed and updated by renowned institutes and industry experts to realize the aforementioned aim.

Values

We believe in the philosophy of inclusive learning and open discussions. We strive for excellence in the field of mathematics for faculty members and students alike. Besides, we try to include students in all kinds of academic and non-academic activities to get a fresh and innovative perspective. Moreover, the Department gives equal priority to teaching, research, and real-life applications of mathematics.

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Ravi Srivastava*** Assistant Professor Ph.D (IIT Guwahati-2012), NET-JRF, M. Sc (BHU), B. Sc (V.B.S. Purvanchal University) ***Area of Interest:*** Numerical Linear Algebra, Spectral Graph Theory.
2	***Dr. Om Prakash*** Assistant Professor & HOD 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	
3	***Dr. Suresh Kumar Choubey*** Assistant Professor Ph.D (IIT BHU),NET-JRF, M. Sc (V.B.S. Purvanchal University), B. Sc (V.B.S. Purvanchal University) ***Area of Interest:*** Theory of Rings and Modules.
4	***Dr. Prashant Jha*** Assistant Professor Ph.D. (IIT Kanpur), NET-JRF, M. Sc (IIT Kanpur), B. Sc (University of Delhi) ***Area of Interest:*** Nonparametric Inference, Nonparametric Regression.

Project Details at Department of Mathematics

- **Hybrid Production System with Uncertain Return Quality and Different Remanufacturing Policies**, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***
- **Spectral Properties of Corona Product of Signed Graphs under HK Marking**, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***

Departmental Committees

Sl. No.	Name of the Faculty Members	Name of the committee
1	i) Dr. Ravi Srivastava (Convenor) ii) Dr. Om Prakash (Member and HoD) iii) Dr. S K Choubey (Member) iv) Dr. Prasant Jha (Member) v) Dr. Anindya Biswas (Member)	Departmental Post Graduate Committee (DPGC)
2	i) Dr. Ravi Srivastava (Supervisor) (Convenor) ii) Dr. Sagaram Ray, Department of Computer Science and Engineering, NIT Sikkim (Supervisor) (Member) iii) Dr. G P Singh, Dept. of Mathematics JNU (Supervisor) (Member) iv) Dr. Om Prakash (Member) v) Dr. Madhu Jain, Dept. of Mathematics, IIT Roorkee (Member) vi) Dr. Anita Pal, Dept. of Mathematics, NIT Durgapur (External member) (Member) vii) Prof. K R Naizi, Dean (AA), MNIT (External member) (Member)	Doctoral Guidance Committee (DGC) for Ms Aparajita Borah

Research Scholar Details

Sl. No.	Scholar	Guide(s)	Research Area
1	Ms. Aparajita Bohara	Dr. Ravi Srivastava, Dr. Sangram Ray (CSE) Dr. G. P. Singh (JNU)	Spectral Graph Theory

Department of Physics

> *Not only is the Universe stranger than we think, it is stranger than we can think.*
>
> ~ Werner Heisenberg

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

The Department presently offers Ph.D program and aspires to offer M.Sc. program very soon. In line with the National Education Policy 2020, the Department is also envisioning about offering B.Sc. Program in Physics. The proposed expansion program of the Department requires the induction of quality faculty members capable of strengthening the teaching and research faculties. The Department which has some expertise in the new age research areas of quantum information and computation, will look for expertise in diverse cutting-edge areas of research in the imminent future. The goal of the Department is to kindle the inquisitive mind of students, ensure that they are knowledgeable in their subject domain, prepare them to adapt to the rapidly changing world and help them lead a happy and successful life.

Presently, the Department offers Engineering Physics and Semiconductor Devices courses to different engineering branches of B.Tech program. The Department has offered various courses like Electromagnetic Field Theory, Introduction to Electronics Engineering Profession, Mathematics and Solid State Devices etc. courses to B.Tech students of engineering disciplines, in the past few years. The faculty members and research scholars of the Department have offered remedial classes for academically weaker students during the financial year 2019-20, which has resulted in academic improvement of the students, as evidenced by their performance in the examination. At present the Department has limited laboratories due to non-availability of laboratory space at the temporary campus. However, the Institute is trying to create more space by construction of industrial sheds to establish necessary laboratories. The Institute is also hopeful of having a permanent campus soon.

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Anindya Biswas*** Assistant Professor Postdoc at HRI Allahabad (Prayagraj), Ph.D (University of Calcutta) IMSc Chennai, IACS Kolkata, M.Sc (University of Calcutta) ***Area of Interest:*** Low temperature physics, BEC, Quantum information and its interface with many-body physics
2	***Dr. Md. Nurujjaman*** Assistant Professor Postdoc at Tata Institute of Fundamental Research Centre for Applicable Mathematics Bangalore, Ph.D (HomiBhabha National Institute, BARC),M.Sc (Jadavpur University) ***Area of Interest:*** Experimental nonlinear dynamics, stock market analysis

Staff Details

1	***Happy Mondal*** Laboratory Assistant

Laboratory Facilities

1. Engineering Physics Laboratory: The Engineering Physics laboratory of the Department of Physics is equipped with the 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. The students are also exposed to some optical phenomena like total internal reflection of light and interference of light through an experiment involving optical fibers, Newton's ring apparatus and Michelson interferometer. The fiber optics apparatus and Michelson interferometer has been recently procured. These are some of the experiments they study in their theoretical Engineering Physics course. The fiber optics apparatus is used to measure numerical aperture of optical fiber while the Michelson Interferometer apparatus can be used to determine the wavelength of the light source.

Engineering Physics Laboratory

2. **Research Laboratory:** The Research Laboratory has the necessary equipment to support the research initiatives of the Department. The following necessary equipment are available in the laboratory:

   i. ***BARASOL BMC2radon monitor:*** A semiconductor detector manufactured by Algade, France to detect the radon gas concentration in the earth crust through which one can monitor movement of the Earth-crust. It has a measuring time window adjustable from 1 to 240 min, and the detection range is from 0 Bq/m3 to 1 GBq/m3.

   ii. ***Workstations:*** Presently, there are two workstations in the Department, one of them which has Intel Xeon 6128 3.4 GHz 6 core processor with 512 Gb RAM has been recently procured from the TEQIP-III fund. Presently, this workstation is being used to study the properties of entangled spin systems from the perspective of quantum information. The work is in

line with the initiative of the Government of India to promote research in the field of quantum information and computation. Some of the computation done by researchers in the Department of Physics involves simulations of quantum bits or qubits. As a part of the computation, one has to diagonalize large matrices. For example, if a physical system of, say, 16 qubits (particles) is investigated one has to diagonalize a matrix consisting of $2^{16}x2^{16}$ elements, the storage of which requires 4 GB of memory space. The memory requirement for computation grows exponentially with the size of the system being investigated. It may be noted that methods like Lanczos diagonalization algorithm are not always useful and complete diagonalization is essential. The entire computation requires a few hundred gigabytes of storage space. The workstation has made such intricate mathematical problems tractable. The other workstation is being used for investigating and predicting stock markets using ideas from non-linear dynamics. The workstations can be used for parallel programming and are fitted with GPU card for programming.

iii. ***Series Waveform Generator:*** It is used to generate various types of analog as well as digital signals.

iv. ***High-end Digital Storage Oscilloscope:*** Digital Storage Oscilloscope is used to monitor the electronic signals. It is also used to acquire long data from various electronic circuits.

Research Laboratory

Research Scholar Details

Sl. No.	Name of Faculty members	Name of the committee	Task assigned
1	1. Dr. Anindya Biswas, Convenor 2. Dr. Md. Nurujjaman	Departmental Faculty Board (DFB)	To coordinate the teaching and research work assigned to the Faculty, in the Department.
2	1. Dr. Md. Nurujjaman, Convenor 2. Dr. Anindya Biswas 3. Dr. Om Prakash, Department of Mathematics	Departmental Post Graduate Committee (DPGC)	To coordinate, design and develop curricula/proposals of new courses/ programs/ revision of the existing curricula etc.

Sl. No.	Name of Faculty members	Name of the committee	Task assigned
3	1. DGC for Mr. George Biswas i. Dr. Md. Nurujjaman ii. Dr. Anindya Biswas, Convenor iii. Dr. Sanjay Kumar Jana, Department of Electronics & Communication Engineering iv. Prof. Ujjwal Sen, Harish-Chandra Research Institute, Allahabad (Prayagraj) 2. DGC for Mr. Nilanjan Nandi i. Dr. Md. Nurujjaman ii. Dr. Anindya Biswas, Convenor iii. Dr. Sanjay Kumar Jana, Department of Electronics and Communication Engineering iv. Prof. Aditi Sen De-Harish-Chandra Research Institute, Allahabad (Prayagraj) 3. DGC for Mr. Ajit Mahato i. Dr. Md. Nurujjaman, Convenor ii. Dr. Anindya Biswas iii. Dr. Kuntal Mandal, Department of Electrical and Electronics Engineering iv. Dr. Anjan Kumar Ray, Department of Electrical and Electronics Engineering 4. DGC for Mr. Anish Rai i. Dr. Md. Nurujjaman, Convenor ii. Dr. Anindya Biswas iii. Dr. Kuntal Mandal, Department of Electrical and Electronics Engineering iv. Dr. Anjan Kumar Ray, Department of Electrical and Electronics Engineering	Doctoral Guidance Committee (DGC)	To address the quality of the student's research and progress toward the degree, and may include recommendations to improve the student's research as well as any concerns identified (with suggested actions to address the concerns)
4	Dr. Md. Nurujjaman	Laboratory In-Charge	Purchase of new equipment, maintenance of equipment etc.

Ongoing project details in the Department

- 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).
- Investigation of "shared purity" of quantum states, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India (Rs. 2 lacs).
- Identification of earthquake-induced anomalies in complex soil Rn-222 time series, Seed grant funded by TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India (Rs. 2 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

Sl. No.	Scholars	Guide(s)	Area of Research
1	Ajit Mahata	Dr. Md. Nurujjaman	Nonlinear time series analysis of stock market.
2	George Biswas	Dr. Anindya Biswas	Investigation of quantum entanglement and other quantum measures in many-body quantum systems.
3	Anish Rai	Dr. Md. Nurujjaman	Nonlinear Time-series Analysis, Characterization of Stock Market
4	Nilanjan Nandi	Dr. Anindya Biswas	Quantum Information Science

Department of Chemistry

> *Chemistry – the "Central Science" that connects physical and life sciences, and the basic sciences with applied disciplines such as medicine, material sciences, technology and engineering.*

The Department of Chemistry is an integral part of NIT Sikkim since its establishment in 2010. Since inception the Department offers various courses in first year of the B.Tech. program. The Department started Ph.D. program in Chemical Sciences in 2015. Since 2017, with the starting of a two year M.Sc program in Chemistry, it has evolved into a full-fledged, degree awarding Department of the Institute. Students from across the country take admission in M.Sc. program through Centralized Counselling for M.Sc in NITs (CCMN) and Institute Admission Test (IAT). In last three years M.Sc seats have been filled-in to full capacity. The M.Sc. curriculum is designed at par with the best Universities / Institutes in the country and takes into consideration the needs of academia and industry. The curriculum is designed in such a way that it also fulfils the needs of the students to qualify national level competitive tests like NET and GATE. Practical Training courses are mandatory in the curriculum and students also undergo internships in various institutions of academic excellence and reputed industries. M.Sc. students have been placed in various pharmaceutical industries, contract research organizations and educational technology companies through campus placement drives.

The Department boasts academically excellent faculty members. The Department has well equipped laboratories to support the practical courses in B.Tech and M.Sc. programs. The Department has a vibrant research environment with research scholars and faculty members currently executing several sponsored projects funded by DST, CSIR and DBT, Govt. of India. Faculty members of the Department regularly publish research papers in internationally acclaimed journals.

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 attracts the best students, faculty and staff nationwide. The Department aspires to be regarded as the best amongst North-East NITs, and in the Top 10 among the NITs in India and among the Top 50 chemical sciences teaching institutions in India. Our postgraduate teaching, doctoral program and internationally recognized research in chemical science and technology shall serve for the economic prosperity of Sikkim and India. The Department endeavors to achieve this vision within next 5-10 years.

Mission

Our mission is to create a Department that stands equal to any in terms of its relevance of teaching and research, its quality of support and facilities as well as the learning opportunities and working experience it offers. The Department endeavors 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 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, faculty and staff, excellence in what we do,teamwork that is based on respect, trust and integrity, and innovation to promote growth and value to our research sponsors.

Programs offered by the Department

- M.Sc in Chemistry
- Ph.D. in Chemical Sciences

Courses offered by the Department to B.Tech students

- Engineering Chemistry, Engineering Chemistry Laboratory and Health, Safety and Environment to all first year students of B.Tech program.
- Help in carrying out Environmental Engineering Laboratory course of the Department of Civil Engineering.

Student Strength

- Ph.D Research Scholars –Five (05)
- M.Sc First year (2018 – 20) – Fifteen (15)
- M.Sc Second year (2018 – 20) –Fifteen (15)

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Taraknath Kundu*** Assistant Professor and HOD 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
2	***Dr. Achintesh Narayan Biswas*** Assistant Professor Postdoc (University of Minnesota, USA 2012-13) Ph.D (University of North Bengal, 2011), M.Sc (University of North Bengal, 2003) ***Area of Interest:*** Artificial Photosynthesis, Small Molecule Activation, Bio-inspired Catalysis
3	***Dr. Sumit Saha*** Assistant Professor Ph.D (IACS/Jadavpur University, 2012), M.Sc. (IIT Kharagpur, 2007) ***Area of Interest:*** Synthetic organic chemistry, Total synthesis of natural products
Temporary Faculty Members	
4.	***Dr. Nidhi Govil*** Assistant Professor Ph.D (MNIT Jaipur, 2005), M.Sc (Roorkee University) ***Area of Interest:*** Electroanalytical Chemistry
5.	***Dr. Sumantra Bhattacharya*** Assistant Professor Postdoc (USA, South Korea, IACS, Kolkata), Ph.D (NCL Pune, 2012) M.Sc (BHU, 2007) Areas of Interest: Computational Chemistry
6.	***Dr. Amlan Das*** Assistant Professor Postdoc (Ohio State University, 2011-2012 and University of Kansas Medical Center, 2012-2015, USA and Jadavpur University, 2016-2017) Ph.D (University of Calcutta, 2011) M.Sc (University of Calcutta, 2003) Areas of Interest: Cancer biology, Cancer stem cells, Therapeutics
7.	***Dr. Biplab Kumar Maiti*** Assistant Professor Postdoc (Germany, Portugal), Ph.D (IIT Kanpur, 2008) M.Sc (University of Calcutta, 2001) Areas of Interest: Bio-inorganic chemistry
8.	***Dr. Sabyasachi Pramanik*** Assistant Professor Ph.D (IIT Guwahati, 2018), M.Sc (IIT Guwahati, 2013) Areas of Interest: Surface modifications and Energy applications of metal chalcogenide Quantum dots.

Staff Details

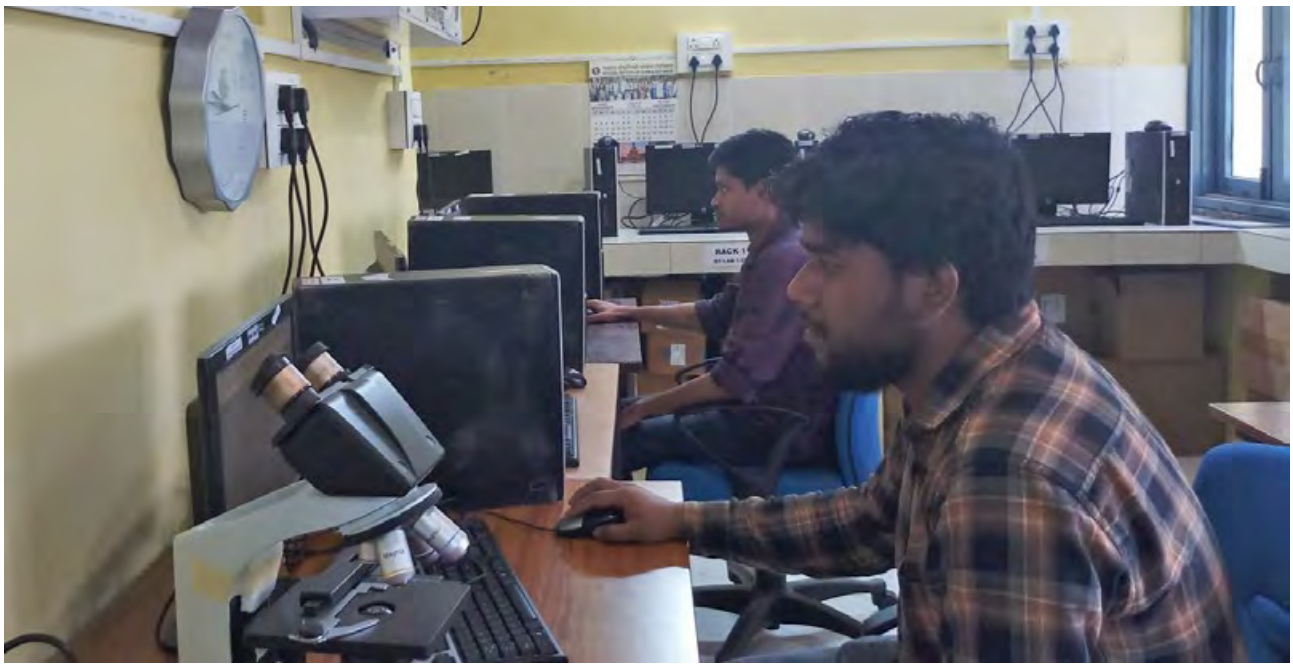
1	***Mr. Suman Pathak*** Laboratory Assistant
2	***Ms. Chandrama Majumdar*** Laboratory Assistant

Research Scholars Details

Sl. 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, environmental impacts.	Microbalance, Microcentrifuge, pH meters, Conductometers, Hot air oven, vacuum pumps, fridges, etc.	Dr. Sumit Saha
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, biochemistry experiments.	EyelaRotar Evaporator with chiller, Eyela PSL1810 80°C reaction chamber, JASCO FT-IR 4700, Metler-Toledo 0.01mg microbalance, Glove box, -20°C etc.	Dr. Taraknath Kundu
3	M.Sc Inorganic Chemistry	To teach M.Sc students about identification of salts, qualitative & quantitative estimations, catalytic activities, bioinorganic chemistry.	Electrochemical Workstation, Gas chromatograph, Hansatech Oxygraph, BOD incubator, COD digester, etc.	Dr. Achintesh Naryan Biswas
4	M.Sc Physical Chemistry	Quantitative estimations of physical constants, biophysical experiments.	Thermoscientific Evolution 300 UV-visible Spectrophotometer, Potentiometers, Polarimeter	Dr. Nidhi Govil
5	Computational Chemistry Laboratory	Molecular simulations, quantum chemical energy calculation, prediction of reaction pathways.	Gaussian 9 and Gaus View 5	Dr. Sumantra Bhattacharya

New Laboratory Set-up in 2019-20

A new Computational Chemistry Laboratory was set-up in February, 2020 with 10 latest Intel i7 computers catering to the M.Sc. students.



Workshops organized by the Department

- **Curriculum Development Workshop**
  The Department organized a curriculum development workshop in April-May, 2019 to revise the curriculum of M.Sc. Chemistry program and Chemistry courses in B.Tech program. Experts from various reputed institutions participated in the workshop, like Prof. Tapan K. Pain (IACS, Kolkata), Dr. Pamita Awasthi (NIT Hamirpur). The revised curriculum was approved in the Senate and implemented since 2019-20 academic session.
- **Technical Workshop**
  A five (05) days' workshop on "Theory & Practice of Characterization & Analytical Techniques" was organized and co-ordinated by Dr. Nidhi Govil during 18th – 22nd December, 2019 in association with Department of Chemistry and Materials Research Centre, MNIT Jaipur for hands-on training of the students in handling sophisticated analytical instruments.

Ongoing Projects/Schemes in the Department

- **Tuning the Reactivity of Metal-oxygen Intermediates in C-H Activation and Water Oxidation**, funded by SERB, DST (33 lacs).
- **Molecular water Oxidation Catalysts based on Earth Abundant Transition Metals**, funded by CSIR, Govt. of India (15 lacs).
- **Synthesis of Condensed Heterocycles with Bioactive Potential**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***
- **Bioinspired Metal Complex as Electrocatalysis for Oxygen Reduction Reaction**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***
- **Medicinally potent Biologically Active Macrolactone: Initiative to Search Industrial Scale Synthesis**, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***

Collaboration 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
- Max Planck Institute for Chemical Energy Conversion, Germany– 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
- IIT Guwahati– Dr. Sabyasachi Pramanik
- IIT Gandhinagar– Dr. Sabyasachi Pramanik
- IIT Bombay– Dr. Sumantra Bhattacharya
- IISER Kolkata– 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
- Amity University, Kolkata- Dr. Taraknath Kundu

Departmental Committees

Sl. No.	Name of the Faculty Members	Name of committee
1	Dr. Taraknath Kundu	Head of the Department
2	Dr. Taraknath Kundu	M.Sc Admission (Dy. In-charge, Centralized Counseling for M.Sc. in NITs) and Convener, Institute Admission Test for M.Sc)
3	Dr. Sumit Saha (Convener) Dr. Taraknath Kundu (HOD) Dr. Achintesh Narayan Biswas (Member) Dr. Nidhi Govil (Member) Dr. Sumantra Bhattacharya (Member) Dr. Sabyasachi Pramanik (Member) Dr. Dhananjay Tripathi (Nominated Member by Chairperson Senate)	Department Post-graduate Committee (DPGC)
4	Dr. Taraknath Kundu (Convener) Dr. Achintesh Narayan Biswas (Member) Dr. Sumit Saha (Member) Dr. Nidhi Govil (Member)	Academic Performance Evaluation Committee (APEC)
5	Dr. Nidhi Govil	M.Sc. Physical Chemistry Laboratory
6	Dr. Achintesh Narayan Biswas	M.Sc. Inorganic Chemistry Laboratory

Sl. No.	Name of the Faculty Members	Name of committee
7	Dr. Taraknath Kundu	M. Sc Organic Chemistry Laboratory
8	Dr. Biplab Kumar Maiti	M. Sc Analytical and Environmental Chemistry Laboratory
9	Dr. Sumantra Bhattacharya	M.Sc Computational Chemistry Laboratory
10	Dr. Sumit Saha	B.Tech Engineering Chemistry Laboratory
11	Dr. Sumantra Bhattacharya	Departmental Member in Examination Cell
12	Dr. Biplab Kumar Maiti	Departmental Member in Institute Research Committee
13	Dr. Sabyasachi Pramanik	Departmental Record Keeping
14	Dr. Taraknath Kundu Dr. Achintesh Narayan Biswas Dr. Sumit Saha	Faulty Advisors

Students Internship Details

Sl. No.	Name of the Student	Duration	Academic Year	Institute/ Organization
1	Mr. Syamanta Kumar Das	2 months	2018-19	NEIST CSIR Jorhat
2	Mr. Shivangi Singh	2 months	2018-19	Pharma Industry
3	Mr. Rajani Kumar Borah	2 months	2018-19	NEIST CSIR Jorhat
4	Ms. Parul Aggarwal	2 months	2018-19	Shiv Nadar University, Delhi
5	Mr. Bishal Bharali	2 months	2018-19	I.I.C.B. CSIR, Kolkata
6	Mr. Parag Jyoti Gohain	2 months	2018-19	NEIST CSIR Jorhat
7	Ms. Kongki Gogoi	2 months	2018-19	NEIST CSIR Jorhat
8	Ms. Dimpi Baruah	2 months	2018-19	ONGC, Digboy, Assam

Students Placement Details

Sl. No.	Name of the Student	Batch	Placement Year	Organization
1	Ms. Mohini	2018-2020	2019	BYJU'S Educational technology company

UGC-CSIR-NET & GATE 2020 Qualification Details

Sl. No.	Name of the Student	Batch	Qualified Examination	All India Rank
1	Mr. Rajani Kumar Borah	2018-2020	UGC-CSIR-NET	AIR - 84; CSIR JRF
2	Ms. Parul Aggarwal	2018-2020	GATE 2020	AIR - 1086
3	Mr. Amirul Islam	2018-2020	GATE 2020	AIR - 2913

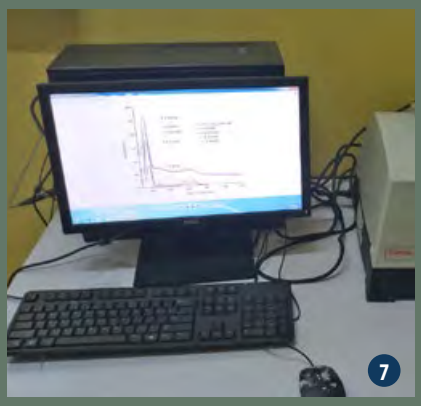
Ph.D Scholars

Sl. No.	Name	Topic	Doctoral Guidance Committee	
			Supervisor	Members
1	Mr. Sachidulal Biswas	Small Molecule Activation	Dr. Achintesh Narayan Biswas	Dr. Biplab Kumar Maiti Dr. Sumit Saha Dr. Anindya Biswas
2	Ms. Srijana Subba	Total Synthesis of Natural Products	Dr. SumitSaha	Dr. Taraknath Kundu Dr. Achintesh Narayan Biswas Dr. Md. Nurujjaman

Sl. No.	Name	Topic	Doctoral Guidance Committee	
			Supervisor	Members
3	Mr. Srijan Narayan Chowdhury	Dioxygen Reduction	Dr. Achintesh Narayan Biswas	Dr. Biplab Kumar Maiti Dr. Taraknath Kundu Dr. Aurobinda Panda
4	Mr. Panjo Lepcha	Catalytic Water Oxidation	Dr. Achintesh Narayan Biswas	Dr. Nidhi Govil Dr. Sabyasachi Pramanik Dr. Md. Nurujjaman
5	Mr. Ramanand Das	Synthesis of C-glycosides	Dr. Taraknath Kundu	Dr. Sumit Saha Dr. Achintesh Narayan Biswas Dr. Md. Nurujjaman

Projects by Final Year PG Students

Sl. No.	Name of Project Supervisor	Title of Project	Name of the Students
1	Dr. Nidhi Govil	Quality analysis of water samples from different locality in Sikkim	Khushboo Kumari
2	Dr. Sumantra Bhattacharya	Aggregation induced emission based dye sensitized solar cells: A quantum chemical study	Syamanta Kumar Das
3	Dr. Sumit Saha	Study toward synthesis of piperidine related natural products.	Bidyu Bikash Borah
4	Dr. Taraknath Kundu	Studies on the synthesis of C-glycosides from glycals	Vishal Rai
5	Dr. Sabyasachi Pramanik	White light emitting hydrogel from quantum dot complex	Shivangi Singh
6	Dr. Achintesh Narayan Biswas	Molecular copper catalysts for oxygen reduction reaction(ORR)	Rajani Kumar Borah
7	Dr. Achintesh Narayan Biswas	Reactivity landscape of high-valent metal-oxo transients	Parul Aggarwal
8	Dr. Sumantra Bhattacharya	Arsenic removal from water: A first principle study	Mohini
9	Dr. Sumit Saha	Study toward isolation and synthesis of macro lactone related natural product	Bishal Bharali
10	Dr. Sabyasachi Pramanik	Surface complexed ZnO quantum dot for electrocatalytic water oxidation	Paragjyoti Gohain
11	Dr. Taraknath Kundu	Synthesis of pyrrolo [3,2-e]indoles and carbohydrate based thiazoles	Kongki Gogoi
12	Dr. Biplab Kumar Maiti	Study on the effects of the interaction of acenapthenequinone – an environmental pollutant with albumin protein	Dimpi Boruah
13	Dr. Nidhi Govil	Determination of iron and arsenic in water	Hirak Jyoti Borah
14	Dr. Biplab Kumar Maiti	Chemical modification of xenobiotics by Cu/Ni-ATCUN site in bovine serum albumin and impact on human health	Amirul Islam



1. Technical Workshop in Collaboration with MNIT Jaipur, December 2019
2. Farewell Ceremony of 2017-19 batch M.Sc. Students, May 2019
3. Technical Workshop in Collaboration with MNIT Jaipur, December 2019
4. Technical Workshop in Collaboration with MNIT Jaipur, December 2019
5. Chemistry Research Laboratory
6. Ph.D. Scholar Working
7. Thermo Evolution 300 UV-Vis Spectrophotometer

Department of Humanities and Social Sciences

> *The sciences are the 'how' and the humanities are the 'why' – why are we here, why do we believe in the things we believe in. I don't think you can have the 'how' without the 'why'.*
>
> ~ Werner Heisenberg

The Department of Humanities and Social Sciences is interdisciplinary in orientation which offers undergraduate courses to the Engineering students in English, Economics, and Management. The Department started its Ph.D program in the year 2014 and it aims to introduce postgraduate course in future. Presently, areas of topical interest such as *Modern Indian Fiction, Cinematic Adaptations of Shakespeare, and North-Eastern Literature* in the subject discipline of English and Industrial Economics & Entrepreneurship in the subject discipline of Economics are explored by the Departmental faculty and research scholars. Specific courses on Communicative skills, Phonetics, Linguistics, and Certificate Courses on some of the regional and European languages feature in the long-term agenda of the Department. The Department strongly believes in providing opportunities to students for discussion and debate to meet the challenges of a highly competitive and ever-changing world. The Department fosters to inculcate an interdisciplinary approach among the students by collaborating with other premier educational institutes of the country.

The Department envisages in preparing the undergraduate students for placements in conformity with the industrial working environment. Continuous revision of the curriculum and the syllabus is made to cater to the industry requirements. With the approval from the Senate of the Institute, the contents of the Curriculum Development Workshop of 2017 were implemented by offering two new core courses entitled *English Language and Literature and Human Values and Effective Communication* in English. The earlier courses of *Economics and Management* were restructured into Engineering Economics and *Principles of Management*. The Department has also volunteered to offer an audit course entitled *Professional Practice* (English) to enhance and adept the communication skills of the students. For a sound and experiential learning the Department instils in young minds the aptitude for English speaking through group discussions, debates and extempore. A Curriculum Development Workshop of May 2019 witnessed leading academicians with their insight and experiences in improving the existing curriculum.

Courses offered by the Department to B.Tech Students

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

Language Laboratory for B. Tech Students

In order to enhance the language learning capability of B. Tech students, an iTell-Orell Digital Language Laboratory with state-of-the-art facilities was established in December 2019. The laboratory is designed in cognitive science perspective and explores the relationship of human language with cognition and culture through studies of language processing in various domains. The arena of language studies coupled with human-computer interface opens up new vistas of understanding by helping students measure the depth of their language learning capabilities. In order to achieve these ends a modern academic research laboratory has been set up to focus on the way a speech is produced, comprehended, processed and acquired.

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	***Dr. Dhananjay Tripathi*** Assistant 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.
2	***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.
3	***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.

Research Scholars

Sl. No.	Name	Supervision and Guide	Broad Area of Research
1	Mrs. Laxmi Rai	Dr. Dhananjay Tripathi	Cinematic Adaptations of Shakespeare
2	Mrs. Lekha Rai	Dr. Dhananjay Tripathi	North-Eastern Literature
3	Mr. Bhaskar Chettri	Dr. Dhananjay Tripathi	Modern Indian Fiction
4	Ms. Ankita Sarmah	Dr. Dhananjay Tripathi & Dr. Bedabrat Saikia (Co-supervisor)	Industrial Economics & Entrepreneurship

Research Project Completed

The Occult Tradition of Shamanism in Sikkim: A study of its core belief and Tribal Nature, funded by ICSSR **(2 lacs).**

Research Project

The Significance of PASHU (Animals) in Indian Mythology and Culture Dr. Dhananjay Tripathi, *Seed grant funded by* TEQIP-III, NPIU, Ministry of Human Resource and Development, Govt. of India ***(Rs. 2 lacs).***

Workshop Organised

The Department of Humanities and Social Sciences, National Institute of Technology Sikkim has organised a **Two-Day Workshop on PEDAGOGY**, during **12th and 13th May 2019**. The workshop was fully funded by **TEQIP-III.**

The workshop was inaugurated on **12th May 2019**, by our Honourable Director **Prof. M.C. Govil**, with his enlightening introductory note. It was followed by the first session in which **Prof. R.L. Raina** (Ex-Prof. IIM Lucknow) Vice Chancellor of J.K. Lakshmipat University, Rajasthan, shared his thoughts on different facets of pedagogy. In the second session, **Prof. K. K. Agarwal** (Ex-VC GGSIP University, New Delhi) Chairman of National Board of Accreditation talked about evolving trends of innovative methods in pedagogy.

On the second day, during the first session of the workshop, our Honourable Director **Prof. M.C. Govil** shared his views on the importance and adaptation of relevant pedagogical tools and techniques to suit the capability and needs of the students. In the second session, **Prof. Saroj Agarwal** (Prof. of Chemistry, GGSIP University, New Delhi) deliberated the need for changes in the existing system of pedagogy followed in our Indian context. **Dr. Dhananjay Tripathi**, Head, Department of Humanities and Social Sciences, proposed the vote of thanks in the Valedictory Session.

A large number of research scholars and teaching faculties participated and benefitted from the workshop. They shared their learning experiences in the feedback session.

Expert Talks Organised by the Department

1) **Prof. Supriya Agarwal**, Central University of Rajasthan, talked to II- and III-year B. Tech students about harnessing the *'Creative and Critical Thinking'* as a part of their academic development, on **28th February 2020.**

2) **Prof. R. K. Singh**, University of Allahabad, shared his expert knowledge on *'Communication for Specific Purposes'* to II- and III-year B.Tech students during **2nd – 4th March 2020**.

Research Scholars

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. Marxi Oli	Departmental Faculty Board
3	Dr. Dhananjay Tripathi	Faculty Advisor B.Tech 1st Year
4	Dr. Dhananjay Tripathi	Faculty in Charge Publication web information system
5	Dr. Dhananjay Tripathi	Faculty In-Charge Training and Placement Cell
6	Dr. Dhananjay Tripathi	Faculty in Charge Promotion of Indian Languages and Culture
7	Dr. Dhananjay Tripathi	Public Information Officer
8	Dr. Dhananjay Tripathi Dr. Richa Mishra Dr. Sangram Ray Dr. Shri Krishan Rai (External)	DGC for Mr. Bhaskar Chettri
	Dr. Dhananjay Tripathi Dr. Bedabrat Saikia Dr. Marxi Oli Sigo Dr. Md.Nurujjaman Dr. Hari K.Choudhury (External)	DGC for Ms. Ankita Sarmah
	Dr. Dhananjay Tripathi Dr. Richa Mishra Dr. Achintesh N Biswas Dr. Rajiv Ranjan Dwivedi (External)	DGC for Mrs. Laxmi Rai
	Dr. Dhananjay Tripathi Dr. Richa Mishra Dr. Md.Nurujjaman Dr. Ajay.Kumar Chaubey (External)	DGC for Mrs. Lekha Rai

Various other Activities organized by the Department

Regnant Ink:

The Regnant Ink was established on **24th February 2018** to inculcate a literary and vocal temper in the campus. Numerous literary activities were organized by the club. Some of the major events organized by ***The Regnant Ink*** during 2019-2020 include Trivia Time, Hindi Pakhwada, Swachhta Abhiyaan, Spell Bee, Constitution Day, International Mother Language Day and many more. The lists of events organized are given below:

The Regnant Ink

Sl. No.	Event	Date
1	Poets Adda	06.04.2019
2	Trivia Time	18.08.2019
3	Hindi Pakhwada	09.09.2019 to 15.09.2019
4	Spell Bee	09.11.2019

Sl. No.	Event	Date
5	Constitution Day	26.11.2019
6	Cleanliness Drive	26.01.2020
7	International Mother Language Day	01.03.2020

1. **Poets Adda**
   On the auspicious occasion of World Theatre Day 27th March, with numerous participants were found competing to outshine each other, the Poets Adda was able to provide a platform for the budding poets and poetesses of the Institute. The event was staged by emerging writers, poets, singers, photographers, actors, comedians and many more who came together to promote art and culture, on **9th April 2019.**

2. **Trivia Time**
   18th of August 2019 saw an exciting battle of Trivia Quiz. Teams of three members, battled against each other. The Trivia remained as a war zone in the Multipurpose Hall, when the students were ready with their knowledge and pace to answer the question first. The event consisted of interesting themes like The Mahabharata, The Avengers, Friends, Game of Thrones and Harry Potter, the event stood as a full entertainment. This not only helped the students to gain a good competitive spirit and learning experience, but also gave them ample amount of knowledge and entertainment.

3. **Hindi Pakhwada**
   The Regnant Ink organized Hindi Pakhwada during **9th - 15th September 2019** which focused on the importance of Hindi language and different native languages of India through different events. Each event provided a platform for the students to showcase their professional skills. A Swachhta Campaign was organized inside the campus to encourage maximum students' involvement towards the environment. Movie Hour was also organized for the students.

Events organized During Hindi Pakhwada

Sl. No.	Event	Date
1	Group Discussion	09.09.2019
2	Essay Writing Competition	11.09.2019
3	Poem Recitation	12.09.2019
4	A Picture or A Thousand Words	13.09.2019
5	Debate	14.09.2019
6	War of Words	15.09.2019

4. Spell Bee

An interesting competition at which contestants were asked to spell out a broad selection of words, was organized on **9th November 2019**. The participants were asked to spell a broad selection and wide range of words, with a varying degree of difficulty. The competition was divided into three rounds based on the difficulty level. This event has helped the students to learn basic spelling rules and strategies in English Language.

5. Constitution Day

The Constitution Day or Samvidhan Diwas was celebrated on **26th November 2019**, at the campus. A quiz competition was organized before the celebration on the Enactment and Adoption of the Indian Constitution wherein a total number of 90 students participated. As per the guidelines of MHRD, the event was to be held from 11:00 AM, but due to the pre-scheduled.

Examinations, the event commenced at 4:30 P.M. The event was graced by **Prof. M. C. Govil**, the Director of National Institute of Technology Sikkim, as the chief guest and **Major Ankit Choudhary** and **Captain Paras Adlakha**, members of the Special Frontier Forces, as the guests of honor. The event was inaugurated with the reading of the Preamble of the Indian Constitution in both Hindi and English languages. Re-invoking the spirit of nationalism, Episode 10 of Samvidhan, a documentary on Indian Constitution, was screened. The Regnant Ink acknowledged the efforts of the participants of all organized events. Finally, the prizes were distributed to the winners. The event was concluded with playing the National Anthem.

6. Cleanliness Drive

On the auspicious occasion of **71st Republic Day**, The Regnant Ink organized a cleanliness drive on **26th January 2020**, to promote "Swachhta Hi Sewa". Around 100 students participated in the cleanliness drive. The drive was remarkable as many students as well as teachers had participated in it. All the places within the Institute premises including academic building, administrative block, multipurpose hall, park and the hostel area were cleaned during the drive.

7. International Mother Language Day

Language is not only a mode of communication, but it also holds the key to one's identity and an intensive link to one's culture as well. The Regnant Ink has celebrated International Mother Language Day on **1st March 2020**, in the Multipurpose Hall, of the campus. **Dr. Rajeev Kumar Rawat**, a Senior Hindi Officer, Department of Official Language of IIT Kharagpur, was the Chief Guest of the event. He delivered the lecture on the importance of Mother Language day, in an enthusiastic manner. In this Program many students showcased their talents, culture and skills through the various art forms like singing, dancing, skit, poetry through their Mother languages such as Hindi, Bengali, Tamil, Telugu, Maithili, Bhojpuri, Nepali, Gujarati, Urdu and many other languages. The event was a huge success with the active participation of more than 100 students. The event was concluded with the National Anthem. In this celebration, three more events were added:

Potpourri

A new competition named "Potpourri" with a twist of *"De Stringere Liber",* which in plain English, De Stringere Liber means the desire *"To Liberate the Stressed"* was conducted on **2nd March 2020**, as the first event of International Mother Language Day. Questions were based on *"India's Struggle for Independence".*

Death by Rebuttal: Royal Graveyard

"Death by Rebuttal" with a twist of *"Royal Graveyard"* was organized on **2nd March 2020**. In this event, 12 teams were competed against each other to become the champion of *"Kurukshetra of Mahabharata".*

Trivia: Battle of House

Trivia was conducted on **5th March 2020**. There were 15 teams, and three members in each team; five first-rate topics that boost up the interests of the students, and everyone had to face very difficult questions which required strenuous effort to answer. The trivia included five topics, in the competition rounds. They were: 1) Game of Thrones 2) Hunger games 3) Naruto 4) Harry Potter 5) Demon Slayer.

Similar to the first trivia, it also had a winning team and a runner up team. The winners once again proved that speed and perfection always help us to win a battle.

Technical Education Quality Improvement Program

(TEQIP-III)

National Institute of Technology Sikkim is a beneficiary of Technical Education Quality Improvement Program (TEQIP-III). The program, funded by the World Bank, is being implemented by National Project Implementation Unit (NPIU), Govt. of India. One of the key objectives of the project is to provide support to technical institutions in order to strengthen and improve their policy, academic and management practices.

NIT Sikkim has been chosen as a mentee Institution and allocated a fund of rupees fifteen crores to improve quality and equity. The Institute is being mentored by Indian Institute of Technology, Kharagpur. The Institute has defined the following activities in the Institutional Development Proposal:

- Procurement of Goods (equipment, furniture, books, learning resources, software) and minor civil works to strengthen the academics and research activities of the Institute. Total fund allocated for this purpose is rupees nine crores.
- Improvement in Teaching, Learning and Research competence. Total fund allocated under this budget head is rupees four crores and fifty lakhs.
- The remaining budget is for miscellaneous/incidental expenditure required for successful implementation of the project.

For successful implementation of the project and to achieve the project goals, a dedicated team comprising of the following members has been formed:

Sl. No.	Designation	Name of the Faculty Member
1	Institutional Project Director (IPD)	Prof. Mahesh Chandra Govil, Director, NIT Sikkim
2	TEQIP Coordinator (TC)	Dr. Ranjan Basak
3	TEQIP Nodal Officer, Academic	Dr. Sangram Ray
4	TEQIP Nodal Officer, Finance	Dr. Anindya Biswas
5	TEQIP Nodal Officer, Procurement	Dr. Achintesh Narayan Biswas
6	Coordinator, Startup	Dr. Anjan Kumar Roy
7	Coordinator, NBA Accreditation	Dr. Pranab Kumar Kundu
8	Coordinator, Equity Action Plan	Dr. Sumit Saha
9	Coordinator, Environment	Dr. Molay Roy
10	Coordinator, GATE	Mr. Tarun Biswas

Various academic as well as procurement activities have been planned under the TEQIP-III project. The expenditure incurred for various activities which have already been successfully implemented are as under –

Expenditure Incurred under TEQIP-III

Sl. No.	Activities	Total Expenditure
1	Equipment	Rs. 6,08,81,193/-
2	Learning Resources	Rs. 2,70,91,545/-
3	Improve Student Learning	Rs. 29,71,351/-
4	Assistantships	Rs. 92,13,823/-
5	Graduates employability	Rs. 2,98,981/-
6	Faculty/staff development and motivation	Rs. 13,21,963/-
7	Research and development	Rs. 14,63,087/-
8	Mentoring/Twinning system	Rs. 1,07,083/-
9	Reforms and governance	Rs. 67,71,137/-
10	Management capacity development	Rs. 72,578/-
11	Office expenses	Rs. 1,87,816/-
12	Meetings	Rs. 6,19,931/-
13	Salary	Rs. 6,37,000/-
	TOTAL	**Rs. 11,16,37,488/-**

Activities which have already been successfully implemented are as under –

Workshops /Trainings / Meetings conducted under TEQIP-III:

Title	Name of Resource Person (s)/ Participants	Date	Venue
Curriculum Development Workshop for B.Tech and M.Tech Students of the Department of Electronics and Communications Engineering.	6 External Experts	29th May to 1st June 2019	NIT Sikkim
Curriculum Development Workshop for B.Tech Students of the Department of Computer Science and Engineering	10 External Experts & 10 Internal Faculty	29th May to 3rd June 2019	NIT Sikkim
Curriculum Development Workshop for B.Tech and M.Tech Students of the Department of Electrical and Electronics Engineering.	7 External Experts	31st May to 3rd June 2019	NIT Sikkim
Curriculum Development Workshop for M.Sc Students of the Department of Chemistry.	Prof. Tapan Kanti Paine	6th June 2019	NIT Sikkim
Induction Program for 1st Year B.Tech Students	15 External Experts	24th July to 10th August 2019	NIT Sikkim
Seminar on "Scope and opportunity of Small Hydro & Wind Power in NER"	-	2nd & 3rd August 2019	NIT Mizoram
Productivity Enhancement Program (PEP) of Art of Living	Mr. Dharam Veer Singh	26th September to 1st October 2019	NIT Sikkim
Swachhta Abhiyaan Program	Mr. Binay Kumar Dutta	2nd October 2019	NIT Sikkim
Workshop under Industrial Readiness Program of TEQIP-III for undergraduate students.	Mr. Aviral Sinha,	15th to 18th November 2019	NIT Sikkim
Student Excellence and Learning Program (SELP) of Art of Living.	Ms. Dimple Kalwani	10th to 15th February 2020	NIT Sikkim

Paper Presentation in Conference/Seminar:

Name of Faculty Member	Title of the Paper/ Name of the Conference	Date	Venue
Dr. Pranab Kundu, Assistant Professor of Department of Mechanical Engineering	Paper Presentation in "Material and Manufacturing Methods (MMM-2019)"	5th July to 7th July 2019	NIT Trichy
Mr. Uddalak Chatterjee, Assistant Professor of Department of Computer Science and Engineering	Paper presentation in "International Conference on IoT Inclusive Life (ICIIL-2019)	19th & 20th December 2019	NITTTR Chandigarh
Mr. Sabyasachi Parmanik, Assistant Professor of the Department of Chemistry	Paper presentation in "6th International Conference on Advanced Nanomaterial and Nanotechnology (ICANN2019)	18th to 21st December 2019	IIT Guwahati
Ms. Reshmi Dhara, Assistant Professor of the Department of Electrical and Electronics Engineering	Paper presentation in IEEE International Conference on Antennas and Propagation (INCAP 2019)	19th to 22nd December 2019	Ahmadabad, Gujarat
Dr. Tarun Biswas, Assistant Professor of the Department of Computer Science and Engineering	Paper presentation in "International Conference on Electrical & Electronics Engineering (ICES 2020)"	14th &15th February 2020	Madan Mohan Malaviya University, Gorakhpur, UP
Dr. Shambhunath Barman, Assistant Professor of the Department of Mechanical Engineering	Paper presentation in "International Conference on Energy and Sustainable Development (ICESD 2020)"	14th &15th February 2020	Jadavpur University Kolkata

Conference/ Meetings/Program/Short Term Course Attended:

Name	Title	Date	Venue
Mr. Debanjan Mukherjee, Ph.D. Scholar	STTP on "Mathematics Modeling and Software Simulation for Power System and Electrical Machines (HOMSPM)	10th to 12th June 2019	SVNIT, Surat
1. Prof. M.C. Govil 2. Dr. Nidhi Govil 3. Dr. Ranjan Basak 4. Dr. Achintesh N. Biswas	Executive Leadership Program by Art of Living	19th to 21st July 2019	Bangalore
Dr. Ranjan Basak	Meeting on ERP and Performance Evaluation	5th & 6th September 2019	New Delhi
1. Prof. M.C. Govil 2. Dr. Nidhi Govil 3. Dr. Ranjan Basak	Program by Sri Sri Ravishankar on 17th Chapter of Bhagwat Gita.	30th November & 1st December 2019	Kolkata

Workshops / Training Attended / Research work:

Name of the Faculty/Staff	Title	Date	Venue
Dr. Tarun Biswas	Training on GATE & Employability	14th to 16th June 2019	Guwahati
Ms. Saheli Saha	Training on "Computer Aided Structural Analysis and Design (STAAD).	10th July to 23rd September 2019	Jadavpur University
Mr. Sumit Kumar, Assistant Professor of the Department of Civil Engineering	Workshop on "Fire Safety of Civil Engineering Infrastructure"	5th & 6th December 2019	IIT Delhi
Dr. Ravi Srivastava	QIP short term course on "Numerical and Analytical Methods in Geomechanics"	9th to 13th December 2019	IIT BHU
Mr. B Balaji Naik	Workshop on SMILE ERP	29th February 2020	Kolkata Campus of IIT Kharagpur

Expert Lecture/ Visit:

Name of the Faculty/Staff	Title	Date	Venue
Lecture on CFD of the Department of Mechanical Engineering	Dr. Ram Dayal	30th April to 3rd May 2019	NIT Sikkim
Project Evaluation of M.Sc Students of the Department of Chemistry	Dr. Somendranath Chakraborty	26th & 27th May 2019	NIT Sikkim
Project Evaluation of B.Tech, of the Department of Mechanical Engineering	1. Prof. Dilip Sharma 2. Dr. M. L. Meena	27th May 2019	NIT Sikkim
Project Evaluation of B.Tech, M.Tech & Ph.D of the Department Electronics and Communications Engineering	1. Prof. Lava Bhargava 2. Prof. Vijay Janani	27th & 28th May 2019	NIT Sikkim
Project Evaluation of B.Tech, M.Tech & Ph.D of the Department of Civil Engineering	1. Prof. Amiya Kumar Samnta 2. Dr. Sanjit Biswas	27th & 28th May 2019	NIT Sikkim
Project Evaluation of B.Tech, M.Tech & Ph.D of the Department of Computer Science and Engineering	1. Prof. K. Chandrasekaran 2. Prof. Mayank Dave 3. Dr. Santosh Kumar Vipparthi 4. Mr. Arka P. Mazumdar	3rd to 7th June 2019	NIT Sikkim
Mentor Visit	Prof. Binoy Krishna Roy	13th to 15th June 2019	NIT Sikkim
Library Management	1. Mr. Deep Singh 2. Mr. Ravindra Mohan	18th to 27th August 2019	NIT Sikkim
To review Administration, Accounting and Establishment process	Mr. Jayant Sharma	14th to 18th September 2019	NIT Sikkim

Name of the Faculty/Staff	Title	Date	Venue
Evaluation of Research Project of faculty members	1. Prof. P. K. Jain, 2. Prof. P. Chakrabarti	16th to 18th September 2019	NIT Sikkim
Evaluation of Ph.D thesis of the Department of Mechanical Engineering	1. Prof. Sudarsan Ghosh 2. Dr. Kazi Sabiruddin 3. Prof. Taghi Tawakoli	23rd & 24th September 2019	NIT Sikkim
Evaluation of Seed Grant Project (Department of Chemistry, Mathematics & Humanities and social Sciences)	1. Prof. Basudeb Basu 2. Prof. Suparna De Sarkar 3. Prof. Anjali Gera Roy	29th September to 2nd October 2019	NIT Sikkim
Lecture on different aspects of education on National Education Day	Prof. Debapriya Das	11th November 2020	NIT Sikkim
To deliver lecture for students of Department of Mechanical Engineering	Prof. S. D. Sharma	18th to 22nd February 2020	NIT Sikkim
Lecture on critical & creative thinking under Industry Readiness Program	1. Prof. R.K. Singh 2. Prof. Supriya Agarwal	28th February 2020 & 3rd March 2020	NIT Sikkim

Student Activities:

Name of the Faculty/Staff	Title	Date	Venue
1. Mr. Omkar Singh 2. Arjun Kumar (M.Tech students of the Department of Electrical and Electronics Engineering)	To participate in "Student's Innovation Pavilion" (GRIDTECH 2019)	1st April to 9th April 2019	New Delhi
45 B.Tech Student of the Department of Mechanical Engineering	To carry out Laboratory Class of ME Department	18th to 27th April 2019	IIT Kharagpur
1. Mr. Chandrashekhar Yadav 2. Jeetendra Kumar (Final year B.Tech Student of the Department of Civil Engineering.)	To complete final year project at CSIR-Structural Engineering Research Centre, Chennai	10th January to 2nd May 2019	CSIR-SERC, Chennai
Mr. Pintu Kumar Ram, PhD Student of the Department of Computer Science and Engineering	To participate in Education Program on "Deep Learning: From Basic to Practice".	18th to 22nd June 2019	IIT Bombay
Ms. Ankita Sarmah, PhD Student of the Department of Humanities and Social Sciences	To present paper in ICSSR on "Gender and Development: A Global Perspective"	26th to 28th August 2019	Gossaigaon College Assam
109 Students	Online AMCAT Employability Test	9th September 2019	NIT Sikkim
1.Mr. Sachidulal Biswas 2.Mr. Srijan Narayan Chowdhury (Research Scholar of the Department of Chemistry)	To present paper in "International Conference on Modern Trends in Inorganic Chemistry (MTIC-2019)"	11th to 14th December 2019	IIT Guwahati
Mr. Ajit Mahata, Research Scholar of the Department of Physics	To present paper in "12th Conference Nonlinear System and Dynamics (CNSD-2019)	12th to 15th December 2019	IIT Kharagpur
Mr. Saddam Hussain Mullick, Research Scholar	To present paper in "International Heat and Mass Transfer Conference (IHMTC-2019)	28th to 31st December 2019	IIT Roorkee
1. Mr. Mukund Subhash Ghole 2. Mr. Arindam Singh (M.Tech Student of Department of Electrical and Electronics Engineering.)	To attend conference "COMSYS 2020"	13th to 15th January 2020	Jalpaiguri Govt. Engineering College

Procurement Under TEQIP-III

ME Department

1. Heat Transfer Laboratory

Name of the Major Instruments-

i. Steady State and Non-Steady State Heat Conduction
ii. Drop wise and Film wise Condensation Apparatus
iii. Parallel flow and counter flow heat exchanger
iv. Vapour compression refrigeration cycle test rig (computerized)
v. Free and forced convection unit (also covers pin fin apparatus)

Fig: Determination of thermal conductivity of metal rod apparatus

Fig: Boiling phenomena observation and thermal conductivity measurement of liquids apparatus.

Fig: Study of steady and unsteady state heat conduction apparatus

Fig: Free and forced convection apparatus can be fitted with fins.

Fig: Temperature measurement module with several test methods.

Fig: Heat Exchanger with parallel flow and counter flow arrangement

Fig: Radiation apparatus with radiation shield arrangement.

Fig: VCR test rig (domestic refrigerator)-manual mode

Fig: VCR test rig (ice plant)-computerized mode

Fig: VAR test Rig

Fig: Refrigerant leak detector

Fig: Determination of thermal conductivity of metal rod apparatus

Fig: Flash point, fire point apparatus and digital bomb calorimeter

2. Heat Engine Laboratory

Name of the Major Instruments-

i. Assembling and dismantling of a four stroke four-cylinder petrol engine
ii. Single Cylinder Four Stroke Petrol Engine Test Rig
iii. Four stroke single cylinder diesel engine test rig
iv. Centrifugal blower test rig (variable speed) with data logging facility
v. Four Stroke One Cylinder, Multi fuel, with Open ECU for Petrol mode
vi. Thermal Imager

Fig: Diesel engine test Rig with variable test facilities & digital panel

Fig:VCR multi fuel engine test Rig with variable test facilities & digital panel (ECU)

Fig: Petrol engine test Rig with variable test facilities & digital panel

Fig: Assembling and dismantling set-up of 4-S 4-C petrol engine (working)

Fig: Centrifugal blower with data logging facility

Fig: Assembling and dismantling set-up of 4-S 4-C petrol engine (working)

Fig: Centrifugal blower with data logging facility

3. Production Engineering Laboratory-I

Name of the Major Instruments-

i. Precision Conventional Lathe
ii. CNC Lathe Machine
iii. All Geared Shaping Machine

4. Production Engineering Laboratory-II

Name of the Major Instruments-

i. CNC Vertical Milling Machining
ii. Inverter Based Pulse TIG DC Welder
iii. Inverter based MIG Welding
iv. Horizontal Spindle Surface Grinding Machine

Tungsten Inert Gas (TIG) Welding Setup

Metal Inert Gas (MIG) Welding Setup

Horizontal Spindle Surface Grinding Machine

Vertical Machining Center

5. ANSYS SOFTWARE

ANSYS software is procured by the Department under the aegis of TEQIP-III of the institute for carrying out the modeling and simulation works related to every aspects of mechanical engineering. Since its installation, both UG students and PhD students are carrying out their project/ research works with the help of this software.

EEE Department

1. Control Systems Laboratory

Name of Major Instruments-

i. Inverted Pendulum
ii. Double Inverted Pendulum

2. Electrical Machines Laboratory

Name of Major Instruments-

i. Open Machine Laboratory

3. Power System Laboratory

Name of Major Instruments-

i. Power system Analyzer
ii. MI Power Software

4. Power Electronics Laboratory

Name of Major Instruments-

i. Power Quality Analyzer
ii. Four Channel DSO
iii. Regulated Power supply
iv. LCR Meter

Images of Different EEE Department Laboratories


Fig. 1 Control System Laboratory



Fig. 2 Electrical Machine Laboratory


Fig. 3 Open Machine Laboratory

Fig. 4 Power Systems Laboratory

Fig. 5 Basic Electrical Laboratory

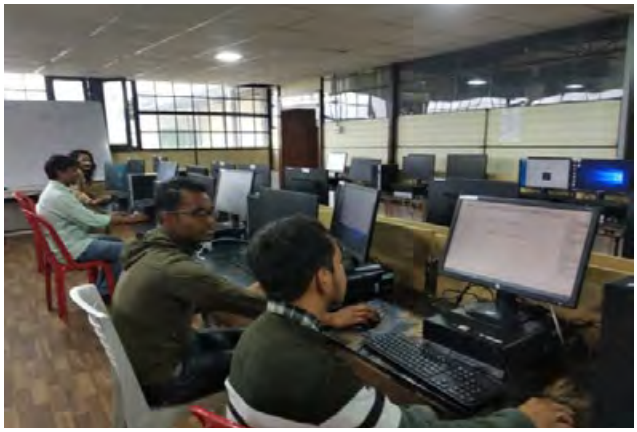



Fig. 6 Simulation Laboratory

Fig. 7 Electrical Measurement Lab

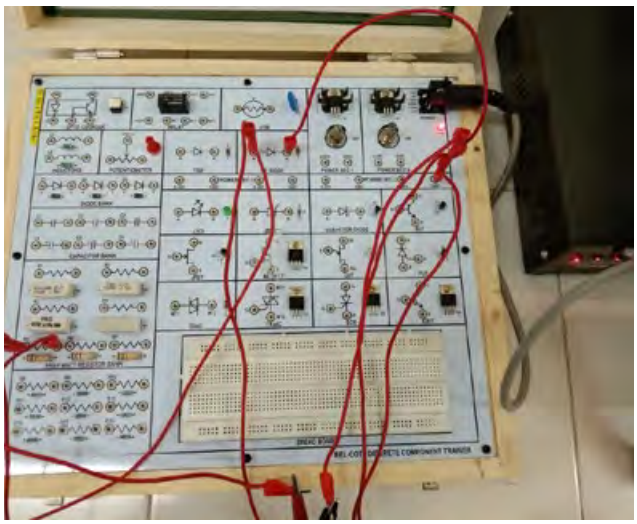
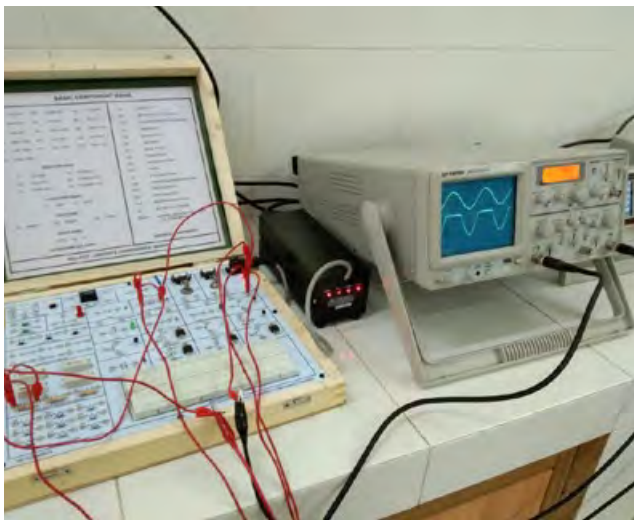
Fig. 8 Power Electronics Laboratory

ECE Department

1. Analog Circuits Laboratory:

Name of the Major Instruments-

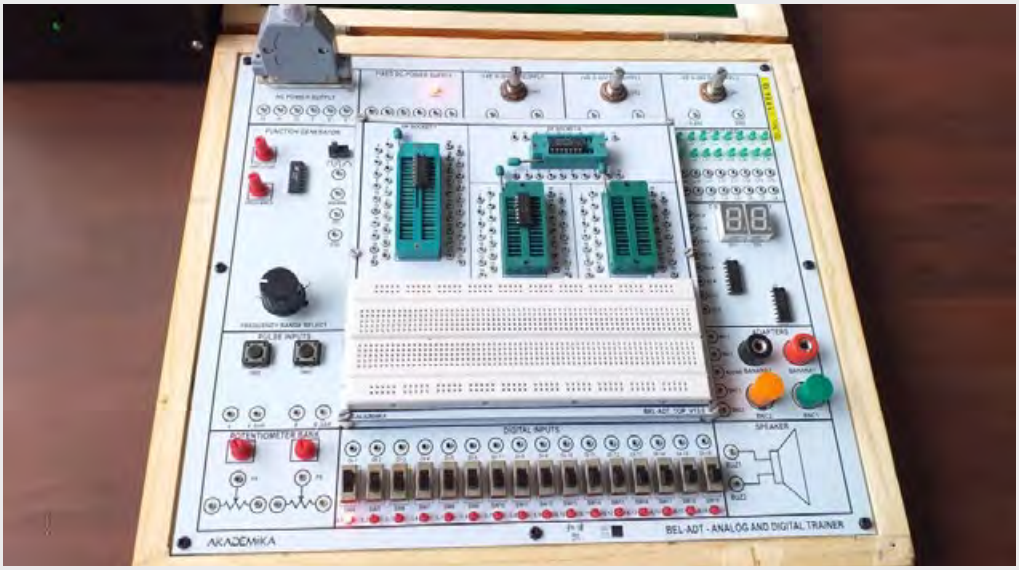
i. Op-Amp Trainer Kit
ii. Network And Bridge Trainer Kit
iii. ADC And DAC Trainer Kit
iv. Analog, Digital And Mixed Signal Circuit Simulation Software

2. Digital Electronics Laboratory:

Name of the Major Instruments-

i. Digital IC Trainer Kit



3. Communication Engineering Laboratory:

Name of the Major Instruments-

i. Mobile Base Station Development System
ii. GPS Trainer
iii. Satellite Communication Trainer
iv. Mobile Handset Trainer

4. Electromagnetics and Antenna Laboratory:

Name of the Major Instruments-

i. Micro Strip Integrated Circuit
ii. Doppler Radar Trainer
iii. Advanced Transmission Line Trainer
iv. Co-Axil Trainer

5. Optical Communication Laboratory

Name of Major Instruments-

i. Fiber Optical Network Lab Trainer Kit
ii. Erbium Doped Fiber Amplifier Trainer Kit
iii. Fiber Optics For Glass And Plastic Trainer Kit
iv. Fiber Connector And Splicing Tool Kit

6. Internet of Things (IoT) Laboratory:

Name of Major Instruments-

i. IoT Mote
ii. Wi-Fi Mote
iii. Sensor Mote
iv. D Buggers

Civil Department

1. Environmental Engineering Lab

Name of Major Instruments-

i. UV-Spectrophotometer
ii. Microbiological Analysis Assembly
iii. Ion Electrodes
iv. BOD Incubator

UV- Spectrophotometer

Microbiological Analysis Assembly

2. Geotechnical Engineering Laboratory

Name of Major Instruments-

i. Direct Shear Test Apparatus with data acquisition system
ii. Tri-axial Shear Test Apparatus with data acquisition system
iii. CBR Testing Machine

CBR Testing Machine

Direct Shear Apparatus

Triaxial Shear Testing Machine

Community Development and Awareness Programs at NIT Sikkim

NIT Sikkim is actively involved in Community Development and Awareness Programs to ensure development of the community and villages around the campus. Faculty members, staff and students visit nearby villages, schools and surrounding localities to bring awareness about various schemes of Government of India and to ensure sustainable development for the livelihood of the people. Some of the activities undertaken for Community Development and Awareness Programs are mentioned below:

- Meetings with villagers to identify the basic developmental and productive needs of a village. This would help to strengthen the technical design and interventions in key sectorial areas of Natural Resource Management such as water and soil, economic activities.
- Programs to identify efficient, cost effective and sustainable development practices in the field. This will help grassroots organizations in innovating new products, and support rural entrepreneurs to develop neighbourhood solutions. This will empower communities to dialogue with knowledge institutions in order to evolve technically sound and locally feasible development strategies that promote self-reliance.
- To help the villagers to realise the dream of "Adarsh Gram" to improve and establish health and sanitation in villages.


NIT SIKKIM
NIT SIKKIM


Workshop on
PEDAGOGY
MAY, 2019
NIT SIKKIM

Audit Report


सत्यमेव जयते

कार्यालय प्र. महालेखाकार , (लेखापरीक्षा)
लेखापरीक्षा भवन, देवराली, सक्किम
गान्तोक – 737 102
Office of the Pr. Accountant General (Audit),
Lekha Pariksha Bhawan, Deorali,
Sikkim, Gangtok – 737 102

No: Comm/NIT/SAR-19-20/20-21/ 124
Dated: 12 **February 2021**

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 31st March 2020

Sir

This is to forward herewith the Separate Audit Report on the Accounts of the NIT, Sikkim, Ravangla for the year ended 31 March 2020 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 OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA ON THE ACCOUNTS OF NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM, RAVANGLA FOR THE YEAR ENDED 31 MARCH, 2020

We have audited the attached Balance Sheet of National Institute of Technology Sikkim, Ravangla, as on 31 March 2020, 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. BALANCE SHEET
Fixed Assets (Schedule- 04)

The above does not include ₹ 5.89 crore being the value of works completed and being put to use by the Institute as of 31 March 2020 but not capitalized.

This has resulted in understatement of "Fixed Assets- Building" by ₹ 3.65 crore, understatement of "Fixed Assets- Site Development" by ₹ 2.24 crore, understatement of Depreciation by ₹ 0.08 crore, understatement of "Current Assets-Sundry Debtors" by 0.01 crore, overstatement of "Fixed Assets-CWIP" by ₹ 5.89 crore and understatement of "Current Liabilities-Payable to CPWD" by ₹ 0.09 crore. This has consequently resulted in overstatement of "excess of Income over Expenditure" by ₹ 0.08crore.

B.Income & Expenditure Account for the year ended 31 March 2020

B.1 Income from Investments (Schedule- 11)- ₹ 23.32 lakh
Interest Earned (Schedule-12)- ₹ 52.63 lakh

As per Rule 230 (8) of the GFR 2017 – *All interests or other earnings against Grants in aid or advances (other than reimbursement) released to any grantee institution should be mandatorily remitted to the Consolidated Fund of India immediately after finalisation of the accounts. Such advances should not be allowed to be adjusted against future releases.*

The Institute earned interest income of ₹ 75.95[1] lakh during the year 2019-20 from savings bank account and accrued interest on fixed deposits. For the year 2019-20, the Institute earned interest income of ₹ 50.77 lakh [2] from unutilised grants in aid against which no provision was created.

This led to overstatement of "Income" and understatement of "Current liability" by ₹ 50.77 lakh each. This has consequently resulted in overstatement of "excess of Income over Expenditure" by ₹ 50.77 lakh.

B.2 Prior Period Expenses ₹ 24.28 lakh (Schedule- 22)

The above is understated by ₹ 67.38 lakh as the Institute failed to remit to the Ministry the interest earned from investment of unutilised grants-in-aid during 2017-18 (₹ 21.22 lakh) and 2018-19 (₹ 46.16 lakh).

As per Rule 230 (8) of the GFR 2017 – *All interests or other earnings against Grants in aid or advances (other than reimbursement) released to any grantee institution should be*

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[1] *Income from Investment+ Interest earned*
[2] *tinterest income calculated on proportionate basis on unutilized grant as on 31.03.2020*

mandatorily remitted to the Consolidated Fund of India immediately after finalisation of the accounts. Such advances should not be allowed to be adjusted against future releases.

The Institute had earned interest income of ₹ 67.38 lakh (₹ 21.22 lakh during 2017-18 & ₹ 46.16 lakh during 2018-19) from unutilised grants in aid which should have been remitted back to the Ministry.

This has also led to understatement of "Current Liability" by ₹ 67.38 lakh. This has consequently resulted in overstatement of "excess of Income over Expenditure" by ₹ 67.38 lakh.

B. Grant received during the year from the Government

The Institute has received ₹ 12.00 crore during the year as Grant and pervious year unspent grant was ₹ 23.94 crore. Out of the total available grant of ₹ 35.94 crore, Institute had utilized ₹ 27.94 crore leaving an unspent grant of ₹ 8.00 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 2020; and

(b) in so far as it relates to the Income & Expenditure Account of the surplus for the year ended 31 March 2020

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

Principal Accountant General (Audit)
Sikkim, Gangtok

Place: Gangtok

Date: 12.02.2021

ANNEXURE -I

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

   The Internal Audit System commensurate with the size and nature of the Institute.

2. **Adequacy of Internal Control System**

   The Internal Control System commensurate wih the size and nature of the Institue.

3. **System of Physical verification of fixed assets/inventories**

   The Physical verification of inventories and fixed assets for the year 2019-20 under progress

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

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

Place: Gangtok
Date: 12.02.2021

Principal Accountant General (Audit)
Sikkim, Gangtok

Annual Accounts

2019-2020

National Institute of Technology Sikkim

Balance Sheet as at 31st March 2020

Amount in Rupees

SOURCES OF FUNDS	Schedule No	Current Year 31.03.2020	Previous Year 31.03.2019
Corpus/ Capital Fund	1	479,140,719.00	361,118,664.00
Designated/ Earmarked/ Endowment Fund	2	1,161,901.00	480,083.00
Current Liabilities & Provisions	3	133,923,439.00	299,338,990.00
Total		**614,226,059.00**	**660,937,737.00**
APPLICATION OF FUNDS			
Fixed Assets	4		
Tangible Assets		229,133,839.00	155,799,580.00
Intangible Assets		3,341,810.00	5,569,683.00
Capital Work in Progress		158,280,121.00	65,308,296.00
Investments from Earmarked / Endowment Fund	5		
Long Term		-	-
Short Term		-	-
Investments-Others	6	-	-
Current Assets	7	220,640,725.00	288,105,868.00
Loans, Advances and Deposits	8	2,829,564.00	146,154,310.00
Total		**614,226,059.00**	**660,937,737.00**

Significant Accounting Policies	23
Contingent Liabilities and Notes to Accounts	24

For, **Sushil Das & Associates**
Chartered Accountant

Krishna Kr. Prasad
Partner

Director

Registrar

Date: 30.11.2020
Place: Ravangla, South Sikkim

National Institute of Technology Sikkim

Income and Expenditure Account for the Year Ended 31st March 2020

Amount in Rupees

Particulars	Schedule No	Current Year 31.03.2020	Previous Year 31.03.2019
INCOME			
Academic Receipts	9	37,577,288.00	36,383,873.21
Grants/ Subsidies	10	170,828,916.00	176,317,219.64
Income from Investments	11	2,332,277.00	2,113,610.00
Interest Earned	12	5,263,230.00	3,272,002.00
Other Income	13	946,438.00	3,204,147.00
Prior Period Income	14	1,143,000.00	342,367.00
Total (A)		**218,091,149.00**	**221,633,218.85**
EXPENDITURE			
Staff Payments and Benefits (Establishment Expenses)	15	99,983,537.00	91,452,296.64
Academic Expenses	16	7,043,320.00	15,093,335.00
Administrative and General Expenses	17	51,004,224.00	57,030,704.00
Transportation Expenses	18	3,740,509.00	2,912,003.00
Repairs and Maintainence	19	6,587,550.00	8,236,276.00
Finance Costs	20	41,202.00	52,314.00
Depreciation	4	37,875,246.00	26,867,770.42
Other Expenses	21	-	-
Prior Period Expenses	22	2,428,574.00	1,540,291.00
Total (B)		**208,704,162.00**	**203,184,990.06**
Balance being excess of Income over Expenditure (A-B)		9,386,987.00	18,448,228.79
Transfer to/ from Designated Fund		-	-
Building Fund		-	-
Other (Specify)		-	-
Balance being surplus/deficit carried over to Capital Fund		9,386,987.00	18,448,228.79

Significant Accounting Policies	23
Contingent Liabilities and Notes to Accounts	24

For, **Sushil Das & Associates**
Chartered Accountant

Krishna Kr. Prasad
Partner

Director

Registrar

Date: 30.11.2020
Place: Ravangla, South Sikkim

National Institute of Technology Sikkim

Receipt and Payments Account for the Year Ended 31st March 2020

Amount in Rupees

Receipts	Current Year 31.03.2020	Previous Year 31.03.2019	Payments	Current Year 31.03.2020	Previous Year 31.03.2019
1. Opening Balance			1. Expenses		
a) Cash Balances	45,240.00	14,006.00	a) Establishment Expenses	97,964,650.00	91,413,943.00
b) Cash Balances-Project	-	-	b) Academic Expenses	7,043,220.00	14,929,141.00
c) Bank Balances			c) Administrative Expenses	49,583,278.00	56,446,743.00
i) Current Accounts	16,417,620.00	13,118,173.00	d) Transportation Expenses	3,374,133.00	2,690,044.00
ii) in Deposit Accounts	28,704,769.00	28,638,517.00	e) Repiars and Maintainence	5,932,820.00	8,221,276.00
iii) Savings Accounts	237,737,103.00	80,182,783.00	f) Prior period expenses	30,000.00	1,540,291.00
iv) Project a/c	-	-	g) Finance Cost	41,202.00	52,314.00
iv) Grant in Transit	-	-			
2. Grants received			2. Payments against earmarked/ Endowment fund		
a) From Government of India	120,000,000.00	381,700,000.00		1,092,513.00	1,509,009.00
b) From Other Sources (Details)	-	-			
(Grants for capital & revenue expenditure to be shown seperately if available)			3. Payments against sponsored projects/ Schemes	6,499,076.00	4,255,135.00
3. Academic Receipts	34,662,281.00	35,214,831.00	4. Payments against sponsored fellowship / Scholarships	-	998,700.00
4. Receipts against Earmarked / Endowment fund	1,741,250.00	1,094,362.00			
5. Receipts against Sponsored projects/ Schemes	5,092,428.00	6,882,514.00	5. Investments and deposits made		
			a) Out of Earmarked / Endowment funds	-	-
			b) Out of own funds	-	-
6. Receipt against sponsored fellowship and scholarship	70,000.00	938,300.00			
			6. Term Deposits with scheduled banks	-	-
			7. Refund of Grants	-	-
7. Income on Investments from					
a) Earmarked funds			8. Expenditure on Fixed Assets and Intangiable Fixed Assets	-	9,237,646.00
			Capital work in progress	-	118,000.00
			Tangible Fixed Assets		
8. Interest received on			a) Computer and peripherals	11,301,209.00	7,678,450.00
a) Bank Deposits	2,332,277.00	2,113,610.00	b) Office Equipments	402,032.00	2,350,705.00
b) Loans and Advances	-	-	c) Lib Books & Scientific Journals	2,216,951.00	-
c) Savings bank account	5,263,230.00	3,272,002.00	d) Science Equipments	617,667.00	-
			e) Plant & Machinery	204,412.00	353,099.00

National Institute of Technology Sikkim

Receipt and Payments Account for the Year Ended 31st March 2020 *(...Contd.)*

Amount in Rupees

Receipts	Current Year 31.03.2020	Previous Year 31.03.2019	Payments	Current Year 31.03.2020	Previous Year 31.03.2019
9. Investments encashed	-	-	f) Other Fixed Assets	41,997.00	334,934.00
			g) Furniture Fixture and Fittings	7,563,483.00	5,722,454.00
10. Term deposits with scheduled banks encashed			h) Sports Equipment	-	-
	-	-	i) Temporary Shed	7,141,610.00	6,718,013.00
			j) Audio Visual Equipment	2,225,951.00	5,947,600.00
			k) Electrical Installation and Equip.	8,290,756.00	1,234,707.00
			9. Other payments inc. Statutory payments	48,815,449.00	24,640,849.00
			10. Deposits and advances	28,708,955.00	61,958,100.00
11. Other Income (Including prior period)	2,089,438.00	1,131,514.00			
			11. Other Payments (trf. to CP Fund)	4,984,032.00	-
12. Deposits, Debtors and Advances	30,387,031.00	11,539,405.00			
			12. Closing Balance		
13. Miscellaneous recipts including Statutory Receipts			a) Cash Balances	14,551.00	45,240.00
	25,372,127.00	22,905,177.00	b) Bank Balances		
			i) Current Accounts	33,415,090.00	16,417,620.00
14. Caution Money Deposit	2,612,500.00	2,372,000.00	ii) in Deposit Accounts	32,887,129.00	28,704,769.00
			iii) Savings Accounts	151,362,617.00	237,737,103.00
15. Any other Receipts	193,225.00	138,691.00	iv) Project a/c	965,736.00	-
			v) Grant in Transit	-	-
Total	512,720,519.00	591,255,885.00	Total	512,720,519.00	591,255,885.00

For, **Sushil Das & Associates**
Chartered Accountant

Krishna Kr. Prasad
Partner

Director

Registrar

Date: 30.11.2020
Place: Ravangla, South Sikkim

National Institute of Technology Sikkim

Schedule - 1 : Corpus/Capital Fund

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
	Balance at the begining of the year	361,118,663.79	269,901,536.00
Add:	Contribution towards Corpus/ Capital fund		
Add:	Grants from UGC, Government of India and State Government to the extent utilized for Capital Expenditure	108,635,068.00	72,768,899.00
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	9,386,987.00	18,448,228.79
	Balance at the year end	**479,140,718.79**	**361,118,663.79**

National Institute of Technology Sikkim

Schedule - 2 : Designated/Earmarked/Endowment Fund

Amount in Rupees

	PARTICULARS	FUNDWISE BREAKUP								Current Year 31.03.2020	Previous Year 31.03.2019
		Fund CSAB	Fund DOE & SM Workshop	Fund DASA	Fund CCMT	Fund CCMN	Fund C2SD Project	Fund CSTT MHRD	YFRF	Funds	(Rs)
A)											
a)	Opening Balance	247,550.00	4,124.00	268,933.00	-33,081.00	-	1,398.00	-8,841.00	-	480,083.00	994,730.00
b)	Additions during the year	488,900.00		-	445,431.00	100,000.00		-	740,000.00	1,774,331.00	994,362.00
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)									-	-
	Total (A)	736,450.00	4,124.00	268,933.00	412,350.00	100,000.00	1,398.00	-8,841.00	740,000.00	2,254,414.00	1,989,092.00
B)										-	
	Utilization. Expenditure towards objective of funds									-	
i)	Capital Expenditue									-	
ii)	Revenue Expenditue	578,765.00		-	412,350.00	100,000.00	-	-		1,091,115.00	1,509,009.00
iii)	Refund						1,398.00			1,398.00	
	Total (B)	578,765.00	-	-	412,350.00	100,000.00	1,398.00	-	-	1,092,513.00	1,509,009.00
	Closing Balances at the year end (A-B)	157,685.00	4,124.00	268,933.00	-	-	-	-8,841.00	740,000.00	1,161,901.00	480,083.00
	Represented by										
	Cash and Bank Balances	157,685.00	4,124.00	268,933.00	-	-	-		740,000.00	1,161,901.00	480,083.00
	Inverstments										
	Interest accrued but not due										
	Total	157,685.00	4,124.00	268,933.00	-	-	-		740,000.00	1,161,901.00	480,083.00

National Institute of Technology Sikkim

Schedule - 2A : Endowment Fund

Amount in Rupees

	Name of the Endowment Fund	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	
1	2	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

Schedule - 3 : Current Liabilities and Provisions

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
A	CURRENT LIABILITIES		
	1. Deposits from Suppliers	1,544,863.00	-
	2. Deposits from Students	8,766,736.00	6,622,736.00
	3. Sundry Creditors		
	a) For Goods and Services	4,744,858.79	5,890,937.00
	b) Others	898,868.71	1,713,305.00
	4. Deposit-Others (including EMD, Security Deposit)	3,603,662.00	2,566,162.00
	5. Statutory Liabilities (GPF,TDS,WC Tax,CPF,GIS, NPS)	1,087,556.88	2,309,996.00
	a) Overdue	-	-
	b) Others	24,146.00	26,146.00
	6. Other Current Liabilities	-	-
	a) Salary & Wages	-	-
	b) Receipts against Sponsored projects	5,882,303.10	7,288,951.60
	c) Receipts against Sponsored fellowship and scholarship	267,102.00	267,102.00
	d) Unutilised Grants	79,985,033.92	239,449,017.92
	e) Medical Board Fund	231,482.00	112,875.00
	f) CPF Fund	1,451,572.00	4,056,616.00
	g) CM Relief Fund	125,078.00	-
	h) Chief Warden Fund	9,149,398.42	9,585,611.00
	i) Other Liabilities	28,960.00	1,188,075.00
	g) Alumini Association Fees (2015)	125,805.00	125,805.00
	h) Hostel Mess & Staff Welfare Fund	1,128,055.00	1,128,055.00
	i) Society Fee (2015)	62,903.00	62,903.00
	j) Advance Fees	6,633,151.00	9,548,158.00
	k) Fees Remission Payable	-7,000.00	-7,000.00
	Total (A)	**125,734,534.82**	**291,935,451.52**
B)	PROVISIONS		
	1. For Taxation	-	-
	2. Gratuity	5,092,106.00	4,094,363.00
	3. Superannuation Pension	-	-
	4. Accumulated Leave Encashment	3,096,798.00	3,309,175.00
	5. Trade Warranties/ Claims	-	-
	6. Others (Specify)	-	-
	Total (B)	**8,188,904.00**	**7,403,538.00**
	Total (A+B)	**133,923,438.82**	**299,338,989.52**

National Institute of Technology Sikkim

Schedule - 3A : Sponsored Projects

Amount in Rupees

1	2	3	4	5	6	7	8	8
Sl. No.	Name of Project	Opening Balance		Receipts/ Recoveries during the year	Total	Expenditure during the year	Closing Balance	
		Credit	Debit				Credit	Debit
1	INSPIRE	1,602,002.00		-	1,602,002.00	-	1,602,002.00	
2	Others	295,758.00		-	295,758.00	-	295,758.00	
3	SERB-T Kundu	388,584.00		-	388,584.00	-	388,584.00	
5	SMDP Project	1,417,486.50		1,780,704.00	3,198,190.50	1,402,295.00	1,795,895.50	
6	Visvesvaraya	647,951.00		2,945,457.00	3,593,408.00	2,932,033.00	661,375.00	
7	CSSR Project	-	23,954.00	-	-23,954.00	-	-23,954.00	
8	DST - Achintesh Narayan	737,510.00		305,883.00	1,043,393.00	919,714.00	123,679.00	
9	UDHD Project	73,318.00		-	73,318.00		73,318.00	
10	DST - ICPS	784,861.00		20,078.50	804,939.50	295,812.00	509,127.50	
11	NMHS Project	1,365,435.10		40,305.00	1,405,740.10	949,222.00	456,518.10	
	Total	7,312,905.60	23,954.00	5,092,427.50	12,381,379.10	6,499,076.00	5,882,303.10	-

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 01.04.2019		Transactions during the year		Closing Balance as on 31.03.2020	
		Credit	Debit	Credit	Debit	Credit	Debit
	University Grants Commission						
	Ministry						
	Top Class Scholarship for ST	2,000.00	-	-	-	2,000.00	-
	Top Class Scholarship for SC	262,880.00	-	-	-	262,880.00	
	Others Regional states	-	-	-	-	-	
	Others (Specify)	2,222.00	-	-	-	2,222.00	
	Total	267,102.00		-	-	267,102.00	

National Institute of Technology Sikkim

Schedule - 3C : Unutilised Grant from UGC, Government of India and State Governments

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
A	**Plan Grants: Government of India**		
	Balance B/f	239,449,017.92	106,835,136.56
	Add: Receipts during the year	120,000,000.00	381,700,000.00
	Less: Refund		
	Less: Utilized for Revenue Expenditure	170,828,916.00	176,317,219.64
	Less: Utilized for Capital Expenditure	108,635,068.00	72,768,899.00
	Unutilized Carried Forward Total (A)	**79,985,033.92**	**239,449,017.92**
B	**UGC Grant: Plan**		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	Unutilized Carried Forward Total (B)		
C	UGC Grant: Non Plan		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	Unutilized Carried Forward Total (C)		
D	**Grants from State Govt.**		
	Balance B/f		
	Add: Receipts during the year		
	Less: Refund		
	Less: Utilized for Revenue Expenditure		
	Unutilized Carried Forward Total (D)		
	Total (A+B+C+D)	**79,985,033.92**	**239,449,017.92**

National Institute of Technology Sikkim

Schedule - 4 : Fixed Assets

Amount in Rupees

Sl. No.	Asset Heads		GROSS BLOCK			DEPRECIATION				NET BLOCK	
		Rate %	Op Balance 01.04.2019	Additions/ Deletion	Cl. Balance 31.03.2020	Op Balance 01.04.2019	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2020	As On 31.03.2020	As On 31.03.2019
1	Land		-	-	-	-	-	-	-	-	-
2	Site Development		28,926,535.00	-1,155,000.00	27,771,535.00	-	-		-	27,771,535.00	28,926,535.00
3	Buildings	2%	20,996,344.00	-39,000.00	20,957,344.00	3,880,995.80	419,147.00		4,300,142.80	16,657,201.00	17,115,348.00
4	Temporary Shed	33%	6,718,013.00	7,141,610.00	13,859,623.00	2,216,944.00	4,573,676.00		6,790,620.00	7,069,003.00	4,501,069.00
5	Prefab Hostel	20%	-	69,823,000.00	69,823,000.00	-	13,964,600.00	-	13,964,600.00	55,858,400.00	-
6	Tubewells and Water Supply	2%	424,809.00	-	424,809.00	18,595.00	8,496.00		27,091.00	397,718.00	406,214.00
7	Sewerage and Drainage	2%	-	-	-	-	-		-	-	-
8	Electrical Installation and Equip.	5%	23,713,366.00	8,290,756.00	32,004,122.00	6,359,380.00	1,600,206.00		7,959,586.00	24,044,536.00	17,353,986.00
9	Plant and Machinery	5%	2,772,648.00	204,412.00	2,977,060.00	475,445.10	148,853.00		624,298.10	2,352,762.00	2,297,203.00
10	Scientific and Laboratory Equip.	8%	37,661,213.00	617,667.00	38,278,880.00	11,799,355.55	3,062,310.00		14,861,665.55	23,417,214.00	25,861,857.00
11	Office Equipment	7.50%	14,502,790.00	402,032.00	14,904,822.00	5,808,143.08	1,117,862.00		6,926,005.08	7,978,817.00	8,694,647.00
12	Audio Visual Equipment	7.50%	6,970,217.00	2,225,951.00	9,196,168.00	688,313.00	689,713.00		1,378,026.00	7,818,142.00	6,281,904.00
13	Computer and Peripherals	20%	54,331,369.00	11,301,209.00	65,632,578.00	45,861,416.00	3,954,232.00		49,815,648.00	15,816,930.00	8,469,953.00
14	Furniture Fixture and Fittings	7.50%	40,323,343.00	7,563,483.00	47,886,826.00	12,680,210.80	3,591,512.00	346,564.00	15,925,158.80	31,961,667.00	27,643,132.00
15	Sports Equipments	10%	2,308,679.00	-	2,308,679.00	936,455.45	230,868.00		1,167,323.45	1,141,356.00	1,372,224.00
16	Lib Books & Scientific Journals	10%	15,483,841.00	2,216,951.00	17,700,792.00	11,508,223.00	1,770,079.00		13,278,302.00	4,422,490.00	3,975,618.00
17	**Vehicle**	**10%**	**4,738,220.00**	-	4,738,220.00	1,838,330.00	473,822.00		2,312,152.00	2,426,068.00	2,899,890.00
18	**Small Value Assets**	**100%**	**303,536.00**	41,997.00	345,533.00	303,536.00	41,997.00		345,533.00	-	-
	Total (A)		**260,174,923.00**	**108,635,068.00**	**368,809,991.00**	**104,375,342.78**	**35,647,373.00**	**346,564.00**	**139,676,151.78**	**229,133,839.00**	**155,799,580.00**
19	Capital Work in Progress - Building		65,308,296.00	79,526,957.00	144,835,253.00	-	-		-	144,835,253.00	65,308,296.00
20	Capital Work in Progress- Electrical		-	13,444,868.00	13,444,868.00	-	-		-	13,444,868.00	-
	Total (B)		65,308,296.00	92,971,825.00	158,280,121.00					158,280,121.00	65,308,296.00
21	Computer Software	40%	4,133,498.00	-	4,133,498.00	3,456,849.40	270,659.00		3,727,508.40	405,989.60	676,648.60
22	E. Journals	40%	24,712,542.54	-	24,712,542.54	19,819,507.85	1,957,214.00		21,776,721.85	2,935,820.69	4,893,034.69
23	Patents										-
	Total (C)		**28,846,040.54**	**-**	**28,846,040.54**	**23,276,357.25**	**2,227,873.00**		**25,504,230.25**	**3,341,810.29**	**5,569,683.29**
	Total (A+B+C)		**354,329,259.54**	**201,606,893.00**	**555,936,152.54**	**127,651,700.03**	**37,875,246.00**	**346,564.00**	**165,180,382.03**	**390,755,770.29**	**226,677,559.29**

National Institute of Technology Sikkim

Schedule - 4A : Plan

Amount in Rupees

Sl. No.	Asset Heads		GROSS BLOCK			DEPRECIATION				NET BLOCK	
		Rate %	Op Balance 01.04.2019	Additions	Cl. Balance 31.03.2020	Op Balance 01.04.2019	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2020	As On 31.03.2020	As On 31.03.2019
1	Land		-	-		-					
2	Site Development		28,926,535.00	-1,155,000.00	27,771,535.00	-	-		-	27,771,535.00	28,926,535.00
3	Buildings	2%	20,996,344.00	-39,000.00	20,957,344.00	3,880,995.80	419,147.00		4,300,142.80	16,657,201.00	17,115,348.00
4	Temporary Shed	33%	6,718,013.00	7,141,610.00	13,859,623.00	2,216,944.00	4,573,676.00		6,790,620.00	7,069,003.00	4,501,069.00
5	Prefab Hostel	20%	-	69,823,000.00	69,823,000.00	-	13,964,600.00	-	13,964,600.00	55,858,400.00	-
6	Tubewells and Water Supply	2%	424,809.00	-	424,809.00	18,595.00	8,496.00		27,091.00	397,718.00	406,214.00
7	Sewerage and Drainage		-	-	-	-	-		-	-	-
8	Electrical Installation and Equip.	5%	23,713,366.00	8,290,756.00	32,004,122.00	6,359,380.00	1,600,206.00		7,959,586.00	24,044,536.00	17,353,986.00
9	Plant and Machinery	5%	2,772,648.00	204,412.00	2,977,060.00	475,445.10	148,853.00		624,298.10	2,352,762.00	2,297,203.00
10	Scientific and Laboratory Equip.	8%	37,661,213.00	617,667.00	38,278,880.00	11,799,355.55	3,062,310.00		14,861,665.55	23,417,214.00	25,861,857.00
11	Office Equipment	7.50%	14,502,790.00	402,032.00	14,904,822.00	5,808,143.08	1,117,862.00		6,926,005.08	7,978,817.00	8,694,647.00
12	Audio Visual Equipment	7.50%	6,970,217.00	2,225,951.00	9,196,168.00	688,313.00	689,713.00		1,378,026.00	7,818,142.00	6,281,904.00
13	Computer and Peripherals	20%	54,331,369.00	11,301,209.00	65,632,578.00	45,861,416.00	3,954,232.00	-	49,815,648.00	15,816,930.00	8,469,953.00
14			-			-					
15	Furniture Fixture and Fittings	7.50%	40,323,343.00	7,563,483.00	47,886,826.00	12,680,210.80	3,591,512.00	346,564.00	15,925,158.80	31,961,667.00	27,643,132.00
16	Sports Equipments	5%	2,308,679.00	-	2,308,679.00	936,455.45	230,868.00		1,167,323.45	1,141,356.00	1,372,224.00
17	Lib Books & Scientific Journals	10%	15,483,841.00	2,216,951.00	17,700,792.00	11,508,223.00	1,770,079.00		13,278,302.00	4,422,490.00	3,975,618.00
18	Vehicle	10%	4,738,220.00	-	4,738,220.00	1,838,330.00	473,822.00		2,312,152.00	2,426,068.00	2,899,890.00
19	Small Value Assets	100%	303,536.00	41,997.00	345,533.00	303,536.00	41,997.00		345,533.00	-	-
	Total (A)		**260,174,923.00**	**108,635,068.00**	**368,809,991.00**	**104,375,342.78**	**35,647,373.00**	**346,564.00**	**139,676,151.78**	**229,133,839.00**	**155,799,580.00**
20	Capital Work in Progress - Building		65,308,296.00	79,526,957.00	144,835,253.00					144,835,253.00	65,308,296.00
21	Capital Work in Progress- Electrical		-	13,444,868.00	13,444,868.00					13,444,868.00	-
	Total (B)		**65,308,296.00**	**92,971,825.00**	**158,280,121.00**					**158,280,121.00**	**65,308,296.00**
22	Computer Software	40%	4,133,498.00	-	4,133,498.00	3,456,849.40	270,659.00	-	3,727,508.40	405,989.60	676,648.60
23	E. Journals	40%	24,712,542.54	-	24,712,542.54	19,819,507.85	1,957,214.00		21,776,721.85	2,935,820.69	4,893,034.69
24	Petents										
	Total (C)		**28,846,040.54**	**-**	**28,846,040.54**	**23,276,357.25**	**2,227,873.00**		**25,504,230.25**	**3,341,810.29**	**5,569,683.29**
	Total (A+B+C)		**354,329,259.54**	**201,606,893.00**	**555,936,152.54**	**127,651,700.03**	**37,875,246.00**	**346,564.00**	**165,180,382.03**	**390,755,770.29**	**226,677,559.29**

National Institute of Technology Sikkim

Schedule - 4B : Non Plan

Amount in Rupees

Sl. No.	Asset Heads		GROSS BLOCK			DEPRECIATION				NET BLOCK	
		Rate %	Op Balance 01.04.2019	Additions	Cl. Balance 31.03.2020	Op Balance 01.04.2019	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2020	As On 31.03.2020	As On 31.03.2019
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										
	Total (A)										
17	Capital Work in Progress										
	Total (B)										
18	Computer Software										
19	E. Journals										
20	Patents										
	Total (C)										
	Total (A+B+C)										

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Schedule - 4C : Intangible Assets

Amount in Rupees

Sl. No.	Asset Heads		GROSS BLOCK			DEPRECIATION				NET BLOCK	
		Rate %	Op Balance 01.04.2019	Additions	Cl. Balance 31.03.2020	Op Balance 01.04.2019	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2020	As On 31.03.2020	As On 31.03.2019
1	Patents & Copyrights		-								
2	Computer Software	40%	4,133,498.00	-	4,133,498.00	3,456,849.40	270,659.00		3,727,508.40	405,989.60	100,890.00
3	E. Journals	40%	24,712,542.54	-	24,712,542.54	19,819,507.85	1,957,214.00		21,776,721.85	2,935,820.69	7,016,131.71
	Total (A)	40%	28,846,040.54	-	28,846,040.54	23,276,357.25	2,227,873.00	-	25,504,230.25	3,341,810.29	7,117,021.71

Schedule - 4C(i) : Patents and Copyrights

Amount in Rupees

Sl. No.	Particulars		Op Balance 01.04.2018	Additions	Gross	Amortization	Net Block 01.04.2019	Net Block 01.04.2018
À	**Patents Granted**							
1	Balance as on 31.03.2014 of patents obtained in	(Original value Rs.....)						
2	Balance as on 31.03.2014 of patents obtained in	(Original value Rs.....)						
3	Balance as on 31.03.2014 of patents obtained in	(Original value Rs.....)						
4	Patents granted during the Current Year							
		Total (A)						
B	**Patents pending in respect of Patents applied for**							
1	Expenditure incurred during							
2	Expenditure incurred during							
3	Expenditure incurred during							
		Total (A)						
		Grand Total (A+B)						

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Schedule - 4D : Non Plan

Amount in Rupees

Sl. No.	Asset Heads		GROSS BLOCK			DEPRECIATION				NET BLOCK	
		Rate %	Op Balance 01.04.2019	Additions	Cl. Balance 31.03.2020	Op Balance 01.04.2019	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2020	As On 31.03.2020	As On 31.03.2019
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										
	Total (A)										
17	Capital Work in Progress										
	Total (B)										

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Schedule - 5 : Investments from Earmarked Endowment Funds

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
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)		

Schedule - 5A : Investments From Earmarked Endowment Funds (Fund Wise)

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
1			
2			
4			
3			
4			
5			
	Endowment Fund Investments		
	Total		

Schedule - 6 : Investments Others

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
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)		
	Total		

National Institute of Technology Sikkim

Schedule - 7 : Current Assets

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
1	**Stock**		
	a) Stores and Spares	-	-
	b) Loose Tools	-	-
	c) Publications	-	-
	d) Laboratory Chemicals, Comumables and glassware	-	-
	e) Building Materials	1,588,564.00	1,348,563.00
	f) Electrical Material	-	-
	g) Stationery	-	-
	h) Water supply Material	-	-
2	**Sundry Debtor**		
	a) Debts outstanding for a period of six months	100,000.00	1,257,855.00
	b) Others	307,039.00	2,594,718.00
3	**Cash and Bank Balances**		
	a) With Scheduled Banks		
	- In current account	33,415,089.53	16,417,619.59
	- In term deposit account	32,887,129.00	28,704,769.00
	- In savings account	152,328,352.96	237,737,103.41
	- Grant in Transit	-	-
	b) With Non-Scheduled Banks		
	- In term deposit account	-	-
	- In savings account	-	-
	c) Cash in hand	14,551.00	45,240.00
4	**Post Office Savings Account**	-	-
	Total	**220,640,725.49**	**288,105,868.00**

National Institute of Technology Sikkim

Annexure - A

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
I)	**Saving Account**		
1	Grants from MHRD A/c	127,835,108.00	230,537,133.00
2	University receipts A/c	14,299,544.50	4,761,626.98
3	Scholarship A/c		
4	Academic Fee Receipt A/c		
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	965,736.00	1,955,297.00
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	7,776,392.46	483,046.43
19	Student Aid Fund A/c		
20	CPF Account	1,451,572.00	
II)	**Current Account**	33,415,089.53	16,417,619.59
III)	**Term Deposit with Schedule Banks**	32,887,129.00	28,704,769.00
	Total	**218,630,571.49**	**282,859,492.00**

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Schedule - 8 : Loans, Advances and Deposits

Amount in Rupees

		Current Year 31.03.2020	Previous Year 31.03.2019
1	**Advances to Employees (Non Interest Bearing)**		
	a) Salary		-
	b) Festival		-
	c) Medical Advance		-
	d) Leave Travel Concession	-	-
	e) Others (Specify)	391,202.00	313,517.00
2	**Long Term Advances to Employees (Interest Bearing)**		
	a) Vehicle Loan		
	b) Home Loan		
	c) Others (Specify)		
3	**Advances and other amounts recoverable in cash or In kind or for value to be received**		
	a) On Capital Account	-	141,217,785.00
	b) To Suppliers	410,000.00	764,000.00
	c) NIT Calicut	118,150.00	118,150.00
	c) CCCB	-	-
	d) CDAC	-193,772.00	16,228.00
	e) Uncleared Cheques	229,437.00	-
4	**Prepaid Expenses**		
	a) Insurance		
	b) Other Expenses (Annual Maintenance Charge)	-	-
5	**Deposits**		
	a) Telephone		
	b) Lease Rent		
	c) Electricity		
	d) AICTE, if applicable		
	f) Others (Specify)		
6	**Income Accrued**		
	a) On investments from Earmarked/ Endowment fund		
	b) On Investments-Others	1,874,547.00	3,724,629.70
	c) On Loans and Advances		
	d) Others (Includes income due unrealized)		
7	**Other-Current assets receivable from UGC /sponsored projects**		
	a) Debit balances in sponsored Projects		
	b) Debit balances in sponsored Fellowship and Scholarship		
	c) Grants receivable		
	d) Other receivable froms from UGC		
8	**Claims Receivables**		
	Total	**2,829,564.00**	**146,154,309.70**

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Schedule - 9 : Academic Receipts

Amount in Rupees

			Current Year 31.03.2020	Previous Year 31.03.2019
Fees From Students				
A)	Academics			
	1	Tution Fee	21,617,573.00	22,347,675.00
	2	Admission Fee	80,500.00	98,000.00
	3	Enrolment Fee	-	-
	4	Library Fee	1,154,900.00	1,021,200.00
	5	Laboratory Fee	-	-
	6	Art & Craft Fee	-	-
	7	Registration Fee	232,350.00	1,252,300.00
		Total (A)	**23,085,323.00**	**24,719,175.00**
B)	Examination			
	1	Admission Fee	-	-
	2	Annual Examination Fee	726,200.00	687,000.00
	3	Marksheet, Certificate Fee	-	-
		Total (B)	**726,200.00**	**687,000.00**
C)	Other Fees			
	1	Identity Card Fee	18,400.00	23,400.00
	2	Fines/ Miscellaneous fees	433,315.00	281,073.00
	3	Medical Fee	1,125,200.00	1,012,900.00
	4	Transportation Fee	-	
	5	Hostel Fee	8,640,650.00	6,225,209.00
	6	Hostel Admission	103,000.00	92,500.00
	7	Alumni Fee	-	249,973.21
		Total (C)	**10,320,565.00**	**7,885,055.21**
D	Other Fees			
	1	Sale of Publication		
	2	Sale of Admission Form		
	3	Sale of syllabous, Question paper,etc		
	4	Sale of prospectus including admission form		
		Total (D)		
E	Other Academic Receipts			
	1	Registration for workshop, programmes	-	
	2	Registration fee (Academic staff College)	-	
	3	Developemnt Fee	1,088,250.00	1,030,000.00
	4	Mess Establishment Fee	815,150.00	364,500.00
	5	Student Activity Fee	1,180,800.00	1,099,200.00
	6	Convocation	200,000.00	264,000.00
	7	Others	161,000.00	334,943.00
		Total (E)	**3,445,200.00**	**3,092,643.00**
		Total (A to E)	**37,577,288.00**	**36,383,873.21**

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Schedule - 10 : Grants/Subsidies (Irrecoverable Grant Received)

Amount in Rupees

Particulars	PLAN			Total	Non Plan	Current Year	Previous Year
	Govt. of India	UGC		Plan	UGC		
		Plan	Specific Schemes				
Balance B/f	239,449,017.92	-	-	239,449,017.92	-	239,449,017.92	106,835,136.56
Add: Receipts during the year	120,000,000.00		-	120,000,000.00		120,000,000.00	381,700,000.00
Total	**359,449,017.92**	**-**		**359,449,017.92**		**359,449,017.92**	**488,535,136.56**
Less: Refund to UGC							
Balance							
Less: Utilized for Capital Expenditure (A)	108,635,068.00			108,635,068.00		108,635,068.00	72,768,899.00
Balance	**108,635,068.00**	**-**	**-**	**108,635,068.00**	**-**	**108,635,068.00**	**72,768,899.00**
Less: Utilized for Revenue							
Expenditure (B)	170,828,916.00			170,828,916.00		170,828,916.00	176,317,219.64
Balance C/f (C)	**79,985,033.92**	**-**	**-**	**79,985,033.92**	**-**	**79,985,033.92**	**239,449,017.92**

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Schedule - 11 : Income from Investments

Amount in Rupees

Particulars	Earmarked/Endowment Fund		Other Investments	
	Current Year	Previous Year	Current Year	Previous Year
1. Interest				
a) Government Securities				
b) Other Bonds / Debentures				
2. Interest on Term Deposits	-			
3. Income accrued but not due on Term Deposits/ interest bearing advance to employees			2,332,277.00	2,113,610.00
4. Interest on Savings Bank Accounts	-			
5. Others (Specify)				
	-	-	2,332,277.00	2,113,610.00
Transferred to Earmarked/ Endowment Fund				
Balance			**2,332,277.00**	**2,113,610.00**

Schedule - 12 : Interest Earned

Amount in Rupees

Particulars	Current Year	Previous Year
1. On Savings Account with schedule bank	5,263,230.00	3,272,002.00
2. On Loans		
a) Employees / Staff		
b) Others		
3. Other Debtors and Other Receivables		
Balance	**5,263,230.00**	**3,272,002.00**

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Schedule - 13 : Other Income

Amount in Rupees

	Particulars	Current Year 31.03.2020	Previous Year 31.03.2019
A	**Income from Land and Building**		
1	Hostel Room Rent	-	-
2	License Fee	58,855.00	68,880.00
3	Hire Charges of Auditorium/ playground /convention centre etc.	-	-
4	Electricity Charges recovered	188,357.00	251,289.00
5	Water Charges recovered	-	-
	Total (A)	**247,212.00**	**320,169.00**
B	**Sale of Institute's publications**		-
	Total (B)		
C	**Income from Holding Events**		-
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)		-
	Total (C)		**-**
D	**Others**		
1	Income from Consultancy	100,000.00	-
2	RTI Fees		-
3	Income from Royalty		-
4	Sale of application form (Recruitment)	126,350.00	168,275.00
5	Misc. Receipts (Sale of tender form, waster paper, etc)	33,658.00	
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	394,718.00	150,573.00
9	PHD Enrollment Fees	33,500.00	24,000.00
10	Tender Fees	4,000.00	5,500.00
11	Transportation Charges recovered	7,000.00	
12	Fines & Penalties		
13	Other Income	-	2,535,630.00
14	Recovery of SBCA		
15	Overheads from Project		
	Total (D)	**699,226.00**	**2,883,978.00**
	Grand Total (A to D)	**946,438.00**	**3,204,147.00**

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Schedule - 14 : Prior Period Income

Amount in Rupees

	Particulars	Current Year 31.03.2020	Previous Year 31.03.2019
1	Academic Receipts		
2	Income from Investments		
3	Interest Earned		
4	Other Income	63,000.00	342,367.00
5	Reversal of Cheques		
6	Recovery of HRA	1,080,000.00	
	Total	1,143,000.00	342,367.00

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	74,276,486.00		74,276,486.00	65,399,417.52		65,399,417.52
b)	Allowances and Bonus	13,495,174.00		13,495,174.00	9,575,352.34		9,575,352.34
c)	Contribution to Provident Fund	-		-	-		-
d)	Contribution to other fund (NPS)	5,624,849.00		5,624,849.00	2,881,436.00		2,881,436.00
e)	Staff Welfare Expenses	-		-	-		-
f)	Retirement and terminal benefits	1,937,188.00		1,937,188.00	3,928,308.00		3,928,308.00
g)	LTC Facility	791,003.00		791,003.00	1,401,670.00		1,401,670.00
h)	Medical Facility	704,310.00		704,310.00	705,082.00		705,082.00
i)	Children Education Allowance	349,068.00		349,068.00	91,797.00		91,797.00
j)	Honarium	-		-	-		-
k)	TA/DA	1,898,784.00		1,898,784.00	2,596,279.00		2,596,279.00
l)	Arrear	858,129.00		858,129.00	4,872,954.78		4,872,954.78
m)	CPDA to Faculties	48,546.00		48,546.00	-		-
	Total	99,983,537.00		99,983,537.00	91,452,296.64		91,452,296.64

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Schedule - 15A : Employees Retirement and Terminal Benefits

Amount in Rupees

	Particulars	Pension	Gratuity	Leave Eacashment	Total
	Opening Balance as on 01.04.2019				-
	Add: Capitilized value of contributions received from other Organizations				
	Total (A)				
	Less: Payments made during the year				-
	Balance available as on 31.03.2020				-
	Provisions required on 31.03.2020 as per actrual valuation				-
A.	Provision to be made in the current year	-	997,743.00	939,445.00	1,937,188.00
B	Contribution to New Pension Scheme	5,624,849.00			5,624,849.00
C	Medical reimbursement to retired employees				-
D	Travel to hometown retirement				-
E	Deposit Link Insurance payment				-
	Total (A+B+C+D+E)	5,624,849.00	997,743.00	939,445.00	7,562,037.00

National Institute of Technology Sikkim

Schedule - 16 : Academic Expenses

Amount in Rupees

	Particulars	CURRENT YEAR			PREVIOUS YEAR		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Laboratoy Expenses	183,299.00		183,299.00	611,749.00		611,749.00
b)	Curiculum Development Workshop Expenses	9,609.00		9,609.00	-		-
c)	Expenses on Seminars/ Workshops	-		-	27,583.00		27,583.00
d)	Payment to visitng faculty	-		-	-		-
e)	Examination	-		-	-		-
f)	Student Medical Insurance	882,980.00		882,980.00	-		-
g)	Admission Expenses	5,640.00		5,640.00	5,000.00		5,000.00
h)	Convocation Expenses	15,037.00		15,037.00	1,022,598.00		1,022,598.00
i)	Publications	-		-	-		-
j)	Stipned/means-cum merit scholarship / PHD Scholarship	189,436.00		189,436.00	6,559,048.00		6,559,048.00
k)	Mixed Signal & RF Circuit Design Project	-		-	-		-
l)	Student hostel fees refund	-		-	-		-
m)	Acamedic Expenses	198,033.00		198,033.00	122,919.00		122,919.00
n)	Sporting Activities	-		-	-		-
o)	M.Tech Fellowship	3,418,100.00		3,418,100.00	5,111,560.00		5,111,560.00
p)	Library Expenses	49,855.00		49,855.00	-		-
q)	Cultural Activities	1,277,589.00		1,277,589.00	1,100,411.00		1,100,411.00
r)	Registration Charges	-		-	-		-
s)	Traning & Placement	813,742.00		813,742.00	532,467.00		532,467.00
t)	PHD Scholar Contigency Expenses	-		-	-		-
u)	Travelling Allowances	-		-	-		-
	Total	7,043,320.00		7,043,320.00	15,093,335.00		15,093,335.00

National Institute of Technology Sikkim

Schedule - 17 : Administrative and General Expenses

Amount in Rupees

	Particulars	CURRENT YEAR			PREVIOUS YEAR		
		Plan	Non Plan	Total	Plan	Non Plan	Total
A)	**Infrastructure**						-
a)	Electricity and power	1,474,516.00		1,474,516.00	2,595,661.00		2,595,661.00
b)	Water charges	-		-	44,275.00		44,275.00
c)	Insurance	-		-	824,263.00		824,263.00
d)	Rent, rates and taxes (including property tax)	6,776,598.00		6,776,598.00	6,265,025.00		6,265,025.00
B)	**Communication**	-		-			
e)	Postage and stationery	-		-			
f)	Telephone, fax and Internet charges	907,751.00		907,751.00	255,859.00		255,859.00
C)	**Others**	-		-			
g)	Printing and Stationery (Consumption)	700,820.00		700,820.00	683,093.00		683,093.00
h)	Travelling and Conveyance Expenses	1,581,845.00		1,581,845.00	2,823,589.00		2,823,589.00
i)	Hospitality	95,224.00		95,224.00	355,012.00		355,012.00
j)	Auditors Remuneration	358,200.00		358,200.00	203,245.00		203,245.00
k)	Annual Maintenance Charges	-		-	715,665.00		715,665.00
l)	Advertisement and Publicity	75,600.00		75,600.00	36,740.00		36,740.00
m)	BWC Meeting	167,936.00		167,936.00	78,589.00		78,589.00
n)	Office Expenses	5,826,051.00		5,826,051.00	1,591,356.00		1,591,356.00
o)	Honorairum to Outside Experts	175,000.00		175,000.00	275,000.00		275,000.00
p)	Campus Maintainence and House keeping	20,898,069.00		20,898,069.00	23,246,711.00		23,246,711.00
q)	Gardening & Landscape	-		-	-		-
r)	Security Services and Others	9,326,623.00		9,326,623.00	12,309,202.00		12,309,202.00
s)	Community Development	-		-	-		-
t)	Medical Centre Expenses	1,496,912.00		1,496,912.00	1,056,311.00		1,056,311.00
u)	Computer Centre Expenses	-		-	127,288.00		127,288.00
v)	Recuritment Expenses	819,489.00		819,489.00	3,534,130.00		3,534,130.00
w)	BOG & FC Meeting	199,667.00		199,667.00			
x)	Miscellaneous Expenses	123,923.00		123,923.00	9,690.00		9,690.00
	Total	**51,004,224.00**		**51,004,224.00**	**57,030,704.00**		**57,030,704.00**

National Institute of Technology Sikkim

Schedule - 18 : Transportation Expenses

Amount in Rupees

	Particulars	CURRENT YEAR			PREVIOUS YEAR		
		Plan	Non Plan	Total	Plan	Non Plan	Total
1	Vehicles (Owned by Institutions)						
a)	Running Expenses	1,126,880.00		1,126,880.00	41,793.00		41,793.00
b)	Insurance Expenses	114,077.00		114,077.00	129,631.00		129,631.00
2	Vehicles taken on rent/ lease			-			
a)	Rent/lease expenses	2,499,552.00		2,499,552.00	2,740,579.00		2,740,579.00
3	Vehicle (taxi) hiring expenses	-		-			
	Total	3,740,509.00		3,740,509.00	2,912,003.00		2,912,003.00

Schedule - 19 : Repairs and Maintainence

Amount in Rupees

	Particulars	CURRENT YEAR			PREVIOUS YEAR		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Buildings	5,687,969.00		5,687,939.00	6,521,254.00		6,521,254.00
b)	Furniture and Fixtures	237,257.00		237,257.00	341,062.00		341,062.00
c)	Plant and Machinery			-			-
d)	Office Equipments	92,584.00		92,584.00	265,564.00		265,564.00
e)	Network/Internet	46,610.00		46,610.00	68,105.00		68,105.00
f)	Construction and Maintanance of Campus	58,672.00		58,672.00	407,065.00		407,065.00
g)	Audio visual equipments	-		-			-
h)	Cleaning materials and services	-		-			-
i)	Book binding charges	-		-			-
j)	Gardening	-		-			-
k)	Estate Maintainence	-		-			-
l)	Others (Hostel Expenses)	-		-			-
m)	Road & Connection repairs	-		-			-
n)	Electrical Maintenance	94,249.00		94,249.00	185,250.00		185,250.00
o)	Vehicle Maintenance	370,239.00		370,239.00	447,976.00		447,976.00
	Total	6,587,580.00		6,587,550.00	8,236,276.00		8,236,276.00

National Institute of Technology Sikkim

Schedule - 20 : Finance Costs

Amount in Rupees

	Particulars	CURRENT YEAR			PREVIOUS YEAR		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Bank Charges	41,202.00		41,202.00	52,314.00		52,314.00
b)	Others (specify)						
	Total	41,202.00		41,202.00	52,314.00		52,314.00

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)						
	Total						

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 Maintainence	-		-	-		-
6	Other Expenses	2,428,574.00		2,428,574.00	1,540,291.00		1,540,291.00
7	Reversal of Cheques	-		-	-		-
	Total	2,428,574.00		2,428,574.00	1,540,291.00		1,540,291.00

National Institute of Technology Sikkim

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 tution 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 31st march 2020 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.

National Institute of Technology Sikkim

Schedule - 23 : Significant Accounting Policies *(...Contd.)*

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.

The value of Capital Assets is Rs. 24.91 Lakhs as on 31st March 2020 of which the ownership is yet to be transferred.

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 physical accounting and control are continued by the holders of such assets.

4. INTANGIBLE ASSETS:

4.1 Patents and copy rights, 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 closing stock as on 31st March 2020 is Rs. 15,88,564.00

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 and his retirement benefits are paid to MNIT Jaipur as and when the demand is made by the MNIT Jaipur.

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

A Capital Fund is maintained by the Institute. 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 31st 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.

National Institute of Technology Sikkim

Schedule - 23 : Significant Accounting Policies *(...Contd.)*

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 31st March and the grant is actually received in next financial year, the grant is accounted on accrual basis and an equal amount is shown as recoverable from the Grantor.

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.

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

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.

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%
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

   4.2 Depreciation is provided for the whole year on additions during the year.

   4.3 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.

National Institute of Technology Sikkim

Schedule - 24 : Notes to Accounts *(...Contd.)*

4.4 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 deprecation at rate 33% per annum is charged.

4.5 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 deprecation at rate 20% per annum is charged.

4.6 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.

5. RELATED PARTY DISCLOSURE

Name of the Transaction	:	Dr Nidhi Govil
Nature of Transaction	:	Visiting Faculty Member – Honorarium
Amount	:	Rs. 9,00,000.00

6. CAPITAL COMMITMENT:

Estimated amount of contracts remaining to be executed on capital account and not provided for is Rs 5.00 Crore (previous year Rs 5.00 Crore).

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 2020 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 2020 and the Income and Expenditure account for the year ended on that date.

11. RE-GROUPING:

Previous years' figures have been re-grouped and re-arranged wherever necessary.


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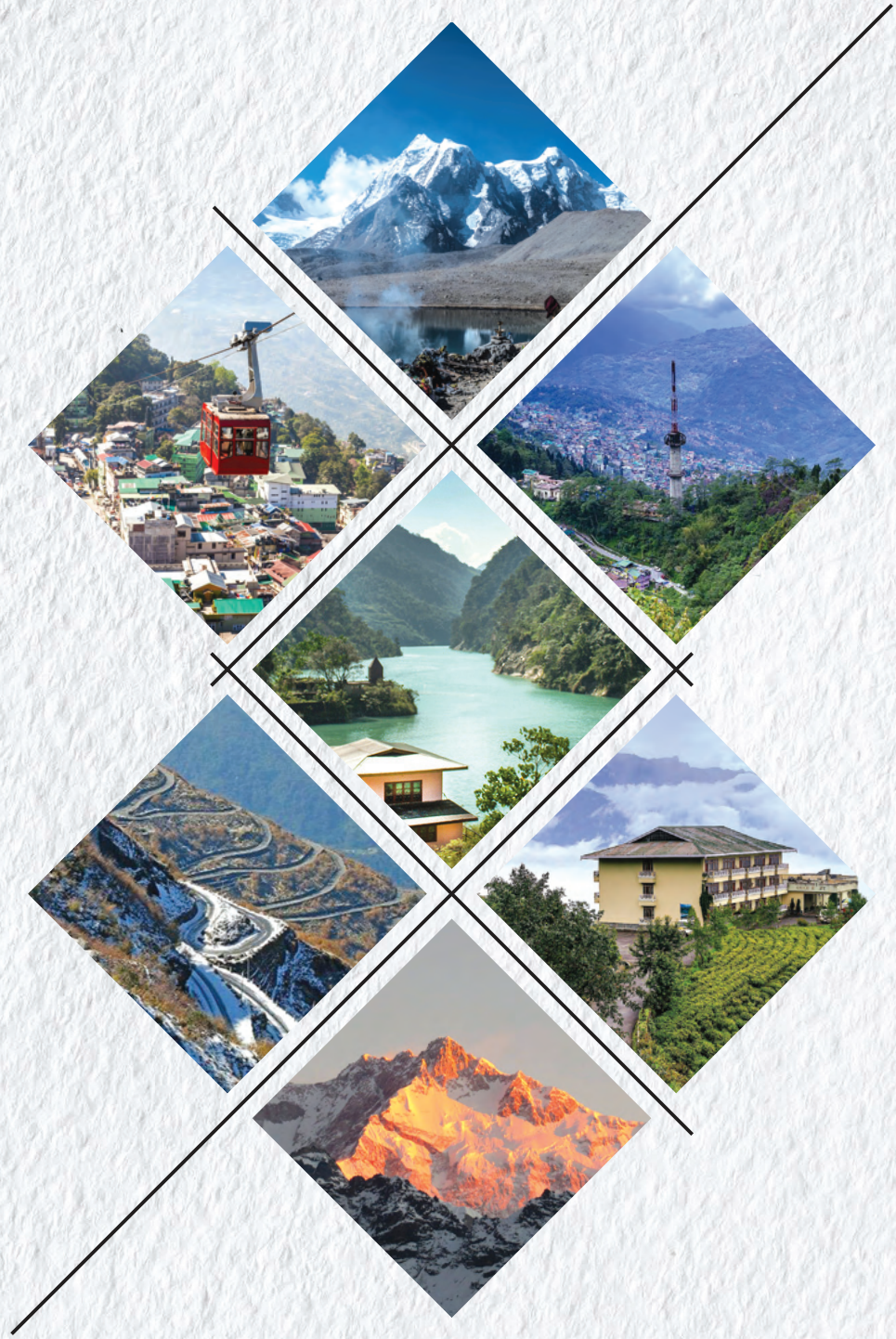
Notes

Notes



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
National Institute of Technology Sikkim

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