

ANNUAL REPORT 2018-19



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

ANNUAL
REPORT
2018-2019



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.



It gives me immense pleasure to present the Annual Report of National Institute of Technology Sikkim (NIT Sikkim) for the FY 2018-19. Since its establishment, the Institute has achieved several significant milestones in various frontiers for an academic institution. With the generous guidance from esteemed members of the Board of Governors, tireless efforts of our faculty and staff members, and unconditional support from Government of India and Government of Sikkim, we hope to scale greater heights in the field of education, research and scientific development. I also take this opportunity to acknowledge the continuous and able counsel of the Ministry – The Ministry of Human Resource Development in functioning and development of the Institute.

NIT Sikkim came into existence in the year 2010 with the primary objective to produce high quality manpower in the field of engineering and technology and to support industrial development with indigenous technologies. Keeping this in mind, the Institute's efforts are invested in imparting quality education and to carry out research and development at the cutting edge of technologies. The Institute has since taken strides in academic and research excellence and continues to yearn for accomplishment of its core objectives. Although the Institute has been operating from a temporary campus located in Ravangla since its inception, we have made all possible efforts in pursuit of our goal of excellence. The efforts are steadily getting translated and the glimpse of the same can be seen in terms of improvement in campus placements, infrastructure, teaching-learning environment, admissions and research output of the Institute over the years.

Friendly academic environment and excellent facilities for learning are of paramount importance for any National Institute and my efforts are focused and directed to it. Due to temporary campus and non-availability of proper infrastructure, there are certain bottlenecks to achieve our objectives. However, sincere efforts have been made to provide academic facilities such as classrooms, laboratories, library facility, internet connectivity, etc. in the last two years. Further, as the space for various administrative functions was also not adequate, temporary space has been created for offices, store, account section, establishment section, student mess, etc.



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

I am glad to inform that the Government of Sikkim has announced the acquisition of about 100 acres of land at Khamdong near Singtam, East Sikkim for establishment of the permanent campus of NIT Sikkim. We now await steady handover of the land to NIT Sikkim for the commencement of construction and development of a world class campus for the Institute.

The Institute has continued to adopt several student friendly measures, and in particular, sustained efforts are being made to enhance instruction delivery in classrooms, project based learning and holistic development of the students. The students are encouraged to achieve excellence in their respective fields and mentored to realize their aspirations. During the year, a thorough review of the Academic Rules & Regulations and other allied administrative procedures was undertaken, and the same were updated. The process of preparation and updating of these documents was carried out through intense interaction with all stakeholders in numerous meetings with expert supervision and guidance, followed by the discussion and approval at appropriate forum.

The second Convocation of the Institute was held on 28th April, 2018. The then Hon'ble Chief Minister of Sikkim Sh. Pawan Kumar Chamling graced the function as a Chief Guest and the august gathering saw the attendance of the majority of the cabinet ministers of Sikkim. At the convocation, 59 undergraduate and 6 postgraduate students were awarded degree certificates.

We at NIT Sikkim, wholeheartedly support and promote various flagship schemes of the Government of India launched to enhance social, economic and sustainable development in the country. The Swachh Bharat Mission, Fit India Movement, Ek Bharat Shrestha Bharat etc have been promoted through local awareness activities. Days of national importance such as the National Unity Day, Environment Day International Day of Yoga are celebrated with active fervor and enthusiasm. NIT Sikkim has a strong resolve to be a partner and a catalyst in Nation Building and the fulfilment of a self-reliant and Strong India.

I feel proud to acknowledge the cooperation extended by the faculty, staff and students in the continuous progress of the Institute. The Institute is on the path of excellence and I believe, in times to come shall be recognized as one of the leading institution in our great country.

With Best Wishes
Jai Hind !

(Prof. M. C. Govil)

INTRODUCTION

The National Institute of Technology Sikkim is an institution set up in 2010 by an Act of the Parliament as a part of the 11th Five-year Plan to impart high quality technical education and to carry out research and development in the field of science and technology in the state of Sikkim. The Institute has also been accorded the status of an Institution of National Importance by the Government of India keeping in view the role of the organization in developing highly skilled personnel in the field of science and technology. At present the Institute is offering 6 B. Tech. program, 3 M. Tech. program, M.Sc. program in Chemistry and PhD program in all Engineering, Sciences, and Humanities & Social Sciences. The efforts are made to provide adequate facilities to students to maintain the quality of learning. However, temporary campus, remote location, extreme climate and inadequate infrastructure present huge challenges in managing various activities.

LOCATION

NIT Sikkim, since its inception has been functioning from a temporary campus at Ravangla South Sikkim. The Institute carries out academic and research activities in the temporary campus provided by the state government measuring approximately 11 acres. The Town of Ravangla is located at a distance of 68 kms from Gangtok, the capital city of Sikkim. The nearest railway station from the campus is New Jalpaiguri Railway Station, West Bengal which is 118 km away from the campus. Air connectivity is available through Bagdogra Airport which is 132 km away from the Campus.

CAMPUS

The campus of NIT Sikkim at Ravangla, although temporary, is housed at a picturesque location with abundance of natural and scenic beauty. The town of Ravangla is located at a distance of just 2.5 kms from the campus. The town offers essential utilities and services such as banks, post offices and a Primary Health Centre. However, the temporary campus, remote location, extreme climate and inadequate infrastructure present huge challenges to the management. Ravangla, being the small town has limited amenities and health care facilities.

Currently, the temporary campus has the following facilities:

- Sixteen three-storied blocks, each with six 2 small room apartments, totalling to 96 apartments in the campus. These are utilized as boys' hostels, girls' hostels, faculty apartments and staff apartments. These were built under slum-refugee rehabilitation project.
- An Academic Building consisting of class rooms, two computer labs, four faculty rooms and the office of the Dean Student Welfare and the Dean Academic. The supercomputing facility "Param Kanchenjunga" is also located in the academic building.
- An Administrative Building consisting of the Director's Secretariat, the Registrar Office, Accounts Section, Meeting Room for faculty/administrative/Directorial meetings, and the Examination Cell.
- Two Prefab buildings constructed for hostels are being efficiently used as boarding for approximately 300 students. However, given the fact that the Institute is running from its temporary location with limited space, NIT Sikkim is still facing problems related to the accommodation of all students. Due to the increase in student intake, the Institute has been forced to hire several buildings in Ravangla Town to accommodate the students.
- A playground for various outdoor activities and games.
- An indoor Badminton court in the courtyard of the academic building for sports and other co-curricular activities.
- Laboratory facilities, classrooms are still inadequate to cater the academic needs of the students and researchers. Inadequate build-up space in the temporary campus is hindering the growth of the Institute. Establishment of the permanent campus of the Institute will hopefully solve these issues.
- The present temporary campus is secured by barbed wire fencing and security personnel have been deployed all around the campus and out-campus hostels.

THE BOG AND OTHER COMMITTEES

BOARD OF GOVERNORS



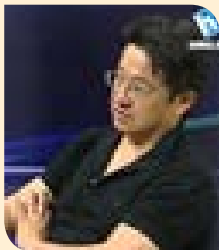
Prof. Mahesh Chandra Govil

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Joint Secretary & Financial Advisor

Dept. of Secondary & Higher
Education, Ministry of Human
Resource Development, Shastri
Bhawan, New Delhi – 110 001



Dr. Md. Nurujjaman

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Registrar (I/C) & Secretary, BOG
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FINANCE COMMITTEE

Prof. Mahesh Chandra Govil

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Shri Ugyen Chopel

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Dr. Md. Nurujjaman

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Education, Ministry of Human Resource Development
Shastri Bhawan, New Delhi – 110 001

Joint Secretary & Financial Advisor
Dept. of Secondary & Higher Education
Ministry of Human Resource Development
Shastri Bhawan, New Delhi – 110 001

BUILDING & WORK COMMITTEE

Prof. Mahesh Chandra Govil

Director, NIT Sikkim, Ex-officio Member-cum Chairman
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Shri Manish Kumar Jindal

Chief Executive Officer (CEO), NABET

Shri Vikram Pant

Executive Engineer (Civil), CPWD, Gangtok Division

Dr. Aurobinda Panda

Dean In-charge Planning and Development, NIT Sikkim

Dr. Md. Nurujjaman

Registrar & Secretary
NIT Sikkim, Ravangla, South Sikkim 737139
Email: jaman_nonlinear@yahoo.co.in

One member nominated by the
Central Government not below
the rank of Director or Deputy Secretary

MEMBERS OF THE SENATE

A.	Director	
	Prof. Mahesh Chandra Govil	Chairman
B.	Registrar	
	Dr. Md. Nurujjaman	Secretary
C.	External Members	
	Prof. Krishna Kumar , Dept. of Physics, IIT KGP	Member
	Prof. Supriya Agarwal , Dept. of English, Central University of Rajasthan	Member
	Prof. Dheeraj Sanghi , Dept. of Computer Science and Engineering, IIT Kanpur	Member
	Prof. K. R. Niyazi , Dept. of Electrical Engineering, MNIT, Jaipur	Invited Member
	Prof. Lalit Kumar Awasthi , Director, NIT Jalandhar	Invited Member
	Prof. Virendra Singh , Dept. of Electrical Engineering, IIT Bombay	Member
D.	All HoDs & Deans, NIT Sikkim	Member

REGISTRAR

Dr. Md. Nurujjaman

Assistant Professor, Department of Physics
NIT Sikkim, Ravangla, South Sikkim 737139
Email: jaman_nonlinear@yahoo.co.in

DEANs & HODs

Dean (Academic Affairs)	:	Dr. Ranjan Basak
Dean (Administration, Faculty & Staff Affairs)	:	Dr. Achintesh Narayan Biswas
Dean (Students' Affairs)	:	Dr. Sumit Saha
Dean (Research & Consultancy)	:	Dr. Anindya Biswas
Dean (Planning & Development)	:	Dr. Aurobinda Panda
HOD (Computer Science & Engineering)	:	Dr. Sangram Ray
HOD (Electronics & Communication)	:	Dr. Sanjay Kumar Jana
HOD (Electrical & Electronics Engineering)	:	Dr. Anjan Kumar Ray
HOD (Mechanical Engineering)	:	Dr. Shambhunath Barman
HOD (Civil Engineering)	:	Dr. Anindya Biswas
HOD (Biotechnology)	:	Dr. Taraknath Kundu
HOD (Mathematics)	:	Dr. Ravi Srivastava
HOD (Physics)	:	Dr. Md. Nurujjaman
HOD (Chemistry)	:	Dr. Taraknath Kundu
HOD (Humanities)	:	Dr. Dhananjay Tripathi

FACULTY-IN-CHARGE_s (FIC_s)

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
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. Pranab Kumar Kundu
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. Anjay Kumar Ray
SC/ST Cell Chairperson	:	Ms. Gopa Bhaumik
Store & Purchase Activities	:	Dr. Taraknath Kundu
Vehicle and Transport Management Activities	:	Dr. Sourav Mallick
Unnat Bharat Abhiyan	:	Dr. Taraknath Kundu / Dr. Dhananjay Tripathi
Community Development and Awareness Program	:	Dr. Shambhunath Barman
Construction and Maintenance Activities	:	Mr. Debashish Roy
Power and Energy Conservation Initiative	:	Dr. Pradeep Kumar

17th Board of
Governors' Meeting



EDUCATIONAL SYSTEM

The Institute is presently offering B. Tech. & M. Tech. in Engineering disciplines, M.Sc. in Chemistry and PhD Programs in Engineering, Basic Sciences and Humanities.

i) Admission Procedure

B.Tech.

Admission to all Undergraduate courses / Degree Programs is made in the Odd Semester at the first year level through the national JEE (main) examination and allocation of seats is made through the Central Seat Allocation Board (CSAB).

M. Tech.

The courses leading to M. Tech. degree are open to candidates who have obtained the requisite qualification with 60% marks or 6.5 CGPA in aggregate in the qualifying examination. Admission for the GATE qualified candidates is made through Common Admission Process called Central Counseling for Masters of Technology (CCMT). When GATE qualified candidates are not available, admission is done on the basis of merit as detailed in M. Tech. Sponsored candidates are not eligible to receive scholarship even if they are qualified in GATE.

M. Sc. (Chemistry)

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.

ii) Program Structure

The duration of the program leading to B. Tech. degree is four years. M. Tech. and M. Sc. is of two years. The curricula

for the different degree programs are approved by the Senate. The syllabus of each program and constituent courses containing the scope of studies, detailed instructions to be imparted, course outcome and course objectives are finalized in Curriculum Development Workshop(s) held from time to time and approved by Senate.

The curricula of B. Tech. programs also include short-term industrial or research internship in any reputed industry, research organization or an Institute of repute.

iii) Registration

Students are registered in 2nd year (3rd Semester) at the end of 1st year on completion of following:

- (a) While registering for 3rd, 5th or 7th semester, a student may register for backlog courses of 1st, 3rd or 5th semester and while registering for 4th, 6th or 8th semester, may register for backlog courses of 2nd, 4th or 6th semester. A student has to appear in End-Semester examinations and the grades are awarded based on the marks obtained in the examination. The Teacher's assessment, mid-term and other continuous evaluation components are carried forward from the original evaluation. The registration for backlog papers is done at the time of semester registration. Backlog courses are awarded one grade lower than the secured grade. ('E' grade remains as 'E' as exception E being the passing grade in the subject).
- (b) It is necessary for students to maintain a minimum CGPA of 5.00 at all times.

ACADEMIC PROGRAMS / COURSES OFFERED

Courses offered in 2018-19 Academic Session

i. Four-years B.Tech. Courses in the following branches of Engineering and Technology

- Civil Engineering
- Computer Science & Engineering
- Electronics & Communication Engineering
- Electrical and Electronics Engineering
- Mechanical Engineering

ii. Two- years M.Tech. Courses in the following branches of Engineering and Technology

- M.Tech. in Computer Science and Engineering

- M.Tech. in Electronics and Communication Engineering (Microelectronics and VLSI Design)
- M.Tech. in Electrical and Electronics Engineering (Control, Power and Electric Drives)

iii. Two- years M.Sc. programs in the Department of Chemistry

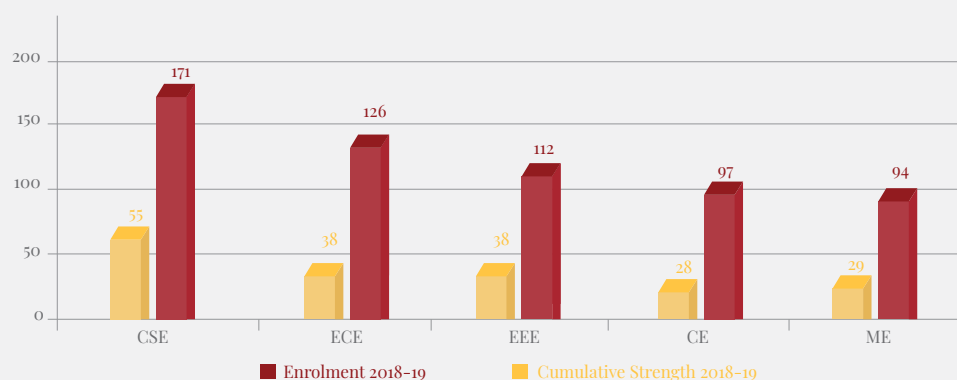
iv. Course-wise Enrolment

B. Tech Program: The following table shows the department wise B.Tech. Enrolment with intake strength, gender and caste breakup for 2018-19 and cumulative strength of 2018-19 academic sessions.

Discipline	Starting year	Intake Capacity (18-19)	Enrolment in 2018-19							Total Student Strength (Cumulative) till 2018-19						
			M	F	SC	ST	OBC	OPEN	Total	M	F	SC	ST	OBC	OPEN	Total
CSE	2010	60	45	10	11	4	11	29	55	143	28	31	17	51	72	171
ECE	2010	40	32	6	7	1	13	17	38	97	29	17	9	42	58	126
EEE	2010	40	33	5	4	5	9	20	38	97	15	16	13	32	51	112
CE	2013	30	22	6	5	4	12	7	28	85	12	19	13	35	30	97
ME	2013	30	25	4	4	2	9	14	29	87	7	15	7	28	44	94
Total		200	157	31	31	16	54	87	188	509	91	98	59	188	255	600

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

Chart showing the Department wise B.Tech. Strength 2018-2019



M. Tech Program: The following table shows the department wise M.Tech. Enrolment with intake strength, gender and caste breakup for 2018-19 and cumulative strength of 2018-19 academic sessions.

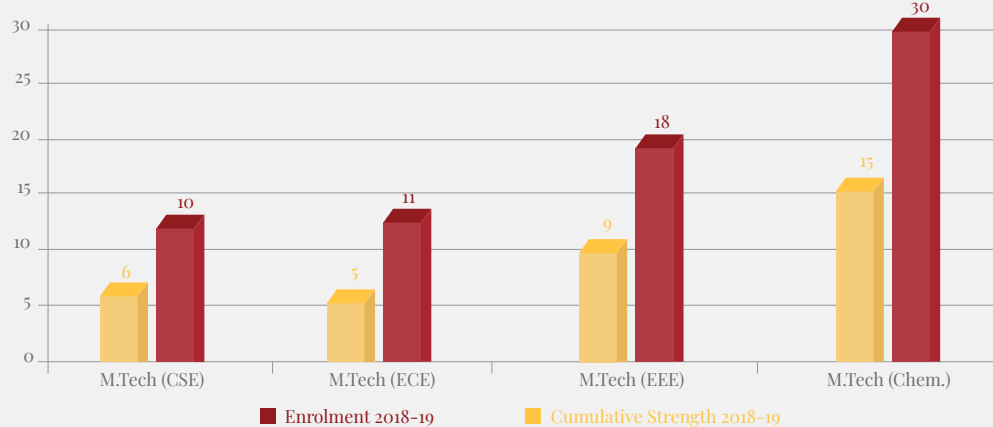
Discipline	Starting year	Intake Capacity (2018-2019)	Enrolment in 2018-19							Total Student Strength (Cumulative)						
			M	F	SC	ST	OBC	OPEN	Total	M	F	SC	ST	OBC	OPEN	Total
CSE	2015	15	6	0	1	0	2	3	6	8	2	1	0	2	7	10
ECE	2016	15	5	0	0	0	0	5	5	11	0	0	0	0	11	11
EEE	2017	15	7	2	1	0	3	5	9	16	2	2	0	8	8	18
Total		45	18	2	2	0	5	13	20	35	4	3	0	10	26	39

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

M.Sc. Program: The following table shows the M.Sc. (Chemistry) enrolment with intake strength, gender and caste breakup for 2018-19 and cumulative strength of 2018-19 academic session.

Discipline	Starting year	Intake Capacity (2017-2018)	Enrolment in 2018-19							Total Student Strength (Cumulative)						
			M	F	SC	ST	OBC	OPEN	Total	M	F	SC	ST	OBC	OPEN	Total
Chemistry	2017	15	11	4	2	1	7	5	15	20	10	5	1	13	11	30
Total		15	11	4	2	1	7	5	15	20	10	5	1	13	11	30

Chart showing the Department wise M.Tech./ M.Sc. Strength 2018-19



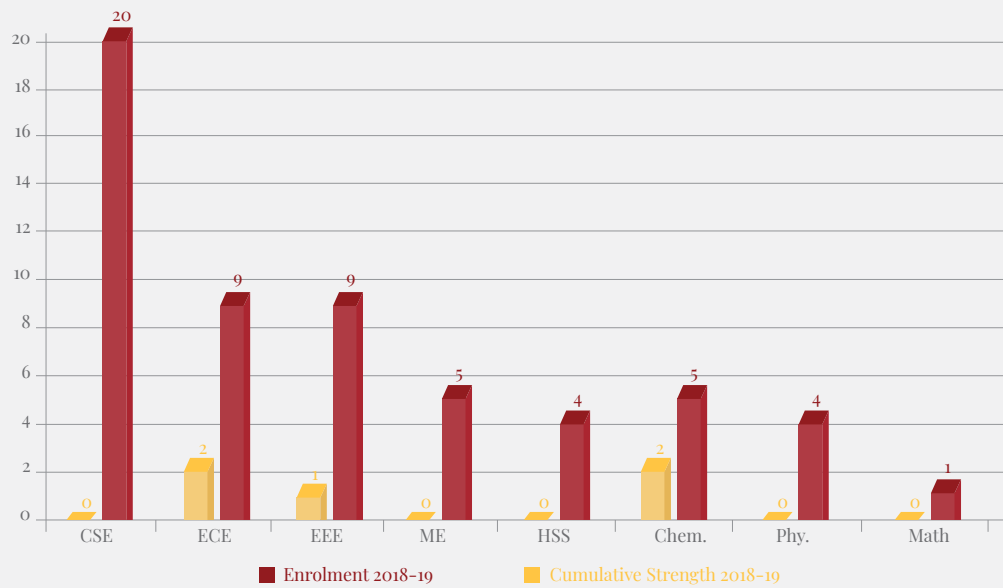
Ph.D. Program: The following table shows the department wise enrolment in PhD program with gender and caste breakup for 2018-19 and cumulative strength of 2018-19 academic session.

Discipline	Starting year	Enrolment in 2018-19							Total Student Strength (Cumulative)						
		M	F	SC	ST	OBC	OPEN	Total	M	F	SC	ST	OBC	OPEN	Total
CSE	2014	0	0	0	0	0	0	0	17	3	5	1	4	10	20
ECE	2014	0	2	0	0	1	1	2	5	4	1	0	2	6	9
EEE	2014	1	0	0	0	1	0	1	8	1	0	0	2	7	9
ME	2014	0	0	0	0	0	0	0	5	0	0	0	2	3	5
HSS	2015	0	0	0	0	0	0	0	1	3	0	0	2	2	4
Chem.	2015	2	0	0	1	0	1	2	4	1	0	2	1	2	5
Phy.	2016	0	0	0	0	0	0	0	4	0	0	0	2	2	4

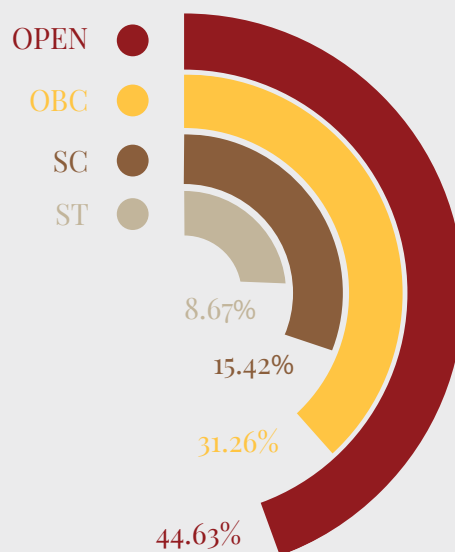
Discipline	Starting year	Enrolment in 2018-19							Total Student Strength (Cumulative)						
		M	F	SC	ST	OBC	OPEN	Total	M	F	SC	ST	OBC	OPEN	Total
Math	2016	0	0	0	0	0	0	0	0	1	0	0	1	0	1
ID	2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		3	2	0	1	2	2	5	44	13	6	3	16	32	57

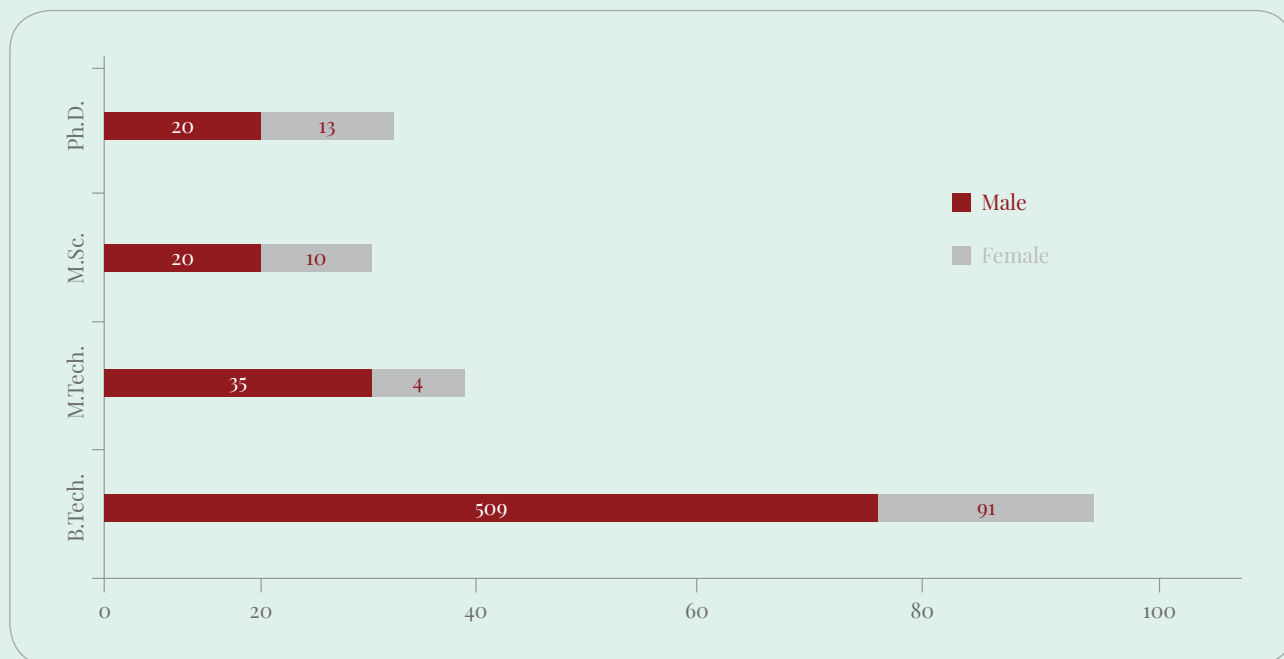
CSE- Computer Science & Engineering ECE-Electronics & Communication Engineering, EEE- Electrical & Electronics Engineering, ME-Mechanical Engineering, Chem.- Chemistry, Phy.- Physics, Math- Mathematics, HSS- Humanities and Social Science, ID- Inter Disciplinary subjects.

Chart showing the Department wise Ph.D. Strength



Charts showing the Category and Gender breakup of Students





v) Tuition fee remission / waiver:

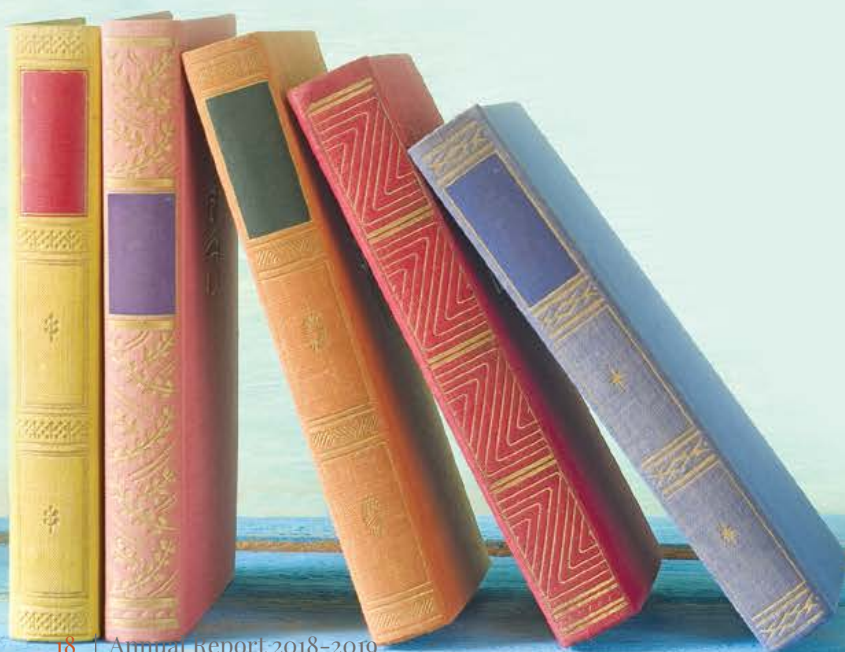
The Institute provides full waiver of tuition fees to the students belonging to ST and SC categories as per MHRD guidelines.

Further, the B. Tech. students whose annual family income is less than one lakh are availing full tuition fee waiver and students with annual family income of less than five lakhs are remitted with $\frac{2}{3}$ rd of the tuition fees from 2016 onwards vide MHRD notification no.33-4/2014-TS.III.

All the GATE qualified M.Tech students receive fellowships as do the PhD scholars. A good fraction of the remaining students of the Institute also receive scholarships from various agencies.

vi) Specialization in M.Tech. (2 years Program):

Courses	1 st Year		2 nd Year		Total
	Sanctioned	Actual	Sanctioned	Actual	
CSE	15	06	15	04	10
EEE (Control, Power and Electric Drives)	15	05	15	06	11
ECE (Microelectronics and VLSI Design)	15	09	15	09	18



FACULTY AND STAFF DETAILS

As per the existing norms laid down by the Ministry, CFTIs should maintain a Student-Faculty Ratio of 12:1. As per the present Student intake at NIT Sikkim (980 excluding the Ph.D. Students), the number of Faculty members should be **Eighty-four (84)**. At present, only 38 Faculty posts have been sanctioned by MHRD.

Therefore, in order to meet the growing aspirations of the Students from the State of Sikkim as well as rest of India, **40 additional Faculty positions are to be created as detailed below**. Requests to sanction additional Faculty positions have been sent to the Ministry of Human Resource & Development (MHRD), Govt. of India.

Cadre	Post Sanctioned	Post to be created	Cumulative no. of Posts
Assistant Professor	22	23	45
Associate Professor	11	11	22
Professor	05	06	11
Total	38	40	78

List of Faculty Members

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

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

Moreover, to ensure proper functioning of the Institute, the Institute has sent repeated requests to MHRD to sanction at least Forty-nine (49) additional non-teaching positions as detailed below. The present sanctioned strength is only Thirty-seven (37).

Sl. No.	Cadre	Post Sanctioned	Post to be created	Cumulative no. of Posts
1	Registrar	01	00	01
2	Deputy Registrar	00	01	01
3	Assistant Registrar	01	02	03
4	Deputy Librarian	00	01	01
5	Assistant Librarian	01	00	01
6	Senior Students Activity & Sports Officer/ Assistant Engineer	01	00	01
7	Executive Engineer	01	00	01
8	Medical Officer	00	01	01
9	Technician (Selection Grade-I), Laboratory Assistant (Selection Grade-I)	00	05	05
10	Technical Assistant/Junior Engineer	08	02	10
11	SAS Assistant	00	00	00
12	Nurse	01	02	03
13	Superintendent/Accountant	03	02	05
14	Personal Assistant	00	01	01
15	Technician/Laboratory Assistant/Work assistant	10	16	26
16	Junior Assistant	05	07	12
17	Stenographer	01	00	01

Sl. No.	Cadre	Post Sanctioned	Post to be created	Cumulative no. of Posts
18	Pharmacist	00	01	01
19	Multi-Tasking Staff	04	08	12
	Total	37	49	86

List of Staff Members

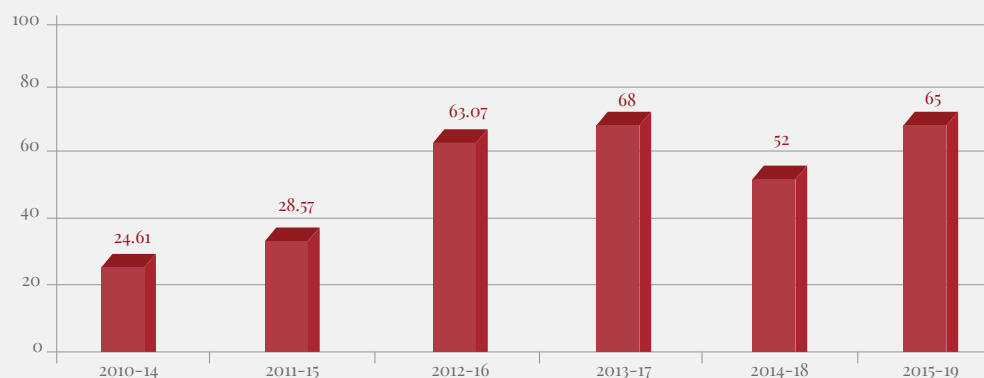
Sl. No.	Name	Designation
1	Mr. Bapi Mondal	Junior Assistant, Director Office
2	Mr. Amit Tamang	Technical Assistant, ECE
3	Mr. Amit Maity	Technician, ME
4	Mrs. Nishita Chettri	Junior Assistant, KIC Office
5	Mr. Subho Das	Technical Assistant, CE
6	Mr. Amrit Sharma	JE,(Electrical)
7	Mrs. Punam Singh	MTS, FICMA Office
8	Mr. Bharat Pradhan	Junior Assistant, Accounts Section
9	Ms. Sujata Dhungana	Junior Assistant,Registrar Office
10	Mr. Suman Pathak	Lab Assistant, CHEM.
11	Mr. Happy Mondal	Lab Assistant, PHY.
12	Mrs. Chandrama Majumdar	Technician, BIO.
13	Ms. Tshering Zangmo Bhutia	Junior Assistant, DIC (SA)
14	Ms. Sonam Choden Tamang	MTS, DIC (AA)
15	Mr. Sidharth Pradhan	Lab Assistant, ECE
16	Ms. Saheli Saha	JE CIVIL
17	Ms. Deepika Chettri	Technical Assistant, EEE
18	Mr. Manish Kumar	Lab Technician, EEE
19	Mrs. Jeneeta Josph	Accountant
20	Ms. Chanda Muktan	Technician, CE
21	Mr. Tapan Chhetri	Lab Technician, CSE



TRAINING & PLACEMENT CELL

Training and Placement Cell, National Institute of Technology Sikkim (aka TnP Cell) is the official intermediary between the industry and the Institution. T&P Cell also organises Talks, Workshops, Motivational and Professional Sessions to improve the technical and soft skills of Students. Despite the remote location the T&P Cell has been actively coordinating all the related activities.

Placement Statistics Year Wise



Branch-wise placed Students in Academic Year 2018-2019

Course	Branch	Total students	Placed
B. Tech	Computer Science and Engineering	26	19
B. Tech	Electronics & Communication Engineering	20	9
B. Tech	Mechanical Engineering	17	7
B. Tech	Electrical and Electronics Engineering	11	5
B. Tech	Civil Engineering	18	6
	Total	92	46

Workshops and Talks

The Training and Placement Cell organized the following workshops and special lectures by eminent academicians and industry persons during the year 2018-19.

Workshops

Sl. No	Resource person	Topic	Date
1	Dr. Bireswar Das	Computational Intractability	04 th March 2019 05 th March 2019
2	Dr. Debapriya Das	Power Systems	01 st April 2019



Prof. Bireswar Das delivering his presentation

1. Workshop on Computational Intractability

Training and Placement Cell, NIT Sikkim, in collaboration with Indian Institute of Technology, Gandhinagar had organised a workshop for the students, research scholars and the faculty members of Department of Computer Science and Engineering. The workshop was focused on recent generic trends in Computer Science.

2. Workshop on Power Systems

Training and Placement Cell, NIT Sikkim, in collaboration with Indian Institute of Technology, Kharagpur had organised a workshop for the students, research scholars and the faculty members of Department of Electrical and Electronics Engineering. Distribution Power Flow with New Concepts, Grid connected and islanded Micro grids, and Virtual Power Plants were some of the topics covered.



Prof. Debapriya Das delivering his presentation

Talks

Sl. No.	Resource Person	Department(s)	Date
1	Mr. Neil Banerjee	Civil Engineering	24 th March 2019
2	Miss. Jasmine	CSE, ECE, EEE, ME, CE	17 th February 2019



Participants from the AECOM talk



Teach for India Talk

Internships

An Internship enables the students to gain first-hand exposure of working in the real world. It also allows students to harness the skill, knowledge, and practice theory that they learn in university. Internships provide a nice learning curve for students with real experience of the professional world.

In the Academic year 2018-19, 186 Students of II and III-year B.Tech program have undergone Internships during the Summer vacation.

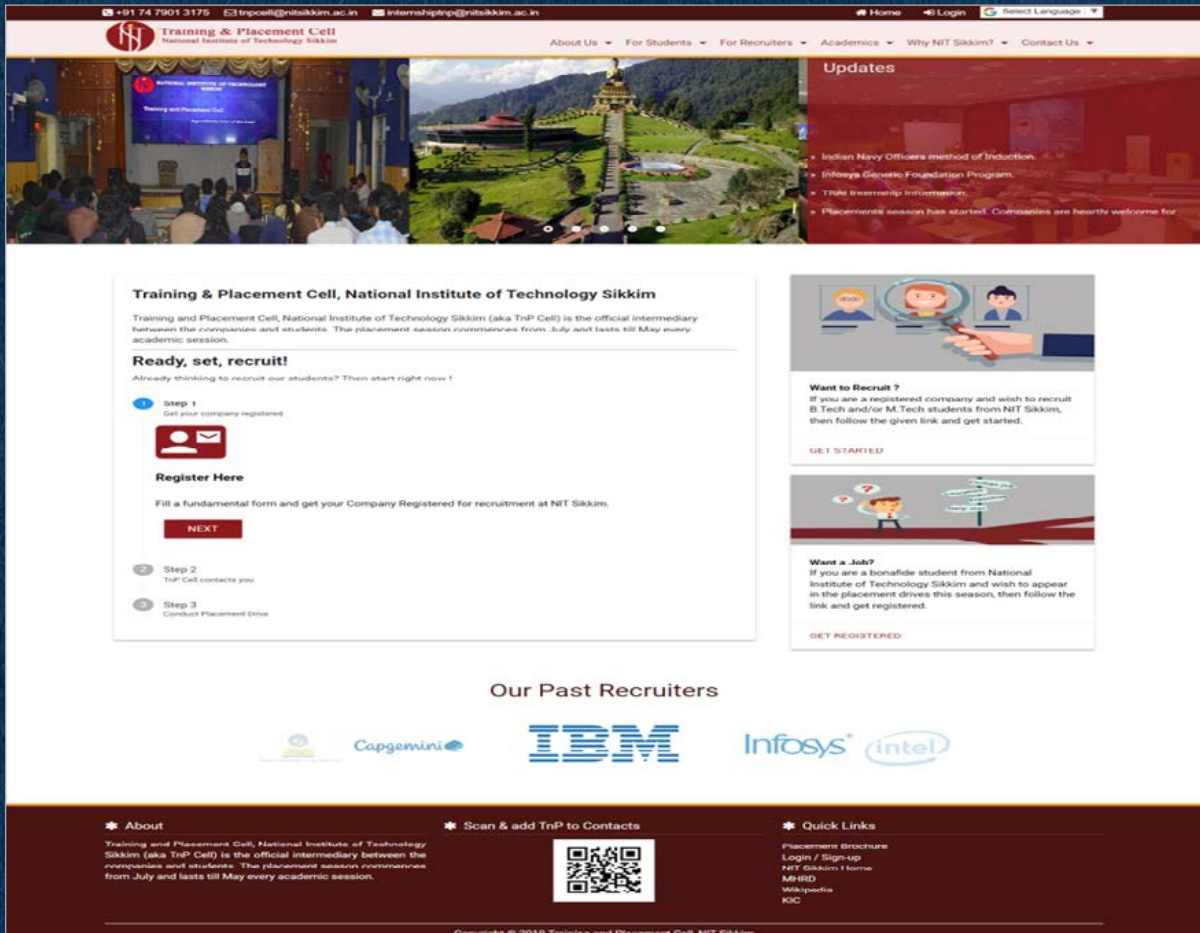
Sl. No.	Organization	Branch(es)	No. of Students
1	Calcutta University	ECE	3
2	IEST Shibpur	ECE	3
3	IIT Madras	ECE	3
4	Bit Mapper	ECE, CSE	4
5	NESAC	ECE, CSE, ME, EEE	7
6	India First Robotics	ECE	4
7	Raphe mPhibr	ECE, ME	3
8	Zunik Energies	ECE, ME, EEE	4
9	IIT Guwahati	ECE	3
10	IIT Patna	ECE, CSE, EEE	12
11	Embibe	ECE, ME	3
12	BEL	ECE	1
13	CTTC Kolkata	ECE	5
14	NITTTR Chandigarh	ECE, CSE	6
15	DMRC	CE	1
16	L&T Metro Hyderabad	ME	1
17	NFC Hyderabad	ME	6
18	IIT Delhi	CSE, ME	4
19	TATA Steel	ME	1
20	South Eastern Railway	ME	3
21	RDSO Lucknow	ME, CE, EEE	7
22	IIT Roorke	ME, CSE	2
23	ONGC Bokaro	ME	1
24	IIT Mandi	ME	1
25	IIT Kanpur	CE	1
26	L&T Construction	CE	7
27	Kathikeyan Associates	CE	1

Sl. No.	Organization	Branch(es)	No. of Students
28	CSE	CE	1
29	Powergrid	CE, EEE	24
30	Adroit Consultants	CE	1
31	NHPC Singtam	CE, EEE	10
32	NBCC	CE	2
33	Karrdias	CE	1
34	DRAIPL	CE	4
35	NTPC Rihand	EEE	2
36	METRO,Kolkata	EEE	1
37	BHEL	EEE	1
38	NE Taxi	CSE	8
39	Avrio	CSE	2
40	IIT Kharagpur	CSE	1
41	IBM	CSE	2
42	Olatus	CSE	1
43	NIT Rourkela	CSE	3
44	NIC	CSE	2
45	BRS	CSE	2
46	NFC	CSE	1
47	Voice Qube	CSE	1
48	MITACS	CSE	4
49	Petpa Infotech Pvt. Ltd	CSE	2
50	University (Noida)	CSE	1
51	University of Hyderabad	CSE	1
52	NIIM, Kolkata	CSE	8
53	NIIT, Darbangha, Bihar	CSE	1
54	Defenzelt Pvt. Ltd.	CSE	1
55	NIT Durgapur	CSE	1
	Total		186



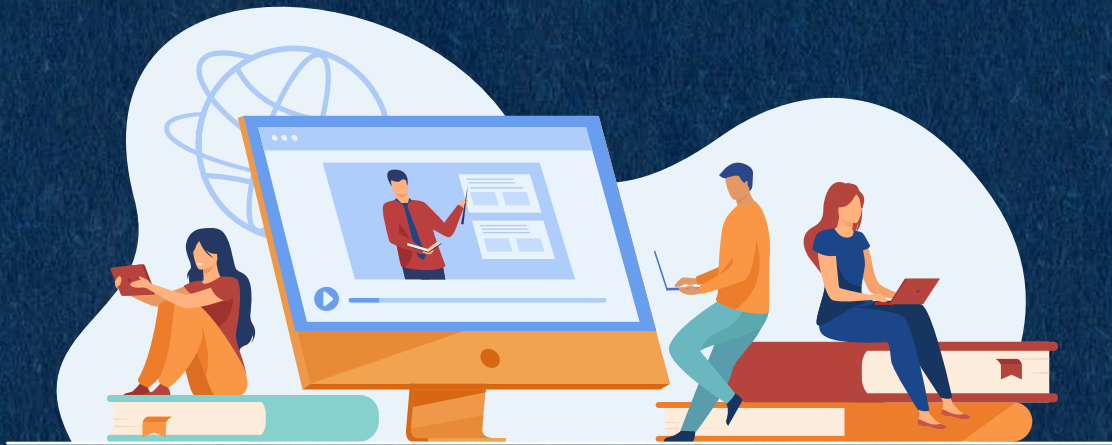
Training and Placement Cell Website

Home page of Training and Placement Cell NIT SIKKIM



T&P Website is a strategically developed website and marks the cell's online presence and provides tremendous benefits in terms of providing easy access to our prospective and regular recruiters. The website not only provides updates about the placement related activities but also helps us connect to the corporate

world with a click. Several elite companies like Adobe, IBM, etc. have contacted us through JAF available on the web portal. We are in the process to mandate the registration process for students as well as recruiters for a more efficient and concrete placement process.



CAMPUS LIFE

HOSTEL ACCOMMODATION

At present the Institute is located in a temporary campus. The hostel accommodation within the campus is limited. However, hostel accommodation is made available to all the registered B. Tech. /M. Tech. and M.Sc. students within and outside the campus. Separate hostel accommodation is available for girl students within the campus. All the hostel/rooms are equipped with necessary furniture and facilities. In-Campus Hostels are fully Wi-Fi enabled. The students also enjoy 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 the Hostel	No. of Rooms	No. of Residents	Wardens
1.	Prefab-1	34 +1 (Common room)	133	Dr. Surajit Kundu Dr. Kunwar Pal
2.	Prefab-2	34	130	Dr. Hemant Kr. Kathania (from 09.08.17 to 02.10.18)
3.	BH- 3	6	24	Mr. Deepak Joshi
4.	BH- 4	6	24	Mr. Arun Kr. Kadian Mr. B. Balaji Naik

(ii) Girls Hostel Details

Sl. No.	Name of the Hostel	No. of Rooms	No. of Residents	Wardens
1.	GH-4	6	24	Mrs. Reshmi Dhara
2.	GH-5	6	24	Mrs. Gopa Bhaumik
3.	GH-6	4	16	Dr. Sangita Deb Barman
4.	GH-8	4	08	
5.	GH-9	6	24	
6.	B-3	2	7	

B. Off-Campus Boys Hostel

Four buildings are on rental basis at Ravangla town to accommodate 1st Year UG and PG Boy students. 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.	BH-11	15	35	Dr. Kuntal Mandal Dr. Amlan Das Dr. Debi Prasad Bal Dr. Sukanta Dhar Dr. Abhishek Ranjan
2.	BH-12	09	22	Dr. Barun Jana Dr. Suresh Kr. Choubey Mr. Manohar Kumar Mr. Neelanjan Dutta Mr. Pratik Kumar Shaw
3.	BH-13	28	91	
4.	BH-14	25	42	

C. Mess Facilities

Three separate student messes are running at NIT Sikkim. Two messes are located separately within the campus which are dedicated and catered to facilitate in-campus girls and boys students. One mess is located at off-campus hostel for students residing at off-campus hostels. The student mess committee under the supervision of chief warden and other wardens oversees the smooth functioning and quality of the services provided by the mess contractor.

D. Scholarships

The students of NIT Sikkim get benefitted by Scholarship under different schemes of Central and State Government. NIT Sikkim 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. NIT Sikkim has registered to the scholarship portal of many states that provides financial assistances to the students based on their family income and academic performance under various categories and accordingly the students get 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 the students with disabilities. Apart from the mentioned schemes the students may also apply for central sector scheme of scholarships for college and university students under department of higher education. Students also get benefitted by the scholarship schemes assisted by university grant commission – MHRD under the schemes of *Ishan Uday* – Special scholarship scheme for North Eastern Region and PG 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 Scheme for Higher Education of ST students

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

- Tuition Fees:** All the ST students get full Tuition fee waiver as per the Institute rule.
- Books & Stationery:** Rs.3000/- per annum per student
- Living expenses:** Rs. 2200/-per month
- Computer & Accessories:** Rs.45000/- One time assistance during the course.
- Other Non- Refundable Charges:** Other Institute non- refundable fees paid by the student for all academic/non-academic purposes. This amount may vary from year to year.

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

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

- Tuition Fees:** All the SC students get full Tuition fee waiver as per the Institute rule.
- Books & Stationery:** Rs.3000/- per annum per student
- Living expenses:** Rs. 2200/-per month
- Computer & Accessories:** Rs.45000/- One time assistance during the course.
- Other Non- Refundable Charges:** Other Institute non- refundable fees paid by the student for all academic/non-academic purposes. This amount may vary from year to year

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 -

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

E) Central Sector Scheme of Scholarships for Students with Disabilities

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

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

F) Scholarships from other states:

Students belonging to the states as mentioned below avail the scholarship from their respective state government scholarship schemes:

- Bihar
- Madhya Pradesh
- Rajasthan
- Jharkhand

- e. Assam
- f. Sikkim

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 & 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 Ministry. If selected by the awarding authority, the students directly receives the scholarship on their bank accounts.

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

E. Recreation & Sports

Despite the dearth of space in the temporary campus, efforts have been made to provide necessary recreational and 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 Institute throughout the year. Students are encouraged and provided with the necessary assistances to participate in Inter NIT Sports, Cultural and technical events.

In line with the different events of Government of India such as International Yoga Day, FIT India, Khelo India, Physical Education, Games, Sports and Cultural activities are other dimensions of the Institute where students involve themselves to remain healthy and active. There are a number of Games, Sports and Cultural activities in the Institute.

In the areas of 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 exists inside the campus. All the fields and court are having proper lightning facilities for the convenience of playing at night also.

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

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

International Day of Yoga is observed every year on 21st of June in the Institute with enthusiast participations of students, staff-faculty members and the Director. Students and teachers of nearby schools also are invited to participate in this event.

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



Annual Sports Meet 2018

Abhiyantran: Theme: A tribute to ISRO

Abhiyantran is the annual technical fest extravaganza organized every year by students of NIT Sikkim. The first chapter of Abhiyantran was organized in 2014.

The main motto behind the Fest is to bring out every single one of the curious and innovative minds together

under one roof and provide them a platform to show their talents either by presenting a model or a project or by organizing various motivation building events, talks, lectures and seminars and technical competitions. Many budding innovators and young minds attend the fest and illuminate the event with their presence and talent every year.



Hon'ble Director NIT Sikkim felicitating Prof. Ajoy Kumar Ray



Students' exhibition on the inaugural ceremony of Abhiyantran 2018

Two Workshops conducted at Abhiyantran'18

i. IoT (Internet of Things) Workshop:

Two day workshop on Internet of Things (IoT) was conducted during Abhiyantran '18. The Internet of Things (IoT) is a concept that describes the idea of everyday physical objects being connected to the internet. In the Internet of Things, the connected devices should be able to identify themselves to other devices. It is a concept where Things can talk to other Things. This workshop was organized by Innovian Technologies in association with Technex, IIT Varanasi.

ii. RC Aircraft Design Workshop:

Abhiyantran '18 in collaboration with Skyfi Labs, organized a Workshop on RC Aircraft Modelling that gave the students' exposure to the latest Technology of Aeromodelling. It was a two-day workshop. The participants were students mainly from B.Tech. (All Branches).

Skyfi Labs is an initiative by IIT Kanpur alumni and holds a name in the Limca Book of Records for conducting successful workshops for the students all over the country. Two expert trainers from Skyfi Labs, Bangalore visited our campus during this Fest to train the enthusiastic students. Required Kits were brought and on the second day of the workshop, students flew their self-designed aircrafts in the open area near VCGL, Ravangla. It was a successful event seeing the active participation and the curiosity that grew thereafter would be a treasure to the students looking for technological exposure.

Speakers on Abhiyantran'18

Sandeep Jain

FOUNDER AT GEEKSFORGEEKS

Sandeep Jain is an IIT Roorkee alumnus and founder of Geeks for Geeks. Apart from Geeks for Geeks, he has worked with DE Shaw and Co. as a software developer and IIIT Noida as an assistant professor. Geeks for Geeks is a web portal extremely popular among CSE students and some other departments of engineering as well. His website is estimated worth of \$ 27,112,320.00 and have a daily income of around \$ 25,104.00. This website has 3,137,970 daily unique visitors. It has a global traffic rank of #570 in the world with Google page rank of 4.



Gurtej Sandhu

INDIAN INVENTOR

Gurtej Sandhu is an Indian inventor in the fields of thin film processes and materials, VLSI and semiconductor device fabrication. He is recognized for being the all-time seventh most prolific inventor as measured by number of U.S. utility patents. Gurtej has 1,315 U.S. utility patents as of February 5, 2019. Currently he is Senior Fellow and Director of Advanced Technology Developments at Micron Technology, Inc. The publication Kiplinger reports, Sandhu developed a method of coating microchips with titanium without exposing the metal to oxygen, which would ruin the chips. Initially, he didn't think his idea was a big deal, but now most memory-chip makers use the process. The publication also states that Gurtej earned an electrical engineering degree at the Indian Institute of Technology Delhi and a physics PhD at the University of North Carolina at Chapel Hill.



Ramesh Krishnan

HEAD OF MOBILITY AND UX AT MPHASIS

Ramesh Krishnan, Head of Mobility and UX at Mphasis is one of the renowned names in this nascent field and was one of the panelists at MobiSparks. Mphasis is an IT services company based in Bangalore, India. The company provides infrastructure technology and applications outsourcing services, as well as architecture guidance, application development and integration, and application management services. It serves financial services, telecom, logistic, and technology industry. Mphasis was ranked #7 in India IT companies and overall #165 by fortune India 500 in 2011.

Udgam 2018

UDGAM is the annual Socio-Cultural fest of NIT Sikkim, 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 stars 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 come a long way since its inception. Stepping into the Fourth Year in 2018.

Major Event: Battle of Band, Cultural Dance, NIT Idol, Flash Mob, DJ Night with many other cultural events.



Abhiyantran



Republic Day 2018





Suresh Albela
(Winner for the fourth season of The Great Indian Laughter Challenge)



Sachin Valmiki
(Singer, contestant of the singing reality show "Sa Re Ga Ma Pa" 2016 on ZEE TV)



Sachin Rai
(Classical Singer from Namchi, South Sikkim)

Cultural Night



Battle of Band Winner

Games and Sports Facilities

Outdoors Games Facilities

Sl. No.	Outdoor Games (Girls / Boys)	Facility Available
1	Cricket	Standard playground with concrete pitches for practice is available
2	Volleyball	Standard Volleyball Court is available
3	Football	Standard playground is available near student hostel

Indoors Games Facilities

Sl. No.	Indoors Games (Girls / Boys)	Facility Available
1	Badminton	Standard Badminton Court
2	Table Tennis	TT Table is available in the Hostels
3	Carom	Carom Board available in the hostels

Community Development

NIT Sikkim takes active participation in promoting various outreach activities and Govt. schemes, viz., Swachh Bharat Abhiyan, Rashtriya Ekta Diwas, Ek Bharat Shreshtha Bharat, Unnat Bharat Abhiyan. Every year NIT Sikkim conducts cleanliness drive, painting competition, 'Run

for Unity' marathon, etc. at such programs. All students, faculty and staff under the guidance and supervision of the Director of the Institute come together to promote these events. The Institute also invites eminent personalities and guests from various places to encourage and motivate the students. .

Cleanliness drive at the campus during Swachh Bharat Abhiyan



In the pic: Students and faculties with the Hon'ble Director NIT Sikkim

Induction Program 2018

Induction Program for 2018-2022 Batch students was conducted on August 2018. The main objective to conduct this program for the freshers is to give them friendly environment in the campus and for the effective

integration of the students into the Institute. New students get acclimatized to the learning environment, Institute culture and their duties, rights and responsibilities. Highly distinguished guests from academia, industries, Govt. administration were invited in the induction program to motivate the students.



Inaugural Ceremony of Induction Program 2018 on 16th August 2018.



*Freshers'
(2018-2022)
Batch
B.Tech.
Students*

Induction Program 2018-2022





INFRASTRUCTURE DEVELOPMENT IN THE TEMPORARY CAMPUS

Due to lack of space and extreme climatic condition in the temporary site of the Institute, efforts have been made to create minimum necessary infrastructure and regular repair/maintenance works of old structures. The Estate Section of NIT Sikkim manages all infrastructure related tasks. The Institute has been operating from the temporary site since last 9 years and the campus is in need for regular repairs and maintenance to discharge the necessary academic and administrative activities. Further, with the approval of the BWC and the BoG, constructions of temporary sheds are initiated to provide the necessary and basic laboratories/class rooms and other infrastructure. In the year 2018-19, the Institute has taken up the following projects, which are either under construction or completed.

a. Reconstruction of collapsed retaining walls and damaged areas (i) adjacent to Kitchen and Dining Hall near Prefab Boys' Hostel-II and (ii) Playground

NIT Sikkim is functioning from a temporary campus located at Ravangla, South Sikkim. Ravangla witnesses heavy rainfall during long monsoon. During the monsoon season, the portion of retaining walls adjacent to Kitchen/Dining Hall near Prefabricated Boys' Hostel-II and that near playground collapsed, generating wide cracks in nearby portion of the retaining walls as well as in the surrounding floor areas. This had created an emergency for taking up reconstruction work of the damaged portion and repair of adjacent sites. As the retaining walls are in the vicinity of the students' mess and hostels, the accident had made the area risk prone for the students and others. In order to ensure the safety of students, faculty, staff/other users and also to avoid further damage to the retaining walls, structures of hostel, kitchen and dining space, immediate reconstruction

work of the retaining walls along with floor, drainage systems was urgently required. In view of this, the reconstruction work of the same was assigned to CPWD with the approval of BWC, FC and BoG. Most of the work has been completed by CPWD. The pictures of the damaged areas adjacent to Kitchen and Dining Hall close to Prefab Boys' Hostel-II and Playground before and after reconstruction work are given in Fig.1 and Fig.2, respectively.

b. Repair, maintenance and fabrication of shed at Academic Building

Ravangla experiences heavy rain fall for 7 to 8 months in a year. The plinths and drainage system of the academic block is found to be severely damaged during the monsoon season. In addition, the sewerage lines were also not working, leading to constant water seeping through the retaining wall from the floor. On inspection by the estate department, the damage was found to be due to excessive rain, age and other climatic conditions. An immediate repair was required to save the buildings and retaining wall etc. to avoid possible partial subsiding of land and severe damage affecting safety and security of students, faculty and staff. In view of safety issues, it was necessary to take up the repair work immediately. The following two tasks were found to be necessary (i) repair of complete sewerage and drainage network and the floor and (ii) providing sheds all around the academic block so that students as well as other people of the Institute could move freely during the rainy season. These also protected the plinth, floor and retaining wall near academic block. Looking at the urgency, the above mentioned work was get done in-house by the estate section and its picture is given in Fig.3.





*Fig.1 Damaged areas adjacent to Kitchen and Dining Hall near Prefab Boys' Hostel-II
(a) before Reconstruction (b) after Reconstruction*



Fig.2 Damaged areas adjacent to Playground (a) before Reconstruction (b) after Reconstruction



Fig.3 Fabrication of Sheds near Academic Building



c. Fabrication of Shed for providing additional space for the Central Library

During last monsoon season, the retaining wall of the library block had collapsed; as a result the entire library structure was in an unsteady position. In view of this the library was shifted to the multipurpose hall (MPH). However, the available space at MPH was not

sufficient to accommodate all the books and other items of the library. The temporary campus lacks adequate built-up space for library and study room for students. To meet the requirements of library, an additional space has been created by fabricating a shed next to the MPH. This work was executed in-house by the estate section.



Fig.4 Fabrication of Shed for providing additional space for the Central Library

d. Fabrication of sheds for creating laboratory space for ECE, CSE, ME, EEE and Civil Department.

The temporary nature of the campus at Ravangla, lacks adequate built-up space for faculty offices, basic laboratories, classrooms etc. The Students are in demand for better academic atmosphere and Institute does not have proper space for it. Although some laboratory spaces are under construction, this is not sufficient to support all the academic requirement specially laboratories for the Departments. To meet

the urgent requirement of laboratories as well as for the sitting purpose of faculty, staff, M.Tech and PhD scholars, additional spaces were created for the ECE, CSE, ME, EEE and Civil Departments by fabricating industrial sheds. These works were executed in-house by estate section under the supervision of Civil and Mechanical departments. The picture of different laboratories sheds of above mentioned Departments is given in Fig.5.



(a)



(b)



(c)



(d)



(e)

Fig.5 Fabrication of laboratory Shed for (a) ECE Department (b) Civil Department (c) CSE Department (d) ME Department (e) EEE Department

e. Aluminum glass partitioning work of Offices in Administrative Building

In order to meet the minimum requirement of spaces for offices, sheds were fabricated in the Administrative building and cabins were constructed

with aluminum, glass and PVC sheets. The above-mentioned work has been carried out by the estate department under the supervision of Mechanical and Civil Department. The pictures of these newly fabricated offices are given in Fig.6.



(a)Accounts Section



(b) Establishment Section

Fig.6 Aluminum glass partitioning work of Offices in Administrative Building

Workshop Technical



Independence Day 2018



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 available facilities. It has been growing and expanding in terms 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 totally inadequate 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 the collection.

(a) Print Collection

Central library has a good collection of text books, reference books, encyclopedias, dictionaries, Journals/Magazines.

(b) Electronic Collection

The Central Library possesses rich electronic resources to meet the requirement of respective departments including engineering as well as basic science departments. The subscribed e-resources are as follows:

1. Full Text Databases:
 - A. Science Direct
 - B. IEEE
 - C. Springer-Nature
2. Bibliographic Databases such as SciFinder
3. E-books: Central Library possesses a number of titles of e-books

(c) 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 in comfort during evening/night time.



RESEARCH AND CONSULTANCY

NIT Sikkim is focusing on its contribution to different research and development works. A number of projects and consultancy works are ongoing at NIT Sikkim as mentioned below:

Research Projects

- 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)
- 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)
- 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. Dhananjay Tripathi
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)

Consultancy Works

- Appraisal report on detailed project report for up-gradation and modernization of sewerage scheme for smart city Namchi, South Sikkim
Client - Enviro Associates and Consultants, Gangtok, East Sikkim
- Concrete mix design for m25 and m35 grade of concrete of Sikkim University site, Yangang
Client - NCC Ltd.
- Construction material testing of Power Grid Ltd. New Melli, Tokal village, South Sikkim;
Client - Reliance Elektrik Works, Sombaria, West Sikkim

EXAMINATIONS AND ASSESSMENTS

The Institute has an examination cell, which is responsible for organizing various evaluation, and examination related activities for students. Following chart records the evaluations held during 2018-2019.

Examination results for the B.Tech from 01.04.2018 to 31.03.2019

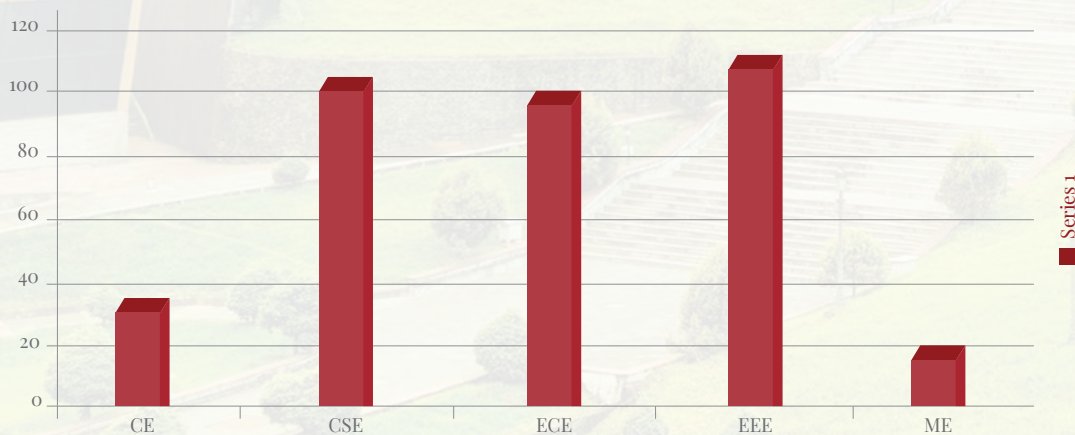
Sl. No.	Branch	No of Students appeared	First Division	Second Division	Total	Percentage of Pass
1	Civil Engineering	13	13	0	13	100
2	Computer Science and Engineering	22	20	2	22	100
3	Electronics and Communication Engineering	14	14	0	14	100
4	Electrical and Electronics Engineering	20	17	3	20	100
5	Mechanical Engineering	18	18	0	18	100

Examination results for the M.Tech from 01.04.2018 to 31.03.2019

Sl. No.	Branch	No of Students appeared	First Division	Second Division	Total	Percentage of Pass
1	Computer Science and Engineering	8	8	0	8	100
2	Electronics and Communication Engineering (Microelectronics and VLSI Design)	11	11	0	11	100

Degree awarded up to 31.03.2019 (B. Tech)

Sl. No.	Branch	Total
1	Civil Engineering	31
2	Computer Science and Engineering	100
3	Electronics and Communication Engineering	96
4	Electrical and Electronics Engineering	108
5.	Mechanical Engineering	18
	Total Degree awarded	353





Degree awarded up to 31.03.2019 (M.Tech)

Sl. No.	Branch	Total
1	Computer Science and Engineering	14
2	Electronics and Communication Engineering (Microelectronics and VLSI Design)	11

MEDICAL FACILITIES

Basic health care services are offered by the Institute to students, employees, and other beneficiaries from its medical unit that is located within the campus, close to the residential zone and the academic zone. The medical unit is open from 08 A.M. to 08 P.M. regularly. However it is functional round the clock in case of an emergency. Three visiting medical consultants (two general physicians, and one orthopedic specialist) from nearby Government health center and hospital are available in the medical unit at alternative



Medical treatment at Medical Unit



Ambulance Facility at NIT Sikkim

visiting hours. A dedicated nursing team provide general medical services which include first aid, dressing, intravenous fluid infusion, and blood pressure-pulse rate-weight measurement. Students, employees, and other beneficiaries of Institute can avail free outdoor medical treatment, medicines, first-aid, dressing, nebulization, and intravenous fluid infusion services from the medical unit. An ambulance van with first aid kit is available for students and employees of Institute. Medical Insurance facility is available to the students for IPD treatment.

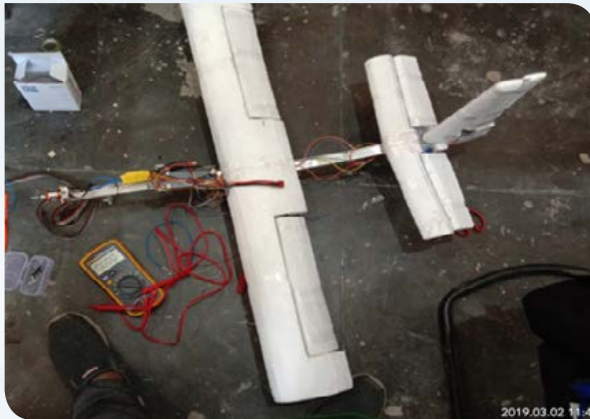
INNOVATION CELL

The innovation cell encourages and supports students to explore their technological creativity. The following Institute programs have given platforms for students to showcase their talent:

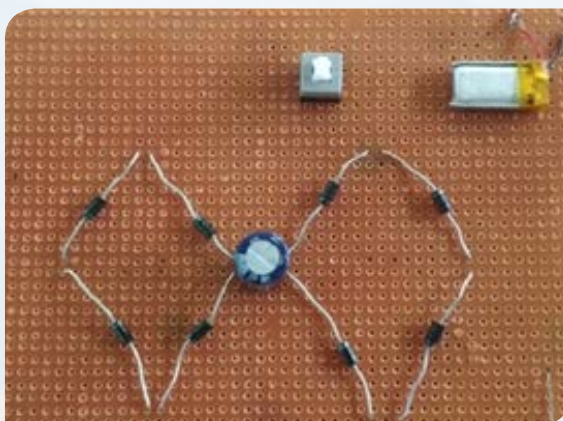
- Annual Technical Exhibition during Abhiyantran 2018.
- Research and Innovation Summit during Abhiyantran 2018.

Students were engaged in innovative works including the following important fields:

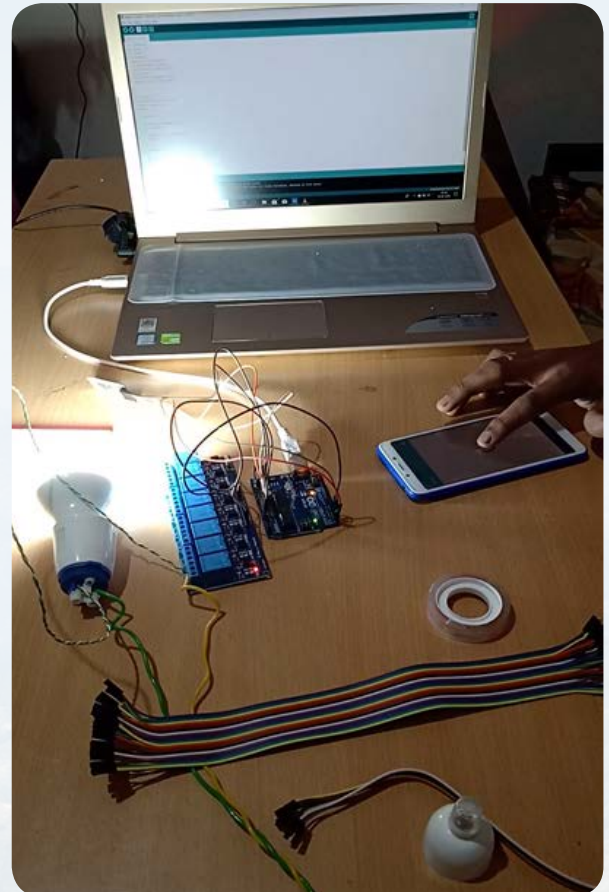
- Plane controlled by wifi
- Automatic Irrigation System
- Topic-book for disabled person
- Home automation system via Bluetooth
- Li-fi (light fidelity)
- Atmospheric electricity generator



Development of RC plane



Development of atmospheric electricity generator



Development of home automation system via bluetooth

2nd Convocation





ACADEMIC DEPARTMENTS

(i) Department of Computer Science and Engineering

The Department of Computer Science and Engineering (CSE) is one of the departments that started operating from the initiation of National Institute of Technology Sikkim 2010. The Department aims to provide an outstanding research environment complemented by excellence in teaching.

The CSE department offers four years B.Tech. Course, two years M.Tech. Course and PhD Program. 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 with state-of-the-art technological information to equip the students and teachers with the latest developments in the field. It is also proposed to develop interdisciplinary and multidisciplinary projects based on the expertise of faculty members.

The areas of research are Cryptography, Network Security, Parallel-Distributed and High-Performance Computing, Algorithms, Bioinformatics, Computer Animation, System Software, Software Engineering,

Cloud Computing, Wireless and Sensor Networks etc. to build research groups and leverage the research activities in Sikkim in particular, and North-East region in general, using a coordinated effort 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 department enjoys a rich research culture through various projects under schemes such as Visvesvaraya PhD scheme, Research grants from DeitY and DST, National Mission on Himalayan Studies, specific developmental projects for north-eastern region, etc. The department also contributes towards community developments through Unnat Bharat Abhiyan and scientific lifestyle development of local community (as per scheme of Department of Atomic Energy). At present department have limited laboratories due to non-availability of laboratory space in the temporary campus. However, the Institute is trying to create more space by constructing industrial sheds to establish necessary laboratories.

Admission Statistics

2018-19	Student Intake	Student Admitted
B.Tech	60	60
M.Tech.	15	06
Ph.D.		12

Programs/Courses offered by the Department

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

Faculty Details

Sl. No.	Name, Designation and Research Interest(s)
1	Prof. Mahesh Chandra Govil , (director@nitsikkim.ac.in) Director, M.Tech. (IIT Roorkee), Ph.D. (IIT Roorkee) Real Time Systems, Parallel & Distributed Systems, Fault Tolerant Systems, Cloud Computing.

Sl. No.	Name, Designation and Research Interest(s)
2	Dr. Sangram Ray , (sray.cse@nitsikkim.ac.in) Assistant Professor & HOD, M.Tech.(IIT (ISM) Dhanbad), PhD(IIT (ISM) Dhanbad) Cryptography and Information Security, Public Key Infrastructure, Elliptic Curve Cryptography Content Centric Network, Internet-of-Things.
3	Dr. Pratyay Kuila , (pratyay_kuila@nitsikkim.ac.in) Assistant Professor, M.Tech.(NITTTR Kolkata), PhD (IIT (ISM) Dhanbad) Algorithm Design, Compiler Design, Automata Theory, Wireless Sensor Networks, Soft Computing.
4	Md. Sarfaraj Alam Ansari , (sarfaraj@nitsikkim.ac.in) Assistant Professor, M.Tech.(NIT Durgapur), PhD (pursuing from NIT Sikkim) Network Technology, Information Security & Risk Management.
5	Mr. Pankaj Kumar Keserwani , (Pankajkeserwani.cse@nitsikkim.ac.in) Assistant Professor, MS(IIIT, Allahabad) PhD (pursuing from NIT Sikkim) Information Security.
6	Ms. Gopa Bhaumik , (gopa.bhaumiko9@nitsikkim.ac.in) Assistant Professor, M.Tech.(NIT Durgapur), PhD (pursuing from NIT Sikkim) Image Processing, Programming Languages.
7	Mr. Tarun Biswas , (tarun.cse@nitsikkim.ac.in) Assistant Professor, M.Tech. (NIT Durgapur), PhD (pursuing from NIT Sikkim) Nature-Inspired Optimization Algorithms, Edge Computing, Big Data.
8	Mr. Banavath Balaji Naik , (balajinaiko7@nitsikkim.ac.in) Assistant Professor, M.Tech. (NIT Trichy), PhD (pursuing from NIT Sikkim) Cloud Computing, Internet of Things, Computer Network.

Temporary Faculty Members

Sl. No.	Name, Designation and Research Interest(s)
1	Dr. Shefalika Ghosh Samaddar , (shefalika99@nitsikkim.ac.in) M.Tech.(IIT (ISM) Dhanbad), PhD(MNNIT Allahabad) Information Security.
2	Dr. Kunwar Pal , (kunwar.1mar@nitsikkim.ac.in) M.Tech.(PTU), PhD(MNIT Jaipur) Computer Network, Data Communication, Internet of Things
3	Dr. Mayukh Sarkar , (mayukh.sarkar1987@nitsikkim.ac.in) M.Tech.(IEST Shibpur), PhD(IEST Shibpur) DNA Computing, Design and Analysis of Algorithm
4	Mr. Gajendra Singh Shekhawat , (gshkhawat@nitsikkim.ac.in) M.Tech.(CUR), PhD(pursuing from MNIT Jaipur) Computer Networks, Underwater Sensor Networks, Computer Organization and Architecture, Database Management System, Network Security
5	Mr. Uddalak Chatterjee , (uddalak@nitsikkim.ac.in) M.Tech.(IEST Shibpur), PhD(pursuing from NIT Sikkim) Database Management system, Network Security

Laboratory Facilities

• Computer Laboratory 1

No. of Computers: 36

Specifications: HP Prodesk, 8 GB RAM
1 TB HDD
Intel i7 Processor, 3.60 GHz
Windows 10, 64 bit Operating system

Laboratory conducted:

- Programming Language
Programs: Loop, String, Array, Function, Structure, Pointer

- Data Structure and Algorithm
Programs: Array, Linked List, Stack, Queue, Tree, Graph, Searching, Sorting
- Web Design
Programs: HTML, CSS, Web Publishing or Hosting.



Inside View of CL1

• **Computer Laboratory 2**

No. of Computers: 36

Specifications: HP Prodesk
8 GB RAM
1 TB HDD
Intel i7 Processor, 3.60 GHz
Windows 10, 64 bit Operating system

Laboratory conducted:

- Operating System
Programs: Process creation, Task Scheduling, Deadlock prevention Algorithms

- Computer Network

Programs: Unix Programming Environment and Tools, Pipe Programming, TCP/UDP, Socket programming, Simulate (using NetSim) and study of ARP, VLAN, STP, Characteristic Curve of throughput for a pure and slotted ALOHA system, Modeling of TCP, TCP Performance, Packet Loss Probability, Study the working of routing protocols (RIP, OSPF etc.).

- Data Base Management System

Programs: Design and implementation of individual projects



Inside View of CL2

- **Computer Laboratory 3**

No. of Computers: 30

Specifications: HP Prodesk
8 GB RAM
1 TB HDD
Intel i7 Processor, 3.60 GHz
Windows 10, 64 bit Operating system

Laboratory conducted:

- Computer Graphics
Programs: OpenGL, Line drawing, Circle drawing algorithm, Transformation, Hidden Surface Removal, Ray tracing, Ray casting.

- Pattern Recognition
Programs: Design and implementation of Machine Learning Algorithms for Classification.
- Advanced Computer Network
Programs: Congestion Control Algorithms, Wireless LAN Network, QOS in WLANs, LTE Networks, ACL.



Inside View of CL3

- **Cloud Computing Laboratory**

No. of Computers: 18

Specifications: Dell, 8 GB RAM
1 TB HDD
Intel i7 Processor, 3.60 GHz
Ubuntu, 64 bit Operating system

SuMegha – the Cloud Server installed in CL3:

SSuMegha is a scientific cloud providing cost effective and scalable HPC to 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 to the researches for solving compute and data intensive problems.

Features:

- Auto installation of cloud stack to build private HPC cloud.
- Creation of Virtual clusters and virtual machines on demand easily and quickly
- Provides HPC PaaS with OpenMP, MPI and Map-Reduce parallel environments.
- Supports saving of user images
- Facilitates Cloud administration
- Offers Virtual infrasture of various image sizes
- SuMegha Portal provides secure access and management of cloud services for multiple users
- Select HPC application are 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
- SuMegha portal for secure access to cloud services
- Hypervisor (Xen)
- Cluster virtualization using Nimbus
- Image repository based on Cumulus
- Deployment, Configuration & Management tools



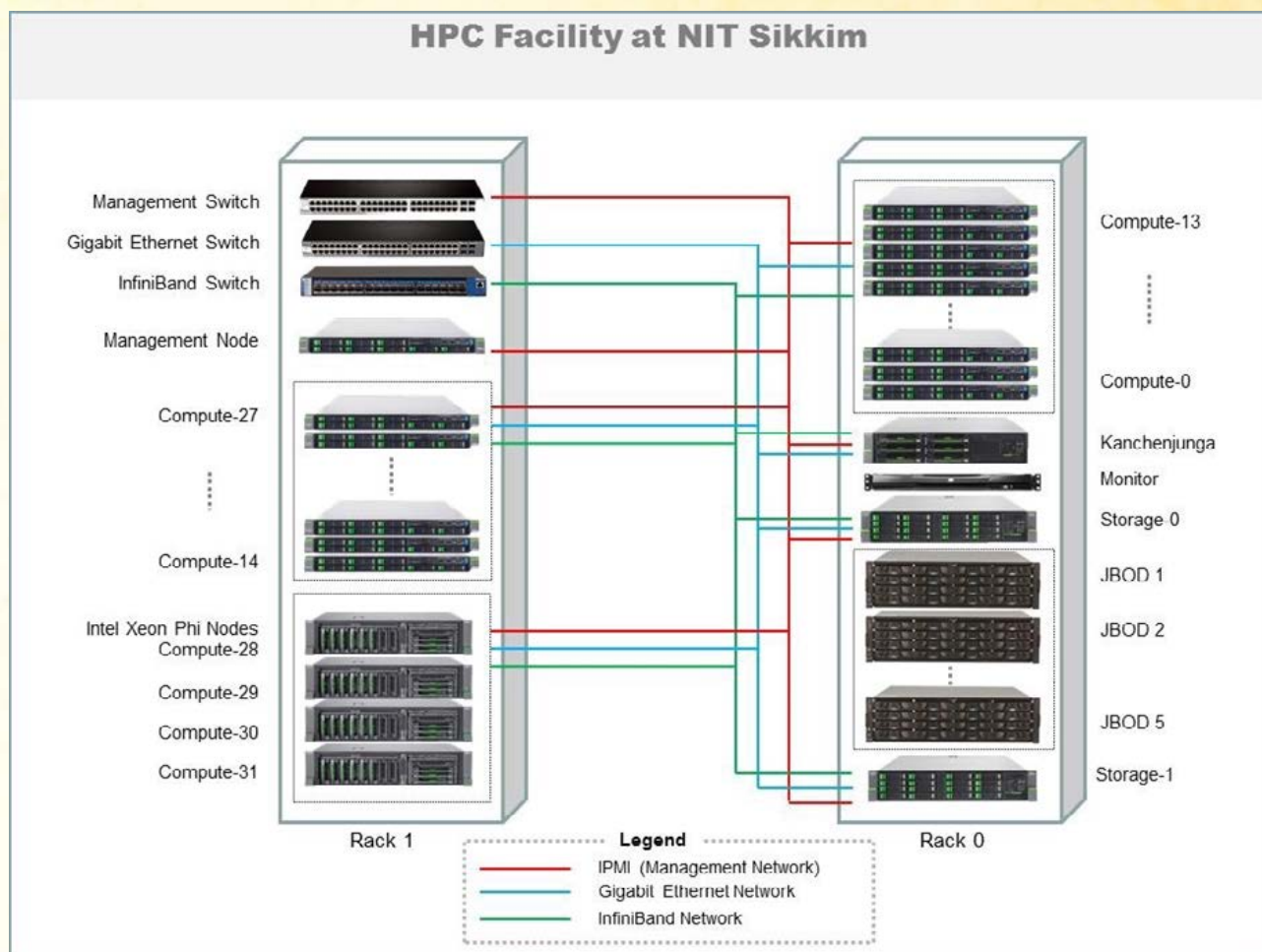
Inside View of Cloud Lab

- **High Performance Computing Laboratory**



Param Kanchenjunga

HPC Architecture



Master Node Details

Machine Make/Mode	OS & Level	Host ID (MAC Address)	Host Name
Fujitsu RX 300 S8 / Intel Xeon E5-2650 v2	RHEL 6.5 / Kernel 2.6.32-431.el6.x86_64	A0:36:9F:4B:F0:46	kanchenjunga.nitsikkim.ac.in

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 Infini Band as Primary Network
- 48-port Gigabit Ethernet as a Secondary Network
- 48-port Gigabit Ethernet as a Management Network
- Visualization/ Management Node

Project Completed using HPC

Project Title: Implementation of Ensemble Transform Kalman Filter based Data Assimilation system in ROMS model using ARGO data. (DST Sponsored) PI: Dr. Md. Nurujjaman

Project going on using HPC

SMDP-C2SD Project NIT Sikkim

Research Work Going on (using HPC)

1. Multi phase flow Analysis & River Flow Analysis in CFD through OpenSource (OpenFoam, Su, POM). Concerned Person: Dr. Shambhunath Barman
2. Computational design of novel nanomaterials for clean energy and nanoelectronic devices using first-principles electronic structure methods and density functional theory coupled to non-equilibrium Green's Function. Concerned Person: Dr. Abir De Sarkar (Scientist-E, INST Mohali)

Research work going on using HPC by

1. Hanuman Godara
2. George Biswas
3. Sachidulal Biswas
4. Keshab Das
5. Nigidata Pradhan
6. Priti Gupta

M.Tech Work done using HPC: 1 Student

B.Tech Work done using HPC: 2 Students

Acknowledged in 3 research papers.

HPC Workshops organized: 2 (CDAC & Wipro)

External Access Providing to

1. INST Mohali
2. Sikkim University
3. Central University Punjab
4. MNIT Jaipur
5. Ashutosh College Kolkata

List of running applications (Software Tools) on HPC System

1. Onama (Parallel Application Suite)
2. CHReME (For HPC Resource Management)
3. ROMS (Regional Ocean Modeling System)
4. Gaussian9 and Gauss View5

5. OpenFOAM (Open source Field Operation And Manipulation)
6. VASP & WANNIER90
7. Cadence
8. Mentor
9. MATLAB13
10. Ansys19R (EM & CFD)
11. Anaconda3 & Python3.7
12. Intel Parallel Studio (intelMPI, FORTRAN, OpenMP compiler)
13. Ganglia (Cluster Monitoring)

Ongoing Projects/Schemes in the Department

1. **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**).
2. **Visvesvaraya PhD Scheme in Electronics and IT** funded by DeitY, Ministry of Electronics and IT, Govt. of India (Rs. 30 lacs).

Collaboration with other Department/ Institutes

- University of Bremen, Germany
- Indian Institute of Technology, Kharagpur
- Indian Institute of Technology, Guwahati
- CDAC, Pune

Special Lecture organized

The department organized few expert lectures by the eminent professors from academia.

- Research in Computer Science- by Dr. S K Vipparthi from MNIT Jaipur on 14th December 2018.
- FOG Computing- by Prof. L. K. Avasthi, Director, NIT Jalandhar on March 2019.

Research Scholars

Sl. No.	Name of Scholars	Supervisor	Research Area
1	Sayantana Chatterjee	Dr. Shefalika G. Samaddar	Network Security
2	Rahul Deo Verma	Dr. Shefalika G. Samaddar	Routing Protocols
3	Sharmistha Adhikari	Dr. Sangram Ray	Content Centric Network
4	Hanuman Godara	Prof. M. C. Govil	High Performance Computing
5	Vivek Kumar	Dr. Sangram Ray	Identity Based Cryptography
6	Subhash Harizan	Dr. Pratyay Kuila	Wireless Sensor Network

Sl. No.	Name of Scholars	Supervisor	Research Area
7	Pintu Kumar Ram	Dr. Pratyay Kuila	Machine Learning
8	Dipanwita Sadhukhan	Dr. Sangram Ray	Information Security
9	Ujjal Kumar Das	Dr. Shefalika G. Samaddar	Network Security
10	Deo Dutta Ishwar	Prof. Arun B. Samaddar	Multimedia
11	Suman Majumder	Dr. Sangram Ray	IoT Security
12	Santanu Kumar Misra	Dr. Pratyay Kuila	Algorithm Design

Research Publications

International Journals

- Choudhary, A., Govil, M. C., Singh, G., Awasthi, L. K., & Pilli, E. S. (2019). Energy-efficient fuzzy-based approach for dynamic virtual machine consolidation. *International Journal of Grid and Utility Computing*, 10(4), 308-325.
- Chauhan, S. S., Pilli, E. S., Joshi, R. C., Singh, G., & Govil, M. C. (2019). Brokering in interconnected cloud computing environments: A survey. *Journal of Parallel and Distributed Computing*, 133, 193-209.
- Pal, Kunwar, Mahesh Chandra Govil, and Mushtaq Ahmed. "Priority-based scheduling scheme for live video streaming in peer-to-peer network." *Multimedia Tools and Applications* 77.18 (2018): 24427-24457.
- Singh, Maheep, Mahesh Chandra Govil, and Emmanuel Shubhakar Pilli. "CHACT: Convex Hull Enabled Active Contour Technique for Salient Object Detection." *IEEE Access* 6 (2018): 22441-22451.
- T. Biswas, P. Kuila, A. K. Ray, A novel scheduling with multi-criteria for high-performance computing systems: an improved genetic algorithm-based approach, *Engineering with Computers* 35 (4) (2019) 1475-1490.
- T. Biswas, P. Kuila, A. K. Ray, M. Sarkar, Gravitational search algorithm based novel workflow scheduling for heterogeneous computing systems, *Simulation Modeling Practice and Theory* 96 (2019) 1-21.
- T. Biswas, P. Kuila, A. K. Ray, A novel resource aware scheduling with multi-criteria for heterogeneous computing systems, *Engineering Science and Technology, an International Journal* 22 (2) (2019) 646-655.
- S. Harizan and P. Kuila, Coverage and connectivity aware energy efficient scheduling in target based wireless sensor networks: an improved genetic algorithm based approach. *Wireless Netw* 25, 1995-2011 (2019).
- Sharmistha Adhikari, Sangram Ray, G. P. Biswas and M. S. Obaidat, "Efficient and Secure Business Model for Content Centric Network using Elliptic

Curve Cryptography", *International Journal of Communication Systems*, Wiley, 2019, vol. 32, no. 1, pp. 1-25.

Book Chapter

- A. Bose, T. Biswas, and P. Kuila "Chapter 05: A Novel Genetic Algorithm Based Scheduling for Multi-core Systems," in *Smart Innovations in Communication and Computational Sciences 2018*, (Springer), Vol. 851, pp. 45-57, ISBN: 978-981-13-2413-0.

International Conferences

- Pal, Kunwar, M. C. Govil, and Mushtaq Ahmed. "Utilization-based hybrid overlay for live video streaming in P2P network." In *Recent findings in intelligent computing techniques*, pp. 331-338. Springer, Singapore, 2019.
- Godara, Hanuman, M. C. Govil, and E. S. Pilli. "Performance Evaluation of Tree Ensemble Classification Models Towards Challenges of Big Data Analytics." *International Conference on Emerging Technologies in Computer Engineering*. Springer, Singapore, 2019.
- Choudhary, Anita, Mahesh Chandra Govil, Girdhari Singh, Lalit K. Awasthi, and Emmanuel S. Pilli. "Task clustering-based Energy-aware Workflow Scheduling in Cloud environment." In *2018 IEEE 20th International Conference on High Performance Computing and Communications; (HPCC/SmartCity/DSS)*, pp. 968-973. IEEE, 2018.
- Godara, Hanuman, M. C. Govil, and E. S. Pilli. "Performance Factor Analysis and Scope of Optimization for Big Data Processing on Cluster." *2018 Fifth International Conference on Parallel, Distributed and Grid Computing (PDGC)*. IEEE, 2018.
- Singh, Maheep, M. C. Govil, and E. S. Pilli. "V-SIN: Visual Saliency detection in noisy Images using convolutional neural Network." *2018 Conference on Information and Communication Technology (CICT)*. IEEE, 2018..
- Singh, Maheep, M. C. Govil, and E. S. Pilli. "SOD-CHIEF: Salient Object Detection using Convex Hull

- with multi-scale Energy Functions.” 2018 Conference on Information and Communication Technology (CICT). IEEE, 2018.
- Mishra, Anand Kumar, Emmanuel Pilli, and Mahesh Govil. “A Taxonomy of Cloud Endpoint Forensic Tools.” IFIP International Conference on Digital Forensics. Springer, Cham, 2018.
 - Goel, Rajat, Mahesh Chandra Govil, and Girdhari Singh. “A Novel Methodology for Effective Requirements Elicitation and Modeling.” International Conference on Computational Science and Its Applications. Springer, Cham, 2018.
 - A. Singh Thakur, T. Biswas and P. Kuila, “Gravitational Search Algorithm Based Task Scheduling for Multi-Processor Systems,” 4th International Conference on Research in Computational Intelligence and Communication Networks, (ICRCICN) 2018, IEEE, pp. 1-5, (2019). (Kolkata)
 - T. Biswas, Pratyay Kuila, and Anjan Kumar Ray, “A Novel Energy Efficient Scheduling for High Performance Computing Systems,” 9th International Conference on Computing, Communication and Networking Technologies (ICCCNT) 2018, IEEE, pp. 1-6, (2018). (IISc Bangalore)
 - Dipanwita Sadhukhan and Sangram Ray, “Cryptanalysis of 2PAKEP: Provably Secure and Efficient Two-Party Authenticated Key Exchange Protocol for Mobile Environment”, Proc. of 1st International Conference on Machine Learning, Image Processing, Network Security and Data Sciences (MIND-2019), National Institute of Technology Kurukshetra, India, March 3-4, 2019, available online on IETE, Springer.
 - Diksha Rangwani, Dipanwita Sadhukhan and Sangram Ray, “Cryptanalysis of a Robust ECC Based Provable Secure Authentication Protocol with Privacy Preserving for Industrial Internet of Things”, Proc. of 1st International Conference on Machine Learning, Image Processing, Network Security and Data Sciences (MIND-2019), National Institute of Technology Kurukshetra, India, March 3-4, 2019, available online on IETE, Springer.
 - Sharmistha Adhikari and Sangram Ray, “A Secure Anonymous Mobile Handover Authentication Protocol for Content Centric Network”, Proc. of International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA-2018), University of Kalyani, Nadia, W.B, India, July 27-28, 2018, available online on CCIS, Springer, vol. 1031, pp: 360-373, (DOI: 10.1007/978-981-13-8581-0_29).
 - Debarpan Tribedi, Dipanwita Sadhukhan and Sangram Ray, “Cryptanalysis of a Secure and Privacy Preserving Mobile Wallet Scheme with Outsourced Verification in Cloud Computing”, Proc. of International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA-2018), University of Kalyani, Nadia, W.B, India, July 27-28, 2018, available online on CCIS, Springer, vol. 1031, pp: 411-424, (DOI: 10.1007/978-981-13-8581-0_33).
 - Sharmistha Adhikari and Sangram Ray, “A Lightweight and Secure IoT Communication Framework in Content Centric Network using Elliptic Curve Cryptography”, Proc. of International Conference on Recent Trends in Communication, Computing, and Electronics (IC3E-2018), University of Allahabad, Prayag Raj, U.P, India, October 14-15, 2018, available online on LNEE, Springer, vol. 524, pp: 207-216, (DOI: 10.1007/978-981-13-2685-1_21).
 - Vivek Kumar and Sangram Ray, “A Smart Mobile Authentication Technique using User Centric Attributes Classifications”, Proc. of International Conference on Computational Intelligence & IoT (ICCIoT-2018), National Institute of Technology Agartala, Tripura, India, December 14-15, 2018, available online in SSRN, Elsevier, pp: 435-440, (<https://ssrn.com/abstract=3355502>).
 - B Balaji Naik, Dhananjay Singh, AB Samaddar, Tasks to Virtual Machine allocation in cloud data center using Modified Krill herd optimization “International Conference on Electrical, Communication, Electronics, Instrumentation and Computing (ICECEIC” Kanchipuram, Tamil Nadu, India, Jan 30-31, 2019.
 - Faraaz, Syed Mohd, B. Balaji Naik, and Dhananjay Singh. “Automatic Remote Car Locker Using Bluetooth Low Energy Wireless Communication.” International Conference on Computational Intelligence, Communications, and Business Analytics. Springer, Singapore, 2018. DOI: 10.1007/978-981-13-8581-0_38.
 - B Balaji Naik, Dhananjay Singh, AB Samaddar, Sang Su Jung, “Developing a Cloud Computing Data Center Virtual Machine Consolidation Based on Multi-objective Hybrid Fruit-fly Cuckoo Search Algorithm”, IEEE 5G World Forum (5GWF), Santa Clara, California, USA, July 9-11, 2018. DOI: 10.1109/5GWF.2018.8516947.
 - G. Bhaumik, S. G. Samaddar and A.B. Samaddar. “Recognition Techniques in Buddhist Iconography and Challenges”. In 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI) (pp. 1285-1289). IEEE, 2018.
 - P. Keserwani, S. G. Samaddar and P. Kumar. “e-Learning Web Services and Their Composition Strategy in SOA”, 6th International Conference on Advanced Computing, Networking, and Informatics (ICACNI 2018) 04-06, June-2018.

Involvement in Community Development during 2018-19

- Lectures by Senior Faculty members in local schools.
- Computer exposure to the children in local villages and the students of local schools.
- Department/Laboratory visit by near-by school students.

List of the Institutes/Organizations where the Students had done Internship

NIT Rourkela	NE Taxi
IIT Bombay	Avrio
SRFP IIT Ropar	IBM
IIT Delhi	Olatus
IIT Patna	NIC
IIT KGP	NFC
IIT Delhi	BRS
University Of Hyderabad (SRFP)	Bitmappers
National Institute Of Industrial Management (Kolkata)	BRS
NIIT Ltd, Darbhanga, Bihar	NESAC
University (Noida)	Voice Qube
NIT Durgapur	Petpa Infotech pvt ltd
MITACS	NESAC, Meghalaya
National Institute Of Technical Teachers Training & Research (Chandigarh)	Defenzelit private Limited
NESAC, Meghalaya	

Students Achievements

- Mr. Sangam Kumar got selected in Hacker Rank with a package of 12 lpa.
- Ms. Anamika Bharti got selected in Vedanta Limited with a package of 7.95 lpa.
- Mr. Shivendra Saxena got selected in Allstate Solutions Pvt Ltd with a package of 7 lpa.

M.Tech. Degrees awarded

Name of the Student	Title of Thesis	Supervisor
Diksha Rangwani	A robust provable secure privacy preserving authentication protocol for Industrial Internet of Things	Dr. Sangram Ray
Saurav Gupta	Security Enhancement through vectoring Cryptography and Steganography for secret data transmission over public network.	Dr. Shefalika Ghosh Samaddar
Punam Kumari	Efficient average to wireless rechargeable sensor network based on Gravitational Search Algorithm	Dr. Pratyay Kuila
Abhijeet Singh Thakur	Binary Quantum-Inspired GSA based scheduling for multi-processor computing systems.	Tarun Biswas

(ii) Department of Electronics and Communication Engineering

The Department of Electronics and Communication Engineering was established 2010 with the laying of the foundations of National Institute of Technology Sikkim. The Department aims to provide an outstanding research environment complemented by excellence in teaching to produce engineering professionals leading to a successful career in industry or entrepreneurial endeavors. The Department offers four years B.Tech programme in Electronics & Communication Engineering, two years M.Tech programme in Microelectronics & VLSI Design

and Ph.D programme in Engineering. The Department provides research facilities in the areas of Application Specific Integrated Circuits Design (ASIC) & Modeling and Optimization of High Performance Semiconductor Devices, Microwave Engineering & Antenna Design, Communication Engineering, Signal Processing, MEMS, and Solar Cells. The Department has adequate laboratory facilities with modern equipment to encourage the students to cope up with the latest technologies being implemented globally.

Admission Statistics

2018-19	Student Intake	Student Admitted
B.Tech. (Electronics and Communication Engineering)	40	40
M.Tech. (Microelectronics and VLSI Design)	18	05

Faculty Details

Sl. No.	Name, Designation and Research Interest
1	Dr. Sanjay Kr. Jana (skjnit@gmail.com , skjnit@nitsikkim.ac.in) Assistant Professor & HOD (I/c), Ph.D (IIT Kharagpur), M. Tech (Jadavpur University) High Speed Semiconductor Devices, Analog IC Design
2	Dr. Surajit Kundu (surajit.kundu@nitsikkim.ac.in) Assistant Professor, Ph.D (NIT Sikkim), M. Tech (IIT Kharagpur) Antenna development (Ultra-Wideband, MIMO, 5G etc.), Ground Penetrating Radar, Wireless communication, Digital Communication
3	Dr. Hemant Kr. Kathania (hemant.ece@nitsikkim.ac.in) Assistant Professor, Ph.D (NIT Sikkim), M. Tech (IIT Guwahati) Signal and Speech Processing
4	Ms. Reshmi Dhara (reshmidhara@yahoo.co.in) Assistant Professor, M.Tech. (IIT Kharagpur), Ph.D pursuing from NIT Sikkim Circular Polarized Microstrip Antenna

Temporary Faculty Members

Sl. No.	Name, Designation and Research Interest
1	Dr. Sukanta Dhar, Ph.D. (sukantoo01@gmail.com) Solar Photovoltaic, Light Trapping, Study of Nano-materials
2	Dr. Ayan Chatterjee, Ph.D. (ayanchatterjee@nitsikkim.ac.in) Wideband Planar Antennas, Periodic Bandgap Structures (Frequency Selective Surfaces, Artificial Magnetic Conductors etc.)
3	Dr. Deepak Joshi, Ph.D. (d.joshi@nitsikkim.ac.in) Analog Circuit Design and optimization, Metaheuristics, Nature inspired algorithms
4	Dr. Jitendra Prajapati, Ph.D. (j.prajapati@nitsikkim.ac.in) Terahertz antennas, Terahertz devices, Optoelectronics devices for terahertz generation, Photoconductive and Photomixing Antennas

Sl. No.	Name, Designation and Research Interest
5	Mr. Ripudaman Singh, M.Tech. (r.singh@nitsikkim.ac.in) Communication Networks
6	Dr. Shashank Dwivedi, Ph.D. (shashank@nitsikkim.ac.in) Analog VLSI, Biomedical circuits and systems
7	Mr. Avinash Kumar, M.Tech. (avinash_ece@nitsikkim.ac.in) Signal Processing (Speech Processing, Image Processing)
8	Ms. Priti Gupta (pritigupta@nitsikkim.ac.in) Project Faculty (SMDP-C2SD), M.E (NITTTR Chandigarh) Analog IC design

Laboratory Facilities

The Department has adequate laboratory facilities each of them equipped with modern technical instruments useful for the UG, PG as well as PhD students.

■ Electronics Circuits Laboratory

The experiments corresponding to the Analog Circuits and Digital Electronics are performed in

the Electronics Circuits Laboratory. The laboratory is equipped with instruments such as Arbitrary Waveform Generator (25 MHz, sine/triangular/square wave), DC Regulated power supply, Analog Oscilloscope (30 MHz), Digital Multimeter (0.1 mV-600 V AC/DC, 0.1 μ A to 10 A AC/DC, 0.1 Ω to 50 M Ω , 0.001 nF to 30,000 μ F), Trainer kits for digital IC testing, Logic Analyzer, Linear and Digital ICs etc.



Electronics Circuits and Communication Laboratory

Various experiments related to Analog Circuits such as design and analysis of rectifiers, clipping circuits, clamping circuits and voltage regulators, Characterization of diodes and transistors, realization of amplifier and oscillator circuits, operational amplifier and timer circuits are performed in this laboratory. Digital Electronics laboratory experiments such as verification of logic gates using ICs, realization of code converters, MUX and DEMUX using logic ICs, realization of registers and counters using flip flops etc. are also performed in this laboratory.

■ Microprocessor and Microcontroller Laboratory

The corresponding Laboratory is equipped with various microprocessor/microcontroller trainer kits 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.

■ Communication Engineering Laboratory

The experiments corresponding to the Analog Communication and Digital Communication techniques are performed in this Laboratory. This laboratory is equipped with 25 MHz waveform generators (sine/triangular/square wave), Regulated power supplies (DC), 30 MHz Cathode Ray Oscilloscopes, Digital storage oscilloscopes (2 channels and 4 channel, 100 MHz bandwidth), NI USRP Wireless Communication Module, Trainer kits for various analog communication and digital communication techniques.

Various experiments such as generation and detection of analog modulation techniques (DSB-SC, AM), Frequency modulation and demodulation (Foster-Seeley discriminator and PLL), realization of pulse modulation techniques (PAM, PWM, PPM), Frequency and Time division multiplexing and demultiplexing, generation of PCM, DM and ADM, realization of the digital modulation techniques (ASK, FSK, PSK), spread spectrum modulation and demodulation techniques (Direct sequence and frequency hopping) etc. are performed in this laboratory using diodes, transistors, ICs and trainer kits.

■ Microwave Engineering and Antenna Laboratory

The experiments corresponding to Electromagnetics, Microwave Engineering and Antenna Theory are performed in this Laboratory. The laboratory is equipped with modern instruments such as Vector Network Analyzer (9 KHz to 14 GHz), Broadband Ridge Horn Antenna (up to 18 GHz), USB Spectrum Analyzer (100 KHz to 12.4 GHz), CNC machine for PCB & Antenna Prototype Fabrication, Soldering station, Mixed Signal Oscilloscope, Microwave test bench (X-band) with GUNN diode, Klystron, Power supply for GUNN and Klystron, EM simulator such as CST Studio Suite.

Various experiments can be performed in this laboratory such as design and simulation of various planar and non-planar antennas using CST, Fabrication of printed antennas using PCB design technique in CNC machine, measurement of antenna parameters (VSWR, radiation pattern, gain) of test antenna, wavelength and VSWR measurement of RF signal under various load conditions, characteristics study of GUNN diode and Reflex Klystron.

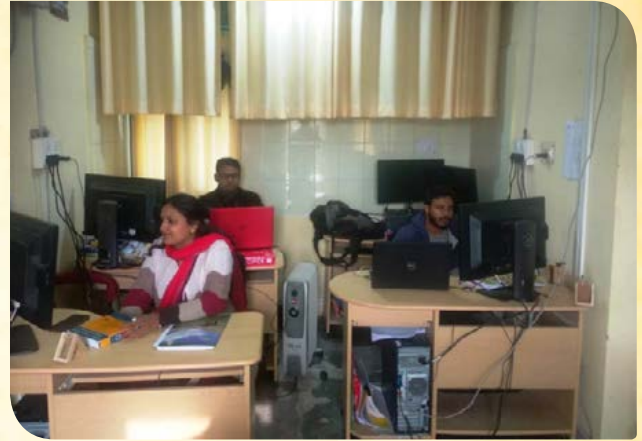


Microwave Engineering and Antenna Laboratory

■ VLSI Design Laboratory

The VLSI Design Laboratory is equipped with the simulator for FPGA based devices such as Vivado, simulators for IC design and verification such as Cadence, Mentor Graphics, Synopsis, VHDL. The experiments of Semiconductor device simulation and process modeling such as PN diode simulation (2D and 3D), BJT simulation (2D and 3D) are performed in this laboratory. The experiments corresponding to Modelling of Digital Systems such as Design and

simulation of combinational circuits, sequential circuits, FSM circuit using VHDL are also performed in this laboratory. Apart from these, experiments related to hardware design such as Synthesis with timing constraints, Clock tree synthesis, Low power synthesis, Pre layout simulation, Floor planning, Placement, Routing, Parasitic extraction, Post layout simulation etc. can be performed in the VLSI design laboratory.



VLSI Design Laboratory

■ **Signal Processing Laboratory**

The experiments corresponding to the Signals and Systems and Digital Signal Processing are performed in this Laboratory using MATLAB/C/C++. 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, frequency domain representation of signals etc. are performed

for the signals and systems laboratory. Whereas, experiments such as Construction of the z-plane – Fourier transform, discrete time representations, Circular convolution, Frequency response of FIR filters, Discrete Fourier Transform, IIR filter Design (Butterworth and Chebyshev), companding and non-uniform quantization etc. are performed for the Digital Signal Processing Laboratory.



Computer Simulation Laboratory (Signals and Systems, Digital Signal Processing)

Membership of Technical Association/Society

Sl. No.	Technical Societies	Type of Membership	Name of Faculty
1	IEEE, IEEE Signal Processing Society, International Speech Communication Association (ISCA)	Member	Dr. Hemant Kr. Kathania
2	Forum of Scientists, Engineers & Technologists	Member	Dr. Surajit Kundu
3	Forum of Scientists, Engineers & Technologists	Member	Dr. Sukanta Dhar
4	Institution of Engineers (India)	Associate Member	Dr. Ayan Chatterjee
5	IEEE Kolkata Section, FOSET	Member	

Special Lecture/Seminar/Workshop organized/attended

- A Special Lecture was organized in the Department of ECE, NIT Sikkim, delivered by Prof. Girish Kumar, Professor, Department of Electrical Engineering, IIT Bombay in the month of November 2018.
- Prof. Ranjan Maheshwari, Professor, Department of Electronics and Communication Engineering, Rajasthan Technical University, Kota, delivered a lecture organized in the department of ECE, NIT Sikkim in the month of June, 2019.
- Dr. Surajit Kundu attended a GIAN course “Computation Efficient Enhancement Techniques in Forward and Inverse Problems (CEET)” on June 19th-23rd 2018 organized by NIT Durgapur.
- Dr. Surajit Kundu attended a workshop on Microwave passive and active components organized by Department of Electronics Engineering, IIT (BHU) on 25-30 June 2018.
- Dr. Ayan Chatterjee attended a GIAN course “Computation Efficient Enhancement Techniques in Forward and Inverse Problems (CEET)” on June 19th-23rd 2018 organized by NIT Durgapur.

- Dr. Ayan Chatterjee attended a workshop on Microwave passive and active components organized by Department of Electronics Engineering, IIT (BHU) on 25-30 June 2018.

Outreach Activities

- Dr. Surajit Kundu received Young Indian Radio Scientist Award by URSI and InRaSS in the URSI Asia-Pacific Radio Science Conference (AP-RASC) in New Delhi, India in March, 2019.
- Dr. Ayan Chatterjee delivered a lecture on “Contribution of Frequency Selective Surfaces in Antennas: Beyond Filtering” in the Lecture Meeting Program organized by IEEE APS Student Branch, Department of Electronics and Tele-Communication Engineering, IEST Shibpur on 11th January, 2019.
- Dr. Ayan Chatterjee served as a Session Chair in the 5th International Conference on Optoelectronics and Applied Optics (OPTRONIX-2019) organized by University of Engineering and Management, Kolkata on March 18-20, 2019.

Research Project/Scheme

Name of the Project	Sponsoring Agency	PI and Co-PI	Start Year	Close Year
SMDP C2SD: Development of a chip (FPGA based board level digital designs), especially for earthquake prediction and RF testing	MeitY	Prof. Mahesh Chandra Govil (PI) Dr. Sanjay Kumar Jana (Co-PI)	2015	Ongoing
Visvesvaraya Project: Design of high speed semiconductor devices	MeitY	Dr. Sanjay Kumar Jana (PI)	2016	Ongoing

Ph.D. Scholars

Scholar	Thesis Title / Research Area	Supervisor(s)
Surajit Kundu	Design Development and Performance Evaluation of Ultra-wideband Printed Antennas with Radiation Improvement for Ground Penetrating Radar Applications	Dr. Sanjay Kumar Jana
Hemant Kumar Kathania	Role of Prosodic Features and Prosody Modification in Improving Children’s Mismatched ASR	Prof. A. B.Samaddar Dr. Sanjay Kr. Jana (Co-supervisor)
Reshmi Dhara	Circular Polarized Microstrip Antenna	Dr. Sanjay Kumar Jana
Subhanil Maity	Design of Power and Area Optimized High Speed Frequency Divider	Dr. Sanjay Kr. Jana
Keshab Das	Design and Analysis of Wideband LC Voltage-Controlled Oscillator (VCO) for High Frequency Applications	Dr. Sanjay Kumar Jana
Nigidita Pradhan	Design and Analysis of Phase Frequency Detector with Minimized Dead Zone for High Frequency PLL	Dr. Sanjay Kumar Jana
Priti Gupta	Transconductance – Capacitance Filter Design for the PLL applications	Dr. Sanjay Kumar. Jana
Jayati Rauth	Design and Optimization of High Electron Mobility Transistor	Dr. Sanjay Kumar. Jana

Research Publications

Publication in Journals

- Palash Das, Sanjay Kumar Jana, Nripendra N Halder, S Mallik, SS Mahato, AK Panda, Peter P Chow, Dhruves Biswas, "An Alternative X-ray Diffraction Analysis for Comprehensive Determination of Structural Properties in Compositionally Graded Strained AlGaN Epilayers", *IEEE Transactions on Electron Devices*, vol. 14, Nov. 2018, pp. 784-792.
- Surajit Kundu, Ayan Chatterjee, Sanjay Kumar Jana, Susanta Kumar Parui, "Gain enhancement of a printed leaf shaped UWB antenna using dual FSS layers and experimental study for ground coupling GPR applications", *Microwave and Optical Technology Letters*, vol. 60, no. 6, 2018, pp. 1417-1423.
- Surajit Kundu, Ayan Chatterjee, Sanjay Kumar Jana, Susanta Kumar Parui, "A High Gain Dual Notch Compact UWB Antenna with Minimal Dispersion for Ground Penetrating Radar Application", *Radioengineering*, vol. 27, no. 4, pp. 990-997, December 2018.
- Surajit Kundu, "Balloon-shaped CPW fed printed UWB antenna with dual frequency notch to eliminate WiMAX and WLAN interferences", *Microwave and Optical Technology Letters*, vol. 60, no. 7, 2018, pp. 1744-1750.
- Surajit Kundu, "Experimental study of a printed ultra-wideband modified circular monopole antenna", *Microwave and Optical Technology Letters*, vol. 61, no. 5, 2019, pp. 1388-1393.
- Surajit Kundu, "Experimental study of CPW-fed printed UWB antenna with radiation improvement for ground coupling GPR application", *Microwave and Optical Technology Letters*, vol. 60, no. 10, 2018, pp. 2462-2467.
- Surajit Kundu, "Gain augmentation of a CPW fed printed miniature UWB antenna using frequency selective surface", *Microwave and Optical Technology Letters*, vol. 60, no. 7, 2018, pp. 1820-1826.
- S. Shahnawazuddin, Nagaraj Adiga, B. Tarun Sai, Waquar Ahmad, and Hemant K. Kathania, "Developing speaker independent ASR system using limited data through prosody modification based on fuzzy classification of spectral bins", *Digital Signal Processing*, vol. 93, 2019, pp. 34-42.
- Hemant Kumar Kathania, S. Shahnawazuddin, Waquar Ahmad, and Nagaraj Adiga, "Role of Linear, Mel and Inverse-Mel Filterbanks in Automatic Recognition of Speech from High-Pitched Speakers", *Circuits, Systems, and Signal Processing*, vol. 38, 2019, pp. 4667-4682.
- Sudarshana Banerjee, Sourav Mandal, Sukanta Dhar, Arijit Bardhan Roy, and Nillohit Mukherjee, "Nanomirror-Embedded Back Reflector Layer (BRL) for Advanced Light Management in Thin Silicon Solar Cells", *Industrial & Engineering Chemistry Research*, vol. 58, no. 28, 2019, pp. 12678-12686
- Anupam Nandi, Sourav Mandal, Sugato Ghosh, Sukanta Dhar, S. Majumdar, Hiranmay Saha, Syed Minhaz Hossain, "Application of Hybrid rGO-ITO Bilayer TCO on a-Si Solar Cell for Performance Enhancement", *IEEE Journal of Photovoltaics*, vol. 9, no. 1, 2019, pp. 12-17
- Anupam Nandi, Sukanta Dhar, Sanhita Majumdar, Hiranmay Saha, Syed Minhaz Hossain, "Performance Enhancement of Solar Cell by Incorporating Bilayer RGO-ITO Smart Conducting Antireflection Coating", *Global Challenges*, 1800109, 2019.
- Anupam Nandi, Pratanu Nag, Dipankar Panda, Sukanta Dhar, Syed Minhaz Hossain, Hiranmay Saha, and Sanhita Majumdar, "Outstanding Room-Temperature Hydrogen Gas Detection by Plasma-Assisted and Graphene-Functionalized Core-Shell Assembly of SnO₂ Nanoburflower", *ACS Omega*, vol. 4, no. 6, 2019, pp. 11053-11065.
- Ayan Chatterjee and Susanta Kumar Parui, "A triple-layer dual-bandpass frequency selective surface of third order response with equivalent circuit analysis", *International Journal of RF and Microwave Computer-Aided Engineering*, 2019 (Accepted).
- Rajanikanta Swain, Rabindra Kishore Mishra, and Ayan Chatterjee, "A circularly polarized quad-beam radiator based on bounded metasurfaces with planar feed", *Microelectronic Engineering*, vol. 217, pp. 11108, 2019.
- Snehasish Saha, Nurnihar Begam, Ayan Chatterjee, Sushanta Biswas, Partha Pratim Sarkar, "Reconfigurable Frequency Selective Surface with Tunable Characteristics Depending on Intensity of Atmospheric Light", *IET Microwaves, Antennas & Propagation*, vol. 13, no. 13, pp. 2336 - 2341, 2019.
- Satyabrata Dash, Sukanta Dey, Deepak Joshi, and Gaurav Trivedi, "Minimizing area of VLSI power distribution networks using river formation dynamics", *Journal of Systems and Information Technology*, vol. 20, no. 4, 2018, pp. 417-429.
- Satyabrata Dash, Deepak Joshi, and Gaurav Trivedi, "Multiobjective analog/RF circuit sizing using an improved brain storm optimization algorithm", *Memetic Computing*, vol. 10, no. 4, 2018, pp. 423-440.
- Satyabrata Dash, Deepak Joshi, A. Sharma, and Gaurav Trivedi, "A hierarchy in mutation of genetic algorithm and its application to multi-objective analog/RF circuit optimization", *Analog Integrated Circuits and Signal Processing*, vol. 94, no. 1, 2018, pp. 27-47.
- Jitendra Prajapati, M. Bharadwaj, Amitabh Chatterjee, Ratnajit Bhattacharjee, "Magnetic Field-Assisted Radiation Enhancement from a Large Aperture Photoconductive Antenna", *IEEE Transactions on Microwave Theory and Techniques*, vol. 66, no. 2, 2018, pp. 678-687.

- M. Bharadwaj, Jitendra Prajapati, R. Bhattacharjee, “Novel graphene based antennas for the terahertz region”, *Semiconductor Science and Technology*, vol. 34, no. 1, 2018, pp. 014003.
- Mrinmoy Bharadwaj, Jitendra Prajapati, and Ratnajit Bhattacharjee, “Analytical Modelling of Terahertz Photomixing Antennas”, *IETE Journal of Research*, 2019, pp. 1-12.
- Jitendra Prajapati, Mrinmoy Bharadwaj, Amitabh Chatterjee, and Ratnajit Bhattacharjee, “Radiation field analysis of photoconductive antenna using an improved carrier dynamics”, *Semiconductor Science and Technology*, vol. 34, no. 2, 2018.
- Ripudaman Singh, Brijesh K. Rai, and Sanjay K. Bose, “Modeling and Performance Analysis for Pipelined-Forwarding MAC Protocols for Linear Wireless Sensor Networks”, *IEEE Sensors Journal*, vol. 19, no. 15, pp. 6539 – 6552, 2019.
- Shashank Dwivedi and A.K.Gogoi, “A novel adaptive real-time detection algorithm for an area efficient CMOS spike detector circuit”, *AEÜ – International Journal of Electronics and Communications*, vol. 8, pp. 87-97, 2018.
- Avinash Kumar, G. Pradhan and S. Shahnawazuddin, “An Adaptive Method for Robust Detection of Vowels in Noisy Environment”, *Circuits, Systems and Signal Processing (Springer)*, vol. 38, no. 9, January 2019, pp. 4180–4201.
- Avinash Kumar and G. Pradhan, “Detection of Vowel Onset and Offset Points Using Non-Local Similarity Between DWT Approximation Coefficients”, *IET Electronics Letters*, vol. 54, no. 11, 2018, pp. 722-724.

Publication in Conferences

- Priti Gupta, Nigidita Pradhan, Sanjay Kumar Jana, “Design of CMOS based Class-A Power Amplifier for C-Band applications”, In Proc. International Symposium on Devices, Circuits and Systems (ISDCS), 2018.
- Reshmi Dhara, Madhurima Sarkar, Tarun Kumar Dey, Sanjay Kumar Jana, “A Tri-Band Circularly Polarized G-Shaped Patch Antenna for Wireless Communication Application”, In Proc. International Conference on Computing, Power and Communication Technologies (GUCON), Sep 2018.
- Reshmi Dhara, Sanjay Kumar Jana, Monojit Mitra, Ayan Chatterjee, “A Circularly Polarized T-Shaped Patch Antenna for Wireless Communication Application”, In Proc. IEEE Indian Conference on Antennas and Propagation (InCAP), Dec 2018.
- Reshmi Dhara, Madhurima Sarkar, Tarun Kumar Dey, Sanjay Kumar Jana, “A Dual Band Circularly Polarized Y-Shaped Patch Antenna for Wireless Communication Application”, In Proc. International Conference for Convergence in Technology (I2CT), 2018.
- Keshab Das, Sanjay Kumar Jana, “Design and Analysis of wide tuning range (17-35) GHz LC VCO for K and Ku Band applications using 180 nm CMOS Technology”, In Proc. International Conference for Convergence in Technology (I2CT), 2019.
- Keshab Das, Sanjay Kumar Jana, “Design and Analysis of (2.4-2.7) GHz Low Phase Noise CMOS LC Tank VCO for Bluetooth and Wi-Fi Applications”, In Proc. International Conference on Recent Trends on Electronics & Computer Science (ICRTECS), 2019.
- Priti Gupta, Nigidita Pradhan, Sanjay Kumar Jana, “Design of 21 GHz CMOS Based Differential Class-C Power Amplifier with Balun Matching Network”, In Proc. International Conference on Recent Trends on Electronics & Computer Science (ICRTECS), 2019.
- Surajit Kundu, “An Ultra-wideband Dual Frequency Notched Circular Monopole Antenna for Ground Penetrating Radar application”, In Proc. URSI Asia-Pacific Radio Science Conference (AP-RASC), India, 2019.
- S S Yatish Pachigolla, Vishesh Dab, Ayan Chatterjee, Surajit Kundu, “A Compact Rectangular Microstrip Patch Antenna for 2.4 GHz ISM Band Applications”, In Proc. IEEE Indian Conference on Antennas and Propagation (InCAP), Dec 2018.
- S S Yatish Pachigolla, Surajit Kundu, “A compact bandwidth enhanced monopole antenna for ultra-wideband applications”, In Proc. In Proc. IEEE Indian Conference on Antennas and Propagation (InCAP), Dec 2018.
- Hemant K. Kathania, Syed Shahnawazuddin, Waqar Ahmad, and Nagaraj Adiga, “On the Role of Linear, Mel and Inverse-Mel Filterbank in the Context of Automatic Speech Recognition”, In Proc. IEEE National Conference on Communications (NCC), 2019, pp. 1-5.
- Shahnawazuddin, S., Waqar Ahmad, Hemant K. Kathania, Nagaraj Adiga, and B. Tarun Sai. “Speaking-Rate Adaptation of Automatic Speech Recognition System through Fuzzy Classification based Time-Scale Modification, In Proc. 2019 IEEE National

- Conference on Communications (NCC), 2019, pp. 1-5.
- S. Shahnawazuddin, Hemant K. Kathania, Chaman Singh, Waqar Ahmad, and Gayadhar Pradhan, "Exploring the Role of Speaking-Rate Adaptation on Children's Speech Recognition", In Proc. IEEE International Conference on Signal Processing and Communications (SPCOM), 2018, pp. 21-25.
 - Hemant K. Kathania, S. Shahnawazuddin, Waqar Ahmad, Nagraj Adiga, S. K. Jana, and A. B. Samaddar, "Improving Children's Speech Recognition Through Time Scale Modification Based Speaking Rate Adaptation", In Proc. IEEE International Conference on Signal Processing and Communications (SPCOM), 2018, pp. 257-261.
 - Reshmi Dhara, Akansha Kumari, Sanjay Kumar Jana, Sarita Kumari Gupta, "Design of Wideband C-Shaped Circularly Polarized Monopole Antenna", IEEE International Conference on Recent Trends on Electronics & Computer Science (ICRTECS), March 2019.
 - Reshmi Dhara, Sarita Kumari Gupta, Sanjay Kumar Jana, "Design of Dual-Band Wide Slot Monopole Antenna", IEEE International Conference on Recent Trends on Electronics & Computer Science (ICRTECS), NIT Silchar, March 2019.
 - Reshmi Dhara, Sanjay Kumar Jana, Monojit Mitra, "CPW-Fed Triple Band Circularly Polarized Printed Inverted C-shaped Monopole Antenna with Closed Loop and Two Semi Hexagonal Notches on Ground Plane", International Conference on Optical and Wireless Technologies (OWT), Springer, 2019.
 - Reshmi Dhara, "CPW- Fed Multi Band Circular Polarized Antenna for Wireless Communication Applications", Second National Conference on Advanced Communication Technologies and Networks (ACTN), June 2019.
 - Ayan Chatterjee and Susanta Kumar Parui, "Gain Augmentation of a Wide-Slot Antenna Using A Patch-Slot-Patch Frequency Selective Surface", Proc. of International Conference on Conference On Signals Systems and Communication, Anna University, Chennai, Jan 2019.
 - Anik Naha Biswas, Suparna Ballav, Susanta Kumar Parui, and Ayan Chatterjee, "A Polarization Insensitive Frequency Selective Surface with Bandpass and Bandstop Response", Proc. of IEEE Indian Conference on Antennas & Propagation (InCAP), Hyderabad, Dec 2018.
 - Avinash Kumar, S. Garnaik, I. C. Yadav, G. Pradhan and S. Shahnawazuddin, "Detection of Vowels in Speech Signals Degraded by Speech-Like Noise", In Proc. National Conference on Communications (NCC), pp. 1-5, Indian Institute of Science, Bangalore, Feb. 2019.
 - I. C. Yadav, Avinash Kumar, S. Shahnawazuddin, and G. Pradhan, "Non-Uniform Spectral Smoothing for Robust Children's Speech Recognition", In Proc. Interspeech, Hyderabad, India, Sep. 2018.
 - S. Sakshi, Avinash Kumar, G. Pradhan, "Analysis of Variational Mode Functions for Robust Detection of Vowels", In Proc. Interspeech, Hyderabad, India, Sep. 2018.
 - Avinash Kumar, S. Shahnawazuddin and G. Pradhan, "Detection of Vowel Offset Points Using Non-Local Similarity Between Speech Samples", In Proc. SPCOM, pp. 252-256, Indian Institute of Science, Bangalore, Aug. 2018.

Awards/Achievements:

- Dr. Surajit Kundu received URSI (International Union of Radio Science) Young Scientist Award (YSA) in the international conference URSI Asia-Pacific Radio Science Conference (AP-RASC) in 2019.
- Sanyam Chauhan and Avishek Kr Thakur got selected for summer internship in North Eastern Space Applications Centre (NESAC), Shillong under Dept. of Space, Govt. of India.
- Vipashyana Sharma and Suriseti Lohith got selected for summer internship in IIT Madras.
- Rakesh Kumar Rai got selected for summer internship in IIT Bombay.
- Aditya Shekhar, Bikash Kumar and Gulshan Kumar got selected for summer research in IEST Shibpur.
- Yatish Pachigolla and Vishesh Dab (B.Tech. 4th year students) got the opportunity to present two technical papers in the IEEE international conference INCAP-2018 in Hyderabad.
- Sarita Kumari Gupta and Akanksha Kumari (B.Tech. 4th year students) got the opportunity to present two technical papers in the IEEE International Conference on Recent Trends on Electronics & Computer Science (ICRTECS) held in in NIT Silchar in March 2019.

(iii) Department of Electrical and Electronics Engineering (EEE)

The Department of EEE had started its operation since inception of the Institute in 2010. The Department of Electrical and Electronics Engineering is one of paramount importance in National Institute of Technology Sikkim. The department has been engrossed 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.), postgraduate (M.Tech. in Electrical Engineering with specialization in Control, Power, and Electric Drives) and research (Ph.D.) programs. The highly accomplished faculty members of this department provide expertise in manifold cutting-edge research fields. The broad areas of research in this department encompass, but do not limit itself to, control systems, robotics, power electronics, power quality, power systems, hybrid microgrids, application of nonlinear dynamics in engineering, and renewable energy, Soft Computing. The Department of Electrical and Electronics Engineering 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 itself a very high reputation in the national and global academic network. Currently, the department has an annual intake of 40 students in the B.Tech. Programs in Electrical and Electronics Engineering.

At the post graduate level, the department is offering M.Tech. Programs in Control, Power, and Electric Drives with intake of 18 students. In addition to the above, the department offers regular Ph.D. programs in various areas of specialization in Electrical and Electronics Engineering. These include Control systems, Power System Operation, Power quality, Renewable Energy Sources, Smart grids, and Control, Optimization, Power System Dynamics and Stability, Flexible AC Transmission, High Voltage Direct Current, Electric Drives and Hybrid Electric Vehicles. The department currently has almost all laboratories equipped are functional with state-of-the-art equipment and latest version of software platforms. 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 AICTE and DST. The department also organizes Faculty Development Programs, Workshops and Expert Lectures from time to time.

Faculty members of the department have been regularly contributing to international and national journals of repute like IEEE Transactions and IEEE Proceedings, IET, Journals in Electrical Engineering from Elsevier, etc. along with proceedings of national and international conferences. Some faculty members have acquired patent for their research. The department is planning to have new laboratories for Testing, Calibration & Standardization, Photovoltaic and Energy Storage, Power Quality & Energy Conservation, Electric Drives, Transmission line simulator, Open Machines and SCADA systems.

The Department of Electrical and Electronics Engineering has gradually developed into one of the best departments of NIT Sikkim. The placement record has shown that the students of the department have been successful in getting lucrative jobs based on their interests in different fields. Top recruiters such as, Qualcomm, L & T, Power Grid Corporation have offered placements to the students of this department with packages of over Rs. 10 Lakh per annum. Other recruiters from core engineering and allied sectors like, Vedanta group, Wipro, Tata Power, and Reliance have recruited students from this department with attractive packages. This consistent placement record reflects the dedication and contribution of this department. The graduates of the department are occupying important positions in both government as well as private organizations with many of them having joined programs of higher studies in India and abroad.

The students are motivated to technical and creative activities besides classroom teaching and laboratory exercise through technical fests like AVIYANTRAN organized by the Institute. They are also encouraged to participate in various learning activities in addition to presentation at seminars and papers on individual basis. Emphasis is laid on computer-based assignments through simulation of various Electrical and electronics Systems laboratories.

Faculty Details

Sl. No.	Name, Designation and Research Interest
1	Dr. Anjan Kumar Ray Assistant Professor & HOD (I/c), Ph. D (IIT Kanpur, 2009) Research Interests: Control Systems, Robotics and Intelligent Systems, Machine Learning, Sensor Fusion and Smart Home/Environment
2	Dr. Sourav Mallick Assistant Professor, Ph. D (NIT Durgapur, 2014) Research Interests: Power Systems, Power System State Estimation, Power System Transmission and Distribution, Power System Stability and Control
3	Dr. Pradeep Kumar Assistant Professor, Ph. D (NIT Jamshedpur, 2017) Research Interests: Power Quality, Control Systems, Renewable Energy Systems, Power Electronics
4	Dr. Molay Roy Assistant Professor, Ph. D (IEST Shibpur, 2017) Research Interests: Power Electronics Converter and Controller
5	Dr. Aurobinda Panda Assistant Professor, Ph. D (IIT Roorkee 2016) Research Interests: Application of Power Electronics in Renewable Energy Sources

Temporary Faculty Members

Sl. No.	Name, Designation and Research Interest
1	Dr. Amit Kumar Yadav, Ph.D. (NIT Hamirpur, 2016) Research Interests: Power Systems, Soft Computing, Renewable Energy, Photovoltaic Condition Monitoring
2	Dr. Kuntal Mandal, Ph.D. (IIT Kharagpur, 2013) Research Interests: Control of Power Electronics Circuit, Nonlinear Control and Dynamics, Circuits and Systems
3	Dr. Abhishek Rajan, Ph.D. (NIT Shilchar, 2018) Research Interests: Power System Optimization, Operation and Control, Soft Computing Methods of Optimization, Power System Planning
4	Ms. Anulekha Saha Research Interests: Power Systems, Soft Computing Methods of Optimization
5	Mr. Prasenjit Dey Research Interests: Small Signal Stability in Power Systems
6	Mr. Jogi Paul Research Interests: Perovskite Solar Cells

Laboratory Facilities

- Basic Electrical Engineering Laboratory
- Control Systems Laboratory
- Electrical Machines Laboratory
- Measurements Laboratory

Programs/Courses offered by the Department

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

(The Department started M.Tech. Program from 2017-18 academic session)

- Ph.D. in various fields of Electrical Engineering.

Students registered in First year in EEE Department in 2018-19 Session

Program	No. of Student
B.Tech	39
M.Tech	8
Ph.D.	1 full time

Students registered in Second year in EEE Department in 2018-19 Session

Program	No. of Student
B.Tech	39
M.Tech	9
Ph.D.	1 full time, 1 part time

Students registered in Third year in EEE Department in 2018-19 Session

Program	No. of Student
B.Tech	23
M.Tech	-
Ph.D.	2 full time

Students registered in Final year in EEE Department in 2018-19 Session

Program	No. of Student	No. of Student with CGPA 8 and above (till the end of pre-final year)
B. Tech	12	5
M. Tech	9	6

Students registered in Final year in EEE Department in 2018-19 Session

Program	No. of Student	No of Student with CGPA 8 and above
B. Tech	21	9

Ph.D. Scholars

Sl. No.	Scholar	Guide(s)	Full time/part time	Fellowship	Areas of Research
1.	Mr. Arindam Singha	Dr. Anjan Kumar Ray and Prof. Arun Baran Samaddar	Full time (Visvesvaraya Scholar)	Project	Intelligent networked robotic systems
2.	Mr. Arabinda Ghosh	Dr. Anjan Kumar Ray and Dr. Md. Nurujjaman	Full time	Institute	Dynamics and stability of complex network
3.	Mr. Sudhansu Sekhar Das	Dr. Aurobinda Panda	Full time	Institute	Application of multilevel inverter to renewable energy systems
4.	Mr. Amit Kumar	Dr. Pradeep Kumar	Full time	Institute	Power quality improvement using custom power devices
5.	Mr. Debanjan Mukherjee	Dr. Sourav Mallick	Full time	Institute	Power line harmonic reduction using FACTS
6.	Mr. Rajnikant Sahoo	Dr. Molay Roy	Full time	Institute	Cascaded Multi-level Inverter
7.	Mr. Subhajit Roy	Dr. Sourav Mallick and Dr. Aurobinda Panda	Part time	N. A.	Application of FACT controller
8.	Ms. Shrabani Pal	Dr. Sourav Mallick and Dr. Anjan Kumar Ray	Part time	N. A.	Power system stability and control

Sl. No.	Scholar	Guide(s)	Full time/part time	Fellowship	Areas of Research
9.	Mr. Roshan Pradhan	Dr. Aurobinda Panda	Part time	N. A.	Distributed PV generation system
10.	Mr. Saikat Chatterjee	Dr. Anjan Kumar Ray	Part time	N. A.	Biomedical instrumentation
11.	Mr. Pralay Roy	Dr. Sourav Mallick and Dr. Pradeep Kumar	Part time	N. A.	Application of FACT controller

Ongoing Projects/Schemes in the Department

Dr. Anjan Kumar Ray of EEE received Visvesvaraya PhD project “Intelligent Networked Robotic Systems” along with Prof. Arun Baran Samaddar. One full time PhD scholar is working in the Department under this project.

Research Publications by Faculty Members in 2018-19

International Journals:

1. Amit Kumar, Pradeep Kumar “SRF Based DSTATCOM Topology for Harmonic Compensation”. Jour of Adv Research in Dynamical & Control Systems, Vol. 10, 09-Special Issue, 2370-2378, 2018.
2. Amit Kumar, Mukul Anand, Pradeep Kumar “Integration of PV array in DSTATCOM with Comparative Analysis of Different Control Mechanisms”. International Journal of Applied Engineering Research, Volume 14, Number 2, 169 -176, 2019 (Special Issue).
3. Amit Kumar, Pradeep Kumar. “Comparative Power Quality analysis of Different DSTATCOM Topologies”. Iranian Journal of Electrical and Electronic Engineering (IJEEE) Iran University of Science and Technology. In Press, pp.1-10, Mar 2019.
4. T. Biswas, P. Kuila and A. K. Ray, “A Novel Scheduling with Multi-Criteria for High Performance Computing Systems: An Improved Genetic Algorithm Based Approach,” Engineering with Computers, Vol 35, Issue 4, pp 1475-1490, Springer, 2018.
5. T. Biswas, P. Kuila, and A. K. Ray, “A Novel Resource Aware Scheduling with Multi-Criteria for Heterogeneous Computing Systems,” Engineering Science and Technology, an International Journal, Vol. 22, No. 2, pp. 646-655, Elsevier, 2018.
6. T. Biswas, R. Bhardwaj, A. K. Ray and P. Kuila, “A Novel Leader Election Algorithm based on Resources in Ring Networks,” International Journal of Communication Systems, Vol. 31, No. 10, pp.1-13, Wiley, 2018.
7. A. Singha, A. K. Ray and A. B. Samaddar, “Trajectory Tracking in the Desired Formation around a Target by Multiple UAV Systems”, Procedia Computer Science, Vol. 133, pp 924-931, 2018.

8. R. Kumar, F. A. Talukdar, A. Rajan, A. Devi, R. Raja, “Parameter optimization of 5.5 GHz low noise amplifier using multi-objective Firefly Algorithm”, Microsystem Technologies, DOI: <https://doi.org/10.1007/s00542-018-4034-8>, July-2018.

International Conference:

1. Amit Kumar, **Pradeep Kumar**. “Adaptive control of Grid connected Solar PV system with power quality Improvement”. International Conference on recent trends in electronics & Computer Science, NIT Silchar, Proceedings of ICRTECS 2019, PP.64,Mar 2019.
2. O. Singh, A. Ghosh, S. Thakur, A. Kumar, S. K. Singh, B. Nandan, R. Dev, S. K. Nirala, M. Anand, P. S. Kumar, A. K. Ray, “Generalized Design of a Physically Referenced Feed-forward and State Feedback Controller for Load Frequency Control”, 2nd International Conference on Energy, Power and Environment (ICEPE), pp. 1-6, IEEE, 2018.
3. A. Ghosh, O. Singh, A. K. Ray, Md. Nurujjaman, “Gravitational Search Algorithm Optimized State Feedback Load Frequency Controller”, 15th IEEE India Council International Conference (INDICON 2018), IEEE, 2018.
4. T. Biswas, P. Kuila and A. K. Ray, “A Novel Energy Efficient Scheduling for High Performance Computing Systems”, 9th ICCANT, IEEE, pp. 1-6, 2018.

Lecture/Seminar/Workshop organized/attended/visited in 2018-19

- Mr. Debanjan Mukherjee, a PhD Scholar had visited the North Eastern Regional Load Despatch Centre (NERLDC), Lapalang, Shillong, Meghalaya for Data Collection in April, 2018.
- Mr. Omkar Singh, a M.Tech. student presented his paper in the 2nd IEEE International Conference on Energy, Power and Environment (ICEPE-2018) at NIT Meghalaya in June, 2018.
- Dr. Kuntal Mandal was the invited speaker at the Summer School on Dynamics of Complex Systems at ICTS, Bangalore in June, 2018.
- TEQIP-III Summer Training
- Program for Senior Faculty at IITs in June, 2018 at IIT Kharagpur was attended by Dr. Anjan Kumar Ray, Dr. Aurobinda Panda, Dr. Molay Roy and Dr. Pradeep Kumar.

- Mr. Arindam Singha, a PhD Scholar presented his paper at the International Conference on Robotics and Smart Manufacturing (RoSMa-2018) at IITDM Kancheepuram, Chennai, in July, 2018
- Mr. Omkar Singh, a M.Tech. student presented his paper in the 15th IEEE India Council International Conference (INDICON 2018), Coimbatore in December, 2018.
- Dr. Amit Kumar Yadav served as the session chair during SIGMA 2018 conference in February 2018 at NSIT Delhi.



Some photographs of the laboratory instruments of EEE Department

(iv) Department of Mechanical Engineering

The Mechanical Engineering Department endeavors to be recognized globally for outstanding education and research leading to well qualified engineers, who are innovative, entrepreneurial and successful in advanced fields of mechanical engineering to cater the ever changing industrial demands and social needs. The Department of Mechanical Engineering aims to conduct innovative research and to provide a world-class education that instill the professional, technical, critical-thinking, and communication skills necessary for students and faculty to make impactful contributions to society.

At National Institute of Technology the Mechanical Engineering Department started its journey in the academic year 2014-15. The inception of the department is to produce globally competent Mechanical Engineers capable of contributing the society through innovation and working in multidisciplinary fields. The department aims to provide the students with a perfect blend of intellectual and practical experiences that helps them to serve our society and address a variety of needs.

Today, the world of Mechanical Engineering changes under the influence of advanced computational tools, vastly improved simulation and analysis, and entirely different manufacturing protocols. This has opened up new era of research in the department, such as Fluid Mechanics, Heat Transfer, Advanced Manufacturing Processes, CAD/CAM/CIM, Robotics and Mechatronics, Knowledge Management, Operations Management, Control Engineering.

At present the Department have limited laboratories due to non-availability of laboratory spaces in the temporary campus. In this regard the students are sent to various IIT/NIT to perform practical as few of the required labs

are not available. However, the institute is trying heart and soul to create more space by construction industrial sheds to establish necessary laboratories. The department aptly makes use of the technical facility of the workshop in teaching and in setting up of in-house experimental set-ups. The department also welcomes students from other departments of the institute as a gesture of support of their time to time academic and research needs.

- The quality of academic instruction and research productivity will be increased through actions in pursuit of the following Goals-
- To maintain a high standard of mechanical engineering education through outstanding teaching, innovative curricula, and research training that reflect the changing needs of society.
- To attract highly motivated students with enthusiasm, aptitude and interest in mechanical engineering.
- To pursue excellence in research and technology transfer.
- To recruit, retain and develop the members of the Department.
- To increase the public awareness of Departmental activities and the Mechanical Engineering profession.

Programs/Courses offered by the Department

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

Students Strength

B. Tech.

	Students Intake	Number of Students (2018-19)
1 st Year	30	28
2 nd Year	30	29
3 rd Year	30	18
4 th Year	30	17

Faculty Details

Members of the Department of Mechanical Engineering value the Professionalism and integrity, Teaching excellence, Commitment to students and Initiative, innovation and willingness to change. The faculties hold these values as an integral frame of reference to inform the decisions and actions at every level and in every situation.

Faculty Profile

Sl. No.	Name, Designation and Research Interest
1	Dr. Shambhunath Barman (Ph.D. 2014, Jadavpur University; M.Tech. 2008, BESU Shibpur) Assistant Professor & HOD (I/c) Research Interest: Experimental and Numerical Heat Transfer and CFD
2	Dr. Ranjan Basak (Ph.D. 2012, Jadavpur University; M.M.E. 2000, Jadavpur University) Assistant Professor Research Interest: Fluid Mechanics and Machine Design
3	Dr. Pranab Kumar Kundu (Ph.D. IIT Kharagpur; M.M.E. Jadavpur University) Assistant Professor Research Interest: Microfluidics, Non-traditional Machining

Temporary Faculty

Sl. No.	Name, Designation and Research Interest
1	Dr. Debajit Saha (PhD, 2017, Jadavpur University; M.M.E. 2010, Jadavpur University) Research Interest: Fluid Mechanics, Turbulence, CFD
2	Dr. Anindya Malas (PhD, 2018, IEST Shibpur; M.Tech, 2011, BESU Shibpur) Research Interest: Machine Design, Vibrational Analysis
3	Dr. Piyush Sharma (PhD, 2017, IIT Kanpur; M.Tech. 2010, MNIT Jaipur) Research Interest: Thermal Energy Conversion, HVAC
4	Mr. Susanta Kumar Pradhan (PhD Pursuing, IEST Shibpur. M.Tech. 2008, BESU Shibpur) Research Interest: Production Technology, Tribology
5	Mr. Pratik Kumar Shaz (M.Tech. 2017, Kalyani Govt. Engineering College) Research Interest: Production and Industrial Engineering
6	Mr. Manohar Kumar (M.Tech. 2017, Kalyani Govt. Engineering College) Research Interest: Design, Dynamics, Mechatronics
7	Dr. Arun Kumar Kadian (PhD, 2019, IIT Guwahati) Solid State Joining Processes, FEM, Flow Analysis
8	Dr. Pradipta Mondal (PhD, 2017, IEST Shibpur; M.Tech. 2011, BESU Shibpur) Research Interest: Renewable Energy, Solid Waste Management

Departmental Staffs

1.	Mr. Amit Maity , ITI, Diploma (Mechanical), Lab Technician
2.	Mr. Dalveer Singh , B.Tech, (Mechanical), Technician (Temporary)
3.	Mr. Manoj Kumar Prasad , B.Tech. (Mechanical), Technician (Temporary)

Membership of Technical Association/Society

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

Laboratory Facilities

Mechanical Engineering Department of NIT Sikkim has limited Laboratory facilities for UG classes and Research works. The laboratories which have already been set up in the institute premises are as follows :-

Laboratory	Laboratory In-Charge
Mechanical Workshop	Mr. Pratik Kumar Shaw & Dr. Shambhunath Barman
Fluid Mechanics and Machinery Laboratory	Dr. Debajit Saha & Dr. Pranab Kumar Kundu
Strength of Materials Laboratory	Mr. Manohar Kumar & Dr. Ranjan Basak
Production Engineering laboratory	Mr. Susanta Kr. Pradhan & Dr. Pranab Kr. Kundu
Computer Graphics Laboratory	Mr. Manohar Kumar & Mr. Pratik Kumar Shaw
CAD/CAM Laboratory	Dr. Anindya Malas and Dr. Piyush Sharma
Machine Drawing Laboratory	Mr. Susanata Kumar Pradhan and Mr. Manohar Kumar
Metrology and Instrumentation Laboratory	Mr. Manohar Kumar and Dr. Pranab Kumar Kundu

Mechanical Workshop

The objective of this Laboratory is to teach the Students about the following topics :-

- **Introduction to Mechanical Workshop:** Study of Workshop rules and safety considerations in different machinery usages and machine tools.
- **Carpentry:** Study of tools and joints – planning, chiselling, marking and sawing practice, one typical joint- Tee halving/Mortise and Tenon/ Dovetail
- **Fitting:** Study of tools- chipping, filing, cutting, drilling, tapping and threading about male and female joints, stepped joints- one simple exercise of single V joint for welding exercise.
- **Sheet Metal work:** Study of tools, selection of different gauge sheets, types of joints, fabrication of a tray or a funnel
- **Lathe Exercise:** Study of the basic lathe operations, a simple step turning exercise.
- **Welding Practice:** Study and practice of manual metal arc welding (MMAW). Exercise of Butt joint/Lap Joint/Corner Joint/Tee Joints.



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 objective of this Laboratory is to teach the Students about the following topics :-

1. Verification of Bernoulli's Theorem
2. Calibration of Venturimeter and determination of coefficient of discharge
3. Calibration of Orifice meter and determination of coefficient of discharge
4. Calibration of Nozzle and determination of coefficient of discharge
5. Measurement of velocity using a pitot tube
6. Calibration of Rotameter
7. Studying Reynold's experiment to visualize laminar-turbulent transition for flow in a tube
8. Study of the characteristics of a Pelton Turbine
9. Study of the characteristics of a Francis Turbine
10. Study the characteristics of a Reciprocating Pump
11. Study the characteristics of a Centrifugal Pump



Flow Measurement Apparatus



Turbine Supply Unit (Francis & Pelton)



Reynold's Experiment Demonstrator



Bernoulli's Principle Demonstrator

Elements of Solid Mechanics Laboratory

The objective of this Laboratory is to teach the Students about the following topics :-

1. To conduct a tensile test on a mild steel specimen and determine the following: 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 in area.

2. To conduct torsion test on mild steel or cast iron specimen to determine modulus of rigidity.
3. To conduct hardness test on mild steel, carbon steel, brass and aluminum specimens. A) Brinell's Hardness Test B) Rockwell Hardness Test
4. To determine the stiffness and modulus of rigidity of the spring wire.
5. To determine the impact strength of steel by Izod and Charpy impact test
6. To conduct a compressive test on a mild steel specimen to determine the compressive strength of the material.
7. To conduct three point bending test of a given specimen to find its young modulus of elasticity of given material on UTM.
8. To conduct shear test on a mild steel specimen, to determine the share strength of the material on UTM.



Universal Testing Machine



Hardness Testing Machine



Torsion Testing Machine



Sprint Compression Testing Machine

Computer Graphics Laboratory

The objective of this Laboratory (No. of computers: 20, Specifications: HP Prodesk, 8 GB RAM, 1 TB HDD, Intel i7 Processor, 3.60 GHz, Windows 10, 64 bit Operating System) is to teach the Students about the following topics:-

1. Introduction to CAD, basics of AUTOCAD, draw commands, Layout and sketching.
2. 2D Modelling and isometric drawings of Flange Coupling, Plummer Block.

3. 2D Modelling and isometric drawings of Screw Jack, Lathe Tailstock, Stuffing Box.
4. 2D Modelling and isometric drawings of Non-Return Valves, Connecting Rod by using AUTOCAD.
5. Introduction of 3D Modelling Software creation of Machine Elements Nut and Bolt using 3D Modelling Software.
6. 3D Modelling creation of Machine Element Gears, using 3D Modelling Software.
7. 3D Modelling creation of Machine Element Universal Joint, using 3D Modelling Software. 8. 3D modelling creation of Machine Elements Cotter joint and Knuckle joint using 3D Modelling Software.
8. Design and Analysis Lab (Software installed: AutoCAD, ANSYS, open source Software like, OpenFOAM etc.)



Production Engineering Laboratory

The objective of this Laboratory is to teach the Students about the following topics :-

1. Classifications of machine tools and machining processes - Specification of machine tool, power source, Centre lathe
2. Machining on Centre lathe
3. Grinding, Cutting variables - Selection of speeds, feeds and depth of cut - Use of cutting fluids
4. Lathe operations - straight, taper and eccentric turning, thread cutting, drilling, boring, profile turning, knurling - Tolerance and surface finish
5. Introduction to Limits and Fits, Horizontal and Vertical milling machine - Spindle drives and feed motion
6. Shaping machine - cutting motion, slotting machine, Grinding machine - Surface, cylindrical and centerless grinding - Tool and cutter grinder.
7. Unconventional machining, NC/CNC machine.



Drilling Machine



Milling Machine



Surface Grinder



Lathe

CAD/CAM Laboratory

The objective of this Laboratory (No. of computers: 20, Specifications: HP Prodesk, 8 GB RAM, 1 TB HDD, Intel i7 Processor, 3.60 GHz, Windows 10, 64 bit Operating System) is to teach the Students about the following topics-

1. Basic concepts of CAD.
2. Study and development of 2 D model on CAD software (Software installed: AutoCAD, ANSYS, open source Software).
3. Study and development of 3 D model on CAD software.
4. Generation of various 3D Models using basic Boolean operations: shell, sweep, revolve, loft, extrude, filleting, chamfer, splines etc.
5. Study of Part Programming fundamentals and G & M codes.
6. Manual part programming for CNC lathe and simulation.
7. Manual part programming for NC milling and simulation.
8. Part program generation by CAM software (UICAM).



CAD/CAM Laboratory

Machine Drawing Laboratory

The objective of this Laboratory is to teach the Students about the following topics-

1. Representation of elements of machine drawing, Introduction to Engineering Materials, Surface finishes, tolerances, sectional views, Screw threads.
2. Component Drawings of Bolts and Nuts, Locking devices, Keys and Cotter joints, Knuckle Joint, Riveted joints, Shaft Couplings, Bearings and Pipe joints.
3. Assembly Drawing Practice and Drawing of the assembly of Stuffing Box, Pedestal Bearing using the component drawings. Machine drawing practice using AutoCAD.

As all the laboratories which are included in the curriculum are not being set up in the institute, those laboratories are conducted at other reputed institutes in due time.



Machine Drawing Laboratory

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.



Metrology and Instrumentation Laboratory

Ph.D. Scholars

Name of the Student	Thesis Title/Research Area	Supervisor
Mr. Lakshman R	Simulation of Atmospheric Boundary Layer	Dr. R Basak
Mr. Manish Mukhopadhyay	Grinding of Titanium Alloy	Dr. P K Kundu
Mr. Anwesh Virkunwar	Material Characterization	Dr. R Basak
Mr. Prasan Dewan	Non-traditional Machining (EDM)	Dr. P K Kundu
Mr. Saddam Hussain Mallick	Natural Convection in Enclosure	Dr. P K Kundu
Mr. Aditya Kumar Singh	Thermo-Fluidics	Dr. S N Barman

Research Activities

Publications:

During the academic year 2018-19 the following journal papers, conference papers, book chapters have been published by the research scholars and faculty members of Mechanical Engineering Department.

Journals:

1. Santanu Sardar, 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).
2. Swati Dey, Nashrin Sultana, Partha Dey, Susanta Kumar Pradhan, Shubhabrata Datta, Intelligent design optimization of age-hardenable Al alloys, *Computational Materials Science*, 2018, 153: 315-325.

Conferences:

1. Saddam Hossain Mullick, P Kaushik, Pranab Kumar Mondal, and Pranab Kumar Kundu, Entropy Generation in a Viscoelastic Fluid Squeezed and Extruded Between Two Parallel Plates, Accepted, Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2019), December 28-31, 2019, IIT Roorkee, Roorkee, India.
2. Saddam Hossain Mullick, Debabrata DasGupta and Pranab Kumar Kundu, Transient heat transfer analysis during natural convection at high Ra number and small period of heating from bottom wall, Accepted, Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2019), December 28-31, 2019, IIT Roorkee, Roorkee, India.
3. Saddam Hossain Mullick and Shibsankar DasGupta, Combined Motion Generation by Electro-Hydraulic Stewart Platform for Manufacturing Industries, Presented, ICIMSAT-2019, Siliguri Institute of Technology, Sukna, SILIGURI, Darjeeling, 734009, India

4. Lakshman R, Basak R. Analysis of transformed fifth order polynomial curve for the contraction of wind tunnel by using OpenFOAM. In IOP Conference Series: Materials Science and Engineering 2018 Jun (Vol. 377, No. 1, p. 012048). IOP Publishing.
5. Mondal P, Ghosh S, Saha D and Barman SN, Econo-Environ performance study of an efficient combined cycle plant fuelled via MSW of Indian cities, International Conference on Energy and Sustainable Development, Jointly organized by Jadavpur University and The Institution of Engineers, India (Accepted).
6. Mondal P., Samanta S., Ghosh S. & Barman S. Bio-Waste Fired Combined Air Turbine-CO₂ Turbine Plant: Part A - Energy And Exergy based Performance Assessment. ICARRET-2019, 23-24th October 2019, Velagapudi Ramakrishna Siddhartha Engineering College (Referred for Publication in IJMPRED Journal-SCOPUS Indexed)
7. Mondal P., Samanta S., Ghosh S. & Barman S. 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 (Referred for Publication in IJMPRED Journal-SCOPUS Indexed)
8. Mondal P., Das S., Ghosh S. MSW Fired Indirect Combined Cycle: A Novel Solution to Waste Management and Power for India, HERAKLION 2019 7th International Conference on Sustainable Solid Waste Management, Crete Island, Grece, 26-29th June 2019.
9. Mondal P., Samanta S. 3-E analyses of a natural gas fired multi-generation plant with back pressure steam turbine, NFEST 2019, NIT Kurukshetra, IOP Journal of Physics: Conference Series 1240 012113.
10. Mondal P., Samanta S., Das S., Thermo-environmental Performance Analysis of NG Fueled GT based Co-Generation Plant: Indian Perspective, ICCIoT 2018, NIT Agartala International Journal of Computational Intelligence & IoT, Vol. 2, No. 3, 2019.

Book Chapter:

1. Lakshman, R. and R. Basak, Comparative study of profiles design for the construction of wind tunnel by using OpenFoam, Book Chapter: Advances in Technology, Engineering and Technology, DOI: 10.3850/978-981-11-0744-3-17-46-cd; ISBN: 13:978-981-11-0744-3; PP: 156-167, 2018.
2. Samanta S., Mondal P. (2019) Thermodynamic Analysis of Biomass Gasification-Based Power Generation System through Indirectly Heated GT and S-CO₂ Cycle. In: Saha P., Subbarao P., Sikarwar B. (eds) Advances in Fluid and Thermal Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore (DOI: 10.1007/978-981-13-6416-7_10).
3. Mondal P., Samanta S., Surface Roughness Characteristics of MS Rod Using Different Cutting fluids during Turning Operation, Advances in Materials and Manufacturing Engineering, Lecture notes in Mechanical Engineering, Springer (DOI: 10.1007/978-981-15-1307-7_15).

Achievements/Awards:

Dr. Pranab Kumar Kundu has been awarded for Vivesvaraya Young Faculty Research Fellow from NIT Sikkim during the academic year 2018-2019.

Special Lecture/Seminar/Workshop organized:

- Dr. Dibyendu Maiti, Associate Professor, Delhi School of Economics, University of Delhi has delivered a

lecture on “Efficiency, Productivity Growth and its decomposition: Stochastic Frontier Analysis” on 04th October, 2018 at ME Dept.

Collaboration with other Institute:

During the academic year 2018-19, the department has collaborated with Indian Institute of Technology, Kharagpur (IIT Kharagpur) and Indian Institute of Technology, Guwahati (IIT Guwahati) to conduct various laboratory classes. The details are as follows:-

- The B.Tech. 4th year students went to IIT Guwahati to carry out the Heat Engine Laboratory classes within the time period of 29th October, 2018 to 2nd November, 2018.
- The B.Tech. 3rd year students went to IIT Kharagpur to carry out the Heat Transfer Laboratory classes within the time period of 16th November, 2018 to 22nd November, 2018.

Departmental Library:

Apart from having the facility of central library in the institute, a departmental library with limited number of stack and books is maintained. These books are either sponsored by faculty members of ME department or by the publisher personnel. An initiative is being taken to keep the competitive books also apart from having text and reference books.

Floor area of study	4 X 4.5 meter
No of stacks	02
Total no of books	56
Books from thermal specialized field	28
Books from Design specialized field	09
Books from Production specialized field	11
Miscellaneous Category (Competitive)	08

Involvement in Community Development during 2018-19

The students of near-by schools have visited the Departmental Laboratories, Workshops to get exposure of Mechanical Engineering.

Student Activities



The students of 2015-19 batch with the Faculty Members of ME Dept., Honorable Director Sir

List of the Institutes/Organizations where the Students had done Internship

- Nuclear Fuel Complex, Hyderabad, Department of Atomic Energy, Govt. of India
- Mitacs Globalink Research Internship at Ecole Polytechnic de Montreal, Canada
- IIT Guwahati
- IIT Chennai
- Goa Shipyard Limited
- IIT Delhi
- NFC Hyderabad
- DLW Varanasi
- NESAC Shillong
- L & T Metro Hyderabad
- TATA Steel
- CSIR-CMERI Durgapur

Students Achievements

- Mr. Krishna Kumar Shukla has scored 505 in GATE 2019 and got recruited in Larsen and Toubro Limited (ECC Division)
- Mr. Arijit Mandal has scored 545 in GATE 2019 and got recruited in Larsen and Turbo Limited.
- Mr. Nikhil Vihan has scored 558 in GATE 2019 and got recruited in Vedanta Limited.
- Mr. Yash Anand Parihar, Mr. Jha Rahul Binod, Mr. Nitin Pal, Mr. Vibhu Priyadarshi & Mr. Amit Kumar attended seminar on Aeronautical System at Tezpur University

(v) Department of Civil Engineering

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 the daily life of the people. Civil engineering is not 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. The nation needs significant number of Civil Engineers to improve the lifestyle of the society.

The Department of Civil Engineering of NIT Sikkim was established in the year 2013. The Department offers 4-year 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 who will prove to be worthy of employment in various industries. The Department currently has

three laboratories namely Surveying Laboratory, Material Testing Laboratory and Geotechnology Engineering Laboratory. The procurement process for setting up the Structural Engineering Laboratory, Environmental Engineering Laboratory, Software Analysis Laboratory and upgrading the Geotechnology Engineering Laboratory is under way. The Department is planning to offer M. Tech courses in different fields of Civil Engineering. The Department is also planning to start Ph.D. program soon. The pass out students of the Department are working in various government sectors and reputed private companies. In addition, significant number of students are also pursuing higher education in various fields of Civil Engineering. Faculty members of the Civil Engineering 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.

Courses Offered

- B. Tech in Civil Engineering

Faculty Details

Sl. No.	Name, Designation and Research Interest
1	Mr. Neelanjana Dutta , M.E (IEST Shibpur, 2015) Research Area: Water Treatment, Solid Waste Management
2	Dr. Sangita Deb Barman , Ph.D (NIT Meghalaya, 2017), M.Tech (NIT Silchar, 2012) Research Area: Flood Modeling, Water Resources Management, Soil Erosion, GIS Techniques
3	Mr. Debashish Roy , M.E (IEST Shibpur, 2014) Research Area: Transportation Engineering, Traffic Flow Fundamentals, Highway Engineering and Level of Service
4	Mr. Pretam Dahal , M.Tech (SMIT, 2017) Research Area: Structural Analysis, Structural Design, Seismic Analysis
5	Dr. Sanjit Biswas , Ph.D (IIT Delhi, 2018), M.Tech (IIT Delhi, 2012) Research Area: Pile Dynamics, Soil Dynamic, Machine Foundation, Finite Element Analysis, Soil Mechanics and Foundation Engineering
6	Mr. Kallol Saha , M. Tech (NIT Silchar, 2018) Research Area: Geotechnical Engineering
7	Mr. Koustav Majumdar , M. Tech (NIT Agartala, 2018) Research Area: Structural Engineering
8	Mr. Siraj Hussain , M. Tech (IIT Guwahati, 2018) Research Area: Geotechnical Engineering
9	Mr. Shantanu Kumar Singh , M. Tech (NIT Durgapur, 2017) Research Area: Geotechnical Engineering
10	Mr. Sumit Kumar , M.Tech (NIT Jamshedpur, 2016) Research Area: Geotechnical Engineering

Sl. No.	Name, Designation and Research Interest
11	Mr. N. Vignesh Kumar , M.E (Anna University, 2013) Research Area: Material Science
12	Dr. Kushal Ghosh , Ph.D (Jadavpur University, 2018) Research Area: Geopolymer Composites, Sustainable Concrete, Green Materials Waste Based Building Materials
13	Dr. Amit Kumar Rath i, Ph.D (IIT Guwahati, 2019), M.Tech (IIT Guwahati, 2011) Research Area: Composite Materials, Reliability Analysis and Design, Uncertainty Quantification Stochastic Modelling and Computation, Surrogate Modelling, Robust Design

Staff Details

Sl. No.	Name	Designation	Highest Degree	Year Joined
1	Mr. Subho Das	Technical Assistant	A.M.I.E (IEI Kolkata, 2019), Diploma (Ramakrishna Mission Shilpapitha, 2012)	July 15
2	Ms. Chanda Moktan	Technician	Diploma (Darjeeling Polytechnic, 2009)	Sep 16

Laboratory Facilities

1. Surveying Laboratory

Sl. No.	Name of Equipment	Experiments performed
1	Compass (Prismatic, Clinometer, Surveyor's)	Traversing with compass and plotting using fore bearing and back bearing and local error correction.
2	Dumpy level, Auto level	Finding out the elevations of given points with respect to a given datum.
3	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 distances between the traverse stations and the angles subtended at the various stations by their adjacent stations.
4	Total Station	The instrument can be used to measure horizontal and vertical angles as well as sloping distance of object to the instrument.
5	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 distances between intermediate points.



Transit Theodolite



Auto Level



Total Station

2. Material Testing 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 centimeters per gram of test sample.
3	Crushing Value Apparatus	Determination of aggregate crushing value provides a relative measure of resistance to crushing under a gradually applied compressive load.
4	Vicat's Apparatus	Determination of consistency and initial/final set times of cements and mortar pastes.
5	Concrete Mixer (Motorised)	Concrete mixer is a machine for mixing concrete, aggregate and water and mixing it into concrete mixture.
6	Slump cone apparatus	Determines the workability or consistency of concrete mix prepared at the laboratory or the construction site during the progress of the work.
7	Compaction Factor Apparatus	Determines the compaction factor of concrete with low, medium and high workability.
8	Vee Bee Consistometer	Determination of workability of the freshly mixed concrete. The Vee-Bee test gives an indication about the mobility and the compatibility aspect of the freshly mixed concrete.
9	Rebound Hammer	Measurement of elastic properties or strength of concrete or rock, mainly surface hardness and penetration resistance.
10	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.
11	Digital Compression Testing Machine	Determination of compressive strength of cube and cylinder (i.e. hardened concrete).
12	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.



Digital Compression Testing Machine



Ultrasonic Pulse Velocity Testing Machine

3. Geotechnology Engineering Laboratory

Sl. No.	Name of Equipment	Experiments performed
1	Motorised Sieve shaker	Performs dry sieving.
2	IS SEIVES: 20cm. dia. Sieves in Brass Frame and 45cm. dia. Sieves in G.I. Frame.	Determination of the particle size distribution of fine and coarse aggregates by sieving.
3	Shrinkage Limit Test apparatus, Plastic Limit Test apparatus, Liquid Limit Test apparatus.	Determination of Atterberg Limits of defining characteristics of cohesive soils.
4	Permeability Apparatus	Determination of permeability by direct laboratory method.
5	Consolidation Apparatus	Determination of the settlements due to primary consolidation of soil by conducting one dimensional test.
6	Compaction Test Apparatus (Standard Proctor Test & Modified Proctor Test)	Establishment of a relationship between dry density and moisture content for a soil under controlled conditions.
7	California Bearing Ratio Test Apparatus	Evaluation the subgrade strength of roads and pavements by measuring the penetration.
8	Direct Shear Apparatus, Motorised 12 speeds (Electrically operated)	Measurement of the shear strength properties of soil or rock material, or of discontinuities in soil or rock masses.
9	Triaxial Shear Test and Unconfined Compressive Strength Test Apparatus (Electrically operated)	Determination of 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, calculation of consolidation parameters and in many other analyses.
10	Laboratory Vane Shear Test Apparatus Motorised (Electrically operated rate of rotation)	Measurement of shear strength of cohesive soils, is useful for soils of low shear strength of less than about 0.5 kgf/cm ² . This test gives the undrained strength of the soil, in undisturbed as well as remolded conditions both.
11	Field Density Test by Sand Replacement Method and Core Cutter Method	Determination of the in-situ density of natural or compacted soils using sand pouring cylinders.
12	Universal Soil Sample Extruder (Electronic cum Hand Operated)	It is widely used for infiltrating specimen of soil, asphalt and concrete.

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. Neelanjana 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) International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE Membership No. LM-3346, For the block period of 2018 – 2021)	Life Member	Dr. Sanjit Biswas
4	Indian Concrete Institute		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	Institution of Engineers (India) (Membership No. AM 190344-9)	Associate Member	Dr. Amit Kumar Rathi

Seminar/Workshop/Symposia/Short Term Course Conducted

Sl. No.	Program	Organizer
1	National Workshop on “National Building Code of India 2016 & Revised Seismic Codes & Revised Seismic Codes” on 1 st December, 2018	The Institution of Engineers (India) Sikkim State Centre and NIT Sikkim

Student Societies/Internship/Extra-Curricular Activities

Student Society

- Department of Civil Engineering runs a non-profit organization named “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 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.

Internship

- Mr. Chandrashekhar Yadav bearing Roll. No. B150066CE and Mr. Jeetendra Kumar bearing Roll. No. B150063CE have been selected to carry out their final year project work at CSIR – SERC during January 2019 to May 2019.

Sl. No.	Name of Student	Project Topic	Supervisor
1	Chandrashekhar Yadav	Structural Damage Detection Techniques for Bridges and Buildings	Dr. K. Lakshmi Senior Scientist, SHML, CSIR - SERC
2	Jeetendra Kumar	Investigation on Seismic Floor Spectral Demand in Hospital Buildings	Dr. K. Satish Kumar Chief Scientist & Head, ASTaR, CSIR - SERC

Extra-Curricular Activities

- Seven Students of Civil Department have participated in Inter NIT Cricket Tournament organized at NIT Trichy from 16th – 27th February, 2019

Sl. No.	Roll No	Name of Student
1	B170131CE	Shubham Kumar
2	B170146CE	Deepak Singh
3	B170166CE	Indrajeet Kumar
4	B170106CE	Pankaj Kumar
5	B170190CE	Chandan Kumar
6	B150031CE	Ankur Kumar
7	B150107CE	Yadav Abhishek Arvind Kumar

Consultancy Projects

Sl. No.	Consultancy Projects	Client Organizations	Total amount received (in FY 2018-19) in Rs.
1	Appraisal report on Detailed Project Report for Up-gradation and Modernization of Sewerage Scheme for Smart City Namchi, South Sikkim	Enviro Associates and Consultants, Gangtok, East Sikkim	2,00,000/-
2	Concrete Mix Design for M25 and M35 Grade of Concrete of Sikkim University Site, Yangang	NCC Ltd.	1,00,000/-
3	Construction Material Testing of Power Grid Ltd. New Melli, Tokal Village, South Sikkim	Reliance Elektrik Works, Sombaria, West Sikkim	50,000/-

Publications

A. Publications in Conferences

1. Anaya Ghosh, Neelanjan Dutta, Biswajit Debnath, Anirban Gupta Sadhan Kumar Ghosh; **“Plastic Waste Management Rule 2016, Implementation in India: Current Status, Issues and Challenges”**, IconSWM Conference, 2018, Vijaywada, India.

B. Publication in Book Chapter

1. Neelanjan Dutta, Anaya Ghosh, Biswajit Debnath, Sadhan Kumar Ghosh; **“Climate change in Hilly region of India: Issues and Challenges in Waste Management”**; Sustainable Waste Management: Policies and Case Studies, Page no. 657-669.

C. Papers Accepted for Publication

1. **Bikram Paul, Kushal Ghosh, Partha Ghosh** .“Mechanical Properties and Microstructural Features Using Stone Dust as a Partial Replacement of Sand.”, *International Journal of Engineering and Advanced Technology*, (2019) (Scopus Indexed) (Accepted)

2. **Bikram Paul, Khokon Karmakar, Kushal Ghosh, Partha Ghosh**. “Effect of Stone Dust On the Mechanical and Microstructural Properties of Opc Based Concrete Subjected to Acid Exposure.”, *International Journal of Recent Technology and Engineering*,(2019) (Scopus Indexed) (Accepted)
3. **Arnab Mondal, Kushal Ghosh, Partha Ghosh**. “Mechanical and Microstructural Characteristics of Ternary Blended Mortars Incorporating GGBS and Alccofine Subjected to Acid and Sulphate Exposure”, *International Journal of Engineering and Advanced Technology*,(2019) (Scopus Indexed) (Accepted).

(vi) Department of Biotechnology

The Department of Biotechnology was established in 2015. During first year only seven students took admission, while the admission dropped to mere 04 in the year 2016. The admission in the year peaked to 17 in 2017. However, the Institute felt the Biotechnology branch is unviable in this remote location. So, in 2017 the Institute decided to close the branch and shift the 2016 (in 2nd year) and 2017 (in 1st year) students to other branches. In 2018, the first batch seven students completed their 3rd year studies, and due to lack of facilities at NIT Sikkim, they were shifted to

NIT Jalandhar for their 4th year's study. In 2018-19, they are were studying in the Department of Biotechnology at NIT Jalandhar. Therefore, only one batch of students (2015-19) completed B.Tech in 2019. The lone regular staff of the department was shifted to the Chemistry department. Three temporary faculty members present, taught some courses in department of Chemistry, and later found jobs elsewhere. The laboratory developed so far, and the instruments and consumables were transferred to the Department of Chemistry.

B.Tech. Student Admission

- 2015 – 19: 07 (completed B.Tech degree)
- 2016 – 20: 04 (03 shifted to other branches, 01 quit)
- 2017 – 21: 17 (All shifted to other branches)

Faculty Details

Sl. No.	Name, Designation and Research Interest
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Temporary Faculty

1	Dr. Sancharini Das, Ph.D. (IIT Kharagpur) Microbe based nanotechnology
2	Dr. Swarnendu Bag, Ph.D. Cancer Theranostics, Proteomics, Metabolomics
3	Dr. Amlan Das, Ph.D. Cancer stem cells, Oxidative stress, Antioxidant therapeutics

Laboratory Facilities

One laboratory and a Cell culture room were established in 2017-18. Some instruments like laminar hood, BOD incubator, Gel electrophoresis apparatus (Protein & DNA), Autoclaves, microscopes, etc. were procured. Required consumables like glass & plastic wares, chemicals were also procured. After the closure of the branch, all the items were transferred to the Department of Chemistry.

Research Publications:

1. Spectroscopy-corroborated multimodal quantitative imaging biomarkers for neuroretinal degeneration in diabetic retinopathy. Guha Mazumder A, Chatterjee S, Chatterjee S, Gonzalez JJ, Bag S, Ghosh S, Mukherjee A, Chatterjee J. Clin Ophthalmol. 2017 Nov 22;11:2073-2089.
2. Deficiency of CCN5/WISP-2-Driven Program in breast cancer Promotes Cancer Epithelial cells to mesenchymal stem cells and Breast Cancer growth. Das A, Dhar K, Maity G, Sarkar S, Ghosh A, Haque I, Dhar G, Banerjee S, Banerjee SK. Scientific Reports (Nature) 2017 ;7(1):1220.

Students Achievements:

1. Mr. Pavan Kumar S. – GATE 2018 All India Rank – 26
2. Mr. Ayush Pandey – GATE 2018 All India Rank – 140

Both of them later joined M.Tech programs at IIT Madras and IIT Bombay, respectively.

Other five students were placed in various companies.

(vii) Department of Mathematics

Mathematics Department has been an integral part of the Institute since its inception. Mathematics is the most basic of sciences and the backbone of all the engineering disciplines. Without Mathematics, the existence of any kind of science and engineering is impossible. There is a quote by a famous German mathematician Karl Friedrich Gauss "*Mathematics is the queen of all science*". Since its establishment, the Department of Mathematics has been trying its best to provide the needs of the Institute where specific courses are to be offered for the benefits of engineering departments e.g., Computer Science and Engineering, Electrical and Communication Engineering, Electrical and Electronics Engineering etc. This helped to have a close collaboration with engineering departments. The Department of Mathematics actively participates in teaching of undergraduate (UG), postgraduate (PG) and PhD courses. Currently the department offers two compulsory courses for all branches of engineering UG students – namely Mathematics – I and Mathematics – II and two more compulsory courses namely Mathematics – III (for Mechanical and Civil Engineering

UG students) and Computation Mathematics (for CSE, EEE and ECE UG students). The Department also offers courses for post-graduate and PhD students. Recently we have also started offering a compulsory course on professional practice to all the UG students in concern with the preparation of their placement.

The aim of the Department is to develop an excellent natural mathematics test and encourage young engineers and science student of the country to work in mathematical science and train computational scientists who can take on challenges of real-life problems. To fulfill the above aim all the courses offered by the Department are reviewed and updated with highly qualified experts from renowned Institutes including IITs and NITs. Right from the beginning, the Department gave high priority to teaching, education and research. The Department offers Ph.D. program in Numerical Linear Algebra, Operation Research, and Spectral Graph Theory.

Faculty Details

Sl. No.	Name, Designation and Research Interest
1.	Dr. Ravi Srivastava , Ph.D. (IIT Guwahati-2012) Assistant Professor Numerical Linear Algebra, Spectral Graph Theory
2.	Dr. Om Prakash , Ph.D. (IIT Kharagpur-2013) Assistant Professor, HOD (I/C) Production Planning and Inventory Control (Operation Research)

Temporary Faculty

Sl. No.	Name, Designation and Research Interest
1	Dr. Suresh Kumar Choubey , Ph.D. (IIT BHU-2013) Assistant Professor Theory of Rings and Modules
2	Dr. Dhruvajyoti Mandal , Ph. D. (IISER Kolkata 2018) Assistant Professor Fractional Calculus, Differential Equations, Nonlinear Dynamics

Research Scholars

Sl. No.	Scholars	Guide(s)	Area of Research
1	Ms. Aparajita Borah	Dr. Sangram Ray Dr. Ravi Srivastava Dr. Gajendra Pratap Singh	Spectra Graph Theory

Organized two days Short Term Course during 13/03/2019 to 14/03/2019

Title: Projection lemma and the cyclic decomposition.

Expert: Prof. Michael Karow

(Department of Mathematics, TU Berlin, Germany)

Organized Special Lectures:

Dr. Anita Pal (NIT Durgapur)
for first year students in Feb, 2019

Dr. Madhu Jain (IIT Roorkee)
for first year students in Feb 2019

Dr. Gajendra Pratap Singh (JNU)
for first year students in Feb 2019

(viii) Department of Physics

The Department of Physics has been a part of the National Institute of Technology Sikkim since its establishment in 2010. Departmental Faculty members are actively engaged in teaching and research. Presently the Department offers Engineering Physics, Semiconductor Devices courses to different engineering branches of B. Tech. program. The faculty members are engaged in research in the broad areas of effect of noise on nonlinear systems, non-linear

dynamics, low temperature physics, quantum information and its interface with many-body physics and time series analysis of stock market. At present the Department has limited laboratories due to non-availability of laboratory space in the temporary campus. However, the Institute is trying to create more space by construction of industrial sheds to establish necessary laboratories.

Faculty Details

Sl. No.	Name, Designation and Research Interest
1	Dr. Md Nurujaman , Ph.D. (Homi Bhabha National Institute, BARC, India.) Assistant Professor & HOD (I/C) Experimental nonlinear dynamics, stock market analysis
2	Dr. Anindya Biswas , Ph.D. (University of Calcutta) Quantum information and its interface with many-body physics

Staff Details

Sl. No.	Name	Designation	Highest Degree	Year Joined
1	Happy Mondal	Laboratory Assistant	M.Sc in Physics	August, 2016

Research Scholars Details

Sl. No.	Scholars	Guide(s)	Research Topic
1	Ajit Mahata	Dr. Md. Nurujaman	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.

Laboratory Facilities

Engineering Physics Laboratory:

1. FOUR PROBE APPARATUS:

To determine the band gap energy and the resistivity of semiconductor by Four Probe Method.

2. LASER DIODE APPARATUS:

- To study the shape of the laser beam cross section and to evaluate beam spot size.
- To find the divergence angle of laser beam.
- To study the polarizing nature of laser.

3. MAGNETIC FIELD APPARATUS:

- To study the variation of magnetic field with distance along the axis of a circular current carrying coil and to calculate diameter of the coil.

- To study the principle of superposition of magnetic field and in particular to study the axial variation of the magnetic field due to both the coils when the distance between them is a) Less than the radius of the coils. b) Equal to it. c) More than it.

4. HALL EFFECT APPARATUS:

To calculate the Hall Coefficient, Carrier Density, Carrier Mobility of the sample material.

5. NEWTON'S RING APPARATUS:

Determination of the radius of curvature of the lower surface of a plano-convex lens by using Newton's Ring apparatus.

6. QUINCKE'S METHOD APPARATUS:

Measurement of Susceptibility of a liquid or a solution by Quincke's Method.

7. PLANCK'S CONSTANT APPARATUS:

Determination of Planck's Constant by using LED.

8. MAGNETORESISTANCE APPARATUS:

Measurement of Magnetoresistance of Semiconductors.

9. FIBER OPTICS APPARATUS:

To measure Numerical Aperture of Optical Fiber.



Engineering Physics Laboratory

Research Laboratory

1. BARASOL BMC2 radon 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.
2. Workstation: It can be used for parallel programming. It is also fitted with GPU card for programming.
3. Series Waveform Generator: It is used to generate various types of analog as well as digital signals.
4. 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.



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, Allahabad. Radon gas monitoring system, a possible avenue for early earthquake detection, has been installed at NIT Sikkim, in collaboration with Jadavpur University.

Project Details at Department of Physics

Name of the Project	Name of the Principal Investigator(s)	Sanction Letter and Date	Amount sanctioned (Rs. In Lakhs)	Funding Agency
Innovative and sustainable decision support system for drinking water security in Indian Himalayan region of Sikkim and West Bengal	Dr. Md Nurujjaman	GBPNI/NMHS-2017/SG-01 Dated: 23.02.2018	49,00,000/-	The Ministry of Environment, Forest & Climate Change (MoEF&CC)

Research Publications

International Journal

1. Benford analysis of quantum critical phenomena: First digit provides high finite-size scaling exponent while first two and further are not much better. Phys. Lett. A 382, 1639 (2018) (arXiv:1711.00758 [quant-ph])

Submitted Papers:

1. Identification of short-term and long-term time scales in stock markets and effect of structural break, A Mahata, DP Bal, M Nurujjaman, arXiv:1907.03009

2. Time scales in stock markets, Authors: Ajit Mahata, Md Nurujjaman, arXiv:1906.05494

Conferences

1. Application of radioactive gas radon as earthquake precursor in Eastern Himalayas S Chowdhury, A Deb, M Nurujjaman, C Barman, Proceedings of the International Conference on Nuclear, Particle and Accelerator Physics

(ix) Department of Chemistry

The Department of Chemistry has been an integral part of the National Institute of Technology Sikkim since its establishment in 2010. The department is steadily growing in research infrastructure and overall research direction. The department is actively focused on fundamental and applied research, covering the major areas of chemistry. The department has adequate laboratory facilities with instruments like rotary evaporator, gas

chromatography system, UV-visible Spectrophotometer, FT-IR, Electrochemical Workstation, etc. The department of Chemistry started a two year M.Sc. course in Chemistry from the academic session 2017-18. At present department has limited laboratories due to non-availability of laboratory space in the temporary campus. However, the Institute is trying to create more space by construction industrial sheds to set-up necessary laboratories.

Program/Courses offered by the Department

- M.Sc in Chemistry (2 years)
- PhD in Chemical Sciences

Student Strength

- M.Sc First year (2018 – 20) – 15
- M.Sc Second year (2018 – 20) – 15
- Research Scholar – 05

Faculty & Staff Details

Sl. No.	Name, Designation and Research Interest
1	Dr. Taraknath Kundu, Assistant Professor & HoD M.Sc. (University of Calcutta, 2001), Ph.D. (Bose Institute / Jadavpur University, 2008), Postdoc (Bose Institute, 2008-09, IISc. Bangalore, 2009-12) Area of interest: Synthetic organic Chemistry; Medicinal Chemistry
2	Dr. Achintesh Narayan Biswas, Assistant Professor M.Sc. (University of North Bengal, 2003), Ph.D. (University of North Bengal, 2011), Postdoc (University of Minnesota, USA 2012-13), Assistant Professor, Siliguri College, WB Area of interest: Artificial Photosynthesis, Small Molecule Activation, Bio-inspired Catalysis
3	Dr. Sumit Saha, Assistant Professor M.Sc. (IIT Kharagpur, 2007), Ph.D. (IACS / Jadavpur University, Kolkata, 2012), DST INSPIRE Faculty, NIT Sikkim (2012-16) Area of interest: Synthetic organic chemistry, Total synthesis

Temporary Faculty

Sl. No.	Name, Designation and Research Interest
1	Dr. Nidhi Govil, M.Sc. (Roorkee University), Ph.D. (MNIT Jaipur, 2005) Area of interest: Electroanalytical Chemistry
2	Dr. Barun Jana, M.Sc. (IIT Bombay, 2005), Ph.D. (WWU Muenster, Germany, 2008), Postdoc: USA & DST Young Scientist, IACS, Kolkata Area of interest: Main Group and Transition Metal Organometallic Chemistry and Catalysis, Energetics Materials and Environment, Supramolecular Chemistry and its relevant applications

Sl. No.	Name, Designation and Research Interest
3	Dr. Sumantra Bhattacharya, M.Sc. (BHU, 2007), Ph.D. (NCL Pune, 2012), Postdoc: USA, South Korea, IACS, Kolkata Area of interest: Computational Chemistry
4	Dr. Amlan Das, M.Sc. (University of Calcutta, 2003), Ph.D. (University of Calcutta, 2011), Postdoc (Ohio State University, 2011-2012 & University of Kansas Medical Center, 2012-2015, USA & Jadavpur University, India, 2016-2017) Areas of Interest : Cancer biology, Cancer stem cells, Therapeutics
5	Dr. Bipla Maiti, M.Sc. (University of Calcutta, 2001), Ph.D (IIT Kanpur, 2008), Postdoc: Germany, Portugal Area of interest: Bio-inorganic chemistry
6	Dr. Sabyasachi Pramanik M.Sc (IIT Guwahati, 2013), PhD ((IIT Guwahati, 2018) Surface modifications and Energy applications of metal chalcogenide Quantum dots.

Staff Details

1	Mr. Suman Pathak B.Sc (The University of Burdwan), M.Sc (Bilaspur University)
2	Ms. Chandrama Majumdar B.Sc (Kalyani University), M.Sc (Presidency University)

Ph.D. Scholars

Name	Supervisor	Topic
Mr. Sachidulal Biswas	Dr. Achintesh Narayan Biswas	Small molecule activation
Ms. Srijana Subba	Dr. Sumit Saha	Total Synthesis
Mr. Satish Chandra Yadav	Dr. Taraknath Kundu	Synthetic methodology & Medicinal Chemistry
Mr. Srijan Narayan Chowdhury	Dr. Achintesh Narayan Biswas	Dioxygen Reduction
Mr. Panjo Lepcha	Dr. Achintesh Narayan Biswas	Catalytic Water Oxidation

Laboratory/Research Facilities

The department of Chemistry has three laboratories catering to the needs of B.Tech Engineering Chemistry course and Organic, Inorganic, Physical, Biochemistry, Analytical Chemistry laboratory experiments of M.Sc. Students as well as for PhD scholars. Apart from the general glasswares, chemicals, and small instruments needed in any chemistry laboratory, the laboratories have

some sophisticated instruments as well. The laboratories are fitted with three fume hoods. The Chemistry main laboratory is also used for Environmental Engineering laboratory course of Civil Engineering department and various laboratory courses of Biotechnology department. The department have access E-resources like SciFinder, Science direct, Springer journals, softwares like Gaussian 9 and Gauss View 5.

Sl. No.	Name of the Laboratory	Instruments	Faculty In-charge
1	Engineering Chemistry	Microbalance, Microcentrifuge, pH meters, Conductometers, Hot air oven, vacuum pumps fridges, etc.	Dr. Taraknath Kundu
2	M.Sc. Organic Chemistry	Eyela Rotar Evaporator with chiller, -Eyela PSL1810 80°C reaction chamber, JASCO FT-IR 4700, Metler-Toledo 0.01mg microbalance, Glove box, -20°C etc.	Dr. Sumit Saha
3	M.Sc. Inorganic Chemistry	Electrochemical Workstation, Gas chromatograph, Hansatech Oxygraph, BOD incubator, COD digester, etc.	Dr. Achintesh Naryan Biswas
4	M.Sc. Physical Chemistry	Thermoscientific Evolution 300 UV-visible Spectrophotometer, Potentiometers, Polarimeter	Dr. Nidhi Govil

Research Activities

Journal Publications

- Suvra Acharya, Pinaki Bandyopadhyay, Purak Das, Sachidulal Biswas and **Achintesh Narayan Biswas**. Alkyl-sulfur versus aryl-sulfur bond cleavage in tridentate alkylthiophenylazonaphthols by group 9 metal ions', *Journal of Organometallic Chemistry*, 2018, 866, 13-20. (SCI, IF- 2.173)
- Sabyasachi Pramanik***, Shilaj Roy, Arup Mondal and Satyapriya Bhandari. A Two-target Responsive Reversible Ratiometric pH Nanoprobe: A white light Emitting Quantum Dot Complex. *Chem. Comm.* 2019, 55(30), 4331-4334. (SCI, IF: 6.164)
- Amlan Das***, Maruthi Kumar Narayanam, Santanu Paul, Pritha Mukherjee, Suvranil Ghosh, Debabrata Ghosh Dastidara, Subhendu Chakrabarty, Arnab Ganguli, Biswarup Basu, Mahadeb Pal, Urmi Chatterjee, Sushanta K. Banerjee, Parimal Karmakar, Dalip Kumar and Gopal Chakrabarti. A novel triazole, NMK-T-057, induces autophagic cell death in breast cancer cells by inhibiting γ -secretase-mediated activation of Notch signaling. *Journal of Biological Chemistry*. 2019 Apr 26;294(17):6733-6750. [Sci, IF: 4.2].
- Satabdi Datta, Diptiman Choudhury, **Amlan Das**, Dipanwita Das Mukherjee, Moumita Dasgupta, Shreya Bandyopadhyay, Gopal Chakrabarti. Autophagy inhibition with chloroquine reverts paclitaxel resistance and attenuates metastatic potential in human nonsmall lung adenocarcinoma A549 cells via ROS mediated modulation of β -catenin pathway. *Apoptosis*. 2019 Jun; 24 (5-6): 414-433 [Sci, IF: 3.6]
- Pawandeep Kaur, Arun kumar Sharma, Debasish Nag, **Amlan Das**, Shatabdi Dutta, Arnab Ganguli, Gopal Chakrabarti, Biswaroop Basu, Diptiman Choudhury. Novel nano-insulin formulation modulates cytokine secretion and remodeling to accelerate diabetic wound healing. *Nanomedicine*. 2019, Jan, 15(1):47-57 [Sci, IF: 7.5].
- Ankit Sharma, Shreetama Bandyopadhyaya, Kaushik Chowdhury, Tanu Sharma, Rekha Maheshwari, **Amlan Das**, Gopal Chakrabarti, Vipin Kumar, Chandi C. Mandal., Metformin exhibited anticancer activity by lowering cellular cholesterol content in breast cancer cells. *Plos One*, 2019, Jan, 14(1):e0209435. [Sci, IF: 3.2]
- Subhendu Chakrabarty, Debasish Nag D, Arnab Ganguli, **Amlan Das**, Debabrata Ghosh Dastidar, Gopal Chakrabarti. Theaflavin and epigallocatechin-3-gallate synergistically induce apoptosis through inhibition of PI3K/Akt signaling upon depolymerizing microtubules in HeLa cells. *Journal of Cellular Biochemistry*. 2019 Apr;120(4):5987-6003 [Sci, IF: 3.5]
- Rudradip Pattanayak, Atish Barua, **Amlan Das**, Tanima Chatterjee, Adrija Pathak, Apritha Choudhury, Srikanta Sen, Prosenjit Saha, Maitree Bhattacharyya, Porphyrins to restrict progression of pancreatic cancer by stabilizing KRAS G-quadruplex: In silico, in vitro and in vivo validation of anticancer strategy. *European Journal of Pharmaceutical Science*. 2018, 125:39-53. [Sci, IF: 3.8]
- Arijit Saha, Soumen Payra, Balaranjan Selvaratnam, Sumantra Bhattacharya, Sourav Pal, Ranjit T. Koodali, and Subhash Banerjee, Hierarchical Mesoporous RuO₂/Cu₂O Nanoparticle-Catalyzed Oxidative Homo/Hetero Azo-Coupling of Anilines. *ACS Sustainable Chem. Eng.* 6, 11345-11352, 2018. [Sci, IF: 6.97].

Ongoing Projects/Schemes in the Department

Name of the Project	Funding Agency	Funded Amount	PI and Co-PI	Starting Year	Closing Year
Tuning the Reactivity of Metal-oxygen Intermediates in C-H Activation and Water Oxidation	SERB, DST	₹33 Lakhs	Dr. Achintesh Narayan Biswas	2017	2020
Molecular water Oxidation Catalysts based on Earth Abundant Transition Metals	CSIR, Govt. of India	₹15 Lakhs	Dr. Achintesh Narayan Biswas	2016	2019
Metal catalyzed diastereoselective cycloaddition reactions of carbohydrate derived vinylcyclopropanes	SERB, DST	₹32 Lakhs	Dr. Taraknath Kundu	2015	2018

Collaborations with Other Institutes

To conduct laboratory classes and research the department has collaboration with the following Institutes-

- IIT Guwahati
- IIT Gandhinagar
- Indian Association for the Cultivation of Science (IACS), Kolkata
- Calcutta University
- Chittaranjan Cancer Research Institute

Awards/Achievements

Faculty

1. Dr. Sumit Saha Received Chinese Government Scholarship (Advanced Visiting Scholar at Shandong University, China) funded by MHRD, Govt of India and Chinese Scholarship Council (CSC). Duration: 11 Month
2. Dr. Amlan Das has been selected by DBT, India, Ministry of Science and Technology to attend the Young Investigator Meet at Guwahati, in February 2019.

Students Internship Details

Name of the Student	Duration	Academic Year	Institute
Arnab Karmakar	01 June-06 July (2018)	2017-2018	CSIR-NEIST, JORHAT Dr. Saikat Halder
Anamika Bora	01 June-15 July (2018)	2017-2018	CSIR-NEIST, JORHAT Dr. Pallab Pahari
Deba Prateem Borah	21 May-21 July (2018)	2017-2018	CSIR-IICB Dr. Indrajit Das
Soumyajeet Paul	21 May-20 July (2018)	2017-2018	IISc Bangalore Dr. CHINMOY RANJAN
Sankhaneel Sarma	08 June-03 August (2018)	2017-2018	BARC Dr. Achikanath C. Bhasikutan
Karishma Borah	01 June-20 July (2018)	2017-2018	CSIR-NEIST, JORHAT Dr. RINKU BAISHYA
Chetna Chettri	28 May-13 July (2018)	2017-2018	NEHU Dr. S. KHATUA

Placement Details

Name of the Student	Batch	Placement Year	Organization
Soumyajeet Paul	2017-2019	2019	Torrent Pharmaceuticals & TCG Lifesciences Private Limited Chembiotek
Sankhaneel Sarma	2017-2019	2019	BYJU'S Educational technology company
Gulshan Gaurav	2017-2019	2019	BYJU'S Educational technology company
Sikha Malakar	2017-2019	2019	Alkem Health Science Pvt. Ltd. Samardung Plant
Karshima Borah	2017-2019	2019	Alkem Health Science Pvt. Ltd. Samardung Plant

(x) Department of Humanities & Social Sciences

Interdisciplinary in orientation, the Department of Humanities and Social Sciences offers courses in English, Economics, and Management. Specific courses on Communicative skills, phonetics, Linguistics, and certificate course on some of the regional and European languages features in the long-term agenda of the Department. At present there are three faculty members in the department who hold Doctoral degree from India's most reputed Institutes and are engaged in high-quality research and teaching. The Department offers undergraduate courses to engineering students. Moreover, the Department has also started its Ph.D. program in 2014.

The faculty members of the Department believe in providing opportunities to its students for discussion, debate and brainstorming. The prime objective of the Department is to make them responsible and innovative and to train them to meet the challenges of highly competitive and ever changing world. We believe in garnering the faculty of creativity and self-confidence

in our students and therefore we keep on pushing them towards innovative thinking. The Department is thriving hard to promote its students towards the interdisciplinary studies for which we are collaborating with other sister departments in the country.

The Department has been following course structure and syllabus of NIT Calicut which, over the years, have either become obsolete or were not fulfilling the demands of engineering graduate, therefore, the Department proposed two new core course entitled English Language and Literature and Human Values and Effective Communication in English and restructured the existing course in Economics and Management. The proposed courses were discussed in Curriculum Development Workshop and approved by the Senate of the Institute. The Department has also volunteer to offer an audit course entitled Professional Practice (English) to enhance and horn the communication – oral and written – skills of the students.

Faculty Members

Sl. No.	Name and Specialization
1	Dr. Dhananjay Tripathi Assistant Professor & HOD, MA, D.Phil (University of Allahabad), Literary Criticism, Myth and its Retelling, Indian English Writing
2	Dr. Debi Prasad Bal (Temporary) Assistant Professor, PhD (IIT Hyderabad) Macroeconomics, Public Economics and Applied Econometrics
3	Dr. Richa Mishra (Temporary) MA, D.Phil (University of Allahabad), Indian Writing in English, Mythological Retelling

On-going Research Project

- Name:** Dr. Dhananjay Tripathi
Title of the Project: The Occult Tradition of Shamanism: Its Tribal Nature and Core Belief.
Sponsor Agency: ICSSR
Amount: Rs. 200000/- (Two Lakhs only)
- Name:** Dr. Debi Prasad Bal, Dr. Md. Nurujjaman, Dr. Barun Kumar Thakur and Dr. Kanish Debnath

Title of the Project: “Innovation and Sustainable Decision Support System for Drinking Water Security in Indian Himalayan Region of Sikkim and West Bengal”

Sponsor Agency: National Mission on Himalayan Studies

Amount: Rs. 49,30, 200/- (Rupees Forty Nine Lakhs Thirty Thousand Two Hundred only)

Publications

- Tripathi, Dhananjay and Lekha Rai. “The Nepali Shamans, Unlettered Gift of Prophecy as Intermediaries between the Physical and Alternate Realities” **Research Journal of Humanities and Social Sciences**, Vol. 9, Issue: 4. 2018. (ISSN 09756795).
- Devi Prasad Dash, Narayan Sethi and **Debi Prasad Bal** (2018), “Is the Demand for Crude Oil Inelastic for India? Evidence from Structural VAR analysis”, Vol.118, pp. 552-58, Energy Policy, Published by Elsevier, (ABDC Ranking=A).

- Debi Prasad Bal and Badri Narayan Rath (2017), “Do macroeconomics channels matter for examining relationship between public debt and economic growth in India?” Accepted in *Journal of Quantitative Economics*, Published by Springer, (ABDC Ranking=B).
- Bhaskar Chettri, Dhananjay Tripathi “from Imperialism to Multiculturalism: a study of Paul

Scott’s the jewel in the crown” Proceedings of the International Conference on Cultural Studies (CULTURAL STUDIES ‘18) held in March 2018 in Turkey By DAKAM (Eastern Mediterranean Academic Research Center) and published June 2018 with ISBN: 978-605-9207-97-3.

Research Scholar Profile

Sl. No.	Name	Supervision and Research Broad Area Guide(s)
1	Bhaskar Chettri	Dr. Dhananjay Tripathi, Modern Indian Fiction
2	Ankita Sarmah	Dr. Dhananjay Tripathi, Agri-Industry
3	Laxmi Rai	Dr. Dhananjay Tripathi, Cinematic Adaptations of Shakespeare
4	Lekha Rai	Dr. Dhananjay Tripathi, North-eastern Literature

The Regnant Ink - The Literary Club

In order to nurture and proliferate the literary taste of the students the Department took the initiative to establish a literary club which is known as The Regnant Ink. The club was started on 24th February 2018. The prominent goals of this club include increasing a literary and vocal temper within the campus. Numerous activities are organized under this club. Some of the major events organized by The Regnant Ink are Hindi Pakhwada, Swachhta Abhiyaan.

The Regnant Ink and the Committee for Promotion of Indian Language and Culture organized Hindi Pakhwada to celebrate the role and importance of Hindi - The



RajBhasha - in our lives. On 7th October 2018 in the College Campus, Swachhta Abhiyaan was conducted by The Regnant Ink.



Hon'ble Director delivering his speech during the Inauguration of Hindi Pakhwada



Swachhta Abhiyaan organized by The Regnant Ink

The Regnant Ink organized the following events and activities during the year 2018-19

Sl. No.	Event/Activity	Date
1	Hindi Pakhwada	05 th October 2018 – 08 th October 2018
2	Slogan Writing Competition	05 th October 2018
3	Quiz	05 th October 2018
4	Essay Writing Competition	06 th October 2018
5	Picture Perception	06 th October 2018
6	Swachh Bharat Abhiyaan	07 th October 2018
7	Group Discussion	07 th October 2018
8	Poem Submission	07 th October 2018
9	Poem Recitation	07 th October 2018
10	Debate	07 th October 2018
11	Play With Idioms	08 th October 2018
12	Quiz	06 th November 2018
13	Movie Hour under EBSB	13 th February 2019
14	Movie Hour under EBSB	10 th March 2019
15	Photography Contest	13 th March 2019

Hindi Pakhwada



Students participating in Debate Competition organized by The Regnant Ink



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. Activities which have already been successfully implemented are as under :-

Expenditure Incurred under TEQIP-III

Sl. No.	Activities	Total Expenditure
1	Improve Student Learning	Rs. 8,23,808/-
2	Industry-Institute Interaction	Rs. 55,144/-
3	Assistantships	Rs. 3,56,612/-
4	Graduates employability	Rs. 33,706/-

Sl. No.	Activities	Total Expenditure
5	Faculty/staff development and motivation	Rs. 9,92,538/-
6	Research and development	Rs. 12,35,342/-
7	Mentoring/Twinning system	Rs. 2,06,802/-
8	Reforms and governance	Rs. 17,13,897/-
9	Management capacity development	Rs. 27,870/-
10	Consumables	Rs. 65,185/-
11	Office expenses	Rs. 806/-
12	Meetings	Rs. 4,01,553/-
13	Hiring of vehicles	Rs. 23,000/-
14	Travel cost	Rs. 1,50,419/-
15	Salary	Rs. 5,71,871/-
	Total	Rs. 66,58,553/-

Workshops/Trainings/Meetings conducted under TEQIP-III

Title	Name of Resource Person (s)/ Participants	Date	Venue
Meeting of Joint Action Plan of the activities and twinning arrangements and implementation of ERP system	Dr. Ranjan Basak	4 th & 5 th April 2018	IIT Kharagpur
Regional Workshop on Annual Budget for the mandatory activities by AICTE	Dr. Ranjan Basak	17 th April 2018	GUIST Gauhati
Curriculum development workshop	Professors from IITs, NITs, Universities, Research Institutes	2 nd to 6 th June 2018	NIT Sikkim
Training on Financial Management & PFMS	Dr. Anindya Biswas & Mr. Sangay Lama	26 th & 27 th June 2018	GUIST Gauhati University
Training on Management information System(MIS)	Mr. Sangay Lama	3 rd July 2018	Jadavpur University
Summer Training Program on Active Learning titled "Faculty Induction Workshop"	20 Faculty Members	3 rd to 7 th July 2018	IIT Kharagpur
Workshop on Equity Action Plan	Dr. Ranjan Basak	30 th November 2018	Bhubaneswar
Project Progress Review Meeting	Dr. Shambhunath Barman	1 st February 2019	Agartala
TEQIP-III SLA Survey	Dr. Sangram Ray & Dr. Dhananjay Tripathi	5 th March 2019	New Delhi
Workshop on newly developed PMSS Software	Dr. Anindya Biswas	12 th & 13 th March 2019	Jadavpur University
Workshop on MIS	Mr. Uddhalak Chatterjee	15 th & 16 th March 2019	IIT Guwahati
TEQIP-III SLA Survey	Dr. Anindya Biswas & Dr. Achintesh Narayan Biswas	28 th to 30 th March 2019	NIT Sikkim

Paper Presentation in Conference/Seminar

Name of Faculty Member	Title of the Paper/ Name of the Conference	Date	Venue
Mr. Sayantan Chatterjee	Paper presentation titled “ A Robust Lightweight ECC based Three way Authentication Scheme for IoT in Cloud”	4 th to 6 th June 2018	NIT Silchar
Prof. M. C. Govil	Paper presentation titled “ A Novel Methodology for effective requirements Elicitation and Modeling”.	2 nd to 5 th July 2018	Melbourne, Australia
Mr. Hemant Kumar Kathania	Paper presentation on “Improving Children’s Speech Recognition through Time Scale Modification Based Speaking Rate Adaption” and “Exploring the Role of Speaking-Rate Adaption on Children’s Speech Recognition” in IEEE International Conference on Signal Processing and Communication (SPCOM-2018)	16 th to 19 th July 2018	Bangalore
Mr. Sayantan Chatterjee	Paper presentation titled “ECC Based Remote Mutual Authentication Scheme for Resource Constrained Client in Cloud”	27 th & 28 th July 2018	Kalyani Government Engineering College, West Bengal
Ms. Gopa Bhaumik	Paper presentation titled “7 th International Conference on Advances in Computing, Communication and Informatics”	19 th to 22 nd September 2018	Bangalore
Dr. S. G. Samaddar	Paper presentation titled “Customization of Service Level Agreement for Digital Forensics as a Service” at ICCCT 2017.	24 th to 26 th November 2018	MNNIT Allahabad
Mr. Pradip Mandal	Paper Presentation titled “Thermo-environment Performance Analysis of NG Fueled GT based Co-Generation Plant: Indian Perspective” at ICCIoT.	14 th & 15 th December 2018	NIT Agartala
Mr. Balaji Naik	Paper Presentation titled “Tasks to Virtual Machine Allocation in Cloud Data Center using Modified Krill Herd Optimization”.	28 th January to 1 st February 2019	Kanchipuram, Tamilnadu

Conference/Seminar/Short Term Course Attended

Name	Title	Date	Venue
Mr. Pankaj Kr Kesarwani	“E-learning Web Services and their Composition”	4 th to 6 th June 2018	NIT Silchar
Mrs. Reshmi Dhara	Short term course “Modern Antennas for Wireless Systems”	6 th to 10 th October 2018	IIT Karagpur
Mr. Manish Kumar	Short Term course “Smart Grid and Distributed Generation Technologies”.	7 th to 11 th January 2019	NITTTR Kolkata

Workshops/Training Attended/Research Work

Name of the Faculty/Staff	Title	Date	Venue
Dr. Ranjan Basak	For research collaboration	6 th & 7 th April 2018	Jadavpur University
Mr. Subho Das	Qualification upgradation AMIE degree	6 th June 2018	IEI Kolkata
Dr. Shambhunath Barman	Workshop on “Heat Transfer and Fluid Flow in Mini Channels”	13 th to 17 th June 2018	NIT Durgapur
Dr. Shambhunath Barman	Workshop on “Boiling”	7 th to 8 th September 2018	Jadavpur University
Ms. Gopa Bhaumik	Research Work	3 rd to 20 th January 2019	MNIT Jaipur
Dr. Shambhunath Barman	Workshop on “Safety aspect of storage, handling and transportation of petroleum products”	6 th to 11 th January 2019	MNIT Jaipur
Md. Sarfaraj Alam Ansari	Research Work	9 th to 22 nd January 2019	MNIT Jaipur

Name of the Faculty/Staff	Title	Date	Venue
Md. Sarfarj Alam Ansari	Research Work	16 th to 27 th March 2019	MNIT Jaipur
Mr. Gajendra Singh Shekhawat	Research work & other official work	16 th to 27 th March 2019	MNIT Jaipur

Expert Lecture

Name of the Department	Name of External Expert	Date	Venue
Store & Purchase Section	Dr. R. K. Manjhiwal	14 th to 16 th April 2018	NIT Sikkim
ECE Dept.	Prof. Asoke De	22 nd May 2018	NIT Sikkim
CSE Dept.	Dr. Santosh Kumar Vipparthi	9 th to 12 th November 2018	NIT Sikkim
ECE Dept.	Prof. Ajoy Kumar Ray	2 nd & 3 rd March 2019	IIT Karagpur

Student Activities

Name of Student	Title	Date	Venue
B Tech Third Year students of Mechanical Engineering	To perform experiments of Production Engineering Laboratory II, Metrology and Instrumentation Laboratory and Heat Engine Laboratory	19 th to 27 th April 2018	IIT Kharagpur
Ms. Sakshi Kishore, Mr. Antra Pramanik, Mr. Arijit Mandal, Mr. VishwapriyanGautam, Ms. Shristi Sharma & Mr. Mangalam Gupta	Student Research Mobility Program with MITACS	From May to September 2018	Canada
Mr. Pachigolla SS Yatish	Conference on Advance School of Antennas	22 nd to 26 th June 2018	KIIT Bhubaneswar
Mr. Vishesh Dab	Conference on Advance school of Antennas	22 nd to 26 th June 2018	KIIT Bhubaneswar
Mr. Vaibhav Singh, Mr. Sumit Kumar & Mr. Hemant Kumar Meena (Civil Engineering Dept.)	BHAGVAN - A SEARCH	2 nd to 4 th October 2018	CSIR-CBRI Roorkee
Mr. Yash Anand Parihar, Mr. Jha Rahul Binod, Mr. Nitin Pal, Mr. Vibhu Priyadarshi & Mr. Amit Kumar	Seminar on "Aeronautical System"	8 th October 2018	Tezpur University Assam
B Tech Third Year students of Mechanical Engineering	To perform experiments of Heat Transfer Laboratory	15 th to 23 rd November 2018	IIT Kharagpur
Civil Engineering Dept. Students	One day Workshop on National Building Code	1 st December 2018	NIT Sikkim
Final Year B.Tech Students (94 students)	AMCAT Employability Assessment Program (Aspiring Minds Assessment Pvt. Ltd)	1 st December 2018	NIT Sikkim
Mr. Vishesh Dab	Conference on Antennas & Propagation (InCAP)	16 th to 19 th December 2018	Hyderabad
Mr. Pintu Kumar Ram	International Conference on Machine Learning	3 rd & 4 th March 2019	NIT Kurukshetra
Mr. Dipanwita Sadhukhan	Paper presentation in Conference "MIND 2019"	3 rd & 4 th March 2019	NIT Kurukshetra
Ms. Diksha Rangwani	International Conference on Machine Learning, Image Processing Network Security and Data Sciences	3 rd & 4 th March 2019	NIT Kurukshetra
Msc Chemistry 2 nd year students	To visit the Chemistry & Material Research Centre	22 nd to 30 th March 2019	MNIT Jaipur

Unity Day 2018



Deepawali 2018



OPPORTUNITIES & CHALLENGES

- Presently, the Institute is located at a temporary campus at Ravangla in South Sikkim. It has been almost eight years since the Institute started functioning. Extreme climatic condition at the temporary site of the campus and lack of other facilities is hampering the growth of the Institute. Hilly terrain, lack of proper medical facilities etc. are to be overcome. Therefore, allotment of land at a suitable location is the need of the hour. The Institute is in touch with the Ministry of Human Resource and Development (MHRD) and Govt. of Sikkim to expedite the allotment of land.
- Attracting good faculty and students has become a formidable challenge for the authority. Given the general lack of facilities in the temporary campus of the Institute, NIT Sikkim has experienced difficulty in both recruitment and retention of Faculty. In particular, recruiting Associate Professors and Professors has been the toughest challenge. Therefore, recruitment of additional Faculty members at the entry level is expected to solve the problem of faculty-shortage.
- As per the existing norms laid down by the Ministry, CFTIs should maintain a Student-Faculty ratio of 12:1. As per the present Student intake at NIT Sikkim (980 excluding the Ph.D. Students), the number of Faculty members should be **Eighty-four (84)**. At present, only 38 Faculty posts have been sanctioned by MHRD. Therefore, in order to meet the growing aspirations of the Students from the State of Sikkim as well as rest of India, **40 additional Faculty positions are to be created at earliest**. Requests to sanction additional Faculty and Staff members have been sent to the Ministry.
- To ensure proper functioning of the Institute, the Institute has sent repeated requests to MHRD to sanction at least Forty-nine (49) additional non-teaching positions. The present sanctioned strength is only Thirty-seven (37). Special efforts are to be devoted to recruit motivated, well-qualified candidates in various administrative positions of the Institute in the coming years.



In spite of these difficulties, NIT Sikkim is striving to provide world class teaching and learning facilities to the future engineers of the country. Efforts are being made to create additional prefab structures/industrial sheds for laboratories, classrooms etc. The administration is constantly pursuing the State Government for providing a suitable land for the establishment of the permanent campus but the State Government has not yet provided the land for the permanent campus.



SEPARATE AUDIT REPORT





सत्यमेव जयते

कार्यालय महालेखाकार, (लेखापरीक्षा)

लेखापरीक्षा भवन, देवराली, सikkim

गान्तोक - 737 102

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

No: Comm/NIT/SAR-17-18/18-19/ 290

Dated: 12 February 2020

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 2019

Sir

This is to forward herewith the Separate Audit Report on the Accounts of the NIT, Sikkim, Ravangla for the year ended 31 March 2019 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. Five 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,

Dinesh Mali

Dy. Accountant General

**SEPARATE AUDIT REPORT ON THE ACCOUNTS OF
NATIONAL INSTITUTE OF TECHNOLOGY, SIKKIM,
RAVANGLA
FOR THE YEAR ENDED 31 MARCH 2019**

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

**SEPARATE AUDIT REPORT OF THE COMPTROLLER AND AUDITOR GENERAL
OF INDIA ON THE ACCOUNTS OF NATIONAL INSTITUTE OF TECHNOLOGY
SIKKIM, RAVANGLA FOR THE YEAR ENDED 31 MARCH, 2019**

We have audited the attached Balance Sheet of National Institute of Technology Sikkim, Ravangla, as on 31 March 2019, the Income & Expenditure Account and Receipts and Payments Account for the year ended on that date under Section 19 (2) of the Comptroller and Auditor General's (Duties, Power & Conditions of Service) Act, 1971 read with Section 22 (2) of the National Institute of Technology Act, 2007. Preparation of these financial statements is the responsibility of the Institute's Management. Our responsibility is to express an opinion on these Financial Statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller and Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules and Regulations (Propriety and Regularity) and efficiency-cum-performance aspects, etc., if any, are reported through Inspection Reports/CAG's Audit Reports separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the Financial Statements are free from material misstatements. An audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the Financial Statements. An audit also includes assessing the accounting principles used and significant estimates made by the management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that:

- i. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit;
- ii. The Balance Sheet, Income and Expenditure Account and Receipts and Payments Account dealt with by this report have been drawn up in the format prescribed by the Ministry of Human Resource Development, Government of India.
- iii. In our opinion, proper books of accounts and other relevant records have been maintained by the National Institute of Technology Sikkim as required under Section 22(1) of the National Institute of Technology Act, 2007 in so far as it appears from our examination of such books;
- iv. We further report that:

A. General

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.*

NIT earned interest income of ₹ 25 lakh for the year 2017-18 and ₹ 54 lakh for the year 2018-19 from saving bank account and accrued interest on fixed deposit. The Institute has not calculated the interest earned from the Grant received and also not created a current liability for amount to be refunded to the Ministry. The same needs to be calculated and accounted for.

B. Revision of Accounts.

The Institute has revised its accounts. The net effect of revision of accounts on the basis of audit observations is that the Assets and Liabilities has been decreased by Rs. 1.61 lakh and the surplus in Income and Expenditure accounts has been increased by 24.15 lakh

C. Grant in Aid received during the year from Government

The Institute has received ₹ 38.17 crore during the year as Grant and previous year unspent grant was ₹ 10.68 crore. Out of the total available grant of ₹ 48.85 crore, Institute had utilized ₹ 24.91 crore leaving an unspent grant of ₹ 23.94 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 2019; and

(b) in so far as it relates to the Income & Expenditure Account of the surplus for the year ended 31 March 2019

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



**Principal Accountant General (Audit)
Sikkim, Gangtok**

Place: Gangtok

Date: 12 Feb 2020

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:

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

- a. Age-wise analysis of Sundry Debtors was not done.
- b. Balance confirmation certificates were not obtained from the Sundry Debtors.

3. Regularity in payment of statutory dues

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

4. System of Physical verification of fixed assets/inventories

The Physical verification of inventories and fixed assets was (December 2019) under progress for the year 2018-19

Place:
Date:



Principal Accountant General (Audit)

Sikkim

ANNUAL
ACCOUNT
2018-2019



National Institute of Technology Sikkim

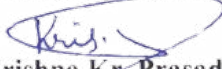
NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

BALANCE SHEET as at 31st March 2019

Amount in Rupees

Sources of Funds	Sch No	Current Year 31.03.2019	Previous Year 31.03.2018
Corpus/ Capital Fund	1	361,118,664.00	269,901,536.00
Designated/ Earmarked/ Endowment Fund	2	480,083.00	994,730.00
Current Liabilities & Provisions	3	299,338,990.00	157,803,159.00
Total		660,937,737.00	428,699,425.00
APPLICATION OF FUNDS			
Fixed Assets	4		
Tangible Assets		155,799,580.00	108,469,113.00
Intangible Assets		5,569,683.00	7,117,022.00
Capital Work in Progress		65,308,296.00	65,190,296.00
Investments from Earmarked/Endowment Fund	5		
Long Term		-	-
Short Term			
Investments-Others	6	-	-
Current Assets	7	288,105,868.00	124,718,397.00
Loans, Advances and Deposits	8	146,154,310.00	123,204,597.00
		660,937,737.00	428,699,425.00
Significant Accounting Policies	23		-
Contingent Liabilities and Notes to Accounts	24		

For, Sushil Das & Associates
Chartered Accountant


Krishna Kr. Prasad
Partner




Director

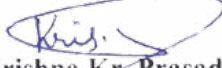

Registrar
कुलसचिव / Registrar
राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
National Institute of Technology Sikkim

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

INCOME AND EXPENDITURE ACCOUNT for the year Ended 31st MARCH 2019

Amount in Rupees

Particulars	Sch No	Current Year 31.03.2019	Previous Year 31.03.2018
INCOME			
Academic Receipts	9	36,383,873.21	36,383,873.21
Grants/ Subsidies	10	176,317,219.64	176,317,219.64
Income from Investments	11	2,113,610.00	2,113,610.00
Interest Earned	12	3,272,002.00	3,272,002.00
Other Income	13	3,204,147.00	3,204,147.00
Prior Period Income	14	342,367.00	342,367.00
Total (A)		221,633,218.85	221,633,218.85
EXPENDITURE			
Staff Payments and Benefits (Establishment Expenses)	15	91,452,296.64	91,452,296.64
Academic Expenses	16	15,093,335.00	15,093,335.00
Administrative and General Expenses	17	57,030,704.00	57,030,704.00
Transportation Expenses	18	2,912,003.00	2,912,003.00
Repairs and Maintenance	19	8,236,276.00	8,236,276.00
Finance Costs	20	52,314.00	52,314.00
Depreciation	4	26,867,770.42	26,867,770.42
Other Expenses	21	-	-
Prior Period Expenses	22	1,540,291.00	1,540,291.00
Total (B)		203,184,990.06	203,184,990.06
Balance being excess of Income over Expenditure (A-B)		18,448,228.79	18,448,228.79
Transfer to/ from Designated Fund			
Building Fund			
Other (Specify)			
Balance being surplus/deficit carried over to Capital Fund		18,448,228.79	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
कुलसचिव / Registrar
राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
National Institute of Technology Sikkim

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

RECEIPT AND PAYMENTS ACCOUNT for the year Ended 31st MARCH 2019

Sl. No.	RECEIPTS	Amount in Rupees		
		Current Year 31.03.2019	Previous Year 31.03.2018	Previous Year 31.03.2018
1.	Opening Balance			
	a) Cash Balances	14,006.00	3,000.00	68,423,752.00
	b) Cash Balances-Project	-		13,537,350.00
	c) Bank Balances			36,287,592.00
	i) Current Accounts	13,118,173.00	36,738,679.00	3,184,137.00
	ii) in Deposit Accounts	28,638,517.00	2,209,001.00	6,818,187.00
	iii) Savings Accounts	80,182,783.00	32,500,433.00	983,617.00
	iv) Project a/c			52,314.00
	iv) Grant in Transit			61,903.00
2.	Grants received			
	a) From Government of India	381,700,000.00	190,000,000.00	540,924.00
	b) From Other Sources (Details) (Grants for Capital & Revenue expenditure to be shown separately if available)			
3.	Academic Receipts	35,214,831.00	39,541,856.00	2,734,735.00
4.	Receipts against Earmarked / Endowment Fund	1,094,362.00	957,722.00	
5.	Receipts against Sponsored Projects / Schemes	6,882,514.00	7,227,636.00	
6.	Receipt against Sponsored Fellowship and Scholarship	938,300.00	2,567,380.00	28,081,400.00
7.	Income on Investments from			
	a) Earmarked Funds			
	Intangible Fixed Assets			9,237,646.00
	Capital Work in progress			118,000.00
	Tangible Fixed Assets			
	a) Computer and Peripherals			7,678,450.00
	b) Office Equipments			2,350,705.00
	c) Library Books & Scientific Journals			-
8.	Interest received on			
	a) Bank Deposits	2,113,610.00	1,615,953.00	187,586.00
	b) Loans and Advances			71,756.00

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

RECEIPT AND PAYMENTS ACCOUNT for the year Ended 31st MARCH 2019 (...Contd)

Sl. No.	RECEIPTS	Amount in Rupees		PAYMENTS	Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018		Current Year 31.03.2019	Previous Year 31.03.2018
	c) Savings Bank Account	3,272,002.00	1,149,540.00	d) Science Equipments	-	4,483,910.00
				e) Plant & Machinery	353,009.00	979,692.00
9.	Investments encashed			f) Other Fixed Assets	334,934.00	192,104.00
				g) Furniture Fixture and Fittings	5,722,454.00	8,939,761.00
				h) Sports Equipment	-	266,285.00
10.	Term deposits with Scheduled Banks encashed	-	1,651,884.00	i) Temporary Shed	6,718,013.00	
				j) Audio Visual Equipment	5,947,600.00	
				k) Electrical Installation and Equipment	1,234,707.00	
				9. Other payments inc. Statutory Payments	24,640,849.00	13,389,769.00
				10. Deposits and Advances	61,958,100.10	27,577,092.00
11.	Other Income (Including Prior Period)	1,131,514.00	938,901.00	11. Other Payments (trf. to CP Fund)		
12.	Deposits and Advances	11,539,405.00	8,683,539.00	12. Closing Balance		
				a) Cash Balances	45,240.00	14,006.00
13.	Miscellaneous Receipts including Statutory Receipts	22,905,178.00	30,067,380.00	b) Bank Balances		
14.	Caution Money Deposit	2,372,000.00	2,016,974.00	i) Current Accounts	16,417,620.00	13,118,173.00
15.	Any other Receipts	138,691.00	4,712,826.00	ii) in Deposit Accounts	28,704,769.00	28,638,517.00
				iii) Savings Accounts	237,737,103.00	80,182,783.00
				iv) Project a/c		-
				v) Grant in Transit		
		591,255,886.00	362,582,704.00		591,255,886.00	362,582,704.00



For, Sushil Das & Associates

Chartered Accountant

Krishna Kr. Prasad

Partner

Director

Registrar

कुलसचिव / Registrar

राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम

National Institute of Technology Sikkim

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 1 : Corpus/Capital Fund

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
	Balance at the beginning of the year	269,901,536.00	221,783,528.00
Add:	Contribution towards Corpus/ Capital Fund		
Add:	Grants from UGC, Government of India and State Government to the extent utilized for Capital Expenditure	72,768,899.00	35,496,557.00
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	-	4,486,410.00
Add:	Excess of Income over Expenditure transferred from Income and Expenditure Account	18,448,228.79	8,135,041.00
	Balance at the year end	361,118,663.79	269,901,536.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 2 : Designated/Earmarked/Endowment Fund

Sl. No.	PARTICULARS	FUNDWISE BREAKUP										Current Year 31.03.2019 Funds	Previous Year 31.03.2018 (Rs)	
		Fund CSAB	Fund DOE & SM Workshop	Fund DASA	Fund CCMT	Fund CEERI	Fund C2SD Project	Fund CSTT MHRD	Endowment	Amount in Rupees				
A)														
	a) Opening Balance	187,956.00	4,124.00	293,933.00	-33,081.00	150,000.00	391,798.00	-					994,730.00	577,932.00
	b) Additions during the year	546,559.00			362,500.00	-		85,303.00					994,362.00	957,722.00
	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)	734,515.00	4,124.00	293,933.00	329,419.00	150,000.00	391,798.00	85,303.00					1,989,092.00	1,535,654.00
B)														
	Utilization. Expenditure towards objective of Funds													
	i) Capital Expenditure													
	ii) Revenue Expenditure	486,965.00		25,000.00	362,500.00	150,000.00	390,400.00	94,144.00					1,509,009.00	540,924.00
	Total (B)	486,965.00	-	25,000.00	362,500.00	150,000.00	390,400.00	94,144.00					1,509,009.00	540,924.00
	Closing Balances at the year end (A-B)	247,550.00	4,124.00	268,933.00	-33,081.00	-	1,398.00	-8,841.00					480,083.00	994,730.00
	Represented by													
	Cash and Bank Balances	247,550.00	4,124.00	268,933.00	-33,081.00	-	1,398.00						480,083.00	994,730.00
	Investments													
	Interest accrued but not due													
	Total	247,550.00	4,124.00	268,933.00	-33,081.00	-	1,398.00	-8,841.00					480,083.00	994,730.00



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 2A : Endowment Fund

Sl. No.	Name of the Endowment Fund	Amount in Rupees										
		Opening Balance		Additions during the year		Total		Expenditure on the object during the year	Opening Balance		Total	
3	4	5	6	7	8	9	10		11	12		
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)												



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 3 : Current Liabilities and Provisions

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
A	CURRENT LIABILITIES		
	1. Deposits from Staff		-
	2. Deposits from Students	6,622,736.00	5,414,002.00
	3. Sundry Creditors		
	a) For Goods and Services	5,890,937.00	4,981,761.00
	b) Others	1,713,305.00	1,753,619.00
	4. Deposit–Others (including EMD, Security Deposit)	2,566,162.00	3,525,451.00
	5. Statutory Liabilities (GPF, TDS, WC Tax, CPF, GIS, NPS)	2,309,996.00	3,029,421.00
	a) Overdue		
	b) Others	26,146.00	26,146.00
	6) Other Current Liabilities		
	a) Salary & Wages		-
	b) Receipts against Sponsored Projects	7,288,951.60	4,660,974.00
	c) Receipts against Sponsored Fellowship and Scholarship	267,102.00	327,502.00
	d) Unutilised Grants	239,449,017.92	106,835,136.56
	e) Medical Board Fund	112,875.00	72,000.00
	f) CPF Fund	4,056,616.00	4,056,616.00
	g) Ph.d. Scholarship Payable		-
	h) Chief Warden Fund	9,585,611.00	6,844,060.41
	i) Other Liabilities	1,188,075.00	2,666,788.00
	j) Alumini Association Fees (2015)	125,805.00	125,805.00
	k) Hostel Mess & Staff Welfare Fund	1,128,055.00	1,128,055.00
	l) Society Fee (2015)	62,903.00	62,903.00
	m) Advance Fees	9,548,158.00	7,747,879.00
	n) Fees Remission Payable	-7,000.00	240,933.00
	Total (A)	291,935,451.52	153,499,051.97
B	PROVISIONS		
	1. For Taxation		-
	2. Gratuity	4,094,363.00	2,221,883.00
	3. Superannuation Pension	-	-
	4. Accumulated Leave Encashment	3,309,175.00	2,082,224.00
	5. Trade Warranties/ Claims		-
	6. Others (Specify)		-
	Total (B)	7,403,538.00	4,304,107.00
	Total (A+B)	299,338,989.52	157,803,158.97

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 3A : Sponsored Projects

1 Sl. No.	2 Name of Project	3 Opening Balance		4 Debit	5 Receipts/ Recoveries during the year	6 Total	7 Expenditure during the year	8 Closing Balance	
		Credit	Debit					Credit	Debit
1	INSPIRE	1,820,910.00	-	-	1,820,910.00	218,908.00	1,602,002.00		
2	Others	-	-	338,121.00	338,121.00	42,363.00	295,758.00		
3	SERB - T Kundu	472,584.00	-	-	472,584.00	84,000.00	388,584.00		
5	SMDP Project	1,789,779.50	-	350,000.00	2,139,779.50	722,293.00	1,417,486.50		
6	Visvesvaraya	76,584.00	-	2,521,930.00	2,598,514.00	1,950,563.00	647,951.00		
7	CSSR Project	11,879.00	-	80,000.00	91,879.00	115,833.00	-23,954.00		
8	DST - Achintesh Narayan	416,519.00	-	700,000.00	1,116,519.00	379,009.00	737,510.00		
9	UDHD Project	73,318.00	-	784,861.00	858,179.00	-	73,318.00		
10	DST - ICPS	-	-	784,861.00	784,861.00	-	784,861.00		
11	NMHS Project	-	-	2,107,602.00	2,107,602.00	742,166.90	1,365,435.10		
	Total	4,661,573.50	-	6,882,514.00	11,544,087.50	4,255,135.90	7,288,951.60	-	

Schedule - 3B : Sponsored Fellowship and Scholarships

1 Sl. No.	2 Name of Sponsor	3 Opening Balance as on 01.04.2018		4 Debit	5 Credit	6 Transactions during the year		7 Closing Balance as on 31.03.2019	
		Credit	Debit			Credit	Debit	Credit	Debit
	University Grants Commission								
	Ministry								
	Top Class Scholarship for ST			-	35,100.00	33,100.00	2,000.00		
	Top Class Scholarship for SC			-	903,200.00	965,600.00	262,880.00		
	Others Regional States			-	-	-	-		
	Others (Specify)			2,222.00	-	-	2,222.00		
	Total			327,502.00	938,300.00	998,700.00	267,102.00	-	-



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

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

Amount in Rupees

	Current Year 31.03.2019	Previous Year 31.03.2018
A Plan Grants: Government of India		
Balance B/f	106,835,136.56	96,846,559.56
Add: Receipts during the year	381,700,000.00	190,000,000.00
Less: Refund		
Less: Utilized for Revenue Expenditure	176,317,219.64	144,514,866.00
Less: Utilized for Capital Expenditure	72,768,899.00	35,496,557.00
Unutilized Carried Forward Total (A)	239,449,017.92	106,835,136.56
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)	239,449,017.92	106,835,136.56

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 4 : Fixed Assets

Sl. No.	Asset Heads	Rate %	GROSS BLOCK		DEPRECIATION			NET BLOCK		Amount in Rupees		
			Op Balance 01.04.2018	Additions/ Deletion	C.I. Balance 31.03.2019	Op Balance 01.04.2018	Dep. For the year	Deductions/ Adjustments	C.I. Balance 31.03.2019	As On 31.03.2019	As On 31.03.2018	
1	Land											
2	Site Development			28,926,535.00	28,926,535.00						28,926,535.00	
3	Buildings	2%	16,849,588.00	4,146,756.00	20,996,344.00	3,461,068.80	419,927.00		3,880,995.80		17,115,348.00	
4	Temporary Shed	33%		6,718,013.00	6,718,013.00		2,216,944.00		2,216,944.00		4,501,069.00	
5	Tubewells and Water Supply	2%	18,480,900	240,000.00	424,809.00	10,099.00	8,496.00		18,595.00		406,214.00	
6	Sewerage and Drainage	2%										
7	Electrical Installation and Equip.	5%	22,478,659.00	1,234,707.00	23,713,366.00	5,173,712.00	1,185,668.00		6,359,380.00		17,353,986.00	
8	Plant and Machinery	5%	2,419,549.00	333,099.00	2,772,648.00	336,813.10	138,632.00		475,445.10		2,297,203.00	
9	Scientific and Laboratory Equip.	8%	37,661,213.00		37,661,213.00	8,786,458.55	3,012,897.00		11,799,355.55		25,861,857.00	
10	Office Equipment	7.50%	12,152,085.00	2,350,705.00	14,502,790.00	4,720,434.08	1,087,709.00		5,808,143.08		8,694,647.00	
11	Audio Visual Equipment	7.50%	1,022,617.00	5,947,600.00	6,970,217.00	165,547.00	522,766.00		688,313.00		6,281,904.00	
12	Computer and Peripherals	20%	46,652,919.00	7,678,450.00	54,331,369.00	43,743,928.00	2,117,488.00		45,861,416.00		8,469,953.00	
13	Furniture Fixture and Fittings	7.50%	34,600,889.00	5,722,454.00	40,323,343.00	9,655,959.80	3,024,251.00		12,680,210.80		27,643,132.00	
14	Sports Equipments	10%	2,308,679.00		2,308,679.00	705,587.45	230,868.00		936,455.45		1,372,224.00	
15	Lib Books & Scientific Journals	10%	15,483,841.00		15,483,841.00	9,959,839.00	1,548,384.00		11,508,223.00		3,975,618.00	
16	Vehicle	10%	4,738,220.00		4,738,220.00	1,364,508.00	473,822.00		1,838,330.00		2,899,890.00	
17	Small Valte Assets	10.0%	208,602.00	94,934.00	303,536.00	208,602.00	94,934.00		303,536.00			
	Total (A)		106,761,670.00	63,413,253.00	260,174,923.00	88,292,556.78	16,082,786.00		104,375,342.78		155,799,580.00	
18	Capital Work in Progress		65,190,296.00	118,000.00	65,308,296.00						65,308,296.00	
	Total (B)		65,190,296.00	118,000.00	65,308,296.00						65,308,296.00	
19	Computer Software	40%	2,657,772.00	1,475,726.00	4,133,498.00	2,556,882.00	899,967.40		3,456,849.40		676,648.60	
20	E. Journals	40%	16,950,622.54	7,761,920.00	24,712,542.54	9,934,490.83	9,885,017.02		19,819,507.85		4,893,034.69	
21	Patents											
	Total (C)		19,608,394.54	9,237,646.00	28,846,040.54	12,491,372.83	10,784,984.42		23,276,357.25		5,569,683.29	
	Total (A+B+C)		281,560,360.54	72,768,899.00	354,329,259.54	100,783,929.61	26,867,770.42		127,651,700.03		226,677,559.29	
											180,776,430.71	



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 4A : Plan

Sl. No.	Asset Heads	Rate %	GROSS BLOCK		Cl. Balance 31.03.2019	DEPRECIATION		NET BLOCK		
			Op Balance 01.04.2018	Additions		Op Balance 01.04.2018	Dep. For the year	Cl. Balance 31.03.2019	As On 31.03.2019	As On 31.03.2018
1	Land		-	-	-	-	-	-	-	-
2	Site Development		-	28,926,535.00	28,926,535.00	-	-	28,926,535.00	-	-
3	Buildings	2%	16,849,588.00	4,146,756.00	20,996,344.00	3,461,068.80	419,927.00	17,115,348.00	13,388,519.00	
4	Temporary Shed		-	6,718,013.00	6,718,013.00	2,216,944.00		4,501,069.00	-	
5	Tubewells and Water Supply	2%	184,809.00	240,000.00	424,809.00	10,099.00	8,496.00	406,214.00	174,710.00	
6	Sewerage and Drainage		-	-	-	-	-	-	-	-
7	Electrical Installation and Equip.	5%	22,478,059.00	1,234,707.00	23,713,366.00	5,173,712.00	1,185,668.00	17,353,986.00	17,304,947.00	
8	Plant and Machinery	5%	2,419,549.00	353,099.00	2,772,648.00	336,813.10	138,632.00	2,297,203.00	2,082,736.00	
9	Scientific and Laboratory Equip.	8%	37,661,213.00	-	37,661,213.00	8,786,458.55	3,012,897.00	25,861,857.00	28,874,754.00	
10	Office Equipment	7.50%	12,152,085.00	2,350,705.00	14,502,790.00	4,720,434.08	1,087,709.00	8,694,647.00	7,431,651.00	
11	Audio Visual Equipment	7.50%	1,022,617.00	5,947,600.00	6,970,217.00	165,547.00	522,766.00	6,281,904.00	837,070.00	
12	Computer and Peripherals	20%	46,652,919.00	7,678,450.00	54,331,369.00	43,743,928.00	2,117,488.00	8,469,953.00	2,908,991.00	
13	Furniture Fixture and Fittings	7.50%	34,600,889.00	5,722,454.00	40,323,343.00	9,655,959.80	3,024,251.00	27,643,132.00	24,944,929.00	
14	Sports Equipments	5%	2,308,679.00	-	2,308,679.00	705,587.45	230,868.00	1,372,224.00	1,603,092.00	
15	Lib Books & Scientific Journals	10%	15,483,841.00	-	15,483,841.00	9,959,839.00	1,548,384.00	3,975,618.00	5,524,002.00	
16	Vehicle	10%	4,738,220.00	-	4,738,220.00	1,364,508.00	473,822.00	2,899,890.00	3,373,712.00	
17	Small Value Assets	100%	208,602.00	94,934.00	303,536.00	208,602.00	94,934.00	-	-	
	Total (A)		196,761,670.00	63,413,253.00	260,174,923.00	88,292,556.78	16,082,786.00	155,799,580.00	108,469,113.00	
18	Capital Work in Progress		65,190,296.00	118,000.00	65,308,296.00	-	-	65,308,296.00	65,190,296.00	
	Total (B)		65,190,296.00	118,000.00	65,308,296.00	-	-	65,308,296.00	65,190,296.00	
19	Computer Software	40%	2,657,772.00	1,475,726.00	4,133,498.00	2,556,882.00	899,967.40	676,648.60	100,890.00	
20	E. Journals	40%	16,950,622.54	7,761,920.00	24,712,542.54	9,934,490.83	9,885,017.02	4,893,034.69	7,016,131.71	
21	Patents		-	-	-	-	-	-	-	
	Total (C)		19,608,394.54	9,237,646.00	28,846,040.54	12,491,372.83	10,784,984.42	5,569,683.29	7,117,021.71	
	Total (A+B+C)		281,560,360.54	72,768,899.00	354,329,259.54	100,783,929.61	26,867,770.42	226,677,559.29	180,776,430.71	



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 4B : NON Plan

Sl. No.	Asset Heads	Rate %	GROSS BLOCK		DEPRECIATION	NET BLOCK		Amount in Rupees	
			Op Balance 01.04.2018	Cl. Balance 31.03.2019		Op Balance 01.04.2018	Cl. Balance 31.03.2019	As On 31.03.2019	As On 31.03.2018
1	Land								
2	Site Development								
3	Buildings								
4	Temporary Shed								
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	Sports Equipments								
15	Lib Books & Scientific Journals								
16	Vehicle								
17	Small Value Assets								
	Total (A)								
18	Capital Work-in Progress								
	Total (B)								
19	Computer Software								
20	E. Journals								
21	Patents								
	Total (C)								
	Total (A+B+C)								



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 4C : Intangible Assets

Sl. No.	Asset Heads	Rate %	GROSS BLOCK		DEPRECIATION			NET BLOCK		
			Op Balance 01.04.2018	Additions	Cl. Balance 31.03.2019	Op Balance 01.04.2018	Dep. For the year	Deductions/ Adjustments	Cl. Balance 31.03.2019	As On 31.03.2019
1	Patents & Copyrights		-							
2	Computer Software	40%	2,657,772.00	1,475,726.00	4,133,498.00	2,556,882.00	899,967.40		3,456,849.40	676,648.60
3	E. Journals	40%	16,950,622.54	7,761,920.00	24,712,542.54	9,934,490.83	9,885,017.02		19,819,507.85	4,893,034.69
	Total (A)	40%	19,608,394.54	9,237,646.00	28,846,040.54	12,491,372.83	10,784,984.42	-	23,276,357.25	5,569,683.20
										7,117,021.71

Schedule - 4C(i) : Patents and Copyrights

Sl. No.	Particulars	Op Balance 01.04.2018	Additions	Gross	Amortization	Net Block 01.04.2019	Net Block 01.04.2018
A	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)						

Sl. No.	Particulars	Op Balance 01.04.2018	Additions	Gross	Amortization	Net Block 01.04.2019	Net Block 01.04.2018
B	Patents pending in respect of Patents applied for						
	1. Expenditure incurred during						
	2. Expenditure incurred during						
	3. Expenditure incurred during						
	Total (B)						
	Grand Total (A+B)						



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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 4D : NON Plan

Sl. No.	Asset Heads	Rate %	GROSS BLOCK		DEPRECIATION	NET BLOCK		Amount in Rupees	
			Op Balance 01.04.2018	Additions		Cl. Balance 31.03.2019	Op Balance 01.04.2018		Dep. For the year
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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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 5 : Investments from Earmarked Endowment Funds

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
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 Specified)		
Total (A+B+C+D)			

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

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
1			
2			
4			
3			
4			
5			
	Endowment Fund Investments		
Total			

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 6 : Investments - Others

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
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 Specified)		
Total			

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 7 : Current Assets

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
Stock			
a)	Stores and Spares		-
b)	Loose Tools		-
c)	Publications		-
d)	Laboratory Chemicals, Comumables and Glassware		-
e)	Building Materials	1,348,563.00	-
f)	Electrical Material		-
g)	Stationery		-
h)	Water Supply Material		-
Sundry Debtor			
a)	Debts outstanding for a period of Six months	1,257,855.00	2,710,303.81
b)	Others	2,594,718.00	54,614.00
Cash and Bank Balances			
a)	With Scheduled Banks		
	- In Current Account	16,417,619.59	13,118,172.78
	- In Term Deposit Account	28,704,769.00	28,638,517.00
	- In Savings Account	237,737,103.41	80,182,783.24
	- Grant in Transit		-
b)	With Non-Scheduled Banks		
	- In term Deposit Account		-
	- In Savings Account		-
c)	Cash in hand	45,240.00	14,006.00
Post Office Savings Account			
			-
Total		288,105,868.00	124,718,396.83

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Annexure-A

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
I)	Saving Account		
	1. Grants from MHRD A/c	230,537,133.00	75,050,579.85
	2. University Receipts A/c	4,761,626.98	4,546,397.96
	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	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	483,046.43	585,805.43
	19. Student Aid Fund A/c		
	20. Plan Grants for Specific Schemes		
II)	Current Account	16,417,619.59	13,118,172.78
III)	Term Deposit with Scheduled Banks	28,704,769.00	28,638,517.00
	Total	282,859,492.00	121,939,473.02

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF BALANCE SHEET

Schedule - 8 : Loans, Advances and Deposits

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
1	Advances to Employees (Non Interest Bearing)		
	a) Salary		-
	b) Festival		-
	c) Medical Advance		-
	d) Leave Travel Concession	-	380,301.00
	e) Others (Specify)	313,517.00	542,259.00
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	118,872,835.00
	b) To Suppliers	764,000.00	764,000.00
	c) NIT Calicut	118,150.00	118,150.00
	d) CCCB	-	73,980.00
	d) CDAC	16,228.00	155,367.00
	f) CDAC (Data Mining Workshop)	-	-
4	Prepaid Expenses		
	a) Insurance		-
	b) Other Expenses (Annual Maintenance Charge)	-	686,685.00
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	3,724,629.70	1,611,019.70
	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 receivables from UGC		-
8	Claims Receivables		
	Total	146,154,309.70	123,204,596.70

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 9 : Academic Receipts

		Amount in Rupees	
		Current Year 31.03.2019	Previous Year 31.03.2018
Fees From Students			
A	Academics		
	1. Tuition Fee	22,347,675.00	22,376,379.00
	2. Admission Fee	98,000.00	72,000.00
	3. Enrolment Fee		3,550.00
	4. Library Fee	1,021,200.00	734,100.00
	5. Laboratory Fee		-
	6. Art & Craft Fee		-
	7. Registration Fee	1,252,300.00	218,950.00
	Total (A)	24,719,175.00	23,404,979.00
B	Examination		
	1. Admission Fee		-
	2. Annual Examination Fee	687,000.00	534,000.00
	3. Marksheet, Certificate Fee		3,500.00
	Total (B)	687,000.00	537,500.00
C	Other Fees		
	1. Identity Card Fee	23,400.00	27,950.00
	2. Fines/Miscellaneous Fees	281,073.00	142,272.00
	3. Medical Fee	1,012,900.00	697,200.00
	4. Transportation Fee		-
	5. Hostel Fee	6,225,209.00	4,541,100.00
	6. Hostel Admission	92,500.00	72,000.00
	7. Alumni Fee	249,973.21	140,000.00
	Total (C)	7,885,055.21	5,620,522.00
D	Other Fees		
	1. Sale of Publication		
	2. Sale of Admission Form		
	3. Sale of Syllabus, 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. Development Fee	1,030,000.00	795,000.00
	4. Mess Establishment Fee	364,500.00	-
	5. Student Activity Fee	1,099,200.00	825,600.00
	6. Convocation	264,000.00	204,000.00
	7. Others	334,943.00	161,717.00
	Total (E)	3,092,643.00	1,986,317.00
	Total (A to E)	36,383,873.21	31,549,318.00



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

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

Particulars	Amount in Rupees								
	PLAN		UGC		Specific Schemes	Total	Non Plan	Current Year	Previous Year
	Govt. of India	UGC Plan	UGC Plan	UGC					
Balance B/f	106,835,136.56	-	-	-	106,835,136.56	-	106,835,136.56	96,846,559.56	
Add: Receipts during the year	381,700,000.00	-	-	-	381,700,000.00	-	381,700,000.00	190,000,000.00	
Total	488,535,136.56	-	-	-	488,535,136.56	-	488,535,136.56	286,846,559.56	
Less: Refund to UGC Balance									
Less: Utilized for Capital Expenditure (A)	72,768,899.00				72,768,899.00		72,768,899.00	35,496,557.00	
Balance	72,768,899.00	-	-	-	72,768,899.00	-	72,768,899.00	35,496,557.00	
Less: Utilized for Revenue Expenditure (B)	176,317,219.64				176,317,219.64		176,317,219.64	144,514,866.00	
Balance C/f (C)	239,449,017.92	-	-	-	239,449,017.92	-	239,449,017.92	106,835,136.56	



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 11 : Income from Investments

Amount in Rupees

Sl. No.	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			2,113,610.00	1,615,952.70
4.	Interest on Savings Bank Accounts	-			
5.	Others (Specify)				
		-	-	2,113,610.00	1,615,952.70
	Transferred to Earmarked/Endowment Fund				
	Balance			2,113,610.00	1,615,952.70

Schedule - 12 : Interest Earned

Amount in Rupees

		Current Year 31.03.2019	Previous Year 31.03.2018
1.	On Savings Account with Schedule Bank	3,272,002.00	1,149,540.00
2.	On Loans		
	a) Employees / Staff		
	b) Others		
3.	Other Debtors and Other Receivables		
	Balance	3,272,002.00	1,149,540.00



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 13 : Other Income

Sl. No.	Particulars	Amount in Rupees	
		Current Year	Previous Year
A	Income from Land and Building		
	1. Hostel Room Rent		-
	2. License Fee	68,880.00	76,670.00
	3. Hire Charges of Auditorium/Playground/Convention Centre etc.		-
	Electricity Charges recovered	251,289.00	239,767.00
	Water Charges recovered		-
	Total (A)	320,169.00	316,437.00
B	Sale of Institute's publications		-
	Total (B)		
C	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		-
	2. RTI Fees		-
	3. Income from Royalty		-
	4. Sale of Application Form (Recruitment)	168,275.00	-
	5. Misc. Receipts (Sale of Tender Form, Waster Paper, etc)		-
	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	150,573.00	-
	9. PHD Enrollment Fees	24,000.00	39,500.00
	10. Tender Fees	5,500.00	74,400.00
	11. Transportation Charges recovered		36,790.00
	12. Fines & Penalties		10,000.00
	13. Other Income	2,535,630.00	90,053.00
	14. Recovery of SBCA		-
	15. Overheads from Project		280,662.00
	Total (D)	2,883,978.00	531,405.00
	Grand Total (A to D)	3,204,147.00	847,842.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 14 : Prior Period Income

Sl. No.	Particulars	Amount in Rupees	
		Current Year	Previous Year
1	Academic Receipts		-
2	Income from Investments		-
3	Interest Earned		-
4	Other Income	342,367.00	-
5	Reversal of Cheques		-
	Total	342,367.00	-

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 15 : Staff Payments and Benefits (Establishment Expenses)

Amount in Rupees

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Salaries and Wages	65,399,417.52		65,399,417.52	49,963,887.00		49,963,887.00
b)	Allowances and Bonus	9,575,352.34		9,575,352.34	4,097,948.00		4,097,948.00
c)	Contribution to Provident Fund			-	465,032.00		465,032.00
d)	Contribution to other Fund (NPS)	2,881,436.00		2,881,436.00	3,016,383.00		3,016,383.00
e)	Staff Welfare Expenses			-			-
f)	Retirement and Terminal Benefits	3,928,308.00		3,928,308.00	4,559,747.00		4,559,747.00
g)	LTC Facility	1,401,670.00		1,401,670.00	-		-
h)	Medical Facility	705,082.00		705,082.00	222,924.00		222,924.00
i)	Children Education Allowance	91,797.00		91,797.00	105,223.00		105,223.00
j)	Honorarium			-	1,388,237.00		1,388,237.00
k)	TA/DA	2,596,279.00		2,596,279.00	105,453.00		105,453.00
l)	Arrear	4,872,954.78		4,872,954.78	11,909,094.00		11,909,094.00
m)	CPDA to Faculties			-	545,003.00		545,003.00
	Total	91,452,296.64		91,452,296.64	76,378,931.00		76,378,931.00

Schedule - 15A : Employees Retirement and Terminal Benefits

Amount in Rupees

Sl. No.	Particulars	Pension	Gratuity	Leave Eacashment	Total
	Opening Balance as on 01.04.2018				-
	Add: Capitilized value of contributions received from other Organizations				
	Total (A)				
	Less: Payments made during the year				-
	Balance available as on 31.03.2019				-
	Provisions required on 31.03.2019 as per actual valuation				-
A	Provision to be made in the Current Year	-	1,872,480.00	1,226,951.00	3,099,431.00
B	Contribution to New Pension Scheme	2,881,436.00			2,881,436.00
C	Medical reimbursement to retired Employees				-
D	Travel to hometown retirement				-
E	Deposit Link Insurance Payment				-
	Total (A+B+C+D+E)	2,881,436.00	1,872,480.00	1,226,951.00	5,980,867.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 16 : Academic Expenses

Amount in Rupees

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Laboratory Expenses	611,749.00		611,749.00	2,488,561.00		2,488,561.00
b)	Curriculum Development Workshop Expenses			-	249,697.00		249,697.00
c)	Expenses on Seminars/ Workshops	27,583.00		27,583.00	483,171.00		483,171.00
d)	Payment to Visiting Faculty			-	-		-
e)	Examination			-	15,430.00		15,430.00
f)	Student Welfare Expenses			-	111,589.00		111,589.00
g)	Admission Expenses	5,000.00		5,000.00	5,000.00		5,000.00
h)	Convocation Expenses	1,022,598.00		1,022,598.00	20,000.00		20,000.00
i)	Publications			-	-		-
j)	Stipend/means-cum Merit Scholarship / PHD Scholarship	6,559,048.00		6,559,048.00	10,673,180.00		10,673,180.00
k)	Mixed Signal & RF Circuit Design Project			-	142,203.00		142,203.00
l)	Student hostel Fees Refund			-	-		-
m)	Academic Expenses	122,919.00		122,919.00	-		-
n)	Sporting Activities			-	340,420.00		340,420.00
o)	M.Tech Fellowship	5,111,560.00		5,111,560.00	-		-
p)	Library Expenses			-	1,056,387.00		1,056,387.00
q)	Cultural Activities	1,100,411.00		1,100,411.00	663,092.00		663,092.00
r)	Registration Charges			-	37,495.00		37,495.00
s)	Training & Placement	532,467.00		532,467.00	520,228.00		520,228.00
t)	PHD Scholar Contingency Expenses			-	387,403.00		387,403.00
u)	Traveling Allowances			-	-		-
	Total	15,093,335.00		15,093,335.00	17,193,856.00		17,193,856.00



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 17 : Administrative and General Expenses

Amount in Rupees

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
A)	Infrastructure						-
	a) Electricity and Power	2,595,661.00		2,595,661.00	3,063,097.00		3,063,097.00
	b) Water Charges	44,275.00		44,275.00	371,463.00		371,463.00
	c) Insurance	824,263.00		824,263.00	738,112.00		738,112.00
	d) Rent, Rates and Taxes (including Property Tax)	6,265,025.00		6,265,025.00	6,136,493.00		6,136,493.00
B)	Communication						
	e) Postage and Stationery			-	-		-
	f) Telephone, Fax and Internet charges	255,859.00		255,859.00	137,360.00		137,360.00
C)	Others			-			-
	g) Printing and Stationery (Consumption)	683,093.00		683,093.00	585,701.00		585,701.00
	h) Traveling and Conveyance Expenses	2,823,589.00		2,823,589.00	2,177,949.00		2,177,949.00
	i) Hospitality	355,012.00		355,012.00	407,718.00		407,718.00
	j) Auditors Remuneration	203,245.00		203,245.00	195,790.00		195,790.00
	k) Annual Maintenance Charges	715,665.00		715,665.00	90,595.00		90,595.00
	l) Advertisement and Publicity	36,740.00		36,740.00	96,111.00		96,111.00
	m) BWC Meeting	78,589.00		78,589.00	-		-
	n) Office Expenses	1,591,356.00		1,591,356.00	1,169,233.00		1,169,233.00
	o) Honorarium to Outside Experts	275,000.00		275,000.00	-		-
	p) Campus Maintenance and House keeping	23,246,711.00		23,246,711.00	13,380,867.00		13,380,867.00
	q) Gardening & Landscape	-		-	93,199.00		93,199.00
	r) Security Services and Others	12,309,202.00		12,309,202.00	10,266,630.00		10,266,630.00
	s) Community Development	-		-	5,530.00		5,530.00
	t) Medical Centre Expenses	1,056,311.00		1,056,311.00	648,312.00		648,312.00
	u) Computer Centre Expenses	127,288.00		127,288.00			
	v) Recruitment Expenses	3,534,130.00		3,534,130.00	215,535.00		215,535.00
	w) Programmes and Events			-	-		-
	x) Miscellaneous Expenses	9,690.00		9,690.00	24,875.00		24,875.00
	Total	57,030,704.00		57,030,704.00	39,804,570.00		39,804,570.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 18 : Transportation Expenses

Amount in Rupees

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
1	Vehicles (Owned by Institutions)						
	a) Running Expenses	41,793.00		41,793.00	1,179,267.00		1,179,267.00
	b) Insurance Expenses	129,631.00		129,631.00	122,573.00		122,573.00
2	Vehicles taken on rent/ lease			-			-
	a) Rent/Lease Expenses	2,740,579.00		2,740,579.00	1,782,775.00		1,782,775.00
3	Vehicle (Taxi) hiring Expenses			-	126,242.00		126,242.00
	Total	2,912,003.00		2,912,003.00	3,210,857.00		3,210,857.00



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 19 : Repairs and Maintenance

Amount in ₹

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Buildings	6,521,254.00		6,521,254.00	5,841,688.00		5,841,688.00
b)	Furniture and Fixtures	341,062.00		341,062.00	162,486.00		162,486.00
c)	Plant and Machinery			-	20,215.00		20,215.00
d)	Office Equipments	265,564.00		265,564.00	34,398.00		34,398.00
e)	Network/Internet	68,105.00		68,105.00	-		-
f)	Construction and Maintenance of Campus	407,065.00		407,065.00	-		-
g)	Audio visual Equipments			-	-		-
h)	Cleaning Materials and Services			-	-		-
i)	Book Binding Charges			-	-		-
j)	Gardening			-	-		-
k)	Estate Maintenance			-	-		-
l)	Others (Hostel Expenses)			-	36,314.00		36,314.00
m)	Road & Connection Repairs			-	1,426.00		1,426.00
n)	Electrical Maintenance	185,250.00		185,250.00	472,503.00		472,503.00
o)	Vehicle Maintenance	447,976.00		447,976.00	312,157.00		312,157.00
	Total	8,236,276.00		8,236,276.00	6,881,187.00		6,881,187.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 20 : Finance Costs

Amount in Rupees

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Bank Charges	52,314.00		52,314.00	61,848.00		61,848.00
b)	Others (specify)						
	Total	52,314.00		52,314.00	61,848.00		61,848.00



NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 21 : Other Expenses

Amount in Rupees

Sl. No.	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

Sl. No.	Particulars	Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
1	Establishment Expenses	-		-	-		-
2	Academic Expenses			-	15,000.00		15,000.00
3	Administrative Expenses			-	574,877.00		574,877.00
4	Caution Deposit			-	393,740.00		393,740.00
5	Repairs and Maintenance	-		-	-		-
6	Other Expenses	1,540,291.00		1,540,291.00	-		-
7	Reversal of Cheques	-		-			-
	Total	1,540,291.00		1,540,291.00	983,617.00		983,617.00

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

Schedule - 23 : Significant Accounting Policies

1. The accounts are prepared under Historical Cost Convention unless otherwise stated and generally on the accrual method of accounting.

2. REVENUE RECOGNITION

- 2.1 Fees from students (Except tuition fee), sales of admission forms, royalty and interest on savings bank account are accounted for on cash basis. Tuition fees collected separately for each semester is accounted for on cash basis however tuition fees received in advance as on 31st march 2019 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 Equipments	5%
8	Plant and Machinery	5%
9	Scientific and Laboratory Equipments	8%
10	Office Equipments	7.5%
11	Audio Visual Equipments	7.5%
12	Computer and Peripherals	20%
13	Furniture Fixture and Fittings	7.5%
14	Sports Equipments	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

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

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

- 3.4 Depreciation is provided for the whole year on additions during the year.
- 3.5 Where an assets is fully depreciated, it will be carried at a residual value of Re 1 in the Balance Sheet and will not be further depreciated. Thereafter depreciation is calculated on the additions of each year separately at the rate of depreciation applicable for the asset head.
- 3.6 Assets created out of Earmarked fund and funds Sponsored Projects, where the ownership of such assets vests in the Institutions are setup by credit to Capital Fund and merged with Fixed Assets of the Institutions. Depreciation is charged at the rates applicable to the respective rates. Assets created out of sponsored project funds where the ownership is retained by the sponsors but held and used by the Institution are separately disclosed in the Notes on Accounts.
- 3.7 Assets, the individual vale of each of which is Rs 2,000.00 or less (except Library Books) are treated as Small Value Assets, 100% depreciation is provided in respect of such assets at the time of their acquisition. However 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 2018 has not been accounted for.

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

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

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.

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NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

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 Equipments	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

NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT

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

- 4.3 Depreciation is provided for the whole year on additions during the year.
- 4.4 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.
- 4.5 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.
- 4.6 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.
- 4.7 The total value of Fixed assets procured from sponsored projects whose ownership has not been transferred to the Institute is Rs. 24,91,295/- (Rupees Twenty Four lakh Ninety One Thousand Two Hundred Ninety Five)

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. 8.00 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 2019 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 2018 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.





राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
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