

ANNUAL REPORT

2019-2020



**Indian Institute of Information Technology
Guwahati**

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Director's Message



The year 2019-20 saw the Institute expand its student strength from 457 to 649, and the faculty strength from 33 to 48. Nine more staff members were recruited, taking the total staff strength to 28. Research and Development activities expanded. The number of publications increased from 64 last year to 97 this year. About Rs. 20 lakh worth of new sponsored projects were received. About Rs. 2.5 crore worth of projects continued from previous years. A new consultancy of Rs. 10 lakhs was received. The TEQIP III project continued during the year. A large number of academic and other student activities took place with funding from the project. Among the schemes supported were Counselling services, GATE examination training, support to faculty and students to attend conferences in India to present accepted papers, support of guest and ad hoc faculty, and support to a few PhD scholars. Out of the total grant of Rs. 15 crores, the Institute has spent Rs. 9.92 crores, out of which 7.36 crores has been for procurement, 2.13 crores for academic processes, and 0.43 crores for operating costs.

This is the first year when the Institute met all its recurring expenditure from its own income. The Institute was unable to pay arrears of 7th Pay Commission awards of about Rs 2 crores, and this has been postponed to the next year. Due to the limited surplus that was left over, there is going to be a cash flow problem in May – July, for which an overdraft will have to be taken. The Institute needs to add more hostel space to continue the expansion of student strength in 2021. Efforts to get a loan from HEFA of Rs. 30 crores, and later to get a loan from a Bank for Rs. 20 crores, were not successful as the year ended. Regarding construction bills, all pending bills (held back due to security deposits for a year) have been cleared except for one vendor, whose bill of about Rs 1 crore has not yet been received by the Institute due to some dispute with the Project Management Consultant.

The year ended with the advent of the Covid-19 pandemic. All classes were suspended on March 15 as per Govt. orders and most students left for home, leaving about 86 students on campus. The Institute started online classes from March 30 in all courses.

The Board of Governors

The following were members of the Board of Governors in 2019-20:

1. Shri. S. Ramadorai (Chairman) – TCS.
2. Prof. Shivaji Bandyopadhyay (Member) – Director NIT Silchar.
3. Prof. Bhabesh Chandra Goswami (Member) – VC Cotton College State University.
4. Prof. Gautam Biswas (Member till June 2019) – Director, IIT Guwahati.
5. Prof. T.G. Sitharam (Member from July 2019) – Director, IIT Guwahati.
6. Shri. Ranjit Barthakur (Special Invitee) – Govt. of Assam.
7. Mr. Pranjit Deka (Member till February 2020)– Oil India Ltd.
8. Mr. Dilip Kumar Das (Member from March 2020)– Oil India Ltd.
9. Dr. K. Kesavsamy (Member) – TCS.
10. Shri. Maninder Singh (Member till February 2020) – Principal Secretary Dept. of Higher Education Govt. Of Assam.
11. Shri. Preetom Saikia (Member from March 2020) – Principal Secretary Dept. of Education Govt. Of Assam.
12. Shri. Hemant Kanoria (Member) – SREI.
13. Dr. Sukhbir Singh Sandhu (Member till November 2019) – Addl. Secretary, MHRD Govt. Of India.
14. Dr. Rakesh Sarwal (Member from December 2019) – Addl. Secretary, MHRD Govt. Of India.
15. Prof. A. Srinivasan (Member) – Dean Faculty Affairs IIT Guwahati.
16. Prof. M. Guru Prem Prasad (Member till November 2019) – Dean Academic Affairs IIT Guwahati.
17. Prof. Chitralekha Mahanta (Member from December 2019) - Dean Academic Affairs, IIT Guwahati

The Board met four times during the year (17th May 2019, 8th August 2019, 20th December 2019 and 24th March 2020).

The Building and Works Committee

The Building and Works Committee of the Institute is as follows:

1. Director, Chairman
2. Principal Secretary or his nominee, Education Dept., Govt. of Assam
3. Prof. Arvind Kr. Singh, Professor, Deptt. of C.E. IIT Guwahati nominee of MHRD, GoI
4. Sri Kaushik Basu, AGM, IPD TCS, nominee of Industry Partner
5. Prof. Anjan Dutta, Former Dean Institute Works, IIT Guwahati, nominee of Board
6. Sri Gajen Ch. Das, Former S.E (PWD) and Advisor Design Assam Police Housing Corporation -Member
7. Dr. Ferdous Ahmed Barbhuiya, Associate Dean (R&D), IIIT Guwahati - Member
8. Mr. N. Roy, HoS (Maintenance), IIT Guwahati, Special Invitee
9. Mr. R.S. Sharma, Regional In charge, HPL, Invitee
10. Executive Engineer/Estate Officer, IIIT Guwahati, Secretary

The Committee met on 25th JUL-2019

The Senate

The following were the members of the Senate during FY 2019-20 (April – December 2019):

1. The Director of the Institute (Chairman of the Senate)
2. All Faculty members at the level of Assistant Professors and higher.
3. Prof. Amarjyoti Choudhury, Vice-Chancellor, Assam Down Town University [Ex Pro Vice-Chancellor, Tezpur University]
4. Prof. Dilip Kumar Saikia, Tezpur University [Ex Director, NIT Meghalaya]
5. Prof. M. G. P. Prasad, IIT Guwahati
6. Prof. Madhurjya Prasad Bezbaruah, Gauhati University
7. Prof. Prabin Kumar Bora, IIT Guwahati
8. Registrar, Non Member Secretary

New External Members of the Senate

On completion of terms of office of the existing Senate members under clauses (e) and (f) of the constitution of the Senate of the Institute as per the IIIT (PPP) Act, the Board of Governors of IIIT Guwahati, in its 24th meeting held on 20th December, 2019, resolved to nominate the following members to the Senate:

(e) Three persons from amongst educationists of repute or persons from another field related to the activities of the Institute who are not in service of the Institute, nominated by the Board:

1. Prof. Samarendra Dandapat, IIT Guwahati
2. Prof. Dhruba Kr Bhattacharyya, Tezpur University
3. Prof. Pranab Jyoti Das, Ex-Professor, Gauhati University

The new external members of the senate joined in the 15th Senate Meeting held on 9th January 2020.

The Senate met three times during the year (13th May 2019, 19th August 2019, and 9th January 2020).

Academics

Second Convocation of IIIT Guwahati

The Second Convocation of the Institute was held on 17th May 2019. A total of 61 students graduated on that day. Ambassador Gautam Mukhopadhyaya, was the Chief Guest of the Convocation.

Award of Medals to Graduating Students

The following students were awarded the President's Medal and Chairman's Medal.

	Name	Roll No.	Department	CPI
President's Medal:	Pranav Agarwal	1501038	ECE	9.40
Chairman's Medal:	Palak Kapoor	1501036	CSE	9.34

National Academic Depository (NAD)

The Institute is now using the National Academic Depository (NAD). The degree certificates of all the 3 graduating batches have been uploaded in the NAD portal after an agreement was signed in April 2019.

Partnership with The Nplusi (N+I) Consortium, France

IIT Guwahati has signed an MoU with the nplusi (n+i) consortium, France. The MoU provides for exchange of students and faculty, collaborative research, internships, and provision forward of joint degrees in future.

Academic Programmes

B.Tech Programme

Students are admitted through the Joint Entrance Examination (JEE) conducted by CBSE for Centrally Funded Technical Institutes. Reservations of seats are as per the Central Educational Institutions (Reservation in Admission) Act, 2006. B.Tech programmes in CSE and ECE were started in 2013. Due to the difficulty in finding accommodation, and due to the high cost of hiring such accommodation, the Institute has had to keep its intake at a low level. The intake has been 60 (30 in CSE and 30 in ECE) in 2013, 2014, 2015, and 2016.

It was increased to 80 (CSE 45, ECE 35) in 2017, 200 (CSE 115, ECE 85) in 2018 and to 233 (CSE 155, ECE 78) in 2019.

Besides admission through JEE, a spot admission round is conducted to fill up unfilled seats.

M.Tech Programme

M.Tech programmes in CSE and ECE were started in 2018 with an intake of 60 (CSE 35, ECE 25).

PhD Programme

PhD Admissions

The following students were admitted to the PhD programme in 2019-20.

Department	Full-time	Part-time	Total
CSE	3	8	11
ECE	2	5	7
Science and Mathematics	1	0	1
HSS	1	1	2

August 2019

The following 17 students (6 full-time: 3 in R&D project, 2 self-financed, 1 TEQIP and 11 part-time) were admitted in the monsoon semester 2019-20:

S.No.	Name	Branch	Category
1	Anand Shankar	ECE	Full-time/JRF
2	Arpita Devi	Mathematics	Full-Time
3	Barshapriya Dutta	Linguistics	Full Time
4	Charu Guleria	CSE	Part-Time
5	Dilip Kumar Tiwari	ECE	Part-Time
6	Mehbub Alam	CSE	Full-Time
7	Neeraj Kumar Dubey	CSE	Part-Time
8	Srinivasa Rao Jajula	ECE	Part-Time
9	Ved Prakash	CSE	Part-Time
10	Veronica Naosekpam	CSE	Full-Time
11	Gitimoni Talukdar	CSE	Part-Time
12	Nilufar Zaman	CSE	Part-Time
13	Aditi Biswas Das	ECE	Part-Time
14	Avishek Paul	CSE	Part-Time
15	Seema Nagar	CSE	Part-Time
16	Ramesh Singh	CSE	Part-Time
17	Moumita Acharya	ECE	Full-Time/JRF

January 2020

The following 4 students (1 full-time: self-financed, 3 part-time) were admitted in the Winter semester 2019-20:

S.No.	Name	Branch	Category
1	Susan Das	CSE	Full-time
2	Basab Bijoy Purkayastha	ECE	Part-time
3	Juglul Pasha	ECE	Part-time
4	Tridib Bharali	Political Science	Part-time

First Ph.D completion at the Institute

A provisional certificate was issued on XXXXX to Mr. Nazatul Haque Sultan (Roll No. 1503004), Ph.D student, the Dept. of Computer Science & Engineering, Indian Institute of Information Technology Guwahati. The thesis entitled, "*Design and Development of Secure Data Access Control and Retrieval Systems for Cloud*" had been written under the supervision of Dr. Ferdous Ahmed Barbhuiya, Associate Professor, CSE Dept.

Release of Grants for the Visvesvaraya PhD Scheme

The total Grant released by Digital India Corporation w.r.t. 2015-16 batch of Research Fellows of Indian Institute of Information Technology, Guwahati, for implementation of the Project under "Visvesvaraya PhD Scheme for Electronics and IT" is Rs. 51,79,356/- (1st Instalment of Rs. 37,61,695/- + Current Instalment of Rs. 14,17,661/-).

Student Profile

At the end of March 2020, there were 649 students in the Institute with the following profile:

	Male	Female	General	OBC	SC	ST	Total
B.Tech CSE 2015	1	0	0	0	1	0	1
B.Tech CSE 2016	24	3	14	9	3	1	27
B.Tech ECE 2016	23	2	7	13	3	2	25
B.Tech CSE 2017	42	5	27	12	5	3	47
B.Tech ECE 2017	26	4	14	8	4	4	30
B.Tech CSE 2018	118	5	69	35	11	8	123
B.Tech ECE 2018	68	2	33	26	9	2	70
B.Tech CSE 2019	129	26	77	43	25	10	155
B.Tech ECE 2019	54	12	37	22	4	3	66
B.Tech Total	485	59	278	168	65	33	544
M.Tech CSE 2018	9	8	14	3	0	0	17
M.Tech ECE 2018	8	1	7	2	0	0	9
M.Tech CSE 2019	7	7	10	1	3	0	14
M.Tech ECE 2019	1	7	6	1	1	0	8
M.Tech Total	25	23	37	7	4	0	48

PhD CSE (Regular)	8	5	10	2	1	0	13
PhD CSE (Part-time)	10	5	13	0	2	0	15
PhD ECE (Regular)	5	6	10	1	0	0	11
PhD ECE (Part-time)	7	2	7	1	0	1	9
PhD HSS (Regular)	0	4	3	1	0	0	4
PhD HSS (Part-time)	2	0	1	1	0	0	2
PhD Maths (Regular)	2	1	2	1	0	0	3
PhD Maths (Part-time)	0	0	0	0	0	0	0
PhD Total	34	23	46	7	3	1	57
Total	544	105	361	182	72	34	649

Faculty and Staff

The faculty profile at the end of March 2020 was as follows:

Item	Male	Female	Gen	OBC	SC	ST	Total
Associate Prof CSE	1	0	1	0	0	0	1
Asst. Prof CSE	12	4	11	4	1	0	16
Professor CSE (on contract)	2	0	2	0	0	0	2
Lecturer ECE	1	0	1	0	0	0	1
Asst. Prof ECE	10	7	15	1	1	0	17
Asst Prof Maths	2	3	5	0	0	0	5
Asst Prof HSS	4	2	5	1	0	0	6
Total	32	16	40	6	2	0	48

The staff profile was:

Item	Male	Female	Gen	OBC	SC	ST	Total
Registrar	1	0	1	0	0	0	1
Assistant Registrar	1	0	1	0	0	0	1
Executive Engineer	1	0	1	0	0	0	1
Junior Superintendent	5	1	4	1	0	1	6
Junior Accounts Officer	1	1	2	0	0	0	2
Junior Technical Superintendent	6	0	1	2	3	0	6
Senior Library Information Assistant	1	1	0	1	0	1	2
Junior Assistant	7	2	5	3	1	0	9
Total	23	5	15	7	4	2	28

Research and Development

Publications

The number of publications by faculty in the past year can be seen from the table below. There is an overall increase in the total number of publications, as well as in the number of journal and the number of conference publications.

Year	Journals	Conferences	Book chapters	Total
2019-20	35	59	3	97
2018-19	20	41	3	64
2017-18	14	44	3	71

Sponsored Research

An important source of funding for research is sponsored research funding. A number of projects have been obtained, particularly in the last one year. The details are as follows:

New Projects granted in April 2019 to March 2020

Sl. no	Project Title	Funding Agency	Project Amount (INR)	Project start date
1	Apery-like numbers, hypergeometric functions, and related supercongruences	DST-SERB (MATRICS)	6,60,000.00	May-2019
2	Classification of EEG Data Using Deep Learning (LSTM+CNN) Technique and Hilbert Vibration Decomposition (HVD) Method and Its Application in Epileptic Seizure Detection	DBT - NECBH Twinning (IIT Guwahati)	9,24,000.00	June-2019

3	Makers of Modern Assam: A Case Study of Lokpriya Gopinath Bordoloi, Kalaguru Bishnu Prasad Rabha, Chandrani Saikiani	ICSSR	4,00,000.00	Nov-2019
	TOTAL		19,84,000.00	

On-going projects from the previous year are given below:

Sl. no.	Project Title	Funding Agency	Project Amount (INR)	Project start date
1	Faculty Fellowship	NetApp	4,04,055.00	Jun-16
2	Establishment of a Design Innovation Centre (DIC) (Spoke) with NEHU (HUB)	MHRD through NEHU	59,00,000.00	Mar-17
3	A Secure and Scalable Inter-cloud Authorisation framework for resource sharing in Cloud Environment	DST-SERB	18,66,810.00	Jul-17
4	Bridging Network Science and HPC: Accelerating Big Data Centric Network Analytics using HPC Technologies	DST-SERB	27,95,130.00	Jul-17
5	Development of MAC associated schemes for large IEEE 802.15.4 based networks	DST-SERB	16,98,740.00	Mar-17
6	Design and Development of an Adaptive Middleware for Smart Building Monitoring	DST-SERB	21,84,600.00	Jul-17
7	A Low-Cost, high Resolution Optoacoustic Imaging System for Diagnosing and Monitoring Rheumatoid Arthritis	DST-SERB	31,74,600.00	Sept-2018

8	Energy Efficient 5G Hybrid Optical Wireless Communication System Based on High-Speed FSO/ VLC Interconnections	DST-SERB	24,17,250.00	Sept-2018
9	A Low Cost, Portable and High Quality Device (Prototype) for Food Quality Assessment Based on Microscopic Image and Deep Learning	SERB (IMPRINT - 2)	17,00,873.00	Dec-2019
10	Reconfigurable 3DIC Hardware Accelerator Platform for Deep Neural Networks	SERB (EMEQ)	27,04,000.00	Feb-2019
	TOTAL		248,46,058.00	

Projects that ended in 2019-20 are given below:

Sl. no	Project Title	Funding Agency	Project Amount (INR)	Project end date
1	Low-cost and Portable Telepathology Lab for Healthcare in Remote Areas using Computer Vision Approach	DBT	8,00,000.00	Sept-2019
2	Adaptive Learning Models for Land-cover Classification with application in Remote Sensing based Monitoring of Agriculture and Forestry	DST-SERB	16,28,000.00	March-2020
	TOTAL		24,28,000.00	

TEQIP III Project

In 2017, the Institute was selected to be part of the World Bank funded TEQIP-III project. Total allocation for the Institute is Rs. 15 crores for procurement of goods and different academic activities. The project ends in September 2020. For modernization of academic facilities the following have been procured: Campus WiFi, laboratory equipment, laboratory furniture, and library resources. Students, faculty members, and staff members are receiving funds for training programmes, presenting papers

in conferences, internships, arranging entrepreneurship summits, GATE training, employability skill test and training, etc. all aimed towards improving academic skills. As on 31 March 2020, Rs. 9.92 crores have been spent from this project, out of which 7.36 crores has been for procurement, 2.13 crores for academic processes, and 0.43 crores for operating costs.

Faculty are engaged in Consultancy work and are providing assistance in IT related activities to the Govt. of Assam and other organizations. Our faculty have given inputs to the Govt. of Assam in the Department of Finance, Department of Economics and Statistics, Police Department, Department of IT, Department of Education, etc.

List of New Consultancies obtained in 2019-2020

Sl. no.	Consultant	Consulting Agency	Consultancy Amount (INR)
1	Prof. Gautam Barua	Assam Power Distribution Company Ltd (APDCL)	10,00,000.00

CONFERENCES/WORKSHOPS/SCHOOLS/COURSES

Various conferences, seminars, workshops and schools were organised by the Departments and Centres of the Institute during the past year. The details are –

1. The Department of HSS conducts a series of inter-disciplinary lectures and discussions under the banner of "IIITG Perspective Series". A total of 48 sessions have been held so far, with 8 Meets (including a Colloquium) were organised between April 2019 and March, 2020 (Faculty Coordinators: Dr Suranjana Barua and Dr L. David Lal).

2. The Department of CSE organized the following

Departmental Talks

Prof. Hemangee Kapoor, Professor, Dept. of CSE, IIT Guwahati delivered a talk on "Recent trends in computer architecture and the road ahead" on November 11, 2019.

Dr. Benny George, Associate Professor, Dept. of CSE, IIT Guwahati delivered a talk on "Word Representable Graphs" on November 12, 2019.

Departmental Activities

A two-day workshop on “IoT and Blockchain” has been organized on 28th and 29th of September 2019.

A two-day workshop on “Deep Learning and Its Applications” has been organized on 7th and 8th of March 2020.

3. The Department of ECE organized the following:

Workshop Held :

Name, Date of the Workshop	Co-ordinators	Associated Academia, Industry
Emerging Trends in VLSI Design and Testing, VDNT 14-16 February, 2020	Dr. Rakesh Biswas, Dr. Sounak Roy	IIT Guwahati, IIT Indore, IIT Mumbai, NIT Manipur, Synopsis Inc., Intel Inc., Marvel Semiconductors, NXP Semiconductors.
Recent Trends in Learning and Optimization for Communications, Control, and Signal Processing; 17th - 19th January, 2020	Dr. Bijit Kumar Das, Dr. Surajit Panja	IIT Guwahati; IIT Kharagpur; Jadavpur University; IIT Delhi; IIT Roorkee; Samsung Electronics, Bangalore.

Invited Talks

Title of the Talk	Name of the invited expert	Organising Faculty (IIITG)
Performance analysis of Massive MIMO systems under CSI impairments, especially channel aging.	Dr. Ribhu Chopra, IIT Guwahati.	Dr. Bijit Kumar Das

Outreach Program/ Expert Talk given

Title of the Talk	Name of the faculty (IIITG)	Details of the program, visiting Institute

Design of IR-UWB Transmitter and Receiver for IEEE 802.15.6 Wireless Body Area Network System	Dr. Babita Jajodia	Faculty Development Program (FDP) on VLSI & MEMS Design, 10-14 February, 2020, IIIT Senapati, Manipur
Multi-agent Systems	Dr. Surajit Panja	5 days short-term course on "Advancement in Instrumentation and Signal Processing", 15-19 November, 2019, Dept. of Instrumentation Engineering, Central Institute of Technology Kokrajhar, Assam

4. The Department of Science and Mathematics organized the following:

Prof. Tarlok Nath Shorey (Retired Professor of Mathematics, TIFR Mumbai) from [National Institute of Advanced Studies](#) (NIAS) Bangalore, delivered a talk titled "*Equal Products of Terms in Arithmetic Progression*" on 16 September, 2019.

Department of Computer Science Engineering

Faculty:

1. Dr. Gautam Barua, Professor, Operating Systems, Networks, Database Management Systems.
2. Dr. Malay Ananda Dutta, Professor, Algorithms and Complexity.
3. Dr. Ferdous Ahmed Barbhuiya, Asst. Professor, Information Security, Intrusion Detection/Prevention System, Secure System Design, Privacy in Cloud, Firewall and Access Control.
4. Dr. Dip Sankar Banerjee, Asst. Professor, Parallel Computing, High Performance Computing, Runtime Systems.
5. Dr. Moumita Roy, Asst. Professor, Machine Learning, Soft Computing, Pattern Recognition, Remotely Sensed Image Analysis.
6. Dr. Nilkanta Sahu, Asst. Professor, Image and Video processing.
7. Dr. Rakesh Matam, Asst. Professor, Wireless Networks, Network Security, Privacy in Mobile Networks, Security in IoT.

8. Dr. Rohit Tripathi, Asst. Professor, Computer networks, Network Economics, Game Theory, Algorithm.
9. Dr. Subhasish Dhal, Asst. Professor, Information Security, Cloud Computing, Security in RFID, Key Distribution in Wireless Networks.
10. Dr. Suchetana Chakraborty, Asst. Professor, Wireless sensor and mobile ad hoc networks, Intelligent transportation systems, Distributed routing techniques, Context-awareness and pervasive computing.
11. Sanjay Moulik, Lecturer, Real-time Scheduling, Energy Aware Fair Scheduling, Optical Character Recognition, Software Engineering.
12. Dr. Angshuman Jana, Asst. Professor, Formal Methods, Programming Languages, Static Analysis and Verification, Information Flow Security Analysis, Abstract Interpretation, Model checking.
13. Dr. Kaustuv Nag, Asst. Professor, Evolutionary Computation, Machine Learning, and Neural Networks.
14. Dr. Manojit Ghose, Asst. Professor, Cloud computing, Multiprocessor scheduling, Computer architecture.
15. Dr. Radhika Sukapuram, Asst. Professor, Computer Networks, especially Software Defined Networks and Network Functions Virtualisation Distributed Systems
16. Dr. Shyju Wilson, Asst. Professor, Machine Learning, Big data Analysis, Computer Vision.
17. Dr. Soumi Chattopadhyay, Asst. Professor, Services Computing, Formal Methods, Automated logic and reasoning, Context-aware system.
18. Dr. Srinibas Swain, Asst. Professor, Algorithms, graph theory, complexity theory, theoretical computer science and discrete mathematics.
19. Dr. Sumit Mishra, Asst. Professor, Algorithms in Evolutionary Computation, Cluster Analysis.

Publications by the department:

Journal Publications:

- 1) N. Choudhury, R. Matam, M. Mukherjee and J. Lloret, "A Performance-to-Cost Analysis of IEEE 802.15.4 MAC With 802.15.4e MAC Modes," in *IEEE Access*, vol. 8, pp. 41936-41950, 2020.
- 2) M. Mukherjee, S. Kumar, C. X. Mavromoustakis, G. Mastorakis, R. Matam, Q. Zhang "Latency-driven Parallel Task Data Offloading in Fog Computing Networks for Industrial Applications," in *IEEE Transactions on Industrial Informatics*, [10.1109/TII.2019.2957129](https://doi.org/10.1109/TII.2019.2957129).
- 3) N. Choudhury, R. Matam, M. Mukherjee and J. Lloret, "Re-synchronization in a Synchronized IEEE 802.15. 4 Cluster-tree Network", *IEEE International*

Conference on Advanced Networks and Telecommunications Systems 16-19 December 2019.

- 4) M. Mukherjee, Suman Kumar, Qi Zhang, R Matam, Constandinos X Mavromoustakis, "Task Data Offloading and Resource Allocation in Fog Computing With Multi-Task Delay Guarantee," in *IEEE Access*, vol. 7, pp. 152911-152918, 2019.
- 5) N. Choudhury, R. Matam, M. Mukherjee and J. Lloret, "LBS: A Beacon Synchronization Scheme With Higher Schedulability for IEEE 802.15.4 Cluster-Tree-Based IoT Applications," in *IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 8883-8896, Oct. 2019.
- 6) S. Chakraborty, J. Phukan, M. Roy, and B. B. Chaudhuri, "Handling the class-imbalance in land-cover classification using bagging based semi-supervised neural approach" *IEEE Geoscience and Remote Sensing letters*, 2019 (early access).
- 7) Mridul Haque, Dip Sankar Banerjee. *Accelerating Influence Maximization using Heterogeneous Algorithms*, at The Journal of Supercomputing (2019 early access). doi:10.1007/s11227-019-03061-8
- 8) Sanjay Moulik; Rajesh Devaraj; Arnab Sarkar, 'HEALERS: a heterogeneous energy-aware low-overhead real-time scheduler', *IET Computers & Digital Techniques*, 2019, 13, (6), p. 470-480, DOI: 10.1049/iet-cdt.2019.0023
- 9) Sanjay Moulik, Rishabh Chaudhary, Zinea Das, 'HEARS: A heterogeneous energy-aware real-time scheduler', *Microprocessors and Microsystems*, Elsevier, 2020, Volume 72, p. 102939, ISSN 0141-9331
- 10) Radhika Sukapuram and Gautam Barua, PPCU: Proportional Per-Packet Consistent Updates for SDNs using Data Plane Time Stamps, *Computer Networks* Vol 155, pp. 72-86, May, 2019
- 11) Radhika Sukapuram and Gautam Barua, "ProFlow: Proportional Per-Bidirectional-Flow Consistent Updates," in *IEEE Transactions on Network and Service Management*, vol. 16, no. 2, pp. 675-689, June 2019.
- 12) Chandan Kalita, Gautam Barua, Priya Sehgal, "DurableFS: A file system for NVRAM", in *CSI Transactions on ICT*, Springer, (2019)
- 13) Sumit Mishra, Sriparna Saha, Samrat Mondal, Carlos A. Coello , "Divide-and-Conquer based Non-Dominated Sorting with Reduced Comparisons", in *Swarm and Evolutionary Computation*, vol. 51, 2019.
- 14) Sumit Mishra, Carlos A. Coello, "Parallelism in Divide-and-Conquer Non-Dominated Sorting: A Theoretical Study Considering the PRAM-CREW model" in *Journal of Heuristics*, vol. 25, no. 3, pp. 455-483, 2019.
- 15) Kaustuv Nag and Nikhil R. Pal, "Feature Extraction and Selection for Parsimonious Classifiers With Multiobjective Genetic Programming." in *IEEE Transactions on Evolutionary Computation* (Early Access), 2019, DOI: 10.1109/TEVC.2019.2927526.
- 16) Manojit Ghose, Sawinder Kaur, Aryabartta Sahu, "Scheduling real time tasks in an energy-efficient way using VMs with discrete compute capacities." *Computing*, 102(1): 263-294, 2020.

Conference Publications:

- 1) S. Chakraborty, I. Kalita, and M. Roy, "Unsupervised domain adaptation in land-cover classification under neural approach using feature-level ensemble", in *Proceedings of 39th IEEE Geoscience and Remote Sensing Symposium*, pages 724-727, Yokohama, Japan, November, 2019.
- 2) S. Chakraborty, I. Kalita, and M. Roy, "An adversarial learning mechanism for dealing with the class-imbalance problem in land-cover classification", in *19th International Conference on Hybrid Intelligent Systems*, Bhopal, 2019 (accepted).
- 3) I. Kalita, S. Chakraborty, and M. Roy, "Deep Ensemble Network for handling class-imbalance problem in land-cover classification", in *International Conference on Information Technology 2019*, Bhubaneswar, 2019 (accepted).
- 4) S. Chattopadhyay, A. Banerjee, "QoS Value Prediction Using a Combination of Filtering Method and Neural Network Regression", In *International Conference on Service-Oriented Computing 2019*, Toulouse, France, 2019 Oct 28-31 (pp. 135-150). Springer, Cham.
- 5) S. Chattopadhyay, A. Banerjee, "Towards Scalable Semantic Service Composition", In *IEEE International Conference on Service Oriented Computing and Applications 2019* November, Taiwan, 2019.
- 6) Ananta Kumar Das, Shikhar Yadav, Subhasish Dhal, "Detecting Code Smells using Deep Learning", in *Proceedings of the IEEE Region 10 Conference (IEEE TENCON 2019)*, IEEE Explore, pp 2087-2092, October 2019.
- 7) Sumit Mishra and Carlos A. Coello, "Parallel Best Order Sort for Non-dominated Sorting: A Theoretical Study Considering the PRAM-CREW Model", *IEEE Congress on Evolutionary Computation (CEC 2019)*, Wellington, New Zealand, pp. 1022-1029, June 2019.
- 8) Sumit Mishra and Carlos A. Coello, "An Approach for Non-domination Level Update Problem in Steady-State Evolutionary Algorithms With Parallelism", *IEEE Congress on Evolutionary Computation (CEC 2019)*, Wellington, New Zealand, pp. 1006-1013, June 2019.
- 9) Arup Baruah, Ferdous Ahmed Barbhuiya, Kuntal Dey, "Bi-directional LSTM for Hate Speech Detection" *International Workshop on Semantic Evaluation (SemEval 2019)*, Minneapolis, USA, ACL, pp 371-376, June 2019
- 10) Richa Sarma, Ferdous Ahmed Barbhuiya, "Internet of Things: Attacks and Defences", *International Conference on Smart Computing & Communications (ICSCC)*, Malaysia, IEEE, pp. 1-5, June 2019
- 11) Syed Saud Hasan, Nazatul Haque Sultan and Ferdous Ahmed Barbhuiya "Cloud data Provenance using IPFS and Blockchain Technology" *Seventh International Workshop on Security in Cloud Computing (SCC)*, Auckland, New Zealand, ACM, pp 5-12, July 2019

- 12) Mohit Vashistha and Ferdous Ahmed Barbhuiya "Blockchain in Smart Power Grid Infrastructure", Blockchain and Secure Critical Infrastructure (BSCI 2019), Auckland, New Zealand, ACM, pp 89-96, July 2019
- 13) Amrit Jha, Rajat Kanti Bhattacharjee, Meghali Nandi, Ferdous Ahmed Barbhuiya "A Framework for Maintaining Citizenship Record on Blockchain" Blockchain and Secure Critical Infrastructure (BSCI 2019), Auckland, New Zealand, ACM, pp 29-38, July 2019
- 14) Palak Kapoor, Ferdous Ahmed Barbhuiya, "Cloud Based Weather Station using IoT Devices" in Proceedings of the IEEE Region 10 Conference (IEEE TENCON), Kochi, India, IEEE, pp 2367-2374, October 2019.
- 15) Kaushik Amar Das, Ferdous Ahmed Barbhuiya, "Transfer-Learning for Detection and Classification of Hate Speech", Hate Speech and Offensive Content Identification in Indo-European Languages (HASOC), Dec 2019
- 16) Arup Barua, Ferdous Ahmed Barbhuiya, Kuntal Dey "Automated Hate Speech and Offensive Content Detection in English and Code-Mixed Hindi Text", Hate Speech and Offensive Content Identification in Indo-European Languages (HASOC), Dec 2019
- 17) Meghali Nandi, Rajat Kanti Bhattacharjee, Amrit Jha, Ferdous Ahmed Barbhuiya. "A secured land registration framework on Blockchain", ISEA International Conference on Security and Privacy (ISEA-ISAP), IEEE, Feb 2020.
- 18) Anupam Pattanayak, Subhasish Dhal, "A Study on Reversible Rules of Probabilistic Cellular Automata", in Proceedings of the IEEE Calcon 2020, IEEE Explore, pp. 34-39, February 2020.
- 19) Barnana Baruah, Subhasish Dhal, "A Secure and Privacy-Preserved Road Condition Monitoring System", in Proceedings of the IEEE COMSNETS 2020, IEEE Explore, pp. 594-597, January 2020.
- 20) Barnana Baruah, Subhasish Dhal, "An Intelligent Privacy Preserving Vehicle Navigation System", in Proceedings of the IEEE Region 10 Symposium (IEEE TENSYP 2019), IEEE Explore, pp 727-732, June 2019.
- 21) Sanjay Moulik and Zinea Das, "TASOR: A Temperature-Aware Semi-Partitioned Real-time Scheduler," *TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)*, Kochi, India, 2019, pp. 1578-1583. doi: 10.1109/TENCON.2019.8929501
- 22) Sanjay Moulik, Rishabh Chaudhary, Zinea Das and Arnab Sarkar, "EA-HRT: An Energy-Aware scheduler for Heterogeneous Real-Time systems," *25th Asia and South Pacific Design Automation Conference (ASP-DAC)*, Beijing, China 2020.
- 23) Sumit Mishra, Akash Yadav, Ashok Singh Sairam, "Worker Selection in Crowd-sourced Platforms using Non-dominated Sorting", *TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)*, Kochi, India, 2019, pp. 41-45.
- 24) Sumit Mishra, Sriparna Saha, Samrat Mondal, "A Many Objective Optimization Based Entity Matching Framework for Bibliographic Database", *TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)*, Kochi, India, 2019, pp. 2054-2058.
- 25) Sourish Dhekane, Krishnam Vajra, Dip Sankar Banerjee. Semi-supervised Subject Recognition through Pseudo Label Generation in Ubiquitous Sensor

- Data. at the proceedings of 12th International Conference on Communication Systems and Networks (COMSNETS). Bengaluru. January 2020.
- 26) Manan Sharma, Shivam Tiwari, Suchetana Chakraborty, Dip Sankar Banerjee. Behavior Analysis through Routine Cluster Discovery in Ubiquitous Sensor Data. at the proceedings of 12th International Conference on Communication Systems and Networks (COMSNETS). Bengaluru. January 2020.
- 27) Rohit Tripathi and Shilpa Rao, "Positive Information Diffusion for Rumor Containment in Online Social Networks," 2020 International Conference on COMMunication Systems & NETWORKS (COMSNETS), Bengaluru, India, 2020, pp. 610-613.

Invited Talks by faculty

- 1) Ferdous A Barbhuiya delivered a keynote lecture on "Industry 4.0, Challenges and Opportunities" in Student Techfest at Assam University, Silchar held on 26 Apr 2019
- 2) Ferdous A Barbhuiya delivered a lecture on "Digital Hygiene, Staying Safe in Cyberspace" in Govt. Staff training program about "e-Governance Services and Digital Financial Transactions" at NIRD&PR-NERC Guwahati held on 05 Sep 2019
- 3) Ferdous A Barbhuiya delivered lectures on "Security in IoT" in "ATAL Workshop on IoT and Cyber Security" at IIT Guwahati held on 19-23 Aug 2019
- 4) Ferdous A Barbhuiya delivered a lecture on "Information Security for Academic Institute" in "Computer Security Day" celebrated at Krishna Kanta Handiqui State Open University Guwahati held on 30 Nov 2019
- 5) Ferdous A Barbhuiya delivered an expert talk on "IoT for Emerging Applications" in "Chaitanya Bharathi Institute of Technology, Hyderabad" organised by E&ICT Academy, IIT Guwahati, held on 04 Feb 2020
- 6) Soumi Chattopadhyay delivered an Invited Talk on "A Data Distribution Model for Large-Scale Cyber-Physical Systems" in Ericsson Research Lab, Bangalore held on 13th August, 2019.
- 7) Subhasish Dhal delivered Invited Talk on "RFID based Grouping Proof Generation and Validation" at Raja Narendra Lal Khan Women's College (Autonomous), Midnapore, West Bengal, India held in May 2019
- 8) Subhasish Dhal delivered Invited Talk on "Security and Privacy in IoT based Applications" at the Department of Electronics and Communication Engineering in National Institute Technology Durgapur, Durgapur, West Bengal, India, held in February 2020.
- 9) Dip Sankar Banerjee delivered an invited talk on "Systems Research Lifecycle" at the Panel Discussion on "Industry Academia Research" IEEE HiPC Conference, Hyderabad, December 2019.

- 10) Gautam Barua delivered a talk on “Disruptive Technologies” at a one day Workshop on Disruptive Technologies, at Assam Administrative Staff College, Guwahati on 9 January 2020.
- 11) Gautam Barua delivered a talk “On Governance in Academic Institutions” at IIT Hyderabad on 7 February, 2020.
- 12) Srinibas Swain delivered a contributed talk “An Online Graph Atlas” at 27th British Combinatorial Conference (BCC) held at University of Birmingham, UK on 30 July, 2019.
- 13) Srinibas Swain delivered an invited talk “Logic and its applications” at VIT Bhopal on 14 March, 2020.
- 14) Sumit Mishra delivered a talk during GIAN (Global Initiative of Academic Networks) course held between April 1-5, 2019 in IIT Patna on “Theory of Clustering & Multi-Objective Based Clustering in Entity Matching”.
- 15) Srinibas Swain delivered an invited talk via Skype “Introduction to complexity theory” at School of Computing, Newcastle University, UK on 12 February, 2020.
- 16) Nilkanta Sahu delivered an invited talk on Video Watermarking at Bureau of Indian Standards on 26th November.
- 17) Rakesh Matam delivered a talk on “Recent Technological Advancements: IoT, Cloud Computing, Data Analytics and Blockchain” at Indian Oil, Guwahati on January 10, 2020.
- 18) Rakesh Matam delivered a talk on “Recent Advancements in 5G Wireless Communications : Physical and Higher Perspectives” at BVEC, Karimganj on March 9 2020.

Awards

- 1) Best poster award in the Student Research Symposium of HiPC 2019 conference to : “ACEP: An Accuracy-Configurable Carry Estimating Parallel Adder” by Rajat Bhattacharya, Vishesh Mishra, Saurabh Singh, and Kaustav Goswami

Department of Electronics & Communication Engineering

Faculty:

1. Dr. Bidisha Dasgupta, Asst. Professor, Microwave, Antenna.
2. Dr. G Aruna, Asst. Professor, Wireless and Mobile communications, MIMO Systems.

3. Dr. Mourina Ghosh, Asst. Professor, Current Mode Circuits, Bipolar and MOS Analog Integrated Circuits.
4. Dr. Rusha Patra, Asst. Professor, Image Processing, Optical Imaging, Biomedical Optics, Computer Vision.
5. Dr. Sanya Anees, Asst. Professor, Free space optical communication, Cooperative communications, Multiple-input multiple-output (MIMO) systems, and Visible Light Communications.
6. Dr. Shilpa, Asst. Professor, Wireless Sensor Networks.
7. Dr. Shovan Barma, Asst. Professor, Biomedical Signal Processing, Emotion Recognition (Based on Speech and EEG Signal), VLSI Design.
8. Dr. Soumyajit Poddar, Asst. Professor, Digital VLSI Design, Photonic Networks on Chip, Architecture for Exascale Computing Systems, 3D-IC, Photonic Devices, Electronic Design Automation, Embedded Systems and Medical Electronics.
9. Dr. Sounak Roy, Asst. Professor, Analog and mixed signal circuits.
10. Dr. Surajit Panja, Asst. Professor, Networked Control Systems, Multi-agent Systems, and Systems Biology.
11. Dr. Amar Nath Yadav, Asst Professor, Radio frequency integrated circuit, Millimeter wave integrated circuit, Antenna design, Metamaterial, Optical integrated circuit (left in May 2019)
12. Mohd. Mansoor Khan, Electrical Machines and Drives, Control Systems, Advanced Instrumentation and Sensors, Opto-Mechanical Sensors, Fiber Optics and Photonics, Fiber Optic Lasers and All Optical Integrated Devices.
13. Dr. Babita Jajodia, Asst. Professor, Low-power Transceiver (Baseband/RF) Design, VLSI for Signal Processing and Communications, Analog and Mixed-Signal Circuit Design, RISC Processor Design
14. Dr. Bijit Kumar Das, Asst. Professor, Adaptive Signal Processing, Sparsity Aware Adaptive Filters, Distributed Adaptive Filtering / Adaptive Networks, Signal Processing for Digital Communication, Signal Processing for Audio and Acoustic Applications
15. Dr. Komal Janghel, Asst. Professor, Underlay cognitive radio networks, energy harvesting in the cognitive radio network and cooperative network, non-orthogonal multiple access, physical layer security.
16. Dr. Kukil Khanikar, Asst. Professor, Cognitive Radio, Digital Design Lab
17. Dr. Rakesh Biswas, Asst. Professor, Digital Design, Digital Design Lab
18. Dr. Ripudaman Singh, Asst. Professor, Communication Networks
19. Dr. Sudip Biswas, Asst. Professor, Electrical Circuit Analysis, Mobile Communications, Electrical Circuit Analysis

Publications

Journal Publications:

1. Bhattacharya A, Dasgupta B, Jyoti R. Performance analysis of a hybrid dielectric resonator antenna in frequency and time domains. *International Journal of RF and Microwave Computer Aided Engineering*, Wiley, Vol.29, Issue 10, October 2019
2. Babita Jajodia, Anil Mahanta, Shaik Rafi Ahamed, "IEEE 802.15.6 WBAN Standard Compliant IR-UWB Time-Hopping PPM Transmitter using SRRC signaling pulse", *AEU- International Journal of Electronics and Communications*, Volume 117, April 2020.
3. Anakhi Hazarika, Soumyajit Poddar, Hafizur Rahaman, Survey on memory management techniques in heterogeneous computing systems, *IET Computers and Digital Techniques*, Vol 14, Issue 2, page 47-60
4. Sourav Bhowmick and Surajit Panja, "Leader Follower Bipartite Consensus of Uncertain Linear Multiagent Systems With External Bounded Disturbances Over Signed Directed Graph," *IEEE Control Systems Letters*, vol. 3, no. 3, pp. 595-600, July 2019.
5. Jia Wen Li' Shovan Barma, Peng Un Mak, Sio Hang Pun, Mang I Vai, "Brain Rhythm Sequencing Using EEG Signals: A Case Study on Seizure Detection", *IEEE Access*, vol. 7, pp. 160112 - 160124, 2019.
6. Parthana Sarma, Shovan Barma, "Review on Stimuli Presentation for Affect Analysis Based on EEG", *IEEE Access*, vol. 8 pp. 51991 - 52009, 2020.
7. O. Kolawole, S. Biswas, K. Singh, and T. Ratnarajah, "Transceiver Design for Energy-Efficiency Maximization in mmWave MIMO IoT Networks," in *IEEE Transactions on Green Communications*, vol. 4, no. 1, pp. 109 - 123, Mar. 2020.
8. K. Singh, K. Wang, S. Biswas, Z. Ding, F. Khan, and T. Ratnarajah, "Resource Optimization in Full Duplex Non-Orthogonal Multiple Access Systems," in *IEEE Transactions on Wireless Communications*, vol. 18, no. 9, pp. 4312 - 4325, Sep. 2019.
9. G. Aruna, "BER Analysis of EGC Receiver over Correlated Nakagami-m Fading Channels with Phase Error and asynchronous CCI", *International Journal of Wireless and Mobile Computing (IJWMC)*, Vol. 17, No. 2, 2019
10. S. Bhattacharyya and G. Aruna, "Radiation Pattern Analysis of Uniform Rectangular Planar Arrays for Millimeter Wave Communications: Comparative study with Uniform Linear Arrays", *International Journal of Wireless Personal Communications*, Springer, 2020

Conference Publications:

1. S. Roy and S. Chatterjee, "A Low Power mixed Signal Foreground Calibration Technique of a Pipeline ADC using a Variable Gain Amplifier," *TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON)*, Kochi, India, 2019, pp. 2168-2172.
2. Reddy, M. & Roy, Sounak. (2019). "Clock Pulse Based Foreground Calibration of a Sub-Radix-2 Successive Approximation Register ADC", *International Symposium on VLSI Design and Test, VDAT 2019*, Indore, India, pp. 140-143

3. B B Pathak , G. Kalita, M. P. Barooah, S. Chiranjeevi, B. Dasgupta, " A Novel Printed Monopole Antenna for Broadband Applications", IEEE Indian Conference on Antennas and Propagation (InCAP) , Hyderabad, India , 16th-19th December, 2018.
4. Anamiya Bhattacharya, G.V.S.S.Ganesh, B. Dasgupta, Rajeev Jyoti" Performance Improvement of Monopole Loaded Hybrid Dielectric Resonator Antenna by using Sleeve-like Structure", IEEE Indian Conference on Antennas and Propagation (InCAP), Hyderabad, India , 16th-19th December, 2018
5. Sauranil Debarshi, Mohd Mansoor Khan. "Portable and low-cost LED based Spectrophotometer for the Detection of Nitrite in simulated-Urine." In 2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON), pp. 1-4. IEEE, 2019.
6. Darpan Mishra, Manoranjan Minz, Ramesh Kumar Sonkar, and Mohd Mansoor Khan. "Bandwidth optimization of germanium-doped silicon optical modulator for high-speed applications." In Nanophotonics and Micro/Nano Optics V, International Society for Optics and Photonics, 2019.
7. Minz, Manoranjan, Darpan Mishra, Ramesh Kumar Sonkar, and Mohd Mansoor Khan. "Grating-assisted MDM-PDM hybrid (de) multiplexer for optical interconnect applications." In Nanophotonics and Micro/Nano Optics V, International Society for Optics and Photonics, 2019.
8. Khan, Mohd Mansoor, and Ramesh Kumar Sonkar. "Numerical modeling and simulations on splitting of chirped optical pulses in heavily doped thulium fiber amplifiers through modal instability analysis." In Quantum and Nonlinear Optics VI, International Society for Optics and Photonics, 2019.
9. Khan, Mohd Mansoor, and Ramesh Kumar Sonkar. "An ion-ion interaction analysis-based performance estimation of thulium-doped fiber amplifiers in s-band including amplified spontaneous emission." In Optoelectronic Devices and Integration VIII, International Society for Optics and Photonics, 2019.
10. Khan, Mohd Mansoor, and Ramesh Kumar Sonkar. "Performance estimation of Thulium doped fiber amplifiers in S-Band including Amplified Spontaneous Emission: Ion-Ion interaction analysis." In TENCON 2019-2019 IEEE Region 10 Conference (TENCON), pp. 155-159. IEEE, 2019.
11. Pranav Agarwal, Soumyajit Poddar, Anakhi Hazarika, Hafizur Rahaman, Learning to synthesize faces using voice clips for Cross-Modal biometric matching, IEEE Region 10 Symposium (TENSYP), 2019.
12. Anakhi Hazarika, Avinash Jain, Soumyajit Poddar, Hafizur Rahaman , Shift and Accumulate Convolution Processing Unit, IEEE Region 10 Conference (TENCON), 2019
13. V. Kumar, B. C. Nagar, S. S. Borah, M. Ghosh, "New Realization of Multi-function Filter using Bulk-Driven Differential Difference Current Conveyor" 8th IEEE International Conference on Communication and Signal Processing (ICCSP-2019), Melmaruvathur, Tamil Nadu, India, April 4-6, 2019.
14. S. Banerjee, M. Ghosh, P. Mondal, "OTRA based Realization of Inverse low pass filter and Inverse Band pass filter, 8th IEEE International Conference

- on Communication and Signal Processing (ICCSP-2019), Melmaruvathur, Tamil Nadu, India, April 4-6, 2019.
15. S. Banerjee, P. Mondal, M. Ghosh, "Novel realization Of Inverse Band Reject filter and Inverse All Pass filter Using operational transresistance Amplifier", 2019 IEEE Region 10 symposium (TENSYP), 7-9 June 2019, Kolkata, India
 16. S. Banerjee, S. S. Borah, M. Ghosh, P. Mondal, "Three Novel Configurations of Second Order Inverse Band Reject Filter using A Single Operational Transresistance Amplifier", TENCON IEEE Region 10 Conference, Kochi, India, Oct 17-20, 2019.
 17. Sourav Bhowmick, Bonty Halo, and Surajit Panja, "Achieving Leader-Follower Consensus with Delay for Competitive-Cooperative Interactions of Linear Multi-agent Systems: An Output Feedback Control Approach," TENCON 2019 - 2019 IEEE Region 10 Conference (TENCON), Kochi, India, 2019, pp. 2262-2269.
 18. Sourav Bhowmick and Surajit Panja, "Lag-Bipartite Consensus of Linear Multi-agent Systems over Signed Directed Graph," 2019 IEEE Region 10 Symposium (TENSYP), Kolkata, India, 2019, pp. 6-11.
 19. Parthana Sarma, Shovan Barma, "Emotion Analysis Based on LASSO" IEEE Region 10 Symposium (TENSYP), Kolkata, India, 7-9 June 2019.
 20. Sumona Biswas, Shovan Barma, "Foldscope Image Enhancement in HSV Space by PSO Optimization Technique" IEEE 12th Biomedical Engineering International Conference (BMEiCON 2019), Ubon Ratchathani, Thailand, Thailand Nov. 19-22, 2019.
 21. Sumona Biswas, Shovan Barma, "Usability of Foldscope in Food Quality Assessment Device", International Conference on Pattern Recognition and Machine Intelligence (PReMI 2019), Tezpur, India, Dec. 17-20, 2019. pp. 490-498.
 22. J. Sarma, A. Katiyar, R. Biswas and H. K. Mondal, "Power-aware IoT based Smart Health Monitoring using Wireless Body Area Network," 20th International Symposium on Quality Electronic Design (ISQED), Santa Clara, CA, USA, 2019, pp. 117-122.
 23. K. Singh, S. Biswas, Omid Taghizadeh, and T. Ratnarajah, "Beamforming Design for Coexistence of Full-Duplex Multi-Cell MU-MIMO Cellular Network and MIMO Radar," in Proc, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2019.
 24. K. Singh, K. Wang, S. Biswas, Z. Ding, F. Khan, and T. Ratnarajah, "On the Design and Analysis of Full-Duplex Non-Orthogonal Multiple Access Systems," in Proc, IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), 2019.
 25. T. Zhang, S. Biswas, and T. Ratnarajah, "An Analysis on Caching in Full-Duplex Enabled mmWave IAB HetNets," in Proc, IEEE International Symposium on Wireless Communication Systems (ISWCS), 2019.
 26. S. Bhattacharyya and G. Aruna, Radiation Pattern Analysis of Uniform Linear Arrays for Millimeter Wave Communications, IEEE International Conference on Computer Communication and Informatics (ICCCI), Sep., 2019

27. S. Bhattacharyya and G. Aruna, "Outage Probability Analysis of SNR for a MM wave Beamsteered MIMO-MRC System", IEEE International Conference on Wireless Communications, Signal Processing and Networking (WISPNET), Mar. 2019

Book Chapters :

1. S. Biswas, A. Cirik, M. Filippou, and T. Ratnarajah, "Spectrum Sharing with Full Duplex" in Spectrum Sharing: The Next Frontier in Wireless Networks (Chapter 10), John Wiley & Sons, Ltd, March 2020.

Workshops Held :

Name, Date of the Workshop	Co-ordinators	Associated Academia, Industry
Emerging Trends in VLSI Design and Testing, VDNT 14-16 February, 2020	Dr. Rakesh Biswas, Dr. Sounak Roy	IIT Guwahati, IIT Indore, IIT Mumbai, NIT Manipur, Synopsis Inc., Intel Inc., Marvel Semiconductors, NXP Semiconductors.
Recent Trends in Learning and Optimization for Communications, Control, and Signal Processing; 17th - 19th January, 2020	Dr. Bijit Kumar Das, Dr. Surajit Panja	IIT Guwahati; IIT Kharagpur; Jadavpur University; IIT Delhi; IIT Roorkee; Samsung Electronics, Bangalore.

Invited Talks

Title of the Talk	Name of the invited expert	Organising Faculty (IIITG)
Performance analysis of Massive MIMO systems under CSI impairments, especially channel aging.	Dr. Ribhu Chopra, IIT Guwahati.	Dr. Bijit Kumar Das

Outreach Program/ Expert Talk given

Title of the Talk	Name of the faculty (IIITG)	Details of the program, visiting Institute
Design of IR-UWB Transmitter and Receiver for IEEE 802.15.6 Wireless Body Area Network System	Dr. Babita Jajodia	Faculty Development Program (FDP) on VLSI & MEMS Design, 10-14 February, 2020, IIIT Senapati, Manipur
Multi-agent Systems	Dr. Surajit Panja	5 days short-term course on "Advancement in Instrumentation and Signal Processing", 15-19 November, 2019, Dept. of Instrumentation Engineering, Central Institute of Technology Kokrajhar, Assam

Best Paper Award:

Debarshi, Sauranil, and Mohd Mansoor Khan. "Portable and low-cost LED based Spectrophotometer for the Detection of Nitrite in simulated-Urine." In 2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON), pp. 1-4. IEEE, 2019

Department of Sciences and Mathematics

Faculty:

1. Dr. Gautam Kalita, Assistant Professor, Number Theory, Algebra, Cryptography.
2. Dr. Anuradha Jha, Assistant Professor, Numerical solutions of ordinary and partial differential equations, Singular perturbation problems.
3. Dr. Amita Sharma, Assistant Professor, Application of Optimization, Financial Mathematics, Risk Analysis in decision making problems, Behaviour Finance.
4. Dr. Saranya G. Nair, Assistant Professor, Diophantine equations and approximations, Analytic Number Theory, Algebraic properties of Classical Polynomials, Computational Number Theory.

5. Dr. Dipendu Maity, Assistant Professor, Combinatorial Algebraic Topology, Geometry.

Publications

Journal Publications:

1. Arijit Jana & Gautam Kalita, *Supercongruences for sums involving rising factorial $\left(\frac{1}{l}\right)_k^3$* , Integral Transforms and Special Functions, 30 (9), 683--692 (2019).
2. Arjun Singh Chetry & Gautam Kalita, *More supercongruences for generalized Apéry number*, Journal of Combinatorics and Number Theory, 10 (3), 169--181 (2019).
3. Anubha Goel & Amita Sharma, *Mixed Value-at-Risk and its numerical investigation*, Physica A, 541, (2020).
4. Shanta Laishram, Saranya G. Nair & Tarlok N Shorey, *On the Galois group of Generalised Laguerre polynomials II*, Hardy-Ramanujan Journal, 42, 26-30 (2019).

Paper presented in Conferences/Seminars

1. Anuradha Jha & M.K. Kadalbajoo, *Hybrid method for two parameter singularly perturbed elliptic boundary value problems*, National conference on Recent Advances in Applied Sciences (RAAS'19), Gauhati University, Assam, India, May 17-18, 2019.
2. Arijit Jana & Gautam Kalita, *Ramanujan-Type Supercongruences For Sums Involving $\left(\frac{1}{l}\right)_k^3$* , 13th International Conference of IMBIC on Mathematical Sciences for Advancement of Science and Technology, Institute for Mathematics, Bioinformatics, Information Technology and Computer Science, Kolkata, India, December 21-23, 2019.
3. Arijit Jana & Gautam Kalita, *On some supercongruence Conjectures of Guo and Schlosser for truncated hypergeometric series*, International Conference on Analysis, Algebra, Combinatorics and their Applications, Dept. Of Mathematics, Jadavpur University, Kolkata, January 20-22, 2020.

Visitors from Other Institutes:

1. **Prof. Tarlok Nath Shorey** (Retired Professor of Mathematics, TIFR Mumbai) from [National Institute of Advanced Studies](#) (NIAS) Bangalore, delivered a talk

titled "*Equal Products of Terms in Arithmetic Progression*" on 16 September, 2019.

Department of Humanities & Social Sciences

Faculty:

1. Dr. Suranjana Barua, Asst. Professor, Sociolinguistics, Discourse/ Conversation Analysis, English Language Teaching, Translation Studies, Gender Studies.
2. Dr. Hari K. Choudhury, Asst. Professor, Issues related to Development Economics, Health Economics and Experimental Economics.
3. Dr. Rajarshi Mitra, Asst. Professor, Colonial and Postcolonial Studies, Colonial Culture, Anglo-Indian novels, Animal Studies, Urban Studies.
4. Dr. L David Lal, Asst. Professor, Politics of Identity, Caste Conflicts, Socio-Political History of Marginalised, Public Policy.
5. Dr. Kaveri Deb, Asst. Professor, International Trade, Development Economics, Applied Econometrics.
6. Dr. Arjab Roy, Asst. Professor, Colonial & Postcolonial Studies, Literature and Cinema, Left Intellectual and Cultural History, Subaltern Studies, Adivasi Studies and Urban Studies

Faculty Talks

1. Dr. Rajarshi Mitra delivered four lectures on "Madame Bovary" and "Crime and Punishment" at *Netaji Subhas Open University* ICT on 30-10-2019

Invited talks organised by the Department of HSS

1. Dr. Debashis Das, Associate Professor of Economics, IIT Guwahati delivered a talk on "Game theory and its application" at IIIT Guwahati on 07-11-2019.
2. Dr. Ratul Mahanta, Associate Professor of Economics, Gauhati University delivered a talk on "Fundamentals of Research in Social Sciences" at IIIT Guwahati on 08-11-2019.

3. Mr. Ryan Booth, Fulbright-Nehru Fellow at United States-India Educational Foundation delivered a talk on "Fulbright-Nehru Fellow" at IIIT Guwahati on 14-11-2019.
4. Prof Rajesh Kumar. Professor, Department of HSS, IIT Madras delivered a Guest Lecture on "Analyzing Language Data in Cognitive Framework" at IIITG Guwahati on 13-3-2020

Publications:

Journal Publications:

1. Saikia, J., Buragohain, P.P. and Choudhury, H.K. (2019). Attribute perception and tourist's choice for wildlife tourism destination. *International Journal of Culture, Tourism and Hospitality Research*, Vol. 13, No. 3, pp. 346-358.
2. Mitra, R. (2019). Eating Well in Uncle's House: Bengali Culinary practices in a bucolic Calcutta/Kolkata in Amit Chaudhuri's *A Strange and Sublime Address*. *Rupkatha Journal*, Vol. 11, No. 2, pp. 1-14.
3. Mitra, R. (2019). To Hunt or not to Hunt: Tiger Hunting, Conservation and Collaboration in Colonial India. *International Journal for History, Culture and Modernity*, Vol. 7 pp. 815-839.
4. Roy, A. (2019). Adivasi Subjectivity and Identity in Bikram Hembrom and Shana Baurir Kawthokawta. *International Journal of Literature, Linguistics and Language Teaching*, Vol. 1, No. 1, pp. 30-36.
5. Sukumar, N. Lal, David L, Mishra, VK. (2019). "Inclusiveness in the Panchayati Raj Institutions", *Journal of Social Inclusion Studies*, Vol. 5, No. 1, June, pp. 1-18.

Book chapters

1. Barua, Suranjana (2019). 'Pragmatics and Language and Thought' (Module V); Units 9-10; pp 42-82; MEG 104 *Aspects of Language*. MA English. Centre for Open and Distance Learning. Tezpur University.
2. Barua, Suranjana (2019). 'English Reading and Vocabulary'; Unit 1; pp3-23; *English Communication*. ENG-AE-1014 BA English. Gauhati University Institute of Distance and Open Learning. ISBN. 9788194268963.

Paper presented in Conferences/Seminars

1. Dr. Arjab Roy presented a paper on "Identity Questions and Left Radicalism in West Bengal during the Sixties-Seventies" in the International Conference on Unfinished Legacy of Dr. B. R. Ambedkar: Margin Claims Share in the Centre, In the spirit of the Unfinished Legacy Conferences of Brandeis University USA, held at Centre for International Programme, Osmania University, Hyderabad, 26-27 August 2019.

2. Choudhury, Dimple and Barua, Suranjana. 'Politeness and Collective Identity in Miju and Digaru: Two Endangered Languages of Arunachal Pradesh'. Paper presented at the National Conference on Revitalization of Indigenous Languages: Issues and Challenges held at Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, 12-14 July, 2019.

Other activities:

Editorial

Barua, Suranjana and Kumar, Rajesh (Associate Editors). *Language and Language Teaching* (Eds. Agnihotri, R.K. and Khanna, A.L). Vol. 8, No.2; Issue 16. July 2019. ISSN 2277-307X

Barua, Suranjana. (Editorial Committee). *Language and Language Teaching* (Eds. Agnihotri, R.K. and Khanna, A.L). Vol. 9, No.1; Issue 17. January 2020. ISSN 2277-307X

Training

Barua, Suranjana. Participated in Continuing Education Programme of Centre for Continuing Education IIT Madras and completed *Initial Training for Interlocutors, Aviation English Language Experts (Raters) and Aviation English Trainers* organized by Department of HSS, IIT Madras from 15-19 November, 2019.

Construction and Campus Development

The Institute completed its 1st phase of campus constructions in the previous year and due to paucity of funds only some essential sports ground development/extension activities were taken up during this year in the campus. A football cum cricket field and earthen volley ball/ badminton courts have been created for the students.

Students' Activities

The student community has had ample scope to hone its talents in extra-curricular activities. *The IIITG Students' Gymkhana Council currently has 16 active clubs under the various Boards as listed below:*

Under Technical Board: 1) Programming Club 2) Robotics Club 3) Mavericks- The Machine Learning Society

Under Cultural Board: 1) Literary Club 2) Movie Club 3) Fine Arts Club 4) Quiz Club 5) Reading Club 6) Photography Club 7) Music Club 8) Dance Club 9) Drama Club

Under Sports Board: 1) Outdoor Sports Club 2) Indoor Sports Club

Under Welfare board: 1) Eco and Outreach Club 2) Health Club

Below is a calendar of events related to students' activities organized during the Monsoon and Winter Semesters of AY 2019-2020:

Student Affairs Activity Calendar For 2019-2020		
Monsoon Semester		
Date	Event	Details of events
05.06.2019	World Environment Day	Plantation drive by IIITG Welfare Board in association with IIITG Estate Office
21.06.2019	International Yoga Day	Yoga session conducted by VKIC following Common Yoga Protocol for all students, faculty and staff
09.08.2019	Gender Sensitization for B.Tech First Year students	Organized under IIITG ICC
13.08.2019	Orientation for new BTech batch under Induction Programme and workshop on Anger Management and for MTech and PhD students	Conducted by online counselling service provider YourDost.com
15.08.2019	Independence Day	Director's speech followed by Cultural Programmes by students under Cultural Board
16.08.2019	Orientation for new batch BTech under Induction Programme	Conducted by on-campus counselling service provider Mind India
23.08.2019	Gender Sensitization for BTech Second Year, Third year, Fourth	Organized under IIITG ICC

	Year, MTech First and Second year and PhD students	
06.09.2019	Inter Batch Counselling for PhD and M. Tech and B.Tech Fourth Year Students	Conducted by on-campus counselling service provider Mind India
10.09.2019	Students' Gymkhana Council (SGC) Election	Election was conducted.
14.09.2019	Umang Football Match (PhD vs Faculty)	Friendly matches organized by Sports Board Faculty won by 4-0
11.09.2019 to 28.10.2019	Swachhta Hi Sewa Campaign: 'Jan Andolan'	1.Shramdaan: Cleanliness drive in the campus by the students, faculty and staff members 2.Swachhta Pledge by participating members 3. Restricted use of single use plastic in the campus 4. Adopted "Sontola" (Milanpur) village as per Village Adoption Plan for 'Clean Village' and 'Jal Shakti Gram'.
29.09.2019	Fine Arts Event- Relay Drawing	Organized by IIITG Fine Arts Club under Cultural Board
26.09.2019 to 29.09.2019	Spirit Participation	IIITG won Gold Medal in triple jump (individual) and TT Team won Silver Medal
1.10.2019	Graffiti Art on messages of peace	Organized by IIITG Fine Arts Club and Reading Club under Cultural Board
1.10.2019	Khadi Day	Brief History of Khadi and Documentary Screening by IIITG Literary Club under Cultural Board
02.10.2019 Marking completion of 150 th Birth anniversary of Mahatma Gandhi	Marathon(Run for Peace)	Organized by IIITG Sports Board
	Cleanliness Drive and Village Adoption	Organized by SGC Welfare Board (as part of Swachhata Hi Sewa and Jal Shakti Students).
	Quiz Competition	Organized by IIITG Quiz Club under Cultural Board
	Talk on Ahinsa, Satyagraha and Duragraha	Organized by IIITG Literary Club under Cultural Board
	Drama for raising awareness on plastic free world	Organized by IIITG Drama Club under Cultural Board

	Musical Evening: Tribute to Mahatma Gandhi	Organized by IIITG Music Club under Cultural Board
05.10.2019	Garbha Night	Under IIITG Cultural Board
12.10.2019	Inter Batch Counselling for B.Tech 1st, 2nd year, and 3rd year students	Conducted by on-campus counselling service provider Mind India
16.10.2019 to 22.10.2019	Art of Living Week	Conducted by Art of Living under IIITG Welfare Board
18.10.2020	Workshop on Developing Interpersonal Relationships	Conducted by online counselling service provider YourDost.com
19.10.2019	Freshers' Social	Freshers' Social Event organized by Students' Gymkhana Council
24.10.2019	Anime Quiz	Organized by IIITG Quiz Club under Cultural Board
25.10.2019	Sports Quiz	Organized by IIITG Quiz Club under Cultural Board
25.10.2019	Photography Exhibition	Organized by IIITG Photography Club under Cultural Board
27.10.2019	Fit India Programme for both boys and girls	Organized by IIITG Sports Board
27.10.2019	Diwali Celebration	Musical and Dance Programme organized by IIITG Cultural Board
29.10.2019 to 03.11.2019	Vigilance Awareness Week	Students' Group Discussion on ' <i>Integrity: Way of Life</i> ' organized by Eco and Outreach Club under IIITG Welfare Board
31.10.2019	Alruwhani Dance Competition	Organized by Dance Club under IIITG Cultural Board
31.10.2019	Rashtriya Ekta Divas	Rashtriya Ekta Pledge and Run for Unity organized by IIITG Sports Board
01.11.2019	Bon Fire Reading Event	Organized by Reading Club under Cultural Board
02.11.2019	Wall Painting	Organized by Fine Arts Club under IIITG Cultural Board

03.11.2019	Ek Bharat Shreshtha Bharat (EBSB)	Movie Screening focusing Rajasthan by IIITG Movie Club under Cultural Board
	Rangoli Competition for EBSB featuring Mandana Art of Rajasthan	Organized by Cultural Board
03.11.2019	Talk on 'Making of Constitution' (pre-event for Constitution Day)	Organized by Literary Club under IIITG Cultural Board
03.11.2019	Group Discussion with students on work-life balance	Conducted by on-campus counselling service provider Mind India
10.11.2019	Intra Hostel Cricket Tournament Final	Organized by IIITG Sports Board
11.11.2019	Debate Competition for National Education Day on the topic "Is Education in India Knowledge Driven or Job Driven?"	Organized by IIITG Literary Club under Cultural Board
19.11.2019 to 25.11.2019	Communal Harmony Week	Fund Raising Activities
26.11.2019	Constitution Day	Reading of Preamble and Pledge Taking
07.12.2019	EBSB Club Day	EBSB Club formally established and events to be celebrated in next semester under EBSB chalked out.
Winter Semester		
12.01.2020/ 19.1.2020/ 08.02.2020	Photo walks to Palasbari and Brahmaputra	Organized by IIITG Photography Club under Cultural Board.
15.01.2020	Reverse Literary Charades	by IIITG Literary Club under Cultural Board.
15.01.2020/ 17.01.2020	Club Session 1 1. Bollywood Style Dance 2. Hip Hop 3. Lyrical Styles	Organized by IIITG Dance Club under Cultural Board.
22.01.2020 – 30.01.2020	(A step back) Short story writing competition	Organized by IIITG Reading Club under Cultural Board.

24.01.2020	Project Based Introduction to K-Nearest Neighbours and Logistic Regression by Using Breast Cancer Prediction as Example.	Organized by IIITG Mavericks: The Machine Learning Society under Technical Board. Through this event, students were introduced on how to apply ML to a classification problem using Knn and Logistic regression and drew comparison between both the algorithms and their use cases.
24.01.2020	Popular Media Quiz	Organized by IIITG Quiz Club under Cultural Board.
25.01.2020	Umang (Under Fit India Campaign)	Cricket Match between Faculty & PhD Students Organized by y IIITG Outdoor Sports Club under Sports Board and PhD students won the match.
25.01.2020	Wellness Carnival	Organized by Counselling Service providers Mind India; Open Mic session for students
24.01.2020 - 25.01.2020	Sandesh to Soldiers	Organized by IIITG Eco & Outreach Club under Welfare Board. Greeting Cards were sent to soldiers at Air Force Station.
25.01.2020	26 DOODLE (creative doodle with patriotic theme for Republic Day).	Organized by IIITG Fine Arts Club under Cultural Board.
25.01.2020	Movie Screening "Rang De Basanti"	Screening of the movie on the eve of Republic Day by IIITG Movie Club under Cultural Board.
26.01.2020	Spell Bee	Organized by IIITG Literary Club under Cultural Board for Republic Day.
26.01.2020	Drama for Republic Day	Organized by IIITG Drama Club under Cultural Board for Republic Day..
26.01.2020	Sports Quiz	Organized by IIITG Quiz Club under Cultural Board. It was held as part of Republic Day celebration in light of <i>Khelo India</i> happening in Guwahati.
26.01.2020	Republic Day	Director's speech followed by Cultural Programmes by students under Cultural Board.
31.01.2020	Ek Bharat Shreshtha Bharat (EBSB) Monthly Activity	Rajasthani Cuisine Day in Hostels
16.02.2020	Crossword Competition	Organized on the occasion of 'International Book Giving Day' by Reading Club under Cultural Board.

18.02.2020	Ek Bharat Shreshtha Bharat (EBSB) Monthly Activity	Talk on 'Traditional Attire of Rajasthan' organized by Literary Club under Cultural Board.
28.02.2020 13.3.2020	Self Defense Program	Organized for Female Faculties, Staffs and students by IIITG ICC
29.02.2020	Rock Jam Session	Organized by Music Club under Cultural Board.
04.03.2020	Talk on Internship/Placements	Organized by Technical Board
08.03.2020	Women's Day	Workshop on 'Safety on social media and understanding sexual harassment' conducted by YourDost.com at IIITG.
08.03.2020	Movie Screening "Pink"	Screening of the movie on Women's Day by IIITG Movie Club under Cultural Board.
08.03.2020	Plantation drive and Tree Adoption campaign	Organized by Welfare Board for Swachhata Hi Sewa campaign of MHRD.
11.03.2020	Mehfil – E – Alfaaz	Organized by Literary Club under Cultural Board.
13.03.2020	Health Camp	Organized by Health Club under Welfare Board and conducted by "SUKAFA" an NGO registered with various Dept. of Govt. of Assam.
14.03.2020	Music Club Event "The Bridge Session"	Musical gathering for IIITG community organized by Music Club under Cultural Board
14.03.2020	Career Counselling Drive in SOS Children's Village	Organized by welfare Board IIITG guided the children belonging to class VIII to class XII.
15.03.2020	Blood Donation Camp	Organized by IIITG welfare Board with the full co-operation from the students.
15.03.2020	Trek to Kopili	Organized by IIITG Eco and Outreach Club under Welfare Board.
01.01.2020	Ek Bharat Shreshtha Bharat (EBSB) Monthly Activity	Online Poster Making Competition (Digital and Handmade) on Rajasthan 'Travel and Tourism'

The Annual Institute Awards and the Annual Techno-Cultural and Sports Fest of IIITG Yuvaan, scheduled in the Winter Semester were postponed due to the pandemic

Students' Achievements

IIIT Guwahati students have earned a name both in academic as well as extra-curricular activities outside the Institute. Some such achievements are listed below:

Academic Achievements

1. **Rajat Bhattacharya** (3rd Year B.Tech, ECE), **Vishesh Mishra** (2nd Year B.Tech, ECE), **Saurabh Singh** (2nd Year B.Tech, ECE) and **Kaustav Goswami** (4th Year B.Tech, CSE) won Best Poster Award in Student Research Symposium for "ACEP: An Accuracy-Configurable Carry Estimating Parallel Adder" at 26th IEEE International Conference on high performance computing, data and analytics at Hyderabad, India (17-20th December).

2. **Vikash Singh** (Team Captain; 4th Year B.Tech, CSE), **Samidha Singh** (2nd Year B.Tech, CSE), **Shivang Mishra** (2nd Year B.Tech, CSE), **Rahul Gupta** (2nd Year B.Tech, CSE), **Swapnil Aman** (2nd Year B.Tech, CSE) and **Sajal Gupta** (2nd Year B.Tech, ECE) got selected for Nationals (SIH 2020) held on 18th January 2020 at IIITG for Institute level and on 9th February 2020 at SIH Portal for Regionals. The Nationals are scheduled on 19th-20th July, 2020.

Project details - Building a software solution having blockchain used in the backend to provide data security and paperless record keeping management with easy-to-use interface to women self-help groups who have already borrowed money from banks.

3. **Chandan Kumar** (4th Year B.Tech, CSE) secured Rank 591 out of 100000 candidates appeared in GATE 2020, All India Exam conducted by IIT Delhi.

4. **Gargee** (3rd Year B.Tech, CSE), **Saurabh Bhartia** (3rd Year B.Tech, CSE), **Sahil Bajaj** (3rd Year B.Tech, CSE), **Parth Halani** (3rd Year B.Tech, CSE), **Ashutosh Gupta** (2nd Year B.Tech, CSE) and **Ankit Jaglan** (3rd Year B.Tech, CSE) were finalists of Smart India Hackathon 2020 (SIH 2020) for Creating a mechanism for tracking and tracing of fake news. Finale has been postponed due to pandemic.

5. **Amritanshu Kumar** (3rd Year B.Tech, CSE), **Saurabh Bhartia** (3rd Year B.Tech, CSE) and **Sahil Bajaj** (3rd Year B.Tech, CSE) got selected in regional ACM-ICPC Kharagpur and Gwalior in December 2019-Gwalior and Kharagpur - Coding Competition for selecting Indian participant for world finals.

6. **Sachin Agarwal** (2nd Year B.Tech, CSE) **Rakesh Senwar** (4th Year B.Tech, CSE), **Parth Halani** (3rd Year B.Tech, CSE) qualified for ICPC Regionals (Asia Region- Amritapuri Site).

7. **Srijan Wadhwa** (Team Leader; 3rd Year B.Tech, ECE), **Prince Kumar Sharma** (3rd Year B.Tech, ECE), **Subham Khobragade** (3rd Year B.Tech, ECE), **Sahil Jaiswal** (3rd Year B.Tech, CSE), **Nishu Kumari** (3rd Year B.Tech, ECE) and **Doli Narzary** (3rd Year

B.Tech, ECE) were Finalists of SIH 2019 Hardware Edition Team: Rahat IIT, Kharagpur July, 2019.

8. **Raj Ranjan** (2nd Year B.Tech, CSE) got listed in the Xiaomi's Bug Bounty Hall of Fame for recognizing medium level bug in MIUI 11, held at December 2019, through Hackerone.

9. **Praveen Kumar** (4th Year B.Tech, CSE) got a perfect score AIR-1 in Scaler discovery Challenge held in March 2020.

Extra-curricular Achievements

1. **Achal Dixit** (2nd Year B.Tech, CSE) and **Harshit Dixit** (2nd Year B.Tech CSE) were Finalists and ranked 8th among 120+ teams at North-East Hackathon 2019 - Northeast India's biggest Hackathon under TEQIP III.
2. **Achal Dixit** (2nd Year B.Tech, CSE) and **Harshit Dixit** (2nd Year B.Tech, CSE) ranked 10th in online round to qualify for Final onsite round among top 20 teams with overall 140+ teams at NITS HACKS conducted by NIT Silchar.
3. **Ayushman Singh Chauhan** (1st Year B.Tech, CSE) won a prize for making GitHub Action during GitHub Hackathon March 5-31, 2020 and Online Hackathon (<https://githubhackathon.com/>). Action got selected in Top 300 Actions submitted Internationally during the Hackathon and was ranked in 160th Position.
6. **Ujjwal Goel** (1st Year B.Tech, CSE) and Sanial Das (1st Year B.Tech, CSE) came 3rd in DD Quiz held on 29 /09/2019 at Doordarshan Kendra, Guwahati and won a cash prize.
7. **Sree Harsha Eka** (4th Year B.Tech, ECE), **Deepak Sidar** (2nd Year B.Tech, CSE) and **Diwakar Bharti** (2nd Year B.Tech, CSE) won 3rd prize at 'Footloose' AEC Group Dance competition on 14th February 2020.
8. **Vishesh Mishra** (2nd Year B.Tech, ECE)' Poems got published in renowned publications: *Anukrati Prakashan* ('Anugunjan') and *Anushruti Prakashan* ('Bhavtria').
9. **Swapnil Aman** (2nd Year B.Tech, CSE) won Third Prize in short story writing competition at 'A Step Back' – online short story writing competition organised by Overbooked (reading club of IIITG) on 28th January 2020 in which various institutes participated.
10. **Kundrapu Swaroop** (3rd Year B.Tech, ECE) won Gold in Triple Jump event at 'SPIRIT 19' held at IIT Guwahati from 26th to 29th September 2019.
11. **Nimish Agarwal** (2nd Year B.Tech, CSE) Manan Sharma 4th Year B.Tech CSE, **Utkarsh Mishra** (2nd Year B.Tech, CSE) and **Amit Prakash** (4th Year B.Tech, ECE) won Silver in Table Tennis at 'SPIRIT 19' held at IIT Guwahati from 26th to 29th September 2019.

Training And Placement

Placement Status BTech 2019-20 Batch:

IIIT Guwahati is having a successful placement session during 2019-20. Some of the companies where our students got placed are: TCS, Infosys, Toppr Technologies, Byjus, Samsung RnD India, Reliance Jio, Zaloni, Amtron, Virtusa, Yantrik, Tray, L&T Infotech. The selection processes for some companies are still going on.

The students got offers from both on-campus and off-campus selection processes. The statistics so far are:

Category	CSE	ECE	Overall
(1) Total student registered	25	20	45
(2) Total job offered	30	16	46
(3) Average salary (for domestic offers only)	11 LPA	8.1 LPA	10.2 LPA
(4) Median salary	6.5 lpa	5 lpa	5.5 lpa
(5) Total students selected	22	12	34
(6) Students going for higher studies	2	3	5
(7) Students starting their own company	0	0	0
(8) Highest salary	17 LPA	12 LPA	17 LPA
Percentage placed so far	88%	80%	76%

Placement Status MTech 2019-20 Batch:

IIIT Guwahati is having a successful placement session during 2019-20. Some of the companies where our students got placed are: TCS, Infosys, Toppr Technologies,

Samsung RnD India, Reliance Jio, Zaloni, Amtron, Virtusa, Yantrik, Tray, Byjus, LnT Infotech. The selection processes for some companies are still going on.

The students got offers from both on-campus and off-campus selection processes. The statistics so far are:

Category	CSE	ECE	Overall
(1) Total student registered	14	7	21
(2) Total job offered	12	2	14
(3) Average salary (for domestic offers only)	4.2 LPA	4.0 LPA	4.2 LPA
(4) Median salary	6.25 lpa	6.75 lpa	6.5 lpa
(5) Total students selected	7	2	9
(6) Students going for higher studies	1	1	2
(7) Students starting their own company	0	0	0
(8) Highest salary	11 LPA	7.5 LPA	11 LPA
Percentage placed so far	50%	29%	43%

Perspective Lecture Series

Faculty Members of the Department of HSS along with other faculty members of the Institute have been organizing regular interdisciplinary lectures/ academic events in monthly Meets under the **IIITG Perspective Lecture Series**. A total of 48 Academic Meets have been organized till March 2020.

8 Perspective Meets (including a Colloquium) were organized between the period April, 2019- March, 2020 and they are listed below:

Perspective Coordinators: Dr Suranjana Barua and Dr L. David Lal

MEET	DATE	SPEAKER	AFFILIATION	AREA/ DISCIPLINE	TOPIC OF TALK/ TITLE OF ACADEMICE EVENT
MEET 41 Special Session for National Technology Day (marked on 11 May)	31 May, 2019	Group Discussion and Documenta ry Screening	For 'National Technology Day'	Technology	"Humans, Gods and Technology" (Documentary Screening)
MEET 42	21 June, 2019	Dr Kukil Khanikar	Asst. Professor, Dept. of ECE, IIIT Guwahati	Electronics and Communicati on Engineering	'Cognitive Radio: 5G and Beyond'
MEET 43	5 Septemb er, 2019	Dr Manjil Hazarika	Asst. Professor and Head i/c Dept. of Archaeolo gy, Cotton university Guwahati	Archaeology	'Prehistory and Archaeology of North-East India'
MEET 44	27 Septemb er, 2019	Ms Priyanka Borah	CEO, Zublee Foundation , Guwahati	Organ Donation	'Organ Donation and its Importance'

MEET 45 (Special Session: Colloquium in association with IIT Madras and Gautam Buddha University, Greater Noida)	18 October, 2019	Prof Pradip Jyoti Mahanta	Professor, Royal School of Languages, Royal Global University, Guwahati	Cultural Studies/ Linguistics	<p>'Linguistic Diversity in Assam: Socio-cultural perspectives'</p> <p>In IIITG Perspective Colloquium on <i>Linguistic Diversity Rooted in Multi-Ethnic and Pluri-Cultural Societies of Assam</i></p>
Meet 46 (Special Session for Institute's celebration of Vigilance Awareness Week)	8 November, 2019	Dr Abhinanad an Saikia	Assistant Professor, Centre for Ecology, Environment and Sustainable Development, TISS Guwahati	Ecology/ Environmental Studies	<p>'Perspectives on Innovation and Technological Changes: A Quest for Environmental Integrity'</p>

MEET 47	31 January, 2020	Dr. Bibhuti Prasad Lahkar	Conservation Expert and Programme Secretary, Aranyak, Guwahati Assam and International Union for Conservation of Nature (IUCN) World Heritage Hero, 2016	Biodiversity	'Our Winged Friends and Biodiversity'
MEET 48 (Special Session for Institute's celebration of Matribhasha Divas)	21 February, 2020	Dr Srutimala Duara	Associate Professor, Dept. of English, Handique Girls' College, Guwahati	English/ Language Studies	'Mother Tongue and the Challenges of Translation'

Budget and Expenditure Summary

The Budget and expenditure summary for the year are as follows:

Item	Recurring (Rs.)	Non-Recurring (Rs.)
Balance B/F from 2018-19	35478788.00	13822633.04
Grant-in-aid 2019-20	-	75908000.00
Internal Revenue Generated	138861284.07	NIL
Expenditure 2019-20	157090551.10	93457666.00
Balance Carried Over	(18229267.03)	NIL

Sources of Funds (including balance brought forward)

Item	Recurring (Rs)	Non-Recurring (Rs)
Govt. of India	NIL	NIL
Govt. of Assam	NIL	60500000.00
Industry partners	NIL	15408000.00
Income from Interest	626020.26	NIL
Income from fees and others	138235263.81	NIL

A summary of the Annual Accounts is given in the Appendix.

APPENDIX

A Summary of the Annual Accounts 2019-20

BALANCE SHEET			
		[Amount in ₹]	
SOURCES OF FUNDS	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND	1	1344779647.01	1273278281.00
DESIGNATED/ EARMARKED / ENDOWMENT FUNDS	2	2654315.00	2654315
CURRENT LIABILITIES & PROVISIONS	3	1375219691.67	39515286.10
TOTAL		1375219691.67	1315447882.10
APPLICATION OF FUNDS	Schedule	Current Year	Previous Year
FIXED ASSETS	4		
Tangible Assets		1339569101.68	25900416.68
Intangible Assets		-	-
Capital Works-In-Progress		-	1249096021.00
INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS	5	-	-
Long Term		-	-
Short Term		-	-
INVESTMENTS - OTHERS	6	-	-
CURRENT ASSETS	7	28590920.67	32980218.63
LOANS, ADVANCES & DEPOSITS	8	7059669.32	7471225.79
TOTAL		1375219691.67	1315447882.10

INCOME AND EXPENDITURE ACCOUNT			
		[Amount in ₹]	
Particulars	Schedule	Current Year	Previous Year
INCOME			
Academic Receipts	9	129695741.00	77408029.00
Grants / Subsidies	10	-	57522757.00
Income from investments	11	626020.26	1535991.00
Interest earned	12	-	-
Other Income	13	7993722.81	2156315.00
Prior Period Income	14	545800.00	-
TOTAL (A)		138861284.07	138623092.00
EXPENDITURE			
Staff Payments & Benefits (Establishment expenses)	15	92187013.65	68426803.23
Academic Expenses	16	2704832.62	2296194.00
Administrative and General Expenses	17	11920441.00	12735214.00
Transportation Expenses	18	496637.00	1256774.00
Repairs & Maintenance	19	17492499.00	13482008.00
Finance costs	20	42469.83	80730.05
Depreciation	4	30597343.00	4866581.00
Other Expenses	21	-	-
Prior Period Expenses	22	1649315.00	-
TOTAL (B)		157090551.10	103144304.28
Balance being excess of Income over Expenditure (A-B)		(18229267.03)	35478788
Transfer to / from Designated Fund			
Building fund			
Others (specify)			
Balance Being Surplus / (Deficit) Carried to Capital Fund		(18229267.03)	35478788

RECEIPTS AND PAYMENTS ACCOUNT							
						Amount in Rupees	
RECEIPTS		Current Year	Previous Year		PAYMENTS	Current Year	Previous Year
I.	Opening Balance			I.	Expenses		
	a) Cash Balances	13000.00	46527.00		a) Establishment Expenses	92187013.65	68426803.23
	b) Bank Balance				b) Academic Expenses	2704832.62	2296194.00
	i. In Current accounts	1040844.88	855605.84		c) Administrative Expenses	11920441.00	12735214.00
	ii. In Deposit accounts	18974326.00	5325000.00		d) Transportation Expenses	496637.00	1256774.00
	iii. Savings accounts	12952047.75	9265831.37		e) Repairs & Maintenance	17492499.00	13482008.00
II.	Grants Received				f) Prior period expenses	1649315.00	-
	a) From Government of India	-	114200000.00		g) Finance Cost	42469.83	80730.05
	b) From State Government	60500000.00	20000000.00	II.	Payments against Earmarked/ Endowment Funds	-	-
	c) From Industry Partners	15408000.00	82025000.00	III.	Payments against Sponsored Projects/Schemes	56897562.12	42417856.52
				IV.	Payments against Sponsored Fellowships/Scholarships	-	-
				V.	Investments and Deposits made	-	-
III.	Academic Receipts	129695741.00	77408029.00		a) Out of Earmarked/Endowments funds	-	-
IV.	Receipts against Earmarked/ Endowment Funds	-	-		b) Out of own funds (Investments- Others}	-	-
V.	Receipts against Sponsored Projects/Schemes	57578601.12	46468980.67	VI.	Term Deposits with Scheduled Banks	-	-
VI.	Receipts against sponsored fellowships and Scholarships	-	-	VII.	Expenditure on Fixed Assets and Capital Works - in- Progress		

VII.	Income on Investments from				a) Fixed Assets	1342553687.00	3833749.00
	a) Earmarked/Endowment funds	-	-		b) Capital Works- in-Progress	-1249096021.00	364293054
	b) Other investments	-	-	VIII .	Other Payments including statutory payments	-	-
VIII .	Interest received on						
	a) Bank Deposits	1104439.26	1829350.00	IX.	Refunds of Grants	-	-
	b) Loans and Advances	-	-	X.	Deposits and Advances	20293041.98	32429117.11
	c) Savings Bank Accounts	-	-	XI.	Other Payments	-	-
IX.	Investments encashed	-	-	XII.	Closing balances		
X.	Term Deposits with Scheduled Banks encashed	-	-		a) Cash in hand	76185.00	13000.00
XI.	Other income (including Prior Period Income)	8539522.81	2156315.00		b) Bank balances		
XII.	Deposits and Advances	19925876.05	214651079.66		In Current Accounts	3599099.72	1040844.88
XIII .	Miscellaneous Receipts including Statutory Receipts	-	-		In Savings Accounts	11615635.95	12952047.75
XIV	Any Other Receipts - Capital Work in Progress refund	-	-		In Deposit Accounts	13300000.00	18974326.00
TOTAL		325732398.87	574231718.54	TOTAL		325732398.87	574231718.54

Picture Gallery



IOT and BLOC chain workshop.



Cleanliness drive.



Second Convocation



International Women's Day Quiz



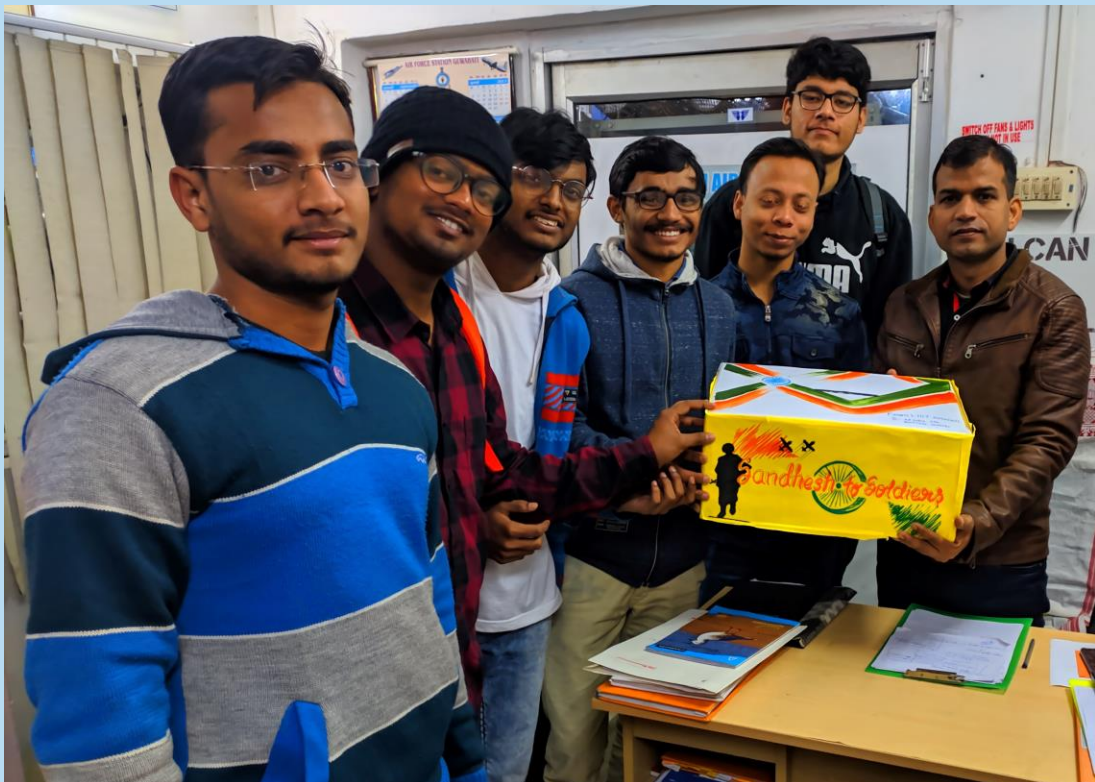
Short Marathon



Workshop on Recent Trends in Learning & optimization for communications control & Signal processing.



Spell Bee Winners



Sandesh to Soldiers



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