# Annual Report

## 2018-2019



# Indian Institute of Information Technology
# Guwahati

# Contents

# The Board of Governors

The following were members of the Board of Governors in 2018-19:

1. Shri. S. Ramadorai (Chairman) – former CEO, TCS.
2. Prof. Sivaji Bandyopadhyay -Director, NIT Silchar
3. Prof. Bhabesh Ch. Goswami (Member from July 2017) – VC, Cotton University.
4. Prof. Gautam Biswas (Member) – Director, IIT Guwahati.
5. Shri. Ranjit Barthakur (Special Invitee) – Amalgamated Plantations
6. Shri. Bedanta Prasad Sarma (Member till 31.01.2019) – Oil India Ltd.
7. Shri. Pranjit Deka (Member from 01.02.2019) – Oil India Ltd.
8. Dr. K. Kesavsamy (Member) – TCS.
9. Shri Ajay Tewari (Member till 14.05.2018) – Commisioner and Secretary, Higher Education, Govt. Of Assam.
10. Shri Maninder Singh (Member from 03.09.2018) – Principal Secretary, Higher Education, Govt. Of Assam.
11. Shri. Hemant Kanoria (Member) – SREI.
12. Dr. Sukhbir Singh Sandhu– Addl. Secretary, MHRD Govt. Of India.
13. Prof. A. Srinivasan – Dean, Faculty Affairs, IIT Guwahati.
14. Prof. M. Guru Prem Prasad (Member) – Dean, Academic Affairs, IIT Guwahati.
13. Prof. Gautam Barua (Secretary) – Director, IIIT Guwahati.

The Board met four times during the year (14th May 2018, 3rd September 2018,12th December 2018 and 19th March 2019).

# The Building and Works Committee

_____

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

1. Director, Chairman
2. Additional Secretary or his nominee, MHRD,Govt. of India
3. Principal Secretary or his nominee, Education Dept., Govt. of Assam
4. Sri Kaushik Basu, AGM, IPD TCS nominee
5. Prof. Anjan Dutta, Former Dean Institute Works, IIT Guwahati
6. Sri Gajen Ch. Das, S.E (PWD) as representative of Chief Engineer (Buildings), Assam State  PWD
7. Dr. Ferdous Barbhuiya, HoD, CSE, IIIT Guwahati
8. Mr. Kamalasan Goswami, OSD, IIIT Guwahati
9. Mr. N. Roy, Sr. E.E., IIT Guwahati, Special Invitee
10. Mr. S. Das, Regional In charge, HPL, Invitee
11. Executive Engineer, IIIT Guwahati, Secretary

The Committee met on 2nd Feb-2019

# The Senate

The following were the members of the Senate during FY   2018-19:

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

The Senate met four times during the year (24th April 2018, 12th May 2018, 3rd August 2018 and 26th November 2018).

# Student Details

**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 and to 200 (CSE 115, ECE 85) in 2018. 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 and the first batch of students had taken admission in August 2018. The intake is 60 (CSE 35, ECE 25).
PhD Programme
The following students were admitted to the PhD programme in 2018-19

| Department | Full-time | Part-time | Total |
|---|---|---|---|
| CSE | 1 | 3 | 4 |
| ECE | 4 | 1 | 5 |
| Science and Mathematics | 1 | 0 | 1 |
| HSS | 2 | 1 | 3 |

**Student Profile**

At the end of March 2019, there were 465 students in the Institute with the following profile:

| | Male | Female | General | OBC | SC | ST | Total |
|---|---|---|---|---|---|---|---|
| B.Tech CSE 2014 | 2 | 0 | 0 | 2 | 0 | 0 | 2 |
| B.Tech CSE 2015 | 29 | 3 | 18 | 9 | 4 | 1 | 32 |
| B.Tech ECE 2015 | 24 | 4 | 15 | 9 | 3 | 1 | 28 |
| B.Tech CSE 2016 | 24 | 3 | 14 | 9 | 3 | 1 | 27 |
| B.Tech ECE 2016 | 24 | 2 | 8 | 13 | 3 | 2 | 26 |
| 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 | 119 | 3 | 64 | 34 | 14 | 10 | 122 |
| B.Tech ECE 2018 | 75 | 4 | 41 | 27 | 9 | 2 | 79 |
| B.Tech Total | 365 | 28 | 201 | 123 | 45 | 24 | 393 |
| M.Tech CSE 2018 | 9 | 9 | 14 | 4 | 0 | 0 | 18 |
| M.Tech ECE 2018 | 8 | 1 | 7 | 2 | 0 | 0 | 9 |
| M.Tech Total | 17 | 10 | 21 | 6 | 0 | 0 | 27 |
| PhD CSE (Regular) | 8 | 3 | 9 | 2 | 0 | 0 | 11 |
| PhD CSE (Part-time) | 8 | 1 | 8 | 0 | 1 | 0 | 9 |
| PhD ECE (Regular) | 4 | 5 | 8 | 1 | 0 | 0 | 9 |
| PhD ECE (Part-time) | 3 | 1 | 3 | 0 | 0 | 1 | 4 |
| PhD HSS (Regular) | 2 | 4 | 4 | 2 | 0 | 0 | 6 |
| PhD HSS (Part-time) | 2 | 1 | 1 | 2 | 0 | 0 | 3 |
| PhD Maths (Regular) | 2 | 1 | 2 | 1 | 0 | 0 | 3 |
| PhD Maths (Part-time) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PhD Total | 29 | 16 | 35 | 8 | 1 | 1 | 45 |
| Total | 411 | 54 | 257 | 137 | 46 | 25 | 465 |

**Graduating Students**

The second Batch of students graduated in May 2018. Total 56 students (30 in CSE and 26 in ECE) completed their programmes in May 2018.

The first Convocation of the Institute was held on 15th May 2018. Degrees were awarded to the 56 students from the second batch as well as to the 56 students from the first batch who had graduated in May 2017.

# Faculty and Staff

The Institute last held selections for faculty in 2018. Selections will take place again in May-June 2019 to take the faculty strength to 51. The faculty profile at the end of March 2019 was as follows:

| Item | Male | Female | Gen | OBC | SC | ST | Total |
|---|---|---|---|---|---|---|---|
| Lecturer CSE | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Asst. Prof CSE | 8 | 4 | 9 | 2 | 1 | 0 | 12 |
| Professor CSE (on contract) | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| Lecturer ECE | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Asst. Prof ECE | 9 | 6 | 13 | 1 | 1 | 0 | 15 |
| Asst Prof Maths | 1 | 2 | 3 | 0 | 0 | 0 | 3 |
| Asst Prof HSS | 3 | 2 | 4 | 1 | 0 | 0 | 5 |
| Total | 25 | 14 | 33 | 4 | 2 | 0 | 39 |

The staff profile is:

| Item | Male | Female | Gen | OBC | SC | ST | Total |
|---|---|---|---|---|---|---|---|
| Registrar | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| OSD | 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 |
| Total | 17 | 3 | 11 | 4 | 3 | 2 | 20 |

# Research and Development

**Publications**

The number of publications by faculty in the past year can be seen from the table below. While the total number of publications in 2018-19 is less than that in 2017-18, the number of journal publications has increased. We must strive to have an annual ratio of 1:2 and 1:1 for faculty to total publications and total journal publications respectively.

| Year | Journals | Conferences | Book chapters | Total |
|------|----------|-------------|---------------|-------|
| 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 2018 to Mar 2019**

| Sl. no | Project Title | Funding Agency | Project Amount (INR) | Project start date |
|--------|---------------|----------------|----------------------|--------------------|
| 1 | Transformations and special values of Gaussian hypergeometric series; and their connections to supercongruences | DST-SERB | 5,02,127.00 | May-2018 |
| 2 | A Low-Cost, high Resolution Optoacoustic Imaging System for Diagnosing and Monitoring Rheunatoid Arthritis | DST-SERB | 31,74,600.00 | Sept-2018 |
| 3 | Energy Efficient 5G Hybrid Optical Wireless Communication System Based on High-Speed FSO/ VLC Interconnections | DST-SERB | 24,17,250.00 | Sept-2018 |

| 4 | A Low Cost, Portable and High Quality Device (Prototype) for Food Quality Assessment Based on Microscopic Image and Deep Learning | IMPRINT-II Scheme of DST | 17,00,873.00 | Dec-2018 |
|---|---|---|---|---|
| 5 | Hypergeometric Series, and (super)congruences for Apery-like numbers | NBHM | 3,72,500.00 | Dec-2018 |
| 6 | Reconfigurable 3DIC Hardware Accelerator Platform for Deep Neural Networks | DST-SERB | 27,04,000.00 | Feb-2019 |
|  | TOTAL |  | 1,08,71,350.00 |  |

**On-going projects from previous FY 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 | Adaptive Learning Models for Land-cover Classification with application in Remote Sensing based Monitoring of Agriculture and Forestry | DST-SERB | 16,28,000.00 | Mar-17 |
| 4 | A Secure and Scalable Inter-cloud Authorisation framework for resource sharing in Cloud Environment | DST-SERB | 18,66,810.00 | Jul-17 |
| 5 | Bridging Network Science and HPC: Accelerating Big Data Centric Network Analytics using HPC Technologies | DST-SERB | 27,95,130.00 | Jul-17 |
| 6 | Development of MAC associated schemes for large IEEE 802.15.4 based networks | DST-SERB | 16,98,740.00 | Mar-17 |

| 7 | Design and Development of an Adaptive Middleware for Smart Building Monitoring | DST-SERB | 21,84,600.00 | Jul-17 |
|---|---|---|---|---|
|   | TOTAL |   | 1,64,77,335.00 |   |

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 stuff 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 29 April, 2019, Rs. 6.22 crores have been spent from this project, out of which 4.82 crores has been for procurement, 1.11 crores for academic processes, and 0.29 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 2018-19

| Sl. no. | Consultant | Consulting Agency | Consultancy Amount (INR) |
|---|---|---|---|
| 1 | Prof. Gautam Barua | GIC Housing Finance Ltd. | 10,00,000.00 |
| 2 | Dr. Ferdous Ahmed Barbhuiya | Special Branch, Assam Police, Govt. of Assam | 8,00,000.00 |

**CONFERENCES/WORKSHOPS/SCHOOLS/COURSES**

Various conferences, seminars, workshops and schools were organised by the Departments and Centres of the Institute during the past year. A few of them 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 40 sessions have been held so far, with 10 Meets held between April 2018 and March, 2019 (Faculty Coordinators: Dr Suranjana Barua and Dr L. David Lal).

2. The Department of CSE organized the following

Harshit Kumar of IBM Research India conducted a workshop on "Chatbots: A Demo of How to Build a Conversation Using Watson Conversation System" on 6th April 2018.

Kuntal Dey of IBM Research India delivered a lecture on "Hierarchical Bi-Lstm-CRF model for Annotating Utterances in a Conversation System with Dialog" on 6th April 2018.

Ansuman Banerjee of Indian Statistical Institute Kolkata delivered a lecture on "Fascinating landscape of research in Computer Architecture" on 03 January 2019.

- Shuva Brata Deb, of RSA Security delivered a talk on "Emerging Significance of Enterprise Endpoint Security" on 19th September 2018.
- 
- Prof. Y. N Shrikant of Indian Institute of Science Bangalore delivered a research talk on "Falcon, A Graph Manipulation Language for Distributed Heterogeneous Systems" on 5th November, 2018.
- 

Mr. Amit Bansal of Smart Interviews, Hyderabad conducted an Employability Training and Workshop on Data structures and Algorithms between November 2 - November 4, 2018.

3. The Department of ECE organized the following:

A hands-on training cum Lab session was organized on 5th March 2019 in Basys3 FPGA boards using Vivado IDE for digital system design by Mr. Mayank Singh, Application Engineer, Coreel Technologies, Bangalore. It was open to UG 3rd Year, 4th Year, M.Tech 1st year ECE students and all faculty members. (Faculty Coordinator: Dr Rakesh Biswas).

Workshop on assembly of Foldscope and its application in cancer research was organized on 2nd March, 2019 for all the students of the institute. Dr. Guruvayoorappan C. from RCC Thiruvananthapuram delivered the talk (Faculty Coordinator: Dr Rusha Patra)

Hands-on training was given on Analog signal, networks and measurement virtual lab, Basic electronics virtual lab, Digital electronic circuit virtual lab by Prof. A. K. Deb from IIT Kharagpur. It was open to UG 3rd year and M.Tech 1st year ECE students. (Faculty Coordinator: Dr Rusha Patra)

A two day series of invited talks by Prof. M. Chakraborty, Dept. of E.&E.C. Engg., IIT Kharagpur was organized on 18th - 19th March, 2019 under the provision of TEQIP (III) (Faculty Coordinator: Dr. Bijit Kumar Das with other faculty members).

# 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. Sirshendu Das, Asst. Professor, Multicore Cache Architectures, Network-on-Chip and Formal Verification.
10. Dr. Subhasish Dhal, Asst. Professor, Information Security, Cloud Computing, Security in RFID, Key Distribution in Wireless Networks.
11. Dr. Suchetana Chakraborty, Asst. Professor, Wireless sensor and mobile ad hoc networks, Intelligent transportation systems, Distributed routing techniques, Context-awareness and pervasive computing.
12. Dr. Subhabrata Paul, Asst. Professor, Algorithms (left in December 2017)
13. Sanjay Moulik, Lecturer, Real-time Scheduling, Energy Aware Fair Scheduling, Optical Character Recognition, Software Engineering.

**II Publications:**

**Journals**

1. S. Mishra, S. Mondal, and S. Saha, "Towards Obtaining Upper Bound on Sensitivity Computation Process for Cluster Validity Measures," Fundamenta Informaticae, vol. 163, no. 4, pp. 351–374, 2018.

2. S. Mishra, S. Mondal, S. Saha, and C. A. C. Coello, "GBOS: Generalized Best Order Sort Algorithm for Non-dominated Sorting," Swarm and Evolutionary Computation, vol. 43, pp. 244–264, 2018.

3. S. Mishra, S. Saha, S. Mondal, and C. A. C. Coello, "A Divide-and-Conquer based Efficient Non-dominated Sorting Approach," Swarm and Evolutionary Computation, vol. 44, pp. 748–773, 2019.

4. K. Goswami, H. K. Choudhury, A. Hazarika, R. Tripathi, "An assessment of economic viability of jatropha plantation in North East India", International Journal of Energy Sector Management, 2019.

5. Swati Mittal, Nitin Rakesh, Rakesh Matam, Ashish K. Adhikari: An optimal storage and repair mechanism for Group Repair Code in a distributed storage environment. Intelligent Decision Technologies 12(4): 441-451 (2018).

6. Nazatul Haque Sultan, Ferdous A Barbhuiya, Maryline Laurent, "ICAuth: A Secure and Scalable Owner Delegated Inter-Cloud Authorization" *Future Generation Computer Systems*, Vol 91, Nov 2018, pages 319-332.

7. S. Chakraborty, M. Roy, and F. Melgani, "Semi-supervised Two-level Fusion based Auto-encoded Approach for Low-cost Domain Adaptation of Remotely Sensed Images" IEEE Geoscience and Remote Sensing Letters, 2019.
8. Barnana Baruah, Subhasish Dhal, "A Two-Factor Authentication Scheme Against FDM Attack in IFTTT based Smart Home System", Journal of Computers and Security, 7, pp. 21-35, August 2018.


**Conferences:**

1. S. Mishra and C. A. C. Coello, "P-ENS: Parallelism in Efficient Non-dominated Sorting," in 2018 IEEE Congress on Evolutionary Computation (CEC). IEEE, 2018, pp. 1–8.

2. S. Mishra, S. Saha, and S. Mondal, "MBOS: Modified Best Order Sort Algorithm for Performing Non-dominated Sorting," in 2018 IEEE Congress on Evolutionary Computation (CEC). IEEE, 2018, pp. 1–8.

3. S. Mishra, S. Saha, and S. Mondal, "On Evaluation of Entity Matching Techniques for Bibliographic Database," in 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI). IEEE, 2018, pp. 2325–2331.

4. S. Mishra, S. Saha, and S. Mondal, "An Approach to Obtain the Upper Bound on the Number of Non-dominated Fronts in a Population," in 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI). IEEE, 2018, pp. 1947–1951.

5. R. Tripathi, "ISP's Pricing Strategy: Advance vs Simultaneous", 11th International Conference on COMmunication Systems & NETworkS (COMSNETS), Bangalore, 2019.

6. R. Tripathi, "Effect of Penalties on the Service that Multihomed Internet Clients Receive", 4th International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET), Kalavakkam, 2019.

7. Nilotpola Sarma, Suchetana Chakraborty and Dip Sankar Banerjee, "Learning and Annotating Activities for Home Automation using LSTM", in proc. of the workshop of Machine Intelligence in Networked Data and Systems (MINDS), COMSNETS 2019, Bangaluru, India.

8. Anirban Das, Rohan Gupta and Suchetana Chakraborty, "Significance of Adaptive Sensing for Smart Building Monitoring: A Practical Study", in proc. of the workshop of Wild and Crazy ideas on the interplay between IoT and Big Data (WACI), COMSNETS 2019, Bengaluru, India.

9. Anirban Das, Rohan Gupta and Suchetana Chakraborty, "Motivating In-network Fusion for Smart Infrastructure Monitoring", in the proc. of the 11th International Conference on Communications Systems and Networks, COMSNETS 2019, Bengaluru, India.

10. Nilotpola Sarma, Suchetana Chakraborty and Dip Sankar Banerjee, "Activity Recognition through Feature Learning and Annotations using LSTM", in the proc. of the 11th International Conference on Communications Systems and Networks, COMSNETS 2019, Bangaluru, India.

11. Rohan, Jayashree Phukan and **Suchetana Chakraborty**, "*RDDF: Rating Driven Data Forwarding in Vehicular Network*", in proc. of the IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS 2018) , Indore, India.

12. R*ohit* Sharma and **Suchetana Chakraborty, "***BlockAPP: Using Blockchain for Authentication and Privacy Preservation in IoV***"**, in the proc. of IEEE GLOBECOM 2018 Workshops: Blockchain in IoT, Abu Dhabi, UAE. pp.1-6.

13. *Anirban* Das and **Suchetana Chakraborty**, "*SDCF: Sensory Data Collection Framework for Smart Building application*", in the proc. of IEEE Sensors 2018, New Delhi, India.

14. Anirban Das and **Suchetana Chakraborty**, "*Context Aware Data Collection Framework for Critical Infrastructure Monitoring System*", in the proc. of the 10th ACM Wireless of the Students, by the Students and for the Students Workshop (ACM S3 Workshop) in conjuntcion with ACM MOBICOM 2018, New Delhi, India.

15. Rohit Sharma and **Suchetana Chakraborty**, *"B2VDM: Blockchain Based Vehicular Data Management"*, in the proc. of the 7th International Conference of Advances in Computing, Communications and Informatics (ICACCI 2018), Bangalore, India.

16. Kaustav Goswami, Shirshendu Das, Hemanta Kumar Mondal, Dip Sankar Banerjee. State Preserving Dynamic DRAM Bank Re-configurations for Enhance Power Efficiency. In the proceedings of 20th International Conference on Quality Electronic Design (ISQED). Santa Clara, USA March 2019.

17. Mridul Haque, Dip Sankar Banerjee. Enhancing Influence Maximization in Social Networks using Parallel Reverse Reachability Set Computations. in the proceedings of 11th International Conference on Contemporary Computing (IC3). August 2018.

18. POSTER: Nilotpala Sarma, Suchetana Chakraborty, Dip Sankar Banerjee. Activity Recognition through Feature Learning and Annotations using LSTM. In the proceedings of 11th International Conference on Communication Systems and Networks (COMSNETS). Bengaluru. January 2019.

19. POSTER: Kaustav Goswami, Dip Sankar Banerjee. State Preserving Dynamic DRAM Bank Re-configurations for Enhance Power Efficiency. In Student Research Symposium of 25th International Conference on High Performance Computing, Data, and Analytics (HiPC). Bengaluru December 2018.

20. Choudhury, N., Matam, R. & Kundrapu. D, (November 2018). Cluster-Head Rotation Scheme for Beacon-Enabled IEEE 802.15.4 Networks, IEEE Sensors'18, New Delhi.

21. Choudhury, N., Matam, R., Mukherjee. M, & Lloret, J., (December 2018). A Non-threshold-based Cluster-head Rotation Scheme for IEEE 802.15.4 Cluster-tree Networks, IEEE GLOBECOM'18, Abu Dhabi, UAE.

22. Mithun Mukherjee, Yejun Liu, Jaime Lloret, Lei Guo, Rakesh Matam, Mohammad Aazam: Transmission and Latency-Aware Load Balancing for Fog Radio Access Networks, IEEE Global Communications Conference (GLOBECOM), Abu Dhabi, 2018.

23. Nitendra Tomar, Rakesh Matam: Optimal Query-Processing-Node Discovery in IoT-Fog Computing Environment, International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2018.

24. Abhishek Raushan, Rakesh Matam: Fast Localization and Topology Discovery Scheme to Handle Topology Changes in Industrial IoT Networks, International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2018.

25. S. Moulik, R. Devaraj and A. Sarkar, "HEART: A Heterogeneous Energy-Aware Real-Time scheduler," 32nd International Conference on VLSI Design (VLSID), Delhi, 2019.

26. S. Moulik, R. Devaraj and A. Sarkar, "COST: A Cluster-Oriented Scheduling Technique for Heterogeneous Multi-cores," IEEE International Conference on Systems, Man, and Cybernetics (SMC), Japan, 2018, pp. 1951-1957.

27. S. Moulik, R. Devaraj and A. Sarkar, "HETERO-SCHED: A Low-Overhead Heterogeneous Multi-core Scheduler for Real-Time Periodic Tasks," IEEE 20th International Conference on High Performance Computing (HPCC), Exeter, United Kingdom, 2018, pp. 659-666.
28. S. Chattopadhyay and A. Banerjee, "A Variation Aware Composition Model for Dynamic Web Service Environments," in *International Conference on Service-Oriented Computing*, ICSOC 2018, Hangzhou, China, November 12-15, 2018, Springer, Cham, 2018. pp. 694-713.

## Faculty Awards

1. Best Poster Award: Dr Dip Sankar Banerjee

Kaustav Goswami and Dip Sankar Banerjee. State Preserving Dynamic DRAM Bank Re-configurations for Enhance Power Efficiency. In Student Research Symposium of 25th International Conference on High Performance Computing, Data, and Analytics (HiPC). Bengaluru December 2018.

2. Best Paper Award: Dr Suchetana Chakraborty, Dr Dip Sankar Banerjee, Nilotpala Sarma, Suchetana Chakraborty, Dip Sankar Banerjee. Learning and Annotating Activities for Home Automation using LSTM. In the proceedings of MiNDS Workshop of 11th International Conference on Communication Systems and Networks (COMSNETS). Bengaluru. January 2019.

## Faculty Talks

A number of faculty gave talks outside the Institute during their year.
1. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Keynote Speaker in Short Term Training Program on 'Big Data, Cloud Computing, Hands on with Python' held from 25th March to 29th March 2019 at Dibrugarh University, Dibrugarh, Assam India.

2. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person in faculty development program on 'Cyber Security' from 28th January to 1st February 2019 at Maulana Abul Kalam Azad University of Technology, West Bengal, under ISEA-Phase-II project funded by DietY, Govt. of India.

3. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person on 'Management of Digital Hygiene – Security Issues and Solutions, Case Studies' in Training Programme under the Scheme "National Programme for Training of Scientists & Technologists Working in Government Sector" from 8-October-2018 to 12-October-2018 at CDAC Mohali, Chandigarh, India

4. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person on 'Big data and Cloud Computing' in short term course from 7th June 2018 to 11th June 2018 at Jorhat Engineering College, Jorhat, Assam, India

5. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person on 'Enabling the Positive use of Artificial Intelligence for All' in Technical Seminar on 17-May-2018 organized by the Institution of Engineers (India), on occasion of celebration of World Telecom and Information Day (WTISD) 2018 at the Institution of Engineers (India), Assam State Centre, Guwahati

6. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person on 'Security for 5G Communications' from 11-June-2018 to 15-June-2018, 2018), in Faculty Development Program jointly organized by:Electronics & ICT Academies at- IIT Guwahati, IIT Roorkee, NIT Warangal, NIT Patna, MNIT Jaipur & IIITDM Jabalpur held at IIT Guwahati and also attended online by faculties from Institutes across India.

7. Dr. Ferdous Ahmed Barbhuiya delivered a talk as a Resource Person on 'Network & Cyber Security' in Faculty Development Programmes from 7-May-2018 to 12-May-2018 at Central Institute of Technology Kokrajhar, Assam, India.

# 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. Kuntal Deka, Asst. Professor, Error Correcting Codes, Information Theory, Communications.
4. Dr. Mourina Ghosh, Asst. Professor, Current Mode Circuits, Bipolar and MOS Analog Integrated Circuits.
5. Dr. Rusha Patra, Asst. Professor, Image Processing, Optical Imaging, Biomedical Optics, Computer Vision.
6. Dr. Sanya Anees, Asst. Professor, Free space optical communication, Cooperative communications, Multiple-input multiple-output (MIMO) systems, and Visible Light Communications.
7. Dr. Shilpa, Asst. Professor, Wireless Sensor Networks.
8. Dr.Shovan Barma, Asst. Professor, Biomedical Signal Processing, Emotion Recognition (Based on Speech and EEG Signal), VLSI Design.
9. 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.
10. Dr. Sounak Roy, Asst. Professor, Analog and mixed signal circuits.
11. Dr. Surajit Panja, Asst. Professor, Networked Control Systems, Multi-agent Systems, and Systems Biology.
12. Amar Nath Yadav, Lecturer, Radio frequency integrated circuit, Millimeter wave integrated circuit, Antenna design, Metamaterial, Optical integrated circuit.
13. 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.

**Journals:**

1. *Dr. Komal Janghel,* "Performance of Adaptive OMA/Cooperative-NOMA Scheme With User Selection", IEEE Communications letters, Vol 2, Issue 10, doi: 10.1109/LCOMM.2018.2863365
2. Khan, Mohd Mansoor, and Ramesh Kumar Sonkar. "Signal Wavelength Effect on Overmodulation in Thulium Doped Fiber Amplifiers with Amplified

Spontaneous Emission: A Simulink Pedestal." *Journal of Optical Communications*, 2018 https://doi.org/10.1515/joc-2018-0192

3. Khan, Mohd Mansoor, and Ramesh Kumar Sonkar. "Analytical model for signal and gain modulation on thulium-doped fiber amplifiers in S and near-C bands including amplified spontaneous emission: signal power analysis." *Optical Engineering* 58, no. 2 (2019). https://doi.org/10.1117/1.OE.58.2.026103

4. *Sourav Bhowmick and Surajit Panja, "Leader-follower Bipartite Consensus of Linear Multiagent Systems over a Signed Directed Graph", accepted in IEEE Transactions on Circuits and Systems II: Express Briefs, 2018, doi: 10.1109/TCSII.2018.2884006.*

5. Sourav Bhowmick and Surajit Panja, " Lag-Bipartite Consensus of Linear Multiagent Systems under Saturating Input over Signed Graph", IET Control Theory & Applications, vol. 13, issue. 3, pp. 434-443, 2019, doi: 10.1049/iet-cta.2018.5223

6. G. V. Chakravarthi, Bijit Kumar Das, and M. Chakraborty, "``An Adaptive Convex Combination of APA and ZA-APA for Identifying Systems having Variable Sparsity and Correlated Input", Digital Signal Processing, Vol. 82, pp. 118-132 (2018). DOI: https://doi.org/10.1016/j.dsp.2018.06.009

7. Kukil Khanikar, Rohit Sinha, Ratnajit Bhattacharjee, "Cooperative Spectrum Sensing using Quantized Energy Statistics in the Absence of Dedicated Reporting Channel", IEEE Transactions on Vehicular Technology, Volume: 67, Issue: 5, DOI: 10.1109/TVT.2018.2791020

**Conferences:**

1. Jitumani Sarma, Akash Katiyar, Hemanta Kumar Mandal, Rakesh Biswas, "Power-aware IoT based Smart Health Monitoring using Wireless Body Area Network", 20th International Symposium on Quality Electronic Design (ISQED), 2019. Santa Clara, California, USA. DOI: 10.1109/ISQED.2019.8697739

2. Borthakur, Surjya Prakash, Abhishek Bose, Mohd Mansoor Khan, and Pranav Agarwal, "Fall Detection using Inertial Measurement Sensors and Machine Learning on Developed Action Dataset (Best Paper Award)", International Conference on Science, Technology, Engineering and Mathematics (ICSTEM-2019) under "Vibrant Gujrat-2019", Vol. 1, 166-172

3. Sourav Bhowmick and Surajit Panja, "Adaptive Lag-Bipartite Consensus of Linear Multiagent Systems with a Non-autonomous Leader over Signed Graph", 2018 IEEE 5th International Conference on Control, Decision and Information Technologies (CoDIT), Thessaloniki, Greece, 2018, pp. 1097-1103, doi: 10.1109/CoDIT.2018.8394967.

4. Bal Chand Nagar, Mourina Ghosh, "Single OTRA Based Immittance Simulator and its Application", 2018 International Conference on Communication and Signal Processing (ICCSP), Chennai, DOI: 10.1109/ICCSP.2018.8524297

5. Bal Chand Nagar, Mourina Ghosh, "Squarer and Sinusoidal Frequency Doubler Based on Single OTRA", 2018 2nd International Conference on Power, Energy and Environment: Towards Smart Technology (ICEPE),Shillong     DOI: 10.1109/EPETSG.2018.8658905 (IEEE explore)

6. Mourina Ghosh, Bal Chand Nagar and Vishal Tiwari, "Higher Order Low-Pass Filter Using Single Current Differencing Buffered Amplifier", Proceedings of IEMIS 2018, Volume 3, Springer Singapore, ISBN-978-981-13-1500-8, DOI: 10.1007/978-981-13-1501-5

7. Rajarshi Saha, Bijit Kumar Das, and M. Chakraborty, ""Sparsity Aware Fast Block LMS Algorithms for MIMO Radar Imaging ", IEEE International Workshop on Signal Processing Systems (SiPS), 2018, Capetown, South Africa, (October, 2018), pp. 217-222. DOI: https://doi.org/10.1109/SiPS.2018.8598300

8. Bijit Kumar Das, S. Mukhopadhyay, and M. Chakraborty, "``Robust Adaptive Filtering via Convex Combination of L0-RLS Adaptive Filters", IEEE International Symposium on Circuits and Systems (ISCAS) 2018, Florence, Italy, 27-30 May 2018. Proceedings of ISCAS 2018 (2018). DOI: https://doi.org/10.1109/ISCAS.2018.8351617

9. Manash Pratim Barman and B, Dasgupta, "A Novel Composite Dielectric Resonator Antenna for 5G Applications", 2nd International Conference on communication, Devices and Networking (ICCDN-2018), Dept. of Electronics and Communication, Sikkim Manipal Institute of Technology, Sikkim, 2 – 3 June 2018 (https://doi.org/10.1007/978-981-13-3450-4_17).

10. 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.

11. 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.

12. Jia Wen Li, Xu Tong Cui, Shovan Barma, Sio Hang Pun, Pedro Antonio Mou, Hui Juan Huang, U Kin Che, Mang I Vai, Peng Un Mak, "Scalp Level Connectivity for Representative Channels in Emotional Status" World Congress on Medical Physics and Biomedical Engineering 2018 in Prague, Czech Republic. Jun 3-8, 2018. DOI: 10.1007/978-981-10-9038-7_42

13. A. Kumar, R. Patra, IEEE International Symposium on Computer Applications & Industrial Electronics (ISCAIE 2018), Malaysia, April 28-29, 2018. DOI: 10.1109/ISCAIE.2018.8405495

14. N. Singh, A. Prince, S. Chattopadhyay, R. Patra, B. Mukherjee, "Design of a Real-Time Heart Rate Monitoring System Using Photoplethysmography and Smartphone", INDICON 2018, Coimbatore, India, December 16-18, 2018

15. Sounak Roy, Shatadal Chaterjee, "Sinusoid Based Foreground Calibration Algorithm of a Pipeline ADC Using Time Averaged Radix Extraction", IEEE

Region 10 conference, October 2018, Jeju, South Korea, DOI: 10.1109/TENCON.2018.8650224

**Book Chapters :**

1. Aakansha and B. Dasgupta, (2018) "A Simple Printed Antenna for C-Band Applications", Lecture Notes in Electrical Engineering book series, Vol. 478, Ed. K. Ray, S.N. Sharan, S. Rawat, S.K.Jain, S. Srivastava, A. Bandyopadhay, Engineering Vibration, Communication and Information Processing, Springer, pp. 451-458: chapter DOI: 10.1007/978-981-13-1642-5_40.
2. Barman M.P., Dasgupta B. (2019) Novel Composite Dielectric Resonator Antenna for 5G Applications. In: Bera R., Sarkar S., Singh O., Saikia H. (eds) Advances in Communication, Devices and Networking. Lecture Notes in Electrical Engineering, vol 537. Springer, Singapore (pp. 151-158, chapter DOI:10.1007/978-981-13-3450-4_17)


**Faculty Awards**

1. Best Technology Award by Government of Gujrat at Vibrant Gujrat-2019 (ICSTEM-2019).

Surjya Prakash Borthakur, Abhishek Bose, Mohd Mansoor Khan, and Pranav Agarwal, "Fall Detection using Inertial Measurement Sensors and Machine Learning on Developed Action Dataset (Best Paper Award)", International Conference on Science, Technology, Engineering and Mathematics (ICSTEM-2019) under "Vibrant Gujrat-2019", Vol. 1, 166-172

The award consists of a Citation by honourable MHRD Minister, Government of India, and a cash price of 1 lakh INR.

**Faculty Talks**

1. Dr. Rusha Patra delivered a talk on 'Photoacoustic Imaging and its Evolution' on September 19, 2018 at a Workshop on Machine Learning for Medical Image Analysis 2018, September 17-21, 2018, IIT Kharagpur

2. Dr. Rusha Patra delivered a talk on 'Assembly of Foldscope and its application' on October 26-27, 2018 at a Workshop on Assembly of Foldscope and its application, October 26-27, 2018, Division of Cancer Research, Regional Cancer Center, Thiruvananthapuram.

## Department of Mathematics and Sciences

**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 (Portfolio Optimization), Financial Mathematics, Risk Analysis in decision making problems, Behaviour Finance.

**Faculty Talks**

1. Dr Gautam Kalita delivered a talk 'Supercongruences for truncated hypergeometric series' on 22 December 2018 at IMBIC, Kolkata.

**Details of publications:**

1. **Gautam Kalita** and A. S. Chetry, On some supercongruences concerning truncated hypergeometric series, *Proceeding of the American Mathematical Society,* 147 (2), 533--546 (2019).
2. A. Goel,**A. Sharma,** and A. Mehra, Robust optimization of mixed CVaR STARR ratio using copulas, *Journal of Computational and Applied Mathematics*, 347, 62--83 (2019).
3. A. Goel, **A. Sharma,** Deviation version of second order stochastic dominance for portfolio selection with Anubha Goel. *International Transactions of Operational Research*, https://doi.org/10.1111/itor.12629 (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.

**Faculty Talks**

1. Dr. Hari K. Choudhury delivered a talk as Invited Speaker on 'Adverse selection and moral hazard' at the Department of Economics and Commerce, Dibru College, Dibrugarh, 8th June 2018.

2. Dr Suranjana Barua delivered a talk as Resource Person on 'Style of Academic Writing: Issues of Clarity, Consistency' at the *Academic Writing Workshop for the Integrated M.Phil-PhD Programme* organized by Unit for Research and Development, Tata Institute of Social Sciences, Guwahati from 19-23 March, 2019.

3. Dr Suranjana Barua delivered a talk as Resource Person on 'Coherence and Tools of Academic Writing' at the *Academic Writing Workshop for the Integrated M.Phil-PhD Programme* organized by Unit for Research and Development, Tata Institute of Social Sciences, Guwahati from 19-23 March, 2019.

4. Dr Suranjana Barua delivered a talk as Resource Person on 'Steps in Developing Research Design' at National Institute of Public Cooperation and Child Development (NIPCCD) Guwahati for *Workshop on Research and Documentation Techniques in Social Development Projects for Executive Heads of Voluntary Organizations* from 4-8 June, 2018.

5. Dr Suranjana Barua delivered a talk as Resource Person on 'A Good Research Proposal: Some Important Tips' at National Institute of Public Cooperation and Child Development (NIPCCD) Guwahati for *Workshop on Research and Documentation Techniques in Social Development Projects for Executive Heads of Voluntary Organizations* from 4-8 June, 2018.

6. Dr. L. David Lal delivered a talk as Resource Person on 'Writing Research Reports' in the *Academic Writing Workshop for the Integrated M.Phil-PhD Programme* organized by Unit for Research and Development, Tata Institute of Social Sciences, Guwahati from 19-23 March, 2019.

7. Dr. Rajarshi Mitra chaired a session in the International Conference on Region/Nation/Trans-Nation: Literature-Cinema Interface held BITS–Pilani Goa, 31 Jan – 02 Feb, 2019.

8. Dr. Rajarshi Mitra delivered a talk as Resource Person on 'Business writing' in B. Borooah College, Guwahati, 26 - 27 February, 2019.

## Publications:

### Journals:

Goswami, K. and Choudhury, H.K. (2019). Biofuels versus food: Understanding the trade-offs between climate friendly crop and food security. *World Development Perspectives*, Vol. 13, pp. 10-17.

Goswami, K., Choudhury, H.K., Hazarika, A. and Tripathi, R. (2019). An assessment of economic viability of jatropha plantation in North East India. *International Journal of Energy Sector Management,* doi.org/10.1108/IJESM-11-2018-0009.

### Paper presented in Conferences/Seminars

Dr. Suranjana Barua presented a paper entitled, "Peer Group as the Social (Imaginary): Evidence from Contours of Language', in the Thirteenth International Conference on Interdisciplinary Social Sciences held at University of Granada, Granada, Spain 25-27 July, 2018.

Dr. L. David Lal presented a research paper entitled, "Identity, Autonomy, and Constructing the New Self and New Social: A Review of the Ayyavazhi Movement of Travancore Kingdom", in the Thirteenth International Conference on Interdisciplinary Social Sciences held at University of Granada, Granada, Spain, 25-27 Jul, 2018.

Dr. Kaveri Deb presented a paper entitled, "China shock and wages in India', in the 28th Annual Conference of the International Trade and Finance Association (IT&FA)

held at University of International Business and Economics, Beijing, China, 23-26 May, 2018.

Dr. Rajarshi Mitra presented a paper entitled, "Cultural Apparatus of Colonial Hunt: Shikar, Co-option and Collaboration in Nineteenth Century India," in the Britain and the World conference held at University of Exeter, 21 - 23 June, 2018.

Dr. Rajarshi Mitra presented a paper entitled, "Martial Bengalis in the Great War: The Story of Bengali Ambulance Corps and 49th Bengali Regiment" in the conference of Empire, Armistice and Aftermath: The British Empire at the End of the Great War held at Nanyang Technological University Singapore, 5–7 December, 2018.

Dr. Rajarshi Mitra presented a paper entitled, "Nation Between Generations: Film and Nationalism in Dui Purush" in the International Conference on Region/Nation/Trans-Nation: Literature-Cinema Interface held at, BITS –Pilani Goa, 31 Jan – 02 Feb, 2019.

Dr. Hari K. Choudhury presented a paper entitled, "Factors influencing the decision of occupational mobility of Tea garden labour community of Assam", in the 20th Annual Conference of North Eastern Economic Association held at Dibrugarh University, 8-9 March, 2019.

Dr. Hari K. Choudhury presented a paper entitled, "Impact of occupation mobility on the socio-economic status of tea garden labour community of Assam", in the UGC SAP seminar held at Gauhati Univeristy, 29-30 March, 2019.

# Construction and Campus Development

During the year, the Institute completed its 1st phase of campus construction work and shifted to its permanent campus at Bongora on 2nd July, 2018. As part of the 1st phase, the Institute has built an Academic-cum-Admin Building of 9380 Sqmt, a 400 capacity Boys' hostel, a 100 capacity Girls' Hostel and 48 faculty flats (160 Sqmtr each). Access roads to all the buildings have also been developed over the year. The Institute has also constructed its own Electrical Substation (33KV/0.430KV---2MVA). Institute's water treatment plant and the sewage treatment plants (STPs) were also commissioned before shifting to the campus. The Northern side and the Western side (village side) boundary wall and fencing were also completed during the year. After shifting to the campus, Institute has taken up extension and development work of a play field within the campus through the state PWD.

# STUDENTS' ACTIVITIES

The student community has been able to hone its talents in extra-curricular activities in the new campus with a number of clubs under the Students' Gymkhana like Robotics Club and Programming Club (under Technical Board); Quiz Club, Photography Club, Movie Club, Literature and Fine Arts Club, Music Club, Dance and Drama Club (under Cultural Board); Indoor Sports Club and, Outdoor Sports Club (under Sports Board) and Health Club and Eco and Outreach Club (under Welfare Board).

Below is a calendar of events related to students' activities organized during the Monsoon and Winter Semesters of AY 2018-2019:

|  | Dates | Event |
|---|---|---|
|  | Semester | Monsoon |
| 1. | 15.08.2018 | Independence Day celebrated with Cultural Programme by students |
| 2. | 08.09.2018 | Students' Gymkhana Council (SGC) Election held |
| 3. | 28.09.2018 | Inter Batch Counselling for Phd & M.Tech Students by Mind India |
| 4. | 1.10.2018 | Khadi Day celebrated – faculty, staff and students wore Khadi; Documentary Screening for Khadi organized by Movie Club under Cultural Board |
| 5. | 2.10.2018 | Marathon (Run for peace) conducted by Sports Board on the occasion of Gandhi Jayanti |
| 6. | 2.10.2018 | Quiz Competition organized by Quiz Club under Cultural Board on the occasion of Gandhi Jayanti |
| 7. | 2.10.2018 | Musical Evening organized by Music Club under Cultural board on the occasion of Gandhi Jayanti |
| 8. | 5.10.2018 | Counselling Orientation for First Year B.Tech & M.Tech Students conducted by YourDost.com |
| 9. | 12.10.2018 | Inter Batch Counselling for B.Tech 2nd Year, 3rd Year & 4th Year Students conducted by Mind India |
| 10. | 24.10.2018 | PM Shri Narendra Modi's address to IT Professionals telecast live for IIITG Students, faculty and staff |
| 11. | 27.10.2018 | Freshers' Social |
| 12. | 03.11.2018 | Day long Soft Skills' Workshop organized under TEQIP III for pre-final and final year students |

| 13. | 31.10.2018 | Rashtriya Ekta Divas celebrated with Wall Art (Tree of Unity) by Fine Arts Club under Cultural Board in IIITG canteen |
|---|---|---|
| 14. | 02.11.2018 | Rangoli Competition for Diwali organized by Cultural Board |
| 15. | 19.11.2018 to 25.11.2018 | Funds raised for Communal Harmony Week |
| | Semester | Winter |
| 16. | 26.01.2019 | Republic day Celebrated with Cultural Programme by students under Cultural Board |
| 17. | 01.02.2019 | Open Forum for students conducted by Mind India |
| 18. | 15.02.2019 | Work Shop by YourDost.com for Faculty & Students |
| 19. | 16.02.2019 | Blood Donation camp organized by Welfare Board |
| 20. | 16.02.2019 | Silent Candle light procession from Boys' Hostel to Academic Block by students as mark of respect for lost lives during Pulwama incident |
| 21. | 18.02.2019 | Mother Tongue Day (Matribhasha Diwas) celebrated with Mehfil-e-Alfaz (a poetry recitation session in mother tongue) |
| 22. | 08.03.2019 to 10.03.2019 | Yuvaan 2019 the Annual Techno-Cultural and Sports Fest of IIITG Student community organized |
| 23. | 13.03.2019 | 100 days to Yoga marked with video demonstration |

## ANNUAL INSTITUTE AWARDS

With a view to promote students' welfare and community living, to encourage their participation in various clubs and to hone their extra-curricular talents throughout the year, 3 Annual Institute Awards were initiated for the first time in the Institute under the Office of Student Affairs. The 3 Awards are: Exemplary Hostel Wing, Best Performing club and Best Social Initiative. The winners of the Annual Institute Awards for 2018-2019 are listed below:

1. Exemplary Hostel Wing:
Winner: Girls' Hostel Second Floor
Winners: Anakhi Hazarika, Barnana Baruah, Dimple Choudhury, Richa Sarma, Ankita Das, Kalyaneee Devi, Lipika Kalita, Parthana Sarma, Barnita Sharma, Barshneya

Talukdar, Rima Deka, Aratrika Saha, Shyana Baruah, Dipannwita Mazumdar, Nirmali Roy, Bishmita Hazarika, Ranjana Roy Chowdhury, Sangita Sarmah, Parbin Sultana Talukdar, Smriti Rekha Baruah, Bondita Paul, Jayshree Sharma, Zarana Jugal Shah

2. Best Performing club:
Winner: Programming Club

Club Coordinators: Rakesh Senwar, Sahil Bajaj, Saurabh Kumar Bhartia, Praveen Kumar, Shivam Tiwari

Students' Gymkhana Member in-Charge: Bibek Goswami
Student members : Nimish Agarwal, Nitesh Kumar Dubey, Lakshmi Priya Pampati, Samidha Singh, Sohan Lal Gupta, Sachin Agarwal, Siddharth Rajawat, Chetan Sinha, Ishan Chaudhary Akshay Jain, Ishan Arya, Halani Parth Vinaychandra, Srijan Wadhwa, Monisha Ranjan, Gargee Srivastava, Akansha Singh

3. Best Social Initiative:
Winner: Voluntary Blood Donation camp

Students' Gymkhana Member in-Charge: Arjun Singh Chetry

Student Members: Arjun Singh Chetry, Bibek Goswami, Utkarsh Kumar

**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. Nilotpola Sarma (CSE Final Year): Best Paper Award

Nilotpala Sarma, Suchetana Chakraborty, Dip Sankar Banerjee. 'Learning and Annotating Activities for Home Automation using LSTM'. In the proceedings of Minds Workshop of 11th International Conference on Communication Systems and Networks (COMSNETS). Bengaluru. January 2019.

2. Pranav Agarwal (ECE Final Year): Best Technology Award by Government of Gujrat at Vibrant Gujrat-2019 (ICSTEM-2019).

Borthakur, Surjya Prakash, Abhishek Bose, Mohd Mansoor Khan, and Pranav Agarwal, 'Fall Detection using Inertial Measurement Sensors and Machine Learning on Developed Action', International Conference on Science, Technology, Engineering and Mathematics (ICSTEM-2019) under "Vibrant Gujrat-2019", Vol. 1, 166-172)

The award consists of a citation by honourable MHRD Minister, Government of India, and a cash price of 1lakh INR.

3. Kaustav Goswami (CSE Third Year): Best Poster Award

Kaustav Goswami and Dip Sankar Banerjee. State Preserving Dynamic DRAM Bank Re-configurations for Enhance Power Efficiency. In Student Research Symposium of 25th International Conference on High Performance Computing, Data, and Analytics (HiPC). Bengaluru December 2018.

4. Nikumani Choudhury (PhD Scholar, CSE) received a Student Travel Grant of USD 700 to attend GLOBECOM 2018 for the paper titled "A Non-threshold-based Cluster-head Rotation Scheme for IEEE 802.15.4 Cluster-tree Networks, IEEE GLOBECOM'18, Abu Dhabi, UAE.

**Extra-curricular Achievements**

Achal Dixit (CSE First Year) and Ashish Mishra (CSE First Year) won the 2nd position with prize money at Parliamentary Debate, Thomso 2018 held at IIT Roorkee, 26 & 27 October 2018.

Achal Dixit (CSE First Year), Lokesh Daga (CSE First Year) and Nishant Kumar (ECE First Year) won the 2nd Prize at Techniche 2018, (Guwahati Regionals of event "Escalade") held on 30th August 2018 IIT Guwahati.

Achal Dixit (CSE First Year) won a Special Delegate Mention as Delegate of Germany at IITG MUN During Techniche 2018 held  IIT Guwahati on 1st and 2nd September 2018 and as Delegate of United Kingdom at Alcheringa 2019, IIT Guwahati, held on 1st , 2nd & 3rd February 2019.

Achal Dixit (CSE First Year), Saurabh Singh (ECE First Year) and Ashish Mishra (CSE First Year) participated in International Event Techfest 2018 at IIT Bombay held from 14th to 16th December 2018. They represented IIITG in Techfest in International ROBOWARS 30lbs category.

IIITG's music band ATAASI with members Atul Prakash (CSE First Year), Saurav Suman (ECE First Year), Saurabh Singh (ECE First Year) Siddhant  Jha (CSE First Year) and Amartya  Dutta (CSE Second Year) won the 1st Position amongst 30 teams at Alcheringa Unplugged 2019, the Annual Cultural Fest of IIT Guwahati held on 2nd February,2019.

# TRAINING AND PLACEMENT

1. A day long Soft Skills' Workshop was organized under TEQIP III for pre-final and final year students (SL 12 under Students activities Calendar)

2. E-Cell, IIIT Guwahati organised a 2-day workshop on Ideation on 6-7 October, 2018. Two faculty members from Design Department of IIT Guwahati, Dr. Supratip Das and Dr. Pankaj Upadhyay, conducted the workshop.

Placement Status 2018-19 Batch:

IIIT Guwahati is having a successful placement session during 2018-19. Some of the companies where our students got placed are: TCS,, Cohesity, Wipro, TechJect, IBM, Adapt Ideation, Nayan, Distill, Datakalp, StatWig, Antares, EdgeTensor, Infotrust, HumbleSchool, Vassar, Nagarro, ThoughtWorks, Guavus, and Aptude. The selection processes for some companies are still going on. The universities where students have been selected for higher studies are University of New York, and National University of Science, Singapore.

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

| Category | ECE | CSE | Overall |
|---|---|---|---|
| (1) Total students eligible | 28 | 30 | 58 |
| (2) Total jobs offered | 10 | 42 | 52 |
| (3) Median salary | 4 LPA | 6  LPA | 6 LPA |
| (4) Total students offered jobs | 9 | 23 | 32 |
| (5) Students admitted for  higher studies | 4 | 0 | 4 |
| (6) Students starting  their own company | 0 | 0 | 0 |
| (7) Highest salary | 7 LPA | 56 LPA | 51 LPA |
| Percentage  with job / admission so far (4+5+6)/1 | 46% | 77% | 62% |

# 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 40 Academic Meets have been organized till March 2019.

10 Perspective Meets were organized between the period April, 2018- March, 2019 and they are listed below:

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

| | | Richa Singh (YOUR DOST.COM) Ankita Kakati and N. Esther (MIND INDIA, GUWAHATI) | Counsellors YOUR DOST.COM and MIND INDIA | Psychology/ Counselling | 'Holistic Well-being' (Peer Group Discussion) |
|---|---|---|---|---|---|
| **MEET 31** | **13 April, 2018** | | | | |
| **MEET 32** | 18 May, 2018 | **Shiva Prasad Sharma** | PhD Scholar, Dept of HSS, IIITG | **Literature** | 'Binding Memories : An Analysis of Jahnavi Barua's Fictions' |
| **MEET 33** **Special Session** (In consonance with IIITG's Celebration of Fourth International Day of Yoga) | 22 June, 2018 | **Dipankar Mahanta** | Executive Member, VKIC and Social Entrepreneur | **Yoga** | 'Healing Techniques in Yoga' |
| **MEET 34** **Special Session** (First Meet in new Bongora Campus of IIITG) | 24 August, 2018 | **Dr Meernanda Barthakur and Troupe** | Sattriya Exponent | **Dance/ Performing Arts** | 'Sattriya dance and Gayan-Bayan: An Appreciation' |
| **MEET 35** | 28 September, 2018 | **Prof. Rohini M. Punekar** | Department of Humanities and Social Sciences, Indian Institute of | **Literature/ Archival Studies** | 'Gandhi, Science and the Machine' |

| | | | | | |
|---|---|---|---|---|---|
| | | | Technology Guwahati | | |
| **MEET 36** | 26 October, 2018 | **Dr Sangeeta Goswami**<br><br>**Dr Bishnu Baishyal**<br><br>**Ms Sandamita Choudhury** | IIITG Perspective and Mind India (IIITG Counselling Services) | **Counselling** | 'The Well-Being of our Student Community' |
| **MEET 37**<br><br>**Special Session**<br><br>In consonance with IIITG's marking the end of Vigilance Week | 9 November, 2018 | **Prof. Saurabh Basu** | Professor at Department of Physics, IIT Guwahati | **Research Methodology** | 'Research Writing and Plagiarism' |
| **MEET 38**<br><br>**Special Session**<br><br>(In consonance with IIITG's celebration of Republic Day) | 25 January, 2019 | **Shri Mrinal Talukdar** | Senior Journalist, Pratidin Time, Assam | **Journalism** | 'Citizenship Amendment Bill, 2016 and the North-East' |
| **MEET 39** | 22, February, 2019 | **Dr. Mithilesh Jha** | Asst. Professor, Dept. of HSS, IIT Guwahati | **Political Science** | 'Language, Print and Public Sphere' |
| **MEET 40** | 22 March, 2019 | **Shri Mainul Haque** | 'Mukabhinaya Samrat'; Mime Artist; Mime Academy Guwahati | **Mime/ Performing Arts** | 'Colours of the Human Face: An Appreciation of Mime' |

# 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 2017-18** | NIL | 22,32,47,193.32 |
| **Grant-in-Aid 2018-19** | 5,75,22,757.28 | 15,87,02,242.72 |
| **Internal Revenue Generated** | 8,11,00,335.00 | N/A |
| **Expenditure in 2018-19** | 10,31,44,304.28 | 36,81,26,803.00 |
| **Balance Carried Over** | 3,54,78,788.00 | 1,38,22,633.04 |

Sources of Funds (including carry-over of funds)

| Item | Recurring (Rs) | Non-Recurring (Rs) |
|---|---|---|
| **Govt. of India** | NIL | 11,42,00,000.00 |
| **Govt. of Assam** | NIL | 2,00,00,000.00 |
| **Industry partners** | 5,75,22,757.28 | 9,60,79,609.68 |
| **Income from Interest** | 15,35,991.00 | N/A |
| **Income from fees and others** | 7,95,64,344.00 | N/A |

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

| INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, GUWAHATI | | | |
|---|---|---|---|
| GUWAHATI, ASSAM | | | |
| | | | |
| BALANCE SHEET AS AT 31ST MARCH 2019 | | | |
| | | | |
| | | [Amount in ₹] | |
| SOURCES OF FUNDS | Schedule | Current Year | Previous Year |
| CORPUS/CAPITAL FUND | 1 | 1,27,32,78,281.00 | 86,96,72,690.00 |
| DESIGNATED/ EARMARKED / ENDOWMENT FUNDS | 2 | 26,54,315.00 | 26,54,315.00 |
| CURRENT LIABILITIES & PROVISIONS | 3 | 3,95,15,286.10 | 25,63,19,881.89 |
| | | | |
| TOTAL | | 1,31,54,47,882.10 | 1,12,86,46,886.89 |
| | | | |
| | | | |
| APPLICATION OF FUNDS | Schedule | Current Year | Previous Year |
| FIXED ASSETS | 4 | | |
| Tangible Assets | | 2,59,00,416.68 | 2,69,00,428.68 |
| Intangible Assets | | - | 32,820.00 |
| Capital Works-In-Progress | | 1,24,90,96,021.00 | 88,48,02,967.00 |
| INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS | 5 | | |
| Long Term | | - | - |
| Short Term | | - | - |
| INVESTMENTS - OTHERS | 6 | - | - |
| CURRENT ASSETS | 7 | 3,29,80,218.63 | 1,54,92,964.21 |
| LOANS, ADVANCES & DEPOSITS | 8 | 74,71,225.79 | 20,14,17,707.00 |
| | | | |
| TOTAL | | 1,31,54,47,882.10 | 1,12,86,46,886.89 |

| Particulars | Schedule | Current Year | Previous Year |
|---|---|---|---|
| **INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, GUWAHATI** | | | |
| **GUWAHATI, ASSAM** | | | |
| | | | |
| **INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2019** | | | |
| | | | |
| | | **[Amount in ₹]** | |
| **INCOME** | | | |
| **Academic Receipts** | 9 | 7,74,08,029.00 | - |
| **Grants / Subsidies** | 10 | 5,75,22,757.28 | 1,50,00,000.00 |
| **Income from investments** | 11 | 15,35,991.00 | 30,54,436.00 |
| **Interest earned** | 12 | - | - |
| **Other Income** | 13 | 21,56,315.00 | 3,28,07,458.02 |
| **Prior Period Income** | 14 | - | - |
| **TOTAL (A)** | | **13,86,23,092.28** | **5,08,61,894.02** |
| **EXPENDITURE** | | | |
| **Staff Payments & Benefits (Establishment expenses)** | 15 | 6,84,26,803.23 | 5,33,30,099.00 |
| **Academic Expenses** | 16 | 22,96,194.00 | 18,62,223.00 |
| **Administrative and General Expenses** | 17 | 1,27,35,214.00 | 1,25,93,010.97 |
| **Transportation Expenses** | 18 | 12,56,774.00 | 33,02,753.00 |
| **Repairs & Maintenance** | 19 | 1,34,82,008.00 | 71,91,510.00 |
| **Finance costs** | 20 | 80,730.05 | - |
| **Depreciation** | 4 | 48,66,581.00 | 55,60,378.00 |
| **Other Expenses** | 21 | - | - |
| **Prior Period Expenses** | 22 | - | -2,68,350.00 |
| **TOTAL (B)** | | **10,31,44,304.28** | **8,35,71,623.97** |
| **Balance being excess of Income over Expenditure (A-B)** | | **3,54,78,788.00** | **(3,27,09,729.95)** |
| **Transfer to / from Designated Fund** | | | |
| **Building fund** | | | |
| **Others (specify)** | | | |
| **Balance Being Surplus / (Deficit) Carried to Capital Fund** | | **3,54,78,788.00** | **(3,27,09,729.95)** |

| INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, GUWAHATI | | | | | | |
|---|---|---|---|---|---|---|
| GUWAHATI, ASSAM | | | | | | |
| | | | | | | |
| RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2019 | | | | | | |
| | | | | | Amount in Rupees | |
| RECEIPTS | | Current Year | Previous Year | | PAYMENTS | Current Year | Previous Year |
| I. | Opening Balance | | | I. | Expenses | | |
| | a) Cash Balances | 46,527.00 | 10,276.00 | | a) Establishment Expenses | 6,84,26,803.23 | 5,33,30,099.00 |
| | b) Bank Balance | | | | b) Academic Expenses | 22,96,194.00 | 18,62,223.00 |
| | i. In Current accounts | 8,55,605.84 | 3,61,10,610.09 | | c) Administrative Expenses | 1,27,35,214.00 | 1,25,93,010.97 |
| | ii. In Deposit accounts | 53,25,000.00 | 10,10,46,807.00 | | d) Transportation Expenses | 12,56,774.00 | 33,02,753.00 |
| | iii. Savings accounts | 92,65,831.37 | 1,07,66,350.37 | | e) Repairs & Maintenance | 1,34,82,008.00 | 71,91,510.00 |
| II. | Grants Received | | | | f) Prior period expenses | - | -8,01,348.00 |
| | a) From Government of India | 11,42,00,000.00 | 35,73,00,000.00 | | g) Finance Cost | 80,730.05 | - |
| | b) From State Government | 2,00,00,000.00 | 14,80,00,000.00 | II. | Payments against Earmarked/ Endowment Funds | - | 3,15,18,111.90 |
| | c) From Industry Partners | 8,20,25,000.00 | - | III. | Payments against Sponsored Projects/Schemes | 4,24,17,856.52 | 1,14,87,600.12 |
| | | | | IV. | Payments against Sponsored Fellowships/Scholarships | - | - |
| | | | | V. | Investments and Deposits made | | |
| III. | Academic Receipts | 7,74,08,029.00 | - | | a) Out of Earmarked/Endowments funds | - | - |
| IV. | Receipts against Earmarked/ Endowment Funds | - | 3,24,50,051.90 | | b) Out of own funds (Investments-Others} | - | - |
| V. | Receipts against Sponsored Projects/Schemes | 4,64,68,980.67 | 80,14,404.00 | VI. | Term Deposits with Scheduled Banks | - | - |
| VI. | Receipts against sponsored | - | - | VII. | Expenditure on Fixed Assets and | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Fellowships and Scholarships | | | | Capital Works - in- Progress | | |
| VII. | Income on Investments from | | | | a) Fixed Assets | 38,33,749.00 | -8,67,000.00 |
| | a) Earmarked/End owment funds | - | - | | b) Capital Works- in- Progress | 36,42,93,054.00 | 41,64,57,958.00 |
| | b) Other investments | - | - | VIII. | Other Payments including statutory payments | - | - |
| VIII. | Interest received on | | | | | | |
| | a) Bank Deposits | 18,29,350.00 | 35,01,786.00 | IX. | Refunds of Grants | | |
| | b) Loans and Advances | | | X. | Deposits and Advances | 3,24,29,117.11 | 21,25,95,498.50 |
| | c) Savings Bank Accounts | - | - | XI. | Other Payments | - | - |
| IX. | Investments encashed | - | - | XII. | Closing balances | | |
| X. | Term Deposits with Scheduled Banks encashed | - | - | | a) Cash in hand | 13,000.00 | 46,527.00 |
| XI. | Other income (including Prior Period Income) | 21,56,315.00 | 3,28,07,458.02 | | b) Bank balances | | |
| XII. | Deposits and Advances | 21,46,51,079.66 | 3,41,55,637.32 | | In Current Accounts | 10,40,844.88 | 8,55,605.84 |
| XIII. | Miscellaneous Receipts including Statutory Receipts | - | - | | In Savings Accounts | 1,29,52,047.75 | 92,65,831.37 |
| XIV | Any Other Receipts - Capital Work in Progress refund | - | - | | In Deposit Accounts | 1,89,74,326.00 | 53,25,000.00 |
| **TOTAL** | | **57,42,31,718.54** | **76,41,63,380.70** | **TOTAL** | | **57,42,31,718.54** | **76,41,63,380.70** |

# Picture Gallery



**Khadi Day celebration at IIITG.**



**Newly elected Gymkhana members 2018-19 with Director IIITG.**

**Run for Peace on Gandhi Jayanti.**



**Students casting vote in Student's Gymkhana elections, 2018.**

## Indian Institute of Information Technology Guwahati

Bongora,
Guwahati- 781 015, Assam, INDIA
**Tel**  +91 361 2630015
Website- www.iiitg.ac.in