



ANNUAL REPORT

2016 – 2017



NATIONAL INSTITUTE OF TECHNOLOGY
MEGHALAYA





SIXTH
ANNUAL
REPORT
2016 - 2017

NATIONAL INSTITUTE OF TECHNOLOGY
MEGHALAYA



The Vision:

A Centre of Excellence vibrant with academic activities and bubbling with youthful creative energy, making significant contribution to the World of Knowledge and Technology and to the Development of the State, the Region and the Nation.

The Mission:

- To impart quality education in the fields of Engineering, Science and Technology at Undergraduate as well as Postgraduate levels with special attention to encourage innovation and creativity in these fields.
- To engage in creation of knowledge and development of technologies through effective research programs.

The Guiding Principles:

- Every entity deserves respect; responsiveness, fairness and transparency are keys to it.
- Role of an academic institution is to enable unhindered exchange of knowledge.
- True education promotes the spirit of enquiry.
- Nurturing of talent and promotion of creativity must for achieving excellence.
- Learning is a lifelong process.
- Examination and evaluation processes are tools to enable better learning, not the ends.
- Every effort should be made to take the benefit of science and technology to the poor and underprivileged.
- Rural development is must for balanced development of the nation.
- Protection of the environment must get priority.



The Code of Ethics:

The Institute follows the IEEE code of ethics for research:

- To accept responsibility in making engineering decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment.
- To avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist.
- To be honest and realistic in stating claims or estimates based on available data.
- To reject bribery in all of its forms.
- To improve understanding of technology, its appropriate application, and potential consequences.
- To maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations.
- To seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others.
- To treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin.
- To avoid injuring others, their property, reputation, or employment by false or malicious action.
- To assist colleagues and co-workers in their professional development and to support them in following this code of ethics.

The Institute:

Permanent Campus Location: Cherrapunjee, East Khasi Hills, Meghalaya

Present Location: Bijni Complex, Laitumkhrach, Shillong- 793003, Meghalaya

Website: www.nitm.ac.in

The Authorities:

Visitor: Shri Pranab Mukherjee, The Hon'ble President of India

Board of Governors:

- Prof. D. K. Basu, Chairman (till June 2016)
- Director, IIT Guwahati, Member
- Shri W. Roy, MD, Meghalaya Power Carriers (India) Pvt. Ltd, Member
- Shri R. D. Shira, FIE, Director, BRPL (Retd.), Member
- Prof. P. K. Bora, Professor, IIT Guwahati, Member
- Prof. P. S. Choudhury, Professor, NIT Meghalaya, Member
- Addl. Secretary(TE)/ Jt. Secretary(TE), MHRD, Member
- Financial Adviser, MHRD, Member
- Professor D. K. Saikia, Director, NIT Meghalaya, Member (till 31.10.2016)
- Dr. S. B. Singh, Director, NIT Meghalaya, Member (from 01.11.2016)
- Registrar, NIT Meghalaya, Secretary

Senate:

- Prof. D. K. Saikia, Director, NIT Meghalaya, Chairman (till 31.10.2016)
- Prof. R. S. Sirohi, Former Director, IIT Delhi
- Dr. P. Bharali, FIE, FIETE, Retd. Director (Operations), Oil India Ltd.
- Prof. P. K. Basu, Retd. Professor (Retd.), Univ. of Calcutta, Member
- Prof. P. Mujumdar, Civil Engineering, IISc Bangalore, Member
- Prof. P. Mahanta, Mechanical Engineering, IIT Guwahati, Member
- Dr. (Mrs) M.P.R Lyngdoh, Former Principal, Shillong College, Member
- Professors of NIT Meghalaya, Members
- Registrar, NIT Meghalaya, Secretary



Finance Committee:

- Director, NIT Meghalaya, Member
- Jt. Secretary (TE), MHRD or his nominee, Member
- Finance Adviser, MHRD or his nominee, Member
- Prof. P. K. Bora, IIT Guwahati, (from 14.09.2015)
- Shri W. Roy, MD, Meghalaya Power Carriers (India) Pvt. Ltd, Member (from 14.09.2015)
- Registrar, NIT Meghalaya, Member Secretary

Building & Works Committee:

- Director, NIT Meghalaya, Chairman
- Prof. S. K. Deb, IIT Guwahati, Member (from 14.09.2015)
- Shri C. D. Saio, Chief Tech Adviser to Power Dept, Govt. of Meghalaya, Member (from 14.09.2015)
- Sri E. B. Kharmujai, Addl. Chief Engineer(EZ), MeECL, Member (from 05.11.2013)
- Sri W. Marbaniang, SE(Design), MPWD(Buildings), Member (till August 2016)
- Sri K. K. Mawa, Superintending Engineer, PWD (Buildings), Member (from 18.11.2016)
- Director (NITs), MHRD, Member
- Registrar, NIT Meghalaya, Secretary

Administration:

Director: Professor D. K. Saikia (till 31.10.2016)

Director in-charge: Dr. S. B. Singh, Director, NIT Manipur (w.e.f. 01.11.2016)

Assoc. Dean (Academic): Dr. A. Dandapat	Registrar (i/c): Dr. D. K. Sarma (from 25.10.2016)
Assoc. Dean (R & C): Dr. A. Bhattacharjee	Asst. Registrar (Estt.): Sri B. Blahwar
Assoc. Dean (SW): Dr. S. Mukherjee	Asst. Registrar (F&A): Sri. J. B. Phanwar (till 31.12.2016)
Assoc. Dean (P & D): Dr. D. K. Sarma (from 16.08.2016)	Asst. Registrar (Acad.): Ms. A. Rai
Head, CSE: Dr. R. Ray (till 19.01.2017)	Exec. Engineer: Sri R. L. Kharpran
Head, CSE: Dr. D. S.Roy (from 20.01.2017)	
Head, ECE: Dr. A. Dandapat (till 06.01.2017)	Asst. Librarian: Dr. R. Kharbihkhiew
Head, ECE: Dr. P. P.De (from 09.01.2017)	
Head, EE: Dr. A. Banerjee	
Head, ME: Dr. D. K. Sarma (till 05.09.2016)	
Head, ME: Dr. S. Maity (from 06.09.2016)	
Head, CE: Dr. M. Khwairakpam (till 31.05.2016)	
Head, CE: Dr. C. Marthong (from 01.06.2016)	
Head, Physics: Dr. A. Bhattacharjee (till 05.09.2016)	
Head, Physics: Dr. K. Senthilkumar(from 06.09.2016)	
Head, Chemistry: Dr. G. K. Dutta	
Head, Mathematics: Dr. T. Subedi	
Head, HSS: Dr. P. S. Mangang	

THE DIRECTOR'S REPORT

The National Institute of Technology Meghalaya is currently operating from its temporary campus at the Bijni Complex, Laitumkhrah in Shillong.



The Institute has completed seven years of its existence since its establishment in the year 2010. During the year 2016-17 the Institute made significant strides.

The third batch of B. Tech and first Batch of M. Tech students of the Institute graduated in June, 2016. Sixty Eight students from B. Tech and Forty Three students from M. Tech graduated in the three disciplines of Computer Science and Engineering, Electronics and Communication Engineering and Electrical and Electronics Engineering. About 98% of the qualified students were placed in reputed companies through campus placement.

The successful students were awarded their degrees in the third convocation of the Institute that was held on 21st June, 2016. Hon'ble Governor of Meghalaya Shri V. Shanmuganathan delivered the Convocation Address and Prof. D. K. Saikia, Chairman, Senate, NIT Meghalaya presented the degrees to the students. Prof. Gautam Barua, former Director of IIT Guwahati and Director, IIIT Guwahati graced the occasion as the Guest of Honour.





Programmes offered by the Institute during the year include:

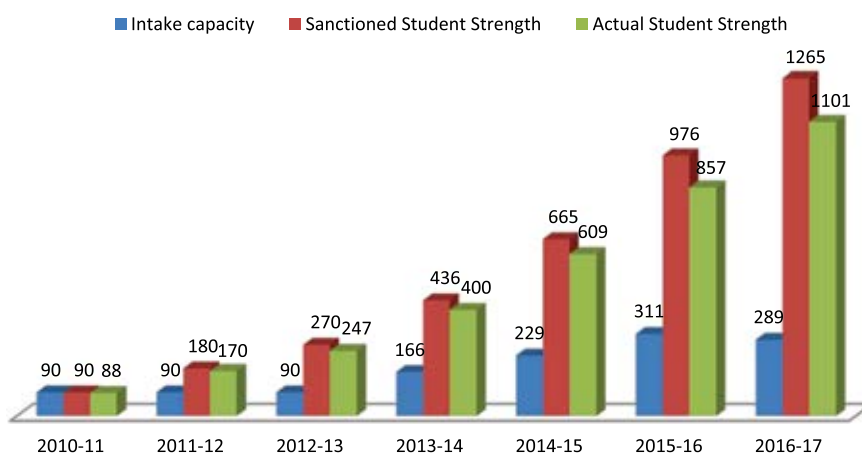
- The B. Tech Programme in the five disciplines of Computer Science and Engineering, Electronics and Communication Engineering, Electrical Engineering, Civil Engineering and Mechanical Engineering.
- The M. Tech Programme in the four disciplines of Computer Science and Engineering (VLSI, Communication Systems), Electrical Engineering (Power and Energy Systems) and Mechanical Engineering (Fluids and Thermal Engineering).
- M. Sc. Programme in the three disciplines of Physics, Chemistry and Mathematics.
- PhD Programme in all the disciplines mentioned above.

The intake capacity of the Institute increased to 289 for total student capacity of **1101 including** PhD scholars. To cater to the increased need the faculty strength was increased to 71. The student strength in the various programmes in the Institute during the year are-

Program	Discipline	Year of Starting	Intake Capacity	Admitted in 2016-17						Total Strength					
				M	F	SC	ST	OBC	Total	M	F	SC	ST	OBC	Total
B. Tech	Electronics and Communication Engineering	2010	30	21	6	2	12	6	27	159	35	24	51	41	194
	Electrical Engineering	2010	30	17	8	3	13	2	25	158	37	26	61	47	195
	Computer Science and Engineering	2010	30	21	7	3	13	5	28	149	32	22	52	34	181
	Mechanical Engineering	2013	30	20	3	2	11	3	23	100	7	11	49	21	107
	Civil Engineering	2013	30	19	6	2	15	4	25	90	19	10	58	21	109
	Sub Total		150	98	30	12	64	20	128	656	130	93	271	164	786
M. Tech	Computer Science and Engineering	2014	20	12	4	5	4	4	16	38	11	11	9	11	49
	Electronics and Communication Engineering	2014	20	9	5	3	2	1	14	32	15	9	6	12	47
	Electrical Engineering	2014	20	18	1	3	1	6	19	36	9	9	5	8	45
	Mechanical Engineering	2015	15	13	1	2	1	6	14	25	2	4	1	11	27
	Civil Engineering	2015	0	0	0	0	0	0	0	6	0	0	1	2	6
	Sub Total		75	52	11	13	8	17	63	137	37	33	22	44	174
M. Sc.	Physics	2015	16	11	4	0	6	3	15	18	8	0	11	3	26
	Chemistry	2015	16	4	9	2	1	5	13	7	19	3	1	9	26
	Mathematics	2015	16	5	4	0	5	1	9	8	7	0	10	1	15
	Sub Total		48	20	17	2	12	9	37	33	34	3	22	13	67

Program	Discipline	Year of Starting	Admitted in 2016-17						Total Strength					
			M	F	SC	ST	OBC	Total	M	F	SC	ST	OBC	Total
PhD	Electronics and Communication Engineering	2013	1	0	0	0	0	1	10	1	1	0	2	11
	Electrical Engineering	2013	1	1	1	0	0	2	8	4	2	0	2	12
	Computer Science and Engineering	2013	0	0	0	0	0	0	9	3	0	3	2	12
	Mechanical Engineering	2013	4	1	1	0	1	5	11	2	2	0	4	13
	Civil Engineering	2013	2	0	0	2	0	2	7	4	1	7	2	11
	Physics	2013	0	0	0	0	0	0	3	0	0	1	0	3
	Chemistry	2013	2	2	0	0	0	4	3	2	0	1	0	5
	Mathematics	2013	1	1	0	1	1	2	3	1	0	1	1	4
	Humanities & Management	2013	0	0	0	0	0	0	2	1	0	1	1	3
	Sub Total		11	5	2	3	2	16	56	18	6	14	14	74

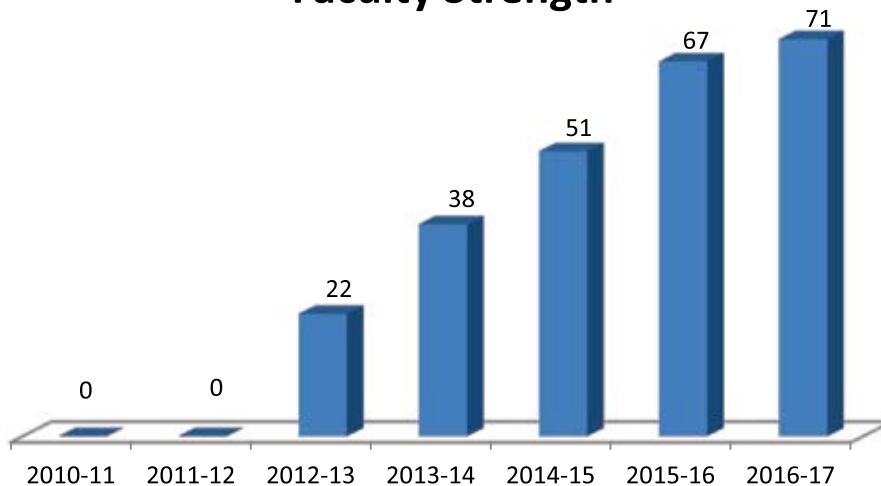
Student Strength



The Institute provides full waiver/remission of tuition fees to students belonging to ST and SC categories and to those with annual family income of less than one lakh. Further, students with annual family income of less than five lakhs are remitted with 2/3rd of the tuition fees as per MHRD guidelines from 2016 onwards. The Institute also provides *merit and merit-cum-means scholarship* with the waiver of 40% of the tuition fees to top performing 5% of the students from each batch based on merit and weak economic background. All the M. Tech students are GATE qualified and receive fellowships as do the PhD scholars. A good fraction of the remaining students of the Institute also receive scholarships from various agencies.

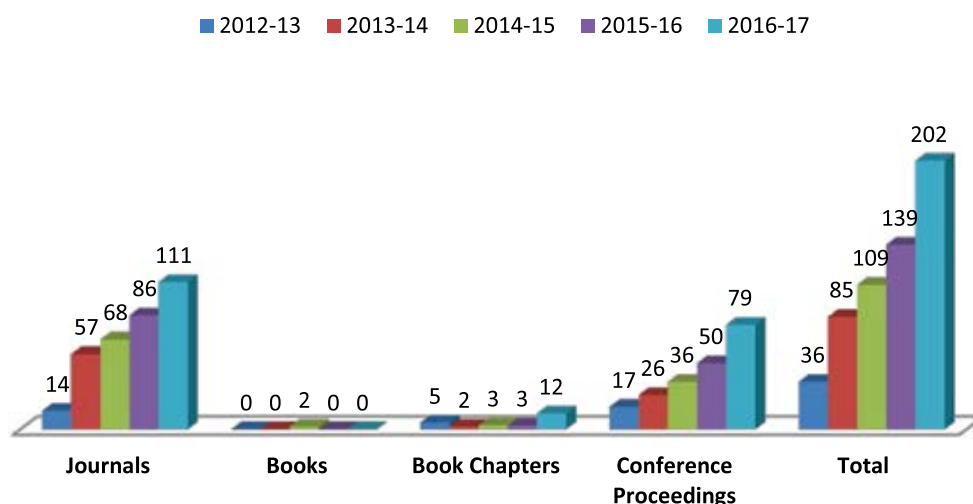
The Institute has been able to attract very good quality faculty from premier institutions all over the country as well as abroad. About 75% of the faculty members hold PhD degrees and the remaining are pursuing the doctoral studies.

Faculty Strength



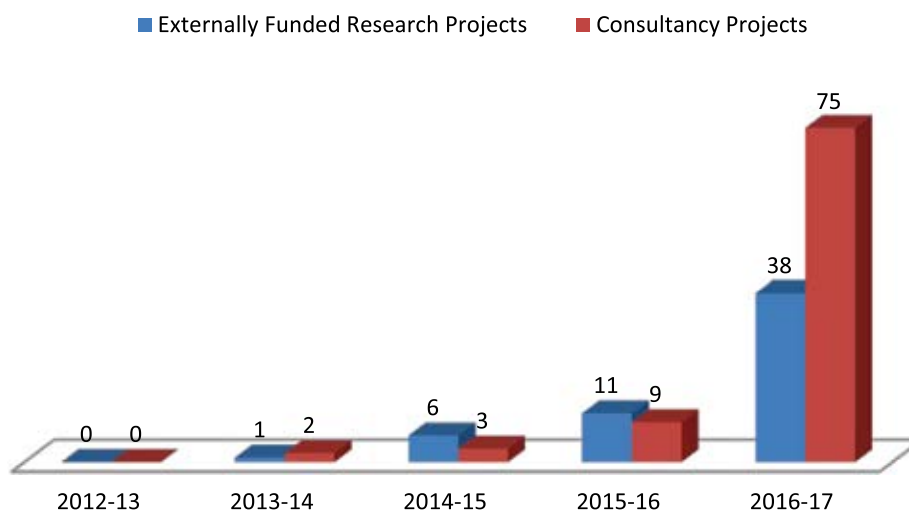
The departments have been vibrant with academic activities and the faculty members have been actively pursuing their research. There were a total of 202 peer reviewed research publications by the faculty – 111 (one hundred and eleven) in international journals, 12 (twelve) book chapters, 79 (seventy nine) in international and national conferences.

Publications



The Faculty received 38 (thirty eight) sponsored research projects from various funding agencies during the year. The faculty members have also been providing consultancy services to their areas of expertise to various Govt. as well as private sector agencies. The faculty also took up 75 (seventy five) consultancy projects during the period.

Sponsored Projects Received



A good number of conferences and workshops sponsored by industry and funding agencies were organized by the Departments. There have been regular institute seminars with talks delivered by the faculty and the scholars for interdisciplinary interactions.

Students Activities:

The students, in addition to their academics, engaged themselves with various extracurricular activities such as sports and games, cultural activities, elocution, technical activities, NSS activities etc. The students of the Institute also participated in inter-institutional sports, cultural and technical events in different parts of the country and brought laurels to the Institute.

Technical Festival (Cognitia):

The Students Council organized the fourth Annual Technical Festival **Cognitia 2016** in October, 2016. There were many competitive events such as- robotics, structural design, mechanical design, circuitry design, programming, quizzes, etc. In addition to these there were several invited talks, workshops also organized during the event.



Cultural Activities:

The Fourth Annual Cultural Festival of the Institute **Shishir-2017** was organized in with full enthusiasm in the month of February, 2017. Students competed in various cultural events such as dance, music, drama etc. with fun and fare to explore and hone their talents.





Sports & Games:

Various Sports activities were arranged during weekends throughout the year.



Badminton Tournament



Table Tennis Tournament



Football Practice Session



Football Tournament



Inter NIT Football Tournament at NIT Agartala



Cricket Tournament

NSS:

- i. The NSS team took the initiative to organize various cleaning activities in and around the campus.
- ii. Cleaning activities were performed both indoors and outdoors.
- iii. Inspection and proper cleaning of sanitary facilities has been taken during this period.
- iv. A sensitization program was organized in the Institute to inform one and all regarding the importance of cleanliness and how to accomplish the Swachh Bharat Mission.
- v. The program was inaugurated by our honourable director Prof. D. K. Saikia. He emphasized on the importance of cleanliness and suggested all to take active steps in making our campus as well as surroundings clean.
- vi. A presentation was made by NSS team on the Swachh Bharat Mission which explained various related baby activities which need to be taken up by individuals as well as organizations to accomplish this mission on a national scale.
- vii. Some measures have also been identified which will be taken up in course of time.
 - a. Bins have been already put in designated places, all are instructed to throw garbage in bins only.
 - b. The use of plastic cups, bottles and bags is being discouraged within the campus.
 - c. Waste paper from the Institute is being collected for making paper bags and envelopes to be used in the Institute.
 - d. Four days in a semester will be identified as “Swachh Day” during which all students, staff and faculty of NIT Meghalaya will take part in cleaning the offices, classrooms and surroundings of the campus. The attendance on that day will be mandatory for all.





Students' Placement:

Placement activities are an integral part of National Institute of Technology Meghalaya (NIT Meghalaya) and the activities were carried out during the year by a Placement Committee. The objective of the Committee is to make each and every student of NIT Meghalaya a success story and to impart legendary leadership qualities to all the students. It not only ensures that the graduation outcome of the student is a fruitful and upright one, but also ensures that the students develop into a complete human being with the perfect combination of professional and business ethics while still maintaining the values within themselves. The Committee is privileged to generate manpower resources for both the domestic and global economic growth engine over the years by functioning as a vital bridge between the students of the institute and the industries.

Just like the previous years, the placement of the B.Tech students was taken up with high priority and the Institute could bring a good number of companies for recruitment. The placement percentage of students who graduated in 2016 are given below:

Discipline	Placement Percentage	
	Overall	Among Qualified Students
Computer Science and Engineering	81.82%	112.50%
Electronics and Communication Engineering	50.00%	80.00%
Electrical and Electronics Engineering	68.18%	100.00%
Total	66.18%	97.83%

The details of the recruiting organizations along with their job offers and packages are given below:

Sl. No.	Name of the Recruiting Organisation	Number of Job Offers	Package (Rs. In lakh per annum)
1	L & T Infotech	3	3.00
2	Phronesis Partners	1	3.00
3	Tech Mahindra	11	3.25
4	Wipro	13	3.30
5	IBM India	12	3.30
6	Coffeeday Beverages	1	3.50
7	Infosys	9	3.50
8	HP India	3	3.60
9	Robert Bosch	2	4.00
10	Mphasis	4	4.00
11	Vodafone	2	4.01
12	Mastercard	1	4.50
13	Virtusa Polaris	5	5.00
14	L & T Constructions	1	5.38
15	Thoughtworks	1	6.53
16	Lava International	2	6.60
17	Huawei	3	7.50
18	SAP Labs	2	9.00
19	Power Grid	2	11.43
20	Indian Navy (SSB Calls)	18	9.60
	Total	96	

	Rs. In lakh Per Annum
Highest Package	11.34
Lowest Package	3.00
Average Package	4.97

The Institute has all the state-of-the-art facilities to facilitate the campus hiring activities of the companies. It has a well-furnished hall for pre-placement talks with a capacity of 100 persons; a well-furnished group discussion room to hold group discussion for a group of 12 persons with 3 moderators; and 3 interview rooms. Additionally, the hall has 30 computers with thin client servers to conduct online tests in the pre-placement talks venue itself. The Committee also utilizes the Conference Hall of the Institute for carrying out video-conferencing and the Computer Centre when the need arises.

The placement committee also made arrangements for internships for the students in the industries and research institutions in the country.

Permanent Campus:

The construction activities in the permanent campus of the Institute have been making good progress under the overall supervision of RITES Ltd, the Project Management Consultant (PMC) for the Phase-I constructions of the permanent campus of the Institute at Sohra (Cherrapunjee). In this first phase of constructions for a built-up space of about one lakh square meters, construction works in the four packages of Academic, Administrative, Residential Buildings, Guest House, Hostels, Sports Complex, Road works , Site Development etc. are being carried out. The Institute has been allotted additional land of about 106 acre by the State Govt. of Meghalaya contiguous to the existing plot. The total area of land being allotted to the Institute is 326 acres. The Institute is planning to fence the additional land at the earliest. Approach road to the campus is being taken up by the State PWD and is in progress. The Institute also undertakes the construction of water storage reservoir inside the campus as well and adjacent stream outside the campus to meet its water requirement. Overall progress of phase-I construction works is about 50% and the Institute re-scheduled to shift to the permanent campus by the end of 2018.







Water Storage Reservoir



Water Storage Reservoir



Water Storage Reservoir





Additional Land



Farewell to Founding Director, Prof. D. K. Saikia

The term of the Institute's Founding Director, Prof. D. K. Saikia ended on 31st October 2016. A farewell meeting was held on 26th October 2016 attended by all faculty and staff. Farewell messages were given by many of those present and Prof. Saikia also gave a speech enumerating the achievements of the Institute over the past five years. Mementos were presented to Prof. Saikia and his family by the employees of the Institute.



The background features a stylized landscape with rolling hills in various shades of green and teal. A large yellow sun is partially visible at the top right. The central text is on a white rectangular area.

ACADEMIC DEPARTMENTS

Department of Computer Science and Engineering

Brief Introduction to the Department:

The Department of CSE at NITM has adequate facilities to support teaching activities needed for a batch of 30 students (per semester). It has a well qualified and experienced faculty team consisting of 11 faculty members. The Computer Science & Engineering department makes all efforts in imparting high quality education to its motivated students. One of the aims of this department is to play its role of producing Computer Engineers ready to satisfy the needs of the Computer and IT world. The Department is also actively involved in various research activities.

Programmes Offered:

The Department of Computer Science & Engineering offers the B. Tech programme, the full-time M.Tech. programme and the Ph. D. programme (full-time and part-time).

Faculty Profile:

Name	Designation	Date of Joining	Qualification	Ph.D. Guidance (ongoing)	Specialization	Remarks
Dr. Alok Chakrabarty	Assistant Professor	20.06.2012	Ph. D. (Assam Univ)		Pattern recognition, Data Mining	
Ms. Surmila Thokchom	Assistant Professor	26.09.2012	M. Tech (Tezpur Univ) Pursuing Ph.D		Network Security, Cloud computing	
Mr. Deepak Kumar	Assistant Professor	20.12.2012	M. Tech (BESU) Pursuing Ph.D		Digital Systems	
Mr. Manjish Pal	Assistant Professor	07.08.2013	B-Tech, M-Tech (IIT-Kanpur)		Theoretical Computer Science, Wireless Sensor Networks	
Dr. Rajarshi Ray	Assistant Professor	03.09.2013	Ph.D. Verimag, University of Grenoble, France.	2	Formal Methods	H/o - Computer Center
Mr. Akhilendra Pratap Singh	Assistant Professor	03.09.2013	M.Tech (MNNIT) Ph.D. Submitted(IIIT-A)		Service Oriented Network Architecture, Wireless Sensor Network, Software Engineering	Faculty(i/c) WSN Lab, Technical Events
Dr. Kamalika Datta	Assistant Professor	31.07.2014	B.Sc., M.S., Ph.D. (IIEST)	3	Reversible and Quantum Computing	
Dr. Ansuman Bhattacharya	Assistant Professor	04.08.2014	B.Tech., M.Tech., Ph.D. (Tech.)		Wireless Communication and Networks	
Mr. Alope Datta	Assistant Professor	25.08.2014	MCA, M.Tech. Ph.D. Submitted (JU)		Image Processing, Pattern Recognition, Remote Sensing	Placement Committee, Dept. Coordinator
Dr. Sanjoy Pratihari	Assistant Professor	29.08.2014	B.Tech., M.E., Ph.D. (IIT Kgp)	2	Digital Geometry and Computer Vision	
Dr. Diptendu Sinha Roy	Associate Professor	01.07.2016	B. Tech., M. Tech., Ph.D. (Engg.) BIT Mesra	2	Cloud Computing, Big Data, Soft Computing	Head of Department

List of Publications:

a. Journals: 14

- i. A. Datta, S. Ghosh and A. Ghosh, "Unsupervised Band Extraction for Hyperspectral Images using Clustering and kernel Principal Component Analysis ", International Journal of Remote Sensing, Vol. 38, No. 3, pp. 850-873, 2017
- ii. A. Datta, S. Ghosh and A. Ghosh, " Supervised Band Extraction of Hyperspectral Images using Partitioned Maximum Margin Criterion", IEEE Geoscience and Remote Sensing Letters, Vol. 14, No. 1, pp. 82-86, 2017
- iii. AbhoyKole, KamalikaDatta, and IndraniSengupta, "A New Heuristic for N-Dimensional Nearest Neighbor Realization of a Quantum Circuit", IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), DOI: 10.1109/TCAD.2017.2693284. (To appear)
- iv. AbhoyKole, KamalikaDatta, and IndraniSengupta, "A Heuristic for Linear Nearest Neighbor Realization of Quantum Circuits by SWAP Gate Insertion using N-Gate Lookahead", IEEE Journal on Emerging and Selected Topics in Circuits and Systems, Vol. 6, No. 1, pp. 62-72, January 2016.
- v. B. Paria, S. Pratihari, and P. Bhowmick, On Farey Table and its Compression for Space Optimization with Guaranteed Error Bounds, Mathematics for Applications (published by the Institute of Mathematics, Brno University of Technology, Czech Republic), Vol. 5(2), Pages 123 - 145, 2016.
- vi. S. Pratihari and P. Bhowmick, On Farey Sequence and its Augmentation for Applications to Image Analysis, International Journal of Applied Mathematics and Computer Science (AMCS), Vol.27(3) , 2017 (to be published).
- vii. Bhattacharya, A.; Ghosh, S. C.; Sinha, B.P.; Multi-path Routing for Secure Multimedia Communication Over Cognitive Radio Networks", International Journal of Computer Networks and Distributed Systems (Inderscience), to appear.
- viii. A. Bhattacharya, K. Sinha, An Efficient Protocol for Multipath Load-Balanced Routing in Mobile Ad Hoc Networks", in Ad Hoc Networks (Elsevier), Vol. 63, pp. 104-114, Aug. 2017.
- ix. A. Bhattacharya, K. Sinha, D. Datta, B. P. Sinha, MRBNS: A New Energy-Efficient Communication Scheme in Low Power Wireless Networks", in International Journal of Sensor Networks (Inderscience), vol. 23 no. 3, pp. 155-169. Apr. 2017.
- x. A. Bhattacharya, P. Majumder, K. Sinha, B. P. Sinha, K. V. N. Kavitha, An Energy-Efficient Wireless Communication Scheme using Quint Fibonacci Number System", in International Journal of Computer Networks and Distributed Systems (Inderscience), vol. 16 no. 2, pp. 140-161, Feb. 2016.
- xi. B. Nongpoh, R. Ray, S. Dutta, A. Banerjee, AutoSense: A Framework for Automated Sensitivity Analysis of Program Data, IEEE Transactions on Software Engineering, Vol.-To appear, 2017. url: http://nitmeghalaya.in/nitm_web/fp/cse_dept/uploads/IEEE_TSE_2017.pdf
- xii. Mohanta, D. K., Murthy, C., & Sinha Roy, D. (2016). A Brief Review of Phasor Measurement Units as Sensors for Smart Grid. *Electric Power Components and Systems*, 44(4), 411-425,(2016).
- xiii. Reddy, K. Hemant Kumar, Geetika Mudali, and Diptendu Sinha Roy. "A novel coordinated resource provisioning approach for cooperative cloud market." *Journal of Cloud Computing* (Springer), 8 :(2017) 6.1.
- xiv. Nalluri, MadhuSudana Rao, K. Kannan, M. Manisha, and Diptendu Sinha Roy. "Hybrid Disease Diagnosis Using Multiobjective Optimization with Evolutionary Parameter Optimization." *Journal of Healthcare Engineering*, 2017.

b. Conferences: 26

- i. D. Das, and A. Chakrabarty, "Emotion Recognition from Face Dataset Using Deep Neural Nets," in IEEE International Symposium on INnovations in Intelligent Systems and Applications 2016 (INISTA 2016), Sinaia, Romania, IEEE Publications, 2016, pp. 1-6.
- ii. P. M. N. Rani, A. Kole, K. Datta, and A. Chakrabarty, "Realization of Ternary Reversible Circuits Using Improved Gate Library," in 6th International Conference on Advances in Computing & Communications (ICACC-2016), Kochi, Kerala, India, Elsevier, 2016, Vol. 93, pp. 153-160.
- iii. D. Das, and A. Chakrabarty, "Human Gait Recognition using Deep Neural Networks," Proc. 2nd International Conference on ICT for Competitive Strategies (ICTCS 2016), Computer Society of India Udaipur, India, ACM - ICPS, 2016, pp. 132:1--132:6.
- iv. A. Chakrabarty, and N. Das, "Assessment of values of time-domain and frequency domain parameters for ECG signals through HRV analysis using Symlets for Arrhythmia prediction," in Advances in Computational Intelligence: Proc. International Conference on Computational Intelligence 2015, BIT Mesra, Ranchi, India, Springer, 2016, pp. 439-447.

- v. Akhilendra Pratap Singh, Ujwal Kumar Singh; Amit Kumar; "User centric android application for future world; SyncApp", IEEE International Conference on Computational Intelligence and Computing Research (ICIC), Period -15-17 Dec, Place -Chennai, Page -1-5, 2016.
- vi. AbhoyKole, P. Mercy Nesa Rani, KamalikaDatta, IndranilSengupta, and Rolf Drechsler, "Exact Synthesis of Ternary Reversible Functions using Ternary Toffoli Gates", IEEE International Symposium on Multiple Valued Logic (ISMVL), pp. 179-184, Novi Sad, Serbia, May 22-24, 2017.
- vii. AbhoyKole, Robert Wille, KamalikaDatta, and IndranilSengupta, "Test Pattern Generation Effort Evaluation of Reversible Circuits", ", 9th International Conference on Reversible Computation, pp. 162-175, Kolkata, India, July 6-7, 2017.
- viii. P. Mercy Nesa Rani, AbhoyKole, Kamalika Datta, and IndranilSengupta, "Improved Decomposition of Multiple-Control Ternary Toffoli Gates using Muthukrishnan-Stroud Quantum Gates", 9th International Conference on Reversible Computation, pp. 202-213, Kolkata, India, July 6-7, 2017.
- ix. Leniency Marbaniang, AbhoyKole, Kamalika Datta, and IndranilSengupta, "Design of Efficient Quantum Circuits using Nearest Neighbor Constraint in 2D Architecture", 9th International Conference on Reversible Computation, pp. 248-253, Kolkata, India, July 6-7, 2017.
- x. AbhoyKole, and Kamalika Datta, "Improved NCV Gate Realization of Arbitrary Size Toffoli Gates", 30th International Conference on VLSI Design (VLSID), pp. 289-294, Hyderabad, India, January 7-11, 2017.
- xi. Phrangboklang L. Thangkhiew, Rahul Gharpinde, Varun C. Paturi, Kamalika Datta, and IndranilSengupta, "Area Efficient Implementation of Ripple Carry Adder using Memristor Crossbar Arrays", 11th International Design and test Symposium (IDT), pp. 142-147, Hammamet, Tunisia, December 18-20, 2016.
- xii. F. Lalchhandama, Brojo Gopal Sapui, and Kamalika Datta, "An Improved Approach for the Synthesis of Boolean Functions using Memristor based IMPLY and INVERSE-IMPLY Gates", IEEE Computer Society Annual Symposium on VLSI (ISVLSI), pp. 319-324, Pittsburgh, USA, July 11-13, 2016.
- xiii. A.P.S. Thengal, N. Rastogi, A. Medhi, R. Shrivastava, and Kamalika Datta, "Parameter Sensing and Object Tracking using Global Positioning Sysytem", 6th International Symposium on Embedded Computing and System Design (ISED), pp. 289-293, IIT Patna, December 15-17, 2016.
- xiv. Suchisman Burman, KamalikaDatta, Robert Wille, IndranilSengupta, and Rolf Drechsler, "An Improved Gate Library for Logic Synthesis of Optical Circuits", 6th International Symposium on Embedded Computing and System Design (ISED), pp. 1-6, IIT Patna, December 15-17, 2016.
- xv. M. Ajj, S. Pratihari, K. Ganguly, Detection and Retargeting of Emphasized Text for Content Summarization, 5th Intl. Conf. on Advances in Computing, Communications and Informatics (ICACCI), Period -21-24 September, Place -LNMIIT, Jaipur, Pages -15-21, 2016.
- xvi. M. Ajj and S. Pratihari, Quasi-straightness based Features for Off-line Verification of Signatures, International Conference on Identity, Security and Behavior Analysis (ISBA), Period -February 22-24, Pages 1-7, Place -IIIT, New Delhi, 2017.
- xvii. C. Lalengmawia, A. Bhattacharya, A. Datta, Image Stenography using Advanced Encryption Standard for implantation of Audio/Video Data, to appear in Proc. International Conference on Recent Trends in Information Technology (IEEE ICRTIT), 8-9 Apr. 2016.
- xviii. K. Sinha, B. Gupta, S. Rahimi, A. Bhattacharya, Candidate Core Selection for Load-BalancedMulticore Shared Tree Multicasting", in Proc. International Conference on Recent Advances in Information Technology (IEEE RAIT), 3-5 Mar. 2016.
- xix. A. Bhattacharya, S. Audhya, K. Sinha, An Anti-Jamming Protocol Based on Secret Reallocation of Channels", in Proc. International Conference on Recent Advances in Information Technology (IEEE RAIT), 3-5 Mar. 2016.
- xx. L. Bu, R. Ray, S. Schupp, ARCH-COMP17 Category Report: Bounded Model Checking of Hybrid Systems with Piecewise Constant Dynamics,ARCH17. 4th International Workshop on Applied Verification of Continuous and Hybrid Systems, Period -April, Place -Pittsburgh, USA, Page -134-142, 2017. <https://easychair.org/publications/paper/352479>
- xxi. M. Althoff, S. Bak, D. Cattaruzza, X. Chen, G. Frehse, R. Ray, S. Schupp, ARCH-COMP17 Category Report: Continuous and Hybrid Systems with Linear Continuous Dynamics, ARCH17. 4th International Workshop on Applied Verification of Continuous and Hybrid Systems, Period -April, Place -Pittsburgh, USA, Page -143-159, 2017. <https://easychair.org/publications/paper/352651>
- xxii. A. Gurung, A. Deka, E. Bartocci, S. Bogomolov, R. Grosu, R. Ray, Parallel Reachability Analysis for Hybrid Systems, MEMOCODE, Period -Nov 18-20, Place -IIT Kanpur, India, 2016. <http://ieeexplore.ieee.org/document/7797741/>

- xxiii. Behera, Ranjit Kumar, K. Reddy, and Diptendu Sinha Roy. "Reliability Assessment of Energy Monitoring Service for a Futuristic Smart City." In *Proceedings of the Second International Conference on Information and Communication Technology for Competitive Strategies*, p. 59. ACM, 2016.
- xxiv. Behera, Snehasree, K. Reddy, and Diptendu Sinha Roy. "A Critical Assessment of ICT Infrastructures for Certain Demand Response Applications in Smart Grid." In *Proceedings of the Second International Conference on Information and Communication Technology for Competitive Strategies*, p. 12. ACM, 2016.
- xxv. Reddy, K., Geetika Mudali, and Diptendu Sinha Roy. "Energy Aware Heuristic Scheduling of Variable Class Constraint Resources in Cloud Data Centres." In *Proceedings of the Second International Conference on Information and Communication Technology for Competitive Strategies*, p. 13. ACM, 2016.
- xxvi. Behera, Snehasree, Bhawani Shankar Pattnaik, Motahar Reza, and D. S. Roy. "Predicting Consumer Loads for Improved Power Scheduling in Smart Homes." In *Computational Intelligence in Data Mining—Volume 2*, pp. 463-473. Springer, New Delhi, 2016.

Conference/ Workshop/ Seminar Organized:

Alok Chakrabarty

- "Internet of Things: A Gateway to Smart and Intelligent Future," 04-05 Nov 2016, Sponsor: E&ICT Academy, IIT Guwahati and NIT Meghalaya

Ansuman Bhattachary

- Internet of Things: A Gateway to Smart and Intelligent Future, 04-05 November, 2016

Kamalika Datta

- International GIAN course titled "Logic Design of Quantum Circuits and Memristor-based Systems" sponsored by MHRD as a Course Co-ordinator from 8th to 12th August, 2016.
- National Workshop on "Creation and Promotion of Online teaching resources: A National Initiative" sponsored by NIT Meghalaya, IIT Kharagpur as a Co-ordinator on 5th June 2017

Rajarshi Ray

- Organized a One Day Seminar on "Emerging Topics in Computer Science", May 1, 2017, as a co-ordinator.
- Organized a Two Day workshop on Internet of Things: A Gateway to Smart and Intelligent Future, as a HoD, jointly with Ansuman Bhattacharya (Co-ordinator). The workshop was sponsored by NIT Meghalaya and E & ICT Academy, IIT Guwahati

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Akhilendra Pratap Singh	International Research Workshop on Cloud Computing at Jawaharlal Nehru University, New Delhi.	22-23 December, 2016
2.	Kamalika Datta	ISVLSI-2016, Pittsburgh, USA	July 11-13, 2016
		RC-2017, Kolkata, India	July 6-7, 2017
		VLSID-2017, Hyderabad, India	January 7-11, 2017
3.	Sanjoy Pratihari	International Conference on Identity, Security and Behavior Analysis (ISBA) organized by IIIT, Delhi.	February 22-24, 2017.
4.	Rajarshi Ray	Schloss Dagstuhl Seminar, Wadern, Germany	6-9 Dec, 2016
		MZU-ISI Kolkata Winter school on "Algorithms with a special focus on graphs".	6-9 March, 2017.

Invited Talks Delivered:

Aloke Datta

- Invited talk on “Dimensionality Reduction in Hyperspectral Images” in “National Workshop on Remote Sensing and Signal Processing” at Department of Electronics and Communication Technology, Gauhati University on 15th-16th May, 2017

Akhilendra Pratap Singh

- TEQIP II Sponsored short term course on Advances in Computing Technology, Madan Mohan Malviya Technical University, Gorakhpur, U.P, July 03-09, 2016

Kamalika Datta

- Delivered an invited talk on “IoT Systems: Challenges and Security Issues” during the ICAC-2016 Conference in MAKAUT, Kolkata on October 26, 2016.
- Delivered a Tutorial on “Memristors: Technology, Circuit Models and Applications” at 30th VLSI Design Conference held at Hyderabad, India, 2017 along with co-speaker Prof. Prof. Indranil Sengupta, Professor, IIT Kharagpur.

Rajarshi Ray

- Talk Title: Parallel State-Space Exploration of Hybrid Systems in XSpeed, Schloss Dagstuhl Seminar, Dec 2016, Wadern, Germany.

Diptendu Sinha Roy

- Served as invited expert at State Level in CSI Convention themed on “Cloud and IoT” at NIST Berhampur on October 22, 2016. Judged poster presentations.
- Delivered a keynote address on “Cloud Computing and Virtualization” for State Level CSI Convention themed on “Cloud and IoT” at NIST Berhampur on October 22, 2016.
- Delivered an invited lecture on “Data Center Resource Management and Green Initiatives” at National Seminar on Green Chemistry & Green Technology (NSGCGT-2017) on March 1, 2017.
- Delivered an invited lecture on “An Overview of Virtualization of Technologies for Cloud Computing” at the Department of CSE, CIT Ranchi on March 2, 2017 (funded under TEQIP- II of the Institute)

Projects

a. Sponsored Project

Sl. No.	Name of Faculty	Title of Project	Role	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Kamalika Datta	Investigation of Dynamic Reconfigurable Issues in Cryptographic Algorithm Implementation on FPGA Platform	PI		DeitY	Rs. 15.00 lakhs	Jan-2016 to Apr-2017	
		Efficient Multi-dimensional Qubit Placement in Quantum Circuits	PI		DST	Rs. 14.82 lakhs	Mar-2016 to Mar-2019	
		Development of CAD Tools for Synthesis, Optimization and Verification of Digital Circuits using Memristors (Under Indo-Austria program with Johannes Kepler University, Linz)	PI		DST	Rs. 8.65 lakhs	Jul-2017 to Jul-2019	
2	Rajarshi Ray	Parallel Model Checking of Hybrid Systems	P.I.		DST-SERB	Rs. 21L	3 Years	On-going
		SMDP-C2SD	Co-P.I.		Deity	Rs. 94L	5 Years	On-going

Laboratories Setup:

Sl. No.	Faculty Name	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1.	Rajarshi Ray	CDAC-Honeynet	CDAC Honey-net server	Computer Center	Rs. 2,52,961

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Akhilendra Pratap Singh	Faculty In Charge Technical Events	2016-2017
		Institute routine Committee Member	2016-2017
		Faculty (i/c), Wireless Sensor Network Lab.	2016-2017
2	Kamalika Datta	Member Secretary in Institute Information Committee for Communicating with press time to time basis and maintaining information of institute.	
		Member in National Service Scheme (NSS) for Arranging and organizing NSS activities in Shillong and around	
		Member in Student Disciplinary Committee to Discuss the disciplinary cases and recommend suitable actions	
		External Member in Departmental Research Committee (Mechanical Department)	
3	Sanjoy Pratihari	Member, Library committee	During 2016-17 (upto Dec 2016)
		Member, NSS committee	During 2016-17, Till date
		Warden, Lapalang Boys' Hostel-1	From 01-07-2017
		Convocation sub-committee (Photography and Videography sub-committee) convener	Conocation event: 2016, 2017
4	Surmila Thokchom	Nodal Officer, AISHE , NIT Meghalaya	2013 onwards
		Result committee member	2016 onwards
5	Rajarshi Ray	Head of the Department - Administration of the Department Activities.	July 2016-Jan 2017
		Head of Office, Computer Center - Administration of the Computer Center Activities.	March 2017-Current
6	Ansuman Bhattachary	Institute Exam cell member	2016-2017
7	Diptendu Sinha Roy	Member, Department Research Committee, CSE	September 2016 onwards
		Chairman, ERP Committee	September 2016 onwards
		Member, Institute Ranking Data Preparation Committee	September 2016 onwards
		Head, Department of CSE	Jan 2017 onwards
		Member, Board of Governors, NIT Meghalaya	July 2017 onwards
		Member, Faculty Advisory Committee	July 2017 onwards

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Alok Chakrabarty	IEEE ACM
2	Aloke Datta	IEEE (Membership Number:- 94328580) IEEE Geoscience and Remote Sensing Society (GRSS) member (Kolkata Chapter)
3	Akhilendra Pratap Singh	Computer Society of India
	Akhilendra Pratap Singh	ISTE
4	D. Kumar	IEEE
5	KamalikaDatta	IEEE
6	Sanjoy Pratihari	IAPR – TC 18 (Discrete geometry and Mathematical Morphology)
7	Surmila Thokchom	ACM, IEEE student member
8	Rajarshi Ray	ACM
9	Diptendu Sinha Roy	Life Member CSI, ISTE, Member IEEE, UACEE

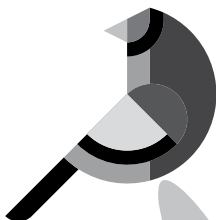
12. Any Other Notable Information:

Alok Chakrabarty

- Dr. Alok Chakrabarty did a Short-term post doctoral fellowship of two months at Machine Intelligence Unit, Indian Statistical Institute Kolkata, India during Dec 2016-Jan 2017

Kamalika Datta

- Chaired the session “Emerging and post CMOS Technologies I” during ISVLSI-2016 Conference in Pittsburgh, USA, during 11th to 13th July, 2016.
- Chaired the session “Security I” during VLSI Design Conference in Hyderabad, India, during 7th to 11th January, 2017.
- Judged the session “VLSI Design” during DevIC Conference in Kalyani, India, during 23rd to 24th March, 2017.
- Reviewed papers for the following journals: (i) ACM Journal on Emerging Technologies in Computing Systems, (ii) IEEE Transactions on Computer-Aided Design, (iii) IEEE Transactions on VLSI Systems, (iv) Microelectronice Journal (Elsevier), (v) IETE Journal of Research (Taylor & Francis).
- Conducted a seminar at NIT Meghalaya on Swachh Bharat Pakhwada in September 2016.



Department of Electronics and Communication Engineering

Brief Introduction to the Department:

The Department of Electronics and Communication Engineering (ECE) was established in 2010 with the inception of National Institute of Technology Meghalaya. The department offers B. Tech Programme with an intake capacity of thirty & M. Tech Programme with an intake capacity of twenty in Electronics and Communication Engineering and Ph.D. program in various specialized areas of Electronics and Communication Engineering. The major research areas of the department include High Speed and Low Power VLSI, Computer Arithmetic, Wireless Sensor Networks, Cognitive Radio, Antenna Design, Signal Processing and MEMS. The major objective of the Department is to impart high quality technical education and research with a strong foundation in Electronics and Communication Engineering.

The major areas of faculty expertise of the department include VLSI Systems, Microelectronics & MEMS, High Performance Computing, Signal and speech Processing, Digital Signal Processing, Communication and RF & Microwaves Engineering.

Programs Offered:

- B. Tech in Electronics and Communication Engineering
- M. Tech in Electronics and Communication Engineering
- Ph. D

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Anup Dandapat	Associate Professor	Ph.D.	Low Power VLSI, Low Power Digital Circuits, Low Power High Speed Multipliers, Low Power High Speed Memories.	20.12.2012	Pursuing – 4 Submitted – 0 Awarded – 2	
Dr. P. De	Associate Professor	Ph.D.	Adaptive signal processing applications to wireless communication systems(channel Estimation, Multi-user detection) in CDMA systems, Blind equalization, MIMO and MIMO-OFDM systems, Blind channel estimation, Cognitive radio	01.07.2016	Nil	
Dr. Ch. V. Rama Rao	Assistant Professor	Ph.D.	Statistical signal, speech and Image processing. Signal processing issues in advanced communication systems. Design and development of Advanced Communication Systems	28.08.2014	Pursuing – 2	
Dr. P. Rangababu	Assistant Professor	Ph.D.	VLSI Design & Embedded Systems, Medical Electronics, Low Power Multi-Core Scalable Processor for domain specific applications, System on Chip implementation of Cognitive radio.	11.08.2014	Pursuing – 1	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Prabir Saha	Assistant Professor	Ph.D.	Computer Arithmetic, VLSI Design, Digital Signal Processing, VLSI Circuit Optimization Techniques	13.06.2012	Pursuing – 1	
Dr. Pradeep Kumar Rathore	Assistant Professor	Ph.D.	Microelectronics & MEMS Sensors and their fabrication techniques	11.08.2014	Pursuing – 1	
Dr. Vinay Kumar	Assistant Professor	Ph.D.	Analog and Digital VLSI Design, Optimization Techniques for Digital Circuits, CMOS Image Sensors, Neural Networks & Its Applications	10.12.2012	Nil	
Ms. Bishnulatpam Pushpa Devi	Assistant Professor	M.E.	Signal Processing, Image processing	03.01.2013	Nil	
Mr. Abhishek Sarkhel	Assistant Professor	M.E.	Electromagnetism and Antenna Engineering	23.08.2013	Nil	
Mr. Mridupawan Sonowal	Assistant Professor	M.Tech.	Information theory and Coding	07.08.2013	Nil	

List of Publications:

a. Journals: 15

- i. S. Mishra, T. V. Mahendra, and A. Dandapat, "A 9-T 833-MHz 1.72-fJ/bit/search quasi static ternary fully associative cache tag with selective matchline evaluation for wire speed applications," *IEEE Transactions on Circuits and Systems I: Regular Papers*, Vol.-63, Issue No.-11, pp. 1910-1920, 2016.
- ii. V. Kumar and A. Dandapat, "Design Methodology for Multiple Output Combinational Circuits Using Cyclic Combinational Technique," *Journal of Circuits, Systems, and Computers*, Vol.-25, Issue No.-12, pp. 120, 2016.
- iii. V. Kumar, C. K. Jha, G. Thapa, and A. Dandapat, "A Novel Methodology for Design of Cyclic Combinational Circuits," *Journal of Low Power Electronics*, Vol.-12, pp. 113, 2016.
- iv. S. Mishra and A. Dandapat, "EMDBAM: A Low Power Dual Bit Associative Memory with Match Error and Mask Control," *IEEE Transactions on Very Large Scale Integration Systems*, Vol.-24, Issue No.-6, pp. 21422151, 2016.
- v. A. Sarkhel and S. R. B. Chaudhuri, "Enhanced-gain printed slot antenna using an electric metasurfacesuperstrate," *Springer: Applied Physics*, Vol.-122, Issue No.-10, pp. 122-934, 2016.
- vi. A. Shadap and P. Saha "Discrete Fourier transformation processor based on complex radix $(1 + j)$ number system," *Engineering Science and Technology, an International Journal (Elsevier)*, Accepted 2016.
- vii. S. Mishra and A. Dandapat, "Energy-efficient adaptive match-line controller for large-scale associative storage," *IEEE Transactions on Circuits and Systems II: Express Briefs*, Vol.-64, Issue No.-6, pp. 710-714, 2017.
- viii. T. V. Mahendra, S. Mishra, and A. Dandapat, "Self controlled high performance pre-charge free content addressable memory," *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol.-25, Issue No.-8, pp. 2388-2392, 2017.
- ix. V. A. Kumar, Ch. V. R. Rao, and A. Dutta, "Performance analysis of blind source separation using canonical correlation," in **Springer, Circuits, Systems, and Signal Processing**, DOI: 10.1007/s00034-017-0566-x , 2017.
- x. V. A. Kumar and Ch. V. R. Rao, "Unsupervised noise removal technique based on constrainedNMF," in **IET Signal Processing**, <http://dx.doi.org/10.1049/ietSpr.2016.0414>, Online ISSN 1751-9683, 2017.
- xi. S. J. Pinto, G. Panda and P. Rangababu, "An Implementation of Hybrid Control Strategy for Distributed Generation System Interface Using Xilinx System Generator," *IEEE Transactions on Industrial Informatics*, Accepted, 2017.
- xii. K. K. Anumandla, P. Rangababu and S. L. Saba, "Hardware Implementation of Multi-Objective Differential Evolution algorithm: A Case Study of Spectrum Allocation in Cognitive Radio Networks," *International Journal of Innovative Computing and Applications (Inderscience)*, pp. 1-10, 2017.

- xiii. P. Saha and D. Kumar “A new algorithm for the Computation of the Decimals of the Inverse,” Computer Science & Engineering and Electrical Engineering, Scintialranica, vol. 24, Issue no. 3, pp. 1363-1372, 2017.
- xiv. S. D. Thabab, M. Sonowal and P. Saha, “Experimental Studies on MultiOOperand Adders” Int. J. of Smart Sensing and Intelligent System, vol. 10, Issue no. 2, 2017, pp. 327-340, June 2017.
- xv. D. Kumar, P. Saha, A. Dandapat, “Rigorous hardware implementation of methodologies of fixed point division algorithms” Int. J. of Smart Sensing and Intelligent System, Accepted 2017.

b. Book chapters: 1

- i. V. Kumar, C. K. Jha, G. Thapa, A. Dandapat, “Design of Low Power and High Speed Carry Look Ahead Adder (CLAA) Based on Hybrid CMOS Logic Style,” *Springer India*, pp. 645-654, 2016.

c. Conferences: 14

- i. T. V. Mahendra, S. Mishra, and A. Dandapat, “Fully Dynamic High Density Associative Storage Architectures: Study, Comparison and a Proposal,” Electronics and Communication Systems (ICECS), 2016 3rd International Conference on, Coimbatore, India, pp. 3401-3404, 2016.
- ii. J. Saikia, S. Mishra, and A. Dandapat, “Large Scale Dynamic Content Addressable Memory with Hybrid Matchline Structure,” Students’ Technology Symposium (TechSym), 2016 IEEE, Kharagpur, India, 2016.
- iii. K. B. Singh, S. W. Hussain, T. V. Mahendra and Ch. V. RamaRao, “Implementation of OFDM and Pulsed-OFDM”, IEEE 15th International Conference on Information Technology (ICIT), Bhubaneswar, pp. 22-24, December 2016.
- iv. A. Gogoi and V. Kumar, “Design of Low Power, Area Efficient and High Speed Approximate Adders for Inexact Computing,” IEEE International Conference on Signal Processing and Communication (ICSC 2016), 26th-28th December, Noida, Uttar Pradesh, 2016.
- v. P. Rangababu, K. K. Anumandla and S. L. Sabat, “Performance Evaluation of Floating Point Differential Evolution Hardware Accelerator on FPGA,” In Proceedings of IEEE International Conference on TENCON, Nov 22-25, Singapore, 2016.
- vi. S. Jena, G. Panda, and P. Rangababu, “Investigation on FPGA based Passive AntiIslanding Protection Schemes for Grid Interfaced Distributed Generation System,” In Proceedings of IEEE International Conference on TENCON, Nov 22-25, Singapore, 2016.
- vii. V. M. Tripathi, S. Mishra, J. Saikia, and A. Dandapat, “A Low-Voltage 13T Latch-Type Sense Amplifier with Regenerative Feedback for Ultra Speed Memory Access,” 2017 30th International Conference on VLSI Design and 2017 16th International Conference on Embedded Systems (VLSID), Hyderabad, India, pp. 341-346, 2017.
- viii. V. A. Kumar, Ch. V. Rama Rao, A. Dutta, “Blind speech separation using canonical correlation and performance analysis,” IEEE International Conference CSCITA-2017, Mumbai, April 2017.
- ix. K. B. Singh, T. V. Mahendra, R. S. Kurmvanshi and Ch. V. RamaRao, “Image Enhancement with the Application of Local and Global Enhancement Methods for Dark Images”, IEEE International Conference on Innovations in Electronics, Signal Processing and Communication (IESC2017), 6-7 April, Shillong, 2017.
- x. K. Shukla, Swamy Baldev and Rangababu P, “Area Efficient Dataflow Hardware Design of SAO Filter for HEVC,” In proceedings of International Conference on Innovations in Electronics, Signal Processing and Communication, 6-7 April, Shillong, 2017.
- xi. R. Khongsit and P. Rangababu, “Scalable Discrete Tchebichef Transform for Image/Video Compression,” In proceedings of International Conference on Innovations in Electronics, Signal Processing and Communication (IESC), 6-7 April, Shillong, 2017.
- xii. S. Burman, P. Rangababu and K. Datta, “Development of Dynamic Reconfiguration Implementation of AES on FPGA Platform,” In proceedings of International Conference on Devices for Integrated Circuit (DevIC, 23rd-24th March, Kolkata, 2017.
- xiii. P. Ghosh, and P. Rangababu, “Design and Implementation of Ternary Content Addressable Memory (TCAM) based Hierarchical Motion Estimation for Video Processing,” VDAT 2017, June 29 to July 2nd, IIT Roorkee, 2017.
- xiv. R. Choudary, and P. Rangababu, “Design and Implementation of Mixed Parallel and Dataflow Architecture for Intra-prediction Hardware in HEVC Decoder,” VDAT 2017, June 29 to July 2nd, IIT Roorkee, 2017.

Conference/ Workshop/ Seminar Organized: 02

- 1. International Conference on Innovations in Electronics, Signal Processing and Communication, 6-7, April, 2017.
- 2. Short term course on custom IC design using Cadence & HDL synthesis using FPGA, 6-11, June, 2016.

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Anup Dandapat	VLSI Design Conference-2017	Jan 7- Jan 11, 2017
2	Dr. Anup Dandapat	Visvesvaraya PhD Scheme Second workshop at IISC Bangalore	Feb 20- Feb 21, 2017
3	Dr. Anup Dandapat	Workshop on Analog VLSI and Mixed Signal Design, CDAC Bangalore	June 15- June 16, 2017
4	Dr. Ch. V. Rama Rao	School on Automatic Speech Recognition	May 16 – May 28, 2017
5	Dr. Ch. V. Rama Rao	Workshop on Internet of Things: A Gateway to Smart and Intelligent Future	Nov 4 – Nov 5, 2016
6	Dr. Pradeep Kumar Rathore	National Symposium on Nano Science and Technology (NSNST-2016)	June 29- June 30, 2016
7	Mr. Abhishek Sarkhel	Indo-French Workshop on Microwave Nanotechnologies (MiNa), 3-4 July 2017	2 days
8	Dr. Vinay Kumar	Instruction Enhancement Program on Design Issues Related to Deep Sub-Micron Technologies	Dec 5 – Dec 9, 2016
9	Dr. P. Rangababu	Internet of Things: Gateway to Smart and Intelligent Future, NIT Meghalaya	Nov 04 –Nov 05, 2016
10	Dr. P. Rangababu	Tencon 2016, Singapore	Nov 22- Nov 25 2016
11	Dr. P. Rangababu	Algorithms and Architecture for High Efficiency Video coding at IIT Guwahati	Sep 05- Sep 09, 2016

Invited Talks Delivered:

1. Invited speech in TEQIP-II sponsored workshop on Emerging VLSI Technologies” during 27th – 28th Sep, 2016 at Assam University Silchar.

8. Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Special Manpower Development Project	Dr. Anup Dandapat	Gol	94 L	5 years	Ongoing
2	Ultra Low Power Multy Array 64K X 16 Dual Bit Associative Memory with partial matching Capability	Dr. Anup Dandapat	Gol	28 L	3 years	Ongoing
3	A “Study Project Proposal” on Dynamic Reconfigurable Implementation of Cryptographic Algorithms on	Dr. Kamalika Datta, Dr. Anup Dandapat, Dr. P. Rangababu	Meity	15 L	1 year	Completed
4	Investigation of Efficient architectures of Video Coding Algorithms	Dr. P. Rangababu	Institute StartUP	3.5 L	2 years	Submitted
5	Dialects identification of Khasi Language	Dr. Ch. V. Rama Rao	Institute StartUP	8.25 L	2 years	Submitted

Awards Won/ Recognition received at the national and international level:

1. Young Faculty Research Fellowship (from DeitY) received by Dr. Anup Dandapat
2. Dr. Prabir Saha, serving as a guest editor in Microsystem Technologies (Springer) and Communications on Applied Electronics (ISSN: 2394-4714) (USA)

Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1	Center of Excellence for Advanced Wireless & Microwave Communication	1. Signal Analyzer 2. Logic analyzer 3. Mixed Signal Oscilloscope 4. Arbitrary waveform generator 5. Vector Network Analyzer 6. Communication System Design Software 7. Software for RF/Microwave Devices/Antenna Design, Validation & Characterization- ADS software 8. Material measurement software suite 9. Vector Signal Generator 10. Signal Analysis Software	Communication Systems Lab	202.62
2	Microprocessor /Embedded	IOT Kits from Cypress semiconductor form Qty-10 Kile Software (100 licenses)	Digital System Design Lab	University Program
3	Digital System Design	Altera Software +PR (10 licenses)	Digital System Design Lab	University Program

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Anup Dandapat	All academic responsibilities, Assoc. Dean (Academics Affairs)	July 2014-July 2017
2	Dr. Anup Dandapat	All academic responsibilities, Dean (Academics Affairs)	July 2017-Till date
3	Dr. Anup Dandapat	Departmental all responsibilities, HoD, ECE	Jan, 2013-Jan, 2017
4	Dr. Anup Dandapat	Liaison between Institute and NKN project Team, NKN Nodal Officer	July, 2013-Till Date
5	Dr. Ch. V. Rama Rao	Chairman, Library Committee	Feb 2015 to March 2017
6	Dr. Ch. V. Rama Rao	Member in committee for review of ordinances on student council	Aug to Sept 2016
7	Dr. Ch. V. Rama Rao	Liaison officer, SC/ST Cell	March 2016 to till date
8	Dr. Pradeep Kumar Rathore	Centre-in-charge, CCMT 2017, NIT Meghalaya	2017 M.Tech. Admissions
9	Dr. Pradeep Kumar Rathore	Warden/Associate Warden, Bamboo Huts Boys Hostel	July 2015 to Feb 2017
10	Mr. Abhishek Sarkhel	Member of Institute Ranking Committee	4 months
11	Mr. Abhishek Sarkhel	Student Appeal Committee	6 months

Sl. No.	Name of Faculty	Responsibilities	Duration
12	Mr. Abhishek Sarkhel	Member of Brach Change Committee	2 months
13	Dr. P. Rangababu	Examination Committee member	July 2016 to till date
14	Dr. Vinay Kumar	Member NSS Committee	Jan 2016 to till date
15	Dr. Vinay Kumar	Member Training & Placement Committee	August 2016 to till date
16	Dr. Vinay Kumar	Member Institute Routine Committee	May 2017 to till date

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Anup Dandapat	Senior Member, IEEE
2	Dr. Ch. V. Rama Rao	IEEE, IETE (life member)
3	Dr. Pradeep Kumar Rathore	IEEE
4	Dr. Vinay Kumar	IEEE, IE
5	Mr. Abhishek Sarkhel	International Association of Advanced Materials
6	Dr. P. Rangababu	IEEE
7	Dr. Prabir Saha	IEEE, IETE

Department of Electrical Engineering

Brief Introduction to the Department:

The Department of Electrical Engineering offers the B. Tech program that was started in 2010 with an annual intake of 30. Department of Electrical Engineering is evolving since the inception of NIT Meghalaya in the year 2010. Presently, the department is offering 8 Semester B.Tech Program with an intake capacity of 30. Since 2014 it has started M-Tech program with intake of 20 students offering specialization in Power & Energy Systems. Currently in the department few full time Ph.D research scholars are registered & few external candidates are also registered under different faculty members. The major objective of the Department is to impart high quality education and research with a solid foundation in Electrical Engineering that prepares them for life-long careers. The broad areas of expertise include Deregulated power system, Soft computing application in power system control, Voltage stability alleviation under Deregulated Environment, Power Electronics & Drives, Control System and Instrumentation, Mechatronics, Embedded System, Non-conventional Energy system etc. Software's like MATLAB, P-SIM, EMTP, PSS@E Network are available with the Department in order to accelerate the research. Almost all the laboratories such as Electrical Machine Lab, Network and Systems lab, Digital Electronics Lab, Power System & Switchgear Protection Lab, Control & Instrumentation Lab, Power Electronics & Drives Lab, Microprocessor & DSP Lab, are fully operational and also equipped with latest instruments.

Programmes Offered:

4 year B-Tech, 2 year M-Tech & Ph.D in different areas

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Gayadhar Panda	Associate Professor	PhD	Power Electronics	29.01.2013	02	
Dr. Atanu Banerjee	Assistant Professor	Ph.D	Power Electronics & Drives	25.08.14	3 (ongoing)	
Dr. Supriyo Das	Assistant Professor	PhD	High Voltage Engg	25.08.2014	2 (ongoing)	
Dr. Sanjoy Debbarma	Assistant Professor	B.E, M.Tech, Ph.D	Power & Energy System	19.06.2012	NIL	
Mr. Biswajit Halder	Assistant Professor	M.E	Control System and Measurement & Instrumentation	23.07.2012	NIL	Ph.D Thesis submitted
Mr. Rakesh Roy	Assistant Professor	M.Tech	Power Electronics and Drives	03.01.2013	NIL	Ph.D pursuing
Mr. Shaik Affijulla	Assistant Professor	PhD (Synopsis Completed)	Power Systems	03.01.2013	NIL	Ph.D pursuing
Mr. Mousam Ghosh	Assistant Professor	M.E./ Ph.D (Pursuing)	Illumination / Power Electronics & Drive	23.08.2013	Nil	Ph.D pursuing
Dr. Ksh Milan Singh	Assistant Professor	PhD	Instrumentation and Signal Processing	24.05.2016	NIL	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Piyush Pratap Singh	Assistant Professor	Ph.D.	Control Systems, Nonlinear Dynamics and Chaos Control	31.05.2016	NIL	
Ms. Ramyani Chakrabarty	Trainee Teacher	M.Tech	Power and Control	21.07.14	NIL	Ph.D pursuing

List of Publications:

a. Journals: 17

- i. Pratap Sekhar Puan, Pravat Kumar Ray and Gayadhar Panda, "Development of Real Time Implementation of 5/5 Rule based Fuzzy Logic Controller Shunt Active Power Filter for Power Quality Improvement", *Int. J. Emerg. Electr. Power Syst.* 2016; 17(6): 607–617.
- ii. Priyabat Garanayak and Gayadhar Panda, "An adaptive linear neural network with least mean M-estimate weight updating rule employed for harmonics identification and power quality monitoring", *Transactions of the Institute of Measurement and Control*, 1–14, 2017.
- iii. P.S. Puan, P.K.Ray & G.Panda "A Comparative Analysis of Artificial Neural Network and Synchronous detection Controller to improve power quality in Single Phase System" *International Journal of Power Electronics, Inderscience* Accepted, 2017.
- iv. Smitha Joyce Pinto, **Gayadhar Panda**, and Rangababu Pessapati "An Implementation of Hybrid Control Strategy for Distributed Generation System Interface Using Xilinx System Generator" *IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS*, accepted, 2017.
- v. Moving-Window DFT Based Frequency-Locked Loop for FM Demodulation, *IEEE COMMUNICATIONS LETTERS*, VOL. 20, NO. 5, MAY 2016
- vi. P. P. Singh, J. P. Singh, B. K. Roy, "SMC based Synchronization and Anti- synchronization of Chaotic Systems for Secure Communication and Analog Circuit Realization," *Int. J. Control Theory and Application*, Vol. 9, No. 39, pp. 171-183, 2016.
- vii. P. P. Singh, J. P. Singh, B. K. Roy, "Implementation for Synchronization of Chen and Liu-Yang Chaotic Systems using SMC and Active Control Schemes," *Int. J. Control Theory and Application*, Vol. 9, No. 39, pp. 159-169, 2016.
- viii. P. P Singh, J. P. Singh, and B. K. Roy, "NAC-based Synchronisation and Anti-synchronisation Between Hyperchaotic and Chaotic Systems, Its Analogue Circuit Design and Application," *IETE Journal of Research*, 2017. DOI: 10.1080/03772063.2017.1331758
- ix. **M. Ghosh**, S. Ghosh, P.K. Saha, G.K. Panda, "Semi-Analytical Dynamic Model of Permanent Magnet Direct Current Brushed Motor Considering Slotting Effect, Commutation and PWM Operated Terminal Voltage", *IEEE Transactions on Industrial Electronics*, Vol.-64, Issue No.-4, April, 2017. (Published on 07-Dec-2016)
- x. S. Affijulla, P. Tripathy, A Robust Fault Detection and Discrimination Technique for Transmission Lines, *IEEE Transactions on Smart Grid*, Vol.-PP, Issue No.-99, Page Nos -1-11, 2017
- xi. S. Affijulla, P. Tripathy, Development of Phasor Estimation Algorithm for P-Class PMU Suitable in Protection Applications, *IEEE Transactions on Smart Grid*, Vol.-PP, Issue No.-99, Page Nos -1-10, 2016.
- xii. Palash Pal, Debabrata Roy, Avik Datta, Pradip K. Sadhu, Atanu Banerjee " AClosed-loop power controller model of series-resonant-inverter-fitted induction heating system" – *Archives of Electrical Engineering* ,Vol.65 ,No.4 ,December , 2016, pp.827-841.
- xiii. ChiranjitSain, **Atanu Banerjee**, P K Biswas, "Comparative Performance Study for Closed Loop Operation of an Adjustable Speed Permanent Magnet Synchronous Motor Drive with Different Controllers"- *International Journal of Power Electronics and Drive Systems (IJPEDS)*, Vol.7, No.4, December, 2016, pp. 1089-1098.
- xiv. Agamani Chakraborty, Debabrata Roy, Pradip Kr Sadhu, Ankur Ganguly, **Atanu Banerjee** "An Interference of High Frequency Series Resonant Inverter in Domestic Induction Heater Estimation in Emission Control Using FEM "- *Journal of Power Technologies*, accepted & will be published.

- xv. Kaushik Neogi , Pradip K Sadhu, **Atanu Banerjee**, “A review work on high frequency Induction curing of porous asphalt concrete”- International Journal of Power Electronics and Drive Systems (IJPEDS), Vol.7, No.3, September,2016, pp.872-879.
- xvi. R. Roy, A. Dalal, P. Kumar, Prediction of High Frequency Core Loss for Electrical Steel Using the Data Provided by Manufacturer, *Journal of magnetism and magnetic materials*, Vol.-410, Page Nos -248-256, 2016.
- xvii. Sanjoy Debbarma, Arunima Dutta, “Utilizing Electric Vehicles for LFC in Restructured Power Systems using Fractional Order Controller”, IEEE Transactions on Smart Grid, 2016. DOI: 10.1109/TSG.2016.2527821

b. Book chapters: 1

1. P. P Singh, and B. K. Roy, “Comparative Performances of Anti-synchronisation between Different Chaotic Systems using Three Control Schemes in Book “*Nonlinear Systems: Design, Applications and Analysis*,” Nova Science Publishers, Inc. 400 Oser Ave Suite, 1600 Hauppauge, NY 11788-3619, USA (Accepted), 2016, Editor: Christos Volos

c. Conferences: 14

- i. Bonu Ramesh Naidu, Gayadhar Panda and R Ganesh, “Modelling and Hardware-in-Loop Validation of a Modified Controller for Intermittent Operation of a Standalone Low Voltage DC Fuel Cell System”, in *IEEE International Conference TENCON, 2016*.
- ii. Satabdy Jena, Gayadhar Panda and Rangababu Peesapati, “Investigation on FPGA based Passive Anti-Islanding Protection Schemes for Grid Interfaced Distributed Generation System”, in *IEEE International Conference TENCON, 2016*.
- iii. Smitha Joyce Pinto and Gayadhar Panda, “Power Quality Analysis in a Grid Connected PV System Employing a Hybrid Technique Based on Fractional Wavelet Transform”, in *IEEE International Conference TENCON, 2016*.
- iv. Santanu Kumar Dash, Pravat Kumar Ray and Gayadhar Panda, “DS1103 Real-Time Operation and Control of Photovoltaic Fed Unified Power Quality Conditioner”, in *IEEE International Conference TENCON, 2016*.
- v. Modeling and analysis of a hybrid active power filter for power quality improvement using hysteresis current control technique, IEEE Seventh India International Conference on Power Electronics (IICPE-2016) Thapar University, Patiala, Punjab, November 17-19, 2016.
- vi. Comparative analysis of a hybrid active power filter for power quality improvement using different compensation techniques, 2nd IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE-2016) Jaipur, India, December 23-25, 2016.
- vii. Effect of pole placement of a full order state observer in sensorless speed estimation of brushed DC motor, IEEE 7th Power India International Conference (PIICON 2016) Govt. Engineering College Bikaner, Rajasthan, November 25-27, 2016.
- viii. J. Samantaray, P. P. Singh, and B K Roy, *A Comparative Study of PI & PID Based SMC for Anti-synchronization of Vallis System*, 5th **International Conference on Computer Applications in Electrical Engineering - Recent Advances (CERA2017-), IIT Roorkee, (Accepted)**
- ix. S. Ghosh, **M. Ghosh**, G.K. Panda, P.K. Saha, “Time Delay Compensation by Estimating Speed Error of a PMDC Motor Using Backward Arc Length Approach”, *IEEE Sponsored 2016 International Conference on Intelligent Control, Power and Instrumentation (ICICPI 2016)*, Period- October 21st - 23rd, 2016, Place -Kolkata, India, 2016.
- x. T.M. Rao, **M. Ghosh**, B. Halder, “Effect of Pole Placement of a Full Order State Observer in Sensorless Speed Estimation of Brushed DC Motor”, *IEEE 7th PIICON 2016*, Period- 25th-27th Nov, 2016, Place -Rajasthan, India, 2016.
- xi. K. S. Kumar, S. Affijulla, Voltage stability and dynamic analysis of North-Eastern Indian power Grid, *2016 Second IEEE International Innovative Applications of Computational Intelligence on Power, Energy and Controls with their Impact on Humanity (CIPECH)*, Period -Nov 18 - 19, Place -Ghaziabad, India, Page -114 - 118, 2016.
- xii. R. Roy, A. Dalal, K. K. Prabhakar and P. Kumar, “A general relation between supply harmonics and reactive power of an induction motor,” *IECON 2016 – 42nd Annual Conference of the IEEE Industrial Electronics Society*, Florence, 2016, pp. 1572-1577.
- xiii. A. Dalal, P. Kumar and R. Roy, “Analytical model for permanent magnet motor with non-linear ferromagnetic material property,” *IECON 2016 - 42nd Annual Conference of the IEEE Industrial Electronics Society*, Florence, 2016, pp. 1604-1609.

- xiv. Sanjoy Debbarma, L.C Saikia, Nidul Sinha and B. Kar, “Fractional order two degree of freedom control for AGC of an interconnected multi-source power system”, 17th IEEE Conference on Industrial Technology, (ICIT 2016), Taipei.

Conference/ Workshop/ Seminar Organized:

Name of the Programme	Organized by	Venue	Duration	No. of days
A short-term program Signal Processing Applications in Power & Control Systems (SPAPCS 2016)	EE Department, NIT Meghalaya	NIT Meghalaya, Shillong	30.05.16-04.06.16	6 days
An invited talk seminar on Future Power Systems Adapting to New Challenges Dr. K Srivastava, Adjunct Professor and Senior R&D Engineer, ABB Global Research Lab, Sweden.	EE Department, NIT Meghalaya	NIT Meghalaya, Shillong	26.08.2016	1 day
A special lecture program of Instrumentation & Measurement Society, IEEE.	EE Department, NIT Meghalaya and IEEE Joint CSS-IMS Chapter, Kolkata & IEEE Kolkata Section	NIT Meghalaya, Shillong	29.08.2016	1 day
A solar awareness training program.	EE Department, NIT Meghalaya and NPTI Guwahati.	NIT Meghalaya, Shillong	20.02.2017-22.02.2017	3 days
A Workshop on Advance DSP Processor & FPGA Evaluation Kit	EE Department, NIT Meghalaya	NIT Meghalaya, Shillong	08.03.17-09.03.17	2 days

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Gayadhar Panda	TENCON 2016, Singapore	22 nd – 25 th November 2016
2	Mr. Biswajit Halder	Short Term Training Program on “Mathematical and Technical Writing using LaTeX”. Organized by Dept. of Computer Science and Engineering, NITTTR, Kolkata.	26 th to 30 th December, 2016
3	Dr. Supriyo Das	IEEE TENCON 2016 conference, Singapore	22 nd – 25 th November 2016
4	Dr. Sanjoy Debbarma	IEEE ICIT 2016, Taipei, Taiwan.	14 th -17 th March 2016
		One Day invited lecture organised by IEEE Kolkata Section and IEEE Joint CSS-IMS Chapter, NIT Meghalaya	29 th August 2016
		One Day Invited Talk on Future Power Systems: Adapting to New Challenges, NIT Meghalaya	26 th August 2016
5	Dr. Ksh Milan Singh	Workshop on Advance DSP Processor & FPGA Evaluation Kit, NIT Meghalaya.	8 th -9 th March, 2017
6	Mr. Rakesh Roy	IECON 2016 international conference, Florence, Italy.	24 th -27 th October, 2016

Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Synchrophasor Sensing and Seamless Control of Smart Distribution Network with Renewable Energy Integration	PI: Dr. Gayadhar Panda Co-PI: Mr. Shaik Affijulla	REC Transmission Projects Company Limited	Rs. 13175000/-	3yrs	ongoing
2	Design & development of an intelligent controller for a Vienna Rectifier based grid-connected hybrid energy conversion system comprising of wind & solar energy sources.	P.I: Dr. Atanu Banerjee	SERB-DST, Govt. of India	32.77 lakh	3 years	ongoing
3	Provision of Frequency Regulation using V2G Control and HVDC transmission Links with Virtual Synchronous Power Concept	PI: Dr. Sanjay Debbarma	SERB DST GOI	Rs. 10,00,000.00	2 Years (2017-2019)	Ongoing

Awards Won/ Recognition received at the national and international level:

- Best paper awarded to Mr. R. Roy in “IECON 2016 -42nd Annual Conference of the IEEE Industrial Electronics Society”
- One of the M.Tech project supervised by Dr. S. Debbarma (2016 batch) received prestigious POSOCO Power System Awards (PPSA) -2017 in “Masters Category” (Listed in top 10 project).

Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1.	High Voltage Lab	1. Insulation breakdown test set-up 2. Surface and volume resistivity measurement test set-up 3. Cable insulation testing set –up	Temporarily in Basic Electrical Laboratory	20 approx
2	Power System Lab	Numerical Distance Relay Trainer	Admin Block	5 approx
3	Power System Lab	Siemens SINCAL Software	Admin Block	6.5 approx
4	Electric Drives	4 quadrant converter fed PMSM-3-phase IM coupled set	Power Electronics lab	14 approx
5	Power Electronics	Chopper controlled DC drives		1.28 approx

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Gayadhar Panda	Part-time CVO	Since Aug. 2016
2	Dr. A. Banerjee	HOD	1 st February, 2016-till date
3	Mr. Biswajit Halder	External member DAC of Mechanical Engineering	1 year
4	Dr. Supriyo Das	1. Center-in-charge JoSAA 2016 2. Member - Planning and preparation committee for shifting to permanent campus 3. Convener - Student appeal committee 4. Faculty-in-charge, Basic Electrical and High Voltage Lab	1 yr
4	Dr. Ksh Milan Singh	Warden Bamboo Hut Boys Hostel	April 2017 to till date
5	Dr. Piyush Pratap Singh	Departmental Co-ordinator: Examination Committee	01/08/2016-till date
6	Dr. Piyush Pratap Singh	Departmental Co-ordinator: Placement Committee	1 year

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. A. Banerjee	IEEE, IE(I)
2	Mr. Biswajit Halder	IEEE control system society
3	Dr. Supriyo Das	IEEE Dielectric and Electrical Insulation Society & IEEE Power Engineering Society
4	Dr. KSh Milan Singh	IEEE
5	Dr. Piyush Pratap Singh	Institute of Electrical and Electronics Engineers (IEEE) Society, IEEE Signal Processing Society, IEEE Control System Society
6	Mr. Mousam Ghosh	IEEE Membership Renewed
7	Mr. Shaik Affijulla	IEEE (USA), IE(India)
8	Mr. Rakesh Roy	IEEE, IEI
9	Dr. Sanjoy Debbarma	IEEE (USA), Institute of Engineers (India)

Any Other Notable Information:

- Dr. SanjoyDebbarma, Technical Program Committee (TPC) Member, **International Conference on Composite Materials & Renewable Energy Applications(IEEE Conference)**, Istanbul, Turkey, from 02-04 April. URL:<http://www.iccmrea.net/tpc/>

Department of Mechanical Engineering

Brief Introduction to the Department:

The department of Mechanical Engineering started functioning its academic curriculum from the session July 2013. The department consists of combination of bright, young and highly potential experienced faculty members. The main objective of the department is to cater the students with class tutorial and in hand practice with the state-of-the-art laboratories & workshop. The basic aim of the department is to provide the students with perfect principles and practice in mechanical engineering, which helps them to serve the society and address a variety of needs. Another, objective of the department is to come up with courses containing interdisciplinary concepts keeping in view of the advancement of today's world in the field of robotics, mechatronics, nanotechnology etc. The department also plans to have industry-academic collaboration so that both can complement each other in study, research and overall development.

Programmes Offered:

- Bachelor of Technology in Mechanical Engineering (intake capacity : 30 per year)
- Master of Technology in Mechanical Engineering with specialization in Fluids and Thermal Engineering (intake capacity : 15 per year)
- Doctor of Philosophy in Mechanical Engineering (in respective specializations)

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Subhendu Maity	Assistant Professor & Head of Department	PhD	Fluid Mechanics	July 16, 2012	2 (Pursuing)	
Dr. Deba Kumar Sarma	Assistant Professor & Associate Dean (Planning & Development)	PhD	Manufacturing	August 23, 2013	3 (Pursuing)	
Dr. Bikash Kumar Sarkar	Assistant Professor	PhD	Fluid Power and Control	August 21, 2013	2 (Pursuing)	
Dr. Biplab Kumar Debnath	Assistant Professor	PhD	Thermal	July 30, 2014	2 (Pursuing)	
Dr. Koushik Das	Assistant Professor	PhD	Thermal	July 31, 2014	2 (Pursuing)	
Dr. Rajat Subhra Das	Assistant Professor	PhD	Thermal	July 16, 2015	3 (Pursuing)	
Dr. Kishore Debnath	Assistant Professor	PhD	Manufacturing	July 16, 2015	2 (Pursuing)	
Dr. Pallekonda Ramesh Babu	Assistant Professor	PhD	Design	July 27, 2015	1 (Pursuing)	
Dr. Maneswar Rahang	Assistant Professor	PhD	Manufacturing	June 06, 2016	1 (Pursuing)	
Dr. Tanmoy Bose	Assistant Professor	PhD	Design	June 17, 2016	-	
Mr. Avilash Sahoo	Trainee Teacher	M.Tech	Design	July 21, 2014	-	
Md Nur Alom	Trainee Teacher	M.Tech	Thermal	July 21, 2014	-	
Mr. Sambit Majumder	Trainee Teacher	M.Tech (Pursuing)	Fluid Mechanics	July 20, 2015	-	

List of Publications:

a. Journals: 17

International

- i. J. P. Panda, H. V. Warrior, S. Maity, A. Mitra, K. Sasmal, An improved model including length scale anisotropy for the pressure strain correlation of turbulence, *Journal of Fluids Engineering*, Vol.-139, Issue No.-4, Page Nos -044503-1 to 6, 2017.
- ii. M. A. Singh, D. K. Sarma, O. Hanzel, J. Sedláček, P. Šajgalík, Machinability analysis of multi walled carbon nanotubes filled alumina composites in Wire Electrical Discharge Machining process, *Journal of the European Ceramic Society*, Elsevier, Vol.-37, Page Nos -3107-3114, 2017.
- iii. C. Marthong, D.K. Sarma, Influence of PET fiber geometry on the mechanical properties of concrete: an experimental investigation, *European Journal of Environment and Civil Engineering*, Taylor and Francis, Vol.-20, Issue No.-7, Page Nos -771-784, 2016.
- iv. C. Marthong, D.K. Sarma, Flexural behavior of ferrocement plates incorporating steel and PET fibers, Materials and Construction Technologies for Sustainable Development, *Key Engineering Materials*, Trans Tech Publication, Vol.-666, Page Nos -97-106, 2016.
- v. R. Kalidasan, M.Yatin, D.K.Sarma, S.Senthilvelan, U.S. Dixit, An experimental study of cutting forces and temperature in multi-tool turning in grey cast iron, *International Journal of Machining and Machinability of Materials*, Inderscience, Vol.-18, Issue No.-5/6, Page Nos -540-541, 2016.
- vi. R. S. Das, S. Jain, Experimental investigations on a solar assisted liquid desiccant cooling system with indirect contact dehumidifier, *Solar Energy*, Vol.-153, Page Nos -289-300, 2017
- vii. K. Debnath, I. Singh, and A. Dvivedi, On the Analysis of Force During Secondary Processing of Natural Fiber Reinforced Composite Laminates, *Polymer Composites*, Vol.-38, Issue No.-1, Page Nos -164-174, 2017.
- viii. P.K. Bajpai, K. Debnath, and I. Singh, Hole Making in Natural Fiber-Reinforced Polylactic Acid Laminates: An Experimental Investigation, *Journal of Thermoplastic Composite Materials*, Vol.-30, Issue No.-1, Page Nos -30-46, 2017.
- ix. K. Debnath and I. Singh, Low-Frequency Modulation-Assisted Drilling of Carbon-Epoxy Composite Laminate, *Journal of Manufacturing Processes*, Vol.-25, Page Nos -262-273, 2017.
- x. V. Dhawan, K. Debnath, I. Singh, and S. Singh, A Novel Intelligent Software-based Approach to Predict Forces and Delamination during Drilling of Fiber-Reinforced Plastics, *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, Vol.-230, Issue No.-2, Page Nos -603-614, 2016.
- xi. K. Debnath, A. Sisodia, A. Kumar, and I. Singh, Damage-Free Hole Making in Fiber-Reinforced Composites: An Innovative Tool Design Approach, *Materials and Manufacturing Processes*, Vol.-31, Issue No.-10, Page Nos -1400-1408, 2016.
- xii. V. Dhawan, K. Debnath, I. Singh, and S. Singh, Prediction of Forces during Drilling of Composite Laminates Using Artificial Neural Network: A New Approach, *FME-Transactions*, Vol.-44, Issue No.-1, Page Nos -36-42, 2016.
- xiii. A.V. Singhal, K. Debnath, I. Singh, and B.S.S. Daniel, Critical Parameters Affecting Mechanical Behavior of Natural Fiber Reinforced Plastics, *Journal of Natural Fibers*, Vol.-13, Issue No.-6, Page Nos -640-650, 2016.
- xiv. K. Debnath, I. Singh, and T.S. Srivatsan, An Innovative Tool for Engineering Good Quality Holes in Composite Laminates, *Materials and Manufacturing Processes*, 2016.
- xv. M. Rahang, P. K. Patowari, Parametric Optimization for Selective Surface Modification in EDM using Taguchi Analysis, *Materials and Manufacturing Processes*, Vol.-31, Issue No.-4, Page Nos -422-431, 2016.
- xvi. T. Bose, A. R. Mohanty, Large amplitude axisymmetric vibration of a circular plate having a circumferential crack, *Journal of Mechanical Sciences*, Vol.-124, Page Nos -194-202, 2017.
- xvii. T. Bose, A. R. Mohanty, Detection and monitoring of side crack in a rectangular plate using mobility, *Journal of Vibration and Control*, Vol.-22, Issue No.-2, Page Nos -585-594, 2016.

b. Book chapters: 6

Author Name	Title	Publisher	ISBN No	Pages	Year
B. K. Sarkar, R. Saha, S. Mookherjee, D. Sanyal	Fluid Mechanics and Fluid Power – Contemporary Research, Chapter 71: Chapter Title: Real-Time Pole Placement Control of the Rugged Electrohydraulic System	Springer	978-81-322-2741-0		2016
S. Yadav, K. Das, K. M. Pandey	Fluid Mechanics and Fluid Power – Contemporary Research	Springer	978-81-322-2741-0	Chapter 40	2016
K. Debnath and I. Singh	Book: Primary and Secondary Manufacturing of Polymer Matrix Composites	CRC Press (Taylor & Francis Group), USA	978-1-4987-9930-0	244	2017
K. Debnath, M. Roy Choudhury, and Anders E.W. Jarfors	Chapter 02: Primary Manufacturing of Thermoplastic Polymer Matrix Composites	CRC Press (Taylor & Francis Group), USA	978-1-4987-9930-0	17-42	2017
K. Debnath, M. Roy Choudhury, and T.S. Srivatsan	Chapter 09: Secondary Manufacturing Techniques for Polymer Matrix Composites	CRC Press (Taylor & Francis Group), USA	978-1-4987-9930-0	155-172	2017
K. Debnath, M. Roy Choudhury, and J.I. Song	Chapter 12: Research Progress in the Area of Advanced Machining of Polymer Matrix Composites	CRC Press (Taylor & Francis Group), USA	978-1-4987-9930-0	211-226	2017

c. Conferences:**International: 11**

- i. J. P. Panda, H. V. Warrior and S. Maity, Pressure Strain Correlation for Decaying Homogeneous Turbulence, *6th International Conference on FMFP*, Period -15-17 Dec, Place -MNNIT Allahabad, Page -53, 2016.
- ii. B. K. Sarkar R Saha S. Mookherjee D. Sanyal, Speed Control of Hydraulically and Electrically Coupled Multiple Francis Turbines, *6th International and 43rd National Conference on Fluid Mechanics and Fluid Power*, Period -15th-17th December, 2016, Place -MANITA, Allahabad, 2016.
- iii. U. Kashyap, K. Das and B.K. Debnath, Effect of surface texture of vortex generator in heat transfer enhancement, *6th International and 43rd National Conference on Fluid Mechanics and Fluid Power (FMFP)*, Period -December 15-17, 2016, Place -MNNITA, Allahabad, U.P., India, 2016.
- iv. A.K.S. Kushwaha, R.S. Das, A simplified ANN model to assess the performance of a liquid desiccant air-conditioning system, *International Conference on Renewable and Sustainable Energy*, Period -12-13 April, Place -Coimbatore, 2017.
- v. M. Roy Choudhury, K. Debnath, and V. Upadhyay, Drilling of Unfilled Hemp/Epoxy and Fly Ash Filled Hemp/Epoxy Composites: Analysis of Force and Temperature, *Twenty-Fifth International Conference on Processing and Fabrication of Advanced Materials (PFAM-XXV)*, Period -22-25th January, Place -The University of Auckland, Auckland, New Zealand, Page -750-765, 2017.
- vi. I. Singh, U.K. Komal, P.K. Rakesh and K. Debnath, Is Hole Making in Fiber Reinforced Polymers (FRPs) a Challenging Task?, *Twenty-Fifth International Conference on Processing and Fabrication of Advanced Materials (PFAM-XXV)*, Period -22-25th January, Place -The University of Auckland, Auckland, New Zealand, Page -572-579, 2017.
- vii. K. Debnath, M. Roy Choudhury, S. Chaitanya, I. Singh, and T.S. Srivatsan, Drilling Investigation of Injection Molded Short Sisal Fiber Reinforced Polypropylene Composites, *Twenty-Fifth International Conference on Processing and Fabrication of Advanced Materials (PFAM-XXV)*, Period -22-25th January, Place -The University of Auckland, Auckland, New Zealand, Page -738-749, 2017.
- viii. M. Roy Choudhury, J. Ghosh, V. Upadhyay, and K. Debnath, Influence of Tool Geometry and Cutting Parameters on the Quality of Hole during Drilling of Hemp Fibre Reinforced Composites, *The 4th International Conference on Advances in Materials and Materials Processing (iCAMMP-iv)*, Period -5-7th November, Place -Indian Institute of Technology Kharagpur, West Bengal, India, 2016.

- ix. Alom N., Kolaprathi S.C., Gadde S.C., and Saha U.K., 2016, "Aerodynamic design optimization of elliptical-bladed Savonius-style wind turbine by numerical simulations", Paper No. OMAE2016-55095, *ASME 35th International Conference on Ocean, Offshore and Arctic Engineering*, June 19-24, Busan, South Korea.
- x. N. Alom, U.K.Saha, 2017, "Arriving at the optimum overlap ratio for an elliptical-bladed Savonius rotor," Paper No. GT2017-64137, *ASME Turbo Expo Turbine Technical Conference and Exposition*, June 26–30, Charlotte, North Carolina, USA.
- xi. N. Alom, U.K.Saha, 2016, "Numerical Optimization of Semicircular-bladed Savonius Rotor using Vent Augmenters", *5th International Conference on Asian Congress of Gas Turbine*, November 14-16, IIT Bombay, Mumbai, India.

National: 1

- i. P. R. Babu, V. Kulkarni and S. K. Dwivedy, Calibration of Single Component Accelerometer Force Balance and Vibrometer Balance using Short Duration Step Load, *5th National Conference on Wind Tunnel Testing*, Period -16-17 March, Place – Dept of Aerospace Engineering, MIT Campus, Chennai, Page -53, 2016.

Conference/ Workshop/ Seminar Organized:

Workshop

Sl No.	Title	Sponsors	National/ International	Duration	Faculty responsibility
1	One Day Workshop on Promoting Innovation in Individuals, Start-Ups and MSMEs (PRISM) Scheme	TePP Outreach cum Cluster Innovation Centre (TOCIC) IIT GUWAHATI & Department of Science and Industrial Research (DSIR)	National	04-05-2017	Dr. D. K. Sarma (Convener)

Seminar

Sl No.	Title	Sponsors	National/ International	Duration	Faculty responsibility
1	Interactive session for the faculty members and research scholars of NIT Meghalaya with the experts of Design Innovation Center, IIT Guwahati	DIC, NIT Meghalaya	National	08-05-2017	Dr. D. K. Sarma (Coordinator)

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1.	Dr. Subhendu Maity	6th International and 43rd National Conference on Fluid Mechanics and Fluid Power, MNNIT Allahabad (International Conference) Recent Advances in Thermal-Fluid Science and Engineering, NIT Durgapur. (National Workshop)	15-17 December, 2016 26-30 September, 2016
2.	Dr. Bikash Kumar Sarkar	Special Invited Lecture Programme of Instrumentation & Measurement Society, IEEE, NIT Meghalaya (National Seminar) 6th International and 43rd National Conference on Fluid Mechanics and Fluid Power, MNNIT Allahabad, 2016.	29 August 2016 15-17 December, 2016
3.	Dr. Kishore Debnath	Twenty-Fifth International Conference on Processing and Fabrication of Advanced Materials (PFAM - XXV), The University of Auckland, Auckland, New Zealand (International Conference)	22-25 January, 2017
4.	Dr. Koushik Das	Fundamentals of Microfluidics and its applications in biomedical Engineering, IIT Guwahati,	22-23 January, 2017

Sl. No.	Name of Faculty	Name of the programme attended	Duration
5.	Dr. Tanmoy Bose	3 day short term course on Machinery condition monitoring at IIT Kharagpur	20-22 March, 2017
6.	Dr. Ramesh Babu	5 day short term course on Essential Techniques for Research Problems in Manufacturing and Measurements organized by Department of Mechanical Engineering of NIT Warangal during	11-15 July, 2016

Invited Talks Delivered:

- Dr. Kishore Debnath**, Make in India: Research in Machining AICTE Sponsored ShortTerm Course on “Make in India: Dreams to Reality” Organized by the Department of Mechanical and Industrial Engineering, Indian Institute of Technology Roorkee, India, January 03-14, 2017.
- Mr. Nur Alam** Ansys and Its Application in Engineering, Department of Mechanical Engineering, GIMT Guwahati, 5-9 June 2017

8. Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1.	Design Innovation Center	P.I.- Dr. D.K. Sarma Co-P.I.- Dr. K. Das	MHRD	100 lakhs	2016-18	Ongoing
2.	Feasibility Studies for Generating Electric Power Using Helical Water Turbine	P.I.- Dr. V. Kulkarni, Prof. U. K. Saha, Co-P.I.- Dr. D. K. Sarma	Assam Power Generation Corporation Limited	27.2 lakhs	2013-17	Ongoing
3.	Modeling and Control of the hydraulically actuated Ring Inlet Guide Vane of Francis Turbine by Adaptive Neural Network Sliding mode Controller Design	P.I.- Dr. B. K. Sarkar	DST-SERB	30,42,600	2016-2019	Ongoing
4.	Design and Fabrication of a Two-stage Biogas Scrubbing Unit to Produce Methane Enriched Biogas for Cooking Purpose	P.I.- Dr. Biplab Kumar Debnath	NITM startup grant	2.6 Lakhs	2016-18	Ongoing
5.	Thermal Detection of Malignancy and Estimation of Its Properties in a Human Breast	P.I.- Dr. Koushik Das	Department of Science and Technology, GOI	17,45,984	2017-2020	Ongoing
6.	Application of Masking Technique and Reverse EDM Technique for Pattern Generation by Selective Area Deposition of Material using Powder Metallurgical Green Compact Tool and Sintered Tool Electrode	P.I.- Dr. Maneswar Rahang	SERB	32 Lacs	2017-2020	Ongoing

b. Consultancy

Sl. No.	Title	Consultant(s)	Client(s)	Value	Status
1.	Third party quality Control/ Assurance in various project of CPWD, Shillong (Second Phase)	Dr. D.K. Sarma and Dr. C. Marthong	CPWD, Shillong	1% of project cost	Ongoing
2.	Material testing	Dr. D.K. Sarma and Dr. C. Marthong	CPWD, Shillong	174000	Completed
3.	Material Testing	Dr. D.K. Sarma	State Investment Programme Management & Implementation Unit, Govt. of Meghalaya	15870	Completed
4.	Material Testing	Dr. D.K. Sarma	State Investment Programme Management & Implementation Unit, Govt. of Meghalaya	24980	Completed

Awards Won/ Recognition received at the national and international level:

Name of Faculty	Award received
Dr. Subhendu Maity	Best Theoretical-Oriented Paper Award for the discussion of “Effect of Atmospheric Forcing on Plume dispersion and study of nuclear effluent trajectories for the Kalpakkam coast, India” for World Environmental & Water Resources Congress 2017 in Sacramento, California
Dr. Kishore Debnath	Recipient of “Partial Financial Assistance” funded by CSIR, Govt. of India to Attend the Twenty-Fifth International Conference on Processing and Fabrication of Advanced Materials (PFAM - XXV) Held at The University of Auckland, Auckland, New Zealand during January 22-25, 2017.
Mr. Noor Alam	Recipient of “ASME Young Engineer Turbo Expo Participation Award 2017” to attend ASME TurboExpo Turbine Technical Conference and Exposition, June 26–30, 2017, Charlotte, North Carolina, USA.

Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1.	Strength of Material	• Digital Impact testing machine with Notch Broaching arrangement	Strength of Material	13,09,312.00
2.	Tool- Room Shop, Mechanical Workshop	• Table Top type integrated multi process CNC machine tool	Tool- Room Shop, Mechanical Workshop	40,33,300.00
3.	Thermal Science	• Computer based VCR Multi-fuel Engine • Data Acquisition system • Pyranometer • Flue gas analyser	Thermal Science	14,83,920.00 4,31,205.00 2,43,694.00 13,36,557.00
4.	Computational Laboratory	• ANSYS 17.1 • Tecplot	Administrative Block, NIT Meghalaya	12,50,000.00
5.	Fluid Mechanics Lab	• Design and manufacturing of flow measuring devices	FM Lab, Academic Block	-

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1.	Dr. Subhendu Maity	<ul style="list-style-type: none"> Head of the Department, Mechanical Engineering Faculty In-charge, Cultural Affairs Faculty In-charge, Fluid Mechanics Lab 	<ul style="list-style-type: none"> from Sept 2016 – present July 2016 – July 2017
2.	Dr. Deba Kumar Sarma	<ul style="list-style-type: none"> Head of Department (HOD), ME, NIT Meghalaya Invited Member, Senate, NIT Meghalaya Center-in-Charge, Centralized Counselling for M.Tech./M.Arch./M.Plan. Admissions (CCMT) Associate Dean (P&D), NIT Meghalaya Registrar (i/c), NIT Meghalaya Convener, Framing of Modalities to start Part-time M.Tech programme in NIT Meghalaya, 2016 Convenor, Revised Detailed Project Report (DPR), NIT Meghalaya Member, Academic Programme Committee (APC) Convenor, Evaluation of BTech Project Seminar, 2017 Member, Research Committee (RC) 	<ul style="list-style-type: none"> 05-09-2013 to 05-09-2016 2013 to till date 2016 16-08-2016 to till date 26-10-2016 to 18-05-2017 2016 29-5-17 to till date 2014 to 2016 2017 2016 onwards
3.	Dr. Bikash Kr Sarkar	<ul style="list-style-type: none"> Library Committee, Chairman Result Maintenance Committee, Chairman Branch Change Committee, Chairman 	<ul style="list-style-type: none"> Since March, 2017 Since August, 2014 Since June, 2015
4.	Dr. Biplab Kr Debnath	<ul style="list-style-type: none"> Faculty In-charge, Thermal Science Lab 	<ul style="list-style-type: none"> 2015 - Present
5.	Dr. Koushik Das	<ul style="list-style-type: none"> Member, Coordination Committee to expedite ERP solution Member, Institute Part-time M.Tech Committee Coordinator, Routine Committee Member, Institute Website Redesign Committee Chairman, Trainee Engineer Selection Committee, ME Department 	<ul style="list-style-type: none"> November 3, 2016-till date May, 2016 onward May, 2016- 2017 January, 2016 – 2017 July, 2016
6.	Dr. Tanmoy Bose	<ul style="list-style-type: none"> Faculty In-charge, Material Science Lab Placement coordinator, for ME dept. student National Social Service 	<ul style="list-style-type: none"> 08/07/2016 - till date 22/07/16 - till date 30/07/16 - till date
7.	Dr. P. Ramesh Babu	<ul style="list-style-type: none"> Lab In-charge for Metrology and Instrumentation Laboratory () 	<ul style="list-style-type: none"> Since July 2016

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1.	Dr. Subhendu Maity	1. Life Member of ISTAM, L/1067 2. Life Member of NSFMFP, LM635 3. Life Member of ISTE, LM 111112 4. Life Member of IEI, AM166945-4 5. Member of ASME, 100732582, 2014-16 6. Member of IEEE and IEEE Oceanic Engineering Society, 93088281, 2014-16
2.	Dr. Bikash Kr Sarkar	1. ASME Member 100784361, 2016 2. IEEE, IEEE Control Systems Society Member 92662020, 2016 3. NSFMFP Life Member, LM631 4. ISHMT Life Member, 1064
3.	Dr. Deba Kr Sarma	1. Indian Welding Society (IWS) Life member , L01167
4.	Dr. Biplab Kr Debnath	1. American Society of Mechanical Engineers (ASME): Member (101982384) 2. American Society of Civil Engineers (ASCE): Associate Member (9783236) 3. Institute of Engineers (India): Associate Member (AM159023-8)

Any Other Notable Information:

Sl. No.	Name of Faculty	
1.	Dr. Subhendu Maity	<ol style="list-style-type: none"> 1. Arranged an Invited Lecture by Dr. Joydip Bhattacharjee of Department of Ocean Engineering and Naval Architecture, IIT Kharagpur on Numerical Investigation of Oscillating Water Column Wave Energy Converter in the presence of Stepped Bottom, on June 12, 2017 2. Reviewer, International Journal of Computational Fluid Dynamics, Taylor and Francis, from 2016 – present 3. Introduced the Work Order form for ease of carrying out research and consultancy using the equipment/ machineries/ facilities available in the department 4. Introduced the Monthly Progress Reports for B.Tech. Final year, M.Tech. final year and Ph.D. students for better evaluation 5. Invited Dr. Dipankar Narayan Basu of IIT Guwahati to act as an external examiner to evaluate the M.Tech. projects of the department 6. Successfully organized the Annual Cultural Fest Shishir 2017 in the month of February, 2017
2.	Dr. Bikash Kr Sarkar	<ol style="list-style-type: none"> 1. Reviewer of Proceedings of the Institution of Mechanical Engineers, Part I: Journal of System and Control Engineering. (SAGE), from 2017, 2. Reviewer-Proceedings of the Institution of Mechanical Engineers, Reviewer-Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering. (SAGE), , from From 2016 3. Reviewer- For International Conference INCOM 2018 (Jadavpur University) 4. Reviewer-Advances in Mechanical, Industrial, Automation and Management Systems (AMIAMS-2017), MNITA, Allahabad, from 2016
3.	Dr. Biplab Kr Debnath	<ol style="list-style-type: none"> 1. Committees: Institute purchase committee of externally funded projects (2nos) - Member 2. Verifying the technical and commercial details of the items/equipment to be purchased; 3. External Member of Departmental Research Committee, Mathematics 4. Convener of Student Appeal Committee, ME 5. Journal Review: Advances in Mechanical Engineering-SAGE-01 no, Journal of Mechanical Engineering and Sciences-Universiti Malaysia Pahang-01 no, Energy-Elsevier-01 no, Journal of Zhejiang University-SCIENCE A-Springer-2 nos, International Journal of Chemical Engineering-Hindawi-01 no 6. Observer of CBSE, Joint Entrance Examination, 2017 at Guwahati Public School, Panjabari, Guwahati on 2nd April, 2017
4.	Dr. Kishore Debnath	<ol style="list-style-type: none"> 1. Published a book

Department of Civil Engineering

Brief Introduction to the Department:

NIT Meghalaya Civil Engineering department first began its session from July 2012. The Department, which has an intake capacity of 30 students, offers 4 years (8 semesters) B. Tech programme in Civil Engineering. Since 2014, the Civil Engineering Department has initiated the Ph. D programme on Environmental and Structural Engineering. Additionally, M. Tech programme in Water Resources Engineering have started in the July 2015 session with an intake capacity for 15 students. The academic activities of the Department emphasizes on deep understanding of the fundamental principles on Civil Engineering, development of creative ability to handle the challenges of Civil Engineering and the analytical ability to solve problems which are interdisciplinary in nature. The Department also encourages its students to engage in extra-curricular and co-curricular activities, essential for their own personal development apart from nurturing team spirit and developing organizational skills.

The Department actively promotes curriculum development activities by updating existing courses, develops new courses and prepares updated resource material for teaching. The Department encourages its academic staff to engage themselves in Consultancy practice either as an individual or a group of faculty consultants.

Vision:

A Centre of Excellence of global repute in Civil Engineering education, research and consultancy by producing quality manpower and creating knowledge and technologies in these fields and contributing to the economic development of the region through extension activities.

Mission:

- To impart quality education in the fields of Civil Engineering and allied areas through academic programs at both UG and PG levels.
- To carry out research for advancement of knowledge and development of technologies in the fields of Civil Engineering and allied areas for the benefit of the society.
- To participate in extension activities for the socio-economic development of the region.

Programmes Offered:

- Four year (Eight semester) B.Tech Degree with 30 intake capacity per year.
- Two year (Four semester) M.Tech Degree in Water Resources Engineering with 15 intake capacity for 2015.
- Ph.D. Programme with the specialization of Structural Engineering, Environmental Engineering and Water Resources Engineering etc.

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Comingstarful Marthong	Assistant Professor	Ph.D	Structural Engineering	January 10, 2013	03 Ongoing	
Dr. M. Longshithung Patton	Assistant Professor	Ph.D	Structural Engineering	October 06, 2013	02 Ongoing	
Dr. Hriday Mani Kalita	Assistant Professor	PhD	Water Resources Engineering	August 12, 2014	01 Ongoing	
Dr. Ratan Sarmah	Assistant Professor	PhD	Water Resource	July 27, 2015	-	
Dr. Smrutilekha Sahoo	Assistant Professor	PhD	Geotechnical Engineering	November 02, 2015	-	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Susmita Sharma	Assistant Professor	Ph.D.	Geotechnical Engineering	May 10, 2016	-	
Dr. Debabrata Podder	Assistant professor	Ph. D.	Structural Engineering	June 23, 2016	-	
Mr. Suman Kumar	Trainee Teachers	M.tech	Structural Engineering	July 21, 2014	NA	Ph.D Pursuing
Ms. Rubi Chakraborty	Trainee Teacher	M.tech	Geotechnical Engineering	July 21, 2014	NA	Ph.D Pursuing
Mr. Supratim Kaushik	Trainee Teacher	M.tech	Transportation systems Engineering	20 July, 2015	NA	Ph.D Pursuing

List of Publications:

a. Journals: 10

- i. **C. Marthong** and D.K.Sarma, Influence of PET fiber geometry on the mechanical properties of concrete: An experimental investigation, European Journal of Environmental and Civil Engineering, Vol.-20, Issue No.-7, Page Nos -771-784, 2016
- ii. **C. Marthong**, A. Dutta and S.K Deb, Effect of Cyclic Loading Frequency on the Behaviour of exterior RC Beam-Column Connections, Journal of Earthquake Engineering, Vol.-20, Issue No.-7, Page Nos -1126-1147, 2016.
- iii. **C. Marthong**, S.K. Deb and A. Dutta Deb, Effect of loading rates on the behavior of epoxy repaired RC beam-column connections, European Journal of Environmental and Civil Engineering, Issue No.-Accepted, Page Nos -1-26, 2016.
- iv. **C. Marthong**, A. S. Sangma, Md. S. A.Choudhury, R. N. Pyrbot, S. L. Tron ,L. Mawroh, G. S. Bharti, Structural Behavior of Recycled Aggregate Concrete Beam-Column Connection in Presence of Micro Concrete at Joint Region, Structures, Elsevier, Vol.-11, Page Nos -243–251, 2017.
- v. **M. L. Patton**, K. D. Singh, Buckling of fixed-ended concrete-filled steel columns under axial compression, International Journal of Steel Structures, Springer, Vol.-17(3), 1-13, 2017.
- vi. **Sarmah, R** and Barua, G. (2017). "Analysis of three-dimensional transient seepage into ditchdrains from a ponded field." Sadhana, 42(5), 769–793, 2015
- vii. **D. Podder**, A. Gadagi, N. R. Mandal, S. Kumar, L. Singh, and S. Das, Numerical investigation on the effect of thermo-mechanical tensioning on the residual stresses in thin stiffened panels, Journal of Ship Production and Design, Vol.-33, Issue No.-1, Page Nos -1-11, 2017.
- viii. A. Gadagi, N. R. Mandal, **D. Podder**, S. Kumar, Experimental and numerical investigation on the effect of Thermo-Mechanical Tensioning on weld induced out-of-plane distortion, Journal of Ship Production and Design, Issue No.-Accepted, 2017.
- ix. **D. Podder**, A. Gadagi, N. R. Mandal, S. Das, In sight of a fillet welded T-joint based on the method of average welding forces, Journal of ship production and design, Vol.-32, Issue No.-4, Page Nos -206-215, 2016.
- x. **H. M. Kalita**, A. K. Sarma, An implicit scheme for shallow water flow with wet dry interface, Water Resources, In press

b. Book chapters: 2

- i. **D. Podder**, N. R. Mandal (Ed.), S. Das (Ed.) 2016 "Residual stresses, distortions and their mitigation for fusion welding" Lambert Academic Publishing. 978-3-659-94213-6, 1- 220.
- ii. **H. M. Kalita**, A. K. Sarma, Need of Two-Dimensional Consideration for Modelling Urban Drainage, Springer, 978-3-319-40194-2, 175-182, 2016

c. Conferences: 11

- i. **H. M. Kalita**, A. K. Sarma, Numerical simulation of open channel flow over undulated and dry bed, 6th International and 43rd *National Conference on Fluid Mechanics and Fluid Power*, Period -15-17 December, Place -MNNIT Allahabad, 2016
- ii. **H. M. Kalita**, A semi implicit finite difference model for dam break flow simulation over complex river bed, *National Conference on Hydrology and Watershed Management* (NCHWM-2017), Period -24-25 March, Place -NIT Silchar, 2017
- iii. **Sahoo, S.**, Manna, B. and Sharma, K. G. (2016). "Seismic stability analysis of Un-reinforced and reinforced soil slopes." *GeoChina, Shandong, China*, July 25-27.
- iv. **Sahoo, S.**, Manna, B. and Sharma, K. G. (2016). "Seismic stability analysis of a steep soil slope: with and without nailing." *6th International Conference on Recent Advances in Geotechnical Earthquake Engineering & Soil Dynamics* 2016, IIT Roorkee Greater Noida campus, Greater Noida (NCR) India, August 1-6.
- v. **Susmita Sharma**, Pankaj Pathak (2017) "Categorization of Biosolids, A Vital Biological Resource for Sustainable Agriculture" Paris France May 18-19, 2017, 19 (5) Part XII. *19th International Conference on Civil, Environmental and Architectural Engineering ICCEAE* 2017.
- vi. Pankaj Pathak, **Susmita Sharma** (2017) "Study of Strontium Sorption onto Indian Bentonite" Paris France May 18-19, 2017, 19 (5) Part XII. *19th International Conference on Civil, Environmental and Architectural Engineering ICCEAE* 2017.
- vii. Jaswanth G., **Kumar S.**, and Sharma H., "Impact testing Facility: BHISM for Performance based Blast Resistant Design of Reinforced Concrete (RC) Structures", *Procedia Engineering*, 173, pp 563 – 569, 2017.
- viii. **Chakraborty, R.** and Dey, A. (2016) "Effect of toe cutting on hill slope stability" *Geotechnology Towards Global Standards, Indian Geotechnical Conference, IGC 2016* Department of Civil Engineering, IIT Madras, India, pp. 4-1
- ix. **Chakraborty, R.** and Dey, A. (2016) "Stability of hill-slope using LE and FE analyses" *National Conference on Engineering Problems and Application of Mathematics: EPAM 2016*, NIT Agartala, Tripura, India, pp. 5-1
- x. **Chakraborty, R.** and Dey, A. (2016) "Multiple nonlinear regression analysis for slope stability using limit equilibrium method" *International Geotechnical Engineering Conference on Sustainability in Geotechnical Engineering Practices and Related Urban Issues*, Mumbai, India, pp. 1-3.
- xi. **Chakraborty R.** and Dey A. (2016) "Numerical investigation of slope instability induced by hydraulic and seismic actions" *North-East Students Geo-Congress: NESGC 2016*, Agartala, India, pp. 237-244.

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Debabrata Podder	Application of revised codes IS 1893 - Part 1: 2016 and IS 13920:2016 in earthquake resistant design of buildings	12.06.2017 - 23.06. 2017
2	Dr. Hriday Mani Kalita	Water Challenges In India: Knowledge sharing and exchange of experiences	08.02.2017- 09.02.2017
3	Dr. Smrutirekha Sahoo	Second Meeting of National Platform for Disaster Risk Reduction at Vigyan Bhawan, New Delhi.	15.05. 2017- 16.05. 2017
4	Dr. Susmita Sharma	Training cum Training of Trainers based on the MSWM Manual organized by Ministry of Urban Development (MoUD) in collaboration with GIZ at Kolkata.	09.01.2017- 13.01.2017
5	Dr. C. Marthong	Attending a training programme on "Life enhancement of RC structural Components through repair and retrofit" organized by CSIR-Structural Engg. Research Centre, Chennai.	22.09. 2016- 23.09. 2016
6	Ms. Rubi Chakraborty	North-East Students Geo-Congress: NESGC 2016, Agartala, India	
		International Geotechnical Engineering Conference on Sustainability in Geotechnical Engineering Practices and Related Urban Issues, Mumbai, India	23.09.2016

Invited Talks Delivered:

- i. **Dr. M. L. Patton** - Workshop on New building Technology in collaboration with Visaka Industries Ltd. and RRP SEISCON, 2017.
- ii. **Dr. Debabrata Podder**- Topic: 'Advanced building construction methods' at NEEPCO, Guwahati.Date: 28.07.2017

Projects

a. Sponsored Project

Name of Faculty	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount (Rs)	Duration	Status
Dr. C. Marthong	Rehabilitation of RC beam-column connections by epoxy resin injection and FRP sheets wrapping.	PI	SERB-DST, GOI, New Delhi	20.88 lakhs	2014-17	Ongoing
	Seismic Vulnerability Assessment of School Buildings of East Khasi Hills District of Meghalaya and Method of Reducing it.	PI	State Disaster Management Authority (SDMA), Shillong	9.12 lakhs	2015-17	Ongoing
	Biodegradation of pulp and paper mill waste using different composting techniques	Co-PI	SERB-DST, GOI, New Delhi	32.93 Lakhs	2014-17	Ongoing
Dr. M. Longshithung Patton	Structural Behaviour of Lean Duplex Stainless Steel Tubular Beams with Web Openings	P.I.	DST-SERB (Govt. of India)	19.04 Lakhs	2017-2020 36 months	Ongoing
Dr. Hriday Mani Kalita	Development of an efficient model for simulation of shallow water flow incorporating wetting and drying technique	P.I.	NIT Meghalaya	2.85 Lakhs	2016-2018	Ongoing
	Cost effective combination of T-head groynes for river bank protection	P.I.	SERB, DST	19.16 Lakhs	2016-2019	Ongoing

b. Consultancy

Sl. No.	Title	Consultant(s)	Client(s)	Value (Rs)	Status
1	Testing of construction materials for IIM Shillong project (Shri B. D. Marbaniang)	Dr. C. Marthong and Dr. D. K. Sarma	CPWD, Shillong	166,000	Completed
2	Third party quality control for CPWD constructions	Dr. C. Marthong and Dr. D. K. Sarma	CPWD, Shillong	204836	Completed
3	Third party quality control for CPWD constructions	Dr. C. Marthong and Dr. D. K. Sarma	CPWD, Shillong	134472	Completed
4	Testing of materials for CPWD, Shillong for construction of IIM, Shillong	Dr. C. Marthong and Dr. D. K. Sarma	CPWD, Shillong	24150	Completed

Sl. No.	Title	Consultant(s)	Client(s)	Value (Rs)	Status
5	Third quality control for IIM construction CPWD, Shillong	Dr. C. Marthong & Dr. D. K. Sarma	CPWD, Shillong	153186	Completed
6	Third quality control for IIM construction CPWD, Shillong	Dr. C. Marthong & Dr. D. K. Sarma	CPWD, Shillong	169198	Completed
7	Structural vetting for NRL, Assam	Dr. C. Marthong & Dr. M. L. Patton	NRL Assam	34500	Completed
8	Testing of concrete cubes, aggregates and bricks for IIM, Shillong, CPWD (B. D Marbaniang)	Dr. C. Marthong	CPWD, Shillong	60500	Completed
9	Testing of materials for IIMPD. CPWD (B.D Marbaniang)	Dr. C. Marthong	CPWD, Shillong	152000	Completed
10	Material testing for power Grid	Dr. C. Marthong and Dr. Susmita Sharma	Power Grid, Shillong	10350	Completed
11	Material testing for power Grid	Dr. C. Marthong & Dr. Susmita Sharma	Power Grid, Shillong	32200	Completed
12	Structural Design for AF, (HQ), Shillong Zone	Dr. C. Marthong & Dr. M. L. Patton	IAF, Shillong	412399	Completed
13	Testing of Steel bars for CPWD, Shillong, IIMPD, Shillong	Dr. C. Marthong & Dr. D. K. Sharma	CPWD, Shillong	54,050	Completed
14	Testing of Construction Material(Cement, Water, Concrete cubes) for CPWD, Shillong-IIM, Shillong project	Dr. C. Marthong & Dr. Susmita Sharma	CPWD, Shillong	55,200	Completed
15	Material Testing (Steel) for CPWD, Shillong, IIMPD, Shillong	Dr. C. Marthong & Dr. D.K. Sarma	CPWD, Shillong	64,975	Completed
16	Material Testing (Bitumen) for CPWD, Shillong, IIMPD, Shillong	Dr. C. Marthong	CPWD, Shillong	63,250	Completed
17	Testing of construction materials(Stone Boulder, Bricks and Water) for CPWD, Shillong- IIMPD Project	Dr. C. Marthong & Dr. Susmita Sharma	CPWD, Shillong	89,700	Completed
18	Testing of water for Power Grid Corporation India	Dr. Susmita Sharma	Power Grid	5750	Completed
19	Testing of water quality for Power Grid Corporation India	Dr. Susmita Sharma	Power Grid	10,350	Completed
20	Testing of construction material and water for Power Grid Corporation India	Dr. C. Marthong & Dr. Susmita Sharma	Power Grid	15,525	Completed
21	Testing of Cement for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	29,325	Completed
22	Testing of Bricks for Power Grid Corporation India Ltd	Dr. C. Marthong	Power Grid	12,650	Completed
23	Construction for pile foundation of 132KV Pasighat- Roing- Tezu- Namsai transmission line	Dr. C. Marthong and Dr. D. K. Sarma	Power Grid	75,660	Completed
24	Testing of water sample for Power Grid Corporation India Ltd	Dr. Susmita Sharma	Power Grid	5,750	Completed

Sl. No.	Title	Consultant(s)	Client(s)	Value (Rs)	Status
25	Testing of water sample and cement cubes for Power Grid Corporation India Ltd	Dr. C. Marthong & Dr. Susmita Sharma	Power Grid	10,925	Completed
26	Testing of concrete cubes for Construction of Lady Keane College	Dr. C. Marthong	Lady Keane college, Shillong	1,725	Completed
27	Testing of Construction Material (Cement, Boulders & Bricks) for construction of Retaining wall behind Academic Block A	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	130,525	Completed
28	Material Testing (cement, bricks, stone & water) for construction of additional landfill and Ancillary work at Marten, Shillong	Dr. C. Marthong & Dr. Susmita Sharma	CPWD, Shillong	22,425	Completed
29	Material testing (Stone, cubes & water) for development of RGIIM campus Shillong	Dr. C. Marthong & Dr. Susmita Sharma	CPWD, Shillong	90,850	Completed
30	Material testing (Steel & cement) for development of RGIIM, campus at Shillong	Dr. C. Marthong & Dr. Susmita Sharma	CPWD, Shillong	73,600	Completed
31	Testing of Concrete Cubes, water & Boulder for construction of new 33/11 KV Mynkre and 33/11 KV Rymbai Substation under NERPSIP Scheme Meghalaya	Dr. C. Marthong & Dr. Susmita Sharma	Power Grid	24,725	Completed
32	testing of Cubes cement for pile foundation of 132 Pasighat- Roing- Tezu- Namsai transmission line	Dr. C. Marthong & Dr. M. L. Patton	Power Grid	23,000	Completed
33	Construction of 33/11 KV Rymbai Substation under NERPSIP, Meghalaya	Dr. C. Marthong	Power Grid	13,800	Completed
34	Construction work of 33/11 KV New Shillong Substation under NERPSIP Scheme Meghalaya	Dr. C. Marthong & Dr. Susmita Sharma	Power Grid	90,200	Completed
35	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
36	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
37	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
38	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
39	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed

Sl. No.	Title	Consultant(s)	Client(s)	Value (Rs)	Status
40	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
41	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	52,350	Completed
42	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
43	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
44	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
45	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
46	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
47	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
48	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
49	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	74,750	Completed
50	Construction of Road, i/c retaining walls site grading and preparation for proposed state of Art Academic cum residential campus of RGIIM at Umsawli, Shillong (Phase- I)	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
51	Design of steel building located at Shillong for Neil Sootinck	Dr. D. Podder, Dr. M. L. Patton & Dr. C. Marthong	Neil Scotick, Shillong	80,500	Completed
52	Testing of Cement for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	48,875	Completed
53	Testing of bricks & Cement cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	15,525	Completed

Sl. No.	Title	Consultant(s)	Client(s)	Value (Rs)	Status
54	Conducting Mix design NERCCDIIP, Shillong	Dr. C. Marthong	CPWD, Shillong	34,500	Completed
56	Testing of boulder for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
57	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	3,450	Completed
58	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	17,250	Completed
59	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	17,250	Completed
60	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	17,250	Completed
61	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	17,250	Completed
62	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	10,500	Completed
63	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	10,500	Completed
64	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	10,500	Completed
65	Testing of concrete cubes	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	10,500	Completed
66	Testing of Construction Materials	Dr. C. Marthong & Dr. M. L. Patton	CPWD, Shillong	25,000	Completed
67	Velting of Structural Design & Drawing for N.F. Railway building, Agartala	Dr. C. Marthong & Dr. M. L. Patton	Railway Agartala	10,000	Completed
68	Testing of cement for SIPMIU. Project Shillong	Dr. C. Marthong & Dr. M. L. Patton	PWD Shillong	9,775	Completed
69	Testing of Construction Materials	Dr. C. Marthong	CPWD, Shillong	20,700	Completed
70	Testing of Construction Materials for SIPMIU, Meghalaya	Dr. C. Marthong & Dr. M. L. Patton	PWD, Shillong	17,250	Completed
71	Structural Design of Office, Officers Mess, Quarter, Quest House, Indian Airforce, (HQ), Shillong Zone	Dr. C. Marthong & Dr. M. L. Patton		7,19,000	Ongoing

Laboratories Setup:

Name of Faculty	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
Dr. C. Marthong	Structural Engineering	i. Cement Tensile testing machine ii. Digital Compression testing Machine iii. Rebound Hammer iv. Ultra Pulse Velocity v. Flow Table Motorised vi. Cement Autoclaved vii. Canin + OA NO.150393(Corrosion) viii. Scan Cover Meter ix. Concrete Core Drilling Meter x. Automatic Data Acquisition System	Material laboratory	Rs. 35.35
Dr. M. L. Patton	Transportation Engineering	i. Modified Marshall Apparatus ii. Deval Abrasion Testing Machine iii. Skid Resistance	Transportation Engineering Laboratory and	Rs. 3.15
	Computational laboratory.	Abaqus	Computational laboratory	Rs. 17.35
Dr. Hriday Mani Kalita	Hydraulics and Hydraulic Structures	Flow channel for open channel flow experiments	Water Resources Laboratory	Rs. 29.7
Dr. Smrutirekha Sahoo	Geotechnical Engineering Laboratory	i. Unconfined Compression Tester ii. Laboratory Vane Shear Apparatus (motorized) iii. Insitu Vane Shear Apparatus iv. Laboratory Electric oven v. Soil Cone Penetrometer vi. Sample Extractor vii. Static Cone Penetrometer viii. Vibratory Sieve Shaker ix. Dynamic Cone Penetration Test Apparatus	Geotechnical Engineering Laboratory	Rs.15.27
	Computational Laboratory	Midas/GTS NX (A Finite Element based software for Geotechnical Engineering applications)	Computational Laboratory	Rs.18.75
Dr. Susmita Sharma	Environmental Engineering Laboratory	i. Laboratory Refrigerator with accessories ii. Microbial Hood with Laminar Flow Prism iii. Vortex Mixer iv. Water Purification System v. Digital Colony Counter vi. Hot plate vii. Vertical Autoclave with low water level cut off viii. Fume Hood ix. Research Centrifuge x. Orbital Shaker Incubator i. Atomic Absorption Spectrophotometer	Environmental Engineering Laboratory	Rs.14.74
			22,525.00 Euro (dt 18.10.16)	Rs.16.21

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. C. Marthong,	a) HoD CE Dept.-Function and decision related to academic matters of CE Dept. b) In-Charge of Engineering Section, NIT Meghalaya – Function and decision related to Engineering activities of NIT Meghalaya e.g. Construction of permanent campus, Renovation and maintenance of Hostel, Academic Blocks etc.	June 2016 till date 02.09.2013 – 02.09.2016

Sl. No.	Name of Faculty	Responsibilities	Duration
2	Dr. Ratan Sarmah	JoSAA 2017 CenterIncharge, NIT Meghalaya	-
3	Dr. Debabrata Podder	a) Member of institute ranking date preparation committee b) Member of library committee	2016-2017
4	Dr. Susmita Sharma	a) Faculty Advisor For 4th Year Civil Engg. Students b) Institute Grievance committee Member	2017-2018
5	Mr. Suman Kumar	a) Member, Exam Committee b) Member, Result Committee	2016-2017
6	Ms. Rubi Chakraborty	Routine committee member	2017-2018

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Smrutirekha Sahoo	Life member of IGS, Membership for the period of 2014-2017 of ISSMGE
2	Dr. C. Marthong	Life member of Institution of Engineers India

Any Other Notable Information:

The Department faculty also involved in service as requested by other organization as mentioned below:

Faculty	Extension Activity	Role	Contributions
Dr. C. Marthong	Investigating member	Technical member	Helping the Police Department, Govt. Of Meghalaya for investigation of existing road at Mawphlang under case of Laban PS Case No. 56 (5) 16 u/s 3 Prevention of Damage to Public Property Act, 1984.
	Recruitment of Trainee Engineer (Civil) for NEEPCO Ltd., Shillong	Paper setter	Responsible for setting question paper for recruitment of Trainee Engineer (Civil) for NEEPCO India Ltd., Shillong
	Recruitment Junior Engineer Trainee (Elect. & Civil).	Paper setter	Responsible for setting question paper for recruitment of Junior Engineer for Power Grid Corporation of India limited, Shillong
	Earthquake risk assessment of building organized by State Disaster Management Authority, Govt. of Meghalaya.	Expert member	Guiding the Govt. Of Meghalaya Engineers for assessment through Rapid Visual Survey of existing building located in Shillong.
Dr. C. Marthong and Dr. M. L. Patton	Nominated member of the Inquiry committee to NEHU, Shillong	Inquiry member	Technical examining and suggestion to the NEHU Authority regarding the inflated bill and correction of Measurement Book of the work undertaken by the Campus Development Department (CDD), NEHU, Shillong
Dr. H. M. Kalita	Recruitment of Junior Engineer (Civil) for MPSC, Shillong	Paper setter	Responsible for setting question paper for recruitment of Junior Engineer for Meghalaya Public Service commission, Govt. of Meghalaya.
Dr. Susmita Sharma	Recruitment of Junior Engineer (Civil) for MPSC, Shillong	Paper setter	Responsible for setting question paper for recruitment of Junior Engineer for Meghalaya Public Service commission, Govt. of Meghalaya.
	Nominated member	Technical member	State level advisory committee notified by the department of urban affairs, Govt of Meghalaya for MSW handling and environmental pollution issues

Department of Physics

Brief Introduction to the Department:

Department of Physics having six *well-qualified faculty members* with PhD from reputed Institution in India and Abroad. Important mission of the Department is to generate human resource of excellent quality with interdisciplinary research area encompassing of nano and quantum materials for fundamental science and various engineering field of international competence level for the need of nation. This department is offering the Engineering Physics for 1st year B.Tech., students and Physics of Materials for 2nd year B.Tech., MSc two year Physics programme and PhD courses with various disciplines. The department has received some research project funds from DST- SERB Government of India.

Programmes Offered:

Engineering Physics and Physics of Materials courses offered to B.Tech students

- MSc Physics
- PhD Physics

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. A. Bhattacharjee	Associate Professor	PhD	Liquid Crystals Raman Spectroscopy	24.07.2013	2-completed one ongoing	
Dr. Arpita Nath	Assistant Professor	PhD	Laser-Matter Interaction	03.10.2013		
Dr. Tribedi Bora	Assistant Professor	PhD	Magnetic Materials and Low temperature Physics	06.07.2015	One (ongoing)	
Dr. W. L. Reenbohn	Assistant Professor	PhD	Brownian ratchets Stochastic resonance	06.07.2015		
Dr. Vivek Kumar	Assistant Professor	PhD	Semiconductor nanostructures & Raman Spectroscopy	14.07.2015	One (ongoing)	
Dr. K. Senthilkumar	Assistant Professor & Head	PhD	Defect Engineering in Semiconductor Nanostructures and Low temperature Physics	14.07.2015		

List of Publications:

a. Journals: 18

- SP Choudhury, **A Bhattacharjee**, Sensing of 0.1 ppm of methanol, ethanol, and propanol vapors at 130° C by SnO₂ thin film, *Particulate Science and Technology* 35 (3), 314-321, 2017
- D Bhattacharjee, PR Alapati, **A Bhattacharjee**, Electrical properties of interdigitated partially bent like shaped liquid crystalline compound, *Molecular Crystals and Liquid Crystals* 648 (1), 66-76, 2017
- K Thingujam, **A Bhattacharjee**, B Choudhury, PR Alapati, Optical parameter measurements of a nO. m liquid crystalline compound, *Indian Journal of Pure & Applied Physics (IJPAP)* 55 (4), 269-274, 2017
- B Gogoi, KN Singh, R Mishra, TK Ghosh, **A Bhattacharjee**, PR Alapati, Study of dielectric properties and the molecular dynamics using Raman spectroscopy in pure and nanoparticle doped liquid crystal compound, 60. 4, *Molecular Crystals and Liquid Crystals* 646 (1), 3-13, 2017
- SP Choudhury, K Bhattacharya, N Kumari, A Ghosh, **A Bhattacharjee**, Impedance Spectroscopy of Fe-Doped SnO, *Nanoscience and Nanotechnology* 17, 1-8, 2017
- Spectral Anomaly in Raman Scattering from p-Type Silicon Nanowires, Priyanka Yogi, Deepika Poonia, Suryakant Mishra, Shailendra Saxena, Swarup Roy, **Vivek Kumar**, Pankaj R. Sagdeo and Rajesh Kumar, *Journal of Physical Chemistry C* 121,

5372 (2017).

- vii. Fano Scattering: Manifestation of Acoustic Phonons at Nanoscale, Priyanka Yogi, Suryakant Mishra, Shailendra K. Saxena, **Vivek Kumar** and Rajesh Kumar, *Journal of Physical Chemistry Letters* 7, 5291 (2016).
- viii. Enhanced third harmonic generation in air by two-colour ultrashort laser pulses, **A Nath**, JA Dharmadhikari, D Mathur, AK Dharmadhikari, *Applied Physics B* 122, 248, (2016).
- ix. Particle dynamics in a symmetrically driven underdamped inhomogeneous periodic potential system, D. Kharkongor, **W. L. Reenbohn** and, Mangal C. Mahato, *Phys. Rev. E* 94, 022148 (2016).
- x. K. Thingujam, **A. Bhattacharjee**, B. Choudhury, R. Dabrowski, Nematic liquid crystals exhibiting high birefringence, *Optical Review*, Vol.-23, Issue No.-3, Page Nos -409-19, 2016.
- xi. S. P. Choudhury, **A. Bhattacharjee**, Sensing of 0.1 ppm of methanol, ethanol, and propanol vapors at 130° c by SnO₂ thin film, *Particulate Science and Technology*, Vol.-Accepted, 2016.
- xii. D. Bhattacharjee, S. Paul. Choudhury, P. R. Alapati, **A. Bhattacharjee**, Dielectric relaxation and birefringence study of 7. O5O. 7 dimeric liquid crystal compound, *International conference on condensed matter and applied physics (icc 2015) AIP*, Vol.-1728, Issue No.-020155, 2016.
- xiii. D. Bhattacharjee, S. P. Choudhury, **A. Bhattacharjee**, Correlation between the density and refractive index with higher homologues 5O. m series, *Molecular Crystals and Liquid Crystals*, Vol.-631, Issue No.-1, Page Nos -69-73, 2016.
- xiv. D. Bhattacharjee, P. R. Alapati, **A. Bhattacharjee**, Negative Birefringence in the Higher Homologues of 5O. m Series of Liquid Crystals, *The Journal of Physical Chemistry B*, Vol.-120, Issue No.-27, Page Nos -6747–6753, 2016.
- xv. K. Thingujam, **A. Bhattacharjee**, B. Choudhury, S. D. Sarkar, Optical studies of a binary liquid crystal mixture exhibiting induced smectic A phase, *Applied Physics A*, Vol.-122, Issue No.-8, Page Nos -1-10, 2016.
- xvi. D. Bhattacharjee, P. R. Alapati, **A. Bhattacharjee**, Negative optical anisotropic behaviour of two higher homologues of 5O. m series of liquid crystals, *Journal of Molecular Liquids*, Vol.-222, Page Nos -55-60, 2016.
- xvii. S. P. Choudhury, S. D. Gunjal, N. Kumari, K. D. Diwate, K. C. Mohite, **A. Bhattacharjee**, Facile synthesis of SnO₂ thin film by spray pyrolysis technique, investigation of the structural, optical, electrical properties, *Materials Today: Proceedings*, Vol.-3, Issue No.-6, Page Nos -1609-1619, 2016.
- xviii. D. Bhattacharjee, P. R. Alapati, **A. Bhattacharjee**, Molecular polarization, order parameter and dielectric study of a dimeric compound, *Journal of Molecular Liquids*, Vol.-224, Page Nos -507-514, 2016.

b. Book chapters: 1

- i. “The correlation of density, refractive index and dielectric studies on two peculiar liquid crystals.” Debanjan Bhattacharjee and Ayon Bhattacharjee, “Crystal Growth: Concepts, Mechanisms and Applications” Nova Publishers, USA, 2017

c. Conferences: 2

- i. Particle transport in a noisy symmetrically driven underdamped inhomogeneous sinusoidal potential system, D. Kharkongor, W. L. Reenbohn and Mangal C. Mahato, Xth PANE Biennial Proceedings (2016)
- ii. Particle dynamics in a symmetrically driven underdamped inhomogeneous periodic potential system, D. Kharkongor, S. Saikia, A. M. Jayannavar, Mangal C. Mahato, and W. L. Reenbohn, AIP Conference Proceedings 1832, 110023 (2017)

Conference/ Workshop/ Seminar Organized:

1. Workshop on Bio-photonics- A multidisciplinary approach, 18-19 November 2016 at National Institute of Technology Meghalaya.
2. One Day Workshop on “Virtual Laboratory” held on 04/11/2016 at NIT Meghalaya.

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Arpita Nath	National Seminar on Advances in Material Science, Gauhati University	2 days (24-25 March 2017)
2	Dr. Tribedi Bora	International Conference on Magnetic Material and Applications	Feb 01- Feb 03, 2017
3	Dr. K. Senthilkumar	29th International Conference on Defects in Semiconductors, Matsue, Japan	July 31 – Aug.4, 2017

Invited Talks Delivered:

Delivered Lecture in CMRIT, Bangalore in March 2016: Dr. Arpita Nath

Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1.	Graphene - silicon nanowire based Schottky junction solar cells for enhanced light harvesting	P.I.	SERB	51.57 Lakhs	04/2017-03/2020	Ongoing
2.	Studies on Orthoconic Antiferroelectric Liquid Crystals	P.I.	SERB	18.00 Lakhs	2016-2018 (3 years)	Ongoing

Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1	Liquid Crystal Lab	Optical Microscopy	Liquid Crystal Lab	
2	Common Research Lab	FTIR	Common Research Lab	
3	Common Research Lab	UV-Visible Spectroscopy	Common Research Lab	

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Arpita Nath Chairperson, Women's Cell	Disciplinary committee to look after the matters related to workplace harassment at the institute level	Upto 2 years.
2	Dr. Tribedi Bora	Warden of Lapalang Girls' Hostel	From July 2015
3	Dr. K. Senthilkumar	Head Physics	From 6th Sep 2016 onwards
4	Dr. A. Bhattacharjee	Dean Research & Consultancy	from July 2014 till date
		Registrar (i/c)	from June 2017 onwards
		TEQIP Coordinator	

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Vivek Kumar	Biochemical Society (UK) [Member ID: 01075548]
2	Dr. K. Senthilkumar	Energy Science Society of India (ESSI) 0309201301L
3	Dr. Tribedi Bora	Magnetic Society of India LM-647 Physics Academy of the North East LM-0274
4	Dr. A. Bhattacharjee	Indian Liquid Crystals Society International Liquid Crystals Society IEEE

Any Other Notable Information:

Name of the Faculty	Responsibilities	Name of the Journal	Duration
Dr. K. Senthilkumar	Associate-Editor	World Research Journal of Applied Physics	from 2014
	Reviewer	Journal of Physics and Chemistry of Solids	from 2013

Department of Chemistry

Brief Introduction to the Department:

The Department of Chemistry was established in 2012. At present, the department is offering two years MSc degree in Chemistry as well as Ph.D. degree. In addition, the Department is supporting to various engineering departments for B.Tech. Programmes at the Institute.

Programmes Offered:

M.Sc. and Ph.D. degree in Chemistry

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Paresh Nath Chatterjee	Assistant Professor	PhD	Organic	14/01/2013	2 (ongoing)	
Dr. Gitish K. Dutta	Assistant Professor	PhD	Organic materials	08/08/2013	1 (ongoing)	
Dr. Naba Kamal Nath	Assistant Professor	PhD	Inorganic	28/07/2015	1 (ongoing)	
Dr. Atanu Singha Roy	Assistant Professor	PhD	Biophysical Chemistry	23/07/2015	2 (ongoing)	
Dr. Mukul Pradhan	Assistant Professor	PhD	Nanoscience and Technology	09/07/2016	NIL	DST INSPIRE Faculty
Dr. Amit Paul	Assistant Professor	PhD	Theoretical and Computational Chemistry	24/06/2016	Nil	On Contract

List of Publications:

a. Journals: 6

- Pradhan, M.**; Song, I.; Lee, J.; Lee, M.; Park, C and Choi, H. C. "Large-area two dimensional bismuth selenide crystals synthesized by solution-based control of the nucleation environment". *RSC Adv.* **2016**, 6, 106960.
- A. K. Paul** and W. L. Hase, "A Zero Point Energy Constraint for Unimolecular Dissociation Reactions. Giving Trajectories Multiple Chances to Dissociate Correctly", *J Phys. Chem. A.* 120, 372 (**2016**)
- H. Kim, **A. K. Paul**, S. Pratihari, and W. L. Hase "Chemical Dynamics Simulations of Intermolecular Energy Transfer: Azulene + N₂ Collisions", *J. Phys. Chem. A* 120, 5187-5196 (**2016**)
- A. K. Paul**, D. Donzis, and W. L. Hase " Collisional Intermolecular Energy Transfer From a N₂ Bath at Room Temperature to a Vibrationally "Cold" C₆F₆ Molecule Using Chemical Dynamics Simulations", *J. Phys. Chem. A*, 121, 4049-4057 (**2017**).
- Shanshan Chen, Yujin An, Gitish K Dutta, Yiho Kim, Zhi Guo Zhang, Yongfang Li, Changduk Yang "A Synergetic Effect of Molecular Weight and Fluorine in All Polymer Solar Cells with Enhanced Performance", *Advanced Functional Materials* 2016.
- So-Huei Kang, Hae Rang Lee, **Gitish K Dutta**, Junghoon Lee, Joon Hak Oh, Changduk Yang, "A Role of Side-Chain Regiochemistry of Thiophene-Vinylene-Thienylene (TVT) in the Transistor Performance of Isomeric Polymers" *Macromolecules* 50 (3), 884-890, **2017**.

Workshop Organized:

Title	Sponsors	National/ International	Role	Dates
Workshop on Biophotonics: A multidisciplinary Approach	NIT Meghalaya, AB chemicals and instruments	National	Dr. Naba Kamal Nath, Co-convenor	18-19 Nov 2016
IUCR outreach program	International Union of Crystallography	National	Dr. Naba Kamal Nath, Convenor	4th October 2016

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Atanu Singha Roy	National Conference of Chemical Physics at Assam University, Silchar	March 20-21, 2017
2	Dr. Atanu Singha Roy	Workshop on Biophotonics - A Multidisciplinary Approach at NIT Meghalaya	November 18-19, 2016
3	Dr. Atanu Singha Roy	Workshop on creation and promotion of online teaching resources: A national initiative at NIT Meghalaya	June 05, 2017
4	P. N. Chatterjee	National Symposium on Advances in Chemical Sciences	January 11-12, 2017
5	Dr. Amit Kumar Paul	National Conference of Chemical Physics	20-21 March, 2017
6	Dr. Mukul Pradhan	Oral presentation at a national conference, NSACS-2017, Assam University, Silchar	January 11-12, 2017
7	Dr. Mukul Pradhan	National conference on “Nanotechnology: From Materials to Medicines and their impact on Society” at BITM, Kolkata.	25th March 2017

Invited Talks Delivered:

Invited talk at CGCRI, Kolkata April, 2016 by Dr. Mukul Pradhan.

Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	An investigation into the molecular interaction of dietary polyphenols with hen egg white lysozyme using biophysical techniques	Dr. Atanu Singha Roy (PI)	DST-SERB	Rs. 36.67 lakh	3 years (2016-19)	Ongoing
2	Molecular interactions of the antioxidant polyphenols and their copper complexes with human serum albumin and its glycated analogues	Dr. Atanu Singha Roy (PI)	CSIR	Rs. 6.90 lakh	3 years (2017-20)	Ongoing
3	Development of 3-D Supramolecular Structure-Based Optoelectronic Materials Towards Photovoltaic Devices	Dr. Gitish K. Dutta (PI)	SERB-DST	RS. 27, 65,560/-	2015-2018	Ongoing

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
4	Diketopyrrolopyrrole and isoindigo based luminescent conjugated polymers for colorimetric and fluorogenic sensors	Dr. Gitish K. Dutta (PI)	SERB-DST	RS. 22,38,000/-	2015-2018	Ongoing
5	Transition metal catalyzed cleavage of carbon-carbon bonds: synthetic, mechanistic and theoretical studies	Dr. P. N. Chatterjee (PI)	SERB-DST	Rs. 24,70,000/-	2015-2018	ongoing
6	Smart biomimetic molecular crystal for energy conversion	Dr. Naba Kamal Nath (PI)	DST-SERB-ECR	37.07 Lakhs	2016-2019	Ongoing
7	"Novel Biocompatible Nanocomposites for SERS Based Sensing of Biomolecules and Toxic Metal Ions"	Dr. Mukul Pradhan (PI)	DST	RS. 35,00,000/-	5 years	Ongoing

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Amit Kumar Paul	Academic Coordinator, B.Tech 1 st Year	Autumn 2016, and Spring 2017
2	Dr. Naba Kamal Nath	Warden	2 nd year
3	Dr. Gitish K. Dutta	HoD, Chemistry	03/09/2015- till date
4	Dr. Gitish K. Dutta	Chairman of DRC	03/09/2015- till date
5	Dr. Gitish K. Dutta	Chairman of DC	03/09/2015- till date
6	Dr. P. N. Chatterjee	Chairman, Student Disciplinary Committee	20/11/2015 to till date
7	Dr. P. N. Chatterjee	Chairman, Anti-ragging Committee	20/11/2015 to till date
8	Dr. P. N. Chatterjee	Chairman, M.Sc. Admission Committee	17/03/2017 to till date
9	Dr. Amit Kumar Paul	Routine Committee (Convener)	2017
10	Dr. Amit Kumar Paul	NSS Committee	2017
11	Dr. Amit Kumar Paul	Faculty Core Committee: Cultural	2017
12	Dr. Amit Kumar Paul	Convenor, Invitation and Reception Sub-Committee for Convocation-2017	2017

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Atanu Singha Roy	Indian Biophysical Society (Life Member)
2	Dr. P. N. Chatterjee	Chemical Research Society of India; Life member
3	Dr. P. N. Chatterjee	Association of Chemistry Teachers; Life member
4	Dr. P. N. Chatterjee	Indian Science Congress Association; Life member
5	Dr. G. K. Dutta	Chemical Research Society of India; Life member

Any Other Notable Information:

1. Dr. Naba Kamal Nath is the Guest Editor of American Chemical Society Journal Crystal Growth & Design
2. Dr. Paresh Nath Chatterjee was Instructor for "In-service Teachers' Training For Science Teachers (organized by State Education Mission Authority of Meghalaya)

Department of Mathematics

Brief Introduction to the Department:

The Department of Mathematics was established in 2012 with the inception of National Institute of Technology Meghalaya. The department offers Ph.D. and 2 year-M.Sc. programme in Mathematics. The department also supports all the engineering departments by offering undergraduate and postgraduate level courses in mathematics to the B.Tech and M. Tech students over a number of semesters. The department has been organizing workshops and summer internship programmes for students and research scholars. The department has at present seven regular faculty members and one adjunct faculty. The faculties are actively engaged in research, teaching and training. The main objective of the department is to attract students of science and engineering, and to provide them academically coherent programmes, with courses that range from the fundamental to the advanced. The department is likely start a 5-year joint B.Sc. and M.Sc. programme in near future.

Programmes Offered:

2 year M.Sc. programme, Ph.D. programme

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Tikaram Subedi	Asst. Professor and HoD	Ph.D	Abstract Algebra	01-06-2012	Two ongoing	
Dr. Manideepa Saha	Asst. Professor	Ph.D	Linear Algebra	22-07-2013		
Dr. Saikat Mukherjee	Asst. Professor	Ph.D	Functional Analysis	25-07-2013	One ongoing	
Dr. Bapan Ghosh	Asst. Professor	Ph.D	Mathematical Biology	28-01-2015	One ongoing	
Dr. Bidasagar Kumbhakar	Asst. Professor	Ph.D	Fluid Dynamics	20-07-2015		
Dr. Srinivas Jangili	Asst. Professor	Ph.D	Fluid Dynamics	27-07-2015		
Dr. Nabakumar Jana	Asst. Professor	Ph.D.	Statistics	27-08-2015		
Prof. H.K Mukerjee	Professor	Ph.D	Algebraic Topology	August, 2016		Adjunct Faculty

List of Publications:

a. Journals: 12

- Tikaram Subedi and A.M Buhphang, On left SF-rings and strongly regular rings, *Kyungpook Mathematical Journal*, Vol.-56, Issue No.-3, Page Nos -861-866, 2016.
- S. Dey, E. Raheem, **S. Mukherjee**, H. K. T. Ng, Two parameter exponentiated Gumbel distribution: properties and estimation with flood data example, *Journal of Statistics & Management Systems*, Vol.-20, Issue No.-2, Page Nos -197-233, 2017. <http://dx.doi.org/10.1080/09720510.2016.1228261>
- S. Dey, E. Raheem, **S. Mukherjee**, Statistical Properties and Different Methods of Estimation of Transmuted Rayleigh Distribution, *Revista Colombiana de Estadística*, Vol.-40, Issue No.-1, Page Nos -165-203, 2017. <http://dx.doi.org/10.15446/rce.v40n1.5615>
- B. Ghosh**, D. Pal, T. K. Kar, J. C. Valverde, Biological Conservation through Marine Protected Areas in the Presence of Alternative Stable States, *MATHEMATICAL BIOSCIENCES (Elsevier)*, Vol.-286, Page Nos -49-57, 2017.
- J. Srinivas, J.V. Ramana Murthy, A.J. Chamkha, "Analysis of Entropy Generation in an Inclined Channel Flow Containing Two Immiscible Micropolar Fluids Using HAM", *International Journal of Numerical Methods for Heat and Fluid Flow*, 23(3/4) (2016) 1027-1049. (Emerald Science) DOI: <http://www.emeraldinsight.com/doi/pdfplus/10.1108/HFF-09-2015-0354>
- J. Srinivas**, G. Nagaraju, O.A. Beg, "Mathematical Modeling of Entropy Generation in Magnetized Micropolar flow between co-rotating Cylinders with Internal Heat Generation", *Alexandria Engineering Journal*, 55(3) (2016) 1969–1982.(Elsevier DOI: <http://www.sciencedirect.com/science/article/pii/S1110016816301946>

- vii. **J. Srinivas**, J.V. Ramana Murthy, O.A. Beg, “Entropy Generation Analysis of Radiative Heat Transfer Effects on Channel flow of two Immiscible Couple Stress Fluids”, Journal of the Brazilian Society of Mechanical Sciences and Engineering, 39(6) (2017) 2191-2202. (Springer) DOI: <https://link.springer.com/article/10.1007/s40430-017-0752-6>
- viii. G. Nagaraju, **J. Srinivas**, J.V. Ramana Murthy, A.M. Rashad, “Entropy Generation Analysis of the MHD Flow of Couple Stress Fluid between Two Concentric Rotating Cylinders with Porous Lining”, Heat Transfer - Asian Research, 46(4) (2017) 316--330. (Wiley) DOI: <http://onlinelibrary.wiley.com/doi/10.1002/htj.21214/abstract>
- ix. S.O. Adesanya, J.A. Falade, **J. Srinivas**, O.A. Beg, “Irreversibility Analysis for Reactive Third-Grade Fluid Flow and Heat Transfer with Convective Wall Cooling”, Alexandria Engineering Journal, 56(1) (2017) 153-160. (Elsevier) DOI: <http://www.sciencedirect.com/science/article/pii/S1110016816302848>
- x. **J. Srinivas**, S.O. Adesanya, J.A. Falade, G. Nagaraju, “Entropy Generation Analysis for a Radiative Micropolar Fluid Flow Through a Vertical Channel Saturated with Non-Darcian Porous Medium”, International Journal of Applied and Computational Mathematics, (Accepted) (Springer). DOI: <https://link.springer.com/article/10.1007/s40819-017-0322-8>
- xi. **N. Jana** & S. Kumar (2017). Classification into two normal populations with a common mean and unequal variances. Communication in Statistics-Simulation and Computation. Vol.46, No.1, pp.546-558. Publisher: Taylor and Francis <http://www.tandfonline.com/doi/abs/10.1080/03610918.2014.970697>
- xii. **N. Jana**, S. Kumar & K. Chatterjee (2016). Bayes estimation for exponential distributions with common location parameter and applications to multi-state reliability models. Journal of Applied Statistics. Vol.43, No.15, pp.2697–2712. Publisher: Taylor and Francis <http://www.tandfonline.com/doi/abs/10.1080/02664763.2016.1142950?journalCode=cjas20>

b. Book chapters: 1

- i. M. Saha, Iterative method for linear system with coefficient matrix as an M_ν -matrix, *Applied and Computational Matrix Analysis in the series Proceedings of Mathematics & Statistics*, pp 241-251, 2017.

Conference/ Workshop/ Seminar Organized:

Workshop on **Mathematical Modelling and its Applications** was organized at NIT Meghalaya during August 19-20, 2016.

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Tikaram Subedi	Workshop on Mathematical Modelling and its Applications	August 19-20, 2016
2	Dr. Manideepa Saha	National Workshop on Matrices and Graphs, attended as a resource person Workshop on Mathematical Modelling and its Applications	January 2-7, 2017 August 19-20, 2016
3	Dr. Saikat Mukherjee	Workshop on Mathematical Modelling and its Applications	August 19-20, 2016
4	Dr. Bapan Ghosh	Workshop on Mathematical Modelling and its Applications Hyperbolic Partial Differential Equation and Conservation Laws (HPDECL-2017)	August 19-20, 2016 February 22nd - 25th, 2017
4	Dr. Bidyasagar Kumbhakar	Workshop on Mathematical Modelling and its Applications	August 19-20, 2016
5	Dr. Srinivas Jangili	Workshop on Mathematical Modelling and its Applications Hyperbolic Partial Differential Equation and Conservation Laws (HPDECL-2017)	August 19-20, 2016 February 22nd - 25th, 2017
6	Dr. Nabakumar Jana	Platinum Jubilee Conference on Application on Statistics, Calcutta University VIII International Symposium on Statistics and Optimization in conjunction with XXXVI Annual Convention of ISPS	21-23 Dec, 2016 18-19 Dec, 2016

Invited Talks Delivered:

- i. M. Saha, “Recent Trends in Linear Algebra” at St. Anthony College, Shillong on , November 26, 2016
- ii. S. Mukherjee, “Unsolved Problems in Mathematics”, at St. Mary College, Shillong, November 28, 2016.
- iii. S. Mukherjee, “Introduction to Mathematica”, on “Workshop on Computational methods in statistics” organized by Dept. of Statistics, St. Anthony College, Shillong, December 1, 2016
- iv. S. Mukherjee, “Pi: Origin and Significance”, on Pi Day 2017, organized by Dept. of Mathematics, St. Anthony College, Shillong, March 14, 2017
- v. B. Ghosh, Delivered lectures on “Workshop on Mathematical Modelling and its Applications” at NIT Meghalaya, August 19-20, 2016.
- vi. B. Ghosh, Delivered lectures on Short term training programme on “Numerical and Computational Techniques for Engineers and Researchers” at NITTR-Kolkata, June 13-17, 2016.
- vii. N. Jana delivered a talk for the Best Ph.D. Thesis Award in VIII International Symposium on Statistics and Optimization in conjunction with XXXVI Annual Convention of ISPS, Aligarh Muslim University, India, 18th Dec-2016. The topic of the research seminar: “Classification procedures under the restrictions on parameter”

Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Pulses in Spatial Population Dynamics	Bapan Ghosh (PI) Ludovic Mailleret (Co-PI)	IFCAM at IISc Bangalore	700000	2016-17	Completed
2	Modeling, Dynamics and Benefits of Marine Protected Areas	Bapan Ghosh	SERB-DST	1469600	2016-2019	Ongoing
3	Ordered Classification Rules for Observations into Several Populations	Nabakumar Jana	SERB-DST	1500000	2017-2020	Ongoing

Awards Won/ Recognition received at the national and international level:

Nabakumar Jana received ‘Prof. A R Kamat Best Ph.D. Thesis Award in Statistics’ in 2016 from Indian Society for Probability and Statistics (ISPS).

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. TikaramSubedi	Head of Department, Mathematics	August 2015-Till Date
		Warden, PG Men’s Hostel, Umpling	August 2015- June 2017
2	Dr. Manideepa Saha		
3	Dr. Saikat Mukherjee	Associate Dean, Student Welfare	Oct’2015-till date.
4	Dr Bapan Ghosh	Warden, Kench’s Trace Boys Hostel	July 2015-June 2017
5	Dr. Bidasagar Kumbhakar		
6	Dr. SrinivaJangili		
7	Dr. Nabakumar Jana		

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Manideepa Saha	Society for Industrial and Applied Mathematics (SIAM), American Mathematical Society (AMS), Indian Mathematical Society (IMS).
2	Dr. Saikat Mukherjee	Society for Industrial and Applied Mathematics (SIAM), American Mathematical Society (AMS), Indian Mathematical Society (IMS).
3	Dr. Bapan Ghosh	Calcutta Mathematical Society (CMS), Indian Statistical Institute (ISI)-Kolkata
4	Dr. Nabakumar Jana	Indian Society for Probability and Statistics (ISPS) International Indian Statistical Association (IISA)

Any Other Notable Information:

Summer Internship Programme is arranged in every summer with an objective of encouraging bright students of different Institutes in India to pursue innovative researches and development projects under the guidance of faculty members from NIT Meghalaya. Mathematics faculty members actively participate in the programme. In summer 2016, the following students did summer internship from Mathematics Department, NIT Meghalaya:

- i. **Mr. Rakshit Agnihotri** from NIT Warangal under Dr. Srinivas Jangili on “*Micropolar Fluid Flow Through a Vertical Channel Saturated with Non-Darcian Porous Medium: Using Adomian Decomposition Method*” during May-June 2016.

Department of Humanities and Social Sciences

Brief Introduction to the Department:

The Department of Humanities and Social Sciences has been an integral part of the Institute since its inception in the year 2010. The main objective of the department is the holistic and all round development of the technical graduates into socially responsible individuals. There has been strong exhortation and sensible view among the technical institutes that technical education needs to be complemented by a vital appreciation of the social values and interpersonal context of all learning. Responding to this eminent viewpoint, the department is infusing the concept of “Technology for the greater good of mankind and society as a whole” so that the students will not only excel in technical expertise but also inculcate among themselves excellence in communication, refinement of reasoning, openness to new ideas, and a commitment to social values and ethical behaviour.

The department strives to provide the students allied knowledge essential to engineering students and offers subjects like English Language Skills; Foundations of Management; Accounting and Financial Methods; Professional Ethics; and Introduction to Economics. The Department also offers a PhD Programme under which research scholars are admitted twice a year.

Along with state of the art classrooms, the department is equipped with a modern Computer Assisted Language Learning Laboratory.

Programmes Offered:

PhD in Literature

Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. P. S. Mangang	Assistant Professor	PhD	Literature	01.06.2012	03 (Guiding)	
Mr. A. D. Sarma	Assistant Professor	MBA, NET, PhD (Pursuing)	Management	22.01.2013	-	

List of Publications:

a. Journals: 2

- P. S. Mangang**. The Socio-Critical Plays of Henrik Ibsen and their Reception. *The Criterion: An International Journal in English*, Vol. 8, Issue 2, April 2017. pp 1127-1133.
- Sarma, I. and **Sarma, A. D.** (2016), “Emergence of Viral Stealth Marketing in Online Social Networks”, *Spectrum: An International Journal of Humanities and Social Sciences*, Vol. 04, Issue No. 02, pp. 141 – 147.

Conference/ Workshop/ Seminar Organized:

- National Conference on Interdisciplinarity: Theory and Practice, COIN-2016, organized by Department of Humanities and Social Sciences, NIT Meghalaya, 22nd and 23rd July, 2016.
- International Conference on Interdisciplinarity: Contemporary Research in Humanities, Social Sciences and Management Studies, COIN-2017, organized by Department of Humanities and Social Sciences, NIT Meghalaya, 21st & 22nd July, 2017.
- Organised a Workshop named “*Business Analytics*” in collaboration with Ritusha Consultants Private Limited (RCPL) to introduce the concept of Business Analytics to the students of NIT Meghalaya on March 20, 2017.

Conferences / Workshops / Seminars / Trainings Attended by faculty members:

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	P. S. Mangang	International Conference on Literature, Culture and World Peace, Pune	23rd & 24th September 2016
2	P. S. Mangang	16 th MELOW International Conference on the theme Distortions and Erasures: Literature as History; History in Literature, Chandigarh	3 rd to 5 th March 2017
3	P. S. Mangang	Two Day National Conference on Cultural Studies, ELCC – 2017, Manipur University	12 th & 13 th May 2017
4	P. S. Mangang	Workshop on “ <i>Creation and Promotion of Online Teaching Resources: A National Initiative</i> ” organized by National Institute of Technology Meghalaya (NIT Meghalaya)	June 5, 2017
5	A. D. Sarma	<i>Faculty Development Programme (FDP)</i> at Indian Institute of Management Shillong (IIM Shillong)	May – June 2016
6	A. D. Sarma	Workshop on “ <i>Creation and Promotion of Online Teaching Resources: A National Initiative</i> ” organized by National Institute of Technology Meghalaya (NIT Meghalaya)	June 5, 2017

Invited Talks Delivered:

- P. S. Mangang.** The Interdisciplinary Approach in the Study of Literature, at Two Day National Conference on Cultural Studies, ELCC – 2017, Manipur University on 13th May 2017.
- A. D. Sarma.** Delivered a talk on “**Crafting Contagious Content for Viral Marketing Campaigns**” to the Post Graduate Management students of *Assam Institute of Management (AIM)*, Guwahati on September 2, 2016 under the aegis of ONGC Chair, Assam Institute of Management.

Projects

a. Sponsored Project

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1.	Stigma and Exclusion: A Study of Fits, Seizures and Epilepsy in Literature	P. S. Mangang	NIT Meghalaya (Start-up)	40,000/-	2 years	Report Submitted

Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	P. S. Mangang	HoD, HSS	Whole Year
2	P. S. Mangang	Chairman, Examination Committee	Whole Year
3	P. S. Mangang	Faculty-in-charge, Sports	Whole Year
4	A. D. Sarma	Placement Convenor and Faculty In-charge, Training and Placement Cell	Whole Year

Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	P. S. Mangang	MELOW (The Society for the Study of the Multi-Ethnic Literatures of the World)
2	A. D. Sarma	Life Member of Indian Institute of Banking and Finance (IIBF) , Mumbai
3	A. D. Sarma	Life Member of North East India Council for Social Science Research (NEICSSR)

Any Other Notable Information:

- i. **Dr. P. S. Mangang** is the **Editor** of Spectrum: An International Journal of Humanities and Social Sciences. ISSN 2319-6076 (UGC Approved Journal).
- ii. **Mr. A. D. Sarma** is the **Associate Editor** of Spectrum: An International Journal of Humanities and Social Sciences. ISSN 2319-6076 (UGC Approved Journal).
- iii. **Mr. A. D. Sarma** is **Counsellor** of Master of Business Administration (MBA) and Master of Commerce (M.Com.) programmes of the School of Management Studies, Indira Gandhi National Open University (IGNOU), Shillong Regional Centre.
- iv. **Mr. A. D. Sarma** was **Jury Member** of Master of Fashion Management (MFM) programme of the Department of Fashion Management Studies (FMS), National Institute of Fashion Technology, Shillong (NIFT, Shillong).
- v. **Mr. A. D. Sarma** was **Jury Member** of 'Thrive 30', East India's Biggest Technology Start-Up Showcase organised by NASSCOM (1st April – 7th July, 2017).
- vi. **Mr. A. D. Sarma** is **Member** of the *Expert Committee on Modernizing the Public Interface of Meghalaya Biodiversity Board* (a State Level Committee), Meghalaya Biodiversity Board, Shillong, Government of Meghalaya.
- vii. **Mr. A. D. Sarma** successfully completed the course "***Viral Marketing and How to Craft Contagious Content***" from *The Wharton School, University of Pennsylvania (an Ivy League University)*, USA in collaboration with Coursera. Was adjudged the topper of the course with 100% marks.



Accounts



FAX No.: (0 64) 2223494
E-MAIL : a1 @Meghalaya@cag.gov.in

कार्यालय प्रधान महालेखाकार (लेखापरीक्षा)
मेघालय, शिलांग - 793 001

OFFICE OF THE
PRINCIPAL ACCOUNTANT GENERAL (AUDIT)
MEGHALAYA, SHILLONG - 793 001.

सं./No. ES-4/4-30/Acts/NIT/2017-18/423

दिनांक / Date: 18 December 2017

सेवा में/To

The Director,
National Institute of Technology (NIT),
Bijni Complex, Laitumkhrak,
Shillong - 793003.

विषय/Subject : Separate Audit Report on the accounts of the National
Institute of Technology (NIT) for the year 2016-17

महोदय/महोदया,
Sir/Madam,

कृपया उपरोक्त विषयक संलग्न पत्र / प्रतिवेदन आपकी सूचना एवं आवश्यक
कार्रवाई हेतु ग़ादर प्रेषित है।

Enclosed letter / Report on the above cited subject is forwarded for your
information and necessary action please.

भवदीय/Yours faithfully,

संलग्नक/Enclosed : यथोपरि/As stated.

ब्रह्मान

लेखापरीक्षा अधिकारी (आर्थिक क्षेत्र - II)
Audit Officer (Economic Sector - II)

①: \Ziaul (Hindi - ell)\Forwarding Letter - Economic Sector - II.doc



प्रधान महालेखाकार (लेखा परीक्षा) का कार्यालय,
मेघालय - शिलांग - 793 001
OFFICE OF THE
PRINCIPAL ACCOUNTANT GENERAL (AUDIT)
MEGHALAYA, SHILLONG - 793 001
Email : agauMeghalaya@cag.gov.in
Tele No. (0364) 222 4171
Fax No. (0364) 222 3494

संख्या

No. ES-II/4-30/Accts/NIT/2017-18/422

दिनांक

Date 18 December 2017.....

To,

The Secretary to the Government of India,
Ministry of Human Resource Development,
(Department of Higher Education),
Room No-128, C Wing,
ShastriBhavan,
New Delhi – 110001.

Sub: Separate Audit Report on the accounts of the National Institute of Technology,
Meghalaya for the year ended 31 March 2017.

Sir,

I am to forward herewith the Separate Audit Report on the accounts of the **National Institute of Technology (NIT), Meghalaya** for the year 2016-17 and a set of audited **Annual Accounts of NIT** for the year 2016-17.

2. The Hindi version of the Separate Audit Report will be prepared by the NIT.
3. The Separate Audit Report and the Annual Accounts sent herewith may please be placed before both Houses of Parliament as soon as possible. The date(s) of placing of the Report and Accounts may please be intimated and ten copies of the Report, placed before Parliament, may please be sent to this office for record.
4. The Separate Audit report may please be treated as **Confidential** till it is placed before the Parliament.

Kindly acknowledge receipt.

Yours faithfully,

Encl: As stated above

Sd/-
Pr. Accountant General (Audit)

Speed Post/Confidential

Ltr.No. ES-II/4-30/Accts/NIT/2017-18/423

Date: 18 December 2017

Copy of the Separate Audit Report on the accounts of the **National Institute of Technology (NIT)** for the year **2016-17** is forwarded to:

✓ **Director,
National Institute of Technology (NIT),
Bijini Complex, Laitumkhrach,
Shillong – 793003.**

2. Necessary arrangement may please be made for preparation of Hindi version of the Separate Audit Report and issue of the same to the Government of India, Ministry of Human Resource Development with copy to this office.
3. The date(s) of the placing of the Separate Audit Report and Annual Accounts before both Houses of Parliament may please be intimated early.
4. The Separate Audit Report sent herewith may please be treated as **Confidential** till it is placed before both Houses of Parliament.

Kindly acknowledge receipt.

Mai Pakshi
13/12/17
**Dy. Accountant General
Economic Sector-II**

**Separate Audit Report of the Comptroller and Auditor General of India on
the accounts of National Institute of Technology (NIT), Meghalaya for the
year ended 31 March 2017**

We have audited the attached Balance Sheet of the National Institute of Technology (NIT), Meghalaya as at 31 March 2017, the Income and Expenditure Account and Receipts and Payments Account for the year ended on that date under Section 19(2) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 read with Section 22(2) of the National Institute of Technology (NIT) Act, 2007. These financial statements are the responsibility of the NIT's Management. Our responsibility is to express an opinion on these financial statements based on our audit.

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

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

4. Based on our audit, we report that:

I. We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit;

II. The Balance Sheet and Income and Expenditure Account/Receipt and Payment Account dealt by this Report have been drawn in the revised format of accounts prescribed by Ministry of Human Resources Development, Government of India for Central Educational Institutions.

III. In our opinion, proper books of accounts and other relevant records have been maintained by the NIT as required under Section 22(1) of the NIT Act, 2007 in so far as it appears from our examination of such books;

IV. We further report that:

A. BALANCE SHEET

Current Liabilities & Provisions (Schedule 3)

Other Current Liabilities

Salaries: NIL

A1: The above does not include ₹1.05 crore being the provision of Pay and Allowances pertaining to the month of March 2017. This has resulted in understatement of Other Current Liabilities - Salaries and Deficit for the year by ₹1.05 crore each.

Other Liabilities: ₹4.32 crore

A2: The above does not include an amount of ₹0.25 crore being provision for expenses accrued during the period of January and February 2017 for rent/lease of vehicles. This has resulted in understatement of Other Current Liabilities- Other Liabilities and Deficit for the year by ₹0.25 crore each.

A3: The above does not include an amount of ₹0.54 lakh being the expenditure of honorarium in respect of one faculty for the period of February and March 2017. This has resulted in understatement of Other Current Liabilities- Other Liabilities and Deficit for the year by ₹0.54 lakh each.

Schedule 4: Fixed Assets (Gross) – ₹32.01 crore.

A4: The above does not include an amount of ₹13.26 lakh being the expenses accrued for purchase of Library Books which were received and installed during the year. This has resulted in understatement of Fixed Assets and deficit (on account of depreciation) for the year by ₹13.26 lakh and ₹0.66 lakh respectively.

Current Assets (Schedule 7)

Cash and Bank Balances with scheduled Banks in current Account: ₹29.53 crore.

A5: The above relates to Current Account maintained by the Institute with the State Bank of India, Malki Branch. However, the closing balance as per Cash Book is only ₹29.10 crore. The difference of ₹ 0.43 lakh needs to be reconciled.

B. Income & Expenditure Account

Repairs & Maintenance (Schedule 19): ₹ 1.84 crore

B1: The above includes an amount of ₹99.36 lakh paid as salaries to outsourced security and cleaning staff which should have been accounted under Establishment Expenses. This has resulted in overstatement of Repairs and Maintenance and understatement of Establishment Expenses and Deficit for the year by ₹99.36 lakh.

Staff Payments & Benefits (Establishment Expenses) (Schedule-15): ₹10.90 crore.

B2: The above includes ₹0.64 crore being staff pay and allowances for the month of March 2016 which should have been accounted under Prior Period Expenses. This has resulted in overstatement of Staff Payments & Benefits (Establishment Expenses) and understatement of Prior Period Expenses by ₹0.64 crore each.

C. General

C1: The following deviations have been observed from the format of accounts prescribed by the Ministry of Human Resource Development (MHRD), Government of India for Central Educational Institutions:

- The Staff payments and benefits (Schedule 15) have not been classified separately for teaching and non-teaching staff and adhoc staff. Details of Dearness Allowances, Salary Arrears due to Revision of Pay as per 7th Pay Commission were not shown separately. Statutory obligations towards Provident Fund, New Pension Scheme and Retirement Benefits have not been disclosed item-wise.
- A separate Schedule for Employees Retirement and Terminal Benefits was not created. Further, the provision for retirement benefit was not made as prescribed in AS-15.
- The details of Bank Accounts maintained by the Institute have not been annexed along with the Current Assets.

D. Grants-in-Aid

D1: Opening balance of Grants-in-Aid was ₹18.40 crore. During the year 2016-17, an amount of ₹119.70 crore was received. The Internal Revenue Generation (IRG) was ₹1.11 crore. Out of available balance, an amount of ₹93.42 crore was utilised for Capital expenditure and ₹22.43 crore (which includes Grants - ₹21.32 crore and IRG - ₹1.11 crore) was utilised for Revenue expenditure, leaving an unspent balance of ₹23.36 crore as on 31 March 2017.

V. Subject to our observations in the preceding paragraphs, we report that the Balance Sheet, Income and Expenditure Account and Receipts and Payments Account dealt with by this report are in agreement with the books of accounts; and

VI. In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read together with the Accounting Policies and Notes on Accounts, and subject to the significant matters stated above and other matters mentioned in **Annexure** to this Audit Report give a true and fair view in conformity with accounting principles generally accepted in India:

- (a) In so far as it relates to the Balance Sheet, of the state of affairs of the National Institute of Technology (NIT), Meghalaya as at 31 March 2017; and
- (b) In so far as it relates to Income and Expenditure Account of the deficit for the year ended on that date.

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



**(Stephen Hongray)
Principal Accountant General (Audit)**

**Place: Shillong
Date: 18 December 2017**

Annexure I to Separate Audit Report

1. Adequacy of Internal Audit System.

- The Internal Audit is not adequate as the Institute does not have an independent Internal Audit wing and the Internal Audit works is outsourced to a Chartered Accountant.
- No Internal Audit Manual has also been prepared by the Institute.

2. Adequacy of Internal Control System.

Evaluation of the internal control system of the Institute revealed the following deficiencies/weakness:

- The Institute had not developed any Internal Control Manual relating to accounts, Procurement, Administration and Personnel, etc,
- Cash Balance as on 31 March 2017 was not checked and verified.
- Confirmation of balances in banks and fixed deposits was not obtained by the Institute from the financial institutions.
- Confirmation of Debtors/Loans and Advances were not taken from respective parties.
- Temporary Advances paid by the Institute to its officials for various Sundry Expenses have remained unadjusted for more than 15 days from the date of payment.
- There was previous year opening balance of Temporary Advance for NIT Mess which was remained unadjusted, but an additional amount of ₹50 lakh was again paid on 07.02.2017.
- There were no records of recovery made by the Institute from the salary(ies) of officials who have availed Temporary Advance but has not submitted adjustment bill within the stipulated period.

3. System of Physical Verification of Fixed Assets.

Physical Verification of Fixed Assets was not conducted during the year. In the absence of such verification, the authenticity of the value of Fixed Assets in the accounts could not be vouched safe.

4. System of physical verification of Inventory.

Physical verification of Inventory was not carried out by the Institute during the year. In the absence of such verification, the authenticity of the value of Inventory in the accounts could not be vouched safe.

5. Regularity in payment of statutory dues.

Instances of delay in payment of statutory dues/obligations were not observed.


Audit Officer
Economic Sector-II

**National Institute of Technology, Meghalaya
Shillong, Meghalaya**

BALANCE SHEET AS AT 31ST MARCH 2017

[Amount in ₹]

SOURCES OF FUNDS	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND	1	1,68,95,07,122	80,85,75,047
DESIGNATED/ EARMARKED / ENDOWMENT FUNDS	2	6,72,46,100	4,45,06,600
CURRENT LIABILITIES & PROVISIONS	3	33,97,51,134	23,26,77,463
TOTAL		2,09,65,04,357	1,08,57,59,110

APPLICATION OF FUNDS	Schedule	Current Year	Previous Year
FIXED ASSETS	4		
Tangible Assets		22,38,41,484	20,02,27,483
Intangible Assets		1,36,83,386	1,27,05,300
Capital Works-In-Progress		1,46,37,84,950	60,29,88,322
INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS	5	-	-
Long Term			
Short Term		-	-
INVESTMENTS - OTHERS	6	-	-
CURRENT ASSETS	7	37,30,90,166	6,27,67,214
LOANS, ADVANCES & DEPOSITS	8	2,21,04,370	20,70,70,791
TOTAL		2,09,65,04,357	1,08,57,59,110

SIGNIFICANT ACCOUNTING POLICIES 23

CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS 24

For NIT Meghalaya

Director

Registrar

Assistant Registrar

**National Institute of Technology, Meghalaya
Shillong, Meghalaya**

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2017

[Amount in ₹]

Particulars	Schedule	Current Year	Previous Year
INCOME			
Academic Receipts	9	85,48,552	76,87,900
Grants / Subsidies	10	21,32,48,488	18,32,92,978
Income from investments	11	13,03,203	33,74,508
Interest earned	12	3,35,648	4,16,190
Other Income	13	9,19,640	16,23,101
Prior Period Income	14	-	-
TOTAL(A)		22,43,55,531	19,63,94,678
EXPENDITURE			
Staff Payments & Benefits (Establishment expenses)	15	10,89,62,617	9,48,65,100
Academic Expenses	16	3,50,48,819	3,16,97,033
Administrative and General Expenses	17	5,06,77,058	4,91,81,427
Transportation Expenses	18	1,57,01,424	90,88,780
Repairs & Maintenance	19	1,84,49,673	2,00,94,824
Finance costs	20	38,580	4,811
Depreciation	4	4,88,60,716	4,09,67,288
Other Expenses	21	-	-
Prior Period Expenses	22	(66,000)	-
TOTAL (B)		27,76,72,887	24,58,99,263
Balance being excess of Income over Expenditure (A-B)		(5,33,17,356)	(4,95,04,586)
Transfer to / from Designated Fund			
Building fund			
Others (specify)			
Balance Being Surplus / (Deficit) Carried to Capital Fund		(5,33,17,356)	(4,95,04,586)

SIGNIFICANT ACCOUNTING POLICIES 23

CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS 24

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 1 CORPUS/CAPITAL FUND

[Amount in ₹]

Particulars	Current Year	Previous Year
Balance at the beginning of the year	80,85,75,047	73,55,00,688
Add: Contributions towards Corpus/Capital Fund	-	-
Add: Grants from UGC, Government of India and State Government to the extent utilized for capital expenditure	93,42,49,431	31,15,73,973
Add: Assets Purchased out of Earmarked Funds	-	-
Add: Assets Purchased out of Sponsored Projects, where ownership vests in the institution	-	-
Add: Assets Donated/Gifts Received	-	-
Add: Depreciation for prior period	-	94,82,781
Add: Excess of Income over expenditure transferred from the Income & Expenditure Account	-	-
(Deduct) B/F Unutilized Grant transferred to Current Liabilities	-	-19,84,77,809
Total	1,74,28,24,478	85,80,79,633
(Deduct) Deficit transferred from the Income & expenditure Account	5,33,17,356	4,95,04,586
Balance at the year end	1,68,95,07,122	80,85,75,047

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 2 DESIGNATED/ EARMARKED / ENDOWMENT FUNDS

[Amount in ₹]

Particulars	Fund wise Breakup		Total	
	Internal Resources Fund	Endowment Funds	Current Year	Previous Year
A				
a) Opening balance	4,45,06,600	-	4,45,06,600	2,64,15,100
b) Additions during the year	2,27,39,500	-	2,27,39,500	1,80,91,500
c) Income from investments made of the funds	-	-	-	-
d) Accrued Interest on investments/Advances	-	-	-	-
e) Interest on Savings Bank a/c	-	-	-	-
f) Other additions (Specify nature)	-	-	-	-
Total (A)	6,72,46,100	-	6,72,46,100	4,45,06,600
B				
Utilisation/Expenditure towards objectives of funds				
i) Capital Expenditure	-	-	-	-
ii) Revenue Expenditure	-	-	-	-
Total (B)	-	-	-	-
Closing balance at the year end (A - B)	6,72,46,100	-	6,72,46,100	4,45,06,600

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 3 CURRENT LIABILITIES & PROVISIONS

[Amount in ₹]

	Current Year	Previous Year
A. CURRENT LIABILITIES		
1. Deposits from staff	1,17,897	1,26,952
2. Deposits from students	32,13,095	28,75,095
3. Sundry Creditors		
a) For Goods & Services	-	-
b) Others	-	-
4. Deposit-Others (including EMD, Security Deposit) (As per Annexure 'A')	1,25,84,998	87,04,777
5. Statutory Liabilities (GPF, TDS, WC TAX, CPF, GIS, NPS): (As per Annexure 'B')		
a) Overdue	-	-
b) Others	25,83,323	13,63,887
6. Other Current Liabilities		
a) Salaries	-	-
b) Receipts against sponsored projects	2,82,64,570	1,11,06,090
c) Receipts against sponsored fellowships & scholarships	26,04,284	9,94,995
d) Unutilised Grants	23,34,87,939	18,39,85,858
e) Grants in advance	-	-
f) Other funds	6,71,581	5,38,831
g) Other liabilities (As per Annexure 'C')	4,32,29,509	1,44,43,680
Total (A)	32,67,57,196	22,41,40,165
B. PROVISIONS		
1. For Taxation	-	-
2. Gratuity	-	-
3. Superannuation Pension	-	-
4. Accumulated Leave Encashment	1,29,93,938	85,37,298
5. Trade Warranties/Claims	-	-
6. Others - Provision for Expenses	-	-
Total (B)	1,29,93,938	85,37,298
Total (A+ B)	33,97,51,134	23,26,77,463

Note: Unutilized grants 6 (d) will include grants received in advance for next year.

National Institute of Technology, Meghalaya

Shillong, Meghalaya

SCHEDULE 3(a) SPONSORED PROJECTS

[Amount in ₹]

Sl No.	Name of Project	Opening Balance		Receipts / Recoveries during the year	Total	Expenditure during the year	Closing Balance	
		Credit	Debit				Credit	Debit
1	2	3	4	5	6	7	8	9
1	NIT R&D Account	31,42,216	-	3,02,65,568	3,34,07,784	87,38,388	2,46,69,396	-
2	Sponsored Project - CE/01	1,11,134	-	2,14,356	3,25,490	2,40,140	85,350	-
3	Sponsored Project - CE/02	5,70,494	-	19,579	5,90,073	6,99,324	-1,09,251	-
4	PHD-Visvesvaraya	2,19,040	-	34,77,770	36,96,810	25,51,137	11,45,673	-
5	Sponsored Project/Chem/Indo-Korean	7,88,922	-	40,320	8,29,242	4,42,356	3,86,886	-
6	Sponsored Project/Chem/Paresh	11,94,275	-	44,495	12,38,770	12,10,232	28,538	-
7	Sponsored Project/COMP/RAY	11,49,200	-	39,620	11,88,820	2,75,488	9,13,332	-
8	Sponsored Project/DelITY/K. Datta	9,59,513	-	5,92,736	15,52,249	12,13,436	3,38,813	-
9	Sponsored Project/DST/Chem/Gitish	12,92,328	-	67,894	13,60,222	13,48,678	11,544	-
10	Sponsored Project SDMA/Marthong	67,496	-	2,05,846	2,73,342	2,85,598	-12,256	-
11	Sponsored Project/SMDP/Dandapat	16,11,472	-	696	16,12,168	8,05,623	8,06,546	-
	Total	1,11,06,090	-	3,49,68,880	4,60,74,970	1,78,10,400	2,82,64,570	-

Notes:

1. The Projects may be listed agency-wise, with sub-totals for each agency.
2. The total of Col. 8 (Credit) will appear under the above head on the liabilities side of the Balance Sheet (Schedule 3).
3. The total of Col. 9 (Debit) will appear as Receivables in Schedule 8, Loans, Advances and Deposits, on the Assets side of the Balance Sheet.

National Institute of Technology, Meghalaya
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SCHEDULE 3(b) SPONSORED FELLOWSHIPS AND SCHOLARSHIPS

[Amount in ₹]

Sl No.	Name of Sponsor	Opening Balance		Transactions during the year		Closing Balance	
		Credit	Debit	Credit	Debit	Credit	Debit
1	2	3	4	5	6	7	8
1	Scholarship - Top Class	4,10,630	-	19,30,139	-	23,40,769	-
2	External Individual Scholarships	5,84,365	-	7,21,600	10,42,450	2,63,515	-
		-	-	-	-	-	-
	Total	9,94,995	-	26,51,739	10,42,450	26,04,284	-

Notes:

1. The total of Column 7, (Credit) will appear under the above head, on the liabilities side of the Balance Sheet (Schedule 3)
2. The total of Column 8 (Debit) will appear as Receivables on the Assets side of the Balance Sheet in Schedule 8 (Loans, Advances and Deposits).

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SCHEDULE 3(c) UNUTILIZED GRANTS FROM UGC, GOVERNMENT OF INDIA AND STATE GOVERNMENTS

[Amount in ₹]

	Current Year	Previous Year
A Plan Grants: Government of India		
Balance B/F	18,39,85,858	19,84,77,809
Add: Receipts during the year	1,19,70,00,000	48,03,75,000
Total (a)	1,38,09,85,858	67,88,52,809
Less: Refunds	-	-
Less: Utilized for Revenue Expenditure	21,32,48,488	18,32,92,978
Less: Utilized for Capital Expenditure	93,42,49,431	31,15,73,973
Total (b)	1,14,74,97,919	49,48,66,951
Unutilized carried forward (a-b)	23,34,87,939	18,39,85,858
B UGC Grants: Plan		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (a)	-	-
Less: Refunds	-	-
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (b)	-	-
Unutilized carried forward (a-b)	-	-
C UGC Grants: Non Plan		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (a)	-	-
Less: Refunds	-	-
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (b)	-	-
Unutilized carried forward (a-b)	-	-
D Grants from State Government		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (a)	-	-
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (b)	-	-
Unutilized carried forward (a-b)	-	-
Grand Total (A+B+C+D)	23,34,87,939	18,39,85,858

Notes:

Unutilized grants includes advances on Capital Account

Unutilized grants include grants received in advance for the next year

Unutilized grants are represented on the Assets side by Bank balances, Short term Deposits with Banks and Advances on Capital Account

National Institute of Technology, Meghalaya
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SCHEDULE 4 FIXED ASSETS

S.No.	Assets Heads	Gross Block				
		Opening Balance On 01.04.2016	Additions	Deductions	Closing Balance	
1	Land	-	-	-	-	
2	Site Development	-	-	-	-	
3	Buildings	-	-	-	-	
4	Roads & Bridges	-	-	-	-	
5	Tubewells & Water Supply	4,46,375	-	-	4,46,375	
6	Sewerage & Drainage	-	-	-	-	
7	Electrical Installation and equipment	27,73,104	8,90,365	-	36,63,469	
8	Plant & Machinery	-	-	-	-	
9	Scientific & Laboratory Equipment	8,22,78,601	4,15,71,342	-	12,38,49,943	
10	Office Equipment	5,35,00,609	33,18,476	-	5,68,19,085	
11	Audio Visual Equipment	-	-	-	-	
12	Computers & Peripherals	6,00,63,725	13,08,934	-	6,13,72,659	
13	Furniture, Fixtures & Fittings	5,34,38,227	72,60,866	-	6,06,99,093	
14	Vehicles	15,43,380	17,00,580	-	32,43,960	
15	Lib. Books & Scientific Journals	99,78,895	-	-	99,78,895	
16	Small Value Assets	-	-	-	-	
	Total (A)	26,40,22,916	5,60,50,563	-	32,00,73,479	
17	Capital Work in Progress (B)	60,29,88,322	86,07,96,628	-	1,46,37,84,950	
S.No.	Intangible Assets	Opening Balance On 01.04.2016	Additions	Deductions	Closing Balance	
18	Computer Software	2,43,11,749	72,23,872	-	3,15,35,621	
19	E-Journals	83,18,329	1,01,78,368	-	1,84,96,697	
20	Patents	-	-	-	-	
	Total (C)	3,26,30,078	1,74,02,240	-	5,00,32,318	
	Grand Total (A+B+C)	89,96,41,316	93,42,49,431	-	1,83,38,90,747	

Note:

The figure in Column “Deductions’ under Gross Block against the head Capital Work in Progress represents the transfer from Work in Progress to Assets during the year; A16The figures in column “Additions during the year under Gross Block against Assets 1 to 14 include transfer

[Amount in ₹]

	Depreciation Opening Balance	Depreciation for the Year			Net Block	
		Depreciation for the Year	Deductions/ Adjustment	Total Depreciation	31.03.2017	31.03.2016
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	8,927	8,927	-	17,854	4,28,521	4,37,448
	-	-	-	-	-	-
	1,38,655	1,83,173	-	3,21,828	33,41,641	26,34,449
	-	-	-	-	-	-
	94,08,563	99,07,995	-	1,93,16,558	10,45,33,385	7,28,70,038
	1,28,20,289	42,61,431	-	1,70,81,720	3,97,37,365	4,06,80,320
	-	-	-	-	-	-
	2,86,11,781	1,22,00,318	-	4,08,12,099	2,05,60,560	3,14,51,944
	1,03,86,563	45,52,432	-	1,49,38,995	4,57,60,098	4,30,51,664
	4,63,014	3,24,396	-	7,87,410	24,56,550	10,80,366
	19,57,641	9,97,890	-	29,55,531	70,23,364	80,21,254
	-	-	-	-	-	-
	6,37,95,433	3,24,36,562	-	9,62,31,995	22,38,41,484	20,02,27,483
	-	-	-	1,46,37,84,950	60,29,88,322	
	Depreciation Opening Balance	Amortization for the Year	Deductions/ Adjustments	Total Amortization / Adjustments	Balance as on 31.03.2017	Balance as on 31.03.2016
	1,65,97,446	91,77,875	-	2,57,75,321	57,60,300	77,14,303
	33,27,332	72,46,279	-	1,05,73,611	79,23,086	49,90,997
	-	-	-	-	-	-
	1,99,24,778	1,64,24,154	-	3,63,48,932	1,36,83,386	1,27,05,300
	8,37,20,211	4,88,60,716	-	13,25,80,927	1,70,13,09,820	81,59,21,105

National Institute of Technology, Meghalaya
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SCHEDULE 5 : INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS

[Amount in ₹]

		Current Year	Previous Year
1	In Central Government Securities	-	-
2	In State Government Securities	-	-
3	Other approved Securities	-	-
4	Shares	-	-
5	Debentures and Bonds	-	-
6	Term Deposits with Banks	-	-
7	Others (to be specified)	-	-
	Total	-	-

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 6: INVESTMENTS — OTHERS

[Amount in ₹]

		Current Year	Previous Year
1	In Central Government Securities	-	-
2	In State Government Securities	-	-
3	Other approved Securities	-	-
4	Shares	-	-
5	Debentures and Bonds	-	-
6	Others	-	-
	TOTAL	-	-

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SCHEDULE 7:CURRENT ASSETS

[Amount in ₹]

	Current Year	Previous Year
1. Stock:		
a) Stores and Spares	-	-
b) Loose Tools	-	-
c) Publications	-	-
d) Laboratory chemicals, consumables and glass ware	-	-
e) Building Material	-	-
f) Electrical Material	-	-
g) Stationery	-	-
h) Water supply material	-	-
2. Sundry Debtors:		
a) Debts Outstanding for a period exceeding six months	-	-
b) Others	-	-
3. Cash and Bank Balances		
a) With Scheduled Banks:		
In Current Accounts	29,53,48,987	3,16,83,516
In term deposit Accounts	1,19,01,624	1,09,41,528
In Savings Accounts	6,58,39,556	2,01,42,170
b) With non-Scheduled Banks:		
In term deposit Accounts	-	-
In Savings Accounts	-	-
c) Cash in hand:	-	-
4. Post Office- Savings Accounts	-	-
TOTAL	37,30,90,166	6,27,67,214

Note: Annexure A shows the details of Bank Accounts

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 8 - LOANS, ADVANCES & DEPOSITS

[Amount in ₹]

	Current Year	Previous Year
1. Advances to employees: (Non-interest bearing)		
a) Salary	2,87,606	1,32,942
b) Festival	-	-
c) Medical Advance	-	-
d) Other - PDA Advance	5,03,814	2,81,565
2. Long Term Advances to employees: (Interest bearing)		
a) Vehicle loan	-	-
b) Home loan	-	-
c) Others (to be specified)	-	-
3. Advances and other amounts recoverable in cash or in kind or for value to be received:		
a) On Capital Account	-	-
b) To Suppliers	-	-
c) Others - Travelling Advance	25,500	25,500
d) Others - Temporary Advance	1,48,97,559	8,33,300
e) Advance against Rent	28,20,978	20,87,938
f) Advance against Projects	1,11,000	-
4. Prepaid Expenses		
a) Insurance	-	-
b) Other expenses -Leased Line Charges	7,94,160	9,92,700
5. Deposits		
a) Telephone	-	-
b) Lease Rent	-	-
c) Electricity	-	-
d) AICTE, if applicable	-	-
f) Others	14,44,940	14,44,940
6. Income Accrued:		
a) On Investments from Earmarked/ Endowment Funds	-	-
b) On Investments-Others	-	-
c) On Loans and Advances	-	-
d) Others (includes income due unrealized) (Term Deposits)	7,52,040	7,86,490
7. Other - Current assets receivable from UGC/sponsored projects		
a) Debit balances in Sponsored Projects	-	-
b) Debit balances in Sponsored Fellowships & Scholarships	-	-
c) Grants Receivable	-	20,00,00,000
d) Other receivables from UGC	-	-
8. Claims Receivable		
Sundry Receivables	4,66,773	4,85,416
TOTAL	2,21,04,370	20,70,70,791

Note:

1. If revolving funds have been created for House Building, Computer and Vehicle advances to employees, the advances will appear as part of Earmarked/endowment Funds. The balance against these interest —bearing advances will not appear in this schedule.

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SCHEDULE 9 - ACADEMIC RECEIPTS

[Amount in ₹]

	Current Year	Previous Year
A. FEES FROM STUDENTS		
A. Academic		
1. Admission Fee	-	-
2. Enrollment and Registration Fee	7,92,300	7,70,800
3. Application Fee	3,03,592	1,89,750
4. Summer Term Course Fee	26,500	1,23,000
5. Laboratory and Internet Fee	27,87,300	24,55,000
6. Library Fee	4,34,100	3,79,800
7. Provisional Certificate Fee	25,200	24,900
Total (A)	43,68,992	39,43,250
B. Examinations		
1. Examination Fee and Grade Fee	8,17,400	7,31,800
Total (B)	8,17,400	7,31,800
C. Other Fees		
1. Identity Card Fee	37,910	37,350
2. Hostel Admission Fee	98,000	94,500
3. Hostel Seat Rent	21,50,500	19,18,000
4. Hostel Electricity and Water Charges	10,75,750	9,63,000
Total (C)	33,62,160	30,12,850
D. Sale of Publications		
1. Sale of Admission forms	-	-
2. Sale of syllabus and Question Paper, etc.	-	-
3. Sale of prospectus including admission forms	-	-
Total (D)	-	-
E. Other Academic Receipts		
1. Registration fee for workshops, programmes	-	-
2. Registration fees (Academic Staff College)	-	-
Total (E)	-	-
Grand Total (A+B+C+D+E)	85,48,552	76,87,900

Note:

In case fees like entrance fee, subscriptions etc are material and are in the nature of capital receipts, such amount should be recognized to the Capital Fund. Otherwise such fees will be appropriately incorporated in this schedule.

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SCHEDULE 10 — GRANTS / SUBSIDIES (IRREVOCABLE GRANTS RECEIVED)

[Amount in ₹]

Particulars	Plan			Non Plan UGC	Total Plan	Current Year Total	Previous Year Total
	Govt. of India	UGC					
		Plan	Specific Schemes				
Balance B/F	18,39,85,858	-	-	-	18,39,85,858	18,39,85,858	19,84,77,809
Add: Receipts during the year	1,19,70,00,000	-	-	-	1,19,70,00,000	1,19,70,00,000	48,03,75,000
Total	1,38,09,85,858	-	-	-	1,38,09,85,858	1,38,09,85,858	67,88,52,809
Less: Refund to UGC Balance	-	-	-	-	-	-	-
Less: Utilised for Capital expenditure (A)	93,42,49,431				93,42,49,431	93,42,49,431	31,15,73,973
Balance	44,67,36,427	-	-	-	44,67,36,427	44,67,36,427	36,72,78,836
Less: Utilized for Revenue Expenditure (B)	21,32,48,488	-	-	-	21,32,48,488	21,32,48,488	18,32,92,978
Balance C/F (C)	23,34,87,939	-	-	-	23,34,87,939	23,34,87,939	18,39,85,858

A-Appears as addition to Capital Fund as well as additions to Fixed Assets during the year.

B-Appears as income in the Income & Expenditure Account.

C-(I) Appears under Current Liabilities in the Balance Sheet and will become the opening balance next year.

(II) Represented by Bank balances, Investments and Advances on the assets side.

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Shillong, Meghalaya

SCHEDULE 11- INCOME FROM INVESTMENTS

[Amount in ₹]

Particulars	Earmarked / Endowment Funds		Other Investments	
	Current Year	Previous Year	Current Year	Previous Year
1. Interest				
a. On Government Securities	-	-	-	-
b. Other Bonds/Debentures	-	-	-	-
2. Interest on Term Deposits	-	-	13,03,203	33,74,508
3. Income accrued but not due on Term Deposits/ Interest bearing advances to employees				
4. Interest on Savings Bank Accounts	-	-	-	-
5. Others (Specify)	-	-	-	-
Total	-	-	13,03,203	33,74,508
Transferred to Earmarked/Endowment Funds	-	-		
Balance	-	-		

Note:

Interest accrued but not due on Term Deposits from HBA fund, conveyance advance fund and Computer Advance fund and on interest

bearing advances to employees will be included here (Item 3), only where Revolving funds (EMF) for such advances have been setup.

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Shillong, Meghalaya

SCHEDULE 12: INTEREST EARNED

[Amount in ₹]

Particulars	Current Year	Previous Year
1. On Savings Accounts with scheduled banks	3,35,648	4,16,190
2. On Loans		
a. Employees/Staff	-	-
b. Others	-	-
3. On Debtors and Other Receivables	-	-
Total	3,35,648	4,16,190

Note:

1. The amount against item 1, in respect of Bank Accounts of Earmarked/Endowment Funds is dealt with in Schedule 11 (First Part) and Schedule 2.

2. Item 2(a) is applicable only if Revolving funds have not been constituted for such advances.

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Shillong, Meghalaya

SCHEDULE 13- OTHER INCOME

[Amount in ₹]

A. Income from Land & Buildings	Current Year	Previous Year
1.Hostel Room Rent	-	-
2.License fee	2,93,989	1,85,870
3,Hire Charges of Auditorium/Play ground/Convention Centre, etc	-	-
4,Electricity charges recovered	-	-
5.Water charges recovered	-	-
6.House Rent - Staff	-	-
Total	2,93,989	1,85,870
B. Sale of Institute's publications	-	-
C. Income from holding events		
1. Gross Receipts from annual function/ sports carnival	-	-
Less: Direct expenditure incurred on the annual function/ sports carnival		
2. Gross Receipts from fetes	-	-
Less: Direct expenditure incurred on the fetes	-	-
3. Gross Receipts for educational tours	-	-
Less: Direct expenditure incurred on the tours	-	-
4. Overhead Charges	91,446	2,44,000
Total	91,446	2,44,000
D. Others		
1. Income from consultancy	-	-
2. RTI fees	300	360
3. Income from Royalty	-	-
4. Sale of application form (recruitment)	-	8,81,070
5. Misc. receipts (Sale of tender form)	16,950	55,325
6. Profit on Sale/disposal of Assets	-	-
a) Owned assets	-	-
b) Assets received free of cost	-	-
7. Grants/Donations from Institutions, Welfare Bodies and International Organizations		
8. Others		
a) Miscellaneous	5,16,955	2,56,476
b) External Scholarship	-	-
Total	5,34,205	11,93,231
Grand Total (A+B+C+D)	9,19,640	16,23,101

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 14 - PRIOR PERIOD INCOME

[Amount in ₹]

Particulars	Current Year	Previous Year
1. Academic Receipts	-	-
2. Income from Investments	-	-
3. Interest earned	-	-
4. Other Income	-	-
Total	-	-

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SCHEDULE 15 — STAFF PAYMENTS & BENEFITS (ESTABLISHMENT EXPENSES)

[Amount in ₹]

	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Salaries and Wages	10,00,04,499	-	10,00,04,499	7,92,34,214	-	7,92,34,214
b) Allowances and Bonus	-	-	-	-	-	-
c) Contribution to Provident Fund	-	-	-	-	-	-
d) Contribution to Other Fund (specify)	-	-	-	-	-	-
e) Staff Welfare Expenses	-	-	-	-	-	-
f) Retirement and Terminal Benefits	70,34,595	-	70,34,595	1,34,53,538	-	1,34,53,538
g) LTC facility	9,17,428	-	9,17,428	5,79,588	-	5,79,588
h) Medical facility	-	-	-	-	-	-
i) Children Education Allowance	2,95,940	-	2,95,940	-	-	-
j) Honorarium	-	-	-	-	-	-
k) Others - Medical Expenses	7,10,155	-	7,10,155	15,97,760	-	15,97,760
TOTAL	10,89,62,617	-	10,89,62,617	9,48,65,100	-	9,48,65,100

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 16 - ACADEMIC EXPENSES

[Amount in ₹]

	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Laboratory expenses	-	-	-	-	-	-
b) Field work/Participation in Conferences	-	-	-	-	-	-
c) Expenses on Seminars/ Workshops	-	-	-	-	-	-
d) Payment to visiting faculty	-	-	-	-	-	-
e) Examination	-	-	-	-	-	-
f) Student Welfare expenses	-	-	-	-	-	-
g) Admission expenses	-	-	-	-	-	-
h) Convocation expenses	19,58,407	-	19,58,407	16,02,853	-	16,02,853
i) Publications	-	-	-	-	-	-
i) Stipend/means-cum-merit scholarship	2,47,79,558	-	2,47,79,558	1,94,48,198	-	1,94,48,198
k) Subscription Expenses	-	-	-	-	-	-
l) Others	-	-	-	-	-	-
i) Recurring Contingency	28,04,282	-	28,04,282	27,29,396	-	27,29,396
ii) Students Activities	22,22,695	-	22,22,695	24,33,192	-	24,33,192
iii) Other Academic Activities	19,29,996	-	19,29,996	46,84,786	-	46,84,786
iv) Consumables	12,43,008	-	12,43,008	7,98,608	-	7,98,608
v) Startup Project	1,10,873	-	1,10,873	-	-	-
TOTAL	3,50,48,819	-	3,50,48,819	3,16,97,033	-	3,16,97,033

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SCHEDULE 17 - ADMINISTRATIVE AND GENERAL EXPENSES

[Amount in ₹]

	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
A Infrastructure						
a) Electricity and power	56,43,463	-	56,43,463	37,41,582	-	37,41,582
b) Water charges	-	-	-	-	-	-
c) Insurance	-	-	-	-	-	-
d) Rent, Rates and Taxes (including property tax)	3,70,41,319	-	3,70,41,319	3,48,39,308	-	3,48,39,308
B Communication						
e) Postage and Telegram	-	-	-	-	-	-
f) Telephone, Fax and Internet Charges	24,77,721	-	24,77,721	33,98,981	-	33,98,981
C Others						
g) Printing and Stationery (consumption)	-	-	-	-	-	-
h) Travelling and Conveyance Expenses/TA/DA	8,39,677	-	8,39,677	9,24,652	-	9,24,652
i) Hospitality	-	-	-	-	-	-
j) Auditors Remuneration	4,07,450	-	4,07,450	-	-	-
k) Professional Charges	-	-	-	-	-	-
l) Advertisement and Publicity	-	-	-	-	-	-
m) Magazines & Journals	-	-	-	-	-	-
n) Others (as per details below)						
Contingencies	19,44,515	-	19,44,515	9,89,161	-	9,89,161
Recruitment Expenses	14,07,723	-	14,07,723	21,00,820	-	21,00,820
Miscellaneous Expenses	9,15,190	-	9,15,190	31,86,923	-	31,86,923
	-	-	-	-	-	-
TOTAL	5,06,77,058	-	5,06,77,058	4,91,81,427	-	4,91,81,427

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 18 TRANSPORTATION EXPENSES

[Amount in ₹]

Particulars		Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
1	Vehicles (owned by Institution)						
	a) Running expenses	91,709	-	91,709	-	-	-
	b) Repairs & maintenance	-	-	-	-	-	-
	c) Insurance expenses	-	-	-	-	-	-
2	Vehicles taken on rent/lease						
	a) Rent/lease expenses	1,56,09,715	-	1,56,09,715	90,88,780	-	90,88,780
3	Vehicle (Taxi) hiring expenses	-	-	-	-	-	-
	Total	1,57,01,424	-	1,57,01,424	90,88,780	-	90,88,780

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SCHEDULE 19 — REPAIRS & MAINTENANCE

[Amount in ₹]

Particulars		Current Year			Previous Year		
		Plan	Non Plan	Total	Plan	Non Plan	Total
a)	Buildings	-	-	-	-	-	-
b)	Furniture & Fixtures	-	-	-	-	-	-
c)	Plant & Machinery	-	-	-	-	-	-
d)	Office Equipment	-	-	-	-	-	-
e)	Computers	-	-	-	-	-	-
f)	Laboratory & Scientific equipment	-	-	-	-	-	-
g)	Audio Visual equipment	-	-	-	-	-	-
h)	Cleaning Material & Services	-	-	-	-	-	-
i)	Book binding charges	-	-	-	-	-	-
j)	Gardening	-	-	-	-	-	-
k)	Estate Maintenance	-	-	-	-	-	-
l)	Others - Security and Cleaning	1,50,72,848	-	1,50,72,848	1,22,63,500	-	1,22,63,500
m)	Others - Repairs and Maintenance	33,76,825	-	33,76,825	78,31,324	-	78,31,324
	Total	1,84,49,673	-	1,84,49,673	2,00,94,824	-	2,00,94,824

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Shillong, Meghalaya

SCHEDULE 20 — FINANCE COSTS

[Amount in ₹]

Particulars	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Bank charges	38,580	-	38,580	4,811	-	4,811
b) Others (specify)	-	-	-	-	-	-
Total	38,580	-	38,580	4,811	-	4,811

SCHEDULE 21 - OTHER EXPENSES

[Amount in ₹]

Particulars	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Provision for Bad and Doubtful Debts/Advances	-	-	-	-	-	-
b) Irrecoverable Balances Written - off	-	-	-	-	-	-
c) Grants/Subsidies to other institutions/organizations	-	-	-	-	-	-
d) Others (specify)	-	-	-	-	-	-
Total	-	-	-	-	-	-

Note:-

If the amount is not material, the head Bank charges could be omitted and these could be accounted as Administrative expenses in Schedule 17.

Note:-

Other expenses shall be classified as writes - off, provisions, miscellaneous expenses, loss on sale of investments, loss of fixed assets and loss on sale of fixed assets etc and disclosed accordingly.

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Shillong, Meghalaya

SCHEDULE 22: PRIOR PERIOD EXPENSES

[Amount in ₹]

Particulars	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
1 Establishment expenses	-	-	-	-	-	-
2 Academic expenses	-	-	-	-	-	-
3 Administrative expenses	(66,000)	-	(66,000)	-	-	-
4 Transportation expenses	-	-	-	-	-	-
5 Repairs & Maintenance	-	-	-	-	-	-
6 Communication and Transport	-	-	-	-	-	-
6 Depreciation	-	-	-	-	-	-
Total	(66,000)	-	(66,000)	-	-	-

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SCHEDULE 23: Significant Accounting Policies

1. BASIS OF ACCOUNTING:

The financial statements have been prepared under the historical cost convention and on accrual basis except stated otherwise.

2. FORMAT OF ACCOUNTS:

The Accounts have been prepared on the basis of Revised Format of Accounts of Central Education Institutions prescribed by Government of India, Ministry of Human Resource Development, Department of Higher Education.

3. REVENUE/ EXPENDITURE RECOGNITION:

- Fees from Students (except Tuition Fees), Sale of Admission Forms, Royalty and Interest on Savings Bank account are accounted on cash basis.
- Income from Land, Buildings and Other Property and Interest on Investments are accounted on accrual basis.

4. FIXED ASSETS:

Fixed Assets are stated at cost of acquisition inclusive of inward freight, duties and taxes and incidental and direct expenses related to acquisition.

5. DEPRECIATION:

Depreciation on fixed Assets has been provided on Straight line method at the rates given in the below table.

Tangible Assets		
1.	Land	0%
2.	Site Development	0%
3.	Buildings	2%
4.	Roads & Bridges	2%
5.	Tube Wells & water Supply	2%
6.	Sewerage & Drainage	2%
7.	Electrical Installation and Equipment	5%
8.	Plant & Machinery	5%
9.	Scientific & Laboratory Equipment	8%
10.	Office Equipment	7.5%
11.	Audio Visual Equipment	7.5%
12.	Computer & Peripherals	20%
13.	Furniture, Fixture & Fittings	7.5%
14.	Vehicles	10%
15.	Library Books & Scientific Journals	10%
16.	Sports Equipments	10%
Intangible Assets (amortization):		
1.	E-Journals	40%
2.	Computer Software	40%
3.	Patents & Copyrights	9years

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

6. INTANGIBLE ASSETS:

Patents and copy rights, E Journals and Computer Software are grouped under Intangible Assets.

- Electronic Journals (E-Journals) are separated from Library Books in view of the limited benefit that could be derived from the on-line access provided. E-journals are not in a tangible form, but temporarily capitalized and in view of the magnitude of expenditure and the benefit derived in terms of perpetual knowledge acquired by the Academic and Research Staff; Depreciation is provided in respect of E-journals at a higher rate of 40% as against depreciation of 10% provided in respect of Library Books.
- Expenditure on acquisition of software has been separated from computers and peripherals, as apart from being intangible assets, the rate of obsolescence in respect of these is very high. Depreciation is provided in respect of software at a higher rate of 40% as against depreciation of 20% provided in respect of Computers & Peripherals.

7. INTERNAL RESOURCES FUND

Registration and admission related fee from students is transferred to Internal Resources Fund. The Internal Resources Fund is utilized for expenditure as laid down by the Executive Council of the Institution from time to time.

8. GOVERNMENT GRANTS

- Government Grants are accounted on realization basis. However, where a sanction for release of grant pertaining to the financial year is received before 31st March and the grant is actually received in the next financial year, the grant is accounted on accrual basis and an equal amount is shown as recoverable from the Grantor.
- To the extent utilized towards capital expenditure, (on accrual basis) government grants are transferred to the Capital Fund.
- Government grants for meeting Revenue Expenditure (on accrual basis) are treated, to the extent utilized, as income of the year in which they are realized.
- Unutilized grants (including advances paid out of such grants) are carried forward and exhibited as a liability in the Balance Sheet.

9. SPONSORED PROJECTS

In respect of ongoing Sponsored Projects, the amounts received from sponsors are credited to the head "Current Liabilities and Provisions -Current Liabilities -Other Liabilities -Receipts against ongoing sponsored projects." As and when expenditure is incurred /advances are paid against such projects, or the concerned project account is debited with allocated overhead charges, the liability account is debited.

10. INCOME TAX:

The income of the Institution is exempt from Income Tax under Section 10(23C) of the Income Tax Act. No provision for tax is therefore made in the accounts.

National Institute of Technology, Meghalaya
Shillong, Meghalaya

SCHEDULE 24: Contingent Liabilities and Notes to Accounts

1. Contingent liabilities and capital commitments:

(Amount In ₹ Lakh)

	Current Year	Previous Year
a) Claims against the Institute not acknowledged as debts	-	-
b) Capital Commitments (net of advances)	33947.20	42047.20

2. Expenditure in Foreign Currency:

Particulars	(Amount In ₹ Lakh)
Journals and Subscriptions	97.56
Equipments	127.68
Total	225.24

3. Sundry Receivable of ₹18,643/- which was fully recovered during the previous financial year has been written off against salary deductions in terms of C&AG observation.
4. In terms of C&AG observation, an amount of ₹8,12,738/- being cheques issued prior to December 2016 but not presented for payment till March 2017 has been credited to Stale Cheques Account.
5. Miscellaneous receipts include ₹3,52,563/- being amount credited in HDFC Bank Fee Account, the details regarding which were yet to be identified.
6. Sundry Receipts of ₹2,62,760/- credited by Bank has been shown under Other Liabilities pending identification of the source and nature of receipts.
7. Purchases of Printing & Stationery and other consumable items during the year are treated as expenditure and charged to appropriate Revenue heads.
8. In the opinion of the Management, the current assets, loans and advances have a value on realization equal or at least to the aggregate amount shown in the Balance Sheet.
9. Previous years figures have been rearranged and regrouped wherever considered necessary to facilitate comparison.
10. Figures in the Final accounts have been rounded off to the nearest rupee.
11. Schedules I to 24 are annexed to and form an integral part of the Balance Sheet at 31st March 2017 and the Income & Expenditure account for the year ended on that date.

For NIT Meghalaya

Director

Registrar

Assistant Registrarr

National Institute of Technology, Meghalaya
Shillong, Meghalaya

ANNEXURE A : DETAILS OF EMD & SECURITY DEPOSIT AS ON 31-03-2017

[Amount in ₹]

S.No	Name of the Firm / Company	Amount
1	Earnest Money Deposit	70,36,117
2	Security Deposit - Contractors and Suppliers	55,48,881
	Total	1,25,84,998

National Institute of Technology, Meghalaya
Shillong, Meghalaya

ANNEXURE B : DETAILS OF STATUTORY LIABILITIES AS ON 31-03-2017

[Amount in ₹]

Sl. No.	Particulars	Amount
1	TDS - Contracts	9,04,898
2	VAT	15,69,292
3	Forest Royalty	17,863
4	Labour Cess	91,270
		25,83,323

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya
Shillong, Meghalaya

ANNEXURE C : DETAILS OF OTHER LIABILITIES AS ON 31-03-2017

[Amount in ₹]

Sl.No.	Particulars	Amount
1	NIT Mess Account	1,93,14,000
2	Tuition Fee Refundable to SC/ST	6,900
3	Excess Fee Refundable	93,131
4	Stale Cheques	8,12,738
5	Sundry Receipts	2,62,760
6	SVNIT Surat	1,24,375
7	Suspense Account	2,28,408
8	CSAB Administrative Charges	60,283
9	B. Tech Remuneration	42,000
10	Other Current Liabilities	2,14,63,331
11	Returned Cheques	64,905
12	NMEICT	14,166
13	CCMT / CSAB Admission Expenses	14,512
14	Current Liabilities(CE/01)	3,48,000
15	Current Liability (SDMA)	80,000
16	Current Liabilities(CE/02)	3,00,000
		4,32,29,509

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya **Shillong, Meghalaya**

NNEXURE - D: DETAILS OF UTILIZATION OF PLAN FUNDS FOR THE YEAR ENDED 31ST MARCH 2017

	FUND WISE BREAK UP											
	PLAN FUND 11231	PLAN FUND 11235	PLAN FUND 11236	PLAN FUND 78931	PLAN FUND 78935	PLAN FUND 78936	PLAN FUND 79631	PLAN FUND 79635	PLAN FUND 79636	Total	Previous Year	
a) Opening balance of funds	-	9,71,67,154	-	-	8,66,48,802	-	-	-	1,69,902	-	18,39,85,858	19,84,77,809
b) Additions to the funds Grants	8,08,50,000	73,02,00,000	9,35,50,000	1,57,50,000	15,80,00,000	2,02,50,000	84,00,000	7,88,00,000	1,12,00,000	1,19,70,00,000	48,03,75,000	
IRG	1,11,07,043	-	-	-	-	-	-	-	-	1,11,07,043	1,31,01,699	
Total (a + b)	9,19,57,043	82,73,67,154	9,35,50,000	1,57,50,000	24,46,48,802	2,02,50,000	84,00,000	7,89,69,902	1,12,00,000	1,39,20,92,901	69,19,54,508	
i. Capital Expenditure		61,06,30,727			24,46,48,802			7,89,69,902		93,42,49,431	31,15,73,973	
Total	-	61,06,30,727	-	-	24,46,48,802	-	-	7,89,69,902	-	93,42,49,431	31,15,73,973	
ii. Revenue Expenditure	7,52,05,531		9,35,50,000	1,57,50,000		2,02,50,000	84,00,000		1,12,00,000	22,43,55,531	19,63,94,677	
Total	7,52,05,531	-	9,35,50,000	1,57,50,000	-	2,02,50,000	84,00,000	-	1,12,00,000	22,43,55,531	19,63,94,677	
Total (c)	7,52,05,531	61,06,30,727	9,35,50,000	1,57,50,000	24,46,48,802	2,02,50,000	84,00,000	7,89,69,902	1,12,00,000	1,15,86,04,961	50,79,68,650	
Net balance as the year end Ia + b - 0	1,67,51,512	21,67,36,427	-	-	-	-	-	-	-	23,34,87,940	18,39,85,858	

For NIT Meghalaya

Director

Registrar

Assistant Registrar

National Institute of Technology, Meghalaya
Shillong, Meghalaya

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2017

[Amount in ₹]

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
I. Opening Balance			I. Expenses		
a) Cash Balances	-	-	a) Establishment Expenses	10,45,05,977	8,63,27,802
b) Bank Balance			b) Academic Expenses	3,50,48,819	3,16,97,033
i. In Current accounts	3,16,83,516	4,41,51,593	c) Administrative Expenses	5,06,77,058	4,91,81,427
ii. In Deposit accounts	1,09,41,528	3,00,00,000	d) Transportation Expenses	1,57,01,424	90,88,780
iii. Savinas accounts	2,01,42,170	1,34,59,821	e) Repairs & Maintenance	1,84,49,673	2,00,94,824
II. Grants Received			f) Prior period expenses	-66,000	-
a) From Government of India	1,19,70,00,000	48,03,75,000	a) Finance Cost	38,580	4,811
b) From State Government	-	-	II. Payments against Earmarked/ Endowment Funds	-	-
c) From others	-	-	III. Payments against Sponsored Projects/ Schemes	1,78,10,400	1,45,16,989
			IV. Payments against Sponsored Fellowships/ Scholarships	10,42,450	4,60,250
			V. Investments and Deposits made		
III. Academic Receipts	85,48,552	76,87,900	a) Out of Earmarked/ Endowments funds	-	-
IV. Receipts against Earmarked/ Endowment Funds	2,27,39,500	-	b) Out of own funds (Investments- Others}	-	-
V. Receipts against Sponsored Projects/ Schemes	3,49,68,880	2,37,06,489	VI. Term Deposits with Scheduled Banks	-	-
VI. Receipts against sponsored Fellowships and Scholarships	26,51,739	9,02,745	VII. Expenditure on Fixed Assets and Capital Works - in-Progress		
VII. Income on Investments from			a) Fixed Assets	7,34,52,803	9,77,31,040
a) Earmarked/ Endowment funds	-	-	b) Capital Works-in- Progress	86,07,96,628	21,38,42,933

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
b) Other investments	-	-	VIII. Other Payments including statutory payments	-	-
VIII. Interest received on					
a) Bank Deposits	13,03,203	33,74,508	IX. Refunds of Grants		
b) Loans and Advances			X. Deposits and Advances	-18,49,66,421	4,24,67,132
c) Savinas Bank Accounts	3,35,648	4,16,190	XI. Other Payments	-	-
IX. Investments encashed	-	-	XII. Closing balances		
X. Term Deposits with Scheduled Banks encashed	-	-	a) Cash in hand	-	-
XI. Other income (including Prior Period Income)	9,19,640	16,23,101	b) Bank balances		
XII. Deposits and Advances	3,43,47,181	2,24,82,888	In Current Accounts	29,53,48,987	3,16,83,516
XIII. Miscellaneous Receipts including Statutory Receipts	-	-	In Savings Accounts	6,58,39,556	2,01,42,170
XIV. Any Other Receipts - Capital Work in Progress refund	-	-	In Deposit Accounts	1,19,01,624	1,09,41,528
TOTAL	1,36,55,81,557	62,81,80,235	TOTAL	1,36,55,81,557	62,81,80,235

For NIT Meghalaya

Director


Registrar

Assistant Registrar

Stylized foliage in the top-left corner, featuring various shades of green and a small orange circle.

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA

Bijni Complex, Laitumkhrach, Shillong 793003

Stylized foliage in the bottom-right corner, featuring rolling green hills, a large orange leaf-like shape, and dark green jagged shapes.