ANNUAL REPORT
2017-18

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA

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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 end.
- 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, it's 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: Sohra, East Khasi Hills District, Meghalaya 793108

Present Location: Bijni Complex, Laitumkhrah, Shillong 793003, Meghalaya

Website: http://2018nitm.nitmeghalaya.in/

The Authorities:

Visitor: **Shri Pranab Mukherjee**, The Hon'ble President of India (upto 24.07.2017)

Shri Ram Nath Kovind, The Hon'ble President of India (w.e.f. 25.07.2017 onwards)

Board of Governors:

- Chairman
- 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 (upto 13.09.2017)
- Prof. S. K. Dwivedy, Professor, IIT Guwahati, Member (w.e.f. 14.08.2017 onwards)
- Prof. P. S. Choudhury, Professor, NIT Meghalaya, Member (upto 13.09.2017)
- Dr. D. S. Roy, Associate Professor, NIT Meghalaya, Member (w.e.f. 14.08.2017 onwards)
- Addl. Secretary (TE)/ Jt. Secretary (TE), MHRD, Member
- Financial Adviser, MHRD, Member
- Dr. S. B. Singh, Director, NIT Meghalaya, Member (upto 17.05.2017)
- Prof. B. B. Biswal, Director, NIT Meghalaya, Member (w.e.f. 18.05.2017 onwards)
- Shri B. N. Choudhury, Registrar, NIT Meghalaya, Secretary (w.e.f. 08.01.2018 onwards)

Senate:

- Dr. S. B. Singh, Director, NIT Meghalaya, Chairman (upto 17.05.2017)
- Prof. B. B. Biswal, Director, NIT Meghalaya, Chairman (w.e.f. 18.05.2017 onwards)
- Prof. N.C.Shivaprakash, Dept. of Instrumentation and Applied Physics, IISc Bangalore, Member.
- Prof. P.K. Basu, Retd. Prof, Institute of Radio Physics & Electronics, University of Calcutta, Member.
- Prof. P. Mujumdar, Dept. of Civil Engineering, IISc Bangalore, Member
- Prof. P. Mahanta, Dept. of Mechanical Engineering, IIT Guwahati, Member
- Dr.(Mrs.) M.P.R. Lyngdoh, Former Principal, Shillong College, Member
- Dr. P. Bharali, FIE, FIETE, Retd. Director (Operations) Oil India, Member
- Professors of NIT Meghalaya, Member
- Deans, Associate Deans and Heads of the Departments, Special Invitees
- Shri B. N. Choudhury, Registrar, NIT Meghalaya, Secretary (w.e.f. 08.01.2018 onwards)

Finance Committee:

- Dr. S. B. Singh, Director, NIT Meghalaya, Member (upto 17.05.2017)
- Prof. B. B. Biswal, Director, NIT Meghalaya, Member (w.e.f. 18.05.2017 onwards)
- Jt. Secretary (TE), MHRD or his nominee, Member
- Finance Adviser, MHRD or his nominee, Member
- Prof. P. K. Bora, IIT Guwahati, (upto 13.09.2017)
- Shri W. Roy, MD, Meghalaya Power Carriers (India) Pvt. Ltd, Member
- Shri B. N. Choudhury, Registrar, NIT Meghalaya, Member Secretary (w.e.f. 08.01.2018 onwards)

Building & Works Committee:

- Dr. S. B. Singh, Director, NIT Meghalaya, Chairman (w.e.f. 01.04.2017 upto 17.05.2017)
- Prof. B. B. Biswal, Director, NIT Meghalaya, Chairman (w.e.f. 18.05.2017 onwards)
- Prof. S. K. Deb, IIT Guwahati, Member
- Shri C. D. Saio, Chief Technical Adviser to Power Dept, Govt. of Meghalaya, Member
- Shri E. B. Kharmujai, Addl. Chief Engineer (EZ), MeECL, Member
- Shri K. K. Mawa, Superintending Engineer, PWD (Buildings), Member
- Director (NITs), MHRD, Member
- Shri B. N. Choudhury, Registrar, NIT Meghalaya, Secretary (w.e.f. 08.01.2018 onwards)

Administration:

Director Dr. S. B. Singh (w.e.f. 01.04.2017 upto 17.05.2017) Prof. B. B. Biswal (w.e.f. 18.05.2017 onwards)	
Assoc. Dean (Academic): Dr. A. Dandapat (upto 10.07.2017) Dean (Academic): Dr. A. Dandapat (w.e.f. 11.07.2017 onwards)	Registrar (i/c): Dr. D. K. Sarma (w.e.f. 01.04.2017 upto 17.05.2017)
Assoc. Dean (R & C): Dr. A. Bhattacharjee (upto 10.07.2017) Dean (R & C): Dr. A. Bhattacharjee (w.e.f. 11.07.2017 onwards)	Registrar (i/c): Dr. A. Bhattacharjee (w.e.f. 18.05.2017 upto 07.01.2018)
Assoc. Dean (SW): Dr. S. Mukherjee	Registrar: Shri B. N. Choudhury (w.e.f. 08.01.2018 onwards)
Assoc. Dean (P & D): Dr. D. K. Sarma	Asst. Registrar (Estt.): Shri B. Blahwar
Head, CSE: Dr. D. S. Roy	Asst. Registrar (F&A) (i/c): Shri B. Blahwar (w.e.f. 01.01.2017 onwards)
Head, ECE: Dr. P. P.De (upto 31.05.2017) Head, ECE: Dr. Ch. V. Rama Rao (w.e.f. 01.06.2017 onwards)	Asst. Registrar (Acad.): Ms. A. Rai
Head, EE: Dr. A. Banerjee	Exec. Engineer: Shri R. L. Kharpran
Head, ME: Dr. S. Maity (upto 05.09.2017) Head, ME: Dr. B. K. Sarkar (w.e.f. 06.09.2017 onwards)	Asst. Librarian: Dr. R. Kharbihkhiew
Head, CE: Dr. C. Marthong	
Head, Physics: Dr. K. Senthilkumar	
Head, Chemistry: Dr. G. K. Dutta	
Head, Mathematics: Dr. T. Subedi (upto 16.08.2017) Head, Mathematics: Dr. M. Saha (w.e.f. 17.08.2017 onwards)	
Head, HSS: Dr. P. S. Mangang	
Faculty (i/c), Computer Centre: Dr. R. Ray (upto 05.03.2018) Faculty (i/c), Computer Centre: Dr. D. S. Roy (w.e.f. 06.03.2018 onwards)	
Faculty (i/c), Centre of International Relations: Dr. M. Saha, Dept. of Mathematics	
Faculty (i/c), Centre for Career Development: Mr. A. D. Sarma, Dept. of Humanities and Social Sciences	

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 eight years of its existence since its establishment in the year 2010. During the year 2017-18 the Institute made significant strides.

The fourth batch of B. Tech, second Batch of M. Tech, first batch of M.Sc. and first six Ph.D scholars of the Institute graduated in June, 2017. Hundred and seventeen students from B.Tech., Fifty Six students from M. Tech, Twenty Four students from M.Sc. and six Ph.D scholars graduated from various disciplines offered by the Institute. About 98% of the qualified students were placed in reputed companies through campus placement.

The successful students were awarded their degrees in the Fourth Convocation of the Institute that was held on 28th October, 2017. Dr. Vijay K. Saraswat, member NITI Aayog, Chancellor JNU, former Director General of DRDO graced the occasion as the Chief Guest and delivered the Convocation Address. Prof. B. B. Biswal, Chairman, Senate, NIT Meghalaya presented the degrees to the students.

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, Electronics and Communication 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 and in Humanities and Social Sciences.
- The intake capacity of the Institute increased to 283 for total admitted student capacity of 1384 including PhD scholars. To cater to the increased need the faculty strength was increased to 78. The student strength in the various programmes in the Institute during the year are.

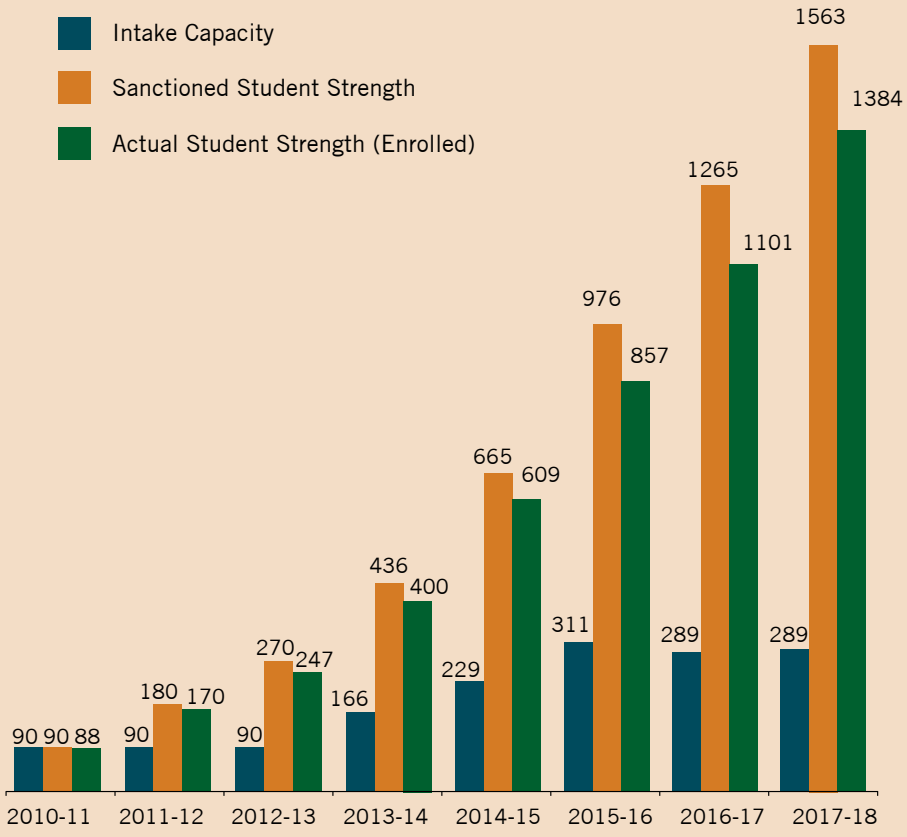
Program	Discipline	Year of Starting	Intake Capacity	Admitted in 2017-18						Total Strength					
				M	F	SC	ST	OBC	Total	M	F	SC	ST	OBC	Total
B.Tech.	Electronics and Communication Engineering	2010	30	21	9	2	13	6	30	180	44	26	64	47	224
	Electrical Engineering	2010	30	28	4	4	13	8	32	186	41	30	74	55	227
	Computer Science and Engineering	2010	30	26	5	4	13	5	31	175	37	26	65	39	212
	Mechanical Engineering	2013	30	26	4	2	12	7	30	126	11	13	61	28	137
	Civil Engineering	2013	30	24	7	3	15	7	31	114	26	13	73	28	140
	Sub Total		**150**	125	29	15	66	33	**154**	781	159	108	337	197	**940**
M.Tech.	Computer Science and Engineering	2014	20	11	6	3	4	4	17	49	17	14	13	15	66
	Electronics and Communication Engineering	2014	20	10	1	1	2	5	11	42	16	10	8	17	58
	Electrical Engineering	2014	20	13	4	3	1	3	17	49	13	9	6	14	62
	Mechanical Engineering	2015	15	14	0	2	0	6	14	39	2	6	1	17	41
	Civil Engineering	2015	0	0	0	0	0	0	0	6	0	0	1	2	6
	Sub Total		**75**	48	11	9	7	18	**59**	185	48	39	29	65	**233**
M.Sc.	Physics	2015	16	14	1	1	3	5	15	32	9	1	14	8	41
	Chemistry	2015	16	7	9	2	2	7	16	14	28	5	3	16	42
	Mathematics	2015	16	11	3	1	7	4	14	19	10	1	17	5	29
	Sub Total		**48**	32	13	4	12	16	**45**	65	47	7	34	29	**112**

Program	Discipline	Year of Starting	Admitted in 2017-18						Total Strength					
			M	F	SC	ST	OBC	Total	M	F	SC	ST	OBC	Total
Ph.D	Electronics and Communication Engineering	2013	4	1	1	1	2	5	14	2	2	1	4	16
	Electrical Engineering	2013	3	0	0	0	0	3	11	4	2	0	2	15
	Computer Science and Engineering	2013	3	1	0	2	0	4	12	4	0	5	2	16
	Mechanical Engineering	2013	5	0	2	0	2	5	16	2	4	0	6	18
	Civil Engineering	2013	0	0	0	0	0	0	7	4	1	7	2	11
	Physics	2013	1	2	0	0	0	3	4	2	0	1	0	6
	Chemistry	2013	0	2	0	0	0	2	3	4	1	1	0	7
	Mathematics	2013	2	0	0	0	2	2	5	1	0	1	3	6
	Humanities & Management	2013	0	1	0	0	1	1	2	2	0	1	2	4
	Sub Total		**18**	7	3	3	7	**25**	74	25	10	17	21	**99**
												Grand Total		1384

Student Strength:

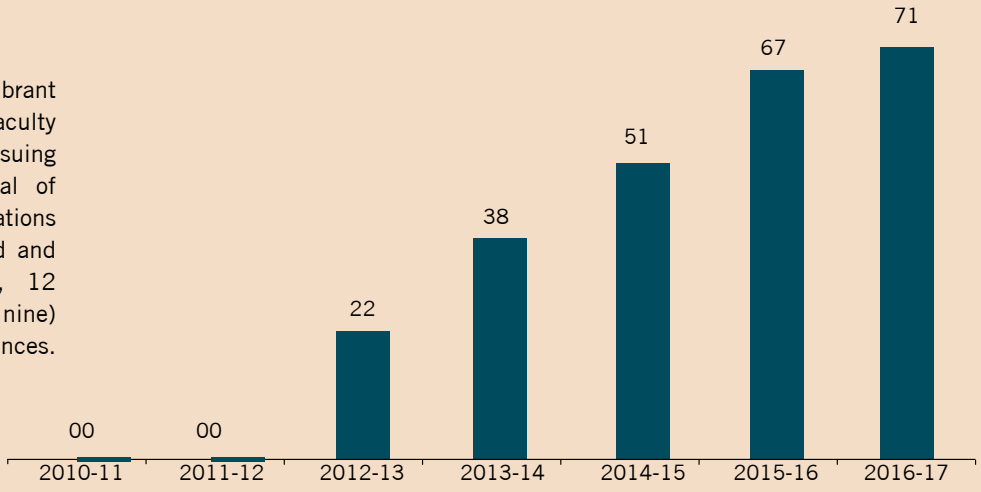
The Institute provides full waiver/remission of tuition fees to students belonging to ST and SC categories and to those with annual family income of less than one lakh. Further, students with annual family income of less than five lakhs are remitted with 2/3rd of the tuition fees as per MHRD guidelines 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 so do the Ph.D 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 95% of the faculty members hold PhD degrees and the remaining are pursuing the doctoral studies.

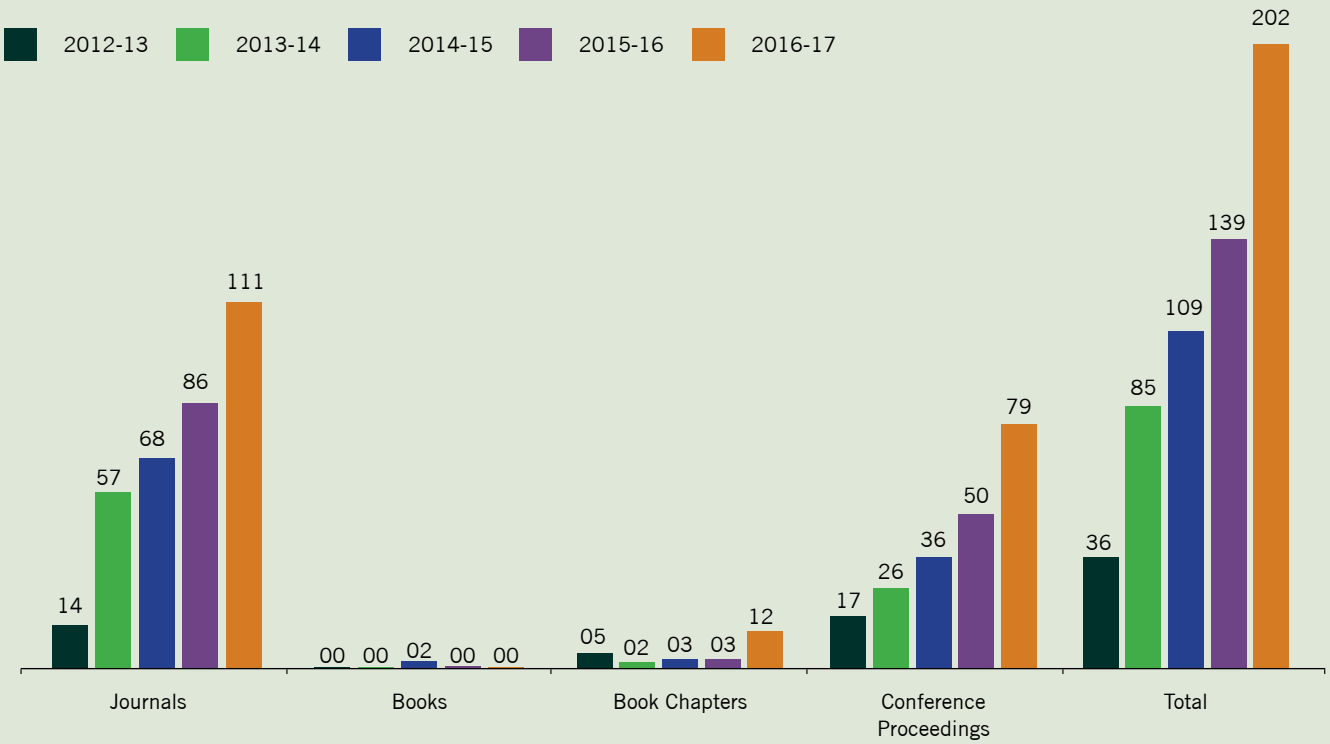


Faculty Strength:

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.

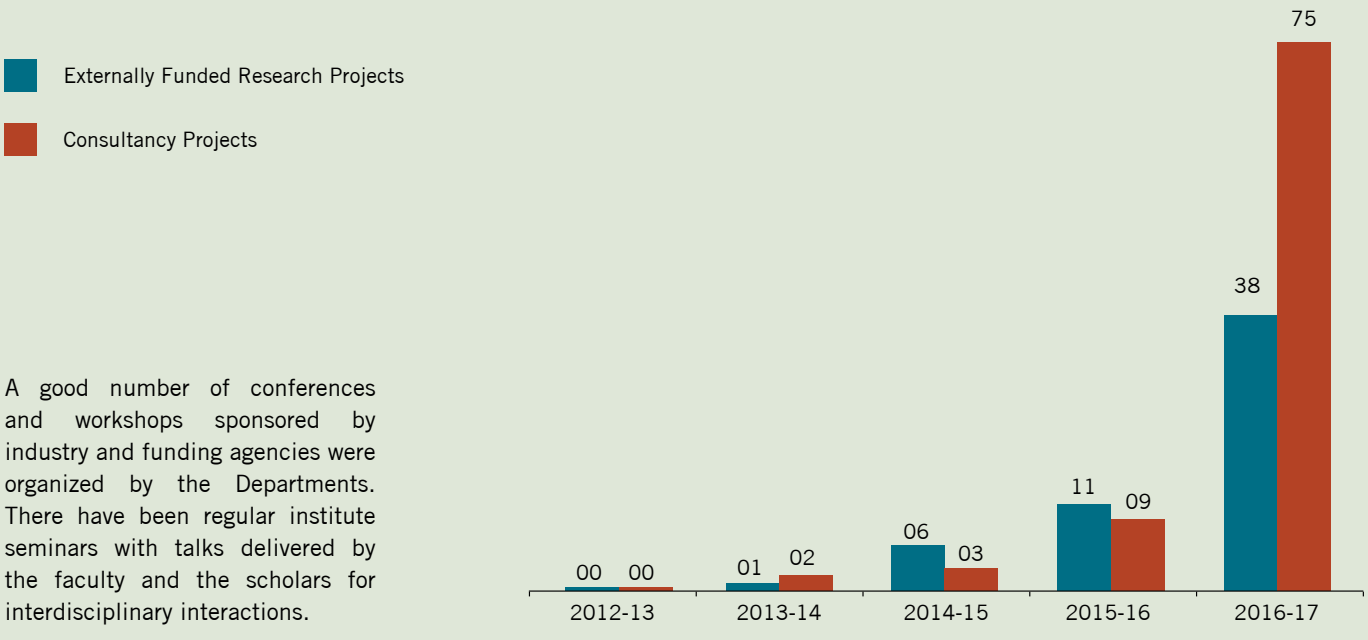


Publications:



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:

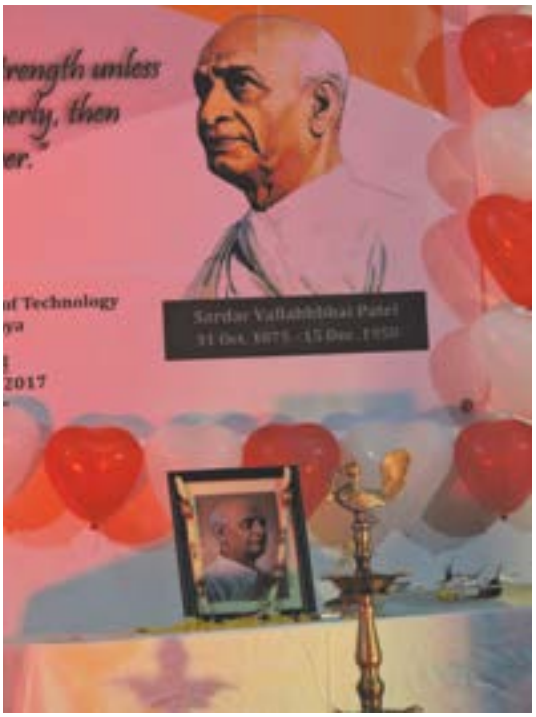
The students, in addition to their academics, engaged themselves with various extracurricular activities such as sports and games, cultural activities, elocution, technical activities, NSS activities etc. The students of the Institute also participated in inter-institutional sports, cultural and technical 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 2017 in October, 2017. 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 were also organized during the event.

Cultural Activities:

The Fifth Annual Cultural Festival of the Institute Shishir-2018 was organized with full enthusiasm in the month of February, 2018. 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 held during the weekends throughout the year for the session 2017-18.

Director, NIT Meghalaya congratulating the captains of NIT Meghalaya football team for being runners-up in the Inter NIT Football Tournament held from 26 to 28 October 2017 at NIT Agartala.

Badminton Tournament (20 to 21 January 2018 at Shillong)

Table Tennis Tournament (20 to 21 January 2018 at Shillong)

Carrom Tournament (26 to 27 January 2018 at Shillong)

Chess Tournament (26 to 27 January 2018 at Shillong)

Basketball Tournament (14 to 15 April 2018 at Shillong)

Football Tournament (21 to 22 April 2018 at Shillong)

NSS:

i) Cleaning activities in the campus were performed by students on a weekly basis.

ii) Inspection and proper cleaning of sanitary facilities has been taken during this period.

iii) A weekly yoga session was conducted by an expert to promote a healthy lifestyle amongst the students.

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 2017 is given below:

Discipline	Placement Percentage	
	Overall	Among Qualified Students
Computer Science and Engineering	50%	100%
Electronics and Communication Engineering	61%	100%
Electrical and Electronics Engineering	47%	88%
Mechanical Engineering	58%	88%
Civil Engineering	15%	21%
Total	46%	75%

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

Sl. No.	Company Name	Number of Offers	Package Offered (Rs. In lakh Per Annum)
1	Persistent Systems	2	5.78
2	Microsoft	2	9.78
3	Tech Mahindra	22	3.25
4	Mphasis	10	4.00
5	Robert Bosch	4	4.00
6	SKF India	4	4.72
7	Wipro	10	3.30
8	Infosys	1	3.30
9	Sapient Nitro	3	5.05
10	IBM	2	3.75
11	L&T ECC	3	5.11
12	Cummins India	2	4.15
13	Burning Glass Technologies	1	5.00
14	Virtusa Polaris	11	5.00
15	Capgemini	12	6.00
16	Havells India	2	4.80
17	Cortex Constructions	1	3.30
18	Gammon India	1	8.95
19	Amazon India	4	4.00
20	Power Grid Corporation of India	2	11.80
21	ZS Associates	1	7.50
	Total	**100**	

	Rs. In lakh Per Annum
Highest Package	11.80
Lowest Package	3.30
Average Package	5.36

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 industries and research institutions in the country.

Central Library:

The Central Library which is the heart of the Institute was established in 2012. With a mission to provide quality service, it acts to be the hub of all research and academic activities by identifying, acquiring, organizing and retrieving information in all formats to serve the information needs of the academic fraternity of NIT Meghalaya to meet their teaching, research, and consulting, training and learning requirements. The Library holds knowledge resources predominantly related to Science and Technology, Humanities, Management & other allied subjects. The Library is now computerized with an integrated system connected to the Campus Network providing e-resource facility to the institutional community. The entire Library collections including the online databases are made available through Institute's network. Users can access the online databases through Institute's network. Library collection can also be searched through Web OPAC. National Institute of Technology Meghalaya Central Library is an active member of E-ShodhSindhu Consortium (to access online full text journals) and also member of NDL (National Digital Library) in order to avail the benefits of various services. The library has made a significant progress during the year 2017-18 in the aspect of procuring e-journals, databases and e-books.

1. Budgetary Details:

The Central Library received a projected allocation of Rs. 1.5 Crore during the financial year 2017-18. Below table gives the detailed expenditure incurred on books, journals, newspaper, binding etc. for 2017-18

Year	Printed Books	e-Books	Online Databases/e-Journals	Newspapers & Magazine
2017-18	1209588.00	4979584.00	9199251.00	19906.00

2. Membership Details:

Sl. No.	Members	2017-18
1	B.Tech.	510
2	Tech	190
3	M.Sc.	68
4	Ph.D	78
5	Faculty Members	69
6	Staff	55
	Total	889

3. Collection Development and Management:

Collection building is one of the important functions of the library, which supports academic and research activities of the students, faculty, staff and other users. Library collections of central library consist of books, e-resources, theses, reports, and other reading materials in areas of science, engineering & technology, humanities, social sciences and management. The total collection of library as on 31st March 2018 stands as follows:

Sl. No.	Name of Resources	Collection as on 31st March 2018
1	Printed Books	13569
2	E-books	1155
3	E-Databases/E-Journals	9
4	Book Bank (SC/ST)	1462
5	T%hese	5
6	Magazines	4
7	Newspaper	8
8	Reports/Annual Reports/Audit Reports	9

4. Human Resources:

The library has a small team of talented and dedicated staffs to perform their duties and responsibilities with dignity and honestly. The staff details of the Central Library are as follows:

Sl. No.	Name of the Staff	Designation	Qualifications
1	Dr. Rokester Kharbihkhiew	Assistant Librarian	Ph.D. MLISC (with NET & JRF), BSc. Computer Science, PGDCA
2	Dr. Khrawbok Nongrang	Technical Assistant	PhD, MLISC (with NET), BSc. Computer Science
3	Mr. Rahul Kharbangar	MTS (Library)	Bachelor of Arts, C-Lib
4	Mr. Donny Bryan Thabah	Office assistant (outsourced)	MLISC, B.A. (Honour Geography)

5. Seminar / Conference / Workshop Organized:

1. Scopus presentation and awareness was conducted on the 13th September, 2017 at the Lecture Hall for the Research Scholars, Post-Graduate Students and Faculty Members. The presentation was made by Tahseen Khanday, Solution Sales Manager – South Asia, Elsevier.
2. The first Technology Book Fair was organized in National Institute of Technology at the mini auditorium (Administrative Block) from 23rd to 24th January, 2018. Books on display were from the empanelled vendor and renowned publishers like Pearson, Cambridge University Press, PHI, Oxford University Press, and Wiley etc.
3. Dr. Rokester Kharbihkhiew, Asst. Librarian attend the National Workshop on "Copyright Considerations for Digital Libraries" at IIT Kharagpur, Kharagpur, West Bengal scheduled on the 9th & 10th February, 2018.

Internal Complaints Committee:

Awareness Programme on Workplace Harassment Act: The sensitization programme on "Sexual Harassment of Women at Workplace Act, 2013" was conducted at National Institute of Technology Meghalaya. The event was organised on 8th March 2018 on the eve of International Women's Day, exclusively for the women fraternity of National Institute of Technology Meghalaya.

Self Defence Programme:

The Internal Complaints Committee on behalf of National Institute of Technology Meghalaya has organised a self defence session on the eve of International Women's Day, March 8th 2018. The expert delivering the session was Mr. Abhijit Sharma, former Athlete Commission General Secretary, United Karate-Do Association, Assam. The objective of this session was to know the conventional ways an assailant attacks and in retrospect the basic tricks required for the recuperation which is a must know for every woman.

Unnat Bharat Abhiyan (UBA):

Unnat Bharat Abhiyan (UBA) was launched by the Ministry of Human Resource Development (MHRD) on 11th November 2014 with an aim to bring transformational change in rural development processes by leveling knowledge institutions to help build the architecture of an inclusive India.

The UBA is conceptualized as a movement to connect institutes of higher education with local communities to address the development challenges of rural India through appropriate technological inventions.

As per the directives of the MHRD, higher educational institutions, which is funded by the Central/State Government and all institutions which are under approval by the regulatory bodies needs to adopt a cluster of backward villages in the vicinity for the purpose of UBA and IIT Delhi has been appointed as the National coordinator.

For implementation of UBA in the State of Meghalaya, the NIT Meghalaya cell has been formed. The members are:

1. Dr. C.Marthong, Associate Professor, CE, Dept.
2. Dr. Atanu Banerjee, Associate Professor, EE, Dept.
3. Dr. Maneshwar Rahang, Assistant Professor, ME, Dept.
4. Mr. Mebanshan Kupar Raplang, Superintendent, NIT Meghalaya
5. Mr. Skhemborlang Lyngdoh Mawphlang, TA, CE, Dept.

The UBA cell have already visited two Blocks i.e Shella Bholaganj and Khatar Shnong Laitkroh C& RD blocks for discussion with the BDO's of the blocks in present of the village representative/Sirdar for the implementation of the UBA in the East Khasi Hills of Meghalaya state. Based on the discussions 5 (five) villages have been identified. The list of villages is mentioned below.

List of identified Villages for Unnat Bharat Abhiyan in East Khasi Hills District

Sl. No	Name of the Institution	State	District	Block	Panchayat/Dorbar	Village
1	National Institute of Technology Meghalaya Bijni Complex, Laitumkhrah Shillong	Meghalaya	East Khasi Hills	Shella Bholaganj	Sirdar	Kutmadan
2						Ryngud
3						Nongpriang
4				Khatar shnong Laitkroh C&RD		Swer
5						Sohrarim

The main aim of the 'Unnat Bharat Abhiyan' is to give a tech-boost at the grass root level to the villages. Action plan in collaboration has already been started. Teams have been set up to visit the villages and identify their problems. Based on the survey data formulated by IIT Delhi, UBA coordinating Institute the surveys on few villages has been done and already uploaded in UBA reporting portal, IIT Delhi.

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 works, 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 fencing of additional land of the Institute is in progress. Approach road to the campus is being taken up by the State PWD and completed in March 2018. 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 65% and the Institute re-scheduled to shift to the permanent campus by July 2019.

ADMINISTRATIVE BUILDING

ACADEMIC BUILDING-D

ACADEMIC BUILDING-B

GIRLS HOSTEL

APPROACH ROAD TO NIT MEGHALAYA

APPROACH ROAD TO NIT MEGHALAYA

INSPECTION TO BRIDGE OF APPROACH ROAD TO NIT MEGHALAYA

WATER STORAGE RESERVOIR (U/S WEIR)

WATER STORAGE RESERVOIR

BOUNDARY WALL.- ADDL.LAND

BOUNDARY WALL -ADDL.LAND

ACADEMIC DEPARTMENTS AND CENTRES

Department of Computer Science & Engineering

1. 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.

2. 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).

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Diptendu Sinha Roy	Associate Professor	Ph.D., Engineering	Distributed, Grid and Cloud Computing	01/07/2016	1 ongoing	Head of Department
Dr. Alok Chakrabarty	Assistant Professor	PhD	Pattern Recognition	20/06/2012	1	
Dr. Kamalika Datta	Assistant Professor	PhD	Emerging Technologies, Logic Design	31/07/2014	3 ongoing	
Dr. Rajarshi Ray	Assistant Professor	Ph.D. in Computer Science	Formal Methods in System Verification	03/09/2013	1 submitted thesis, 2 under guidance	
Dr. Akhilendra Pratap Singh	Assistant Professor	PhD	Service oriented Network Architecture, Computer Network, Wireless Sensor Network	03/09/2013	1 ongoing	
Surmila Thokchom	Assistant Professor	M.Tech.	Cloud Computing, cryptography	26/09/2012		PhD (submitted)
Deepak Kumar	Assistant Professor	M.E.	Computational Arithmetic	20/12/2012		PhD (submitted)
Dr. Yogita	Assistant Professor	Ph.D.	Data Mining	08/01/2018	01 (Ongoing)	
Dr. Vipin Pal	Assistant Professor	Ph.D.	Computer Networks, Wireless Sensor Networks	28/12/2017	02 (Ongoing)	
Dr. Soumen Moulik	Assistant Professor	Ph.D.	Wireless Body Area Networks, Wireless Sensor Networks, Internet of Things	15/12/2018	01 (Ongoing)	
Dr. Bunil Kumar Balabantaray	Assistant Professor	Ph.D.	Computer Vision, Robotics	14/12/2017	1 (Ongoing)	
Dr. Aloke Datta	Assistant Professor	Ph.D.	Computer Vision, Remote Sensing	25/08/2014		

4. List of Publications:

a. Journals:

1. Sinha Roy, Diptendu, Behera, Ranjit K, Reddy, K. Hemant Kumar, Buyya, Rajkumar, (2018) "A Context-Aware, Fog Enabled Scheme for Real-Time, Cross-Vertical IoT Applications", IEEE Internet of Things Journal (Accepted).
2. Reddy, K. Hemant Kumar, Hussain, Mir Wajahat, Paik, Subhendu Sekhar, Sinha Roy, Diptendu, (2018) "A Counter Based Approach to Intelligent Data Placement in Hadoop Clusters", Cluster Computing (Springer), (Accepted)
3. Reddy, K. H. K, Pandey, Vishal, Roy, D. S, (2018), A Novel Entropy Based Dynamic Data Placement Strategy for Data Intensive Applications in Hadoop Clusters, International Journal of Big Data Intelligence, Inderscience Publication
4. Rao, Nalluri MadhuSudana, Krithivasan Kannan, Xiao-zhi Gao, and Diptendu Sinha Roy. "Novel classifiers for intelligent disease diagnosis with multi-objective parameter evolution." Computers & Electrical Engineering 67 (2018): 483-496.
5. Behera, Ranjit Kumar, K. Hemant Kumar Reddy, and Diptendu Sinha Roy. "Modeling and assessing reliability of service-oriented internet of things." International Journal of Computers and Applications (2018): 1-12.
6. Reddy, K. Hemant Kumar, Geetika Mudali, and Diptendu Sinha Roy. "A novel coordinated resource provisioning approach for cooperative cloud market." Journal of Cloud Computing 6, no. 1 (2017): 8.
7. Nalluri, M. R., & Roy, D. S. (2017). Hybrid Disease Diagnosis Using Multiobjective Optimization with Evolutionary Parameter Optimization. Journal of healthcare engineering, 2017.
8. P.L. Thangkhiew, K. Datta, "Scalable In-Memory Mapping of Boolean Functions in Memristive Crossbar Array Using Simulated Annealing", Journal of Systems Architecture, DOI: 10.1016/j.sysarc.2018.07.002, 2018 (Accepted).
9. L. Marbaniang, K. Datta, "Efficient Design of Quantum Circuits using Nearest Neighbor Constraint in 3D Architecture", Journal of Circuits, Systems and Computers, Vol. 28, No. 5, pp. 1950084:1-1950084:19, 2019, DOI: 10.1142/S0218126619500841, 2018 (Accepted).
10. P.L. Thangkhiew, R. Gharpinde, K. Datta, "Efficient Mapping of Boolean Functions to Memristor Crossbar using MAGIC NOR Gates", IEEE Transactions on Circuits and Systems-I: Regular Papers, Vol. 65, No. 8, pp. 2466-2476, August 2018.
11. R. Gharpinde, P.L. Thangkhiew, K. Datta, I. Sengupta, "A Scalable In-Memory Logic Synthesis Approach using Memristor Crossbar", IEEE Transactions on Very Large Scale Integration Systems, Vol. 26, No. 2, pp. 355-366, February 2018.
12. Kole, K. Datta, I. Sengupta, "A New Heuristic for N-Dimensional Nearest Neighbor Realization of a Quantum Circuit", IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, Vol. 37, No. 1, pp. 182-192, January 2018.
13. "Parallel Reachability Analysis of Hybrid Systems in XSpeed", A. Gurung, R. Ray, E. Bartocci, S. Bogomolov and R. Grosu, To appear in the International Journal on Software Tools for Technology Transfer (STTT). Springer [SCI].
14. Shubham Singh, Akhilendra Pratap," Ensuring Data Security in Cloud Storage", International Journal of Machine Learning and Computing, April 2018. (Accepted).
15. Surmila Thokchom and Dilip Kr. Saikia, "Privacy Preserving and Public Auditable Integrity Checking on Dynamic Cloud Data", International journal of Network Security (Accepted).
16. Deepak Kumar, Prabir Saha and Anup Dandapat, "Vedic algorithm for cubic computation and VLSI implementation", Elsevier Engineering Science and Technology, an International Journal, Vol./Issue : 20/5, pp. 1494-1499, 2017.
17. D. Kumar, P. Saha and A. Dandapat, "Hardware Implementation of Methodologies of Fixed Point Division Algorithms", International Journal on Smart Sensing and Intelligent Systems, Vol.10, No.3, pp.630-645, 2017.
18. P. Saha, and D. Kumar, "A new algorithm for the computation of the decimals of inverse", Scientia Iranica journal, Vol.24, No.3, pp.1363-1372, 2017.

b. Book Chapters:

1. Akhilendra Pratap Singh, Vinee Brahma, Nabhjyoti Medhi, "An Energy-Efficient Model Using Cooperative MIMO in Wireless Sensor Network", Ambient Communications and Computer Systems,Springer,2018

c. Conferences: (International)

1. Singh Akhilendra Pratap, Kumar, G. Hemant, Paik, Subhendu Sekhar, Sinha Roy, Diptendu, "Storage and Analysis of Synchrophasor Data for Event Detection in Indian Power System Using Hadoop Ecosystem." In 2018 Proceedings of International Conference on Computing, Power and Communication Technologies (GUCON 2018), (Accepted)

2. Pradhan, Buddhadeb, Nandi, Arijit, Sinha Roy, Diptendu, Hui, Nirmal Kumar. "A Game Theoretic Group Coordination Strategy for multi Robot Navigation" In 2018 Proceedings of the 8th International Workshop on Soft Computing Applications (SOFA 2018), (Accepted)

3. Mudali, Geetika, Diptendu Sinha Roy, and K. Hemant Kumar Reddy. "QoS Aware Heuristic Provisioning Approach for Cloud Spot Instances." In 2017 International Conference on Information Technology (ICIT), pp. 73-78. IEEE, 2017.

4. Mishra, Jyotirmaya, Jitendra Sheetlani, K. Hemant K. Reddy, and Diptendu Sinha Roy. "A Novel Edge-Supported Cost-Efficient Resource Management Approach for Smart Grid System." In Progress in Computing, Analytics and Networking, pp. 369-380. Springer, Singapore, 2018.

5. Paik, Subhendu Sekhar, Rajat Subhra Goswami, D. S. Roy, and K. Hemant Reddy. "Intelligent Data Placement in Heterogeneous Hadoop Cluster." In International Conference on Next Generation Computing Technologies, pp. 568-579. Springer, Singapore, 2017.

6. S. Shirinzadeh, K. Datta, R. Drechsler, "Logic Design using Memristors: An Emerging Technology (Embedded Tutorial)", 48th Intl. Symposium on Multiple-Valued Logic (ISMVL), Linz, Austria, May 2018.

7. A. Zulehner, P.M.N. Rani, K. Datta, R. Wille, I. Sengupta, "Generalizing the Concept of Scalable Reversible Circuit Synthesis for Multiple-valued Logic, 48th Intl. Symposium on Multiple-Valued Logic (ISMVL), Linz, Austria, May 2018.

8. P.M.N. Rani, A. Kole, K. Datta, I. Sengupta, "Improved Decomposition of Multiple-Control Ternary Toffoli Gates Using Muthukrishnan-Stroud Quantum Gates", 9th Intl. Conference on Reversible Computation, pp. 202-213, Kolkata, India, 2017.

9. L. Marbaniang, A. Kole, K. Datta, I. Sengupta, "Design of Efficient Quantum Circuits Using Nearest Neighbor Constraint in 2D Architecture", 9th Intl. Conference on Reversible Computation, pp. 248-253, Kolkata, India, 2017.

10. A. Kole, R. Wille, K. Datta, I. Sengupta , "Test pattern generation effort evaluation of reversible circuits ", 9th Intl. Conference on Reversible Computation, pp. 162-175, Kolkata, India, 2017.

11. A. Kole, P.M.N. Rani, K. Datta, I. Sengupta, R. Drechsler, "Exact Synthesis of Ternary Reversible Functions Using Ternary Toffoli Gates", 47th Intl. Symposium on Multiple-Valued Logic (ISMVL), pp. 179-184, Novi Sad, Serbia, 2017.

12. A. Kole, K. Datta, "Improved NCV Gate Realization of Arbitrary Size Toffoli Gates", 30th Intl. Conference on VLSI Design (VLSID), pp 289-294, Hyderabad, India, 2017.

13. S. Burman, P. Rangababu, K. Datta, "Development of Dynamic Reconfigurable implementation of AES on FPGA platform", 2nd Intl. Conference on Devices in Integrated Circuits (DevIC) pp-247-251, Kalyani, India.

14. A. Kole, K. Datta, R. Wille, I. Sengupta, "A nearest neighbour quantum cost metric for the reversible circuit level", IEEE Region 10 Conference (TENCON), Nov 2017, Penang, Malayasia.

15. P.L. Thangkhiew, R. Gharpinde, D.N. Yadav, K. Datta, I. Sengupta, "Efficient implementation of adder circuits in memristive crossbar array", IEEE Region 10 Conference (TENCON), Nov 2017, Penang, Malayasia.

16. "Planar Projection of Polytopes using Hough Transforms", A. Gurung and R. Ray, IEEE International Conference CONECCT, Bangalore, March 16-18, 2018.

17. Shubham Singh, Surmila Thokchom, "Public integrity auditing for shared dynamic data", 6th International conference on Smart Computing and Communication (ICSCC-2017), NIT Kurukshetra, 7-8 Dec 2017 .

18. Sutirtha Chakraborty, Shubham Singh, Surmila Thokchom, "Integrity checking using third party auditor in Cloud storage", 2018 11th International Conference on Contemporary Computing (IC3), Jaypee Institute of Information Technology, Noida, 2-4 August 2018.

19. S. Roy, D. Kumar, A. Dandapat and P. Saha, "Discretized Sinusoidal Waveform Generators for Signal Processing Applications," accepted in International Conference on Trends in Electronics and Informatics (ICOEI 2018), Tirunelveli, India, 11-12 May 2018.

20. P. Sahu, B. Khamari, B. Balabantaray and B. B. Biswal, "Geodesic Approach For Trajectory Planning Of Mobile Robot Manipulators", International Conference on Recent Innovations & Developments in Mechanical Engineering (IC-RIDME 2018), (Accepted)

5. Conference / Workshop / Seminar Organized:

1. Rajarshi Ray ,Third NE workshop on Computing: Theory and Applications, 19-24 February 2018. (Co-ordinator).
2. Rajarshi Ray ,Workshop on Program Analysis, Software Engineering and Formal Methods, 6 November, 2017 (Co-ordinator).
3. Akhilendra Pratap Singh, Workshop on Recent Trends in Internet of Things: Design, Architecture, Security" , 27-28April, 2018 (Coordinator)
4. Bunil Kumar Balabantaray, Workshop on Recent Trends in Internet of Things: Design, Architecture, Security" , 27-28April, 2018 (Co-ordinator)
5. Bunil Kumar Balabantaray, Faculty Development Programme on "Big Data Analytics", 21-25 May, 2018 (Coordinator), Sponsored by E&ICT Academy, IIT Guwahati
6. Bunil Kumar Balabantaray, Faculty Development Programme on "ANN and Deep Learning", 11-15 June, 2018 (Coordinator), Sponsored by E&ICT Academy, IIT Guwahati

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Diptendu Sinha Roy	GIAN course on Synchronized Phasor Measurement for Enhancing Situation Awareness in Smart Grid	October 9-13, 2017
2	Diptendu Sinha Roy	Next Generation Computation Technologies, Dehradun, India	30 – 31 October, 2017
3	Diptendu Sinha Roy	17th International Conference on Information Technology, Bhubaneswar, India	21 – 23 December, 2017
4	Diptendu Sinha Roy	Summer Training Programme on Active Learning for Senior Faculty, IIT Indore, Indore, India, TEQIP-III	2-6 July, 2018.
5	Alok Chakrabarty	Summer Training Programme on Active Learning for Senior Faculty, IIT Indore, Indore, India.	1 week
6	Rajarshi Ray	11th International Conference ESEC-FSE, Paderborn, Germany.	4-8 September, 2017.
7	Rajarshi Ray	Ansys SCADE Training Programme, NIT Meghalaya, Shillong India.	22 September 2017.
8	Rajarshi Ray	GIAN course on Modeling and Verification of Cyber-Physical-Systems, IIT Guwahati.	1-6 January, 2018
9	Rajarshi Ray	Third NE workshop on Computing: Theory and Applications, NIT Meghalaya, Shillong, India (organizer).	19-24 February, 2018.
10	Rajarshi Ray	Curriculum Development Workshop, NIT Meghalaya, Shillong, India.	19 March 2018.
11	Rajarshi Ray	Recent Trends in Internet of Things: Design, Architecture, Security	27-28 April 2018.
12	Rajarshi Ray	Summer Training Programme on Active Learning for Senior Faculty, IIT Indore, Indore, India.	2-6 July, 2018.
13	Akhilendra Pratap Singh	Third NE workshop on Computing: Theory and Applications, NIT Meghalaya, Shillong, India (organizer).	19-24 February, 2018.
14	Dr. Yogita	Summer Training Programme on Active Learning for Senior Faculty, IIT Indore, Indore, India, TEQIP-III	One week
15	Vipin Pal	Summer Training Programme on Active Learning for Senior Faculty, IIT Indore, Indore, India, TEQIP-III	
16	Bunil Kumar Balabantaray	FDP on Big Data Analysis	21-25 May 2018
17	Bunil Kumar Balabantaray	FDP on ANN and Deep Learning	11-15 June 2018

7. Invited Talks Delivered:

Sl. No.	Title	Type	Event / Place	Any other information
1	From Architecture to Computing to IoT Dr. Kamalika Datta	Invited Talk	Workshop on Emerging Trend in Computer Science, Martin Luther Christian University, Shillong, May 2018	Hands-on session by: Phrangboklang Lyngton Thangkhiew, Dev Narayan Yadav
2	Advances in Computer Architecture Dr. Kamalika Datta	Invited Talk	3rd workshop on Computing: Theory and Application, Organized by ISI Kolkata & NIT Meghalaya, February 2018	
3	IoT Systems: Challenges and Security Issues in Various Applications Dr. Kamalika Datta	Invited Talk	In-House training program on Modern Power System, NEEPCO, Shillong, November 2017	
4	Memristors: Technology, Circuit Models, Applications Dr. Kamalika Datta	Tutorial	VLSI Design Conference, Hyderabad, India, January 2017	Co-speaker: Prof. I. Sengupta (IIT Kharagpur)
5	Invited talk delivered at the 11th International Workshop on Numerical Verification of Softwares, Department of Computer Science, University of Oxford, United Kingdom. Dr. Rajarshi Ray	Invited talk.	Invited talk delivered at the 11th International Workshop on Numerical Verification of Softwares, Department of Computer Science, University of Oxford, United Kingdom.	Invited talk delivered at the 11th International Workshop on Numerical Verification of Softwares, Department of Computer Science, University of Oxford, United Kingdom.

8. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Investigation of Dynamic Reconfigurable Issues in Cryptographic Algorithm Implementation on FPGA Platform	PI: Kamalika Datta Co-PI: P. Rangababu, Anup Dandapat	DeitY, Government of India	Rs. 15.0 Lakhs	Jan-2016 to Apr-2017	Completed
2	Efficient Multi-dimensional Qubit Placement in Quantum Circuits	PI: Kamalika Datta	DST, Government of India	Rs.14.82 Lakhs	Mar-2016 to Mar-2019	Ongoing
3	Development of CAD Tools for Synthesis, Optimization and Verification of Digital Circuits using Memristors	PI: Kamalika Datta (Robert Wille is the PI from Austria)	DST, Government of India (Indo-Austria Joint Project)	Rs.8.65 Lakhs	July-2017 to July-2019	Ongoing
4	Development of Solid State Transformer based Efficient Power Conditioning Unit for Photovoltaic System for Hybrid AC/DC Microgrid Applications	Co-PI: Kamalika Datta PI: A. Datta, Mizoram University	DST, Government of India (Indo-Mexico Joint Project)	Rs. 9.78 Lakhs	July-2017 to July-2020	Ongoing
5	Efficient and Adaptive Mapping and Testing of Quantum Circuits in IBM QX and Nearest Neighbor Architectures	PI: Kamalika Datta Co-PI: Santosh Biswas (IITG), Indranil Sengupta (IITKGP)	DST, Government of India (under QuST scheme)	Rs. 43.5 Lakhs	3 years	Approved
6	Efficient Realization of Quantum Gate Operations Incorporating Parallelism and Fault Tolerance	Co-PI: Kamalika Datta PI: Indranil Sengupta (IITKGP)	DST, Government of India (under QuST scheme)	Rs. 47.8 lakhs	3 years	Approved
7	Parallel Model Checking of Hybrid Systems	P.I.	DST-SERB	Rs. 21 L	3 Years	On-going
8	SMDP-C2SD	Co-P.I.	Deity	Rs. 94L	5 Years	On-going
9	Investigation on Data-Driven Event Detection using Indian Power Grid's Synchrophasor Data	P.I.	DST-SERB	2989000	3 years	On-going

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
10	Cloud-assisted Data Analytics based Real-Time Monitoring and Detection of Water Leakage in Transmission Pipelines using Wireless Sensor Network for Hilly Regions	P.I. - Dr. Vipin Pal Co-P.I. - Dr. Yogita, Dr. Soumen Moulik, Dr. Shubhankar Majumdar	NMHS	44,40,880.00	3 Years	Ongoing

9. Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1	Computer Center	ANSYS SCADE Purchase and Installation	ME, EE, ECE, CSE Labs	Approx. 90L
2	Computer Center	HoneyNet Purchase and Installation	CS Lab	Approx. 190 L
3	Data Science Laboratory	Computer Systems and Data Science Software	CSE Department, NIT Meghalaya	In Process
4	Computer Vision and Automation Laboratory	Vision System, Mobile Robots	CSE Department	In Process

10. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Kamalika Datta	In-Charge Centre for Technology Enabled Learning from November 2017 till date	
2	Dr. Rajarshi Ray	Head of Computer Center	March 2017- March 2018.
3	Dr. Diptendu Sinha Roy	Head, Department of CSE	January 2017 – till date
4	Dr. Diptendu Sinha Roy	Faculty-in-charge, Computer Centre	March 2018 – till date
5.	Dr. Diptendu Sinha Roy	Senate nominated Member, BoG, NIT Meghalaya	July 2017 – till date
6	Dr. Diptendu Sinha Roy	Member Convenor, Campus Networking Committee	August 2018 – till date
7	Dr. Diptendu Sinha Roy	Chairman, Website Committee	April 2018 – till date
8	Dr. Diptendu Sinha Roy	Chairman, ERP Coordination Committee	November 2016 – till date
9	Dr. Yogita	Warden, Lapalang Girls Hostel	July 2018 – till date

11. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Diptendu Sinha Roy	IEEE, CSI (Life Member),ISTE(Life Member)
2	Dr. Alok Chakrabarty	IEEE,ACM
3	Kamalika Datta	IEEE and ACM
4	Rajarshi Ray	ACM Professional
5	Akhilendra Pratap Singh	CSI (Life Member),ISTE(Life Member)
6	Dr. Yogita	IEEE
7	Dr. Vipin Pal	IEEE
8	Bunil Kumar Balabantaray	ISTE (LM)

12. Any Other Notable Information:

1. Diptendu Sinha Roy, Invited Visiting Professor at the School of Computing, University of Eastern Finland, Kuopio, Finland during June, 2018.
2. Dr. Alok Chakrabarty, Acting as Counsellor CSI student branch, NIT Meghalaya.
3. Rajarshi Ray, Invited Academic Visitor at the Department of Computer Science, Australian National University, Canberra, Australia during 7-18 May 2018.

Department of Electronics and Communication Engineering

1. 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.

2. Programmes Offered:

i. B. Tech in Electronics and Communication Engineering

ii. M. Tech in Electronics and Communication Engineering

iii. Ph. D

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remark
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 –3 Submitted –1 Awarded – 4	
Dr.Ch V Rama Rao	Assistant Professor	Ph.D	Speech Technology, Pattern Recognition, Statistical Signal processing, Signal processing issues in Advanced Communication Systems.	28.08.2014	Pursuing – 3	
Dr.Prabir Kumar Saha	Assistant Professor	Ph.D	VLSI Design, Computer Arithmetic, Digital Signal Processing	13.06.2012	Pursuing – 2	
Dr. P Rangababu	Assistant Professor	Ph.D	FPGA-based Embedded Systems for Multimedia and DSP Applications, VLSI Chip Design, Crypto-Processors, Reconfigurable Systems for Medical Diagnosis	11.08.2014	Pursuing – 2	
Dr.Pradeep Kumar Rathore	Assistant Professor	Ph.D	Micro-Electro-Mechanical Systems (MEMS), Microelectronics, Device Fabrication Technology	11.08.2014	Pursuing – 2	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remark
Dr.Vinay Kumar	Assistant Professor	Ph.D	Low Power VLSI Design, Approximate Computing, CMOS Image Sensors	10.12.2012	Pursuing – 1	
Dr. Bishnulatpam Pushpa Devi	Assistant Professor	Ph.D	Image processing	03.01.2013	Nil	
Mr. Mridupawan Sonowal	Assistant Professor	M.Tech.	Information theory and coding	07.08.2013	Nil	
Dr. Abhishek Sarkhel	Assistant Professor	Ph.D	Microwave metamaterials and its applications, Microwave antennas	23.08.2013	Pursuing – 1	
Dr. Shubhankar Majumdar	Assistant Professor	Ph.D	RF, High Speed and Power Semiconductor Devices, VLSI circuit design and Modelling (Device to circuit interfacing), Low cost Energy efficient system for Agriculture & Health Sector	13.12.2017	Nil	

4. List of Publications:

a. Journals: 16

- 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, PageNos -710-714, 2017.
- 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.-PP, Issue No.-99, PageNos -1-5, 2017.
- S. Mishra, T. V. Mahendra, J. Saikia, and A. Dandapat, A Low-Overhead Dynamic TCAM with Pipelined Read-Restore Refresh Scheme, IEEE Transactions on Circuits and Systems I: Regular Papers, Vol.-PP, Issue No.-99, Page Nos -1-22, 2017.
- D. Kumar, P. Saha and A. Dandapat, Vedic Algorithm for Cubic Computation and VLSI Implementation, Engineering Science and Technology, an International Journal, Elsevier, Vol.-XX, Issue No.-XX, Page Nos –XX, 2017.
- V. Anil Kumar, Ch. V. Rama Rao, and Anirban Dutta, Performance analysis of blind source separation using canonical correlation, Springer, Circuits, Systems, and Signal Processing, Vol.37, Issue No.2, Page Nos -658-673, 2018.
- A. Sarkhel; S. R. B. Chaudhuri, Compact Quad-Band Polarization-Insensitive Ultrathin Metamaterial Absorber With Wide Angle Stability, IEEE Antenna & Wireless Propagation Letters, Vol.-16, Page Nos -3240 – 3244, 2017.
- Satabdy Jena, Gayadhar Panda, Rangababu Peesapati, FPGA based implementation for Improved control scheme of grid-connected PV system with three-phase three-level NPC-VSI, International Journal of Circuit Theory Applications (IJCTA), Willey Blackwell, Vol.-Early Access, Page Nos -1-26, 2018.
- Sasidhar M, Pradeep Rathore, Rangababu Peesapati, Decimal Multiplication using Compressor based-BCD to Binary Converte, International Journal of Engineering Science and Technology (Elsevier), Vol.-Early Access, Page Nos -1-6, 2018.
- Swamy Baldev, Shukla Kaustub, Sushanta Gogai, Pradeep Rathore, Rangababu Peesapati, Design and Implementation of Efficient Streaming Deblocking and SAO Filter for HEVC Decoder, IEEE Transactions on Consumer Electronics, Vol.-64, Issue No.-1, Page Nos -127-135, 2018
- Smitha Joyce Pinto, Gayadhar Panda, Rangababu Peesapati, An Implementation of Hybrid Control Strategy for Distributed Generation System Interface Using Xilinx System Generator, IEEE Transactions on Industrial Informatics, Vol.-13, Issue No.-5, Page Nos -2735-2745, 2017.
- Kirankumar Anumandla, Rangababu Peesapati, Samrat 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), Vol.-8, Issue No.-4, Page Nos -241-253, 2017.

- Rangababu Peesapati, Sonketa Das, Swamy Baldev, Shaik Rafi Ahamed, Design of Streaming Deblocking Filter for HEVC Decoder, IEEE Transactions on Consumer Electronics, Vol.-63, Issue No.-3, Page Nos -1-9, 2017.
- S. Majumdar, S. Majumder, A. Kakati, Effect of Aluminum Wet Etching on GaAs and Poly-DiMethyl Siloxane Substrate: Surface Morphology and Topography Analysis, Materials Focus, Vol.-7, Issue No.-1, Page Nos -45-49, 2018.
- V. Kumar, K. L. Baishnab and B. Kumar, A Novel Shared Active Pixel Architecture (SAPA) with Low Dark Current and High Fill-Factor (FF) for CMOS Image Sensors, Journal of Low Power Electronics, Vol.-13, Issue No.-3, Page Nos -490-496, 2017.
- S. D. Thabaha, M. Sonowal, P. Saha On the Design of Efficient Residue-to-Binary Converters Procedia Computer Science, Volume 132, Pages 816-82, 2018.
- B.Pushpa Devi, Kh. Maglem Singh, Sudipta Roy, New Copyright Protection Scheme for Digital Images Based on Visual Cryptography, IETE Journal of Research, Vol 63, Issue 6, Page No. 870-880, 2017.

b. Conferences: 07

- 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), Period –Jan, Place –Hyderabad, India, Page -341-346, 2017.
- Puja ghosh, Rangababu P, Design and Implementation of Ternary Content Addressable Memory (TCAM) based Hierarchical Motion Estimation for Video Processing, International Symposium on VLSI Design and Test, Period -29-06-2017 to 2-07-2017, Place –IIT Roorkee, Page -742-750, 2017.
- Rituparnachoudary, Rangababu P, Design and Implementation of Mixed Parallel and Dataflow Architecture for Intra-prediction Hardware in HEVC Decoder, International Symposium on VLSI Design and Test, Period -29-06-2017 to 2-07-2017, Place –IIT Roorkee, Page -557-569, 2017.
- S. Gautam, A.Gupta, S. Majumdar, A. Patraa, R. Dhabalia, J. Teraiya, Prediction of particulate matter concentration profile in an opencast copper mine in India using an artificial neural network model, Recycle – International conference on waste management, IIT Guwahati, 2018.
- M. Khalid, S. Majumdar, M.J. Siddiqui, Reduction of hardware complexity of digital circuits by threshold logic gates using RTDs, 3rd International Conference on Information and Communication Technology for Intelligent Systems, Ahemdabad, 2018.
- R.U. Ahamed, P. Saha, "Modeling of Threshold Voltage and Subthreshold Current for P-Channel Symmetric Double-Gate MOSFET in Nanoscale Regime" IEEE iNIS, 2017, pp. 179-183, Dec. 2017.
- R. Kant and V. Kumar, "Approximate Computing for Machine Learning", 2nd International Conference on Communication, Computing and Networking, Chandigarh, India, March 29-30, 2018.

5. Conference / Workshop / Seminar Organized: 02

1. TEQIP Sponsored Workshop on Signal Processing Techniques for Real Time Applications, 23 – 27 March, 2018.
2. Short Term Training Programme on Digital Design and Analysis at Backend Level Using CADENCE during 5th Mar-9th Mar, 2018

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr.AbhishekSarkhel	Indo-French Workshop on Microwave Nanotechnologies (MiNa) CeNSE, IISC Bangalore	July 3-4, 2017
2	Dr.Ch V Rama Rao	Winter School of Speech and Audio Processing 2018 at Indian Institute of Technology Guwahati	Jan. 19– 22, 2018
3	Dr.P.Rangababu	IEP WorkShop on "High Level Design to Silicon"	Feb. 24–27, 2018
4	Dr.Pradeep Kumar Rathore	4th National Workshop on NEMS/MEMS and Theranostics Devices at IIT Guwahati	Feb. 26–28, 2018
5	Dr.Vinay Kumar	BIT's 9th Annual International Congress of Cardiology-2017	Nov. 15–17, 2017
6	Dr.Vinay Kumar	Training Workshop for Faculty-Mentors on Induction Programme for New Students	Oct. 13- 15, 2017

7. Invited Talks Delivered:

1. Dr.P.Rangababu delivered a Invited talk on "Development of Hardware of Signal Processing Algorithms for Power Quality Assessment" In-House Training Program on Modern Power Systems NEEPCO, Shillong, 1Nov., 2017.
2. Dr. ShubhankarMajumdar delivered a Invited talk on "CMOS Layout designing" in five day workshop on CMOS Digital IC Design: Concepts and Recent Trends, Udaipur, 27 March, 2018.

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

- Dr. Shubhankar Majumdar has received a Marie Sklodowska-Curie Actions Seal of Excellence award from European Commission for the year 2018.
- Semi-finalist for the Cisco Global Problem Solver Challenge 2018, Feb 2018

09.Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1	Computer Arithmetic	Mentor Graphics	DSD Lab	-----

10. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Anup Dandapat	All academic responsibilities, Dean (Academics Affairs)	July 2017-Till date
2	Dr. Ch V Rama Rao	Departmental all responsibilities, HoD, ECE	June 2017 – Till date
3	Dr. Ch V Rama Rao	Liaison officer, SC/ST Cell	March 2016 to till date
4	Dr. Abhishek Sarkhel	Samanjanai Boys' Hostel Polo Hills, Warden, from 2017 -2018	1 Years
5	Dr. P. Rangababu	Member, NBA	1 Year
6	Dr. Pradeep Kumar Rathore	CCMT Centre-In-charge, NIT Meghalaya for Session 2017-18	1 Year
7	Dr. Pradeep Kumar Rathore	Co-ordinator, Summer Internship Program 2018	1 year
8	Dr. Shubhankar Majumdar	Warden of Lapalang-I Boy's Hostel	2 year
9	Dr. Vinay Kumar	Member, NBA	1 year
10	Dr. Vinay Kumar	Member, Routine Committee	1 year
11	Dr. Vinay Kumar	Member, NSS Committee	2 year

11. 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. Abhishek Sarkhel	IEEE
4	Dr. Pradeep Kumar Rathore	IEEE
5	Dr. P. Rangababu	IEEE, IETE
6	Dr. Vinay Kumar	IEEE, IE
7	Dr. Prabir Saha	IEEE, IETE
8	Dr. Shubhankar Majumdar	IEEE, IAENG

12. Any Other Notable Information:

Sl. No.	Name of Faculty	Technical Assistance	Name of Journal/Conference
1	Dr. Abhishek Sarkhel	Reviewer	• International Journal of Electronics and Communications, Elsevier • The Journal of Engineering, IET
2	Dr. Vinay Kumar	Reviewer	• IEEE Transactions on Circuits and Systems I: Regular Papers • IEEE Sensors Journal
3	Dr. Vinay Kumar	Technical Program Committee Member	6th World Conference on Applied Science Engineering and Technology, Goa, India, 2nd-3rd jan. 2018.
4	Dr. Prabir Saha	Reviewer	• IEEE Access • Journal of Nanoelectronics and Optoelectronics
5	Dr. Shubhankar Majumdar	Reviewer	• Journal of Computational Electronics • Superlattices and Microstructures • Microelectronics Journal • International Journal of Numerical Modelling: Electronic Networks, Devices and Fields
6	Dr. Shubhankar Majumdar	Technical Program Committee Member	• In First International Conference on Microelectronic Devices and Technologies (MicDAT 2018), UniversitatPolitecnica de Catalunya (UPC), Barcelona, Spain. • In Conference on Information and Communication Technology (CICT 2018).
7	Dr. Anup Dandapat	Reviewer, Evaluator	• IEEE transactions, IET, Elsevier, Springer, Tailor & Francis. • AICTE proposals

Department of Electrical Engineering

1. Brief Introduction to the Department:

The Department of Electrical Engineering started in 2010 with an annual intake of 30 students in B.Tech. program. Since inception, the major objective of the department is to impart high quality education with strong impetus on latest technologies research and innovation. Presently, the Department of Electrical Engineering offers 4 years B. Tech. program in Electrical and Electronics Engineering (EEE) and 2 years M.Tech. program with specialization in Power & Energy Systems. Annually the admission intake for B.Tech. and M.Tech. program are 30 and 20 students respectively. The Electrical Engineering Department have esteemed and dedicated faculties with various specialization and expertise. At present, all faculties (except 2 faculties) are PhD in their respective domain of research work and carry out research work in various fields. Further to add, there are 7 full time & few external PhD scholars carrying out their research work under the supervision of faculties in the department. The major areas of research include Smart Grid in Power System, Renewable Energy and its applications, Power Electronics & Drives, Control System and Instrumentation, High Voltage Engineering etc. In addition, the department faculties received 6 nos. of sponsored projects from various Govt. agencies and all these projects are in operation.

The department has 11 laboratories equipped with experimental and simulation facilities. The laboratories include Power System, Control & Instrumentation, Electrical Machines, Electrical Drives, Power Electronics, Basic Electrical, Microprocessor, Network & Systems, Digital Electronics, Digital Signal Processing and newly inducted High Voltage Lab. The experimental facilities are well equipped with high end technologies for undergraduate and post graduate students and are available to students for their regular courses, projects and research work. The laboratory facility also includes high end simulation software such as MATLAB, Power Simulator (PSIM), Electro-Magnetic Transient Program (EMTP), PSS@E Network, FLUX and are utilized by undergraduate as well as post graduate students.

2. Programmes Offered:

- 4 year B.Tech. program in Electrical & Electronics Engineering
- 2 year M.Tech. program with specialization in Power & Energy System
- Ph.D in different research areas of Electrical Engineering

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Gayadhar Panda	Professor	Ph.D	Power Electronics	29.01.2013	04	
Atanu Banerjee	Assoc. Professor	Ph.D	Power Electronics & Drives	25.08.2014	04	
Sanjoy Debbarma	Assistant Professor	Ph.D	Power & Energy Systems	19.06.2012	01 (Ongoing)	
Piyush Pratap Singh	Assistant Professor	Ph.D.	Control Systems,	31.05.2016	Nil	
Rakesh Roy	Assistant Professor	PhD	Power Electronics and machine drives	03.01.2018	Nil	
Shaik Affijulla	Assistant Professor	Ph.D	Power Systems	03.01.2013	Nil	
Supriyo Das	Assistant Professor	PhD	High Voltage Engineering	25.08.2014	01 (ongoing)	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Ksh Milan Singh	Assistant Professor	PhD	Instrumentation and Signal Processing	24.05.2016	Nil	
Biswajit Halder	Assistant Professor	PhD	Control and Instrumentation	23.07.2012	Nil	
Ramyani Chakrabarty	Trainee Teacher	M.Tech	Power Electronics	21.07. 2014	NA	pursuing PhD in IIT Guwahati
Mousam Ghosh	Assistant Professor	ME (Ph.D Pursuing)	Power Electronics & Drives	23.08.2013	NA	Left NIT Meghalaya on 13.08.2018

4. List of Publications:

a. Journals:

1. Smitha Joyce Pinto, Gayadhar Panda and Rangababu Peesapati, "An Implementation of Hybrid Control Strategy for Distributed Generation System Interface Using Xilinx System Generator", IEEE Transactions on industrial informatics, 2017, vol. 13, no. 5, pp. 2735-2745.
2. Bonu Ramesh Naidu, Gayadhar Panda and Pierluigi Siano "A Self-Reliant DC Microgrid: Sizing, Control, Adaptive Dynamic Power Management, and Experimental Analysis", IEEE Transactions on industrial informatics, 2018, vol. 14, no. 8, pp. 3300-3313.
3. Moushumi Patowary, Gayadhar Panda, Bonu Ramesh Naidu and Bimal C. Deka "ANN-based adaptive current controller for on-grid DG system to meet frequency deviation and transient load challenges with hardware implementation" IET Renewable Power Generation, 2018, vol. 12, no. 1, pp. 61-71.
4. Moushumi Patowary, Gayadhar Panda, and Bimal C. Deka "An adaptive current control-detuned harmonics elimination schemes for enhancement of power quality in RES interfaced AC-grid network" Elsevier, Sustainable Energy Technologies and Assessments, 2018, vol. 25, pp.11-23.
5. Satabdy Jena, Gayadhar Panda, and P. Rangababu, "FPGA based implementation for Improved control scheme of grid-connected PV system with three-phase three-level NPC-VSI" International Journal of Circuit Theory and Applications, Wiley,feb 2018, DOI: https://doi.org/10.1002/cta.2448.
6. 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, SAGE journal, 2017, pp. 1–14.
7. P.S.puhan, 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.
8. 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, Vol.97, No.4, December, 2017,pp.283-288.
9. Sanjoy Debbarma, Rituraj Shrivastwa, Grid Frequency Support from V2G Aggregators and HVDC Links in Presence of Non-synchronous Units, IEEE Systems Journal, Vol.-NA, pp. 1-10, 2018. (Accepted for Publication).
10. Arunima Dutta, Sanjoy Debbarma, "Frequency Regulation in Deregulated Market Using Vehicle-to-Grid Services in Residential Distribution Network", IEEE Systems Journal, Vol.- NA, pp. 1-9, 2017 (Accepted for Publication)
11. 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, vol. 63, no. 6, pp. 1-17, 2017.
12. V. Kumar, E. Tiwari, V. K. Chauhan, and P. P. Singh, Hybrid Synchronisation of Vallis Chaotic Systems Using Nonlinear Active Control, International Journal of Engineering and Technology, vol. 7, no. 2.21, pp. 50-52, 2018.
13. Anand Kumar and P. P. Singh, Synchronisation of Unified Chaotic Systems using Nonlinear Active Control Technique and Its Comparative Performance Analysis, Jour of Adv Research in Dynamical & Control Systems, vol. 10, no. 3, pp. 139-144, 2018

14. P. P. Singh and B. K. Roy, Comparative performances of synchronisation between different classes of chaotic systems using three control techniques, Annual Reviews in Control, vol. 45, pp. 152-165, 2018.

15. R. Roy, K. K. Prabhakar and P. Kumar, "Core-loss calculation in different parts of induction motor," in IET Electric Power Applications, vol. 11, no. 9, pp. 1664-1674, 11 2017.

16. Shaik Affijulla and Praveen Tripathy, "Development of Dictionary based Phasor Estimator Suitable for P-class Phasor Measurement Unit", IEEE Transactions on Instrumentation and Measurement, vol. In Press, pp. 1-13, 2018. (10.1109/TIM.2018.2824545)

17. Shaik Affijulla and Praveen Tripathy, "A Robust Fault Detection and Discrimination Technique for Lines", IEEE Transactions on Smart Grid, vol. In Press, pp. 1-11, 2017. (10.1109/TSG.2017.2709546)

18. M. Ghosh, G.K. Panda, P.K. Saha, Analysis of Chaos and Bifurcation Due to Slotting-Effect and Commutation in a Current Discontinuous Permanent Magnet Brushed DC Motor Drive, IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, Vol.-65, Issue No.-3, 2018. http://dx.doi.org/10.1109/TIE.2017.2745446

19. M. Ghosh, P.K. Saha, G.K. Panda, Hybrid Computational Mechanical Sensorless Fuzzified Technique for Speed Estimation of Permanent Magnet Direct Current Brushed Motor, IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, Vol.-65, Issue No.-6, 2018. http://dx.doi.org/10.1109/ TIE.2017. 2767553

20. S. Ghosh, M. Ghosh, G.K. Panda, P.K. Saha, Mechanical Contact-Less Computational Speed Sensing Approach of PWM Operated PMDC Brushed Motor: A Slotting-Effect and Commutation Phenomenon Incorporated Semi-Analytical Dynamic Model Based Approach, IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS--II: EXPRESS BRIEFS, Vol.-65, Issue No.-1, 2018. http://dx.doi.org/10.1109/TCSII.2017.2699080

21. M. Ghosh, S. Ghosh, P.K. Saha, G.K. Panda, Sensorless Speed Estimation of Permanent Magnet DC Brushed Motor Considering the Effect of Armature Teeth-Slots and Commutation, IET POWER ELECTRONICS, Vol.-10, Issue No.-12, 2017. http://dx.doi.org/10.1049/iet-pel.2016.0634

22. Ksh. Milan Singh, "Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique," IEEE Trans. Instrumentation & Measurement., 2018. (Early Access)

b. Book chapters:

1. Vulisi Narendra Kumar, Gayadhar Panda and Bonu Ramesh Naidu "Seamless Control and Unified Dynamic Energy Management in a Renewable/Clean Energy Integrated Self-reliant DC Microgrid: Integration of Renewable Sources With High-Gain Power Processing Stages", In Handbook of Research on Power and Energy System Optimization, ed. Pawan Kumar, Surjit Singh, Ikbal Ali and Taha SelimUstun, 511-551 (2018), doi:10.4018/978-1-5225-3935-3.ch015.

2. Bonu Ramesh Naidu and Gayadhar Panda "Adaptive Dynamic Energy Management and Seamless Control for DC Microgrid System", Control, Communication and Optimization of Smart Power Distribution Systems"Elsevier, 2017.

c. Conferences:

1. Vulisi Narendra Kumar, Gayadhar Panda "FPGA Implementation of Power Management Algorithm for Wind Energy Storage System with Kalman Filter MPPT Technique" 31st International Conference on VLSI Design and 2018 17th International Conference on Embedded Systems (VLSID), 2018, pp.449-450.

2. Smitha Joyce Pinto, Gayadhar Panda "Combinational control scheme for utility interactive inverter system" IEEE Transportation Electrification Conference (ITEC-India), 2017, pp.1-6.

3. Smitha Joyce Pinto, Gayadhar Panda, "Performance assessment of islanding detection using complex wavelet in a three-phase utility interactive inverter system" IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC), 2017, pp. 1-6.

4. Vulisi Narendra Kumar, Bonu Ramesh Naidu, Gayadhar Panda "Hardware-in-loop validation of a dynamic control employed for a hybrid DC microgrid incorporating high gain DC-DC power stages" IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC), 2017, pp.1-6.

5. Bonu Ramesh Naidu, Gayadhar Panda "A hybrid fuel cell-supercapacitor system employing adaptive control to overcome fuel starvation phenomenon of fuel cell" IEEE Innovations in Power and Advanced Computing Technologies (i-PACT), 2017, pp.1-5.

6. PratapSekharPuhan, Pravat Kumar Ray; Gayadhar Panda "Performance improvement of shunt active power filter with combined control technique", IEEE International Conference on Emerging Trends & Innovation in ICT (ICEI), 2017, pp. 56-61.

7. S.K.Prince, K.Panda, V. Narendra Kumar and Gayadhar Panda, "Power Quality Enhancement in a Distribution Network Using PSO Assisted Kalman Filter – Based Shunt Active Power Filter", in ENGINEER INFINITE e-TechNxt-2018, march 13-14, Pune. [Presented].

8. Satabdy Jena, Gayadhar Panda and Pierluigi Siano, "HIL based Coordinated Control of grid interfaced Distributed Generation assisted Battery Swapping Station", INDICON-2017.
9. Chiranjit Sain, P K Biswas, Atanu Banerjee, Sanjeevikumar Padmanaban- "An Efficient Flux Weakening Control Strategy of a Speed Controlled Permanent Magnet Synchronous Motor Drive for Light Electric Vehicle Applications"- published in the proceedings of the IEEE Calcutta Conference, 2017 (CALCON 2017), 2-3 December, 2017, 10.1109/CALCON.2017.8280744. pp.304-308.
10. Arunima Dutta, Sanjoy Debbarma, "Contribution of Electric Vehicles for Frequency Regulation in Presence of Diverse Power Sources and Transmission Links", ICIT 2018, Period -February, Place -Lyon, France, 2018.
11. Ksh. Milan Singh; Sanjoy Debbarma, Piyush Pratap Singh, "Doppler velocity measurement using closed-loop Goertzel algorithm in PLL technique", ICIT 2018, Period -February, Place -Lyon, France, 2018.
12. 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 (CERA), IIT Roorkee, 2017.
13. J. Samantaray, P. P. Singh, and B K Roy, A Comparative Study of PI and PID Based SMC for Anti-Synchronisation of Lorenz-Stenflo Chaotic System, IEEE INDICON, IIT Roorkee, Roorkee, Uttarakhand, India, December 15-17, 2017.
14. Piyush Pratap Singh, Jay Prakash Singh, and B K Roy, Tracking Control and Synchronization of Bhalekar-Gejji Chaotic Systems using Active Backstepping Control, 2018 IEEE International Conference on Industrial Technology (ICIT), Lyon, France, February 20-22, 2018.
15. R. Roy, K. K. Prabhakar and P. Kumar, "equivalent circuit for inverter fed induction motor," in PES 2018 general meeting, USA.
16. Gaurav Bhatt and Shaik Affijulla, "Analysis of Large Scale PV Penetration Impact on IEEE 39-Bus Power System", IEEE 58th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON), Riga, Latvia, pp. 1-6, Oct 2017.
17. Himanshu Gupta and Supriyo Das, "Statistical Analysis of Oil Insulation Breakdown Voltage", Proceedings of 2017 IEEE IEEM, December 2017, Singapore
18. Ksh. Milan Singh, Sanjoy Debbarman and Piyush Pratap Singh, "Doppler Velocity Measurement Using Closed-loop Goertzel Algorithm in PLL Technique," IEEE ICIT International Conference, Feb. 20-22, 2018, Lyon, France.

5. Conference / Workshop / Seminar Organized:

1. Prof. Gayadhar Panda – Coordinator of "In-house Training Program on "Modern Power Systems" for NEEPCO executives" from 30/10/2017 to 3/11/2017.
2. Prof. Gayadhar Panda – The aegis of RECTPCL funded CSR project conducted an invited talk on 27-10-2017. This talk was delivered by an eminent personality Prof. Sukumar Mishra, Professor IIT Delhi on "DC Microgrid Operation, Control and Management".

3. Prof. Gayadhar Panda – Two day workshop on outcome based accreditation at NIT Meghalaya, during March 26-27, 2018. The resource person Prof Vineet Sahula, MNIT Jaipur has delivered lectures.

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Prof. Gayadhar Panda	• Workshop on Leadership Development in Higher Education • IEEE PES APPEEC- 2017, Bangalore	7-8 December 2017
2	Dr. Sanjoy Debbarma	19th International Conference on Industrial Technology (ICIT 2018), Period -February, Place -Lyon, France, 2018.	20th – 22nd Feb, 2018
3	Dr. Ksh Milan Singh	Attended a course on "Biomedical Signal Acquisition, Processing and Analysis" under MHRD scheme on Global Initiative of Academic Networks (GIAN) at IIT Roorkee during	19th - 23rd December, 2017.
4	Dr. Biswajit Halder	Workshop on "Outcome Based Accreditation for Engineering Programs"	26th - 27th March 2018
5	Dr. Supriyo Das	Workshop on "Outcome Based Accreditation for Engineering Programs"	26th – 27th March 2018
6	Dr. Rakesh Roy	Workshop on "Outcome Based Accreditation for Engineering Programs"	26th - 27th March 2018

7. Invited Talks Delivered:

1. Prof. Gayadhar Panda – Talk on "Power Quality Improvement Using Custom Power Devices in a Distribution Network", In-house Training Program on "Modern Power Systems" for NEEPCO executives 30th October-3rd November 2017.
2. Prof. Gayadhar Panda – Talk on "Power Electronics in Electric Utilities: Distributed Generation/Smart Grid and HVDC Power Transmission", In-house Training Program on "Modern Power Systems" for NEEPCO executives 30th October-3rd November 2017.
3. Dr. Supriyo Das – Delivered Expert Lecture on "Diagnosis and Testing of Electrical Insulation" during In-House Training Program on "Modern Power System" at NEEPCO Shillong

8. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	SynchrophasorSensing and Seamless Control of Smart Distribution Network with Renewable Energy Integration	Prof. Gayadhar Panda (P.I.)	REC Transmission Projects Company Limited	Rs. 13175000/-	2017-19	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.	Dr. Atanu Banerjee (PI)	SERB-DST, Govt. of India	32.77 lakhs	3 years	Ongoing
3	Real-Time Control and Energy Management for Seamless Operation of DC Microgrid in Grid-connected and Stand-alone Modes	Dr. S. Affijulla (Co-P.I)	Department of Science & Technology, Govt. of India, New Delhi	Rs. 4926000/-	3 years	Ongoing
4	Synchrophasor Sensing and Seamless Control of Smart Distribution Network with renewable Energy Integration	Dr. S. Affijulla (Co-P.I)	Rural Electrification Corporation Transmission Projects Company Limited, Ministry of Power, Govt. of India, Delhi	Rs. 13175000/-	3 years	Ongoing
5	Investigation of Dielectric Properties towards Assessment of Cross-linked Polyethylene (XLPE) Cable Insulation using Dielectric Response Analysis	Dr. Supriyo Das (PI)	DST - SERB	32.4 lakhs	2017 – 2020 (3 yrs)	Ongoing
6	Non-contact Method of Vibration as Well as Velocity Parameters Estimation Based on Goertzel Algorithm in PLL Technique	Dr. Ksh. Milan Singh (PI)	DST-SERB Govt. of India	Rs. 30,18,000	3 Year (17/03/2018 to 16/03/2021)	On going

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

Sl	Faculty Name	Name of Award	Awarding Agency	Year
1	Dr. S. Affijulla	Citation of Best Faculty in Research by Governor of Meghalaya, India POSOCO Power System Award (PPSA – 2018)	National Institute of Technology Meghalaya, India Power System Operation Corporation Ltd. (POSOCO) in association with Foundation for Innovation and Technology Transfer (FITT) IIT Delhi	2018 2018

10. Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1	Power System	Alternator Protection	Admin Block	425000
2	High Voltage Laboratory	**Experimental set-up:** Surface and Volume Resistivity measurement Breakdown voltage measurement for Solid and Liquid insulator Leakage current measurement for Underground Cable **Software**: FLUX software – for electromagnetic field analysis	Tentatively in Basic Electrical Lab (Shortly will be shifted to newly assigned High Voltage Lab)	Experimental set-ups: Rs. 20 lakhs Software: Rs. 14 lakhs

11. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Gayadhar Panda	• Part-time CVO • Chairman, Institute ranking & accreditation committee • NBA coordinator • Coordinator for conducting the written exam for the post of Asst. Registrar • Chairman of screening committee for recruitment to Asst. Registrar, superintendent, faculty position • Member, DPR committee, 2017 • Chairman, Adjunct faculty search Committee	
2	Dr. Atanu Banerjee	HOD EE – All administrative assigned by the authority, ensuring smooth functioning of department.	Feb 2016 – June 2018
3	Piyush Pratap Singh	Member: Technical Committee	2017-2018 2018-till date
4	Rakesh Roy	Member of departmental routine committee	24/11/17 to till date
5	Ksh Milan Singh	Warden	01/03/2017 to 30/06/2018
6	Biswajit Halder	• Committee member for screening during recruitment-2017 • Purchase committee member for departmental project • Convener of Student Appeal Committee	

12. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Gayadhar Panda	IEEE, FIE, LMISTE
2	Atanu Banerjee	IEEE, IE(I)
3	Sanjoy Debbarma	IEEE, IEI
4	Piyush Pratap Singh	IEEE Signal Processing Society, IEEE Control System Society
5	Shaik Affijulla	IEEE, IEI
6	Supriyo Das	IEEE Dielectric and Electrical Insulation Society IEEE Power and Energy System
7	Ksh Milan Singh	IEEE member
8	Biswajit Halder	IEEE control system society, (Membership No. - 94223220) Institute of Engineers India, (M-151895-4) Institute of Doctors Engineers and Scientists, (IDES, 1098)
9	Ramyani Chakrabarty	Student Member, IEEE
10	Mousam Ghosh	IEEE

Department of Mechanical Engineering

1. 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 and 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 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.

2. Program Offered:

a. Bachelor of Technology in Mechanical Engineering (intake capacity: 30 per year)

b. Master of Technology in Mechanical Engineering with specialization in Fluids and Thermal Engineering (intake capacity: 20 per year)

c. Doctor of Philosophy in Mechanical Engineering (in respective specializations)

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Prof. Bibhuti Bhusan Biswal	Professor & Director	PhD	Manufacturing	May 17, 2018		
Dr. Bikash Kumar Sarkar	Assistant Professor & Head of the Department	PhD	Fluid Power and Control	August 21, 2013	3	One Project Scholar, One shared with Dr. S. maity
Prof. Harish Chandra Das	Professor	PhD	Thermal	December 28, 2017	--	--
Dr. Rabindra Narayan Mahapatra	Associate Professor	PhD	Design and manufacturing	December 28, 2017	--	--
Dr. Deba Kumar Sarma	Associate Professor & Dean (Planning & Development)	PhD	Manufacturing	August 23, 2013	3	1 submitted 2 continuing,1 shared with Dr.K.Debnath
Dr. Subhendu Maity	Assistant Professor	PhD	Fluid Mechanics	July 16, 2012	3	
Dr. Biplab Kumar Debnath	Assistant Professor	PhD	Thermal	July 30, 2014	3	1 Shared with Dr. R. S. Das, 1 Shared with Dr. K. Das
Dr. Koushik Das	Assistant Professor	PhD	Thermal	July 31, 2014	2	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Rajat Subhra Das	Assistant Professor	PhD	Thermal	July 16, 2015	3	All ongoing/Shared with Dr. B.K. Debnath, Dr. B.K.Sarkar & Dr. K. Das
Dr. Kishore Debnath	Assistant Professor	PhD	Manufacturing	July 16, 2015	3	All ongoing/Shared with Dr. D.K. Sarma & Dr. T. Bose
Dr. Pallekonda Ramesh Babu	Assistant Professor	PhD	Machine Design	July 27, 2015	1	Shared with Dr Maneswar Rahang.
Dr. Maneswar Rahang	Assistant Professor	PhD	Manufacturing	June 06, 2016	1	Shared with Dr. Pallekonda Ramesh Babu
Dr. Tanmoy Bose	Assistant Professor	PhD	Machine Design	June 17, 2016	1	Co-guidance with Dr. Kishore Debnath
Avilash Sahoo	Trainee Teacher	M.TECH	Machine Design	July 21, 2014		
Nur Alom	Trainee Teacher	M.TECH	Fluids and Thermal	July 21, 2014		
Sambit Majumder	Trainee Teacher	M.TECH	Fluids and Thermal	July 20, 2015		

4. List of Publications:

a. Journals:

1. Pradip K. Sahu, B. M. Gunji, G. B. Mahanta and **B. B. Biswal**. "A Heuristic Comparison of Optimization Algorithms for the Trajectory Planning of a 4-axis SCARA Robot Manipulator", Special Issue on **Computational Intelligence for Data Analytics** 2018, Springer International Journal of Data Science and Analytics.
2. Amruta Rout, B. B. Deepak, **B. B. Biswal**, G. B. Mahanta, and B. M. Gunji, "An Optimal Image Processing Method for Simultaneous Detection of Weld Seam Position and Weld Gap in Robotic Arc Welding." **International Journal of Manufacturing, Materials, and Mechanical Engineering** (IJMMME) 8, no. 1 (2018): 37-53.
3. B. M. Gunji, B.B. Deepak, MR. Bahubalendruni and **B.B. Biswal**, "An Optimal Robotic Assembly Sequence Planning by Assembly Subsets Detection Method Using Teaching Learning Based Optimization Algorithm". **IEEE Transactions on Automation Science and Engineering.**
4. **Rahul**, Saurav Datta, Manoj Masanta, **Bibhuti Bhusan Biswal,** Siba Sankar Mahapatra, Analysis on Surface Characteristics of Electro-Discharge Machined Inconel 718, **Int. J. Materials and Product Technology**, **Vol. 56, Nos. 1/2, pp.135-168 2018**
5. B. Panda, M. Leite, **B. B. Biswal**, X. Niu, and A. Garg, (2018), "Experimental and numerical modelling of mechanical properties of 3D printed honeycomb structures. **Measurement**, 116, 495-506.**SCI Index**
6. B. B. Deepak, B.M.Gunji, MR. Bahubalendruni and **B. B. Biswal**, (2018), "Assembly sequence planning using soft computing methods: A review", **Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering** : 0954408918764459.
7. B. M. Gunji, B. B. Deepak and **B.B. Biswal**, (2017), A Novel Design for Assembly Approach for Modified Topology of Industrial Products. **International Journal of Performability Engineering**. 2017 Nov;13(7):1013.
8. **Rahul**, Saurav Datta, **Bibhuti Bhusan Biswal**, SibaSankarMahapatra, Electrical discharge machining of Inconel 825 using cryogenically treated copper electrode: Emphasis on surface integrity and metallurgical characteristics, **Journal of Manufacturing Processes**, Vol. 26, pp. 188-202, 04, 2017
9. Rahul, Saurav Datta, Manoj Masanta, **Bibhuti Bhusan Biswal**, SibaSankarMahapatra, A Novel Satisfaction Function and Distance-Based Approach for Machining Performance Optimization during Electro-Discharge Machining on Super Alloy Inconel 718, **Arabian Journal for Science and Engineering**, Vol.42. No 5, pp.1999-2020, 02, 2017

10. **Rahul**, Kumar Abhishek, Saurav Datta, **Bibhuti Bhusan Biswal,** SibaSankarMahapatra, Machining Performance Optimization during EDM of Inconel 718: A Case Experimental Investigation, **International Journal of Productivity and Quality Management**, Vol. 21, No. 4, pp. 460-489, 06, 2017

11. B. M. Gunji, B. B. Deepak, M R. Bahubalendruni and **B. B. Biswal,** (2017). Hybridized genetic-immune based strategy to obtain optimal feasible assembly sequences. **International Journal of Industrial Engineering Computations.** 2017; 8(3):333-46.

12. B. N. Panda, MR. Bahubalendruni, **B. B. Biswal** and M. Leite, (2017), "A CAD-based approach for measuring volumetric error in layered manufacturing." Proceedings of the Institution of Mechanical Engineers, P**art C: Journal of Mechanical Engineering Science** 231.13 (2017): 2398-2406.

13. MR. Bahubalendruni and **B. B. Biswal,** (2017), A novel concatenation method for generating optimal robotic assembly sequences. Proceedings of the Institution of Mechanical Engineers, P**art C: Journal of Mechanical Engineering Science** 231, no. 10 (2017): 1966-1977.

14. Asita Kumar Rath, Dayal R. Parhi, **Harish Chandra Das,** Manoj Kumar Muni, Priyadarshi Biplab Kumar , Analysis and use of fuzzy intelligent technique for navigation of humanoid robot in obstacle prone zone, Defence Technology, 1-6, 2018

15. Asita Kumar Rath, **Harish Chandra Das**, DayalR.Parhi, PriyadarshiBiplab Kumar , Application of artificial neural network for control and navigation of humanoid robot, Journal of Mechanical Engineering and Sciences, 12, 3529-3538, 2018

16. Asita Kumar Rath, Dayal R.Parhi, **Harish Chandra Das**, Priyadarshi Biplab Kumar , Behaviour based navigational control of humanoid robot using genetic algorithm technique in cluttered environment, Modelling, Measurement and Control B, 91, 32-36, 2018

17. Numerical, Experimental and Fuzzy Logic Applications for Investigation of Crack Location and Crack Depth Estimation in a Free-Free Aluminum Beam, Sanjay K. Behera, DayalR.Parhi, **Harish Chandra Das** , Vibrations in Physical Systems, 29, 1-20, 2018

18. Sanjay K. Behera, DayalR.Parhi, **Harish Chandra Das** , Approach to establish a Hybrid Intelligent Model for Crack Diagnosis in a Fix-Hinge Beam Structure , International Journal of Structural Integrity, accepted, 2018

19. Binayak Pattanayak, Siba Shankar Mohapatra, **Harish Chandra Das,** Mathematical Modelling for Low Temperature Batch Drying of Paddy using Fluidized Bed Technology, International Journal of Mathematical Modelling and Numerical Optimisation, 2018

20. Shakti P. Jena, Saroj K. Acharya, **Harish C. Das**, Pragyan P. Patnaik , Investigation of the effect of FeCl3 on combustion and emission of diesel engine with thermal barriercoating., Sustainable Environment Research, 28, 72-76, 2018

21. Pruthiviraj Nemalipuri, Dr. Malay Kumar Pradhan, **Dr. Harish Chandra Das,** Dr. Rabindra Narayan Mahapatra, Barsha Das , Prediction of Air pollutants Emitting from Chimney of a CHP using CFD, 9, 105-110, 2018

22. Pragyan P Patnaik, Shakti P Jena, Saroj K Acharya, **Harish C Das,** Effect of FeCl3 and diethyl ether as additives on compression ignition engine emissions, Sustainable Environment Research , 27, 154-161,2017

23. Saroj Kumar Padhi,Ranjeet Kumar Sahu, S. S. Mahapatra, **Harish Chandra Das,** Anoop Kumar Sood, Brundaban Patro,A. K. Mondal , Optimization of fused deposition modelling process parameters using a fuzzy inference system coupled with Taguchi philosophy, International Journal of Advance Manufacturing, 5, 231-242, 2017

24. Saroj Kumar Padhi, S.S. Mahappatra and **Harish Chandra Das** , Performance of a Copper electroplated plastic electrical discharge machining electrode compared to a Copper electrode, International Journal of Pure and applied Mathematics, 114, 459-469, 2017.

25. Sanjay K. Behera1, Dayal R. Parhi, **Harish C. Das** , A hybrid intelligent model for crack diagnosis in a free-free aluminium beam structure, Modelling, Measurement and Control B, 87, 2, 2018.

26. Application of genetic algorithm for crack diagnosis of a free-free aluminum beam with transverse crack subjected to axial and bending load, Sanjay K. Behera1, Dayal R. Parhi, **Harish C. Das,** , 2018

27. B. K. Sarkar, Modeling and Validation of a 2-DOF Parallel Manipulator for Pose Control Application Reference, Robotics and Computer Integrated Manufacturing, Vol.-50, Page No:-234-241, 2018.

28. M. A. Singh, K. Das, D. K. Sarma, Thermal simulation of machining of alumina with wire electrical discharge machining process using assisting electrode, Journal of Mechanical Science and Technology, 32, 1, Page No:333-343, 2018.

29. M.A. Singh, D.K. Sarma, Parametric and Subsurface Analysis of MWCNT Alumina Composites in WEDM Process, Ceramics International, Elsevier, Vol.-44, Page No:2186-2197, 2018.
30. M. A. Singh, D. K. Sarma, O. Hanzel, J. Sedláek, 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 No:3107-3114, 2017.
31. U. Kashyap, K. Das, B. K. Debnath, Effect of surface modification of a rectangular vortex generator on heat transfer rate from a surface to fluid, International Journal of Thermal Sciences, 127, Page No:61-78, 2018.
32. P. Ramesh, S. R. Nanda, V. Kulkarni and S. K. Dwivedy, Soft Computing Based Force Recovery Technique for Hypersonic Shock Tunnel Tests, International Journal of Structural Stability and Dynamics, 18(05), 1871004, 2018.
33. P. Ramesh, S. R. Nanda, V. Kulkarni and S. K. Dwivedy, Application of neural-networks and neuro-fuzzy systems for the prediction of short-duration forces acting on the blunt bodies, Soft Computing, Pg:1-14, 2018.
34. N. Alom and U.K. Saha, Four decades of research into the augmentation techniques of Savonius wind turbine rotor, ASME Journal of Energy Resources Technology, Vol. 140, No. 5, pp: 050801-1-050801-14, 2018.
35. N. Alom and U.K. Saha, Performance evaluation of vent-augmented elliptical-bladed Savonius rotors by numerical simulation and wind tunnel experiments, Energy, Vol. 152, Page No: 277 -290, 2018.
36. A.C. Chandekar, B.K. Debnath, Computational investigation of air-biogas mixing device for different biogas substitutions and engine load variations, Renewable Energy, 127, 811-824, 2018.
37. H. C. Das, Investigation of the effect of FeCl3 on combustion and emission of diesel engine with thermal barrier coating,, Sustainable Environment Research, Vol.-28, Issue No.-2, Page No: -72-78, 2018.
38. H. C. Das, Effect of FeCl3 and diethyl ether as additives on compression ignition engine emissions, Sustainable Environment Research, Vol.-27, Issue No.-3, Page No: 154-161, 2017.
39. 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 No: 044503-1 to 6, 2017.
40. T. Bose, A. R. Mohanty, Large amplitude axisymmetric vibration of a circular plate having a circumferential crack, Journal of Mechanical Sciences, Vol.124, Page No: 194–202, 2017.

b. Book chapters:

Sl. No.	Author Name	Title	Publisher	ISBN No	Pages	Year
1	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
2	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
3	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
4	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:

1. G. B. Mahanta, B. B. V. L. Deepak, **B. B. Biswal,** Amruta Rout, and B. M. Gunji, "Design Optimization of Robotic Gripper Links Using Accelerated Particle Swarm Optimization Technique." In Proceedings of the **Second International Conference on Computational Intelligence and Informatics**, 2018, pp. 337-345. Springer, Singapore
2. G. B. Mahanta, Amruta Rout, B. M. Gunji, B. B. V. L. Deepak, and **B. B. Biswal**, "Application of Hybrid Nelder-Mead Bat Algorithm to Improve the Grasp Quality during the Automated Robotic Grasping." **Procedia Computer Science** 133, 2018, 612-619.

3. B. M. Gunji, B.B.Deepak, **B.B. Biswal**, G.B.Mahanta, and Amruta Rout, , Robotic Optimal Assembly Sequence Using Improved Cuckoo Search Algorithm. **Procedia Computer Science**, 2018, 133, pp.323-330.
4. Amruta Rout, M. Dileep, G.B. Mahanta, B. B. V. L. Deepak, and **B. B. Biswal.** "Optimal time-jerk trajectory planning of 6 axis welding robot using TLBO method." **Procedia Computer Science**133 ,2018, 537-544.
5. G. B. Mahanta, B. B. V. L. Deepak, and **B. B.Biswal**, "Geometric modelling and design optimization of a robotic gripper using meta-heuristic optimization techniques", **International Conference on Robotics and Artificial Intelligence**" May 21-22, 2018 Los Angeles USA
6. B. M. Gunji, P. K .Sahu, B. B. V. L. Deepak, and **B. B. Biswal**."Modified BAT Algorithm for Optimum Assembly Sequence Planning." In IOP Conference Series: **Materials Science and Engineering,** , 2018, vol. 377, no. 1, p. 012091. IOP Publishing.
7. B. M. Gunji, B.B. Deepak, MR. Bahubalendruni and B.B. Biswal, (2017), Optimal Assembly Sequence Planning Using Hybridized Immune-Simulated Annealing Technique. Materials Today: Proceedings. 2017 Jan 1;4(8):8313-22.
8. J. Vinod, P. Venkaiah, B. K. Sarkar, Francis Turbine Igv Control Under Force Estimation, INCOM18, Period -4 t0 6 January 2018, Place -Jadavpur University, Kolkata, Page -769-772, 2018.
9. P. Venkaiah, K. Das, B. K. Sarkar, Power Control Of The Small Scale Variable Speed Variable Pitch Wind Turbine, INCOM18, Period -4 t0 6 January 2018, Place -Jadavpur University, Kolkata, Page -795-798, 2018.
10. P. Venkaiah B. K.. Sarkar, Position Control of the Hydraulically Actuated Francis Turbine Inlet Guide Vane, ASME 2017 Power Conference Joint With ICOPE-17 collocated with the ASME 2017 11th International Conference on Energy Sustainability, the ASME 2017 15th International Conference on Fuel Cell Science, Engineering and Technology, and the ASME 2017 Nuclear Forum, Period -June 26–30, 2017, Place -Charlotte, North Carolina, USA, Page -V002T09A004; 9 pages, 2017.
11. P. Venkaiah, K. Das, E. K. Mawsor and B. K. Sarkar, Wind Turbine Pitching System Design And Controlin The Context Of North-East India, Proceedings of the 6th International Conference in Advances in Energy Research (ICAER), Dec 12- 14, 2017, IIT Bombay, India.
12. M.A. Singh, D.K. Sarma, H.M. Kalita, C. Marthong, Analysis of material removal and surface characteristics in machining multi walled carbon nanotubes filled alumina composites by WEDM process, 2nd International Conference on Design, Mechanical and Materials Engineering (D2ME 2017), Period -14-09-2017 to 16-09-2017, Place -Swinburne University, Melbourne, Australlia, Page -6, 2017.
13. C. Marthong, D.K.Sarma, H.M. Kalita, Effect of aspect ratio and volume fraction of PET fibre on the mechanical properties of PFRC, 2nd International Conference on Design, Mechanical and Materials Engineering (D2ME 2017), Period -14-09-2017 to 16-09-2017, Place -Swinburne University, Melbourne, Australlia, Page -6, 2017.
14. H.M. Kalita, A.K. Sarma, C. Marthong, D.K.Sarma, 2nd International Conference on Design, Mechanical and Materials Engineering (D2ME 2017), Period -14-09-2017 to 16-09-2017, Place -Swinburne University, Melbourne, Australlia, Page -6, 2017.
15. 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.
16. P.J. Bezbaruah, A. Das, R.S. Das, B.K. Sarkar, Numerical investigation on triangular fin based solar air heater, 6th International Conference on Advances in Energy Research. Paper ID: 361, December 12-14, 2017, IIT Bombay.
17. P. Kumar, A. Parveen, R.S. Das, "Coupled Heat and Mass Transport in an Indirect Membrane Contactor with Wicking Material for Liquid Desiccant Dehumidification", Paper No. IHMTC2017-05-0607, International Heat and Mass Transfer Conference (IHMTC-2017), December 27-10, 2017, BITS Pilani, Hyderabad.
18. Alom, N., Kumar, N and Saha, U.K., 2017. "Aerodynamic performance of an elliptical-bladed Savonius rotor under the influence of number of blades and shaft," Paper No. GTIndia2017-4554, ASME Gas Turbine India Conference, December 7–8, Bangalore, India.
19. Alom, N., Borah, B., and Saha, U.K., 2018, "An insight into the drag and lift characteristics of modified Bach and Benesh profiles of Savonius rotor," Energy Procedia, Vol. 144, pp. 50-56.
20. A.C. Chandekar and B.K. Debnath, "Design and Optimization of Air-Biogas Mixing Device for Dual Fuel Diesel Engines", Proceedings of the 6th International Conference in Advances in Energy Research (ICAER), Paper No. 221, Dec 12- 14, 2017, IIT Bombay, India.

21. A.C. Chandekar and B.K. Debnath, "Investigating the Flow Characteristics of an Air-Biogas Mixing Device through Computational Fluid Dynamics", Proceedings of the 44th National Conference on Fluid Mechanics and Fluid Power (FMFP), Paper No. 167, Dec 14-16, 2017, Kerala, India.

22. S. Roy, T. Bose, K. Debnath, "Influence of the Delamination Geometry on the Shear Behaviour of Glass/Epoxy Composites", National Conference on Advanced Materials, Manufacturing and Metrology (NCAMMM 2018), February 16-17, 2018, CSIR-CMERI, Durgapur, India.

23. P. Nemalipuri, M. K. Pradhan, H. C. Das, R. N. Mahapatra, B. Das, "Prediction of Air Pollutants Emitting from Chimney of A CHP Using CFD" National Conference on Emerging Trends in Engineering, Science and Manufacturing, (ETESM-2018), 28th -29 th Mar. 2018, IGIT, Sarang.

5. Conference / Workshop / Seminar Organized:

Workshop:

Sl. No.	Title	Sponsored	National/International	Duration	Faculty Responsible
1	Engineering Design and Its Application	ELMAX, (Partial)	National	07th March, 2018	Dr. Bikash Kumar Sarkar
2	Recent Advances in Mechatronics and Robotics	TEQIP	National	22nd to 24th March 2018	Dr. Bikash Kumar Sarkar Dr. D.K. Sarma

Fig.1: Some Photographs from Workshop on Engineering Design and its Application

Fig.2: Some Photographs from Workshop on Recent Advances in Mechatronics and Robotics

Seminar:

Sl. No.	Title	Sponsor	National/ International	Duration	Faculty Responsible
1	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

Lecture Organized:

Sl. No.	Title of the Lecture	Resource Person	Date	Faculty Responsible
1	Industrial IOT and Mechatronics	Mr. Manoj Kr. Das, CEO, EMBESYS TECHNOLOGIES	27th March 2017	Dr. Bikash Kumar Sarkar
2	Demonstration and Discussion about Robot	Mr. Aditya Marathe, NUZENIX	9th March 2017	Dr. Bikash Kumar Sarkar

Lecture Delivered:

Effective technique of qualitative& quantitative Production of conductor,cable and house wares. Three Days workshop from 13th Feb 2018 to 15th Feb 2018. Organised by Gupta Cables, Odisha. 7. **Conferences / Workshops / Seminars / Trainings Attended by faculty members:**

Sl. No.	Name of Faculty	Name of the program attended	Duration
1	Dr. Bikash Kumar Sarkar	One Day Workshop on Curriculum Development for B.Tech Programme	19 th Mar, 2018
2	Dr. Bikash Kumar Sarkar	Outcome Based Accreditation for Engineering Programs	26th to 27th March 2018
3	Dr. Deba Kumar Sarma	One Day Workshop on Curriculum Development for B.Tech Programme	19 th Mar, 2018
4	Prof. Harish Chandra Das	One Day Workshop on Curriculum Development for B.Tech Programme	19 th Mar, 2018
5	Prof. Harish Chandra Das	Outcome based education (OBE) for engineering programs	8-9th February 2018 at AICTE, New Delhi
6	Dr. Pallekonda Ramesh babu	Training programme on induction to the First year engineering students for Faculties in NER States.	November 8-10, 2017.
7	Dr. Biplab Kumar Debnath	Workshop on Start-Up and Innovation	March 20-21, 2018
8	Sambit Majumder	GIAN course on Immersed boundary methods for incompressible turbulent flows	December 18-22, 2017

6. Students Industrial Visit:

Sl. No.	Title	Sponsored	National/ International	Duration	Faculty Responsible
1	As a part of curriculum, B.Tech 4th Year students have visited the IOCL, Guwahati Refinery and Science Museum, Guwahati.	NIT Meghalaya	National	22nd August 2017	Dr. P Ramesh Babu, Mr. Nur Alom accompanied the students.
2	As a part of curriculum, B.Tech 3rd Year students have visited the MeECL Power house of Stage -1, in Sumer, Meghalaya.	NIT Meghalaya	National	23rd February 2018	Dr. P Ramesh Babu, Dr. Subhendu Maity and Mr. Sambit Majumder accompanied the students.

7. Projects:

a. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration (in years)	Status
1	Modeling and Control of the hydraulically actuated Ring Inlet Guide Vane of Francis Turbine by Adaptive Neural Network Sliding mode Controller Design	Dr. B. K. Sarkar	DST-SERB	30, 42,600	3 year	ongoing
2	Design and Development of the Small Wind Turbine Combined with Solar system for Household Application	Dr. B. K. Sarkar	MHRD	3,98,400	1.5 year	ongoing
3	Design and Development of the Nano-hydro Turbine for Standalone Household Power Generation	Dr. B. K. Sarkar	MHRD	1,10,000	1.5 year	ongoing

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration (in years)	Status
4	Thermal Detection of Malignancy and Estimation of Its Properties in a Human Breast	Dr. K. Das	DST	17,45,984	3	ongoing
5	Design Innovation Centre		MHRD	100 Lakhs		ongoing
6	Design and Fabrication of Coconut Deshelling Machine for Domestic and Small-Scale Industry Applications	Dr. M. Rahang	MHRD	3,24,400	1.5	ongoing
7	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	Dr. M. Rahang	SERB-DST	27,84,490	3	ongoing
8	Design of a shallow water turbine for energy harvesting, utilizing stream water in hilly places	Dr. D.K. Sarma, Dr. K. Das	DIC	13.668 lakhs	1.5	ongoing
9	A low cost thermoelectric generator based energy generating probe that can be used with existing stoves in rural villages in North-East india	Dr. D.K. Sarma	DIC	1.1 lakh	1.5	ongoing
10	Design and fabrication of pineapple slicer	Dr. Tanmoy Bose	MHRD	75000	1.5	ongoing
11	Standalone Solar Tea/ Coffee Maker Cum Multipurpose Water Heating System	Dr. R.S. Das (P.I.) Dr. K.Debnath (Co P.I.)	DIC-MHRD	8.572 Lakhs	2	ongoing

b. Consultancy:

Sl. No.	Title	Consultant(s)	Client(s)	Value	Status
1	Material Testing	Dr. D.K. Sarma	State Investment Programme Management & Implementation Unit, Govt. of Meghalaya	15870	Completed
2	Material Testing	Dr. D.K. Sarma	State Investment Programme Management & Implementation Unit, Govt. of Meghalaya	24980	Completed
3	Testing of anodic coating of aluminium section	Dr. D.K. Sarma	CPWD, Shillong	11,800	Completed
4	Testing of materials	Dr. D.K. Sarma	RITES Ltd., Shillong	26,550	Completed
5	Testing of materials	Dr. D.K. Sarma	PWD(B), Meghalaya	56,640	Completed
6	Testing of materials	Dr. D.K. Sarma	St. Terasa Int. School, Shillong	37,800	Completed
7	Testing of materials	Dr. D.K. Sarma	CPWD, Shillong	1,13,280	Completed
8	Testing of anodic coating of aluminium section	Dr. D.K. Sarma	RITES Ltd., Shillong	23,600	Completed
9	To Conduct work Time Motion Study	Dr. R.N Mahapatra	State Rural Employment society, Meghalaya	1500000	Ongoing

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

Research Scholar Mr. Uddip Kashyap received 1st prize in exhibition and Workshop on Innovation and Entrepreneurship, by DSIR at IIT Guwahati.

Research Scholar Mr. Subhasish Das received 2nd prize in exhibition and Workshop on Innovation and Entrepreneurship, by DSIR at IIT Guwahati.

9. Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1.	Strength of Material Lab.	Universal Testing Machine	UTM room	19

10. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Maneswar Rahang	Lab-In-Charge, Material Science Lab	2.5
2	Dr. Tanmoy Bose	Lab-In-Charge, Strength of Materials Lab	2.5
3	Dr. Pallekonda Ramesh Babu	In-Charge, Metrology and Instrumentation Lab	2.5
4	Dr. Subhendu Maity	Lab-In-Charge, Fluid Mechanics Lab	3
5	Dr. D.K.Sarma	Lab-In-Charge, Advanced Manufacturing Lab	4
6	Dr. B.K.Debnath	Lab-In-Charge, Thermal Science Lab	3
7	Dr. Koushik Das	Lab-In-Charge, Computational Lab	4
8	Dr. K. Debnath	Mechanical Workshop In-charge	3
9	Dr. B.K.Sarkar	Lab-In-Charge, Theory of Machines Lab	3

11. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Prof. Bibhuti Bhusan Biswal	1. Fellow, IE (I) 2. Member, ASME 3. Sr. Member, IEEE 4. Life Member, ISTE 5. Life Member, Association for Machines and Mechanisms(AMM) 6. Member, ISTAM 7. Member, International Association of Computer Science and Information Technology (IACSIT) 8. Member, International Association of Engineers (IAENG)
2	Dr. Bikash Kumar 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. 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
5	Dr. Biplab Kumar 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)
6	Nur Alom	ASME, Membership No. 102089520
7	Sambit Majumder	Institute of Engineers (India): Associate Member (AM159672-4)

Department of Civil Engineering

1. Brief Introduction to the Department:

NIT Meghalaya's Civil Engineering department first began its session from July 2012. The Department, which has an intake capacity of 30 students, offers 4 years (eight semesters) B. Tech programme in Civil Engineering. Since 2014, the Department has initiated the Ph.D programme. Additionally, the department has started an M.Tech programme in Structural Engineering starting this session (July 2018) with an intake capacity for 20 students of which 15 students have enrolled in the programme.

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 faculty members of the Department are involved in high-quality researches and they continue to explore new frontiers of breakthrough technical knowledge, recent inventions and discoveries. The findings through these researches on latest knowledge are being imparted to the students so that they are acquainted with the latest trends of the emerging engineering world. The Department actively promotes curriculum development activities by updating existing courses, develops new courses and prepares updated resource material for teaching. The Department also aims to contribute to interdisciplinary academic and research activities of NIT Meghalaya.

Moreover, the department also encourages both students and faculty members, along with all others concerned, in working for the development of Meghalaya, the North East region and the nation as a whole.

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 carryout 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.

2. 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 20 intake capacity for 2015.
- Ph.D. Programme with the specialization of Structural, Geotechnical, and Water Resources Engineering.

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Comingstarful Marthong	Associate 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	

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Hriday Mani Kalita	Assistant Professor	Ph.D	Water Resources Engineering	August 12, 2014	01 Ongoing	
Dr. Ratan Sarmah	Assistant Professor	Ph.D	Water Resource	July 27, 2015	-	
Dr. Smrutirekha Sahoo	Assistant Professor	Ph.D	Geotechnical Engineering	November 02,2015	-	
Dr. Susmita Sharma	Assistant Professor	Ph.D	Geotechnical Engineering	May 10, 2016	-	
Dr. Debabrata Podder	Assistant Professor	Ph.D	Structural Engineering	June 23, 2016	-	
Dr. Dibyendu Adak	Assistant Professor	Ph.D	Structural Engineering	January 03, 2018	-	
Dr. Subhrajit Dutta	Assistant Professor	Ph.D	Structural Engineering	January 03, 2018	-	
Mr. Suman Kumar	Trainee Teacher	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

4. List of Publications:

a. Journals:

Year 2018:

1. **H. M. Kalita,** A. K. Sarma, An implicit scheme for shallow water flow with wet dry interface, Water Resources, Vol.-45, Issue No.-1, Page Nos -61–68, 2018.
2. **H. M. Kalita**, A simple and efficient numerical model for simulating one dimensional dam break flows, Int. J. Hydrology Science and Technology (In press)
3. **Chakraborty R.**, Dey A. (2018) Effect of Toe Cutting on Hillslope Stability. In: I.V. A., Maji V. (eds) Geotechnical Applications. Lecture Notes in Civil Engineering, vol 13. Springer, Singapore.
4. K. Khate, **M. L. Patton, C. Marthong**, Structural behaviour of stainless steel stub column under axial compression: a FE study, International Journal of Steel Structures, Springer, Vol.-18, Page Nos -1-18, 2018.
5. K. Khate, **M. L. Patton, C. Marthong**, Numerical Modelling of lean duplex stainless steel stub column built-up sections under pure axial compression, Journal of Advanced Research in Dynamical and control systems, Vol.-10, Page Nos -948-959, 2018.
6. **Sahoo, S.**, Manna, B. and Sharma, K. G. (2018). "Seismic response of a steep nailed soil slope: Shaking table test and numerical studies." International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018), IIT Delhi, India, April 07-08.
7. P. Pathak and **S. Sharma,** Sorption isotherms, kinetics and thermodynamics of the contaminants onto Indian soils, Journal of Environmental Engineering, Journal of Environmental Engineering, ASCE, Vol. 144, Issue 10, 2018.
8. N.Koshy, S.S U, **S.Sharma,** J. Joseph,V.Sharma and D.N. Singh, B. Jha, Characterization of the Soil Samples from the Lonar Crater, India, Geotechnical Engineering Journal of the SEAGS & AGSSEA, Vol.49, Issue 1, 2018.
9. **C. Marthong,** A.S. Sangma, S.A. Choudhury, R.N. Pyrbot, S.L. Tron, L. Mawroh, G.S. Bharti (2017). "Structural Behavior of Recycled Aggregate Concrete Beam-Column Connection in Presence of Micro Concrete at Joint Region", 11, 243-251.
10. C**omingstarful Marthong** (2018). "Behaviour of recycled aggregate concrete beam-column connections in presence of PET fibers at the joint region," Computers and Concrete, Techno Press, 21 (6), pp. 669-679.

Year 2017:

1. **Sahoo, S**., Manna, B. and Sharma, K. G. (2017). "Seismic stability of a steep nailed soil slope- Shaking table testing and numerical analysis." 19th International Conference on Soil Mechanics and Geotechnical Engineering (19th ICSMGE), Seoul, Republic of Korea, September 17-22, pp. 2195-2198.
2. **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.
3. **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.
4. 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.
5. 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.
6. **Dibyendu Adak,** Manas Sarkar, Saroj Mandal. Structural behavior of nano-silica modified fly ash based geopolymer concrete, Construction and Building Materials, 135, 2017, 430–439.
7. SJ Chithambaram, S Kumar, MM Prasad, **D Adak,** Effect of parameters on the compressive strength of fly ash based geopolymer concrete. Structural concrete, https://doi.org/10.1002/suco.201700235.
8. M Maiti, M Sarkar, S Xu, S Das, D Adak, S Maiti, Application of silica nanoparticles to develop faujasite nano-composite for heavy metal and carcinogenic dye degradation. Environmental Progress & Sustainable Energy, https://doi.org/10.1002/ep.12904.

b. Book chapters:

1. **Comingstarful Marthong** (2018). "Use of Polyethylene Terephthalate Fibers for Strengthening of Reinforced Concrete Frame Made of Low-Grade Aggregate," Earthquake, 1, IntechOpen, Accepted.
2. **Dibyendu Adak,** Saroj Mandal. Nano-Silica Modified Fly Ash Based Geopolymer Concrete. Publishing house: LAP LAMBERT Academic Publishing, ISBN-13:978-613-8-32500-0.

c. Conferences:

Year 2018:

1. **Chakraborty, R.** and Dey, A. (2018). Influence of Toe Cutting on Seismic Response of a Typical Hill-Slope in North East India. 16th ARC, Taipei, Taiwan. (Abstract Accepted)
2. **Chakraborty, R.** and Dey, A. (2018) .Stochastic Modelling of the Spatial Variability of Soil. GeoMEast2018, Cairo, Egypt. (Accepted).
3. **Chakraborty R.**, Dey A. (2018). A Comparison of 1D and 2D Spatial Variability in Probabilistic Slope Stability Analysis. International Symposium of Geotechnics for Transportation Infrastructure, Delhi. Pp. 336-341.

Year 2017:

1. **H. M. Kalita,** A. K. Sarma, C. Marthong, D. K. Sarma, A few simple CFD models for flow simulation around groyne, 2nd International Conference on Design, Mechanical and Material Engineering, 14-16 September, Melbourne, Page Nos 1-6, 2017.
2. **Chakraborty R.**, Dey A. (2017). Importance of Spatial Variability on Probabilistic Slope Stability. Indian Geotechnical Conference, Guwahati.
3. **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
4. Susmita Sharma,PankajPathak(2017) "Categorization of Biosolids, A Vital Biological Resource for Sustainable Agriculture"Paris France May 18-19, 2017, 19 (5) Part XII. 19thInternational Conference on Civil, Environmental and Architectural Engineering ICCEAE 2017.

5. Pankaj Pathak, **Susmita Sharma** (2017) "Study of Strontium Sorption onto Indian Bentonite" Paris France May 18-19, 2017, 19 (5) Part XII.19thInternational Conference on Civil, Environmental and Architectural Engineering ICCEAE 2017.
6. 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, pp563 – 569, 2017.
7. **S.Sharma,** P. Pathak, Categorization of Biosolids, A Vital Biological Resource for Sustainable Agriculture, 19th International Conference on Civil and Environmental Engineering, Period -18-19 May, Place -Paris, France, 2017.
8. P. Pathak, **S. Sharma,** Study of Strontium Sorption onto Indian Bentonite, 19th International Conference on Civil and Environmental Engineering, Period -18-19 May, Place -Paris, France, 2017.
9. **Comingstarful Marthong,** Deba Kumar Sarma & Hriday Mani Kalita (2017), "Effect of aspect ratio and volume fraction of PET fiber on the mechanical properties of PFRC," 2nd International Conference on Design, Mechanical and Material Engineering, Swinburne Melbourne, 14th-16th Sept. 2017
10. Saroj Mandal, **Dibyendu Adak,** Anti-microbial efficiency of nano silver-silica modified geopolymer mortar. CONSEC 2016, Politecnico di Milano, Lecco, Lake Como, Italy. 2 (2017) 49-54.

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Rubi Chakraborty	Indian Geotechnical Conference, 2017	14-16 Dec, 2017
2	Dr. Smrutirekha Sahoo	International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018)	7 – 8 April, 2018
3	Dr Susmita Sharma	Training on municipal solid waste management manual, 2016, Ministry of urban development, GOI and Deutsche Gesellschaft fr Internationale Zusammenarbeit (GIZ)	9-13 January, 2017
4	Dr. Comingstarful Marthong Dr.M. Longshithung Patton Dr. Hriday Mani Kalita Dr. Susmita Sharma Dr. Debabrata Podder Dr. Dibyendu Adak	TEQIP Phase - III Summer Training Program on Active Learning" for one week at IIT Indore	02- 06 July, 2018

6. Invited Talks Delivered:

Dr. M. L. Patton - Workshop on New building Technology in collaboration with Visaka Industries Ltd. and RRP SEISCON, 2017.

Dr. Debabrata Podder - Topic: 'Advanced building construction methods' at NEEPCO, Guwahati.Date: 28.07.2017

Dr. Sushmita Sharma - One day Awareness workshop on Advance Technologies to mitigate the issues of National Highways, Land Slides & Reservoirs in N E Region, on behalf of the Office of the Textile Commissioner, Ministry of Textiles, Govt. of India in collaboration with Public Works Department, Govt. of Mizoram. Aizawl on 28th May, 2018.

7. Projects:

a. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Cost effective combination of T-head groynes for river bank protection	Dr. Hriday Mani Kalita (PI)	DST. SERB	Rs. 1916150	2016-19	Ongoing
2	Bioremediation of waste water-employing a low cost waste water cell	Dr Susmita Sharma (PI)	MHRD	3.5lakhs	1.4	ongoing

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
3	Structural Behaviour of Lean Duplex Stainless Steel Tubular Beams with Web Openings	Dr.M. Longshithung Patton (PI)	SERB-DST, GOI, New Delhi	19.04 Lakhs	2017-2020 36 months	Ongoing
4	Cost effective combination of T-head groynes for river bank protection	Dr. Hriday Mani Kalita (PI)	SERB, DST	19.16 Lakhs	2016-2019	Ongoing
5	Rehabilitation of RC beam-column connections by epoxy resin injection and FRP sheets wrapping.	Dr. C. Marthong (PI)	SERB-DST, GOI, New Delhi	20.88 lakhs	2014-17	Ongoing
6	Seismic Vulnerability Assessment of School Buildings of East Khasi Hills District of Meghalaya and Method of Reducing it.	Dr. C. Marthong (PI)	State Disaster Management Authority (SDMA), Shillong	9.12 lakhs	2015-17	Ongoing
7	Biodegradation of pulp and paper mill waste using different composting techniques	Dr. C. Marthong (PI)	SERB-DST, GOI, New Delhi	32.93 Lakhs	2014-17	Ongoing
8	Feasibility study on use of locally available material (low-grade aggregates) for road construction (BRO project Pushpak in Mizoram)	Dr. C. Marthong (PI)	BRO, Shillong	4.95 lakhs	2017-18	Ongoing

b. Consultancy:

Sl. No.	Tittle	Consultants	Client(s)	Value	Status
1	Construction work of 33/11 KV New Shillong Substation under NERPSIP Scheme Meghalaya	Dr. C. Marthong & Dr. S. Sharma	NERPSIP Scheme Meghalaya	90,200	Completed
2	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
3	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
4	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
5	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
6	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
7	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

Sl. No.	Tittle	Consultants	Client(s)	Value	Status
8	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
9	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
10	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
11	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
12	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
13	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
14	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
15	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
16	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
17	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
18	Testing of Cement for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	48,875	Completed
19	Testing of bricks & Cement cubes	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	15,525	Completed
20	Conducting Mix design NERCCDIIP, Shillong	Dr. C. Marthong	Power Grid Shillong	34,500	Completed
21	Testing of boulder for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	74,750	Completed
22	Testing of concrete cubes	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	17,250	Completed
23	Testing of concrete cubes	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	17,250	Completed
24	Testing of Construction Materials	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	25,000	Completed
25	Velting of Structural Design & Drawing for N.F. Railway building, Agartala	Dr. C. Marthong & Dr. M.L.Patton	N.F. Railway building, Agartala	10,000	Completed
26	Testing of Construction Materials	Dr. C. Marthong	Power Grid Shillong	20,700	Completed

Sl. No.	Tittle	Consultants	Client(s)	Value	Status
27	Testing of Construction Materials for SIPMIU, Meghalaya	Dr. C. Marthong & Dr. M.L.Patton	SIPMIU, Meghalaya	17,250	Completed
28	Testing of bricks, soil, cubes for Power Grid Shillong	Dr. C. Marthong & Dr. S. Sharma	Power Grid Shillong	40,825	Completed
29	Testing of boulder, steel, water and cement for CPWD Shillong	Dr. S. Sharma & Dr. C. Marthong	CPWD, Shillong	45,712	Completed
30	Structural Design of OTM ACCN for Airforce Shillong	Dr. C. Marthong & Dr. M.L.Patton	AIR Force, shillong	719,000	Completed
31	Testing of boulder and metal for CPWD Shillong	Dr. D.K. Sarma & Dr. C. Marthong	CPWD, Shillong	119,025	Completed
32	Testing of boulder for CPWD, Shillong	Dr. M.L.Patton & Dr. C. Marthong	CPWD, Shillong	299,000	Completed
33	Testing of Construction materials for Power Grid Corporation India Ltd.	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	31,270	Completed
34	Testing of Construction materials for Power Grid Corporation India Ltd.	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	15,930	Completed
35	Testing of Construction materials for Power Grid Corporation India Ltd.	Dr. C. Marthong & Dr. S. Sharma	Power Grid Shillong	14,025	Completed
36	Testing of Construction materials for Donush Sianshai Education Trust	Dr. C. Marthong & Dr. M.L.Patton	Donush Sianshai Education Trust	21,800	Completed
37	Testing of Concrete Cubes and Boulder for CPWD Shillong	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	89,090	Completed
38	Design and estimate for the inclined pitch RCC slab roof “Sylvan House” Building	Dr. C. Marthong & Dr. M.L.Patton	Forest Department, Govt. of Meghalaya	101,000	Completed
39	Testing of Construction Material for RITES	Dr. C. Marthong	RITES, Gurgoan	10,030	Completed
40	Testing of construction material for CPWD, Shillong	Dr. C. Marthong & Dr. S. Sharma	CPWD, Shillong	20,355	Completed
41	Testing of construction material for Shri B.D Marbaniang	Dr. C. Marthong & Dr. D.K Sarma	CPWD, Shillong	70,800	Completed
42	Testing of Construction materials for Power Grid Corporation India Ltd.	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	27,730	Completed
43	Testing of Construction materials for NECS, Aizawl for Mizoram House Construction	Dr. C. Marthong & Dr. D.K Sarma	NECS, Aizawl	13,570	Completed
44	Testing of boulder for CPWD, Shillong	Dr. C. Marthong	CPWD, Shillong	157,530	Completed
45	Testing of Cement	Dr. M.L.Patton & Dr. C. Marthong	CPWD, Shillong	20,060	Completed
46	Testing of pavement materials for AAI, Shillong	Dr. C. Marthong & Dr. M.L.Patton	AAI, Shillong	21,500	Completed
47	Performing Mix Design for pavement for Airport Authority of India, Shillong	Dr. C. Marthong & Dr. M.L.Patton	AAI, Shillong	31,010	Completed
48	Material Testing	Dr. S. Sharma & Dr. C. Marthong	CPWD, Shillong	23,600	Completed
49	Testing of Concrete Cubes	Dr. M.L.Patton & Dr. C. Marthong	CPWD, Shillong	5,310	Completed
50	Testing of Construction Materials for Power Grid Corporation Shillong	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	47,790	Completed
51	Testing of Construction materials and water for CPWD, Shillong	Dr. C. Marthong , Dr. M.L.Patton & Dr. S. Sharma	CPWD, Shillong	544,570	Completed
52	Testing of Construction materials	Dr. D.K. Sarma & Dr. C. Marthong	Power Grid Shillong	74,930	Completed
53	Testing of Construction materials	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	60,700	Completed

Sl. No.	Tittle	Consultants	Client(s)	Value	Status
54	Testing of Construction materials and water for CPWD, Shillong	Dr. C. Marthong , Dr. M.L.Patton & Dr. S. Sharma	CPWD, Shillong	358,130	Completed
55	Testing of Concrete Cubes & Construction materials for Power Grid of India	Dr. C. Marthong	Power Grid Shillong	33,040	Completed
56	Testing of Construction Materials and Cubes	Dr. M.L.Patton & Dr. C. Marthong	Power Grid Shillong	11,800	Completed
57	Testing of construction materials for Power Grid Corporation India	Dr. C. Marthong & Dr. M.L.Patton	Power Grid Shillong	34,810	Completed
58	Testing of construction materials for Power Grid Corporation India	Dr. C. Marthong & Dr. D.K Sarma	Power Grid Shillong	37,170	Completed
59	Testing of construction materials for CPWD, Shillong	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	205,320	Completed
60	Testing of boulder for CPWD, Shillong	Dr. C. Marthong & Dr. M.L.Patton	CPWD, Shillong	575,250	Completed
61	Testing of construction materials for Power Grid Corporation India	Dr. C. Marthong	Power Grid Shillong	18,900	Completed
62	Soil testing	Dr. S.Sahoo, Dr. C.Marthong	PWD (Buildings), Meghalaya	Rs. 80,000.00 (approx.)	Completed
63	Soil testing	Dr. S.Sahoo, Dr. C.Marthong	Power Grid Corporation of India Limited, NERTS/ NERPSIP, Shillong	Rs. 18,800.00	Completed
64	Soil testing	Dr. S.Sahoo	D.D.U., Community college, NEHU	Rs. 23,400.00	Completed

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

- **Dr. S. Sahoo** - "Young Geotechnical Engineer" Award sponsored by Centre for Geomechanics and Railway Engineering, University of Wollongong, Australia and the Organizing Committee of ISGTI-2018. As part of this award, she was rewarded with:
  1. Cash prize of Australian $300 (or equivalent Indian Rupees)
  2. A certificate and a plaque.
  3. Special prize of book vouchers worth 200 Euros from Springer International.

9. Laboratories Setup:

Name of faculty	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
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	Environmental Engineering Laboratory	Rs 14.74
		x. Atomic Absorption Spectrophotometer		Rs.16.21

10. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Hriday Mani Kalita	Member-Branch change committee, Member-Planning and preparation committee for shifting to the permanent campus, Convenor-Grade evaluation committee, Member-On campus business committee, Member-Under graduate program evaluation committee,	2017-18
2	Rubi Chakraborty	Routine committee member	2017-18
3	Dr. Smrutirekha Sahoo	Faculty advisor of B.Tech 2nd year students	2017-18
4	Dr. Smrutirekha Sahoo	Geotechnical Engineering Lab in-charge	2017-18
5	Dr.Susmita Sharma	a) Faculty Advisor For 4th Year Civil Engg. Students b) Institute Grievance committee Member c) Environmental issues under TEQIP	2017-2018 2018 onwards
6	Dr. C. Marthong	a) HoD CE Dept.-Function and decision related to academic matters of CE Dept. b) Chairman under Unnat Bharat Abiyan (UBA) (formerly known as Village adoption committee) in identifying villages for technical support.	2016 - July 2018 02.09.2015 till date
7	Dr. Dibyendu Adak	Faculty Adviser, Routine Committee member.	2017-18

11. 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

12. 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 Jowai NH.
	Recruitment of Assistant Engineer, Meghalaya Forest Services (Civil) for MPSC, Shillong	Moderation of question paper	Responsible for moderating question paper recruitment of Assistant Engineer and Meghalaya Forest Services (MFS) for Meghalaya Public Service commission, Govt. of Meghalaya.

Department of Physics

1. Brief Introduction to the Department:

The Department of Physics with its induction has evolved by offering two years full time Master of Science programme. The department has also progressed in furnishing the Doctor of Philosophy programme and so far the degree has been awarded to 2 nos. of aspirants. In addition, the department supports the engineering branches of the institute by floating the foundation courses for B.Tech (1st year) and advanced science electives for B.Tech (2nd Year) students. The department is well equipped with experimental laboratories which make corroboration with classroom physics for both under graduate and post graduate level. The functionality and progressiveness of the department is accredited to young, dynamic and potential faculty pool with necessary support from the staff.

2. Programmes Offered:

1. Master of Science (Physics)
2. Doctor of Philosophy (Physics)

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. K. Senthilkumar	Assistant Professor	PhD	Condensed Matter Physics	14 June 2015	1 ongoing	
Dr. Tribedi Bora	Assistant Professor	PhD	Experimental Condensed Matter Physics	06 July 2015	1 ongoing	
Dr. Arpita Nath	Assistant Professor	PhD	Laser Matter Interaction	03 October 2013	1 ongoing	
Dr. W. L. Reenbohn	Assistant Professor	PhD	Nonequilibrium Statistical Mechanics	02 November 2015	1 ongoing	
Dr. Ayon Bhattacharjee	Professor	PhD	Experimental Condensed Matter Physics	24 July 2013	6 awarded 1 submitted 5 ongoing	

4. List of Publications:

a. Journals:

1. **K. Senthilkumar,** T. Yoshida, Y. Fujita, Formation of D–VZn complex defects and possible p-type conductivity of ZnO nanoparticle via hydrogen adsorption, Journal of Material Science, 53, 11977, (2018).
2. **Arpita Nath,** Pooja Sharma and Alika Khare ,Laser Provoked Metastable Phases in Liquids, Laser Physics Letters , 15 , 026001,(2018).
3. **Arpita Nath,** JA Dharmadhikari, AK Dharmadhikari, D Mathur, S Mazumdar, Ultrafast dynamics of hemin aggregates, Physical Chemistry Chemical Physics, 19, 26862, (2017).
4. **Arpita Nath** and Alika Khare , Functional Activity of TiO2 Nanocolloids Generated From Diverging High Power Laser Beams , Radiation Effects and Defects in Solids , 2018 (DOI: 10.1080/10420150.2018.1509860).
5. D. Kharkongor, W. L. Reenbohn, Mangal C. Mahato, Inertial frictional ratchets and their load bearing efficiencies, Journal of Statistical Mechanics 2018, 033209 (2018).

6. K Bhuyan, **A Bhattacharjee,** PR Alapati,Sensing of ammonia gas by undoped and aluminum-doped tin oxide nanoparticles by Raman spectroscopy, Pramana 91, 32, (2018).
7. D Bhattacharjee, R Mishra, R Dabrowski, **A Bhattacharjee,** Experimental and DFT generated Raman study of two bent-core monomeric liquid crystalline compounds, Liquid Crystals, 1, (2018).
8. R Mishra, **A Bhattacharjee,** D Bhattacharjee, KN Singh, PR Alapati, Temperature-dependent Raman study of pure and silver nanoparticles dispersed N-(4-n-heptyloxybenzylidene)-4'-n-butylaniline (7O. 4), Liquid Crystals, 1, (2018).
9. D Bhattacharjee, R Dabrowski, **A Bhattacharjee,**Theoretical investigation of nonlinear optical and vibrational properties of two liquid crystalline compounds, Journal of Molecular Liquids, 255, 80, (2018)
10. D Bhattacharjee, PR Alapati, **A Bhattacharjee,** Comparative experimental optical studies on 7. O5O. 7 dimeric liquid crystal compound using theoretical models, Liquid Crystals, 45, 586, (2018).
11. Ramanuj Mishra, **Ayon Bhattacharjee,** Debanjan Bhattacharjee, Keisham Nanao Singh, Binod Gogoi, Parameswara Rao Alapati,Temperature-dependent vibrational spectroscopic studies of pure and gold nanoparticles dispersed 4-n-Hexyloxy-4'-cyanobiphenyls, Liquid Crystals, 1, 1,(2018).
12. SP Choudhury, N Kumari, **A Bhattacharjee,** Study of structural, electrical and optical properties of Ni-doped SnO2 for device application: experimental and theoretical approach Journal of Materials Science: Materials in Electronics, 28 , 18003,(2017).
13. M Lyndem, R Dabrowski, **A Bhattacharjee,** Study of the effect of temperature on the optical properties of a laterally Fluorinated LC compound, Molecular Crystals and Liquid Crystals 658, 81, (2017)
14. Sandip Paul Choudhury, D Bhattacharjee, **A Bhattacharjee,** Humidity-Dependent Impedance and DFT Analysis of Pure and Cu-Doped SnO2 Thin Films, Surface Review and Letters,25, 1850106, (2017)
15. **Vivek Kumar,** Deepak Gupta and Rajesh Kumar, Optimizing Photovoltaic Charge Generation of Hybrid Heterojunction Core–Shell Silicon Nanowire Arrays: An FDTD Analysis, ACS Omega 3, 4123, (2018).

5. Conference / Workshop / Seminar Organized:

1. Short Term Training Program on Advanced Material Characterization and Data Analysis, 26 -28 March 2018

Prof. A. Gohain Barua, from Gauhati University, delivering lecture during short term training program on Advanced Material Characterization and Data Analysis organized during 26th -28th March 2018 by Department of Physics, NIT Meghalaya.

NIT Meghalaya Student's participation for the short term training program on Advanced Material Characterization and Data Analysis organized during 26th -28th March 2018 by Department of Physics, NIT Meghalaya.

Participants' from various Institute attending the short term training program on Advanced Material Characterization and Data Analysis organized during 26th -28th March 2018 by Department of Physics, NIT Meghalaya.

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. K. Senthilkumar	International Conference on Defects in Semiconductors, Japan	31 July - 4 August , 2017
2	Dr. K. Senthilkumar	Thematic Workshop on Techniques & Instrumentation in Materials Research, UGC-DAE Indore	21-11 August, 2017
3	Dr. K. Senthilkumar	TEQIP Phase - III Summer Training Program on Active Learning for Senior Faculty , IIT Indore	02-06 July, 2018
4	Dr. Tribedi Bora	6th International Conference on Superconductivity and Magnetism (ICSM 2018) , Turkey	29th April - 4th May 2018
5	Dr Arpita Nath	Recent Trends in Chemical Sciences, NIT Meghalaya, India	12-13 October, 2017
6	Dr Arpita Nath	5th International Conference on Advanced Nanoparticle Generation and Excitation by Lasers in Liquids, Lyon , France	03-07 June, 2018
7	Dr. W. L. Reenbohn	TEQIP Phase - III Summer Training Program on Active Learning for Senior Faculty , IIT Indore	02-06 July, 2018
8	Dr. Ayon Bhattacharjee	TEQIP Phase - III Summer Training Program on Active Learning for Senior Faculty , IIT Indore	02-06 July, 2018

Sl. No.	Name of Faculty	Name of the programme attended	Duration
9	Dr. Ayon Bhattacharjee	National workshop on Thin Film Technology and Applications, NIT Nagaland	9-13 February, 2018
10	Dr. Ayon Bhattacharjee	National Conference on Emerging Materials, Department of Chemistry, Assam University	20-22 March, 2018

7. Invited Talks Delivered:

1. Dr. Tribedi Bora, Department of Nano Technology, NEHU Shillong, November 2017.
2. Dr. Tribedi Bora, Department of Physics, Handique Girls' College, Guwahati, March 2018.
3. Dr. Ayon Bhattacharjee, Department of Physics, Karimganj College, Assam.
4. Dr. Ayon Bhattacharjee, Department of Physics, NIT Nagaland.
5. Dr. Vivek Kumar, Department of Nano Technology, NEHU Shillong, November 2017.

8. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Defect induced electron-phonon interaction in ZnO nanoparticles	Dr. K. Senthilkumar	UGC-DAE Consortium for Scientific Research	1.75 Lakhs	3 years	on going
2	Fluid dynamical aspects in nucleation of laser produced nanoparticles in liquids.	Dr. Arpita Nath	DST-SERB	57.14 Lakhs	3 years	Sanctioned
3	Studies on orthoconic antiferroelectric liquid crystals	Dr Ayon Bhattacharjee	DST-SERB	20.288 Lakhs	3 years	Ongoing
4	Lab in a Shoebox	Dr. Ayon Bhattacharjee	Design Innovation Centre	1.10 Lahks	2 year	ongoing

9. Laboratories Setup:

Sl. No.	Laboratory	Major Equipment & Software	Location	Cost (Rupees in lakhs)
1.	Synthesis Laboratory (Dr. Tribedi Bora)	1. Fume Hood 2. Pre Sintering Furnace (upto Temperature 1000 degree Celsius) 3. Sintering Furnace (upto temperature 1400 degree Celsius	Dean's Block (Basement Area)	1. 2,47,800/- 2. 99,503/- 3. 1,81,660/-

10. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. K. Senthilkumar	Head Physics, Overall administration of Department of Physics	6 September 2016 Onwards
2	Dr. Tribedi Bora	Warden, Lapang Girls'Hostel	July 2015- June 2018
3	Dr. Arpita Nath	Chairperson, Institute Complaint Committee	February 2017 Onwards
4	Dr. W. L. Reenbohn	Chairman, NSS Committee	1st February 2016 Onwards
5	Dr Ayon Bhattacharjee	Registrar, NIT Meghalaya	22 May 2017 -08 January 2018
6	Dr Ayon Bhattacharjee	Dean (Research & Consultancy)	11 July 2017 till date
7	Dr Ayon Bhattacharjee	TEQIP Coordinator	January 2017 till date

11. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. K. Senthilkumar	1. Energy Science Society of India(ESSI) 0309201301L
2	Dr. Arpita Nath	1. Plasma Science and Society of India (PSSI) 2. Indian Society of Atomic and Molecular Physics (ISAMP)
3.	Dr Ayon Bhattacharjee	1. IEEE 2. Indian Liquid Crystal Society 3. International Liquid Crystal

Department of Chemistry

1. Brief Introduction to the Department:

The Department of Chemistry, National Institute of Technology Meghalaya has started in 2012. In addition to the B.Tech. Chemistry course, the department is also offering 2 yrs M.Sc. program in Chemistry from 2015 onwards with all the major areas of Chemistry such as Inorganic, Organic, Physical and Theoretical Chemistry. The intake capacity of M.Sc. program is sixteen (16).

Currently, it is offering Ph.D. programs in broad area of Chemical Sciences like Organic Chemistry, Inorganic Chemistry, Biophysical Chemistry, Materials Chemistry and Computational Chemistry. Presently, the department has total twelve (12) Ph.D. students working in various thrust areas.

The department has total 6 faculty members including one DST-INSPIRE faculty. The faculty members are involved in quality research works apart from their regular teaching and administrative works.

The M.Sc. Students of the department are encouraged to apply for summer-internship programmes in various reputed institutes and universities of the country.

The department is attracting students from various other institutes and universities for M.Sc. and Ph.D. programmes in view of the concepts of interdisciplinary teaching and research for the advancement in the fields of organic materials, nanoscience and technology, biological chemistry etc.

2. Programmes Offered:

i. M.Sc. in Chemistry (2 years) and ii. Ph.D.

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance (ongoing)
Dr. Gitish K. Dutta	Assistant Professor	Ph.D.	Organic and Hybrid Materials (Organic Chemistry)	08-08-2013	01
Dr. Paresh Nath Chatterjee	Assistant Professor	Ph.D.	Organometallics and Catalysis (Organic Chemistry)	14-01-2013	02
Dr. Amit Kumar Paul	Assistant Professor	Ph.D.	Theoretical Chemistry (Physical Chemistry)	24-06-2016	00
Dr. Atanu Singha Roy	Assistant Professor	Ph.D.	Biophysical Chemistry (Physical Chemistry)	23-07-2015	01
Dr. Naba Kamal Nath	Assistant Professor	Ph.D.	Crystal Engineering and Energy Converting Smart Materials (Inorganic Chemistry)	28-07-2015	01
Dr. Mukul Pradhan	DST-INSPIRE Faculty	Ph.D.	Inorganic Nanomaterials (Inorganic Chemistry)	11-05-2016	00

4. List of Publications:

a. International Journals:

1. S. Das, A. Karn, R. Sharma, M.A. Rohman, S. Koley, P. Ghosh, **A. Singha Roy***, Characterization of non-covalent binding of 6-hydroxyflavone and 5,7-dihydroxyflavone with bovine hemoglobin: Multi-spectroscopic and molecular docking analyses, **Journal of Photochemistry and Photobiology B: Biology,** 2018, 178, 40-52.
2 S. Das, P. Ghosh, S. Koley, **A. Singha Roy***, Binding of naringin and naringenin with hen egg white lysozyme: A spectroscopic investigation and molecular docking study, **Spectrochimica Acta A: Molecular and Biomolecular Spectroscopy,** 2018, 192, 211-221.

3. S. Das, M. A. Rohman, **A. Singha Roy*,** Exploring the non-covalent binding behaviours of 7-hydroxyflavone and 3-hydroxyflavone with hen egg white lysozyme: Multi-spectroscopic and molecular docking perspectives, **Journal of Photochemistry & Photobiology B: Biology,** 2018, 180, 25-38.
4. A**. K. Paul,** D. Donzis, W. L. Hase, Collisional Intermolecular Energy Transfer From a N2 Bath at Room Temperature to a Vibrationally "Cold" C_6F_6 Molecule Using Chemical Dynamics Simulations, **Journal of Physical Chemistry A,** 2017, 121, 4049-4057.
5. H. N. Bhandari, X. Ma, **A. K. Paul,** P. Smith, W. L. Hase, PSO Method for Fitting an Analytic Potential Energy Function. Application to I-(H_2O), **Journal of Chemical Theory and Computation**. 2018, 14, 1321-1332.
6. O. M. El-Kadri, A. A. Siddique, M. D. Eaton, **N. K. Nath,** Synthesis and characterization of two dioxidomolybdenum(VI) complexes bearing amidinato and pyrazolato ligands and their use in thin film growth and oxygen atom transfer reactions, Polyhedron, 2018, 147, 36-41.
7. K. Kumar Sarmah, P. Sarma, D. R. Rao, P. Gupta, **N. K. Nath,** M. Arhangelskis, R. Thakuria, Mechanochemical Synthesis of Olanzapine Salts and Their Hydration Stability Study Using Powder X-ray Diffraction, **Crystal Growth and Design,** 2018, 18, 2138-2150.
8. **N. K. Nath,** M. Hazarika, P. Gupta, N. R. Ray, **A. K. Paul,** E. Nauha, Plastically bendable crystals of probenecid and its cocrystal with 4,4′-Bipyridine, Journal of Molecular Structure, 2018, 1160, 20-25.

5. Conference / Workshop / Seminar Organized:

1. National Symposium on "Recent Trends in Chemical Sciences (RTCS)" held during October 12-13, 2017 (Convener: Dr. P. N. Chatterjee and Co-convener: Dr. G. K. Dutta).

Banner of the conference RTCS 2017 organized by Department of Chemistry, NIT Meghalaya

Patron (Director, NIT Meghalaya) is presenting a flower bouquet to Professor V. Chandrasekhar (Director NISER Bhubaneswar) during inaugural session

Opening of conference abstract book (Left: Patron, Director NIT Meghalaya, Right: Professor Mihir K. Chaudhuri, former VC Tezpur University)

Speech by Patron (Director, NIT Meghalaya) during inaugural session

Speech by Professor Mihir K. Chaudhuri, former VC Tezpur University during inaugural session

Plenary Lecture by Professor Pradyut Ghosh, IACS Kolkata

Professor Manish Bhattacharjee, IIT Kharagpur is delivering the invited lecture

Dr. S. Khatua, NEHU is delivering the invited lecture

Dr. Sandeep Hamilton, Regional Director, AMD Shillong is delivering the invited lecture

Dr. Amit K. Paul, NIT Meghalaya is delivering the invited young scientist lecture

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	Dr. Amit K. Paul	Recent Trends in Chemical Sciences (NIT Meghalaya)	October 12-13, 2017
2	Dr. Amit K Paul	Discussion Meeting on Spectroscopy and Dynamics on Molecules and Clusters (SDMC)-2018	February 15-18, 2018
3	Dr. Amit K Paul	IACS-Conference on Electronic Structure, Spectroscopy and Dynamics	February 22-25, 2018
4	Dr. Atanu Singha Roy	Recent Trends in Chemical Sciences (NIT Meghalaya)	October 12-13, 2017
5	Dr. Mukul Pradhan	Recent Trends in Chemical Sciences (NIT Meghalaya)	October 12-13, 2017

7. Invited Talks Delivered:

1. Dr. A. K. Paul at Recent Trends in Chemical Sciences (NIT Meghalaya), October 12-13, 2017
2. Dr. A. K. Paul at International Conference, SDMC-2018, Sinclairs Retreat, Dooars, February 15-18, 2018.
3. Dr. A. K. Paul at IACS-CESSD-2018, IACS, February 22-25, 2018.

8. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Molecular interactions of the antioxidant polyphenols and their copper complexes with human serum albumin and its glycated analogues	Dr. Atanu Singha Roy	CSIR-EMR	Rs. 6,90,000	2017-2020	Ongoing

9. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. P. N. Chatterjee	Chairman of Student Disciplinary Committee and Anti-Ragging Committee	2017-2018
2	Dr. Atanu Singha Roy	Faculty-in-Charge, Sports Committee, NIT MGH	2017-18
3	Dr. Atanu Singha Roy	Member, Library Committee - Chemistry	01-04-2017-till date
4	Dr. Atanu Singha Roy	Member, NSS Committee	2017-2018
5	Dr. Gitish K. Dutta	Head of the Department , Chemistry	2017-2018
6	Dr. Amit Kumar Paul	Member, NSS Committee	2017-2018
7	Dr. Naba Kamal Nath	Assistant Warden, Lapalang Boys Hostel-2	2017-2018
8	Dr. Amit Kumar Paul	Faculty -In-Charge, Cultural Committee, NIT Meghalaya	2017-2018
9	Dr. Amit Kumar Paul	Convener, Routine Committee	2017-2018
10	Dr. Amit Kumar Paul	Convener, Invitation and Reception Committee, Convocation - 2017, NIT Meghalaya	2017
11	Dr. Atanu Singha Roy	Member, Certificate Sub-Committee: Convocation	2017
12	Dr. Atanu Singha Roy	Faculty Advisor, M.Sc. 2nd Year	2017-18
13	Dr. Naba Kamal Nath	Faculty Advisor, M.Sc. 1st Year	2017-18
14	Dr. Mukul Pradhan	Member, Medal Sub-Committee: Convocation	2017

10. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Atanu Singha Roy	Indian Peptide Society (Life Membership)
2	Dr. Atanu Singha Roy	Fluorescence Society, India (Life Membership)

11. Any Other Notable Information:

11A. Publications of the Ph.D. students (April 2017-March 2018) with their respective supervisor

Sourav Das (Supervisor: Dr. Atanu Singha Roy)

1. **S. Das,** A. Karn, R. Sharma, M.A. Rohman, S. Koley, P. Ghosh, A. Singha Roy*, Characterization of non-covalent binding of 6-hydroxyflavone and 5,7-dihydroxyflavone with bovine hemoglobin: Multi-spectroscopic and molecular docking analyses, **Journal of Photochemistry and Photobiology B: Biology,** 2018, 178, 40-52.
2. **S. Das,** P. Ghosh, S. Koley, A. Singha Roy*, Binding of naringin and naringenin with hen egg white lysozyme: A spectroscopic investigation and molecular docking study, **Spectrochimica Acta A: Molecular and Biomolecular Spectroscopy,** 2018, 192, 211-221.
3. S. Das, M. A. Rohman, **A. Singha Roy***, Exploring the non-covalent binding behaviours of 7-hydroxyflavone and 3-hydroxyflavone with hen egg white lysozyme: Multi-spectroscopic and molecular docking perspectives, **Journal of Photochemistry & Photobiology B: Biology,** 2018, 180, 25-38.

Poonam Gupta (Supervisor: Dr. Naba Kamal Nath)

1. **N. K. Nath***, M. Hazarika, P. Gupta, N. R. Ray, A. K. Paul, E. Nauha, Plastically bendable crystals of probenecid and its cocrystal with 4,4'-Bipyridine, Journal of Molecular Structure, 2018, 1160, 20-25.
2. K. Kumar Sarmah, P. Sarma, D. R. Rao, P. Gupta, **N. K. Nath***, M. Arhangelskis, R. Thakuria, Mechanochemical Synthesis of Olanzapine Salts and Their Hydration Stability Study Using Powder X-ray Diffraction, **Crystal Growth and Design**, 2018, 18, 2138-2150.

11B. Achievements, awards and recognition of the students and staffs (April 2017-March 2018)

1. **Dipankar Paul:** Best Poster award in RTCS 2017 in NIT Meghalaya, October 12-13, 2017.
2. **Sourav Das:** Best Poster Award in National Seminar on Recent Developments in Chemistry, July 12 -13, St. Mary's college, Shillong, 2017.
3. **Siddheswar Rudra:** Best Poster award in RTCS 2017 in NIT Meghalaya, October 12-13, 2017.

Department of Mathematics

1. 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 seminars and summer internship programs for students and research scholars. The department has at present six regular faculty members. The faculties are actively engaged in research, teaching, training and administrative work. The main objective of the department is to attract the students of science and engineering, and to provide them academically coherent programmes, with courses that range from the fundamental to the advanced.

2. Programmes Offered:

2 year M.Sc programme, Ph.D programme

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. Saikat Mukherjee	Assoc. Professor	Ph.D	Functional Analysis	25-07-2013	Two ongoing	
Dr. Tikaram Subedi	Asst. Professor	Ph.D	Abstract Algebra	01-06-2012	Two ongoing	
Dr. Manideepa Saha	Asst. Professor	Ph.D	Linear Algebra	22-07-2013		
Dr. Bapan Ghosh	Asst. Professor	Ph.D	Mathematical Biology	28-01-2015	One ongoing	
Dr. Bidyasagar Kumbhakar	Asst. Professor	Ph.D	Fluid Dynamics	20-07-2015	One ongoing	
Dr. Srinivas Jangili	Asst. Professor	Ph.D	Fluid Dynamics	27-07-2015		
Dr. Nabakumar Jana	Asst. Professor	Ph.D	Statistics	27-08-2015		Left the institute on October 24, 2017

4. List of Publications:

a. Journals:

- **Saikat Mukherjee**, Youngsaeng Lee, Jong-Min Kim, Jun Jang, and Jeong-Soo Park, "Construction of bivariate asymmetric copulas"Communications for Statistical Applications and Methods, Vol.-25, Issue No.-2, Page Nos - 217-234, 2018. ***https://doi.org/10.29220/CSAM.2018.25.2.217***
- G.S. Seth, R. Sharma, **B. Kumbhakar** and R. Tripathi, MHD Stagnation Point Flow over Exponentially Stretching Sheet with Exponentially Moving Free-Stream, Viscous Dissipation, Thermal Radiation and Non-Uniform Heat Source/Sink, Diffusion Foundations, Vol. 11, pp 182-190, 2017
- S.O. Adesanya, H.A. Ogunseye and **Srinivas Jangili**, "Unsteady squeezing flow of a radiative Eyring-Powell fluid channel flow with chemical reactions", International Journal of Thermal Sciences (Elsevier), Vol.-125, pp. 440-447, 2018. ***https://www.sciencedirect.com/science/article/pii/S1290072917315016***

- **Srinivas Jangili**, S. O. Adesanya, J. A. Falade and 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 (Springer), Vol.-3, Issue No.-2, Page Nos -1-24, 2017. ***https://link.springer.com/article/10.1007/s40819-017-0322-8***
- **Srinivas Jangili** and O.A. Beg, "Homotopy study of entropy generation in magnetized micropolar flow in a vertical parallel plate channel with buoyancy effect", Heat Transfer Research (Begell House), Vol.-49, Issue No.-6, PageNos-529-553, 2018. ***http://www.dl.begellhouse.com/journals/46784ef93dddff27,359b3b593a78373c,287c5e1908580a3b.html***
- Q. Hong, **N. Jana**, S. Kumar & K. Chatterjee, Stress-strength models with more than two states under exponential distribution. Communication in Statistics-Theory and Methods. Vol. 46, No. 1, pp.120-132, 2017

5. Conference / Workshop / Seminar Organized:

- Organized Departmental Seminar, detail of keynote speakers is as follows:
  - (i) Dr. Nicolas Bajeux (INRIA Sophia Antipolis, France) talked on Augmentative biocontrol and Allee effects among natural enemies on 17th August, 2017.
  - (ii) Dr.Arindam Mukhopadhyay (IIM Shillong) talked on "Decision Analysis and its Applications" on 9th February, 2018.
  - (iii) Prof. B. N. Datta (IEEE Fellow, Distinguished Research Professor, Northern Illinois University, USA), Computational and optimization methods for quadratic inverse eigenvalue problems arising in mechanical vibration and structural dynamics : linking mathematics to industry", February 22-23, 2018
- Department has organised a workshop on NIT awareness programmes for the children of SOS Village Barapani, on December 09, 2017.

Photographs of Workshop on NIT Awareness Programme on Dec 9, 2017

Photo 1

Photo 2

Photo 3

Photo 4

Photographs of Seminar by Prof. B. N. Datta, Northern Illinois University, USA, on February 22-23, 2018

Photo 1

Photo 2

Photograph of Seminar by Dr. Arindam Mukhopadhyay, IIM Shillong, February 9, 2018

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	M. Saha	International Conference on Matrix Analysis and its Application, Bedlewo, Pozana, Poland	September 25-29, 2017
2	B. Ghosh	Recent Advances in Modelling and Computational Techniques in Applied Mathematics at IIEST, Shibpur	November 20-24, 2017
3	B. Ghosh	International Conference on Current Trends in Theoretical and Computational Differential Equations with Applications at South Asian University, Delhi	December 1-5, 2017
4	B. Ghosh	Int. Conference on Mathematics and its Applications (ICMA– 2018) at The University of Burdwan, West Bengal	February 15-17, 2018

7. Invited Talks Delivered:

Dr. Nabakumar Jana, has delivered a research seminar entitled "Classification into Two-Parameter Exponential Populations with a Common Guarantee Time" at Indian Statistical Institute on 8th June 2017

8. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	K-Fusion Frames-Applications to Sensor Network and Coding Theory	Dr. Saikat Mukherjee	DST-SERB	6,00,000	3 Years	Ongoing
2	Iterative methods for solving non-square linear systems	Dr. Manideepa Saha	DST-SERB	17,05,200	3 Years	Sanctioned
3	Modeling, Dynamics and Benefits of Marine Protected Areas	Dr. Bapan Ghosh	DST-SERB	14,69,600	3 Years	Ongoing

9. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1	Dr. Saikat Mukherjee	Associate Dean, Student Welfare	Full Year
2	Dr. Tikaram Subedi	Head, Department of Mathematics Warden, PG Men's Hostel Umpling	4 months 2 months
3	Dr.Manideepa Saha	Head of the Department, Professor-In-Charge of Centre of International Relations	1 year
4	Dr. Bapan Ghosh	Warden, Kench's Trace Boys' Hostel	3 months
5	Dr. Bidyasagar Kumbhakar	Warden, Kench's Trace Boys' Hostel	1 year
6	Dr. SrinivaJangili		

10. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Dr. Saikat Mukherjee	Society for Industrial and Applied Mathematics (SIAM), American Mathematical Society (AMS), Indian Mathematical Society (IMS).
2	Dr. ManideepaSaha	Society for Industrial and Applied Mathematics (SIAM), American Mathematical Society (AMS), Indian Mathematical Society (IMS).
3	Dr. BapanGhosh	Calcutta Mathematical Society (CMS), Indian Statistical Institute (ISI)-Kolkata
4	Dr. Srinivas Jangili	Indian Mathematical Society (IMS)

11. Any Other Notable Information:

Departmental has started bimonthly seminar series for departmental scholars and faculty members. Three eminent speakers from outside the institute also delivered talk in the seminar series.

Dr. NicloasBajeux from INRIA Sophia Antipolis, France, visited the Department to conduct collaborative research work for two weeks in August, 2017.

Dr. N. Jana was offered as Visiting Scientist Position for carrying out research at Interdisciplinary Statistical Research Unit (ISRU), Indian Statistical Institute Kolkata for the period June-July, 2017.

Department of Humanities and Social Sciences

1. Brief Introduction to the Department:

The Department of Humanities and Social Sciences currently has 2 Faculty members assisted by 2 Guest Lecturers. There are currently 3 PhD research scholars in the department. The main aim of the department is the holistic and all round development of the technical graduates into socially responsible individuals by providing allied knowledge essential to engineering students. The department is equipped with a modern Computer Assisted Language Learning Laboratory.

2. Programmes Offered:

PhD in English

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Dr. P. S. Mangang	Assistant Professor	Ph.D.	Literature	1.6.2012	03 (undergoing)	-
Mr. A. D. Sarma	Assistant Professor	MBA (Pursuing Ph.D.)	Management	22.1.2013	-	-
Dr. N. C. Bharali	Guest Lecturer	PhD	Accounting	-	-	Per semester basis
Dr. K. S. Rajput	Guest Lecturer	PhD	Economics	-	-	Per semester basis

4. List of Publications:

a. Journals/Conference Proceedings:

1. B. Samita Devi, P. S. Mangang, 'Gender and Power Struggle in the Domestic Sphere: A Contemporary Crisis', Contemporary Discourse: A Peer Reviewed International Journal, Vol.-9, Issue No.-1, 2018.
2. B. Samita Devi, P. S. Mangang, 'August Strindberg on the 'Woman Question' and 'Male Malady'', International Journal of Research in Social Sciences and Humanities, Vol.-8, Issue No. 1, 2018.
3. R. Lyngwa, P. S. Mangang, 'The Representation of Oppression in Vijay Tendulkar's Sakharam Binder', Contemporary Discourse: A Peer Reviewed International Journal, Vol.-9, Issue No.-1, 2018.

NB. B. Samita Devi and R. Lyngwa are PhD Research Scholars of HS Department.

b. Conferences:

1. R. Lyngwa & P. S. Mangang. 'Vijay Tendulkar's In-yer-face Treatment of Oppression and Violence: Themes and Techniques in Gidhade.' A Two Day International Conference on Multiculturalism on 24th & 25th Jan 2018 at Manipur University.
2. A. Ashangbam & P. S. Mangang. 'Masculinity and the Disabled Men.' A Two Day International Conference on Multiculturalism on 24th & 25th Jan 2018 at Manipur University.

3. P. S. Mangang. 'How Ibsen Created Tension in his Plays?' A Two Day International Conference on Multiculturalism on 24th & 25th Jan 2018 at Manipur University.

4. S. K. Jaiswal, A. D. Sarma and 3 others. 'EvoCut: A New Generalization of Albert-Barabasi Model for Evolution of Complex Networks.' 22nd Conference of Finnish-Russian University Cooperation in Telecommunications (FRUCT), 15th to 18th May 2018 at Jyvaskyla, Finland.

5 Conference / Workshop / Seminar Organized:

a. A Two Day International Conference on Interdisciplinarity: Contemporary Research in Humanities, Social Sciences and Management Studies, 21st & 22nd July, 2017.

b. NIT Meghalaya Employability Enhancement Workshop 2017 (NITMEEW 2017), 10th to 15th October 2018.

c. Self-Sponsored International Symposium on Recent Research Trends in Gender Studies, 17th & 18th March, 2018.

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

Sl. No.	Name of Faculty	Name of the programme attended	Duration
1	P. S. Mangang	A Two Day International Conference on Multiculturalism	24th & 25th January 2018

7. Invited Talks Delivered:

1. P. S. Mangang. 'Writing and Publishing a Research Paper.' (Plenary Lecture) A Two Day International Conference on Multiculturalism on 24th & 25th Jan 2018 at Manipur University.

8. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1.	P. S. Mangang	Head, Department of Humanities and Social Sciences	Whole year
	P. S. Mangang	Liaison Officer for OBC	Jan 2018 till date
2.	A. D. Sarma	Convenor, Placement Committee	Till September 2017
	A. D. Sarma	Faculty-in-charge, Centre for Career Development (CCD)	September 2017 till February 2018
	A. D. Sarma	Head of the Centre, Centre for Career Development (CCD)	February 2018 till date

9. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	P. S. Mangang	Life member of English Literary Circle, Manipur
2	A. D. Sarma	Life Member of Indian Institute of Banking and Finance (IIBF), Mumbai
	A. D. Sarma	Life Member of NEI Council for Social Science Research

Computer Centre

The Computer Centre in NIT Meghalaya is equipped with most advanced and modern infrastructure to facilitate a distributed computing and an efficient networking to the inmates of the institute. It has numerous blade servers and also CDAC's PARAM SHAVAK as infrastructure. The Computer Center provides laboratory class facilities to graduate and master's students as a part of their academic curriculum across all departments of the Institute. A wide range of specialized softwares with licenses are maintained to cater to students' curricular and research needs. Other day-to-day software needs are provided through the medium of institute intranet. Frequently different training programs are organized in this centre on specialized software by specialized trainers for students, researchers and staffs. The computer centre hosts some of the needed dedicated servers such as ERP, DHCP, Mail, Intranet web server, Library server, Authentication server, FTP server, NPTEL server, Antivirus server, etc. which provide dedicated resources for various needs.

NIT Meghalaya Server and Firewall Details:

Sl. No	Machine Type	Make & Model	Quantity	OS	Arch	Processor	Cores	Memory (GB)	HDD
1	IBM Servers Tower Model With SAS HDD	IBM x3500 M4	4	Windows Server 2012 and RHEL 6	x64	Intel Xeon	12	32	1.2TB
2	IBM Servers Rack Model With SAS HDD	IBM x3500 M4	2	Windows Server 2012 and RHEL 6	x64	Intel Xeon	12, 4	16	1TB
3	HP server Rack Model	HP Proliant DL380 G7	2	RHEL 6	x64	Intel Xeon	24, 12	32, 24	6TB, 2TB
4	PARAM SHAVAK SUPER COMPUTER	DELL Precision Tower 7910	1	Centos6.7	x64	Intel Xeon	24	64	6TB
5	Cyberoam	CR500iNG-XP							

Recently the computer center, more commonly abbreviated as the CC has been upgraded with a 50 seater lab equipped with Apple desktops.

Events in CC:

As equipped with the latest softwares and PCs with good configuration. A few departmental workshops, seminars and webinars are conducted in Computer Centre at spare times. In the last year, the following workshops were held in the CC, both hosted by the Computer Science & Engineering Department.

- THIRD WORKSHOP on Computing: Theory and Applications

  Organized by: Computer and Communication Sciences Division (CCSD) Indian Statistical Institute (ISI), Kolkata 700108 and NIT Meghalaya

Date: February 19 – 24, 2018

Venue: NIT Meghalaya, Computer Centre






- Recent Trends in Internet of Things: Design, Architecture and Security sponsored by TEQIP III.

  Organized by: Dept. Of Computer Science Engineering, NIT Meghalaya

Date: April 27 – 28, 2018

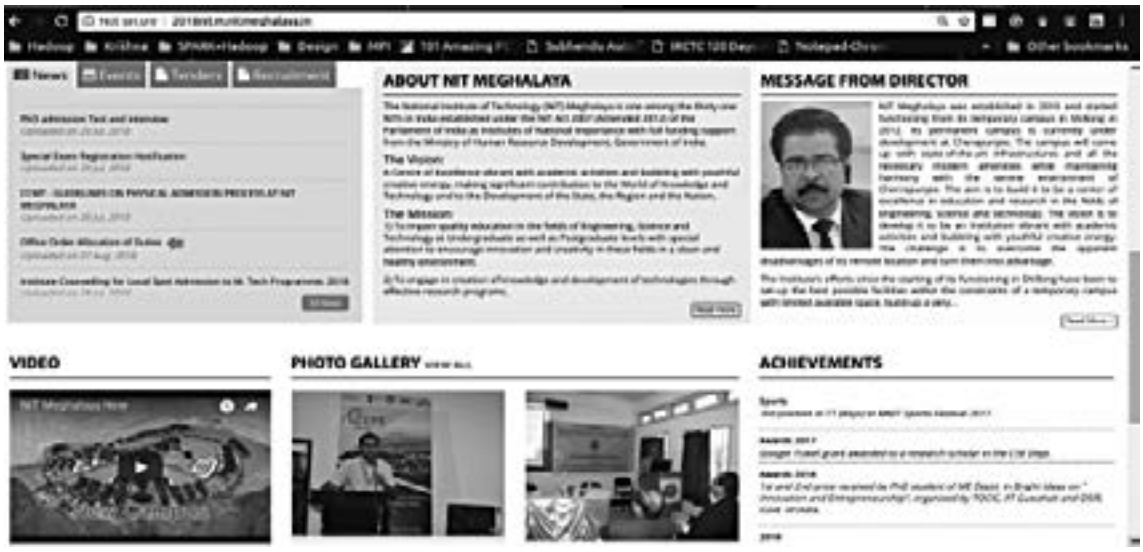
Venue: NIT Meghalaya, Computer Centre

Responsibilities of CC:

- **Website Management**

  The Computer Center has been engaged in developing, maintaining and hosting the institute website since 2012. The website has become a prioritised mode of communication and information sharing between the institute and the outside world which has proven it to be a valuable tool. Recruitments, tenders, admission and important notifications are all posted in the website along with institute news and events. It provides a great helping hand to the students to access up-to-date courses, academic information, course materails, lecture videos etc. It podcasts the achievements and progress of faculties and students in research, academic and extra-curricular fields also.

  This year the website has been redesigned to the standards following the Guidelines for Indian Government Websites (GIGW) devised by the National Informatics Center. After which the website will be applying for the Standardisation Testing and Quality Certification (STQC) which are mandates for government websites. This new version of the website endorses easy access to every information catered by the institute in a single click with lots of add-ons like Hindi version of the website, self enabled faculty profile update portals, certificate management system and with different indexed data to provide good matrices of information.



- **Issues with H/W and S/W:**

  Any new procurement of computers or it's peripherals or any internet and network security related devices are processed through the Computer Centre. The staffs of Computer Centre manage the needs and issues related to any hardware problems, software installation and related issues, internet connectivity and networking issues in Lab-PCs and PCs of faculties and staffs. Computer Centre staffs help in establishing the technical environment for every conferences, workshops, webinars, video conferencing etc.

  All the hostels are well connected with the internet backbones provided to the institute to provide seamless internet to the hostels. So any new networking establishments or problems related to the networking are also handled by the Computer Centre staffs.

- **ERP:**

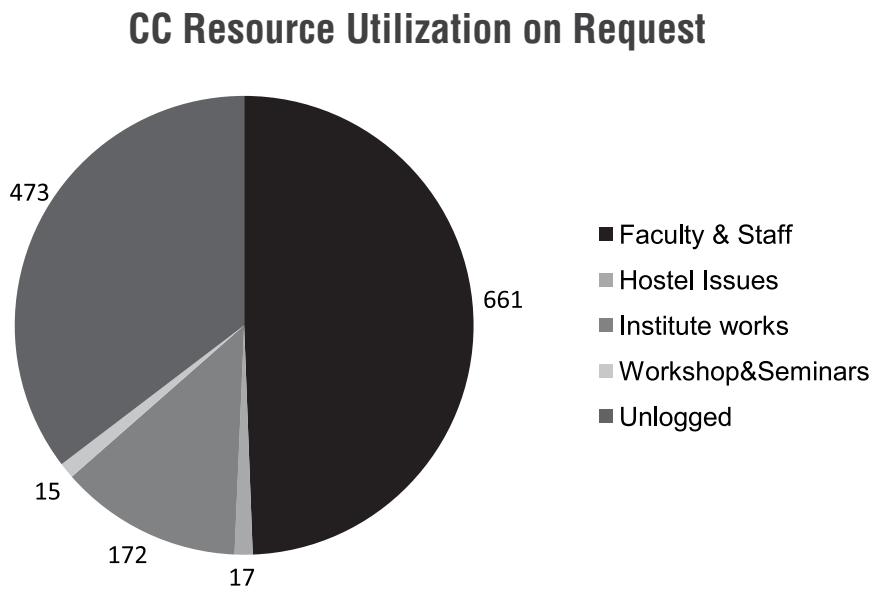
  The ERP software application for the institute is hosted in the local server to manage all the administrative process smoothly. Any modification or updation of any modules or any issues with the ERP application is gracefully handled by a dedicated Computer Centre staff.

CC Resource Person Utilization:

Computer Centre has designed and has been maintaining a complaint portal through which any staff and faculty can raise service request related to any hardware or software or any internet connectivity problem. Once the problem is lodged it is assigned to the staffs via an admin panel. This helps in keep tracking the status of the problems and the reports regarding the problems.

Staff Profile:

NAME	Designation	Joining Date
Bandonlang Wahlang	TA(CS)	01/08/2012
Medarisha Hynniewta Thangkhiew	TA(CS)	17/08/2012
Subhendu Sekhar Paik	TA(CC)	05/06/2018
Arkinsan Wankhar	Technician, CS	07/10/2013
Khrawkupar Hadia	Technician, CC	15/07/2015
Ribakor Ksanieng	Technician, CC	10/08/2016



Centre for Technology Enabled Learning

The fantastic growth of information and communication technology (ICT) over the last few decades has changed almost every aspect of our daily life. With the technology having become affordable and spreading to every geographic corner of our nation, it is imperative that we exploit the same in the most befitting fashion. In order to maximize the impact on our society, it is necessary to focus our attention to spreading quality education, both engineering and otherwise, to reach the masses. As part of a national initiative from the Ministry of Human Resource Development, the present endeavor has been mainly towards providing the required infrastructure and connectivity to the institutions of higher education like IITs and NITs. The objective is to create and manage a rich pool of digital online resources and utilize them to provide quality certification programmes and courses, which can be used by the universities, individuals, as well as government and non-government organizations.

The Centre for Technology-Enabled Learning (CTEL) was set up at NIT Meghalaya in June 2017, with the primary vision to become the gateway for the north-eastern parts of the country to achieve the goals of the national mission. The centre is based around a state-of-the-art video recording studio, with facilities for both content creation and content distribution. Using the infrastructure available in this studio, faculty members of NIT Meghalaya and also the neighboring Institutes can participate in developing course contents and directly assist in national initiatives like NPTEL and SWAYAM. The contents as developed can also be used by the local students as offline resources for learning as per their own time schedule and convenience.

Since the creation of the centre, the following activities have been taken up that includes the setting up of a state-of-the-art recording studio.

1. **A recording studio has been set up with the following facilities:**

   a) Smart board as teaching aid with online recording facility.

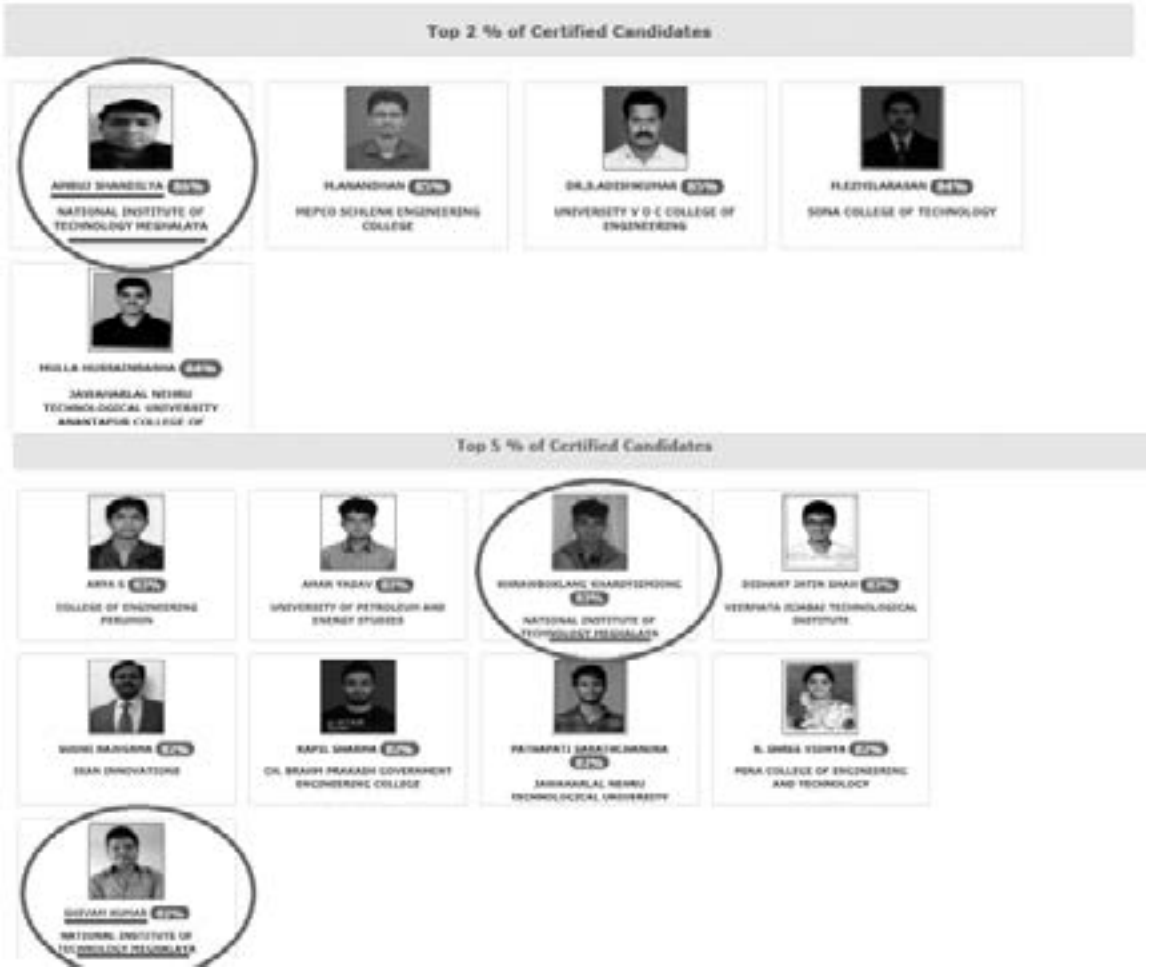
   b) Video recording facility with cameras, audio microphones, large-screen displays with online recording.

Figure 1 - Thirty-seater video recording room

2. As per action plan 17-by-17, notice number F.No.8-6/2017-TEL, by MHRD, Department of Higher Education, TE Division, dated 31/08/2017, the action plan and rule of implementation has been laid down by Professor-in-Charge (CTEL), NIT Meghalaya, with the approval of the Director. It was also decided that the engineering departments shall be offering online courses under NPTEL to their third and fourth year students (maximum one per batch).

This was implemented during the semester from January-May 2018, where every engineering department selected one course (3rd year level onwards) from the available pool of online courses under NPTEL, and asked all the students to enroll for the courses. The faculty members of NIT Meghalaya conducted the mid-semester and laboratory seesions for the courses (where applicable), and credit transfer was carried out as per academic rules of the Institute.

3. From the department of Civil Engineering, NIT Meghalaya, one student Ambuj Shandilya topped the NPTEL examination (within top 2%) on "Sustainable Engineering Concepts and Life Cycle Analysis", securing 86% marks. Two more students from Civil Engineering Department, Khrawboklang Kharsyiemiong and Shivam Kumar, also became toppers (within top 5%) securing 83% and 82% marks respectively.



4. The studio is regularly being used to conduct short-term courses, seminars and lectures organized by the Institute.

5. It has been planned to start using the studio from the current semester (July-December 2018) to create in-house course contents, through active participation of the faculty members of NIT Meghalaya. It is planned to develop at least one course module from each Department of the Institute. The archive thus created can be reused in the future, both by students and faculty members of NIT Meghalaya, and also of other neighboring Institutes.

Center for Robotics and Mechatronics

1. Brief Introduction to the Center:

The center started in the year of 2017, with the faculty member from various departments like, Mechanical Engineering, Electrical Engineering, Electronics and Communigation Engineering and Computer Science Engineering.

2. Program Offered:

The Center did not start any degree program yet. In future the center will start M.Tech. and Ph.D. program.

3. Faculty Profile:

Name	Designation	Qualification	Specialization	Date of Joining	Ph.D. guidance	Remarks
Prof. Bibhuti Bhusan Biswal	Professor & Director	PhD	Manufacturing	17/05/2018		
Dr. Rabindra Narayan Mahapatra	Associate Professor	PhD	Design and manufacturing	28/12/2017		
Dr. Bunil Kumar Balabantaray	Assiatant Professor	PhD	Robotics	28/12/2017		
Dr. Pradeep Kumar Rathore	Assiatant Professor	PhD	Micro-Electro-Mechanical Systems (MEMS), Microelectronics, Device Fabrication Technology	11/08/2014		
Dr. Bikash Kumar Sarkar	Assistant Professor and HoC	PhD	Fluid Power and Control	21/08/2013	3	One Project Scholar, One shared with Dr. S. maity
Avilash Sahoo	Trainee Teacher	M.Tech	Machine Design	21/07/ 2014		

4. List of Publications:

a. Journals:

1. B. K. Sarkar, Modeling and Validation of a 2-DOF Parallel Manipulator for Pose Control Application Reference, Robotics and Computer Integrated Manufacturing, Vol.-50, Page Nos-234-241,2018. ***http://www.sciencedirect.com/science/article/pii/S0736584516302903.***
2. Pradip K. Sahu, B. M. Gunji, G. B. Mahanta and **B. B. Biswal.** "A Heuristic Comparison of Optimization Algorithms for the Trajectory Planning of a 4-axis SCARA Robot Manipulator", Special Issue on **Computational Intelligence for Data Analytics** 2018, Springer International Journal of Data Science and Analytics.
3. Amruta Rout, B. B. Deepak, **B. B. Biswal,** G. B. Mahanta, and B. M. Gunji, "An Optimal Image Processing Method for Simultaneous Detection of Weld Seam Position and Weld Gap in Robotic Arc Welding." I**nternational Journal of Manufacturing, Materials, and Mechanical Engineering (IJMMME)** 8, no. 1 (2018): 37-53.

4. B. M. Gunji, B.B. Deepak, MR. Bahubalendruni and **B.B. Biswal,** "An Optimal Robotic Assembly Sequence Planning by Assembly Subsets Detection Method Using Teaching Learning Based Optimization Algorithm". **IEEE Transactions on Automation Science and Engineering.**

5. **Rahul**, Saurav Datta, Manoj Masanta, **Bibhuti Bhusan Biswal**, Siba Sankar Mahapatra, Analysis on Surface Characteristics of Electro-Discharge Machined Inconel 718, **Int. J. Materials and Product Technology, Vol. 56, Nos. 1/2, pp.135-168 2018**

6. B. Panda, M. Leite, **B. B. Biswal,** X. Niu, and A. Garg, (2018), "Experimental and numerical modelling of mechanical properties of 3D printed honeycomb structures. **Measurement**, 116, 495-506.**SCI Index**

7. B. B. Deepak, B.M.Gunji, MR. Bahubalendruni and **B. B. Biswal,** (2018), "Assembly sequence planning using soft computing methods: A review", P**roceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering** : 0954408918764459.

8. B. M. Gunji, B. B. Deepak and **B.B. Biswal,** (2017), A Novel Design for Assembly Approach for Modified Topology of Industrial Products. **International Journal of Performability Engineering**. 2017 Nov;13(7):1013.

9. **Rahul**, Saurav Datta, **Bibhuti Bhusan Biswal,** Siba Sankar Mahapatra, Electrical discharge machining of Inconel 825 using cryogenically treated copper electrode: Emphasis on surface integrity and metallurgical characteristics, J**ournal of Manufacturing Processes, Vol. 26, pp. 188-202, 04, 2017**

10. Rahul, Saurav Datta, Manoj Masanta, **Bibhuti Bhusan Biswal,** Siba Sankar Mahapatra, A Novel Satisfaction Function and Distance-Based Approach for Machining Performance Optimization during Electro-Discharge Machining on Super Alloy Inconel 718, **Arabian Journal for Science and Engineering, Vol.42. No 5, pp.1999-2020, 02, 2017**

11. **Rahul**, Kumar Abhishek, SauravDatta, **Bibhuti Bhusan Biswal**, SibaSankarMahapatra, Machining Performance Optimization during EDM of Inconel 718: A Case Experimental Investigation, **International Journal of Productivity and Quality Management**, Vol. 21, No. 4, pp. 460-489, 06, 2017

12. B. M. Gunji, B. B. Deepak, M R. Bahubalendruni and B**. B. Biswal,** (2017). Hybridized genetic-immune based strategy to obtain optimal feasible assembly sequences. **International Journal of Industrial Engineering Computations**. 2017; 8(3):333-46.

13. B. N. Panda, MR. Bahubalendruni, **B. B. Biswal** and M. Leite, (2017), "A CAD-based approach for measuring volumetric error in layered manufacturing." Proceedings of the Institution of Mechanical Engineers, **Part C: Journal of Mechanical Engineering Science** 231.13 (2017): 2398-2406.

14. MR. Bahubalendruni and **B. B. Biswal**, (2017), A novel concatenation method for generating optimal robotic assembly sequences. Proceedings of the Institution of Mechanical Engineers, **Part C: Journal of Mechanical Engineering Science** 231, no. 10 (2017): 1966-1977.

c. Conferences:

1. G. B. Mahanta, B. B. V. L. Deepak, **B. B. Biswal,** Amruta Rout, and B. M. Gunji, "Design Optimization of Robotic Gripper Links Using Accelerated Particle Swarm Optimization Technique." In Proceedings of the S**econd International Conference on Computational Intelligence and Informatics,**2018, pp. 337-345. Springer, Singapore

2. G. B. Mahanta, Amruta Rout, B. M. Gunji, B. B. V. L. Deepak, and **B. B. Biswal,** "Application of Hybrid Nelder-Mead Bat Algorithm to Improve the Grasp Quality during the Automated Robotic Grasping." P**rocedia Computer Science** 133, 2018, 612-619.

3. B. M. Gunji, B.B.Deepak, **B.B. Biswal**, G.B.Mahanta, and Amruta Rout, , Robotic Optimal Assembly Sequence Using Improved Cuckoo Search Algorithm. **Procedia Computer Science**, 2018, 133, pp.323-330.

4. Amruta Rout, M. Dileep, G.B. Mahanta, B. B. V. L. Deepak, and **B. B. Biswal**. "Optimal time-jerk trajectory planning of 6 axis welding robot using TLBO method." **Procedia Computer Science**133 ,2018, 537-544.

5. G. B. Mahanta, B. B. V. L. Deepak, and **B. B.Biswal**, "Geometric modelling and design optimization of a robotic gripper using meta-heuristic optimization techniques", **International Conference on Robotics and Artificial Intelligence**" May 21-22, 2018 Los Angeles USA

6. B. M. Gunji, P. K .Sahu, B. B. V. L. Deepak, and **B. B. Biswal.**"Modified BAT Algorithm for Optimum Assembly Sequence Planning." In IOP Conference Series: **Materials Science and Engineering**, , 2018, vol. 377, no. 1, p. 012091. IOP Publishing.

7. B. M. Gunji, B.B. Deepak, MR. Bahubalendruni and **B.B. Biswal**, (2017), Optimal Assembly Sequence Planning Using Hybridized Immune-Simulated Annealing Technique. Materials Today: Proceedings. 2017 Jan 1;4(8):8313-22.
8. J. Vinod, P. Venkaiah, B.K. Sarkar, FRANCIS TURBINE IGV CONTROL UNDER FORCE ESTIMATION, INCOM18, Period -4 t0 6 January 2018, Place -Jadavpur University, Kolkata, Page -769-772, 2018.
9. P. Venkaiah, K. Das, B.K. Sarkar, POWER CONTROL OF THE SMALL SCALE VARIABLE SPEED VARIABLE PITCH WIND TURBINE, INCOM18, Period -4 t0 6 January 2018, Place -Jadavpur University, Kolkata, Page -795-798, 2018.
10. P. Venkaiah B. K. Sarkar, Position Control of the Hydraulically Actuated Francis Turbine Inlet Guide Vane, ASME 2017 Power Conference Joint With ICOPE-17 collocated with the ASME 2017 11th International Conference on Energy Sustainability, the ASME 2017 15th International Conference on Fuel Cell Science, Engineering and Technology, and the ASME 2017 Nuclear Forum, Period -June 26–30, 2017, Place -Charlotte, North Carolina, USA, Page -V002T09A004; 9 pages, 2017. ***http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=2653650***
11. Paladugu Venkaiah, Krushnamohan Das, Emanuel Khrawbor Mawsor and Bikash Kumar Sarkar, WIND TURBINE PITCHING SYSTEM DESIGN AND CONTROL IN THE CONTEXT OF NORTH-EAST INDIA, Proceedings of the 6th International Conference in Advances in Energy Research (ICAER), Dec 12- 14, 2017, IIT Bombay, India.

5. Conference / Workshop / Seminar Organized:

Workshop:

Sl No.	Title	Sponsors	National/ International	Duration	Faculty responsibility
1	Recent Advances in Mechatronics and Robotics	TEQIP	National	22nd to 24th March 2018	Dr. Bikash Kumar Sarkar Dr. D.K. Sarma
2	Engineering Design and Its Application	ELMAX, (Partial)	National	07th March, 2018	Dr. Bikash Kumar Sarkar

Lecture Organized:

Sl No.	Title of Lecture	Resource Person	Date
1.	Industrial IOT and Mechatronics	Mr. Manoj Kr. Das, CEO, EMBESYS TECHNOLOGIES	27th March 2017
2.	Demonstration and Discussion about Robot	Mr. Aditya Marathe, NUZENIX	9th March 2017

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

Sl. No.	Name of Faculty	Name of the program attended	Duration
1	Dr. Bikash Kumar Sarkar	One Day Workshop on Curriculum Development for B.Tech Programme	19 th Mar, 2018
2	Dr. Bikash Kumar Sarkar	OUTCOME BASED ACCREDITATION FOR ENGINEERING PROGRAMS	26th to 27th March 2018

7. Projects:

a. Sponsored Project:

Sl. No.	Title of the Project	Investigators (P.I. / Co-P.I.)	Funding Agency	Funding amount	Duration	Status
1	Modeling and Control of the hydraulically actuated Ring Inlet Guide Vane of Francis Turbine by Adaptive Neural Network Sliding mode Controller Design	Dr. B. K. Sarkar	DST-SERB	30, 42,600	3 year	ongoing

8. Laboratories Setup:

Lab Setup started, it is under process

9. Administrative Responsibilities Held:

Sl. No.	Name of Faculty	Responsibilities	Duration
1.	Dr. B.K.Sarkar	Lab-In-Charge, Theory of Machines Lab & HoD, ME	

10. Membership of Professional Bodies:

Sl. No.	Name of Faculty	Member of
1	Prof. Bibhuti Bhusan Biswal	1. Fellow, IE (I) 2. Member, ASME 3. Sr. Member, IEEE 4. Life Member, ISTE 5. Life Member, Association for Machines and Mechanisms(AMM) 6. Member, ISTAM 7. Member, International Association of Computer Science and Information Technology (IACSIT) 8. Member, International Association of Engineers (IAENG)
2	Dr. Bikash Kumar 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

ANNUAL ACCOUNTS
2017-18

सत्यमेव जयते

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/4-8/Accts/NIT/2018-19/290**

दिनांक
Date **05 December 2018**

To,

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

Sub: Separate Audit Report on the accounts of the National Institute of Technology, Meghalaya for the year ended 31 March 2018.

Sir,

I am to forward herewith the Separate Audit Report on the accounts of the **National Institute of Technology (NIT), Meghalaya** for the year **2017-18** and a set of audited **Annual Accounts of NIT** for the year **2017-18**.

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/4-8/Accts/NIT/2018-19/291 **Date: 05 December 2018**

Copy of the Separate Audit Report on the accounts of the **National Institute of Technology (NIT), Meghalaya** for the year **2017-18** is forwarded to:

Director,
National Institute of Technology (NIT),
Bijini Complex, Laitumkhrah,
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.

5/12/2018

Sr. Deputy 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 2018

We have audited the attached Balance Sheet of the National Institute of Technology (NIT), Meghalaya as at 31 March 2018, 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

A1. Capital Work-in-Progress ₹ 196.50 crore

i. This does not include ₹4,59,73,240/- being the value of work done (Construction of Water Storage Reservoir₹83,81,041,Architect Fee for Plan and Design of NIT Campus ₹32,17,597 & Construction and Development of NIT Campus ₹3,43,74,602) upto March 2018. This resulted in understatement of Capital Works-In- Progress and Current Liabilities by ₹ 4.60 crore. As the Consultant (RITES) adjusted ₹3,23,80,299/- (the interest earned by the consultant after depositing the Funds transferred by the Institute to them), the net understatement of Current Liabilities was ₹1,35,93,069/- (₹ 4,59,73,368 - ₹ 3,23,80,299). Further, the Other Income also stands understated by ₹3.24 core with corresponding overstatement of Deficit for the year to the same extent.

ii. This include ₹3.56 crore being the payment made to Public Works Department, Government of Meghalaya for widening of existing PWD Road. This road being a public road and not belonging to the Institute, the expenditure incurred is in the nature of revenue expenditure. This should have been charged to Income and Expenditure Account and not under Capital Work in Progress. This resulted in overstatement of Capital work in Progress, understatement of Deficit and consequent overstatement of Corpus /Capital fund by ₹3.56 crore.

B. INCOME & EXPENDITURE ACCOUNT

B1. Administrative and General Expenses (Schedule 17) ₹576.52 lakh

i. This does not include ₹1,52,71,723/- being Mess fee collected (excluding refunds) by the Institute and paid to the caterer. Running of hostel being part of the main activity of the Institute should have been accounted in the books of Accounts. This resulted in understatement of Administrative and General Expenses and Other Income (Schedule 13) by ₹ 1,52,71,723/-.

Electricity & Power: ₹ 61.20 lakh

ii. This includes ₹23.73 lakh being electricity charges paid by the Institute on behalf of RITES Ltd (Consultant). The Institute has booked the above amount of ₹23.73 lakh under Electricity and Power instead of booking under Sundry Receivables. This resulted in overstatement of Electricity and Power and corresponding understatement of Sundry Receivables by ₹23.73 lakh. Consequently Deficit for the year was overstated to that extent.

C. General

C1: Schedules Forming Part of the Accounts

The Institute incurred ₹ 1.77 crore towards hostel running expenses viz..Rent and Other Charges (₹ 0.25 crore) and Mess expenses (₹ 1.52 crore). The details of hostel running expenses should have been disclosed separately in the notes as required under serial number 6 of Notes and Instructions for Compilation of Financial Statements of Central Higher Educational Institutions relating to Income and Expenditure Account.

C2. The actuarial valuation in respect of the provision for Gratuity and Accumulated Leave Encashment was not done by the Institute as required under AS 15 issued by ICAI .

C3 The details of closing balances in savings bank accounts, current accounts and fixed deposit accounts should have been separately disclosed by way of attachment to the Schedule of Current Assets as required under MHRD format.

C4 Confirmation of the bank balance (Current Account No.31098433485–non-operating) amounting ₹42,94,794.57 maintained with SBI, Surat was not obtained from the bank. The bank account (No. 34973520929) was also inoperative during the year.

C5 The Institute received one Legal Notice from M/s Saw Symper Guest House on August 2017 for non-payment of hostel rent amounting to ₹5,60,000/-.This should have been disclosed separately in the notes under Contingent Liabilities.

D. Grants-in-Aid

D1: Opening balance of Grants-in–Aid was ₹23.35 crore. During the year 2017-18, an amount of ₹ 70.00 crore was received. The Internal Revenue Generation (IRG) was ₹ 2.09 crore. Out of available balance, an amount of ₹60.32 crore was utilised for Capital expenditure and ₹ 29.16 crore was utilised for Revenue expenditure, leaving an unspent balance of ₹ 5.96 crore as on 31 March 2018.

E. Management Letter

Deficiencies which have not been included in the Audit Report have been brought to the notice of the Institute through a management letter issued separately for remedial/corrective action.

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 2018; 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

Place: Shillong
Date: 05 December 2018

(Stephen Hongray)
Principal Accountant General (Audit)

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 nor conducted internal audit through external agency during the year.
- 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,
- Confirmation of balances in banks in respect of two bank accounts was not obtained by the Institute from the financial institutions.
- Two Bank Account was in-operative during the year.
- 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.

3. **System of Physical Verification of Fixed Assets.**

- Physical Verification of Fixed Assets was not conducted during the year 2017-18. 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 year2017-18. 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 2018

(Amount in ₹)

SOURCES OF FUNDS	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND	1	2,204,066,932	1,689,507,122
DESIGNATED/ EARMARKED / ENDOWMENT FUNDS	2	89,901,162	67,246,100
CURRENT LIABILITIES & PROVISIONS	3	173,497,583	339,751,134
TOTAL		**2,467,465,676**	**2,096,504,357**
APPLICATION OF FUNDS			
FIXED ASSETS	4		
Tangible Assets		248,312,834	223,841,484
Intangible Assets		15,939,178	13,683,386
Capital Works-In-Progress		1,964,989,274	1,463,784,950
INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS	5		
Long Term		-	-
Short Term		-	-
INVESTMENTS - OTHERS	6	-	-
CURRENT ASSETS	7	231,255,678	373,090,166
LOANS, ADVANCES & DEPOSITS	8	6,968,712	22,104,370
TOTAL		**2,467,465,676**	**2,096,504,357**

SIGNIFICANT ACCOUNTING POLICIES	23
CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS	24

For NIT Meghalaya

Registrar

Director

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
SHILLONG, MEGHALAYA

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2018

(Amount in ₹)

Particulars	Schedule	Current Year	Previous Year
INCOME			
Academic Receipts	9	15,726,360	8,548,552
Grants / Subsidies	10	270,650,651	213,248,488
Income from investments	11	881,533	1,303,203
Interest earned	12	362,524	335,648
Other Income	13	3,878,655	919,640
Prior Period Income	14	113,000	-
TOTAL (A)		**291,612,723**	**224,355,531**
EXPENDITURE			
Staff Payments & Benefits (Establishment expenses)	15	151,582,394	108,962,617
Academic Expenses	16	42,269,347	35,048,819
Administrative and General Expenses	17	57,651,691	50,677,058
Transportation Expenses	18	14,497,609	15,701,424
Repairs & Maintenance	19	38,922,419	18,449,673
Finance costs	20	34,787	38,580
Depreciation	4	75,268,979	48,860,716
Other Expenses	21	-	-
Prior Period Expenses	22	26,133	(66,000)
TOTAL (B)		**380,253,359**	**277,672,887**
Balance being excess of Income over Expenditure (A-B)		**(88,640,636)**	**(53,317,356)**
Transfer to / from Designated Fund			
Building fund			
Others (specify)			
Balance Being Surplus / (Deficit) Carried to Capital Fund		**(88,640,636)**	**(53,317,356)**

SIGNIFICANT ACCOUNTING POLICIES	23
CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS	24

For NIT Meghalaya

Registrar

Director

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	1,689,507,122	808,575,047
Add: Contributions towards Corpus/Capital Fund	-	-
Add: Grants from UGC, Government of India and State Government to the extent utilized for capital expenditure	603,200,445	934,249,431
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	-	-
Add: Excess of Income over expenditure trasferred from the Income & Expenditure Account	-	-
(Deduct) B/F Unutilized Grant transferred to Current Liabilities	-	-
Total	**2,292,707,567**	**1,742,824,478**
(Deduct) Deficit transferred from the Income & expenditure Account	88,640,636	53,317,356
Balance at the year end	**2,204,066,932**	**1,689,507,122**

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
SHILLONG, MEGHALAYA

SCHEDULE - 2 DESIGNATED / EARMARKED / ENDOWMENT FUNDS

Particulars	Fund wise Breakup		Total	
	Internal Resources Fund	Corpus Fund	Current Year	Previous Year
A.				
a) Opening balance	67,246,100	-	67,246,100	44,506,600
b) Additions during the year	20,702,493	1,921,406	22,623,899	22,739,500
c) Income from investments made of the funds	-	-	-	-
d) Accrued Interest on investments/Advances	-	-	-	-
e) Interest on Savings Bank a/c	-	31,163	31,163	-
f) Other additions (Specify nature)	-	-	-	-
Total (A)	**87,948,593**	**1,952,569**	**89,901,162**	**67,246,100**
B.				
Utilisation/Expenditure towards objectives of funds				
ii) Capital Expenditure	-	-	-	-
ii) Revenue Expenditure	-	-	-	-
Total (B)	**-**	**-**	**-**	**-**
Closing balance at the year end (A - B)	**87,948,593**	**1,952,569**	**89,901,162**	**67,246,100**

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	1,441,696	117,897
2. Deposits from students	3,999,195	3,213,095
3. Sundry Creditors		
a) For Goods & Services	-	-
b) Others	-	-
4. Deposit-Others (including EMD, Security Deposit) (As per Annexure 'A')	14,770,612	12,584,998
5. Statutory Liabilities (GPF, TDS, WC TAX, CPF, GIS, NPS): (As per Annexure 'B')		
a) Overdue	-	-
b) Others	4,676,933	2,583,323
6. Other Current Liabilities		
a) Salaries	-	-
b) Receipts against sponsored projects	37,359,990	28,264,570
c) Receipts against sponsored fellowships & scholarships	2,303,974	2,604,284
d) Unutilised Grants	59,636,843	233,487,939
e) Grants in advance	-	-
f) Other funds	671,581	671,581
g) Other liabilities (As per Annexure 'C')	22,271,164	43,229,509
Total (A)	**147,131,988**	**326,757,196**
B. PROVISIONS		
1. For Taxation	-	-
2. Gratuity	6,776,435	-
3. Superannuation Pension	-	-
4. Accumulated Leave Encashment	19,589,160	12,993,938
5. Trade Warranties/Claims	-	-
6. Others - Provision for Expenses	-	-
Total (B)	**26,365,595**	**12,993,938**
Total (A+ B)	**173,497,583**	**339,751,134**

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	24,669,396	-	24,630,662	49,300,058	22,686,452	26,613,606	-
2	Sponsored Project - CE/01	85,350	-	12,917	98,267	98,267	-0	-
3	Sponsored Project - CE/02	-109,251	-	7,117	-102,134	-	-102,134	-
4	PHD-Visvesvaraya	1,145,673	-	2,150,741	3,296,414	2,372,148	924,266	-
5	Sponsored Project/Chem/Indo-Korean	386,886	-	647,513	1,034,399	438,369	596,030	-
6	Sponsored Project/Chem/Paresh	28,538	-	670,302	698,840	220,451	478,389	-
7	Sponsored Project/COMP/RAY	913,332	-	22,729	936,061	718,281	217,780	-
8	Sponsored Project/DeITY/K. Datta	338,813	-	54,161	392,974	391,476	1,498	-
9	Sponsored Project/DST/Chem/Gitish	11,544	-	415,873	427,417	177,808	249,609	-
10	Sponsored Project SDMA/Marthong	-12,256	-	326,161	313,905	314,110	-205	-
11	Sponsored Project/SMDP/Dandapat	806,546	-	1,725,000	2,531,546	505,807	2,025,739	-
12	RECPTL	-	-	9,297,116	9,297,116	2,941,704	6,355,412	-
	Total	**28,264,570**	**-**	**39,960,292**	**68,224,862**	**30,864,873**	**37,359,990**	**-**

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
SHILLONG, MEGHALAYA

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	2,340,769	-	-	551,000	1,789,769	-
2	External Individual Scholarships	263,515	-	686,180	435,490	514,205	-
		-	-	-	-	-	-
	Total	**2,604,284**	**-**	**686,180**	**986,490**	**2,303,974**	**-**

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).

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
SHILLONG, MEGHALAYA

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	233,487,939	183,985,858
	Add: Receipts during the year	700,000,000	1,197,000,000
	Total (a)	933,487,939	1,380,985,858
	Less: Refunds	-	-
	Less: Utilized for Revenue Expenditure	270,650,651	213,248,488
	Less: Utilized for Capital Expenditure	603,200,445	934,249,431
	Total (b)	873,851,096	1,147,497,919
	Unutilized carried forward (a-b)	59,636,843	233,487,939
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)	**59,636,843**	**233,487,939**

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
SHILLONG, MEGHALAYA

SCHEDULE - 4 FIXED ASSETS

S. No.	Assets Heads	Gross Block				
		"Opening Balance On 01.04.2017"	Additions	Deductions	Closing Balance	
1	Land	-	-	-	-	
2	Site Development	-	-	-	-	
3	Buildings	-	-	-	-	
4	Roads & Bridges	-	-	-	-	
5	Tubewells & Water Supply	446,375	-	-	446,375	
6	Sewerage & Drainage	-	-	-	-	
7	Electrical Installation and equipment	3,663,469	1,553,660	-	5,217,129	
8	Plant & Machinery	-	-	-	-	
9	Scientific & Laboratory Equipment	123,849,943	35,668,097	-	159,518,039	
10	Office Equipment	56,819,085	-	-	56,819,085	
11	Audio Visual Equipment	-	-	-	-	
12	Computers & Peripherals	61,372,659	22,507,442	-	83,880,101	
13	Furniture, Fixtures & Fittings	60,699,093	1,935,773	-	62,634,866	
14	Vehicles	3,243,960	-	-	3,243,960	
15	Lib. Books & Scientific Journals	9,978,895	3,216,618	-	13,195,513	
16	Small Value Assets	-	-	-	-	
	Total (A)	**320,073,479**	**64,881,590**	**-**	**384,955,068**	
17	Capital Work in Progress (B)	1,463,784,950	501,204,324	-	1,964,989,274	
S. No.	**Intangible Assets**	**Opening Balance On 01.04.2016**	**Additions**	**Deductions**	**Closing Balance**	
18	Computer Software	31,535,621	22,929,295	-	54,464,916	
19	E-Journals	18,496,697	14,185,236	-	32,681,933	
20	Patents	-	-	-	-	
	Total (C]	**50,032,318**	**37,114,531**	**-**	**87,146,849**	
	Grand Total (A+B+C)	**1,833,890,747**	**603,200,445**	**-**	**2,437,091,192**	

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 from Work in Progress during the year, as well as further acquisitions during the year

(Amount in ₹)

	Depreciation for the Year				Net Block	
	"Depreciation Opening Balance"	Depreciation for the Year	Deductions/ Adjustment	Total Depreciation	31.03.2018	31.03.2017
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	17,854	8,928	-	26,782	419,593	428,521
	-	-	-	-	-	-
	321,828	260,856	-	582,684	4,634,445	3,341,641
	-	-	-	-	-	-
	19,316,558	12,761,443	-	32,078,001	127,440,038	104,533,385
	17,081,720	4,261,431	-	21,343,151	35,475,934	39,737,365
	-	-	-	-	-	-
	40,812,099	16,776,020	-	57,588,119	26,291,982	20,560,560
	14,938,995	4,697,615	-	19,636,610	42,998,256	45,760,098
	787,410	324,396	-	1,111,806	2,132,154	2,456,550
	2,955,531	1,319,551	-	4,275,082	8,920,431	7,023,364
	-	-	-	-	-	-
	96,231,995	**40,410,240**	**-**	**136,642,235**	**248,312,834**	**223,841,484**
	-	-	-	-	1,964,989,274	1,463,784,950
	Depreciation Opening Balance	**Amortization for the Year**	**Deductions/ Adjustments**	**Total Amortization / Adjustments**	**Balance as on 31.03.2017**	**Balance as on 31.03.2016**
	25,775,321	21,785,966	-	47,561,287	6,903,629	5,760,300
	10,573,611	13,072,773	-	23,646,384	9,035,549	7,923,086
	-	-	-	-	-	-
	36,348,932	**34,858,739**	**-**	**71,207,671**	**15,939,178**	**13,683,386**
	132,580,927	**75,268,979**	**-**	**207,849,906**	**2,229,241,286**	**1,701,309,820**

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	**-**	**-**

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	**-**	**-**

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
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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	107,959,116	295,348,987
In term deposit Accounts	12,819,666	11,901,624
In Savings Accounts	110,476,896	65,839,556
b) With non-Scheduled Banks:		
In term deposit Accounts	-	-
In Savings Accounts	-	-
c) Cash in hand:	-	-
4. Post Office- Savings Accounts	-	-
TOTAL	**231,255,678**	**373,090,166**

Note: Annexure A shows the details of Bank Accounts

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SCHEDULE - 8 LOANS, ADVANCES & DEPOSITS

(Amount in ₹)

	Current Year	Previous Year
1. Advances to employees: (Non-interest bearing)		
a) Salary	132,006	287,606
b) Festival	-	-
c) Medical Advance	-	-
d) Other - PDA Advance	82,522	503,814
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
d) Others - Temporary Advance	463,560	14,897,559
e) Advance against Rent	2,820,978	2,820,978
f) Advance against Projects	96,000	111,000
4. Prepaid Expenses		
a) Insurance	-	-
b) Other expenses -Leased Line Charges	595,620	794,160
5. Deposits		
a) Telephone	-	-
b) Lease Rent	-	-
c) Electricity	-	-
d) AICTE, if applicable	-	-
f) Others	1,444,940	1,444,940
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)	715,531	752,040
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	-	-
d) Other receivables from UGC	-	-
8. Claims Receivable	**-**	**-**
Sundry Receivables	617,555	466,773
TOTAL	**6,968,712**	**22,104,370**

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	926,400	792,300
3	Application Fee	-	303,592
4	Summer Term Course Fee	32,500	26,500
5	Laboratory and Internet Fee	3,064,000	2,787,300
6	Library Fee	459,600	434,100
7	Provisional Certificate Fee	27,400	25,200
8	Student Activity Fee	1,123,500	-
9	Book Purchase	749,000	-
10	Student Welfare Fund	68,500	-
	Total (A)	**6,450,900**	**4,368,992**
B.	**Examinations**		
1	Examination Fee and Grade Fee	926,400	817,400
	Total (B)	**926,400**	**817,400**
C.	**Other Fees**		
1	Identity Card Fee	41,210	37,910
2	Hostel Admission Fee	116,500	98,000
3	Hostel Seat Rent	3,892,650	2,150,500
4	Hostel Electricity and Water Charges	1,398,550	1,075,750
5	Hostel Establishment Fee	1,123,500	-
6	Fine	90,000	-
7	Transportation Fee	1,686,650	-
	Total (C)	**8,349,060**	**3,362,160**
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)	**15,726,360**	**8,548,552**

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			Total Plan	Non Plan UGC	Current Year Total	Previous Year Total
	Govt. of India	UGC					
		Plan	Specific Schemes				
Balance B/F	233,487,939	-	-	233,487,939	-	233,487,939	183,985,858
Add: Receipts during the year	700,000,000	-	-	700,000,000	-	700,000,000	1,197,000,000
Total	933,487,939	-	-	933,487,939	-	933,487,939	1,380,985,858
Less: Refund to UGC Balance	-	-	-	-	-	-	-
Less: Utilised for Capital expenditure (A)	603,200,445	-	-	603,200,445	-	603,200,445	934,249,431
Balance	330,287,494	-	-	330,287,494	-	330,287,494	446,736,427
Less: Utilized for Revenue Expenditure (B)	270,650,651	-	-	270,650,651	-	270,650,651	213,248,488
Balance C/F (C)	59,636,843	-	-	59,636,843	-	59,636,843	233,487,939

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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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	-	-	881,533	1,303,203
3. Income accrued but not due on Term Deposits/ Interest bearing advances to employees	-	-	-	-
4. Interest on Savings Bank Accounts	-	-	-	-
5. Others (Specify)	-	-	-	-
Total	**-**	**-**	**881,533**	**1,303,203**
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 set up.

SCHEDULE - 12 INTEREST EARNED

(Amount in ₹)

Particulars	Current Year	Previous Year
1. On Savings Accounts with scheduled banks	362,524	335,648
2. On Loans		
a. Employees/Staff	-	-
b. Others	-	-
3. On Debtors and Other Receivables	-	-
Total	**362,524**	**335,648**

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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SCHEDULE - 13 OTHER INCOME

(Amount in ₹)

	Current Year	Previous Year
A. Income from Land & Buildings		
1. Hostel Room Rent	-	-
2. License fee	322,095	293,989
3. Hire Charges of Auditorium/Play ground/Convention Centre, etc	-	-
4. Electricity charges recovered	-	-
5. Water charges recovered	-	-
6. House Rent - Staff	-	-
Total	**322,095**	**293,989**
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	640,470	91,446
Total	**640,470**	**91,446**
D. Others		
1. Income from consultancy	-	-
2. RTI fees	-	300
3. Income from Royalty	-	-
4. Sale of application form (recruitment)	1,355,550	-
5. Misc. receipts (Sale of tender form)	33,350	16,950
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	477,240	516,955
b) External Scholarship	-	-
c) Liquidated Damages	1,049,950	-
Total	**2,916,090**	**534,205**
Grand Total (A+B+C+D)	**3,878,655**	**919,640**

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SCHEDULE - 14 PRIOR PERIOD INCOME

(Amount in ₹)

Particulars	Current Year	Previous Year
1.Academic Receipts	113,000.00	-
2.Income from Investments	-	-
3.Interest earned	-	-
4. Other Income	-	-
Total	**113,000.00**	**-**

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	132,604,397	-	132,604,397	100,004,499	-	100,004,499
b) Allowances and Bonus	-	-	-	-	-	-
c) Contribution to Provident Fund	-	-	-	-	-	-
d) Contribution to Other Fund (specify)	-	-	-	-	-	-
e) Staff Welfare Expenses	-	-	-	-	-	-
f) Retirement and Terminal Benefits	9,501,613	-	9,501,613	7,034,595	-	7,034,595
g) LTC facility	1,292,971	-	1,292,971	917,428	-	917,428
h) Medical facility	-	-	-	-	-	-
i) Children Education Allowance	121,890	-	121,890	295,940	-	295,940
j) Honorarium	-	-	-	-	-	-
k) Gratuity	6,776,435	-	6,776,435	-	-	-
l) Others - Medical Expenses	1,285,088	-	1,285,088	710,155	-	710,155
TOTAL	**151,582,394**	**-**	**151,582,394**	**108,962,617**	**-**	**108,962,617**

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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	510,500	-	510,500	-	-	-
e) Examination	-	-	-	-	-	-
f) Student Welfare expenses	-	-	-	-	-	-
g) Admission expenses	-	-	-	-	-	-
h) Convocation expenses	1,806,288	-	1,806,288	1,958,407	-	1,958,407
i) Publications	-	-	-	-	-	-
j) Stipend/means-cum-merit scholarship	28,317,473	-	28,317,473	24,779,558	-	24,779,558
k) Subscription Expenses	-	-	-	-	-	-
l) Others						
i) Recurring Contingency	3,101,477	-	3,101,477	2,804,282	-	2,804,282
ii) Students Activities	3,888,948	-	3,888,948	2,222,695	-	2,222,695
iii) Other Academic Activities	3,903,227	-	3,903,227	1,929,996	-	1,929,996
iv) Consumables	465,620	-	465,620	1,243,008	-	1,243,008
v) Startup Project	275,814	-	275,814	110,873	-	110,873
TOTAL	**42,269,347**	**-**	**42,269,347**	**35,048,819**	**-**	**35,048,819**

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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	6,119,683	-	6,119,683	5,643,463	-	5,643,463
b) Water charges	-	-	-	-	-	-
c) Insurance	-	-	-	-	-	-
d) Rent, Rates and Taxes (including property tax)	40,624,235	-	40,624,235	37,041,319	-	37,041,319
B Communication						
e) Postage and Telegram	-	-	-	-	-	-
f) Telephone, Fax and Internet Charges	2,792,201	-	2,792,201	2,477,721	-	2,477,721
C Others						
g) Printing and Stationery (consumption)	-	-	-	-	-	-
h) Travelling and Conveyance Expenses/TA/DA	1,636,045	-	1,636,045	839,677	-	839,677
i) Hospitality	-	-	-	-	-	-
j) Auditors Remuneration	300,000	-	300,000	407,450	-	407,450
k) Professional Charges	-	-	-	-	-	-
l) Advertisement and Publicity	-	-	-	-	-	-
m) Magazines & Journals	-	-	-	-	-	-
n) Others (as per details below)						
Contingencies	2,667,064	-	2,667,064	1,944,515	-	1,944,515
Recruitment Expenses	2,393,883	-	2,393,883	1,407,723	-	1,407,723
Miscellaneous Expenses	1,118,580	-	1,118,580	915,190	-	915,190
	-	-	-	-	-	-
TOTAL	**57,651,691**	**-**	**57,651,691**	**50,677,058**	**-**	**50,677,058**

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SCHEDULE - 18 TRANSPORTATION EXPENSES

(Amount in ₹)

	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
1. Vehicles (owned by Institution)						
a) Running expenses	208,723	-	208,723	91,709	-	91,709
b) Repairs & maintenance	-	-	-	-	-	-
c) Insurance expenses	-	-	-	-	-	-
2. Vehicles taken on rent/lease						
a) Rent/lease expenses	14,288,886	-	14,288,886	15,609,715	-	15,609,715
3. Vehicle (Taxi) hiring expenses	**-**	**-**	**-**	**-**	**-**	**-**
Total	**14,497,609**	**-**	**14,497,609**	**15,701,424**	**-**	**15,701,424**

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	30,831,259	-	30,831,259	15,072,848	-	15,072,848
m)	Others - Repairs and Maintenance	8,091,160	-	8,091,160	3,376,825	-	3,376,825
	Total	**38,922,419**	**-**	**38,922,419**	**18,449,673**	**-**	**18,449,673**

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SCHEDULE - 20 FINANCE COSTS

(Amount in ₹)

	Current Year			Previous Year		
	Plan	Non Plan	Total	Plan	Non Plan	Total
a) Bank charges	**34,787**	**-**	**34,787**	**38,580**	**-**	**38,580**
b) Others (specify)	-	-	-	-	-	-
Total	**34,787**	**-**	**34,787**	**38,580**	**-**	**38,580**

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	**-**	**-**	**-**	**-**	**-**	**-**

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	26,133	-	26,133	(66,000)	-	-66,000
4	Transportation expenses	-	-	-	-	-	-
5	Repairs & Maintenance	-	-	-	-	-	-
6	Communication and Transport	-	-	-	-	-	-
6	Depreciation	-	-	-	-	-	-
	Total	**26,133**	**-**	**26,133**	**-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.

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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)	29212.04	33947.20

2. Expenditure in Foreign Currency:

Particulars	Amount (in Rs. Lakh)
Journals and Subscriptions	136.50
Equipments	16.14
Total	**152.64**

3. Purchases of Printing & Stationery and other consumable items during the year are treated as expenditure and charged to appropriate Revenue heads.
4. 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.
5. Previous years figures have been rearranged and regrouped wherever considered necessary to facilitate comparison.
6. Figures in the Final accounts have been rounded off to the nearest rupee.
7. Schedules I to 22 are annexed to and form an integral part of the Balance Sheet at 31st March 2018 and the Income & Expenditure account for the year ended on that date.

For NIT Meghalaya

Registrar

Director

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
SHILLONG, MEGHALAYA

ANNEXURE - A : DETAILS OF EMD & SECURITY DEPOSIT AS ON 31-03-2018

(Amount In ₹ Lakh)

S. No	Name of the Firm / Company	Amount
1	Earnest Money Deposit	6,359,429
2	Security Deposit - Contractors and Suppliers	8,411,183
	Total	**14,770,612**

ANNEXURE - B : DETAILS OF STATUTORY LIABILITIES AS ON 31-03-2018

(Amount In ₹ Lakh)

Sl. No.	Particulars	Amount
1	TDS - Contracts	191,181
2	VAT	27,967
3	TDS - Pay and Allowances	3,931,544
4	Professional Tax	288,850
5	GST	237,391
		4,676,933

ANNEXURE - C : DETAILS OF OTHER LIABILITIES AS ON 31-03-2018

(Amount In ₹ Lakh)

Sl. No.	Particulars	Amount
1	Tuition Fee Refundable to SC/ST	6,900
2	Stale Cheques	812,738
3	Sundry Receipts	262,760
4	SVNIT Surat	124,375
5	Suspense Account	228,408
6	CSAB Administrative Charges	765,613
7	B. Tech Remuneration	42,000
8	Other Current Liabilities	16,902,652
9	Returned Cheques	643,715
10	NMEICT	14,166
11	CCMT / CSAB Admission Expenses	14,212
12	Current Liabilities(CE/02)	300,000
13	NIT Mess Account	1,042,500
14	Excess Fee Refundable	1,111,125
		22,271,164

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
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ANNEXURE - D: DETAILS OF UTILIZATION OF PLAN FUNDS FOR THE YEAR ENDED 31ST MARCH 2018

	FUND WISE BREAK UP										Previous Year
	PLAN FUND 112-31	PLAN FUND 112-35	PLAN FUND 112-36	PLAN FUND 789-31	PLAN FUND 789-35	PLAN FUND 789-36	PLAN FUND 796-31	PLAN FUND 796-35	PLAN FUND 796-36	Total	
a) Opening balance of funds	16,751,512	216,736,427	-	-	-	-	-	-	-	233,487,939	183,985,858
b) Additions to the funds											
Grants	198,900,000	154,000,000	256,300,000	16,100,000	30,000,000	17,900,000	4,000,000	16,000,000	6,800,000	700,000,000	1,197,000,000
IRG	20,962,072	-	-	-	-	-	-	-	-	20,962,072	11,107,043
Total (a + b)	**236,613,584**	**370,736,427**	**256,300,000**	**16,100,000**	**30,000,000**	**17,900,000**	**4,000,000**	**16,000,000**	**6,800,000**	**954,450,011**	**1,392,092,901**
c) Utilisation/ Expenditure towards objectives of funds											
i. Capital Expenditure	176,976,741	370,736,427	9,487,277	-	30,000,000	-	-	16,000,000	-	603,200,445	934,249,431
Total	176,976,741	370,736,427	9,487,277	-	30,000,000	-	-	16,000,000	-	603,200,445	934,249,431
ii. Revenue Expenditure	-	-	246,812,723	16,100,000	-	17,900,000	4,000,000	-	6,800,000	291,612,723	224,355,531
Total	**-**	**-**	**246,812,723**	**16,100,000**	**-**	**17,900,000**	**4,000,000**	**-**	**6,800,000**	**291,612,723**	**224,355,531**
Total (c)	**176,976,741**	**370,736,427**	**256,300,000**	**16,100,000**	**30,000,000**	**17,900,000**	**4,000,000**	**16,000,000**	**6,800,000**	**894,813,167**	**1,158,604,962**
Net balance as as the year end (a + b - C)	**59,636,843**	**-**	**0**	**-**	**-**	**-**	**-**	**-**	**-**	**59,636,844**	**233,487,939**

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
SHILLONG, MEGHALAYA

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2018

Amount in Rupees

	RECEIPTS	Current Year	Previous Year		PAYMENTS	Current Year	Previous Year
I.	**Opening Balance**			**I.**	**Expenses**		
	a) Cash Balances	-	-		a) Establishment Expenses	138,210,737	104,505,977
	b) Bank Balance				b) Academic Expenses	42,269,347	35,048,819
	i. In Current accounts	295,348,987	31,683,516		c) Administrative Expenses	57,651,691	50,677,058
	ii. In Deposit accounts	11,901,624	10,941,528		d) Transportation Expenses	14,497,609	15,701,424
	iii. Savings accounts	65,839,556	20,142,170		e) Repairs & Maintenance	38,922,419	18,449,673
II.	Grants Received				f) Prior period expenses	26,133	-66,000
	a) From Government of India	700,000,000	1,197,000,000		g) Finance Cost	34,787	38,580
	b) From State Government	-	-	II.	Payments against Earmarked/ Endowment Funds	-	-
	c) From others	-	-	III.	Payments against Sponsored Projects/Schemes	30,864,873	17,810,400
				IV.	Payments against Sponsored Fellowships/ Scholarships	986,490	1,042,450
				V.	Investments and Deposits made		
III.	Academic Receipts	15,726,360	8,548,552		a) Out of Earmarked/ Endowments funds	-	-
IV.	Receipts against Earmarked/ Endowment Funds	22,623,899	22,739,500		b) Out of own funds (Investments-Others}	-	-
V.	Receipts against Sponsored Projects/ Schemes	39,960,292	34,968,880	VI.	Term Deposits with Scheduled Banks	-	-

	RECEIPTS	Current Year	Previous Year		PAYMENTS	Current Year	Previous Year
VI.	Receipts against sponsored Fellowships and Scholarships	686,180	2,651,739	VII.	Expenditure on Fixed Assets and Capital Works - in-Progress		
VII.	Income on Investments from				a) Fixed Assets	101,996,121	73,452,803
	a) Earmarked/ Endowment funds	-	-		b) Capital Works-in- Progress	501,204,324	860,796,628
	b) Other investments	-	-	VIII.	Other Payments including statutory payments	-	-
VIII.	Interest received on						
	a) Bank Deposits	912,696	1,303,203	IX.	Refunds of Grants		
	b) Loans and Advances			X.	Deposits and Advances	-15,135,658	-184,966,421
	c) Savings Bank Accounts	362,524	335,648	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)	3,991,655	919,640		b) Bank balances		
XII.	Deposits and Advances	-14,569,222	34,347,181		In Current Accounts	107,959,116	295,348,987
XIII.	Miscellaneous Receipts including Statutory Receipts	-	-		In Savings Accounts	110,476,896	65,839,556
XIV	Any Other Receipts - Capital Work in Progress refund	-	-		In Deposit Accounts	12,819,666	11,901,624
	TOTAL	1,142,784,550	1,365,581,557		TOTAL	1,142,784,550	1,365,581,557

For NIT Meghalaya

Registrar

Director

NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA
BIJNI COMPLEX, LAITUMKHRAH, SHILLONG 793003