Annual Report 2017-18

Part - I

National Institute of Technology Nagaland

Chumukedima, Dimapur, Nagaland 797 103

1. OVERVIEW

1.1 Introduction

National Institute of Technology Nagaland, a higher education technical *Institute of National importance* is located at Chumukedima (Dimapur), Nagaland. It is one among the ten newly approved NIT's of Government of India in the year 2009 under the 11th Five Year Plan. This Institute was started initially to function from the academic year 2010, under the mentorship of NIT Silchar in Assam for two years. At the end of the second year, as per schedule, the first academic session of this Institute started functioning from September 2012 at its permanent campus in Chumukedima, Dimapur.

The Institute is located at a picturesque hilly terrain which was identified for as a permanent campus for the Institute during January 2012. This place has a healthy climate with moderate temperature ranging from 15ºC to 33ºC and an average annual rainfall of 300 mm. The foundation stone for this Institute was laid by the then Hon'ble Minister of Human Resource Development (and Minister of Communications and Information Technology), Government of India on 13th October, 2012.

This Academic Annual Report is our own report card, providing a transparent measurement of how well we are serving our students' needs and building our continuous improvement.

1.2 Access to the permanent campus

The campus is well-connected by air, train and road. Dimapur Airport is about 14 KM and the nearest Railway Station is about 18 KM from the campus. Convenient air services are available to and from Kolkata. Regular train services are available from Guwahati to Dimapur. National Highway 29 (NH 29) runs through Chumukedima connecting Guwahati in the west, at a distance of about 300 KM. The capital city Kohima in the south east is at a distance of 60 KM. day and night bus/taxi services are available to these cities from Chumukedima.

1.3 Permanent Campus

The land of 291 acres (which was originally allotted for the Office of the Deputy Commissioner) was handed over by the Government of Nagaland to NIT Nagaland with few buildings for the establishment of its permanent campus. The infrastructure for class rooms, hostel and dining blocks for Boys and Girls were built initially with bamboo structures and thereafter with pre-fabricated structures. Academic and administrative activities were conducted from the existing buildings with necessary refurbishing. Pre-fabricated structures for new class room blocks, laboratories and hostels are complete. The Institute's administration goal is to make NIT Nagaland a **'Green Campus'** preventing deforestation, hunting and fishing within its jurisdiction and also actively engaging in **'Tree Plantation'** every year on the World Environmental Day i.e. on 5th of June.

1.4 Vision and Mission

Education must evolve to help students succeed in the 21st century economy and NIT Nagaland is trying its best to fulfill its vision by being at the forefront of this movement. We plan to be drivers of innovation within higher education by developing adaptive methodologies that would help our students achieve their educational and professional goals.

Vision

- To advance knowledge through quality education and research
- To cultivate invention improving the human condition and to educate students for a lifetime of professional achievement, service to society and individual fulfillment – moving our world towards a more sustainable path
- To build degree programmes that directly address the shifting economic needs of a skilled workforce and the academic challenges faced by working learners

Mission

The mission is to advance knowledge and educate students in Science, Technology and other areas of scholarship that will not only best serve this region, but also the nation and the world in the 21st century.

NIT Nagaland is committed to generate, disseminate and preserve knowledge and to work with others to bring this knowledge to face the nation's great challenges. NIT Nagaland is dedicated to provide its students with an education that combines rigorous academic study and the excitement of discovery with the support and intellectual stimulation of a diverse campus community.

We seek to develop in each member of the community the ability and passion to work wisely, creatively and effectively for the betterment of humankind.

NIT Nagaland shall strive continuously to:

1. Impart and develop the skills of the students in order to shape them as outstanding professionals with high ethical standards to solve the societal problems.

2. Achieve academic excellence through dedication to duty, along with team spirit, commitment to research, innovation in learning and faith in human values.

3. Prepare the students with the state-of-the-art technology resources to match the expectations of the industry and society.

4. Provide intellectually stimulating environment for the development of human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a wide range of professions needed by the nation.

5. Provide scientists and technologists, who would be the leaders in research and participate in design, development and technology management of the country to meet global challenges.

1.5 Human Resources

The Institute has since received sanction for faculty and non-faculty posts as per its students' strength. However, the entire process of recruitment could not be completed due to unavailability of qualified candidates willing to serve in this remote area of the country.

This problem is not unique. Most of the Centrally-funded Technical Institutes in the North-Eastern Region are facing similar problem. This issue needs immediate attention and a resolution at the highest level. In spite of these difficulties, the Institute is fortunate enough to start its academic journey with the available human resources, infrastructural facilities etc.

1.6 Road Ahead

The Institute is trying its best to take care of the required academic activities, research work etc. with the existing faculty members, laboratories, library and IT facilities. It has also provided full-fledged hostel facilities located within the campus to all of its students. Due compassion and care is being paid to ensure that the students do not feel that they are staying away from home, which provides a congenial ambience to enable the students to continue their studies in a proper manner.

1.7 Responsibilities

The Institute has been established for imparting technical education to promote multicultural understanding in the State, where students can utilize their skills and proficiency, guiding them into prospective horizons, thereby finding a vocation in which each individual is best fit for. The nobility of the Institute has reframed the mind-set of the people of Nagaland, enabling them to rebuild a better society. NIT Nagaland has indeed raised the hopes of social welfare. Being a premier technological Institute of the State, it aims at promoting the students of Nagaland by advocating scientific and technical pursuits in a rich-resourced topography, which is an excellent measure of learning, understanding and employment.

NIT Nagaland is also responsible for accomplishing a noble task of catering to the needs of the local people and fulfilling the aspirations of the talented youths belonging to the poorest among poor, backward people residing in the remotest areas of the State. In order to ensure that the students can avail the facilities of Technical Education, the Institute has to play a bigger role while providing suitable training programme to the students at 10+2 stage in the schools of the State. The Institute is also striving hard to provide

necessary technological know-how to the local industries so that the overall pace of industrial development of the State is accelerated.

1.8 Conclusion

The Institute has been through many difficulties since its establishment in 2010; but ultimately it has won over all the challenges and is moving forward with more than 350 students on roll, and many excellent members of faculty and competent administrative staff. The Institute is also quite confident to accomplish the entrusted tasks and fulfill its dreams in near future.

2. STATUTORY BODIES

2.1 Board of Governors

The Ministry of Human Resource Development constituted the Board of Governors (BoG) vide its Letter No. F.No.27-3/2012–TS.III dated 05.10.2012. The BoG was constituted with the members as listed below (Table 2.1):

Table 2.1 Members of the BoG

Sl. No	Name & Designation	Position
1	Shri Suparno Moitra, Chairman, Board of Governors, NIT Nagaland	Chairperson
2	Dr. S. Venugopal, Director, NIT Nagaland	Member (Ex-Officio)
3	Additional Secretary, Department of Higher Education, MHRD	Member
4	Financial Advisor, Department of Higher Education, Integrated Finance Division, MHRD	Member
5	Dr. V. Jagadeesh Kumar, Professor, Department of Electrical Engineering & Director, Central Electronics Centre, IIT	Member
6	Dr. Ajay S. Kalamdhad, Associate Professor, Department of Civil Engineering, IIT Guwahati	Member
7	Dr. G. Venkatesh, Director, Sasken Communication Technologies Ltd, Bangalore	Member
8	Prof P.S. Robi, Deputy Director, IIT Guwahati	Member
9	Mr. Binod Doley, Registrar, NIT Nagaland (Secretary)	Member - Secretary

Shri Suparno Moitra, Former Secretary, Bengal Chamber of Commerce and Industry, Kolkata, was nominated as the second Chairman of the Board of Governors, National Institute of Technology Nagaland.

Dr. S. Venugopal is appointed as the Director of National Institute of Technology Nagaland and he assumed charge on 31st January 2018.

2.2 Finance Committee

The Finance Committee was constituted as per the NIT Act 2007, NIT (amendment) Act 2012 and the First Statutes of the NITs with the approval of the Board of Governors. The members of the Finance Committee are mentioned below in Table 2.2:

Table 2.2 Members of the Finance Committee

Sl. No.	Name & Designation	Position
1	Shri Suparno Moitra, Chairperson, NIT Nagaland	Chairperson
2	Dr. S. Venugopal, Director, NIT Nagaland	Member (Ex-Officio)
3	Joint Secretary, Department of Higher Education, MHRD or his nominee	Member
4	Financial Advisor (Ministry of Human Resource Development) or his nominee, Integrated Finance Division, MHRD	Member
5	Dr. V. Jagadeesh Kumar, Professor, Department of Electrical Engineering & Director, Central Electronics Centre, IIT Madras	Member
6	Mr. Binod Doley, Registrar, NIT Nagaland (Member Secretary)	Member -Secretary

2.3 Building and Works Committee

The Building and Works Committee was constituted with the approval of the Board of Governors and the members are listed below in Table 2.3:

Table 2.3 Members of the Building and Works Committee

Sl. No.	Name & Designation	Position
1	Dr. S. Venugopal, Director, NIT Nagaland	Chairperson
2	Director (TE), Department of Higher Education, MHRD	Member
3	Director (Finance), Department of Higher Education, Integrated Finance Division, MHRD	Member
4	Dr. V. Jagadeesh Kumar, Professor, Department of Electrical Engineering Director, Central Electronics Centre, IIT Madras	Member
5	Dr. V. Sankaranarayanan, Former Member Secretary, Tamil Nadu State Council for Science and Technology & Former Director, Tamil Virtual University, Director (University Projects), B.S. Abdur Rahman University	Member
6	Chief Engineer, PWD (Housing), Kohima, Nagaland	Member
7	Chief Engineer, Department of Power, Kohima, Nagaland	Member
8	Associate Dean (Planning & Development), NIT Nagaland	Member
9	Mr. Binod Doley, Registrar, NIT Nagaland	Member - Secretary

2.4. Senate

As per the approval of the Board of Governors, the Senate of the Institute was constituted. The members of the Senate are mentioned below in Table 2.4:

Table 2.4 Members of the Senate

Sl. No.	Name & Designation	Position
1	Dr. S.Venugopal, Director, NIT Nagaland	Chairperson
2	Dr. V. Jagadeesh Kumar, Professor, Department of Electrical Engineering Director, Central Electronics Centre, IIT Madras	Member
3	Dr. V. Sankaranarayanan, Former Member Secretary, Tamil Nadu State Council for Science and Technology & Former Director, Tamil Virtual University, Director (University Projects), B. S. Abdur Rahman University	Member
4	Dr. R.R. Bhargava, Emeritus Professor, Department of Mathematics, IIT Roorkee	Member
5	Dr. Rowena Robinson, Professor, Department of Humanities and Social Sciences, IIT Guwahati	Member
6	Dr. Narayana Prasad Padhy, Professor, Department of Electrical Engineering, IIT Roorkee	Member
7	Dr. S. R. Mahadeva Prasanna, Professor, Department of Electronics and Electrical Engineering, IIT Guwahati	Member
8	Dr. S. Selvakumar, Professor and Head, Department of Computer Science and Engineering, NIT Tiruchirappalli	Member
9	Dr. N. Ammasai Gounden, Professor, Department of Electrical and Electronics Engineering, NIT Tiruchirappalli	Member
10	Dr. B.Venkataramani, Professor, Department of Electronics and Communication Engineering, NIT Tiruchirappalli	Member
11	Dr. R. Kumar, Dean(Academic)& Professor, Department of Electrical and Instrumentation Engineering, NIT Nagaland	Member
12	Dr. Dushmanta Kumar Das, Assistant Professor and Head Department of Electrical and Electronics Engineering, NIT Nagaland	Member
13	Dr. P. Chinnamuthu, Assistant Professor and Head, Department of Electronics and Communication Engineering, NIT Nagaland	Member
14	Dr. Jyoti Prasad Borah, Assistant Professor and Head, Department of Science and Humanities, NIT Nagaland	Member

15	Mr. Nzanthung Ngullie, Assistant Professor, Department of Civil Engineering, NIT Nagaland	Member
16	Mr. Binod Doley, Registrar, NIT Nagaland (Secretary)	Member – Secretary

2.5 Meetings of The Statutory Bodies

The venue and date of various important meetings of the statutory bodies held during the financial year 2017-2018 are mentioned below in Table 2.5:

Table 2.5 List of Statutory Body meetings held during 2017-2018

Sl.	Meeting	Venue	Date
1	Sixth meeting of Finance Committee	NIT Transit House	18-09-2017
2	Seventh meeting of Finance Committee	NIT Nagaland	20-02-2018
3	Tenth Board of Governors	NIT Nagaland	30-06-2017
4	Eleventh Board of Governors	NIT Transit House	18-09-2017
5	Twelfth Board of Governors	NIT Nagaland	20-02-2018
6	Ninth meeting of the Senate	NIT Nagaland	01-04-2017
7	Tenth meeting of the Senate	NIT Nagaland	18-11-2017
8	Ninth Meeting of Building and Works Committee	NIT Nagaland	14-09-2018

2.6 Board of Studies

The meetings of the Board of Studies were convened during January to March 2018 for the Departments of Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering, Electronics and Instrumentation Engineering, Civil Engineering and Mechanical Engineering in order to revise the syllabus for the UG and PG Programmes.

2.7 Performance Analysis Committee

The Performance Analysis Committee meeting was held for various Departments at NIT Nagaland to analyze the results of the odd semester during the academic year 2017-2018 for all UG, PG and Five year integrated dual degree programmes.

The Dean (Academic) submitted the End Semester Examinations Results and Tabulation Mark Register generated from the Academic Performance Information System (APIS) for the above said batches to the members and the same has been scrutinized and verified.

The question papers for all assessments and end semester examinations were also submitted to the external members for scrutiny. The members gave satisfactory note about the quality of question papers. The randomly selected answer scripts, which were evaluated by the Faculty, had also been submitted to scrutinize the evaluation process. The procedure adopted for moderation of marks in border cases had also been discussed. The members were satisfied and accorded their appreciation that everything is in-line with the academic systems as per expected standards.

3. ADMINISTRATION

3.1 Administrative Officers

Apart from the statutory posts such as Director and Registrar, the following faculty members listed in Table 3.1 are given additional responsibilities to look after various academic and administrative activities of the Institute with the approval of the Senate. Later the same had been intimated to the Board of Governors.

Table 3.1 Administrative Officers

Sl. No.	Name	Designation
1	Dr. R. Kumar	Dean (Academic)
2	Dr. G. Seetharaman	Dean (Research and Consultancy)
3	Dr. R. Dhanalakshmi	Dean (Faculty Welfare)
4	Mr. Nzanthung Ngullie	Associate Dean (Planning and Development)

5	Dr. Arambam Neelima	Associate Dean (Academic)
6	Dr. Jay Chandra Dhar	Associate Dean (Research)
7	Dr. Amrit Puzari	Associate Dean (Student Affairs)
8	Dr. Dushmanta Kumar Das	HoD, Department of Electrical and Electronics Engineering
9	Dr. Themrichon Tuithung	HoD, Department of Computer Science and Engineering
10	Dr. P. Chinnamuthu	HoD, Department of Electronics and Communication Engineering , Faculty In-charge Purchase Section
11	Dr. Jyoti Prasad Borah	HoD, Department of Science and Humanities
12	Dr. Dipu Sarkar	In-Charge,Training and Placement cell
13	Dr. Naorem Khelchand Singh	Faculty In-charge, Library, Executive Warden
14	Dr. Jhimli Bhattacharyya	Deputy Warden (Girls Hostels)
15	Dr. Shouvik Dey	Deputy Warden (Boys Hostels), Data Center in charge
16	Dr. Debarun Dhar Purkayastha	Deputy Warden (Boys Hostels)

3.2 Administrative / Non-Teaching Staff

The following members (listed below in Table 3.2) were selected based on the recommendations of the Staff Selection Committee through regular interview following the model recruitment rules.

Table 3.2 Administrative / Non-teaching Staff

Sl. No.	Name	Designation	Date of Joining
1	Mr. Binod Doley	Registrar	30-06-2015
2	Dr. Lairenlakpam Shanta Meitei	Assistant Librarian	11-08-2014
3	Mr. Deep Jyoti Gogoi	Sports Officer	01-04-2015
4	Mr. Eliyamo Kithan	Superintendent	09-03-2015
5	Mr. Mhonthung Ngullie	Accountant	09-03-2015
6	Ms. Arenmongla	Nurse	12-03-2015
7	Mr. Bikash Sarma	Technical Assistant (CSE)	18-08-2014
8	Mr. Kamal Kant Kashyap	Technical Assistant (ECE)	11-08-2014

9	Mr. Seizalal Singson	Technical Assistant (ECE)	08-07-2014
10	Mr. V. Mathivanan	Laboratory Assistant (CSE)	08-07-2014
11	Mr. Yanger. A. Walling	Junior Assistant	09-03-2015
12	Mr. Benrio Ngullie	Junior Assistant	09-03-2015
13	Ms. Sunita Mazumder	Junior Assistant	09-03-2015
14	Mr. Pappu Kumar Sharma	Junior Assistant	08-04-2015
15	Mr. Sorenthung Ovung	Library Attendant	08-07-2014
16	Ms. Meribeni Ngullie	Library Attendant	08-07-2014
17	Mr. Neichuto Kin	Workshop Attendant	01-08-2014
18	Ms. Siagailakle	Multitasking Staff	12-03-2015
19	Ms. Kevisinuo Shuya	Multitasking Staff	12-03-2015
20	Raju Basumatry	Junior Engineer	01-04-2016

3.4 Administrative Structure:

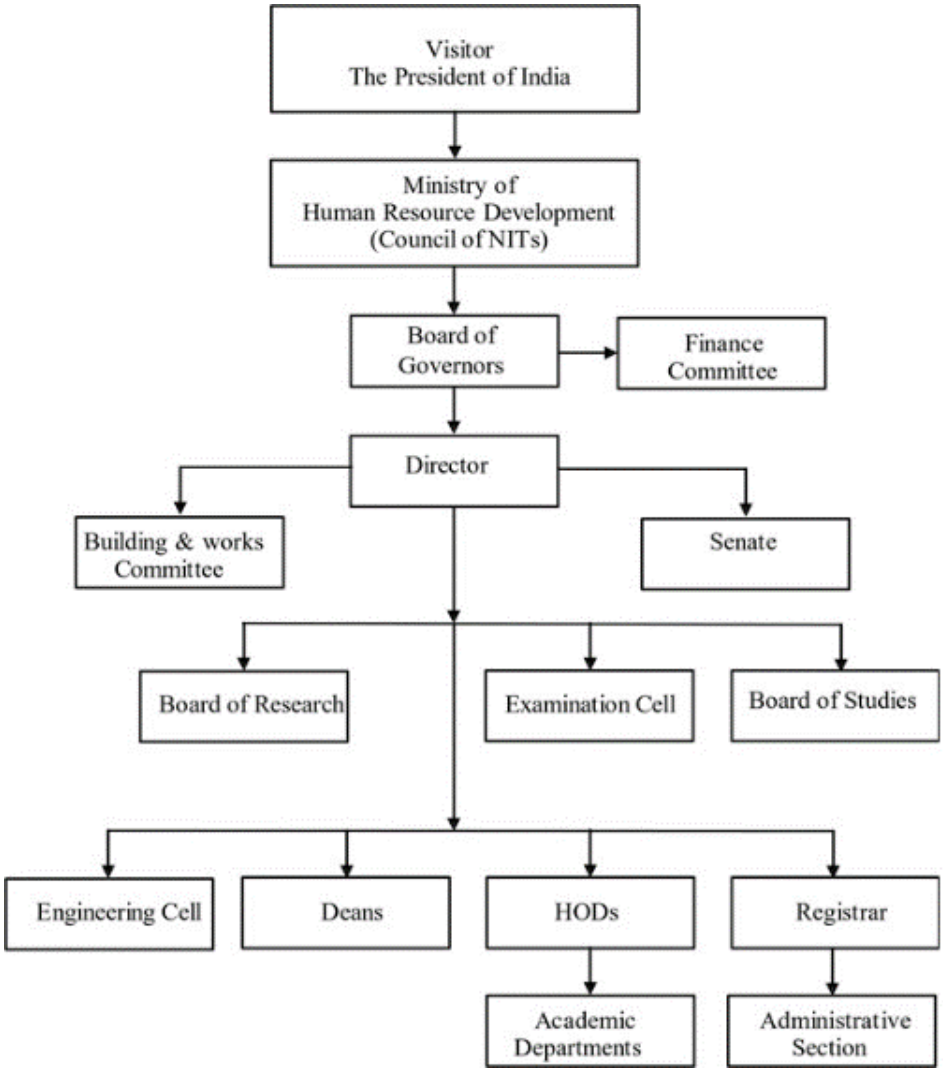

Figure 3.1. Administrative Structure of NIT Nagaland

4. ACADEMIC ACTIVITIES

4.1 National Institute of Technology in Nagaland

With the coming of NIT Nagaland to Chumukedima (Dimapur), the NIT aspirants have been much benefited. The home state reservation is being one of the key opportunities where many students from Nagaland may get admission to the Institution. Apart from the increase in technical manpower, development of the locality and the society is conspicuously visible with the establishment of NIT Nagaland.

4.2 Courses Offered

The Institute offers four years under graduate programmes (B.Tech.) in Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering, Electronics and Instrumentation Engineering, Civil Engineering and Mechanical Engineering. The Institute offers four post graduate programmes (M.Tech.) in Power Systems Engineering, Computer Science and Engineering, VLSI Systems and Communication Engineering and five year dual degree programme (B.S.M.S) in Materials Science and M.Sc Data Analytics.

4.3 Students Strength:

Table 4.1 Bachelor of Technology – Student Strength

Year	CSE	ECE	EEE	EIE	Civil	Mech.	Total
2015-16	12	16	18	-	-	-	46
2016-17	17	5	17	6	15	18	78
2017-18	24	12	24	10	28	18	116
2018-19	27	24	31	14	31	22	149

Table 4.2 Master of Technology – Student Strength

Year	VLSI	Power Systems	CSE	Commn. Engr.	MSc. (Phy.)	Total
2017-18	7	3	7	1	-	18
2018-19	8	3	8	3	9	31

Table 4.3 B.S.M.S. (Materials Science) – Student Strength

Year	B.S.M.S. Materials Science	Total
2014-15	07	07
2015-16	02	02
2016-17	04	04

4.4 Ph.D. Degree Programme

To provide facilities for research activities and to encourage the staff members to pursue research, Ph.D. programme was introduced during the academic year 2012-2013 with special regulations framed in the departments of Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering, Electronics and Instrumentation Engineering, and Mechanical Engineering, Management Studies, Physics, Chemistry, Mathematics and Humanities and Social Sciences. With the approval of the Senate, research scholars had been admitted into all the departments through regular interview. There are 95 research scholars pursuing their research in the Institute as Full time / Part time (Internal) / Part time (External) candidates. The Ph.D. programme is governed by the Special regulations framed to suit the requirements of the newly established Institute. The following table (Table 4.4) shows the number of candidates admitted (department-wise)

till the academic year 2017– 2018. Two candidates were awarded PhD degree in the academic year 2017-18.

Table 4.4 Department-wise Research Scholars' Strength

Sl. No	Department	No. of scholars admitted
1	Electrical and Electronics Engineering	05
2	Electronics and Communication Engineering	04
3	Computer Science and Engineering	07
4	Electronics and Instrumentation Engineering	03
5	Mechanical Engineering	01
6	Management Studies	01
7	Maths	02
8	Physics	03
9	Chemistry	04
10	Humanities and Social Sciences	04
	Total	34

4.5 Details of Guest/ Special Lectures

To cope up the academic requirements, Guest Faculties were invited and classes were conducted regularly. The details of the guest lecturers delivered during the academic year 2017-18 to meet the academic requirements are furnished below in the Table 4.5:

Table 4.5 Details of Guest / Special Lectures

Sl. No	Department	Name of Guest Faculty	Date of the event	Designation / Resource Person Organization	Course / Lecture Title
1	Science and Humanities	Mr. Sadagopan Appuienga	15-17 Mar,2018	Rtd. Assistant general manager, BSNL Tamilnadu telecom circle	Engineering Economics
2	Science and Humanities	Dr. Nabin Sharma	11-13 Feb.,2018	Assistant Professor, Department of Energy, Tezpur University	Materials Foundations for Energy Applications
3	Science and Humanities	Dr. Kishor Barua	14-15 Oct., 2018	Department of Physics, Tezpur University	Bridge course of B.Tech-I year, Physics
4	Science and Humanities	Dr. B.C. Neog,	14-15, Oct, 2017	Principal, Jagiroad College, Assam	Bridge course of B.Tech-I year, Mathematics
5	Science and Humanities	Dr. Sanjay Singh	14-15, Oct, 2017	Assistant Professor, Department of Chemistry Nagaon college	Bridge course of B.Tech-I year, Chemistry
6	Science and Humanities	Dr. Bhaba Sharma	11/12/2017 12/12/2017	Professor Department of Mathematics IIT Guwahati, Assam	Invitation to enumerative Combinatorics
7	Mathematics	Dr. Ashok Ji Gupta	11/12/2017 12/12/2017	Associate Professor Department of Mathematics, IIT BHU, Varanasi	Cryptography and Coding Theory
8	Mathematics	Dr.Siva Dutt Kumar	12-13 Dec. 2017	Professor Department of Mathematics,	Computational Approach of

				MNNIT, Allahabad, UP.	Modern Algebra
9	Mathematics	Dr. Kedar Nath Das	14 Dec. 2017	Assistant Professor Department of Mathematics NIT Silchar	Graph Theoretic approach for Evolutionary Optimization
10	Mathematics	Dr. Sant Sharan Mishra	14-15 Dec.2017	Professor Department of Mathematics & Statistics. Dr.RML Avadh University,Faizabad,UP.	Fuzzy Systems and Fuzzy Optimization Techniques
11	Mathematics	Dr. Ashok Ji Gupta	11/12/2017 12/12/2017	Associate Professor Department of Mathematics, IIT BHU, Varanasi	Cryptography and Coding Theory

4.6 Result statistics

The fourth batch of B.Tech. Students completed their course and graduated in the academic year 2017 -2018. All the grade cards along with their provisional degree certificates, transfer certificates, migration certificates and conduct certificates were provided to those students who have successfully completed their degree programme. The result statistics is mentioned below (Table 4.6):

Result statistics

Table 4.6: No. of students graduated

Sl. No.	Degree Awarded (2014-2018 Batch)	No. of Students appeared	No. of Students passed
1	B.Tech. in Computer Science and Engineering	22	22
2	B.Tech. in Electronics and	19	19

	Communication Engineering		
3	B.Tech. in Electrical and Electronics Engineering	21	19

The Table 4.7 below shows the list of students who have topped the institute and their respective department:

Table 4.7 Institute Topper (2014-18 Batch)

Sl. No.	Registration No.	Name of the Student	CGPA	Classification	Department
1	2014103111	Monika Kumari	9.82	First Class with Distinction	EEE

Department Level Toppers (2014-2018 Batch)

Sl. No.	Registration No.	Name of the Student	CGPA	Classification	Department
1	2014105099	Pooja Bajaj	9.65	First Class with Distinction	CSE
2	2014104126	Ravi Kumar Verma	9.47	First Class with Distinction	ECE
3	2014104128	Suraj Kumar	9.47		
4	2014103111	Monika Kumari	9.82	First Class with Distinction	EEE

The Institute recognizes the efforts of the students, who have shown academic excellence, by awarding Gold Medals to the toppers of the Institute and also at Department level. The Table 4.8 below shows the list of students who have been awarded with Gold Medals:

Table 4.8 Institute Topper (2013-17 Batch)

Sl. No.	Registration No.	Name of the Student	CGPA	Classification	Department
1.	2013103087	BODAVULA NAGA SAI KRISHNA	9.31	First Class with Distinction	EEE

Department Level Toppers (2013-2017 Batch)

Sl. No.	Registration No.	Name of the Student	CGPA	Classification	Department
1	2013105071	INDRASEN SINGH	9.25	First Class with Distinction	CSE
2	2013104099	NITESH SRIVASTAVA	8.90	First Class with Distinction	ECE
3	2013103087	BODAVULA NAGA SAI KRISHNA	9.31	First Class with Distinction	EEE

5. Academic Departments

5.1. Computer Science and Engineering

The list of Faculty / Staff in the Department of Computer Science and Engineering are mentioned below in the Table 5.1:

Table 5.1 Faculty in Department of Computer Science and Engineering

Name of the Faculty	Designation
Dr. Themrichon Tuithung	Professor
Dr. R. Dhanalakshmi	Associate Professor
Dr. Shouvik Dey	Assistant Professor
Dr. Neelima Arambam	Assistant Professor
Mr. Arul Valan	Assistant Professor
Mr. Nagaraju	Assistant Professor
Mr. Lithungo Murry	Assistant Professor
Mr. Dilwar Hussian	Assistant Professor
Mr. Sibesh Lodh	Assistant Professor
On Contractual Basis	
Ms. Rumpa Hazarika	Assistant Professor
Mr. Dolendro Singh	Assistant Professor

The list of laboratories available in the Department of Computer Science and Engineering are mentioned below (Table 5.2):

Table 5.2 Department of Computer Science and Engineering – Laboratories

Sl. No.	Name of Laboratory
1	Programming Laboratory

2	Computer Networks Laboratory
3	XML and Web Services Laboratory
4	Computer Graphics Laboratory
5	Operating Systems Laboratory
6	Database Management Systems Laboratory
7	Service Oriented Architecture Laboratory

5.1.1 Publications and Patents by the Faculty of the Department - CSE:

1. Pranjit Das; **Arambam Neelima**, "An overview of approaches for content-based medical image retrieval" International Journal of Multimedia Information Retrieval, **December 2017**, Volume 6, Issue 4, pp 271–280.

2. Chitralekha Chongtham, M. J. Sanada Khumanthem, Y. Jina Chanu, **Neelima Arambam**, Dalton Meitei, P. Roji Chanu, Kh Manglem Singh, " A Copyright Protection Scheme for Videos Based on the SIFT" Iranian Journal of Science and Technology, Transactions of Electrical Engineering, **March 2018**, Volume 42, Issue 1, pp 107–121.

3. Pranesh Das, Dushmanta Kumar Das, **Shouvik Dey**, "A New Class Topper Optimization Algorithm with an application to Data Clustering", IEEE Transactions on Emerging Topics in Computing, March, 2018.

4. Rumpa Hazra, **Shouvik Dey**, Jayashree Singha, "Modeling, Analysis and Verification of Real-Time Resource Access Control Protocols: A Formal Approach", International Journal of Computers and Applications (Taylor & Francis), Vol. 40, pp. 63-72, Aug. 2017.

5.1.2 Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

1. Alongbar Wary**; Neelima Arambam**, "Content Based Image Retrieval Using Color, Texture and Shape Features", National Conference on Advances in Science Engineering and Technology (ASET), **November 2017**, Assam, India.

2. D. H. Mazumder and V. Ramachandran, "Binary Biogeography-Based Optimization Applied to Gene Selection for Cancer Classification Using Artificial Neural

Network", Proceedings of the twentieth IEEE UKSim-AMSS International Conference on Modelling & Simulation, Vol. 20, pp. 43–48, Cambridge University, UK, March, 2018

3. Pranesh Das, Dushmanta Kumar Das, **Shouvik Dey**, "PSO, BCO and K-means Based Hybridized Optimization Algorithms for Data Clustering", 16th International Conference on Information Technology (ICIT – 2017), India, Dec 21-23, 2017.

4. Pranesh Das, Dushmanta Kumar Das, **Shouvik Dey**, "A Multi-objective Modified Particle Swarm Optimization (MMPSO) technique with an application to data clustering", 14th IEEE India Council International Conference, INDICON-2017, India, 15-17 Dec, 2017

5.1.3 Research Projects:

1. Dr. Shouvik Dey (Prinicipal Investigator): Project titled "Development of an Automated Intelligent System to comprehend Non-Communicable Autistic Expressions", funded by SERB and Sanctioned amount is Rs.16,45,600/-, for a duration of 3 years (2016 – 2019)

5.2 Electronics and Communication Engineering

The list of Faculty/Staff in the Department of Electronics and Communication Engineering are mentioned below (Table 5.3):

Table 5.3 Faculty in Department of ECE

Name of the Faculty	Designation
Dr. P. Chinnamuthu	Assistant Professor, Head
Dr. G. Seetharaman	Associate Professor
Dr. Debadatta Pati	Assistant Professor
Dr. Naorem Khelchand Singh	Assistant Professor
Dr. Jay Chandra Dhar	Assistant Professor

Ms. Palungbam Roji Chanu	Assistant Professor
Mr. Madhusudan Singh	Assistant Professor
On Contractual Basis	
Mr. Bijit Choudhuri	Assistant Professor

The list of laboratories available in the Department of Electronics and Communication Engineering are mentioned below (Table 5.4):

Table 5.4 Department of ECE– Laboratories

Sl. No	Name of Laboratory
1	Basic Electronics Laboratory
2	Digital Principles and System Design Laboratory
3	Electronic Circuits Laboratory
4	Microprocessor and Microcontroller Laboratory
5	Linear Integrated Circuits Laboratory
6	Embedded Systems Laboratory
7	Digital Signal Processing Laboratory
8	Control System Laboratory
9	VLSI Design Laboratory
10	Microwave and Optical Communication Laboratory
11	Digital Communication Laboratory
12	System on Chip Laboratory
13	Semiconductor Devices Laboratory
14	Speech Processing and Pattern Recognition Laboratory
15	Intel Center of Excellence
16	NI Center of Excellence

5.2.1 Publications by the Faculty of the Department -:

1. Rajshree Rajkumari and **Naorem Khelchand Singh** "Influence of Annealing on the Optoelectronic Properties of the GLAD Synthesized SiOx-ZnO Heterostructure

Nanoclusters," Appl. Phys. A (2018) 124: 264. DOI: **https://doi.org/10.1007/s00339-018-1687-1.**

2. Anupam Ghosh, Shyam Murli Manohar Dhar Dwivedi, Hemant Ghadi, **P Chinnamuthu**, Subhananda Chakrabarti, Aniruddha Mondal "Boosted UV Sensitivity of Er-Doped In2O3 Thin Films Using Plasmonic Ag Nanoparticle-Based Surface Texturing," Plasmonics, 13, 1105-1113.
3. L. Sophia Devi and P. Chinnamuthu "Synthesis of Erbia decorated Titania Nanowires Array using Glancing Angle Deposition Technique", ICETNMST, Dimapur, India, January 1st -6th, (2017).
4. Monalisa Hazarika, J. P. Borah and P. Chinnamuthu, "Synthesis and Characterization of MnFe2O4/MWCNT Nanocomposites by Hydrothermal Method and their Application as photo catalyst", International Conference on Advances in Nanotechnology, Assam, India, 9-13th January, (2017).
5. Ch. Khengdauliu ,Jay Chandra Dhar "Enhanced Photodetection using Ag nanoparticle decorated ZnO thin film" ICETNMST-2017 NIT Nagaland, 4-6th Jan 2017.
6. Romeo Meitei, Naorem Khelchand Singh, "Synthesis of In2O3 nanowires forth application of LPG sensor" ICETNMST-2017 NIT Nagaland, 4-6th Jan 2017.
7. Madhusudan Singh, J. Mishra and D. Pati "Usefulness of linear prediction residual signal for development of replay attacks detection system" NCC , 4-6 March 2017.
8. Palungbam Roji Chanu, "Vector Median Filters : A survey", IJCSNS, vol.16, no.12,Dec. 2016

5.2.2 Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

1. J Mishra, **M Singh** and **D Pati**, " Exploring linear prediction residual signal for developing countermeasures to playback attacks", IEEE-SCEECS-2018, 2018.
2. Ms. Palungbam Roji Chanu attended "Xilinx vivado design flow targeting Xilinx FPGA and Zynq SOC architecture", NIT Nagaland, April 2016
3. Ms. Palungbam Roji Chanu attended "Writing magic with latex", NIT Nagaland, May 2016.

5.2.3 Departmental Activities:

Sl. No.	Title of Workshop	Venue	Duration		
			From	To	No. of Days
1.	Recent Trends In Nanotechnology And Its Application	NIT Nagaland	22/02/18	26/02/18	5
2.	Design & Implementation Of Digital Circuits In Xilinx, Altera, Cadence And Synopsys Tools Using Front End & Back End	NIT Nagaland	04/02/18	08/02/18	5

5.2.4 Research Projects:

1. **P. Chinnamuthu** (**Principal Investigator**): Project titled as **"**Synthesis and characterization of TiO_2/MnO_2 NWs assembly for Photodetector Application".
2. **P. Chinnamuthu (Co-Principal Investigator)** Project titled as "Remote Monitoring and Control for Smart Agriculture with Internet of Things (IOT) in North-East (NE) Region of India".

5.3 Electrical and Electronics Engineering

The list of faculty in the Department of Electronics and Instrumentation Engineering are mentioned below

Table 5.5 Faculty in Department of Electrical and Electronics

Name of the Faculty	Designation
Dr. Dushmanta Kumar Das	Assistant Professor and HOD
Ms. D. Ganga	Assistant Professor

Dr. Dipu Sarkar	Assistant Professor
Mr. M. Prakash	Assistant Professor
Ms. B. Shakila	Assistant Professor
Mr. Swaraj Banerjee	Assistant Professor
On Contractual Basis	
Mr. Gandikota Gurumurthy	Assistant Professor
Dr. Shekha Rai	Assistant Professor

The list of laboratories available in the Department of Electrical and Electronics Engineering are mentioned below (Table 5.8):

Table 5.6 Department of EEE– Laboratories

Sl. No.	Name of the Laboratory
1.	Power System Laboratory
2.	Electrical Machine Laboratory
3.	Embedded System Laboratory
4.	Measurement and Instrumentation Laboratory
5.	Data Acquisition Laboratory
6.	Advance control System Laboratory
7.	Power Electronics Laboratory

5.3.1 Publications in journals by the Faculty of the Department EEE

1. Pranesh Das, Dushmanta Kumar Das and Shouvik Dey "Development of Modified Beecolony Optimization (MBCO) and Hybrid MBCO Techniques: an application to data Clustering", Applied soft computing (Elsevier), 2018.

2. Pranesh Das, Dushmanta Kumar Das and Shouvik Dey "A New class Top Per Optimization Algorithm with an Application to Data Clustering", Journal of

advanced research in IEEE Transactions on Emerging topics in Computing (IEEE) Issue: 18 special issue, 2018.

3. Shakila Baskaran and Themrichon Tuithung, "Security Enhancement in Smart Distribution Grid with Light-Weight Dynamic Key Encryption", Journal of Scientific and Industrial Research, 2018.

Publications in Conference by the Faculty of the Department EEE: -

1. Abhishek Srivastava and Dushmanta Kumar Das "A PSO based fractional order PI (FOPI) controller design for a shunt active Power Filter for harmonic Elimination" IEEE conference UPCON 2018.

2. Lakshmi Dutta and Dushmanta Kumar Das "A Comparative Analysis of Real-time state estimation using Kalman and Extented Kalman Filters for TRMS" IEEE conference AESPC-2018, KIIT, BBSR. 2018

3. Abhishek Srivastava, Dushmanta Kumar Das and Gandikota Gurumurthy "C fractional Order PI (FOPI) Controller Design for Shunt active power Filter for Harmonic Elimination in power system" IEEE conference ICRIEECE-2018, KIIT, BBSR. 2018

4. Gandikota Gurumurthy, Dushmanta Kumar Das and Abhisek Srivastava "An FOPI Controller Design for Coupled-tank TITO process using whale Optimization Algorithm" IEEE conference ICRIEECE-2018, KIIT, BBSR.2018.

5. Ankur Rai and Dushmanta Kumar Das "Design of Fractional Order PI (FOPI) controller to control the speed of DC servo motor: A real time approach" IEEE conference ICRIEECE-2018, KIIT, BBSR.2018.

6. Dushmanta Kumar Das, Sandip Ghosh and Bidyadhar Subudhi " state feedback PI-controller for Robust stability analysis and stabilization of Input-delayed system" ICEEN-2018 NTU, Singapore. 2018.

7. Abhishek Srivastava and Dushmanta Kumar Das "A whale Optimization Algorithm based shunt active Power Filter for Power Quality Improvement" ICEEN-2018 NTU, Singapore. 2018.

8. Dushmanta Kumar Das, Sandip Ghosh and Bidyadhar Subudhi "Delay- dependent robust stability analysis and stabilization of linear system using a simple delay-discretization approach" ACODS-2018, Hyderabad, 2018.

9. Abhishek Srivastava, Dushmanta Kumar Das, Ankur Rai and Rakshit Raj "Parameter Estimation a Permanent magnet synchronous Motor using Whale Optimization Algorithm" IEEE conference RAETCS-2018. 2018.

10. Gandikota Gurumurthy, Dushmanta Kumar Das and Pankaj Mathpal "Design of an FOPI Controller for Inverted Decouple TITO Coupled-tank system using Grey wolf Algorithm: A real-time Implementation" IEEE INDICON-2017, IIT Roorkee, 2017.

5.3.2 Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

1. Dushmanta Kumar Das organized a 5 days' National workshop on "Application of MAT-LAB in Electrical Engineering" at NIT Nagaland, October 19th to 23rd, 2017.

2. Dushmanta Kumar Das organized a 5 days' National workshop on "control system engineering and its application: simulation and real-time implementation using MATLAB and Labview Platform" at NIT Nagaland, February 05th to 09nd, 2017.

3. Dushmanta Kumar Das conducted a 4 days' National workshop on "industrial Automation uses DCS and PLC" at NIT Nagaland, 25th to29 January, 2018.

4. Dushmanta Kumar Das organized a 5 days' National workshop on "Android Application Development" at NIT Nagaland, February 06th to 10th, 2018.

5. Dushmanta Kumar Das attended a workshop on "outcome based education (OBE) for Engineering Programs" at national project Implementation unit (NPIU), March. 6th to 10th, 2018.

6. Dushmanta Kumar Das attended a workshop on "National Level workshop on NBA and NAAC Accreditation" at MHRD, 2017.

7. Shakila Baskaran Organized TEQIP III sponsored 5 days' workshop on "Optimization Techniques and Big Data Analytics Tools for Engineering Solutions" at NIT Nagaland from April 9th – 13th, 2018.

8. M. Prakash and P. Chinnamuthu, "Optimal Sizing of Integrated Renewable Energy System Based on Demand Response", IEEE International Conference on Advances in Computing and Communication Engineering, 22-23 June 2018, Paris, France.

9. Shakila Baskaran and Themrichon Tuithung, "Performance Metrics Evaluation of Secured Zigbee Communication Networks in Smart Distribution Grid", IEEE International Conference on Advances in Computing and Communication Engineering, 22-23 June 2018, Paris, France.

10. Shakila Baskaran and Themrichon Tuithung, "Remote Monitoring and Control of Smart Distribution Grid Using Xbee Communication", IEEE International Conference on Current Trends towards Converging Technologies, 01-03 March 2018, Coimbatore, India.

5.3.3 Research Project:

1. **Dushmanta Kumar Das** (**Principal Investigator**): Project titled as **"**Remote monitoring and control for smart agriculture with Internet of Things (IOT) in North-East (NE) region of India".

5.4 Electronics and Instrumentation Engineering

The list of faculty in the Department of Electronics and Instrumentation Engineering are mentioned below

Table 5.7 Faculty in Department of Electronics and Instrumentation

Name of the Faculty	Designation
Dr. R. Kumar	Professor
Dr. Dushmanta Kumar Das	Assistant Professor and HOD
On Contractual Basis	
Subhashish Bhakta	Assistant Professor

The list of laboratories available in the Department of Electronics and Instrumentation Engineering are mentioned below (Table 5.8):

Table 5.8 Department of EIE– Laboratories

Sl. No.	Name of the Laboratory
1.	DCS &PLC Laboratory
2.	RTOS Laboratory
3.	Virtual Instrumentation Laboratory
4.	Transducers and Sensors Laboratory
5.	Instrumentation system design laboratory
6.	Process control laboratory

5.4.1 Publications in journals by the Faculty of the Department EIE: -

1. Fenil. C. Panwala, **R. Kumar** "Modeling and Analysis of asymmetric Sieve shaped Skewed type microchannel network in BioMEMS for mass and size based mammalian cell separation and sorting using filtration method", Revista de la Facultad de Agronomia journal, ISSN 0378-7818, Vol 34, Issue 4, PP 566-591, 2017.

2. Fenil. C. Panwala, **R. Kumar**, Trigunesh Narzary, A. Vimala Juliet "An Enhanced and Sieve type microchannel network simulation model to detect the separation of size and mass dependent bacteria in microfluidics device", Journal of advanced research in dynamical and control systems (ISSN 1943-023X), Issue: 18 special issue, PP 1109-1124, 2017.

3. S.Sundar and Arita basu, Arunava Kar, **R. Kumar**, Harish Mallikarjun Kittur " Shortest path establishment approaches for static and dynamic mobile nodes with quality of service", Electronic Government, An international Journal, Vol-14, No.1,2018.

4. S.Sundar, **R. Kumar**, Harish M.Kittur, "Survey of Indoor Positioning Techniques and Systems for mobile Nodes" (Accepted for publication in Journal of Engineering and Applied Sciences).

5. Sundar S, **R. Kumar**, and Kittur H.M "Improved Indoor Location Tracking System for Mobile Nodes", Int. J. of Computer Aided Engineering and Technology (Accepted for publication in Inderscience Publishers for special issue in Future Directions in Computer Aided Engineering and Technology).

6. A Suresh, **R. Kumar** and E. Kannan "Confidentiality Protection and Ideal Classification Nature of C4.5 Algorithm"Journal of Advanced Research in Dynamical and Control Systems,Volume 10, Issue 01-Special Issue,Pages: 286-291,Feb 2018.

7. A.Suresh, **R. Kumar** and R. Varatharajan,"Health care data analysis using evolutionary algorithm", The Journal of Supercomputing, Springer, Vol. 74, Issue 4 Pages: 1-10 ,March 2018.

Publications in Conference by the Faculty of the Department EIE: -

1. B.Karthikeyan, **R. Kumar**, Srinivasa Rao, Inabathini, "Energy Efficient Data Compression and Aggregation Technique for Wireless Sensor Networks", IEEE Xplore, In the Conference proceeding of International Conference on Nextgen Electronic Technologies: Silicon to Software (ICNETS2) Chennai,India, 23-25 March 2018. DOI: 10.1109/ICNETS2.2017.8067932.

2. M Shanmugasundaram, Digvijay Shinde, **R Kumar** and Kittur H M, "Comparative analysis of Scientific Workflow Scheduling in Cloud Environment", In the Conference proceeding of International Conference on Innovations in Power and Advanced Computing Technologies (IEEE Conference),21 & 22 April, 2017. 4th January 2018.DOI: 10.1109/IPACT .2017.8245020.

3. S.Sundar, V. Balakrishnan, **R. Kumar**, Harish M.Kittur, "Shortest path solution to Wireless Sensor Networks using Edge based Three Point Steiner tree concept" In the Conference proceeding of International Conference on Nextgen Electronic Technologies: Silicon to Software (ICNETS2), 23rd to 25th March 2018.

4. .B. Karthikeyan, **R. Kumar**, Srinivasa Rao Inabathini "Energy Efficient Data Compression and Aggregation Technique for Wireless sensor Networks [TELSOB MOTES]", In the Conference proceeding of International Conference on Nextgen Electronic Technologies(IEEE Conference), Chennai, 23rd to 25th March 2018.

5. Trigunesh Narzary, **R. Kumar** and Fenil Panwala, "MEMS-Based Diaphragm Pressure Sensor using S-shaped Piezoresistors for Enhancing Sensitivity", In the Conference proceeding of IEEE International Conference on Recent Trends in Electrical, Control and Communication (RTECC-18)", Chennai, 20th - 22nd, March 2018.

Contribution in a book chapter:

1. **R. Kumar** and Fenil. C. Panwala, "Micropatterning in BioMEMS for separation of cells/bioparticles" Book Title: MEMS Sensors-Design and Applications, InTech Publication, Rijeka Croatia-European Union, ISBN:978-1-78923-395-7 and Print ISBN: 978-1-78923-394-0, pp 71-90, 2018.

5.4.2 Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

1. **R. Kumar** organized a 3 days' workshop on "PLC in Automation" at NIT Nagaland, February 16th to 18th, 2017.
2. **R. Kumar** organized a 3 days' workshop on "Vxworks7 Programming" at NIT Nagaland, February 20th to 22nd, 2017.
3. **R. Kumar** conducted a 5 days workshop on "Aptitude, boot camp and Mock Interview" for Final year students (B.tech-CSE,EEE and ECE) at NIT Nagaland, July 24th to August 5th, 2017.
4. **R. Kumar** organized a 5 days workshop on "Industrial Automation using PLC and DCS" at NIT Nagaland, January 25th to 29th, 2018.
5. **R. Kumar** organized a 5 days workshop on "Android Application Development" at NIT Nagaland, March. 6th to 10th, 2017.
6. **R. Kumar** organized a 5 days workshop on "Raspberry PI based Industrial Application with IOT Technology" at NIT Nagaland, March. 27th to 31th, 2017.
7. **R. Kumar** organized a 5 days workshop on "Industrial application-practical exercises with the programmable controller(PLC)" at NIT Nagaland, March. 27th to 31th, 2017.
8. **R. Kumar** attended workshop on "ARM Cortex M4 Programming" at National Institute of Technical Teacher Training and Research (NITTTR), Chennai-113, October 5th to 7th, 2017.

5.5 Civil Engineering

The list of faculty in the Department of Civil Engineering are mentioned below

Table 5.9 Faculty / Staff in Department of Civil Engineering

Name of the Faculty	Designation
Mr. Nzanthung Ngullie	Assistant Professor
Mr. Kevinguto Khate	Assistant Professor
On Contractual Basis	
Dr. Yagom Gapak	Assistant Professor
Dr. N. Maheshkumar Singh	Assistant Professor

The list of laboratories available in the Department of Civil Engineering is mentioned below (Table 5.10, Figure 5.1):

Table 5.10 Department of Civil Engineering – Laboratories

Sl. No.	Name of Laboratory
1.	Surveying Laboratory
2.	Concrete Technology Laboratory
3.	Transportation Engineering Laboratory
4.	Fluid Mechanics Laboratory
5.	Environmental Engineering Laboratory
6.	Geotechnical Engineering Laboratory
7.	Computational Engineering Laboratory
8.	Non-Destructive Testing Laboratory

Laboratories:

Figure 5.1: Civil Lab

Figure 5.2: Visit to Dimapur City Water Treatment plant and Survey Laboratory

Figure 5.3: Soil Mechanics Laboratory and Concrete Laboratory

Figure 5.4: Departmental Buildings under construction

5.1.1 Publications by the Faculty of the Department:

1. **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, pages nos-948-959,2018.

2. **Gapak, Y**. and Bharat, T.V. (2018). "Hysteretic water retention behaviour of bentonites",*Journal of Hazardous, Toxic and Radioactive waste*, ASCE, 22(3),04018008

3. Bharat,T.V., and **Gapak, Y**. (2018) "Hydration kinetics of bentonite buffer material: Influence of vapor pressure, bentonite plasticity and compaction density." *Applied* Clay Science, 157,41-58.

5.1.2 Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

1. Gapak,Y and Bharat,T.V(2017)."Hysteresis in soil water characteristics of a highly plastic clay", Indian Geotechnical conference,IGC 2017,IIT Guwahati.

2. Gapak, Y and Bharat, T.V(2018)."Wetting and drying water retention curve of Indian betonies", International conference on Advances in Concrete, Structural and Geotechnical Engineering, BITS Pilani

5.1.3 Departmental Activities:

1. Study visit to the Dimapur City Water Supply Treatment plant under Department of Public Health and Engineering, Government of Nagaland in Chumukedima "A" Village on 24th March 2018.

5.1.4 Consultancy Projects:

1. **Nzanthung Ngullie (Principal Investigator):** Material testing and investigations for North East Region Power System Improvement Project (NERPSIP) Project undertaken in the state of Nagaland, Power Grid Corporation of India Limited.

2. **Nzanthung Ngullie & Kevinguto Khate (Principal Investigators):** Concrete Design Mix, material testing and investigations for various sites in Kohima- Dimapur National Highway 29 under NHIDC.

5.6 Mechanical Engineering

The list of faculty in the Department of Mechanical Engineering are mentioned below

Table 5.11 Faculty in Department of Mechanical Engineering

Name of the Faculty	Designation
ROSANG PONGEN	ASSISTANT PROFESSOR
On Contractual Basis	
Dr THINGUJAM JACKSON SINGH	ASSISTANT PROFESSOR
OKEPONG LONGKUMAR	ASSISTANT PROFESSOR

The list of laboratories available in the Department of Mechanical Engineering are mentioned below (Table 5.12):

Table 5.12 Department of ME– Laboratories

Sl.NO	Name of Laboratory
1	Strength of materials laboratory
2	Production process laboratory
3	Thermal engineering laboratory
4	Fluid mechanics and hydraulics laboratory
5	Heat and mass transfer laboratory
6	Dynamics and mechatronics laboratory
7	Workshop

5.6.1 Publications by the Faculty of the Department:

1. **Rosang Pongen**, "OPTIMIZATION OF DIE CASTING PROCESS PARAMETERS OF A713 ALLOY BY USING GENETIC ALGORITHM APPROACH" Rev.Fac.Agron. (LUZ). 2017 34: 165-177.

2. **Th. Jackson Singh**, "parametric optimization in drilling of bamboo/basalt hybrid composite" Materials Today; proceedings 5 (2018) 5544-5552.

Laboratories and Machines:

Figure 5.5: Production and Dynamics

Figure 5.6: Strength of materials and Fluid mechanics

Figure 5.7: Thermal and Heat transfer

Figure 5.8: Mechatronics

5.7 Science & Humanities

Table 5.13: Faculty / Staff in Department of S& H

Name of the Faculty	**Designation**
Dr. Jyoti Prasad Borah	Assistant Professor
Dr. Amrit Puzari	Assistant Professor
Dr. Jhimli Bhattacharya	Assistant Professor
Dr. Debarun Dhar Purakayastha	Assistant Professor
Dr. Manoj Kumar Patel	Assistant Professor
Dr. Prem Prakash Mishra	Assistant Professor
Dr. Wati Walling	Assistant Professor
On Contractual Basis	
Dr. Rosaline Jamir	Visiting Professor
Dr. Nirmala Devi	Assistant Professor
Dr. Jagat Dwipendra Ray	Assistant Professor
Dr. Anirban Mazumdar	Assistant Professor

Table 5.14: The list of laboratories available in the Department of Science and Humanities are mentioned below:

Sl. No	Name of the Laboratory
1	Physics Laboratory
2	Chemistry Laboratory
3	Computational Laboratory

5.7.1 Publications by the Faculty of the Department -:

Dr. Jyoti Prasad Borah

1. D Saikia **, J.P.Borah**, Carrier induced ferromagnetism in half metallic Co doped ZnS diluted magnetic semiconductor: A DFT study" **, Applied Physics A 124:240, (2018),** doi.org/10.1007/s00339-018-1623-4
2. Monalisa Hazarika, P.Chinnamuthu, **J. P.Borah**, "MWCNT decorated $MnFe_2O_4$ nanoparticles as an efficient photo-catalyst for phenol degradation**" Journal of Materials Science: Materials in Electronics** 29(14), 12231–12240 **(2018) d**oi.org/10.1007/s10854-018-9334-3
3. Papori Seal, Monalisa Hazarika, Nibedita Paul, and **J. P. Borah**, "MWCNT-$MnFe_2O_4$ nanocomposite for efficient hyperthermia applications" **AIP Conference Proceedings 1942, 050083 (2018) doi.org/10.1063/1.5028714**
4. D Saikia **, J.P.Borah,** " Ferromagnetic ordering in chemically synthesized ZnS:Mn diluted magnetic semiconductor: A density functional theory explanation" **, Physics Letters A , 381, 3743-3746 (2017) doi.org/10.1016/j.physleta.2017.09.018**
5. RD. Raland**,** D Saikia **, J.P.Borah,** " Heating efficiency and correlation between the structural and magnetic properties of oleic acid coated MnFe2O4 nanoparticles for magnetic hyperthermia application" **, J. Phys. D: Appl. Phys 50 (32) 325004 (2017), doi.org/10.1088/1361-6463/aa77e9**
6. Nibedita Paul**, J.P.Borah** and Dambarudhar Mohanta**, "**Temperature Responsive Gadolinium Oxide Nanoparticles for Hyperthermia Application**" AIP Conference Proceeding 1832, 050125 (2017), doi.org/10.1063/1.4980358**

7. D Saikia, **J.P.Borah,** " Investigations of doping induced structural, optical and magnetic properties of Ni doped ZnS diluted magnetic semiconductors" , **Journal of Materials Science: Materials in Electronics** 28 (11), 8029–8037 (**2017), 10.1007/s10854-017-6508-3**
8. RD.Raland, **J.P.Borah "**Efficacy of heat generation in CTAB coated Mn doped $ZnFe_2O_4$ nanoparticles for magnetic hyperthermia", **J. Phys. D: Appl. Phys**. 50 (**2017**) 035001, 10.1088/1361-6463/aa4e9a

Dr. Amrit Puzari

1. Shyamal Baruah, **Amrit Puzari**, Development of a new methodology for the synthesis of chloro(glycinato) 1,10 phenanthroline copper(II) monohydrate and analogous complexes and study of their catalytic activity towards selective hydroxylation of phenol , Inorganic Nano-Metal Chemistry, 2017, 47(11), 1542-1547.
2. Shyamal Baruah, Farhana Begum, Jayanta Barman and **Amrit Puzari**, *Synthesis,characterization and evaluation of antimicrobial properties of (R)-(-)-4-Phenyl-2 oxazolidinone based azetidinones*, Anti infective Agents, Vol 16(2) (2018) 104 – 113. DOI: 10.2174/2211352516666180619153317
3. Shyamal Baruah, Nirmala Devi and **Amrit Puzari** "*Synthesis and characterization of Poly (p-phenylenediamine) – TiO_2nanocomposites and investigation of conducting properties for optoelectronic application*" Materials Science – Poland, initially accepted.

Dr. Debarun Dhar Purakayashtha

1. Praveena Ravipati, S. Sameera Vanjarana, **Debarun Dhar Purkayastha**, and Ghanashyam K. Mamidipudi, Iodization-Induced Reversible Wettability in Nanostructured Ag Films, Physica Status Solidi, 214 (2017), 1700335.
2. Talinungsang, Nibedita Paul and **Debarun Dhar Purkayastha**, "SnO_2/TiO_2 Bilayer Thin Films Exhibiting Superhydrophilic Properties" AIP Conference Proceedings 1832, 080035 (2017).
3. Talinungsang, **Debarun Dhar Purkayastha,** M. Ghanashyam Krishna, Dopant controlled photoinduced hydrophilicity and photocatalytic activity of SnO_2 thin films, Applied Surface Science, 447 (2018), 724–731.

Dr. Manoj Kumar Patel

1. M. K. Patel (with S. K. Choubey & V. Kumar), On weak* Rad-⊕-Supplemented Modules, *Maejo Int. J. Sci. Technol., Vol. 11(03), 264-274,* (SCI, Impact factor : 0.329) 2017.

2. M. K. Patel (with V. Kumar and A. J. Gupta), On Semi-Projective Module and their endomorphism rings, (Accepted-2017), *Asian European Journal of Mathematics (World Scientific)* ISSN: 1793-5571, https://doi.org/10.1142/S1793557118500298 , Vol. 11, No. 02, 1850029 (2018).

3. M. K. Patel (with J. R. Yimchunger), Closed Injective Modules-An Overview, Rüsie : A Journal of Contemporary Scientific, Academic and Social Issues, Vol. No. 4, Page No. 35-39, 2017.

4. M. K. Patel (L. K. Das and J. R. Yimchunger), On Cofinitely weak* Rad-⊕-Supplemented Modules, *Palestine Journal of Mathematics*, Vol. No. 7, Page No. 18-22, 2018.

5. M. K. Patel, On (Completely) weak* Rad-⊕-supplemented Modules, *Springer Proceedings in Mathematics & Statistics*, Homological and Combinatorial methods in Algebra, Vol. 228, pages : 99-104, 2018.

6. M. K. Patel (with Jane Roseline), Automorphism-invariant and Idempotent-invariant Modules, Proceeding of the International Conference on Algebra and Discrete Mathematics (ICADM 2018), International Journal of Computer Science. ISSN: 2348-6600, Page: 123-128, 2018.

Dr. Prem Prakash Mishra

1. Prem Prakash Mishra "A Median Based Regression Type Estimator of The Finite Population Mean" Int. Journal of Agricultural Statistical Science Vol.13,No.1, pp.265-271,2017, ISSN:0973-1903.
2. Prem Prakash Mishra: Algorithmic Approach to Optimization of Queued Commodity Flow Through Critical Path with Time-Cost Analysis (Proceeding) 15th International Logistics and Supply Chain Congress 2017, Istanbul, Turkey, SBN:978-9944-5789-6-7.

3. Prem Prakash Mishra: "Quantification of Node Wise Commodity in Supply Chain and its Cost Analysis" American Journal of Operation Research, pp. 64-82(2017).

Dr. Nirmala Devi

1. **Nirmala Devi,** M. Sarmah, B. Khatun, T.K. Maji. Encapsulation of active ingredients in polysaccharide-protein complex coacervates. ***Advances in Colloid and Interface Science***. 239, 136-146, 2017.
2. **Nirmala Devi, Chayanika Deka, Prajnya Nath, Dilip K. Kakati**. Study of Complex Coacervation of Gelatin A and Pectin for Microencapsulation of Theophylline. *In: Advances in Experimental Medicine and Biology- Infectious Diseases and Nanomedicine-III*, Santosh Thapa and Dr. Rameshwar Adhikar (Eds.), ISBN: 9789811075728, Springer Nature, 63-74, 2018.
3. Shyamal Baruah, **Nirmala Devi** and Amrit Puzari. Synthesis and characterization of Poly (p-phenylenediamine)–TiO_2 nanocomposites and investigation of conducting properties for optoelectronic application. **Materials Science – Poland**, 2018 (accepted for publication).

Dr. Wati Walling

1. Kikon Kuotsu, Renchumi; Walling, A. Wati, *Democratic Values and Traditional Practices: Gendering Electoral Politics in Nagaland* in Wouters, Jelle J.P. & Tunyi, Zhoto (Eds.). Exploring Democracy in Nagaland: Tribes, Traditions, and Tensions. Kohima: The Highlander Books. ISBN: 978-0-692-07031-4.

Seminar/ Workshops / Conferences / Short-term Courses / organized / attended by the Faculty:

Dr. Jyoti Prasad Borah

1. Dr. Jyoti Prasad Borah Oral Presentation of the topic of "Enhanced Hyperthermic Efficiency of Ferrite Based Nanoparticles" 20th International Conference on Nanotechnology and material Science (ICNMS-2018), Zurich, Switzerland on dated January 15-16, 2018.
2. Attended TEQIP III sponsored active learning programme at IIT Bombay during 11-15 June, 2018.

Dr. Amrit Puzari

1. Attendend TEQIP-III sponsored workshop on "Active learning programme" organized at Indian Institute of Technology Bombay from 15 to 21st June 2018.

Dr. Debarun Dhar Purakayashtha

1. Selected for best presentation award in 20th International Conference on Nanotechnology and Materials Sciences (ICNMS 2018) in Zurich, Switzerland during January 15-16, 2018.
2. Organized National Workshop on "Thin Film Technology and Applications" as coordinator

Dr. Manoj Kumar Patel

1. M. K. Patel, attended "Pedagogical Training for Mathematics Teachers 2018" held at Department of Mathematics, Tripura University, Agartala, during March 26-31, 2018.

2. M. K. Patel, National workshop on "Latest Trends in Mathematics with their Applications (LTMTA 2017)", organized in the Department of Science and Humanities (Mathematics), NIT Nagaland during December 11-15, 2017 under TEQIP-III.

Dr. Prem Prakash Mishra

1. **Organized One-week workshop**: Theme "Latest Trends of Mathematics and Their Applications" on 11- 15 December 2017 organized by Department of Mathematics NIT Nagaland coordinated by Dr. Prem Prakash Mishra & Dr. Manoj Kumar Patel.

Dr. Nirmala Devi

1. **Nirmala Devi** attended TEQIP III sponsored active learning programme at IIT Bombay during 11-15 June, 2018.
2. **Nirmala Devi** attended TEQIP III sponsored End to end innovation programme at IIT Bombay during 20-24 August, 2018.

5.7.2 Departmental Activities:

Dr. Jyoti Prasad Borah

1. Bridge Courses on Physics, Chemistry and Mathematics for BTech First Year students Under TEQUIP-III Scheme held during 14th to 15th Oct 2017.

Dr. Prem Prakash Mishra

1. Special lecture on "Cooperative Game Theory" by Professor, Dr. Surajit Borkotokey, Department of Mathematics, Dibrugarh University Assam.

2. Special lecture on "Optimization Theory" by Professor, Dr. Sant Sharan Mishra, Department of Mathematics & Statistics, Avadh University Faizabad, UP.

Invited talk/ Paper Presentation/ Resource Person etc.

Dr. Jyoti Prasad Borah

1. Presented an invited talk on the topic "Understanding the mechanism of heat generation and correlation between structural and magnetic properties of $MnFe_2O_4$ and $ZnFe_2O_4$ nanoparticles for hyperthermia applications' 25th National Conference on Condensed Matter Physics "Condensed Matter Days-2017" held at Department of Physics, Tezpur University, Assam from 29 to 31 August, 2017

Dr. Amrit Puzari

1. Presented an invited talk on the topic "Dendritic nanoscale architecture: Controllable structural motifs" at 'National Conference on Nanotechnology and its Application (NCNA – 2017)' held at Debraj Roy College, Golaghat, Assam from 21st September 2017 to 22nd September 2017.

Dr. Jhimli Bhattacharya

1. **Jhimli Bhattacharyya - (Invited Speaker):** Title – **"***On an analytic tool for studying reactions of certain bio materials*", International conference on "Current trends in material science and engineering (CTMSE 2018), January 2018 at S. N. Bose National Center for Basic Sciences, Kolkata.

Dr. Manoj Kumar Patel

1. M. K. Patel - Delivered a talk on *"On (Cofinitely) weak Rad-*⊕-supplemented modules*"* in the International Conference on Algebra and its Applications-2017 at Deptt. of Mathematics, Faculty of Science and Technology, Moulay Ismail University, Errachidia, Morocco during April 26-28, 2017.

2. M. K. Patel - Delivered a talk on *"Fi-Semi injective modules"* in the International Conference on Rings and Factorizations-2018 at Institute of Mathematics and scientific computing, University of Graz, Austria during February 19-23, 2018.

Dr. Prem Prakash Mishra

1. **Prem Prakash Mishra- (Invited talk):** Topic **'**Cooperative Lot Size Game Theory and Its Applications: International Workshop on Game Theory and Network, Dibrugarh University Assam, 10-13 September 2018.

Dr. Nirmala Devi

1. Dr. Nirmala Devi presented **Oral paper** in the International Conference on Biomedical and Bioinformatics Engineering, *ICBBE 2017* held on 12-14 November, 2017 at **Seoul National University, Seoul, South Korea**.
2. Dr. Nirmala Devi presented **invited lecture** in International conference on Advances in Polymeric Materials (APM 2017) held in Indian Institute of Science Bangalore during February 11-13 February, 2017 organized by CIPET.

Research Projects:

Dr. Jyoti Prasad Borah

1. **Jyoti Prasad Borah** (**Principal Investigator**): Project entitled **"**Development of CNT/Metal Ferrite Nanocomposites for Biomedical Applications" funded by UGC-DAE, Mumbai Center, BARC, Mumbai. {Rs. 11.646 lakhs (approx.) plus

TA/DA for PI and project fellow to visit BARC, Mumbai for conducting experiments as per requirement of the project}.

Dr. Amrit Puzari

1. **Amrit Puzari (Principal Investigator):** Project Titled as "*Study on surface water contamination of South west hilly terrain of Nagaland to find out ways for sustainable management of water resources*" is currently undergoing (Principal Investigator). Sponsored by Ministry of Environment, Forest and Energy, Government of India, under National Mission on Himalayan Studies (NMHS). Total amount: Rs. Rs. 16,06,968/- (Rupees Sixteen Lakh Six Thousand Nine Hundred Sixety Eight only), Duration: Three years (Starting Date: June 2018)
2. **Amrit Puzari (Co-Principal Investigator):** Project Titled as "Study of Non-Edible Plant Oils of North-East: Extraction, Compositional Characterization and Analysis for Industrial Application" is currently undergoing (Co-Principal Investigator). Sponsored by North Eastern Council, Government of India. Total amount: Rs. 17.76 Lakhs, Duration: Three years (Starting Date: December2016)
3. **Amrit Puzari (Co-Principal Investigator):** Project Titled as "*Development of Hybrid Polymer Nanocomposites from Waste Plastics and Wood Dust"* is currently undergoing. (Co-Principal Investigator). Sponsored by Department of Science and Technology, Government of India. Total amount: Rs. 9.15 Lakhs, Duration: Two years (Starting Date: December2017)

Dr. Jhimli Bhattacharya

1. **Jhimli Bhattacharyya** (**Principal Investigator**): Project entitled **"**Drug-Gold Nano Particle Bioconjugates: Synthesis, Characterization and Applications under Dilute and Molecular Crowding condition" funded by UGC-DAE, Mumbai Center, BARC, Mumbai. {Rs. 11.646 lakhs (approx) plus TA/DA for PI and project fellow to visit BARC, Mumbai for conducting experiments as per requirement of the project}.

2. **Jhimli Bhattacharyya** (**Principal Investigator**): Project entitled "Biophysical Studies of DNA Interaction with Indole Alkaloids Extracted from North East Indian Biodiversity" funded by Department of Biotechnology (DBT), Govt. of India. {Rs. 91 Lakhs (recommended and sanctioned; waiting for finance clearance).
3. **Jhimli Bhattacharyya** (**Co-Principal Investigator along** with Dr. Amrit Puzari (Co-PI) and Dr. Nirmala Devi (PI): Project entitled "Study of non-edible plant oils of North-East: Extraction, compositional Characterization and Analysis for Industrial Applications" funded by North East Council, Govt. of India (Rs. 17.76 lakhs).

Dr. Nirmala Devi

1. **Nirmala Devi (Principal Investigator)** Research Project titled ''*Study of Non-edible Plant-Oils of North-East: Extraction, Compositional Characterization and Analysis for Industrial Applications''* is funded by the North Eastern Council (Ministry of Development of NER) from February, 2017.
2. **Nirmala Devi (Principal Investigator)** Research Project entitled "*Development of Hybrid Polymer Nanocomposites from Waste Plastics and Wood Dust*" funded by the Department of Science and Technology, Govt. of India from December, 2017.

Dr. Wati Walling

Dr. Wati Walling (Principal Investigator) Research Project titled ''*Dominance, Compliance and Customary Practices in Nagaland: Belief and Core-Belief of Religion and Relevance''* is funded by the Indian Council of Social Science Research, India from June, 2017 (02/446/2016-17/ICSSR/RP)

Figure 5.9: National Workshop conducted on latest trends on mathematics and their applications

6. Training and Placements

6.1 Introduction

The Training and Placement Cell of the Institute plays a vital role in counseling and providing guidance to the students of the Institute for their professional growth and successful career placement. The placement is a crucial stage between the completion of academic programme of studies and entry into a suitable employment. In order to provide sufficient opportunities to the students to secure proper placement, the Placement Cell conducts soft skills training, technology boot camp workshops and mock interviews.

The Placement Cell of the Institute centrally handles all aspects of campus placements for the graduating students of all the departments. The Cell is well-equipped with excellent infrastructure to support at all stages of placement processes. The concerned staff members also assist in arranging pre-placement talks, written tests, group discussions and interviews etc. as per the requirements of the product, service based and public sector organizations.

6.2 Placements for the students

The placement details of the students in the following organizations are listed in the tables given below:

Table 6.1 2012-2016 students' placement details

S. No.	NAME OF THE ORGANIZATION	CTC (LPA IN RS.)	EEE	ECE	CSE	TOTAL
1.	IBM GLOBAL SERVICE	3.14	-	3	1	4
2.	JOHNSON CONTROL INDIA	4.5	1	-	-	1
3.	INFOSYS	3.6	-	5	4	9
4.	D.E.S.L	3.55	1	-	-	1
5.	RAMCO	4	2	4	2	8
6.	HUAWAI CAMPUS DRIVE	6	-	-	1	1
7.	PRADAN	3	-	-	1	1
8.	MPHASIS	3.2	-	2	2	4
9.	CAPITAL VIA	3	-	-	1	1
10.	POWER GRID	8.5	2	-	-	2
11.	WAYS 2 CAPITAL	3.45	2	2	2	6

2013-2017 Students' placement details

S. No.	NAME OF THE ORGANIZATION	CTC (LPA IN RS.)	EEE	ECE	CSE	TOTAL
1.	MPHASIS	4	3	6	4	13
2.	L&T ECC	5.11	2	-	-	2
3.	CAPGEMINI	6	1	4	3	8
4.	JOHNSON CONTROL	4.5	1	-	-	1

5.	HAVELLS INDIA LTD.	4.8	1	-	-	1
6.	WIPRO	3.25	2	1	4	7
7.	PRADAN	3	1	-	-	1
8.	CGI	3.25	-	-	1	1
9.	SAB LABS	7.5	-	-	1	1
10.	WAYS 2 CAPITAL	3.45	1	3	1	5
11.	POWER GRID	9.7	1	-	-	1

2014-2018 Students' placement details

S. No.	NAME OF THE ORGANIZATION	CTC (LPA IN RS.)	EEE	ECE	CSE	TOTAL
1.	L&T CONSTRUCTIONS	5.3	3	-	-	3
2.	JOHNSON CONTROLS	4.7	1	-	1	2
3.	MPHASIS	4.0	3	3	2	8
4.	WIPRO TECHNOLOGIES	3.3	1	3	5	9
5.	ENVESHNET YODLEE	8.7	-	-	1	1
6.	VIRTUSA	5.0	-	-	1	1
7.	INFOSYS	3.2	-	1	-	1
8	Power Grid	9.7	1	-	-	1
9	BCPL	3	1	-	-	1
10	BEL	7.8	-	1	-	1

7. Central Facilities and Services

7.1 Computer Centre

The Institute has a computer centre that provides campus-wide networking via dedicated NKN connectivity of 1Gbps bandwidth. The Institute also has redundant 8Mbps connectivity from BSNL. All the facilities related to Internet connectivity are taken care of by experienced staff members of the Centre.

7.2 Central Library

The Central Library, NIT Nagaland commenced functioning from its permanent campus at Chumukedima, Dimapur in the year 2012-2013. The library is growing rapidly with exponential increase in collection of knowledge resources in the field of Engineering, Science & Technology. The Central Library of NIT Nagaland supports teaching, learning, research and creative endeavors of the Institute. The Central Library provides modern collection of knowledge resources and innovative information through acquisition, organization and dissemination of knowledge resources and provides on – demand access to the available intellectual resources and research products to NITN's faculty and students, as well as to the greater community of learners beyond NITN with the support of value added services to the users.

The Central Library has a collection of more than 10,000 volumes of books in the area of Engineering, Technology, Physical Sciences, Management, Social Sciences and Humanities including textbooks, reference books. The Central Library is also having 20,000+ e books as well as 2000+ e-journals on Computer Science, Engineering, Materials Science and Physical Science and also large numbers of CDs/DVDs and other electronic resources with the latest collections of periodicals, magazines and newspapers. The library is fully computerized using "i-skool" web-based Campus Management System with RFID Technology. The circulation services and other housekeeping

operations of the library are executed through RFID enable operating/smart ID systems. The computerized bibliographic database for the entire collection is available in Machine Readable format and accessibility of the entire electronic resources such as e-books and e-journals have been activated via institute IP addresses. Users can access e- books and e-journals through institute networks as well as Wi-Fi networks within the campus through their gadgets along with the PCs connected inside the library. The library is open from 8.30 A.M to 11.00 P.M. to facilitate the users to utilize the knowledge resources. Photocopy and printing facilities are also available in the library at a nominal rate.

Figure 7.1: Central Library

7.3 Data Centre

NIT Nagaland has built the Campus Network, Data centre, IP Telephony and Wireless Network to enhance the computing facility of the Institute by deploying several dedicated Servers to run various applications which includes the following major components:

Campus networking components - for Data, Voice & Video Communication
Network Security - Firewall & Antivirus
Servers & Storage - for enhancing the computing facilities and protecting the data

Figure 7.2: Routers and switches Interface

An appropriate I.T. Infrastructure has been built to build data, voice and video connectivity in the campus and among the users in the campus. With the help of this infrastructure, the Institute aims at distributing high-speed Internet in the campus and connectivity among the users, thus improving teaching effectiveness, student outcomes and administrative efficiency. This will simplify operations and support complex research initiatives for higher education. The infrastructure connects various sections of the campus viz., administrative building, academic blocks and residential parts (staff quarters, Hostels, Guest House, etc.) with high speed wired connectivity and with backup of wireless access as well. The existing backbone allows data, voice and video traffic seamlessly across the various sections of the campus. With the existing I.T. infrastructure, the Smart Classroom facility has been created through which guest faculties / experts deliver lectures over the Internet and recruiters conduct their recruitment process from any part of the country using video-conferencing facilities.

Redundant Optical Fibre Cable communication with strength 1Gbps and 8 Mbps are established by NKN and BSNL. All the students, research scholars can avail of the facility to connect to the online video lectures conducted in various reputed Institutes across the globe. The Institute has established the facilities for Video Conferencing to conduct classes of other renowned professors in remote and to view video lectures of

NPTEL during the class. The Phase I contents of NPTEL courses were obtained from IIT- Madras for the students and faculty members to refer.

Highlights of Campus Networking (as mentioned above) are brought out hereunder:

High-speed Campus Network - using Single Mode Fiber-optic cabling to connect the various buildings in the campus and Cat 6 A UTP Cabling inside the building to support Gigabit data transfer to the users' desk.

Network Architecture is designed to support 10G bandwidth in the backbone connectivity in future when number of network users increases in the campus.

Wireless Network in the campus for users helps to connect individual laptops, smart phones, PDA, Tablets, etc for easy access to Internet and network of the Institute.

Offers video-based professional exchanges.

Provides a phone number in every LABs, Hostels, and Quarters, Guest House, Administrative staff, faculties and a voicemail account for key personnel.

Uses digital signs and video to communicate more effectively with outstation faculty and recruiters.

Automate registration and curriculum sharing, with ease of access to applications and software(s).

Shares scarce resources across multiple sites.

Extends beyond college boundaries.

7.4 Dispensary

The Institute has a dispensary facility with a visiting doctor from the District Government hospital, Dimapur on a weekly basis. Due care is being taken towards health of all students. A dedicated Ambulance is available on a 24X7 basis thus students can use this facility to visit the District Hospital in case of emergency.

7.5 Hostel facilities

Staying in hostels is mandatory for all undergraduate students of the Institute. Accommodation is also provided to PG students. NIT Nagaland houses seven Hostels, concept of *"Home away from home*". At present, the hostel capacity is 451 (Figure 7.2).

Table 7.2 Capacity of various student's hostels

Sl. No.	Hostel Name	Total number of Rooms	Actual Capacity	Present strength of the students
1.	TIYI	32	64	54
2.	DZUKOU (GIRLS)	32	64	65
3.	SARAMATI A,B,C	28	56	63
4.	PATKAI A,B,C	24	48	50
5.	ZANIBU (PG)	16	32	28
6.	JAPFU	32	64	62
7.	NEW BOYS HOSTEL	54	108	129
	Total	**218**	**436**	**451**

NIT Nagaland also provides a clean and very wholesome mess facility (Vegetarian and Non- Vegetarian) for all the students, and few faculties and members of staff. NIT Nagaland has also Wi-Fi connectivity in all the hostels giving them ample scope for research and other day-to-day learning activities.

Figure 7.3: Hostel Blocks

7.6 Other facilities

The Institute has an extension counter of the State Bank of India where the SBI personnel attend three days in a week to offer necessary banking services. The Institute is also equipped with an ATM of the State Bank of India for the convenience of students and staff members. The Institute has a Canteen where healthy and tasty food items are available. A new mess building has been established with modern kitchen facilities for the preparation of food and dining purposes. The Institute has a Dispatch Section which takes care of prompt handing over of letters, parcels to the students and staff members.

Figure 7.4: Treated Bamboo classrooms and Staff Quarters I

Figure 7.5: Library cum data centre under construction and Canteen Building

8. Centre of Excellence and IPR activities

8.1.1 Intel Centre of Excellence

Centre of Excellence that supports education vision, can build a robust infrastructure - all keys to driving a holistic solution for professors and student's success. The vision of the lab is "To become a Centre for excellence in education and research in VLSI design and technology and meet the needs of fast growing VLSI industries". And mission to reach the vision is "Design and implement VLSI devices in wide range of application areas using state-of-the-art tools and technologies". The Intel FPGA lab with US $ 2 million worth of industry standard Tools and IP-Cores to reach the vision and mission. Lab will provide quality research, training services and developing new products.

This Intel FPGA- NITN COE lab with complete infrastructure will serve the purpose of

- Regular laboratories in graduate level
- Scholar work with research and development
- Attract and retain eminent professors and researchers
- Sustained linkage with industries
- Research hub for nearby institutions
- Develop new patents and product

8.1.2 Siemens Centre of Excellence

❖ **Distributed Control System (DCS) and Programmable Logic Controllers (PLC)**

Monitoring and control of all the equipment and machines in all the laboratories in the Institute using Integrated Distributed Control Systems (DCS) and Programmable Logic Controllers (PLC) in order to establish a Centre of Excellence which will cater to the need for higher semester laboratories and Research. The whole idea is to integrate the existing Power Systems, Electrical Machines and Drives, Power Electronics and Control Systems Laboratories and also to establish a private Cloud using the existing networking facilities. However, this laboratory can be used as Distributed control system(DCS) lab,

Programmable logic control (PLC) lab, Process control lab, IOT (Internet Of Things) lab, Solar energy lab and extended for project work which will be available for undergraduate(UG) students and postgraduates(PG) students. Same laboratory will be available for research activities related to IOT (Internet Of Things), Process control. Control system and Distributed control system. The DCS and PLC mainly used for branches such as EIE, EEE, CSE, and ECE and it is highly required to conduct Real Time hands on exercise for the embedded system subjects and laboratories. Laboratory for the benefit of B. Tech, M. Tech. and Research Scholars.

These initiatives are intended to bridge the gap between industry requirements and technical education system by providing solutions which make technical institutes more aligned with industry needs and graduate students' industry ready. We offer programs to foster, empowering students and professionals with state-of-art knowledge and Technological skills with centre of excellence by providing real-world experience (Figure 8.1).

Hardware:

1. PCS7 410 STANDARD DCS Controller
2. SIMATIC S7-1500 CPU 1511-1 PN PLC

Software:

1. COMOS Planet Engineering Software with P&ID, Logical and EI&C modules
2. SIMIT Framework: Virtual plant commissioning software

Figure 8.1 DCS Lab

8.2 Intellectual Property Rights Cell:

National Institute of Technology Nagaland inaugurated the Intellectual Property Rights Cell followed by an awareness program for the benefit of B.Tech /M.Tech Students and Research Scholars on 04-Nov-2016. Concepts of IPR, Patenting Procedures and Design, and Copy Rights and related issues were discussed during the session.

9. Student's Activities and other Celebrations

9.1 Literary and Cultural Activities

The Institute also encourages all students to participate in various cultural and literary activities, periodically conducted throughout the academic year. The literary competitions like technical speech, debate, knowledge quiz etc., are organized by the students. The cultural activities are celebrated by the students, faculty and staff members throughout the academic year.

Figure 9.1 Swachh Bharat Abhiyan

9.2 Celebration of Fresher's Welcome and Farewell events

The Students community of the Institute organized the Fresher's welcome party, **Yuva-2016** on 24th September 2016. In true sense, it is an introductory function for the new-comers where they get to know about the adopted culture of the Institution of which

they are a part hereafter. The students expressed their talents in the form of folk dance, group dance, songs etc. Farewell party was organized for the final year students by the junior students on 24th April 2016.

9.3 Literary and Cultural Affairs

Institute also encourages the students to participate in various cultural and literary activities which are regularly conducted through the academic year. The literary and cultural activities of the students are supervised by the Literary and Cultural Board, which consists of both the members of faculty and students. The board encourages to provide a platform for the hidden talents amongst students and appreciate their talents through various inter and intra-NIT competitions. The literary competitions like debate, general quiz, and technical quiz were organized by the students throughout the academic year. Details are given below:

SL. NO.	Cultural and Technical Activity	DATE
1	Teachers' Day	05.09.2017
2	Farewell	22.04.2017
3	Ekarikthin	2.04.18-03.04.18
4	Environment day	05.06.2017
5	Foundation day celebration	14.10.2017
6	Fresher's Social	23.09.2017
7	NIT Conclave	30.09.2017-03.10.2017
8	Singing and dancing Competition	14.10.17
9	Swach Bharat Abhiyan	29.10.2017
10	Essay competition under Ek bharat shrestha bharat Programme (EBSB)	27.10.2017
11	National unity day	31.10.2017
12	International yoga Day	21.06.2017
13	Manipur food festival (Under EBSB)	07.1.2018
14	Ek Bharat Shrestha Bharat (EBSB) students visit to ABV – IIITM Gwalior	19.02.18-29.0218
15	Airport authority Vigilance Awarness Week observation, organized by Airport Authority of India, Dimapur at NIT Nagaland	30.10.2018

Figure 9.2 : Ekarikthin Techno Cultural Event – 2017

Figure 9.3: Orientation Programme 2018

Figure 9.4: Ekarikthin Techno Cultural Event – 2018

9.4 Games and Sports Activity

Details of sports and cultural activities conducted at NIT Nagaland from April 2017 to march 2018:

SL. NO.	Sports Activity	DATE
1.	Gali cricket	03.05.2017
2.	Badminton competition	14.04.17-19.04.17
3.	Table Tennis (TT) competition	15.04.17-18.04.17
4.	Kabbadi competition	14.04.17-21.04.2017
5.	All India inter Kabaddi at Surathkal	12.01.2018-14.01.2018
6.	Kabaddi competition	24.11.17-25.11.17
7.	Table tennis competition	05.02.2018
8.	4 men Soccer (Futsal)	25.08.17 -29.09.17
9.	Tug of war	29.08.17 - 30.08.17
10.	Chess (Open)	13.10.17 - 30.10.17
11.	Arm Wrestling	16.10.17 - 15.10.17
12.	Volleyball	20.10.2017- 27.10.2017
13.	Annual sports day	08.02.2018
14.	All Inter NIT Sports (Cricket) meet at NIT Calicut	15.02.2018 – 18.02.2018
15.	All Inter NIT Sports (Volleyball and Chess) meet at NIT Kurukshetra	22.02.2018 – 25.02.2018

(a) Boys Table tennis competition

(b) Intra NIT volley ball competition

(c) Girls 'Tug of war' competition

(**d)** Table tennis competition

Figure 9.5: Games and Sports Activities: felicitation of winners