



SECTION – 1

DIRECTOR'S SUMMARY

It is a privilege to write a foreword to this 33rd Annual Report 2019-20 of NERIST which gives a glimpse of various activities of this Institute during the last one year. In this period, we have worked together to develop and improve the infrastructure and strived hard to give a responsive and transparent administration.

In this endeavour, the Institute shall always remain indebted to the President of the Society for NERIST, Brigadier (Dr.) B.D. Mishra (Retd), His Excellency the Governor of Arunachal Pradesh for his guidance and support during the period of 2019-20. The Institute is also indebted to its Chairman of Board of Management, Prof. Umesh Chandra Ray, who has been a constant source of inspiration and guidance since 18th May, 2017. In this connection, the Institute shall also like to thank the Technical Bureau, IFD and other offices of MHRD for their support and cooperation from time to time.

During the period of the year 2019-20, a number of academic initiatives and infrastructure developmental activities have been taken up with support from all concerned. However, there is no room for complacency and the Institute shall work even harder to achieve a still higher standard and try to meet targets for more than what has been expected of it so far.

The Institute has a highly qualified, motivated, and relatively young faculty and a devoted group of non-teaching employees. NERIST students are disciplined, motivated and sincere and have successfully competed with the students from some of the best institutions of the country in different competitive examinations in their respective fields. They have also earned laurels for themselves and for the Institute in India and abroad. The Institute has successfully carried out many prestigious sponsored research projects from reputed external funding agencies.

The placement record of the Institute has been satisfactory but more needs to be done. The present team of Training & Placement Cell has been doing their best to invite Govt./Semi Govt./Public Enterprises to the Institute to conduct placement interviews for our students.

Director



SECTION – 2

INTRODUCTION

2.1 The Institute

Perched in the untrammelled beauty of the “land of the rising sun”, the North Eastern Regional Institute of Science and Technology (NERIST) was set up by the Government of India, initially as a pilot project of the North Eastern Council, Shillong under the Ministry of Home Affairs, Govt. of India to create a base of technical manpower, aimed at meeting the challenges at various level of development in the region. The campus of the Institute is located at Nirjuli, Itanagar, the capital city of Arunachal Pradesh, and is well connected to Guwahati by road, air and rail.

The Institute came under the direct control of Ministry of Human Resource Development (MHRD), Government of India, from 1st April, 1994. It has been conferred with the “Deemed to be University” status u/s 3 of the UGC Act 1956 since May 31st, 2005.

The Institute follows a modular pattern of education, having multiple entries and exits system and is producing skilled manpower at different levels, i.e., Certificate, Diploma and Degree, through its innovative educational program. The system of education adopted at NERIST is aimed to bridge the technological gap of the eight north eastern states that comprise of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura and rest of the country. This subsequently will increase the pace of socio-economic development in this region.

The Institute has demonstrated successful implementation of modular pattern of education. This has been able to create skilled manpower in nine Certificate courses, six Diploma courses and seven Degree courses that are being offered by the different departments, namely, Agricultural Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics & Communication Engineering, Mechanical Engineering and Forestry. Chemistry, Physics, Mathematics and Humanities & Social Sciences also have a pivotal role as supporting departments. Although, the Institute admits students at a tender age (after Class-X) with heterogeneous academic standards but its academic and administrative set up has been quite effective to ensure appreciable academic growth of the students including the development of different traits of their personality.

The Post-Graduate academic programmes were started in 1996-97 in two subjects viz., Information Technology and Environmental Science & Engineering with due approval of AICTE and MHRD. After acquiring ‘Deemed to be University’ status in 2005, in subsequent years Ph.D. programmes (part-time and full-time) in all Engineering and Science departments were started. Since 2006 MBA program is also being offered. NERIST has the distinction of being the first institute in the state of Arunachal Pradesh to offer M. Tech. and MBA programmes.



VISION OF THE INSTITUTE

To produce professionals with competency for pursuing excellence in science & technology education, research, and entrepreneurship with ethical values and social sensitivity for offering specialized services to the society meeting the global requirements and standards in a multicultural environment.

MISSION OF THE INSTITUTE

1. To create a niche in the field of science & technology education and research through an innovative modular system.
2. To produce globally competitive technical and scientific manpower in different disciplines with high ethical values and with particular reference to the North Eastern Region.
3. To impart in engineers/technologists and trainees a mindset full of creativity to pursue excellence with a focus on stakeholders, accountability, environment, and people.
4. To develop collaborations with world-class R&D organizations, industries, and educational institutions in India and abroad for attaining excellence in teaching, research and consultancy practices.

2.2 Administrative set up

The Institute is registered as a Society under Societies Registration Act of 1860. At present, the Hon'ble Governor of Arunachal Pradesh is the ex officio President of NERIST Society and Prof. Umesh Chandra Ray is the present Chairman, Board of Management (BoM) of the Institute.

2.3 Salient Features

- Modular Technical Education System;
- Multi-point entry and exit system;
- Unconventional and innovative academic programme to create technical manpower at various levels for the development of the NE Region;
- Development of knowledge, skills and value-based education system;
- Highly qualified faculty and dedicated staff;
- P.G. and Ph.D. programmes;
- Well-equipped laboratories and workshops;
- Fully residential campus;
- Dedicated service for the development of NE Region.



SECTION – 3

ACADEMIC PROGRAMMES

3.1 A Brief Profile of the Section

Academic Section is the backbone of any Academic Institute/University. Present Academic Branch is divided into three cells, viz., Undergraduate, Postgraduate and Ph.D. for better functioning. The Undergraduate cell deals with admission process, scholarships/other academic affairs of Base, Diploma & Degree Modules. The Postgraduate Cell deals with admission and other related affairs of M. Tech., MBA, M.Sc. including scholarships of UG & PG students and the Ph.D. Cell deals with all activities like admission of Ph.D. scholars, conducting DPGC, BPGS, and other activities related to Ph.D. Scholars including scholarships of Ph.D. students. Matters relating to Convocation, Academic Council Meeting, RTI, Correspondences with AICTE, UGC etc. and other miscellaneous academic matters are being dealt by the one Senior Stenographer. Besides this, Academic Section also deals with all other matters related to academic affairs of the Institute with MHRD/UGC/AICTE/AISHE and other miscellaneous academic matters. The branch is headed by Assistant Registrar (Academic). As on July-Dec. Semester 2019-20, the numbers of UG students were 1361, PG students were 388 and Ph.D. Scholar were 274. The total student strength was 2023.

B.Tech Programme of Department of Electrical Engineering has been provisionally accredited by NBA up to July 2023.

All the Undergraduate and Post-graduate Programmes in Engineering & Technology and MBA Courses are approved by the AICTE.

3.2 Status Report regarding activities

The structure of curriculum at NERIST consists of three independent modules in Engineering and Technology Streams and one independent module in Forestry. These are as follows:

(a) Engineering & Technology Stream

1. Base (Certificate) Module
2. Diploma Module
3. Degree Module

(b) Forestry Stream

1. Degree Module

In the Engineering and Technology stream, the Institute runs three modules viz., Base (admitted after Class X), Diploma (admitted after Class 10+2 / NERIST Base Module Course) and Degree Module (admitted after Diploma with requisite CGPA/Polytechnic Diploma with 1st



Class). Each module is of 2 years' duration, besides the duration of bridge courses of Degree Module admitted through NEE-III which takes three years to complete their degrees.

Scholarship/Fellowship

Different kind of Scholarships, viz. Ishan Uday Scholarship, State Government Stipends, centrally sponsored scholarship schemes through National Scholarship Portal, etc. have been provided to the eligible students.

The GATE qualified candidates admitted to the AICTE approved courses are eligible for AICTE – PG Scholarship (GATE). The Ph.D. Research Scholars are also provided Fellowship as per the norms of the Govt. and the Institute. Lot of Ph.D. scholars are availing fellowship under NFST, CSIR-JRF, NET-JRF, Visvesvaraya Fellowship Scheme by Deity, GoI, MANF for minority, National Fellowship for OBS students, Inspire Fellowship from DST, GoI.

However, irrespective of the source of scholarship/stipend, a student must attend at least 75% of classes in each course in which s/he has registered, failing which the scholarship/stipend may be terminated.

3.3 Courses offered for Under Graduate Programme

During 2019-20, the Institute offered the following courses in each module:

Base (Certificate) Module

Sl. No.	Base (Certificate) Module	Trades
1	Agricultural Engineering	i. Tractor Mechanic ii. Food Processing Technician
2	Construction Technology	i. Draftsman ii. Surveyor
3	Maintenance Engineering (Electrical)	Electrician
4	Maintenance Engineering (Electronics)	Electronic Technician
5	Maintenance Engineering (Mechanical)	i. Mechanical Craftsmanship ii. Refrigeration & Air Conditioning

Diploma Module (E&T Stream)

- a) Agricultural Engineering
- b) Civil Engineering
- c) Computer Science and Engineering
- d) Electrical Engineering
- e) Electronics & Communication Engineering
- f) Mechanical Engineering



Degree Module (E&T Stream)

- a) Agricultural Engineering
- b) Civil Engineering
- c) Computer Science and Engineering
- d) Electrical Engineering
- e) Electronics & Communication Engineering
- f) Mechanical Engineering

Degree Module (4-year Programme in Forestry)

3.4 Courses Offered in Post Graduate Programme

The Institute started its Post Graduate Courses and the following Programmes were running during 2019-20.

M.Tech. (Full Time)

- a) M.Tech. in Information Technology under the Department of Computer Science & Engineering.
- b) M.Tech. in Computer Science & Engineering under the Department of Computer Science & Engineering.
- c) M.Tech. in Environmental Science & Engineering under the Department of Civil Engineering.
- d) M.Tech. in Geotechnical Engineering under the Department of Civil Engineering.
- e) M.Tech. in Power System Engineering under the Department of Electrical Engineering.
- f) M.Tech. in Computer Integrated Manufacturing under the Department of Mechanical Engineering.
- g) M.Tech. in Thermal and Fluid Engineering under the Department of Mechanical Engineering.
- h) M.Tech. in Electronics & Communication Engineering (Specialization in VLSI/Communication Engineering).
- i) M.Tech. in Farm Machinery & Power under the Department of Agricultural Engineering.
- j) M.Tech. in Soil and Water Conservation Engineering under the Department of Agricultural Engineering.

M.Sc.

- a) M.Sc. in Forestry under Department of Forestry
- b) M.Sc. in Physics under Department of Physics
- c) M.Sc. in Chemistry under Department of Chemistry
- d) M.Sc. in Mathematics under Department of Mathematics



MBA

Master of Business Administration under the Center for Management Studies.

Ph.D. (Full Time) & Ph.D. (Part Time)

Engineering streams

- Agricultural Engineering
- Civil Engineering
- Computer Science & Engineering
- Electrical Engineering
- Electronics & Communication Engineering
- Mechanical Engineering

Science, Humanities and Management streams

- Forestry
- Physics
- Chemistry
- Mathematics
- Humanities & Social Sciences
- Management Studies

3.5 Any other relevant information/data

Number of Students enrolled in July-December Semester, for the session 2019-20 are summarized and furnished in the following tables.

(a) Under Graduate Programmes

Table 1: No. of Students enrolled in 1st Year (Module-wise)

Discipline	Base	Diploma	Degree
Agricultural Engineering (AE)	37	21	29
Civil Engineering (CE)	44	42	47
Computer Science & Engineering (CSE)	0	38	21
Electrical Engineering (EE)	44	43	44
Electronics & Communication Engineering (ECE)	44	25	19
Mechanical Engineering (ME)	43	34	39
Total	212	203	199

**Table 2: No. of Students enrolled in 2nd Year (Module-wise)**

Discipline	Base	Diploma	Degree
Agricultural Engineering	37	23	23
Civil Engineering	42	37	47
Computer Science & Engineering	0	22	22
Electrical Engineering	38	51	44
Electronics & Communication Engineering	37	27	32
Mechanical Engineering	37	36	44
Total	191	196	212

Table No.3: No. of Students enrolled in Degree (Forestry)

Year	No. of students
First	28
Second	16
Third	13
Fourth	17
Total	74

Table 4: No. of Students enrolled in Degree Bridge Year

Discipline	No. of students
Agricultural Engineering	9
Civil Engineering	16
Computer Science & Engineering	8
Electrical Engineering	14
Electronics & Communication Engineering	13
Mechanical Engineering	14
Total	74

Table 5: Gender-wise Detail of Students (Base Module)

Discipline	1 st Year		2 nd Year		Total		Total
	Male	Female	Male	Female	Male	Female	
Agricultural Engineering	22	15	27	10	49	25	74
Civil Engineering	31	13	31	11	62	24	86
Electrical Engineering	33	11	23	15	56	26	82
Electronics & Communication Engineering	27	17	26	11	53	28	81
Mechanical Engineering	37	6	33	4	70	10	80
Total	150	62	140	51	290	113	403

**Table 6: Gender-wise Detail of Students (Diploma Module)**

Discipline	1 st Year		2 nd Year		Total		Total
	Male	Female	Male	Female	Male	Female	
Agricultural Engineering	13	8	12	11	25	19	44
Civil Engineering	31	11	27	10	58	21	79
Computer Science & Engineering	25	13	19	3	44	16	60
Electrical Engineering	33	10	40	11	73	21	94
Electronics & Communication Engineering	19	6	20	7	39	13	52
Mechanical Engineering	28	6	32	4	60	10	70
Total	149	54	150	46	299	100	399

Table 7: Gender-wise Detail of Students in Engineering (Degree Module)

Discipline	Bridge		1 st Year		2 nd Year		Total		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
AE	5	4	23	6	16	7	44	17	61
CE	14	2	32	15	32	15	78	32	110
CSE	3	5	15	6	18	4	36	15	51
EE	9	5	27	17	30	14	66	36	102
ECE	9	4	13	6	24	8	46	18	64
ME	13	1	34	5	39	5	86	11	97
Total	53	21	144	55	159	53	356	129	485

Table 8: Gender-wise Detail of Students in Forestry (Degree Module)

Discipline	1 st Year		2 nd Year		3 rd Year		4 th Year		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
FO	15	13	6	10	8	5	7	10	74

Table 9: Category-wise Detail of Students (Base Module)

Discipline	GE	OBC	SC	ST	Total
AE	6	13	6	49	74
CE	9	16	3	58	86
EE	19	17	6	40	82
ECE	27	29	6	19	81
ME	28	21	8	23	80
Total	89	96	29	189	403

**Table 10: Category-wise Detail of Students (Diploma Module)**

Discipline	GE	OBC	SC	ST	Total
AE	7	2	0	35	44
CE	16	14	4	45	79
CSE	26	8	5	21	60
EE	29	9	6	50	94
ECE	20	10	1	21	52
ME	36	12	4	18	70
Total	134	55	20	190	399

Table 11: Category-wise Detail of Students (Degree Module)

Discipline	GE	OBC	SC	ST	Total
AE	9	7	1	44	61
CE	29	18	5	58	110
CSE	13	10	4	24	51
EE	32	15	5	50	102
ECE	19	14	3	28	64
ME	36	17	9	35	97
FO	17	11	7	39	74
Total	155	92	34	278	559

Table 12: State-wise Detail of Students (Base Module)

Discipline	AI	AL	AM	MG	MN	MZ	NL	SK	TR	TOTAL
AE	9	24	7	6	8	1	17	0	2	74
CE	8	27	9	9	8	8	8	1	8	86
EE	13	16	14	8	9	5	8	0	9	82
ECE	17	10	24	6	13	0	6	0	5	81
ME	9	14	22	8	9	3	7	1	7	80
Total	56	91	76	37	47	17	46	2	31	403

Table 13: State-wise Detail of Students (Diploma Module)

Discipline	AI	AL	AM	MG	MN	MZ	NL	SK	TR	TOTAL
AE	2	17	0	7	9	2	5	1	1	44
CE	5	23	9	7	12	4	7	3	9	79
CSE	9	6	18	5	6	2	9	1	4	60
EE	8	29	13	11	13	1	7	3	9	94
ECE	9	4	12	8	11	0	3	0	5	52
ME	8	9	20	3	10	1	5	2	12	70
Total	41	88	72	41	61	10	36	10	40	399

**Table 14: State-wise Detail of Students (Degree Module)**

Discipline	AI	AL	AM	MG	MN	MZ	NL	SK	TR	TOTAL
AE	3	22	13	4	4	0	12	2	1	61
CE	11	29	21	8	8	2	11	11	9	110
CSE	4	8	8	9	6	3	5	5	3	51
EE	11	22	18	9	7	4	12	7	12	102
ECE	5	4	18	8	8	2	4	6	9	64
ME	11	20	29	10	7	2	8	2	8	97
FO	5	2	17	8	10	7	8	8	9	74
Total	50	107	124	56	50	20	60	41	51	559

(b) Post-Graduate Programmes**Table 15: No. of Students enrolled in M.Tech. (Full Time)**

Sl. No.	Dept.	Name of the Programme	No. of students admitted				Total	
			1 st Year		2 nd Year		Male	Female
			Male	Female	Male	Female		
1.	AE	Soil & Water Conservation Engineering	7	8	4	6	11	14
		Farm Machinery & Power	0	1	2	2	2	3
2.	CE	Environmental Science & Engineering	11	9	12	4	23	13
		Geotechnical Engineering	12	9	7	6	19	15
3.	CSE	Computer Science & Engineering	5	8	4	2	9	10
		Information Technology	0	0	1	3	1	3
4.	EE	Power System Engineering	18	3	8	7	26	10
5.	ECE	Electronics & Comm. Engineering	8	2	2	5	10	7
6.	ME	Computer Integrated Manufacturing	3	0	8	0	11	0
		Thermal and Fluid Engineering	3	0	6	0	9	0
Total			67	40	54	35	121	75

Table 16: Category-wise No. of Students enrolled in M.Tech. (Full Time) 1st Year

Sl. No.	Dept.	Name of the Programme	GE	SC	OBC	ST	Total
1.	AE	Soil & Water Conservation Engineering	0	0	5	10	15
		Farm Machinery & Power	0	0	0	1	1
2.	CE	Environmental Science & Engineering	2	1	3	14	20
		Geotechnical Engineering	1	0	6	14	21



3.	CSE	Computer Science & Engineering	1	0	6	6	13
		Information Technology	0	0	0	0	0
4.	EE	Power System Engineering	4	0	3	14	21
5.	ECE	Electronics & Comm. Engineering	1	0	6	3	10
6.	ME	Computer Integrated Manufacturing	2	0	0	1	3
		Thermal and Fluid Engineering	0	0	0	3	3
Total			11	1	29	66	107

Table 17: Category-wise No. of Students enrolled in M.Tech. (Full Time) 2nd Year

Sl. No.	Dept.	Name of the Programme	GE	SC	OBC	ST	Total
1.	AE	Soil & Water Conservation Engineering	1	0	1	8	10
		Farm Machinery & Power	1	0	0	3	4
2.	CE	Environmental Science & Engineering	3	0	2	11	16
		Geotechnical Engineering	2	3	4	4	13
3.	CSE	Computer Science & Engineering	0	1	2	3	6
		Information Technology	3	1	0	0	4
4.	EE	Power System Engineering	1	1	4	9	15
5.	ECE	Electronics & Comm. Engineering	4	0	3	0	7
6.	ME	Computer Integrated Manufacturing	2	0	3	3	8
		Thermal and Fluid Engineering	0	0	4	2	6
Total			17	6	23	43	89

Table 18: No. of Students enrolled in M.Sc.

Sl. No.	Dept.	Name of the Programme	No. of students admitted				Total	
			1 st Year		2 nd Year		Male	Female
			Male	Female	Male	Female		
1.	PH	M.Sc. in Physics	14	8	7	6	21	14
2.	CH	M.Sc. in Chemistry	9	13	5	1	14	14
3.	MA	M.Sc. in Mathematics	10	11	10	5	20	16
4.	FO	M.Sc. in Forestry	15	5	7	9	22	14
Total			48	37	29	21	77	58

Table 19: Category-wise No. of Students enrolled in M.Sc. 1st Year

Sl. No.	Dept.	Name of the Programme	GE	SC	OBC	ST	Total
1.	Physics	M.Sc. in Physics	6	2	8	6	22
2.	Chemistry	M.Sc. in Chemistry	4	0	12	6	22
3.	Mathematics	M.Sc. in Mathematics	7	0	6	8	21



4.	Forestry	M.Sc. in Forestry	3	2	4	11	20
Total			20	4	30	31	85

Table 20: Category-wise No. of Students enrolled in M.Sc. 2nd Year

Sl. No.	Dept.	Name of the Programme	GE	SC	OBC	ST	Total
1.	Physics	M.Sc. in Physics	0	2	7	4	13
2.	Chemistry	M.Sc. in Chemistry	1	1	3	1	6
3.	Mathematics	M.Sc. in Mathematics	3	0	4	8	15
4.	Forestry	M.Sc. in Forestry	1	1	3	11	16
Total			5	4	17	24	50

Table 21: No. of Students enrolled in MBA

Sl. No.	Centre	Name of the Programme	No. of students admitted				Total	
			1 st Year		2 nd Year		Male	Female
			Male	Female	Male	Female		
1.	CMS	Management Studies	21	13	13	10	34	23

Table 22: Category-wise No. of Students enrolled in MBA 1st Year

Sl. No.	Centre	Name of the Programme	GE	SC	OBC	ST	Total
1.	Management Studies	MBA	4	0	3	27	34

Table 23: Category-wise No. of Students enrolled in MBA 2nd Year

Sl. No.	Centre	Name of the Programme	GE	SC	OBC	ST	Total
1.	Management Studies	MBA	5	0	4	14	23

Table 24: No. of Students enrolled in Ph.D. (Part Time & Full Time)

Engineering Disciplines (A)							
Sl. No.	Name of the Dept.	No. of Students admitted				Total	
		Part Time		Full Time		Male	Female
		Male	Female	Male	Female		
1.	Agricultural Engineering	3	1	13	5	16	6
2.	Civil Engineering	6	3	11	5	17	8
3.	Computer Science and Engineering	3	0	3	0	6	0
4.	Electrical Engineering	10	2	15	4	25	6
5.	Electronics and Communication Engineering	15	3	10	5	25	8
6.	Mechanical Engineering	10	0	16	3	26	3
Total (A)		47	9	68	22	115	31



Science, Humanities & Management Studies Disciplines (B)							
Sl. No.	Name of the Dept.	No. of Students admitted				Total	
		Part Time		Full Time			
		Male	Female	Male	Female	Male	Female
7.	Physics	3	0	9	4	12	4
8.	Chemistry	3	1	4	5	7	6
9.	Mathematics	7	0	6	6	13	6
10.	Forestry	2	4	23	23	25	27
11.	Humanities & Social Sciences	6	3	0	3	6	6
12.	Management Studies	6	3	4	3	10	6
Total (B)		27	11	46	44	73	55

Total (A) + (B)	Male	Female	Total
		188	86

Table 25: Category-wise No. of Students enrolled in Ph.D. (Part Time & Full Time)

Engineering Disciplines (A)						
Sl. No.	Name of the Dept.	GE	SC	OBC	ST	Total
1.	Agricultural Engineering	7	0	6	9	22
2.	Civil Engineering	5	2	4	14	25
3.	Computer Science and Engineering	2	0	3	1	6
4.	Electrical Engineering	12	3	11	5	31
5.	Electronics and Communication Engineering	16	1	14	2	33
6.	Mechanical Engineering	15	3	6	5	29
Total (A)		57	9	44	36	146
Science, Humanities & Management Studies Disciplines (B)						
Sl. No.	Name of the Dept.	GE	SC	OBC	ST	Total
7.	Physics	4	1	7	4	16
8.	Chemistry	5	1	3	4	13
9.	Mathematics	7	0	7	5	19
10.	Forestry	9	1	12	30	52
11.	Humanities & Social Sciences	4	2	0	6	12
12.	Management Studies	8	0	4	4	16
Total (B)		37	5	33	53	128



3.6 Miscellaneous

The Automation Process for Academic Section and Examination Cell activities of the Institute has become operational since July-December, 2016 session. All kind of fees related to Academic and Examination are being collected through online payment mode.

Institute has participated in the National Institutional Ranking Framework (NIRF) 2020 and ranked 145 in Engineering.

All the Undergraduate and Postgraduate courses of the Engineering and Technology and MBA of the Institute are recognized by the All India Council for Technical Education, New Delhi.

The data of the Institute has been successfully uploaded in the All India Survey on Higher Education (AISHE) for the year 2019-20.

Online Anti-Ragging undertaking has been introduced from July, 2016. The students submit the Anti-Ragging (online) undertaking every year in the month of July during Semester Registration.

The Ministry of Tribal Affairs, Govt. of India, has selected 11(eleven) Ph.D. Scholars of NERIST for “National Fellowship and Scholarship for Higher Education of ST students for the year 2019-20.

The 31st Academic Council approved the recommendation of the BoS of all the Departments for Revision of Course Curriculum for Diploma and Degree Programmes in Engineering and Technology and for the Department of Forestry. The 31st Academic Council also approved the Draft Ph.D. Regulation.



SECTION – 4

4.1 DEPARTMENT OF FORESTRY

4.1.1. A Brief Profile of the Department

The department of Forestry came into existence in 1986 along with the establishment of NERIST with an object to impart forestry education to the younger generations of eight northeastern states of India. The department currently offers programmes at Graduate (4 years B. Sc.), Post graduate (2 year M. Sc.) and Ph. D. levels. The department of Forestry with all courses run by it have recently been accredited by Indian Council of Forestry Research and Education (ICFRE), Dehradun with ‘**A* Grade**’ for the period of three years i.e. from June, 2020 to June, 2023. The department is set against a large landscape of verdant scenic beauty and is equipped with infrastructure designed to produce professional personnel with management capacity and ability to take up the future challenges in the field of forestry. Forestry courses in the institute are also an attempt to conform to National Forest Policy 1988, which emphasizes forestry education in India. Northeastern states of India are endowed with a large forest cover, which requires intellectual human resources for their conservation and sustainable management. Moreover, the region is considered as a mega diversity hot spot area rich not only in biodiversity but also having many rare, endangered, threatened and endemic species, some of which may become extinct soon without human intervention. With the vast learning experience, the outgoing students would be able to accomplish the mission of maintaining a balance between preservation of the genetic resources and sustainable utilization of forest resources on one hand and development of the region on the other. The students are given exposure and training in various forest-based aspects through field visits, project and dissertation work to gain practical knowledge and skills.

The back bone of the multi-disciplinary forestry course in the institute is its “faculty”, who are specialized in frontier subjects i.e. Forest Ecology, Forest Geoinformatics, Wood Science and Technology, Horticulture, Taxonomy, Ethnobotany, Silviculture, Biodiversity conservation, Wildlife Management, Biotechnology, Microbiology, Forest Genetics, Forest Economics and Management etc. Apart from teaching, faculty members are also actively involved in conducting research work in different field of forestry and allied subjects and guiding Ph. D. students in their respective filed of specializations. The department has produced so far more than 41 doctoral theses leading to Ph.D. degrees.

List of Faculty member with their designation and field of specialization

Sl.	Name	Designation	Area of specializations
1.	Dr. B. Singh	Professor	Horticulture & Agroforestry
2.	Dr. C. L. Sharma	Professor	Wood Science & Technology
3.	Dr. M. B. Sharma	Professor	Wood Science & Forest Products
4.	Dr. Karuna Shrivastava	Professor & Head	Fungal Diversity, Plant-Microbe Interactions, Plant Biotechnology
5.	Dr. P. R. Gajurel	Associate Professor	Plant diversity & Taxonomy Ethnoboany



6.	Dr. S. Sureshkumar Singh	Associate Professor	Natural Product Biotechnology, Microbial Diversity & Bioprospecting
7.	Dr. A. Kumar	Associate Professor	Wildlife behavioral ecology & Conservation
8.	Dr. O. P. Tripathi (On Lien)	Associate Professor	Forest Ecology, Biodiversity, Forest Geoinformatics, Climate Change
9.	Dr. L. B. Singha (On Lien)	Associate Professor	Forest ecology and Biodiversity, Bamboos of Northeast, Nutrition Science
10.	Dr. G. Pangging	Assistant Professor	Forest Economics & Management
11.	Dr. Ashish Paul	Assistant Professor	Ecology & Biodiversity Conservation
12.	Dr. Madhu Kamle	Assistant Professor	Plant Biotechnology, Molecular Disease Diagnostics, Fungal-Plant Interaction
13.	Dr. Pradeep Kumar	Assistant Professor	Biotechnology, Phytochemistry, Plant Pathology & Biocontrol

4.1.2 Academic Activities

Education in Forestry Science and research in Forestry and its allied discipline are the major academic activities of the department. The UG syllabus has been revised as per 'Fifth Deans Committee Report of ICAR' and the new B. Sc. Forestry syllabus will be implemented with the academic year starting from 2020-2021. The various academic courses presently offered in Forestry sciences include:

Sl. No.	Name of Course	Duration
1	B. Sc. Forestry	4 Years
2	M. Sc. Forestry	2 years
3	Ph.D. Programme	Minimum three years with one year course work

All the important aspects of Forestry viz., Forest management, conservation, protection and utilization, Forest policy and planning, Forest Biology, Wildlife management, Silviculture, Wood Sciences & Technology, Application of GIS and Remote Sensing, Microbiology and Biotechnology, Soil biology and management etc. have been covered along with related interdisciplinary subjects like Biochemistry, Bio-statistics, Surveying, Marketing etc. particularly in B. Sc. Forestry. The department has the potential to do justice with the Forestry education in NERIST. Industrial training for 90 days is an integral component of B.Sc. Forestry course wherein students are attached with forest departments, zoological parks, research institution across the country and in non-government organizations such as M. S. Swaminathan Research Foundation; WWF, WIMCO, PRADAN, etc. The major topics undertaken in industrial training are natural resource management, wildlife management, tea cultivation and management, rural management, remote sensing, NWFP, Biodiversity conservation and forest ecology, etc.



The Department has in its credit more than 90 completed and 16 ongoing externally funded projects. The students working in the research projects have also got the opportunity to register for Ph.D. by which several young scientists are being produced by the Department. Currently, 46 full time and 5 part-time Ph.D. scholars are enrolled who are doing their research work on varied forestry oriented topics. The department has already produced more than 75 Ph.D. scholars so far. The faculty members working in different areas of forestry and allied disciplines have contributed significantly to the overall knowledge dissemination through publications in scientific journals of national and international repute. The department has a strong collaboration at national and international level with leading institutes and organization.

4.1.3 Laboratories and Laboratory Development

The department has eight well equipped laboratories for conducting practical classes and R & D activities inside the department beside three field labs (Nursery, Net house & Mist chamber). The Research Laboratory of the Department caters to the need of research activities of the department. It is worth mentioning that the department has undertaken more than 90 research projects (completed/ongoing) sponsored by several funding agencies like MHRD, DST, CSIR, AICTE, MoEF, UNESCO, GBPIHED, ICAR, ICFRE, DBT, ISRO, DSIR, UNDP, NEC etc. and completed them successfully. All laboratories of Forestry department are well equipped with conventional and sophisticated instruments and apparatus like Seed germinator, BOD incubator, Portable leaf area meter (Licor), Laminar air-flow chamber, Rotary shaker, Refrigerated centrifuge, Laboratory refrigerator, Deep freezers, Hot air oven, UV-vis Spectrophotometer, Flame photometer, Autoclave, Digital electronic balance, Research microscopes (Leica), Stereomicroscope (Zeiss), Phase-contrast microscope (Olympus), Spectro-fluorimeter, Wood microtome, Circular saw, Automatic weather station, Real-time & Gradient PCR systems, Gel documentation system, Gel electrophoresis, Gas Chromatograph, Socs Plus and Fibra Plus, Kelplus, Flame photometer, GPSs, GIS softwares etc. for conducting different experiments for student practices at various modules as well as for research activities. Well-developed departmental computer center and department's library provides the resources to students and faculties to carry out their academic and research activities. The department has good number of computers with internet on LAN and printing facilities.

The department has an established Forest nursery cum herbal garden which is spread over 2 acres of land and harbor more than 100 tree/plant species including important timber, medicinal, aromatic, and some indigenous plant species of the region. Recently, a banana conservation plot has also been developed in an area of 1.5 acre of land by the fund of two R&D projects of DBT.

Existing Laboratories:

Lab No.	Name of Lab / Facilities	In-charge
Lab 1	Wood Science & Forest Products	Dr. M.B. Sharma
Lab 2	Plant-Microbe Interaction & Biotechnology	Dr. Karuna Shrivastava
Lab 3	Forest Systematic Ethnobotany & Horticulture	Dr. P. R. Gajurel
Lab 4	Environment, NRM & Restoration Ecology	Dr. G. Pangging
Lab 5	Silviculture, Forest Ecology & Biodiversity	Dr. A. Paul
Lab 6	Wildlife Conservation	Dr. A. Kumar



Lab 7	Remote Sensing & GIS	Dr. A. Paul
Lab 8	Bioinformatics	Dr. S. S. Singh
Facility 1	Computing Facility	Dr. A. Kumar
Facility 2	Forest Nursery	Dr. P. R. Gajurel
Facility 3	Forestry Herbarium	Dr. P. R. Gajurel
Facility 4	Department Library	Dr. A. Kumar

New Equipment/items added:

Name of Labs / Facilities	New Equipment purchased	
	From institute fund	From project grants
Plant-Microbe Interaction & Biotechnology	<ol style="list-style-type: none"> Compound Binocular Microscopes (2 nos.) (Olympus) Autoclave 	<ol style="list-style-type: none"> Stereozoom Microscope Two Gradient PCR Gel Documentation System Refrigerated Centrifuge Deep Freezer (-20°) Maxi and Midi Submarine Gel Electrophoresis Research Micropipettes (6) UPS (5KVA) Orbital Incubator Shaker (Remi) Laminar Air Flow (Icon) Air Curtain Horizontal Tissue culture mobile workstation (Bio-Era) DSLR camera (Nikon) Partitioning for inoculation room
Forest Systematic Ethnobotany & Horticulture	<ol style="list-style-type: none"> Stereo Microscope with camera (Carl Zeiss) Electronic Balance (Dhuna) 	<ol style="list-style-type: none"> Rotary Evaporator (Leica) Trinocular Stereo Microscope (Dewinter) BOD Incubator DSLR camera (Nikon) GPS (1 no.) HPLC system (Yet to be installed) Hot air Oven
Environment, NRM & Restoration Ecology	<ol style="list-style-type: none"> GPS (1 no.) 	<ol style="list-style-type: none"> Sony Projector (VPL EX 450) Projector Screen (4ft x 6ft) Generator (Honda EP 1000 Petrol) Sony handycam FDR AX40
Silviculture & Forest Ecology	<ol style="list-style-type: none"> Hot Air Oven 	<ol style="list-style-type: none"> DSLR camera (Canon) GPS (Garmin)
Computing Facility	<ol style="list-style-type: none"> Computer PCs with UPS - 7 Nos. Printer – 1 No. 	NA
Forest Nursery	-	1. A mist chamber (Saveer Biotech Ltd.) was constructed
Research Lab of Dr. M. Kamle & Dr. P. Kumar	-	<ol style="list-style-type: none"> -86°C, Centrifuge, Laminar Air Flow, Autoclave, Gel Electrophoresis Unit,



		5. Bacteriological Incubator, 6. Incubator Shaker, 7. Freeze 8. pH Meter 9. Weighing Balance 10. Refrigerator
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4.1.4 Project/Thesis Completed by PG/Ph.D Students

(i) Ph.D. Thesis (awarded/submitted):

During April, 2019–March, 2020, total 5 scholars have been awarded with Ph.D. degree and two scholars have submitted their thesis. The details are given below:

Name and Roll No.	Supervisor(s)	Status	Title of Ph.D. Thesis
Govinda Pangging, Ph.D.(PT)/14/FO/01	Prof. C.L. Sharma, (Supervisor) Prof. M.B. Sharma, (Co-Supervisor)	Awarded	Ethnobotanical studies of plants used in magico religious practices by selected tribes of Assam
Diana Ethel Amonge Ph.D. (PT)/11/FO/02	Dr. A. Kumar, (Supervisor) M. B. Sharma, (Co-Supervisor)	Awarded	“Studies on reproductive and behavioural ecology of eastern hoolock gibbon (<i>Hoolock leuconedys</i>) in conservation breeding center at Itanagar, Arunachal Pradesh, India”
Biswajit Pramanik Ph.D.(FT)/13/FO/01	Karuna Shrivastava, (Supervisor)	Awarded	“Characterization of arsenic tolerant fungi and their application in removal of arsenic from water”
Bidyut Sarania (ESP14007)	Dr. A. Kumar (As Co-supervisor) from Tezpur University, Assam	Awarded	Population distribution, behavioural ecology and Morphometry of <i>Macaca munzala</i> , Arunachal Pradesh, India.
Mr. Robert Panmei Ph.D./(FT)/FO/13/05	Prof. B. Singh (Supervisor) Dr. P.R. Gajurel (Co-Supervisor)	Awarded	Cross-cultural ethnobotany among the Zeliangrong tribe of Manipur
Khaidem Kennedy Singh, Ph.D.(FT)/13/FO/04	Dr. S. Sureshkumar Singh (Supervisor) Prof. C.L. Sharma (Co-Supervisor)	Submitted	“ <i>In-vitro</i> screening of antidiabetic and antioxidant properties of selected ethnomedicinally important plants in North East, India”
Mr. K. Ronald Ph.D./(FT)/FO/13/02	Prof. B. Singh (Supervisor) Dr P.R. Gajurel (Co-Supervisor)	Submitted	Population Status, Mapping and Habitat Suitability Analysis of <i>Homolomena aromatica</i> Schott. in Arunachal Pradesh

**(ii) Project work completed by PG students:**

A total of following 13 M.Sc. (Forestry) and 2 M. Tech. (Civil Engg.) thesis were submitted and approved:

Name of Student / Roll. No.	Dissertation title	Supervisor(s)
M.Sc. (Forestry) Dissertations		
Manisha K. Das (MS/17/FO/01)	Isolation and identification of pathogen causing leaf spot disease in <i>Mimusops elengi</i> and its biocontrol using essential oils	Dr. P. Kumar
Momang Tali (MS/17/FO/02)	“Anatomical and physical characteristics of <i>Calamus</i> species of Arunachal Pradesh”	Prof. C.L. Sharma
Lucky Tamuk (MS/17/FO/04)	<i>A study on antidiabetic, antihypertensive, antioxidant and antimicrobial properties of two plant species from Arunachal Pradesh</i>	Dr. S. Sureshkumar Singh
Seiminlun (MS/17/FO/05)	Isolation, characterization and evaluation of bacillus spp. from earthworm mudball and their antifungal activities against anthracnose pathogen of <i>Aloe vera</i>	Dr. P. Kumar
Mangkhansuan Samte (MS/17/FO/06)	Contribution of isolated tree species found in Fringe Villages of Pakke Tiger Reserve, Arunachal Pradesh in Avian species conservation.	Dr. A. Kumar
Eliza Hanker (Ms/17/FO/007)	Assessment of adoption practice of artificial hornbill beak in decoration of Nyishi headgear in Arunachal Pradesh, India.	Dr. A. Kumar
Horter Padu (MS/17/FO/10)	Community characteristics and habitat suitability modelling of <i>Illicium griffithii</i> Hook.f. & Thomson in West Kameng district, Arunachal Pradesh	Dr. Ashish Paul
Mahesh Wangkhem (MS/17/FO/11)	“Anatomical and physical characterization of some <i>Syzygium</i> species from Manipur	Prof. M. B. Sharma
Dahunirikitre M. Lamare, (MS/17/FO/12)	“Fibre morphology and physical properties of <i>Neomicrocalamus manii</i> (Gamble) Majumdar”	Prof. M. B. Sharma & Prof. C.L. Sharma
Hinotoli Asumi (MS/17/FO/13)	Evaluation of biological activities of selected wild medicinal plant from Zunheboto district of Nagaland	Dr. S. Sureshkumar Singh
Ms. Oshin Tabing MS/17/FO/14	Diversity and ethnobotanical uses of climbing species occurring in Pasighat areas in Arunachal Pradesh	Dr. P. R. Gajurel
Ms. Sisibaying Nopi MS/17/FO/15	Taxonomic Diversity and uses of plants with special reference to tree flora in Yinkiong area of Upper Siang district, Arunachal Pradesh	Dr. P. R. Gajurel
Bamin Tabin (MS/17/FO/17)	Study on traditional management practices, utilisation and growing stock in <i>Phyllostachys</i>	Dr. G. Pangging



	<i>bambusoides</i> plantation of Apatani tribe from Ziro valley, Eastern Himalaya	
M. Tech. (Civil Engg.) Dissertations		
Mr. Uddipan Das (MT/17/ESE/0)	Assessment of APTI, bio-indicators and ambient air quality from Industrial areas in Arunachal Pradesh	Dr. S. Sureshkumar Singh & Dr. Ajay Bharti
Anupreeti Das MT/17/ESE/01	Green Synthesis and Characterization of Silver Nanoparticles using Tuber Extract of <i>Dioscorea esculenta</i> and its Applications in Human Health and Environmental Remediation	Dr. P. Kumar & Dr. Ajay Bharti

4.1.5 Short-term Courses/Seminars/Workshops/Conferences organized at NERIST

Name	Title	Funding	Venue	Period
One-day workshop cum awareness programme organized by Dr. L.B. Singha	“Invasive Alien Plants in Himalayas: Status, Ecological Impact and Management – Arunachal Chapter”	MoEF & CC project	NERIST	10.02.2020
Organized 1st Review meeting and Group Discussion of PIs by Prof. Karuna Shrivastava	Ongoing Macrofungi project	DBT Twining project	TERI, New Delhi	20.01.2020
Training cum awareness program organized by Dr. G. Pangging, Prof. C. L. Sharma & Prof. M. Sharma	“Role of intellectual property right in protection of indigenous knowledge system”	NMHS project of GBPIHE, Almora, U.K.	Old Ziro, Lower Subansiri, A.P.	24.11.2019
Workshop cum awareness programme organized by Dr. Ashish Paul, Dr. OP Tripathi and Dr. LB Singha	‘Impacts of climate change on bio-resources and livelihoods of local people’	DST, Government of India, New Delhi	Seru village, Tawang, Arunachal Pradesh	13.11.2019
Training programme organized by Prof. B. Singh & Dr. P. R. Gajurel	Farmers training on Sustainable management of Bamboo	State Bamboo Mission, Govt. of A.P.	Sopo Village, Papum Pare	11 ^h – 12 th March, 2020

4.1.6 Short-term Courses/Seminars/Workshops/Conferences attended by the Faculty :

Name of faculty	Details of programme attended
Prof. C. L. Sharma	Attended 606 th International Conference of Agricultural and Biological Science (ICABS) on 18th-19th June, 2019 at Los Angeles, USA.
Prof. M. B. Sharma	Attended 606 th International Conference of Agricultural and Biological Science (ICABS) on 18th-19th June, 2019 at Los Angeles, USA



Dr. Karuna Shrivastava	Attended Training program on “Molecular markers (GBS) development” held at TERI-School of Advanced Studies, New Delhi, from 20 – 24 January 2020. Sponsored by DBT, Govt. of India, New Delhi.
	Attended 7th International Conference on “Phytopathology in Achieving UN Sustainable Development Goals” at New Delhi, India from January 16-20, 2020.
	Attended International conference on “Global initiatives for sustainable development: Issues and strategies” held at Bangkok, Thailand from 23rd – 27th June, 2019.
	Attended and presented in 1 st ‘Monitoring cum Evaluation meeting’ of on-going Banana project organised by DBT-NER at New Delhi from 17th -18 th October, 2019.
	Attended and presented in 1 st Review meeting and Group discussion of on-going Banana project of DBT held at Guwahati on 18 th -19 th June, 2019.
Dr. P.R. Gajurel	Attended International Conference on Sustainable. Agricultural Production for food, nutritional & livelihood Security, Sept 25-27, 19 Pattaya Thailand.
S. Suresh Kumar Singh	Attended International Conference on banana-2020 held at ICAR-NRCB, Trichy, Tamil Nadu from 23-26/02/2019.
	Attended Review Meeting of the DBT-Sponsored Project on Banana at Gauhati University, Gauwahati on 16.06.2019.
	Attended and presented in 1st Review meeting and Group discussion of on-going Banana project of DBT held at Guwahati on 19 th & 20 th June, 2019.
	Attended National Seminar on REDIMAP-2019 at ADP College, Nagaon held from 29th -30th August 2019.
Dr. A. Kumar	Attended two weeks Faculty Development Programme on “Climate Smart Governmance” organized by Indian Institute of Public Administration, New Delhi from June 17-28, 2019 in New Delhi, India.
	Attended two weeks Faculty Development Programme on “Impact of Climate Change on Water Resources” organized by Department of Agricultural Engineering, NERIST from October 14-25, 2019 at NERIST, Nirjuli, Arunachal Pradesh, India.
	Attended ‘National symposium on recent trends in zoological sciences’ held in Department of Zoology, North Eastern Hill University, Shillong, Meghalaya, India from 28-29th February, 2020.
	Attended 7 th Asian Primate Symposium & 1 st International Conference on Human-Primates Interface’ held in Department of Zoology, Gauhati University at Guwahati, Assam, India from 8-10 February, 2020.
	Attended two weeks NPTEL-FDP course “Forest Biometry” organized by AICTE-NPTEL (IIT Kanpur) in 2019.
Dr. G. Pangging	Attended Off-campus outreach certificate programme: Online course on “IIRS-NESAC Remote Sensing and GIS-Technological Advances and Applications”. This course was conducted by Indian Institute of Remote Sensing (IIRS), Dehradun from April 29, 2019 to May 10, 2019 (One week).
	Attended 3 days Hands on Training on Angiosperm Taxonomy with special Reference to Banana, sponsored by Department of Biotechnology, Govt. of India organised by Department of Forestry from 28 to 30 March 2019.



	Attended 2nd “National Seminar-cum-Monitoring & Evaluation (M&E) Workshop” of NMHS Ongoing Projects organised by GBPIHED, Almora, Uttarakhand from 4 to 7 February 2019.
Dr. A. Paul	Attended National Level Training Programme on ‘Disaster Management’ on 27 th – 28 th February, 2020, organized by North Eastern Regional Institute of Science and Technology (NERIST), Nirjuli, Arunachal Pradesh in collaboration with National Institute of Disaster Management, Ministry of Home Affairs, Government of India, New Delhi.
	Attended Workshop cum Awareness programme on ‘Invasive Alien Plants in Himalayas: Status, Ecological Impact and Management’ on 10 th February, 2020 at NERIST, Arunachal Pradesh, organized by North Eastern Regional Institute of Science and Technology (Deemed to be University), Nirjuli, Arunachal Pradesh. Sponsored by Ministry of Forest, Environment and Climate Change, Government of India, New Delhi.
Dr. M. Kamle	Attended One week Faculty Development program on “Behavioral Remodeling and Research Methodology” by E&ICT Academy IIT Guwahati association with NERIST (1-5 Apr 2019) at NERIST
	Attended Faculty Development program on “Network Security” Ministry of Electronics and Information Technology at NERIST (20-24 May 2019) - Online mode
	Attended Faculty Development program on “Deep Learning and Applications” by Ministry of Electronics and Information Technology at NERIST (27-31 May 2019). - Online mode
	Attended Faculty Development program on “Advancements in Signal Processing & Optimization Techniques” by Ministry of Electronics and Information Technology at NERIST (3-7 June 2019) - Online mode
	Attended UGC sponsored Orientation Program at Deen Dayal Upadhyay Gorakhpur University (13 July - 2 Aug 2019)
	Attended Faculty Development Program on “Impact of Climate Change on Water Resources” sponsored by AICTE at Department of Agricultural Engineering, NERIST (14-25 Oct 2019)
	Attended National Conference on Recent Advances in Agriculture, Food Tech and Human Health (BioMilaap -2019) at Department of Molecular and Cellular Engineering, Jacob Institute of Biotechnology and Bioengineering, SUATS, Prayagraj (5-6 Nov 2019).
	Attended Faculty Development Program on “ICT Tools for Teaching, Learning Process & Institutes” by Electronics and ICT Academics at NERIST (13-17 Jan 2020) - Online mode
	Attended One Day Workshop Cum Awareness Program on “Invasive Alien Plants in Himalayas: Status, Ecological Impact and Management” by Department of Forestry, NERIST (10 Feb 2020)
	Attended National Level Training Program on Disaster Management by National Institute of Disaster Management and NERIST (27-28 Feb 2020)
Dr. P. Kumar	Attended One week Faculty Development program on “Behavioral Remodeling and Research Methodology” by E&ICT Academy IIT Guwahati association with NERIST held at NERIST (1-5 Apr 2019)



	Attended One Week Faculty Development program on “Network Security” by Ministry of Electronics and Information Technology at NERIST (20-24 May 2019) - Online Mode
	Attended One Week Faculty Development program on “Deep Learning and Applications” by Ministry of Electronics and Information Technology at NERIST (27-31 May 2019) - Online Mode
	Attended One Week Faculty Development program on “Advancements in Signal Processing & Optimization Techniques” by Ministry of Electronics and Information Technology at NERIST (3-7 June 2019) - Online Mode
	Attended Twenty one days UGC sponsored Orientation Program at Academic Staff College, DDU Gorakhpur University (13 July- 2 Aug 2019)
	Attended Two week Faculty Development Program on “Impact of Climate Change on Water Resources” sponsored by AICTE at Department of Agricultural Engineering, NERIST (14-25 Oct 2019)
	Attended National Conference on "Recent Advances in Agriculture, Food Tech and Human Health" BIOMILAP-2019 at JIIB SUATS, Allahabad. November 05-06, 2019.
	Attended Faculty Development Program on “ICT Tools for Teaching, Learning Process & Institutes” by Electronics and ICT Academics at NERIST (13-17 Jan 2020) – Online mode
	Attended One Day Workshop Cum Awareness Program on “Invasive Alien Plants in Himalayas: Status, Ecological Impact and Management” by Department of Forestry, NERIST (10 Feb 2020)
	Attended National Level Training Program on Disaster Management by National Institute of Disaster Management & NERIST (27-28 Feb 2020)

4.1.7 New Degree/Professional Membership Obtained by the Faculty:

Prof. M. B. Sharma	Membership of International Association of Wood Anatomists (IAWA), Netherland
Prof. Karuna Shrivastava	Life Member, Association of Microbiologists of India.
Dr. S.S. Singh	Life Member, Association of Microbiologists of India
Dr. Govinda Pangging	Ph.D. (Forestry) degree awarded in 2019 (Thesis title: Ethnobotanical studies of plants used in magico-religious practices by selected tribes of Assam), Supervisors: Prof. C.L. Sharma and Prof. M.B. Sharma, Department of Forestry, NERIST.
Dr. Govinda Pangging	Life membership, East Himalayan Society for Spermatophyte Taxonomy (Taxoclub), Department of Botany, University of North Bengal, Siliguri, West Bengal.
Dr. Govinda Pangging	Awarded Gold (Topper) in NPTEL-FDP course “Forest Biometry” organized by AICTE-NPTEL (IIT Kanpur) in 2019

**4.1.8 Achievement, Awards, recognition earned by the Faculty:**

Dr. S. Sureshkumar Singh	<ul style="list-style-type: none">• Won 'Best Poster Award' in International Conference on banana-2020, held at ICAR-NRCB, Trichi from 23-26/02/2020
Prof. Karuna Shrivastava	<ul style="list-style-type: none">• Member, University Ethical Committee, RGU, Doimukh, A.P.
Dr. A. Paul	<ul style="list-style-type: none">• Reviewer: <i>Industrial Crops and Products</i> (Peer reviewed; Elsevier) from 2020.
Dr. M. Kamle	Editorial Activities <ul style="list-style-type: none">• Associate Editor: Archive of phytopathology and plant protection• Editor: Journal of Biodiversity and Conservation (ISSN: 2457-0761)• Reviewer for 9 Peer Reviewed Journals
Dr. P Kumar	<ul style="list-style-type: none">• Chaired technical session for oral paper presentation in International conference BIOCICON 2019 at Amity Univ., Raipur Editorial Activities <ul style="list-style-type: none">• Associate Editor: BMC Complementary Medicine and Therapies (IF = 2.479)• Academic Editor: PlosOne (IF = 2.776)• Academic Editor: Plant Cell Biotechnology and Molecular Biology (IF= 0.24)• Guest Editor (Special Issue): Evidence-Based Complementary and Alternative Medicine (IF = 1.813)• Editorial Board: Agrica• Editor: Journal of Biodiversity and Conservation (ISSN: 2457-0761)• Reviewer for More than 50 Peer Reviewed Journals

**4.1.9 Project Sanctioned by outside agencies to the Faculty of the Department:**

Sl. No.	Name of PI/Co-PI	Title of project	Funding agency with order No.	Period	Amount (Lakhs)
New Project Sanctioned:					
1.	Dr. Karuna Shrivastava (PI), Dr. S. S. Singh (Co-PI),	"Exploration and conservation of high value wild edible macrofungi (WEM) from higher altitudes of Arunachal Pradesh and biotechnological evaluation of their nutraceuticals/novel metabolites"	DBT, Govt. of India Sanction Order No. BT/PR25041/NER/95/9 76/2017 dated 01.10. 2019	2019-2022	45.57
On Going Projects:					
2.	Prof. Binay Singh (PI), Dr. P.R. Gajurel (Co-PI),	Capacity Building of Rural Tribal Women in Management and Marketing of Wild Edible Plants in Arunachal Pradesh (PI)	DST, Govt. of India, New Delhi	2018-2020	30.90
3.	Prof. B. Singh (PI) Dr. P.R. Gajurel (Co-PI),	Promotion of promising horticultural crops in degraded ecosystem and abandoned jhum lands in Arunachal Himalaya for improvement of livelihood (PI)	GBPNIHESD	2018-2020	11.65
4.	Prof. Karuna Shrivastava (PI) Dr. S. S. Singh (Co-PI),	"Collection, evaluation, documentation and conservation of banana genetic resources from north eastern region (Group1 Project 5)"	DBT, Govt. of India DBT-NER/AGRI/33/ 2016 dated 22.03.2018	2018-2020	38.49 (2 nd yr - 7.80)
5.	Dr. PR. Gajurel (PI) Prof. B. Singh (Co-PI),	Bio resources and sustainable livelihood in Northeast India (Co-PI)	DBT, Govt. of India, New Delhi	2018-2020	76.00
6.	Dr. PR. Gajurel (PI), Dr. S.S. Singh (co-PI) Prof. B. Singh (Co-PI)	Comprehensive metabolic profiling and pharmacological studies of Piper species: a natural bioenhancer in pharmaceuticals (PI)	DBT, Govt. of India, New Delhi	2019-2021	46.00
7.	Dr. P.R. Gajurel (PI) Prof. B.Singh, (Co-PI),	Taxonomic revision and phylogeny of the genus Piper L. (Piperaceae) in India with its Biogeography (PI)	DBT, Govt. of India, New Delhi	2019-2021	23.00
8.	Dr. S. S. Singh (PI) Dr. Karuna Shrivastava & Dr. P.R. Gajurel (Co-PIs)	Diversity assessment, germplasm conservation and database development on	DBT, Govt. of India, New Delhi	2018-2021	15.91



		banana resources of North Eastern India (2 nd Year release)			
9.	Dr. OP Tripathi (PI), Dr. Madhusudan Misra & dr. Ashish Paul (Co-PIs)	Characterizing pattern and process of alpine ecosystem in Indian Himalaya with special emphasis to Arunachal Pradesh	SAC-ISRO Ahmedabad EPSA/SHRESTI/ALP/8 -19/01 dated 22.02.2019	2019-2022	24.01
10.	Dr. Ashish Paul (PI), Dr. OP Tripathi & Dr. LB Singha (Co-PIs)	Impacts of climate change on bioresources and livelihoods of local people of Arunachal Pradesh	DST-HICAB New Delhi, DST/CCP/ HICAB/SN-AP/160 /2018(G) dt. 07.03.2019	2019-2022	56.91
11.	Dr. M. Kamle (PI) & Dr. P. Kumar (Co-PI)	Micropropagation of <i>Litsea cubeba</i> (Lour.) Pers: an indigenous plant of North East India for genetic conservation	GBPNIHESD GBPI/IERP/17-18/58 28/03/2018	2018-2021	~8.0 Lakh
12.	Dr. P.Kumar (PI)	Exploring the <i>Bacillus thuringiensis</i> genetic diversity with anti-coleopteran, anti- lepidopteron specific Cry genes to combat agriculturally important insect pest from North-East (Arunachal Pradesh) India.	DST SERB ECR/2017/001143	2018-2021	~42.83 Lakh
13.	Dr. P. Kumar (PI) & Dr. M. Kamle (Co-PI)	Screening of Phytochemical and Bioactive compounds against human pathogenic bacteria of some selected indigenous medicinal plants of Arunachal Pradesh, India	DBT, Govt of India BT/PR24741/NER/95/6 59/2017 dated 11/01/2019	2019-2022	82.14 lakh
Project Completed:					
1.	Dr. S. S. Singh (PI) Dr. Karuna Shrivastava (Co-PI),	“Establishment of a Culture Collection Centre in North East Region of India Phase II” 2 nd & 3 rd Year Releases	DBT, Govt. of India, New Delhi	2017- 2020	11.15
2.	Dr. OP Tripathi (PI)	Biomass and carbon assessment in India- Phase II	NRSC, ISRO	2015-2019	14.00
3.	Dr. OP Tripathi (PI)	Assessment of carbon stock and carbon sequestration potential of major landuse sectors in Arunachal Pradesh	DST	2015-2019	84.624

4.1.10 Publications

(a) Referred Journal:

Journal Articles	
1.	Singh, M. K., Sharma, M. and Sharma, C. L. 2019. Anatomical characteristics of some plant members of Meliaceae from Assam, India. <i>Journal of Bioresources</i> , 6 (2): 33-43.
2.	Singh, M.K., Sharma, M. and Sharma, C.L. 2019. Wood anatomy of some members of Euphorbiaceae and Phyllanthaceae from Assam, India. <i>Pleione</i> 13(1): 01 - 11.
3.	Karuna Shrivastava , B. Pramanik, S.S. Singh and M.L. Khan (2020). Enhanced arsenic removal from aqueous medium by arsenic tolerant groundwater fungi, <i>Journal of Environmental Biology</i> , 41 (2): 186-194. IF: 0.640 . (Online) DOI: http://doi.org/10.22438/jeb/41/2/MRN-1244
4.	Biswajit Pramanik, Karuna Shrivastava , S. Sureshkumar Singh and Mohammed Latif Khan, Yensenbam Priyabala Devi (2019). Identification and characterization of arsenic tolerant filamentous fungi from groundwater, <i>Indian J. of Mycology and Plant Pathology</i> (Accepted).
5.	Kashung, S., Gajurel, P.R. & Singh, B. 2020. Ethnobotanical uses and socio-economic importance of climbing species in Arunachal Pradesh, India <i>Plant Science Today</i> , 7(3):371-377. https://doi.org/10.14719/pst.2020.7.2.771 IF 0.30
6.	Panmei, R., Gajurel, P.R. & Singh, B. 2019. Ethnobotany of medicinal plants used by the Zeliangrong ethnic group of Manipur, northeast India <i>Journal of Ethnopharmacology</i> , 235:164-182. DOI: https://doi.org/10.1016/j.jep.2019.02.009 IF 3.49
7.	Kashung, S., Gajurel, P.R. & Singh, B. 2019. Morphological variations and phenology of <i>Ipomoea</i> L. species of Arunachal Pradesh, Eastern Himalaya <i>Int. J of Plant Reproductive Biology</i> , 11(1):91-97. DOI: https://doi.org/10.14787/ijprb.2019.11.1
8.	Ronald, K., Gajurel, P.R. & Singh, B. 2019. Assessment of eco-diversity status of <i>Homalomena aromatica</i> (Spreng.) Schott and its habitat in tropical forest of Indian Eastern Himalaya <i>Plant Science Today</i> , 6(2):71-83. DOI: https://doi.org/10.14719/pst.2019.6.2.435 IF 0.30
9.	Arya, H., Yadav, C. S., Shu-Yu Linc, Syeda, S. B., Charlesa, M. R. C., Kannadasanb, S., Hsing-Pang Hsiehc, Singh, S. S., Gajurel P.R. , & Coumar, M. S. 2019. Design of a potent anticancer lead inspired by natural products from traditional Indian medicine, <i>Journal Of Biomolecular Structure & Dynamics</i> (Published online) Sep 2019. ISSN: 0739-1102 (Print) 1538-0254 (Online) https://doi.org/10.1080/07391102.2019.1664326 IF 3.21
10.	Singh S.S. , Singh W. R., Sagolshemcha R. and Shrivastava, K. (2019). Genome classification of banana cultivars found in Manipur, India using IRAP-RAPD. <i>Indian Journal of Agricultural Research</i> (54):388-393. https://arccjournals.com/journal/indian-journal-of-agricultural-research/A-5347
11.	Debnath P., Das A., Singh K, Yama T., Singh S.S. , Butcher R., Sieron L., Maniukiewicz W. (2019). Synthesis, structural characterization and antimicrobial activities of triorganotin(IV)azo-carboxylates derived from ortho/para-amino benzoic acids and β -naphthol. 498: <i>Inorganica Chimica Acta</i> 119172. https://doi.org/10.1016/j.ica.2019.119172
12.	Debnath P., Singh K. S., Devi T. S., Singh S.S. , Butcher R. J., Sieroń L., Maniukiewicz W. (2020). Synthesis, characterization, crystal structures and anti-diabetic activity of organotin (IV) complexes with 2-(4-hydroxynaphthylazo)-benzoic acid, Volume 510, <i>Inorganica Chimica Acta</i> , 119736. https://doi.org/10.1016/j.ica.2020.119736
13.	Debnath P., Singh K.S., Singh K. K., Singh S.S. , Butcher R.J., Sieroń L., Maniukiewicz W. (2020). Di-butyltin(iv) complexes with azo-carboxylates: synthesis, characterization, crystal structures and their anti-diabetic assay, <i>New Journal of Chemistry</i> . 44, 5862-5872. https://doi.org/10.1039/D0NJ00536C

14.	Murali Chatakonda Krishna, Awadhesh Kumar and Om Prakash Tripathi (2019). Nesting trees of the Red Giant Gliding Squirrel <i>Petaurista petaurista</i> (Mammalia: Rodentia: Sciuridae) in a tropical forest of Namdapha National Park, India. <i>Journal of threatened taxa</i> , 11(6): 13720–13726.
15.	Deka, S., Tripathi, O.P. and Paul, A. (2019) Perception-based assessment of ecosystem services of Ghagra Pahar forest of Assam, Northeast India. <i>Geology, Ecology, and Landscapes</i> 3(3):197-209. ISSN: (Print) 2474-9508 (Online), Peer reviewed. International Water, Air & Soil Conservation Society (INWASCON), Taylor and Francis Group.
16.	Sangeeta Deka, L.B. Singha & O.P. Tripathi (2019). Implications of Land Use Dynamics on Ecosystem Service Value: A Case Study from Goalpara District of Assam, Northeast India. <i>International Journal of Plant and Environment</i> , 5(4): 270-277. DOI: 10.18811/ijpen.v5i04.7.
17.	Amit Kumara, B.S.P.C. Kishorea, P. Saikia, J. Deka, S. Bharali, L.B. Singha , O.P. Tripathi, M.L. Khan (2019). Tree diversity assessment and above ground forests biomass estimation using SAR remote sensing: A case study of higher altitude vegetation of North-East Himalayas, India. <i>Physics and Chemistry of the Earth</i> , 111: 53-64.
18.	Pangging, G. , Sharma, C.L. and Sharma, M. (2019). Ethnobotanical study on plants used in magico-religious practices of Deori tribe in Assam, India. <i>Plant Archives</i> . 19(1): 387-399.
19.	Pangging, G. , Rai, N., Sharma, C.L. and Sharma, M. (2019). Utilisation and valuation of important trees of Monpa tribe in Arunachal Pradesh. <i>Indian Journal of Hill Farming</i> . 32(2): 191-202.
20.	Pangging, G. , Sharma, M., Sharma, C.L., Rai, N., Gogoi, J. and Nyishi tribe. (2019). Byopa: A traditional headgear of Nyishi tribe from Arunachal Pradesh (India) and its relevance to Geographical Indication. <i>Pleione</i> . 13(1): 12-18.
21.	Pangging, G. , Sharma, C.L., Sharma, M., Rai, N and Gogoi, J. (2020). Traditional handloom practices of Nyishi tribe of Arunachal Pradesh, Eastern Himalaya. <i>Indian Journal of Traditional Knowledge</i> . 9(2): 442-449 (Accepted).
22.	Paul, A. , Dutta, P.K., Khan, M.L. and Das, A.K. (2019) Rhododendrons: A major resource of fuelwood in high altitude region of Arunachal Himalaya, India. <i>Biodiversitas</i> 20(9): 2628-2635. ISSN: 1412-033X (Print), E-ISSN: 2085-4722 (Electronic), Peer reviewed. The Society for Indonesian Biodiversity and Department of Biology, Faculty of Mathematics and Natural Sciences, Sebelas Maret University, Surakarta, Indonesia.
23.	Paul, A. , Khan, M.L. and Das, A.K. (2019) Population structure and regeneration status of rhododendrons in temperate mixed broad-leaved forests of western Arunachal Pradesh, India. <i>Geology, Ecology, and Landscapes</i> 3(3): 168-186. ISSN: (Print) 2474-9508 (Online), Peer reviewed. International Water, Air & Soil Conservation Society (INWASCON), Taylor and Francis Group.
24.	Das, B. , Bordoloi, R., Thungon, L.T., Paul, A., Pandey, P.K., Mishra, M. and Tripathi, O.P. (2020) An integrated approach of GIS, RUSLE and AHP to model soil erosion in West Kameng watershed, Arunachal Pradesh. <i>Journal of Earth System Sciences</i> 129:94; https://doi.org/10.1007/s12040-020-1356-6 . ISSN: 2347-4327 (Print) 0973-774X (Online). Peer reviewed. Impact Factor: 1.104, Published by the Indian Academy of Sciences. Springer Nature Switzerland AG. Part of Springer Nature.
25.	Mittal P, Sharma S, Kamle M , Bharti A, Tripathi V (2019). Identification and characterization of melanoidin degrading alkalohalophile bacteria from tainted site of molasses distillery effluents. <i>Biotech Today: An International Journal of Biological Sciences</i> . 8: 51-56.
26.	Kamle M , Mahato D K, Lee K E, Bajpai V K, Gajurel PR, Kang S G, and Kumar P, (2019). Ethnopharmacological Properties and Medicinal Uses of <i>Litsea cubeba</i> . <i>Plants</i> , 8(6), p.150. DOI: 10.3390/plants8060150 . (IF-2.762).

27.	Kamle M , Mahato D K, Devi S, Lee K E, Kang S G and Kumar P (2019). Fumonisin: Impact on Agriculture, Food, and Human Health and their Management Strategies. <i>Toxins</i> , 11(6), p.328. DOI: 10.3390/toxins11060328 . (IF-3.531).
28.	Das A, Kamle M , Bharti A, and Kumar P, (2019). Nanotechnology and its applications in environmental remediation: an overview. <i>Vegetos</i> , 32:1-11. DOI: 10.1007/s42535-019-00040-5 . (SCIE)
29.	Mahato DK , Lee KE, Kamle M , Devi S, Dewangan KN, Kumar P. and Kang S G (2019). Aflatoxins in food and feed: An overview on prevalence, detection and control strategies. <i>Frontiers in Microbiology</i> . doi: 10.3389/fmicb.2019.02266 . (IF- 4.235)
30.	Salehi B., Sharifi-Rad R, Shaopov F, Namiesnik J, Roointan A., M. Kamle , P Kumar, N. Martin, JS Rad (2019). Beneficial Effects and Potential Risks of Tomatoes Consumption For Human Health: An Overview. <i>Nutrition</i> . 62: 201-208. 10.1016/j.nut.2019.01.012 (IF-3.591).
31.	Kamle M. , Mahato D.K., Devi S., Soni R., Tripathi V, Mishra AK, P. Kumar (2020). Nanotechnological interventions for plant health improvement and sustainable agriculture. 3 <i>Biotech</i> 10, 168. (IF-1.798)
32.	Bora H, Kamle M , Mahato DK, Tiwari P, Kumar, P (2020) Citrus Essential Oils (CEOs) and Their Applications in Food: An Overview. <i>Plants</i> 2020, 9, 357.(IF-2.762)
33.	Prabha R, Singh DP, Ahmad K, Kumar SPJ, Kumar P (2019). Subtractive genomics approach for identification of putative antimicrobial targets in <i>Xanthomonas oryzae pv. oryzae</i> KACC10331. <i>Archives of Phytopathology and Plant Protection</i> . 52: 863-872
34.	H Barak, P Kumar , A Zaritsky, Z Mendel, D Ment, A Kushmaro, E Ben-Dov (2019) Diversity of Bacterial Biota in <i>Capnodis tenebrionis</i> (Coleoptera: Buprestidae) Larvae. <i>Pathogens</i> 8 (1), 4. (IF-3.018).
35.	Bajpai VK, Khan I, Shukla S, Kumar P , Rather IA, Park YH, Huh YS, Han YK (2019). Invasive fungal infections and their epidemiology: Measures in the clinical scenario. <i>Biotechnology & Bioprocess Engineering</i> , pp.1-9.Doi: 0.1007/s12257-018-0477-0 .(IF-2.213).
36.	Salehi B., Selamoglu Z, Mileski K.S., Pezzani R., Redaelli M., Cho W. C., Kobarfard F., Rajabi S., Martorell M., Kumar P. , Martins N., Santra T.S., Sharifi-Rad J. (2019). Liposomal cytarabine as cancer therapy: from chemistry to medicine. <i>Biomolecules-MDPI</i> (IF- 4.082)
37.	P Kumar , M Kamle, DK Mahato, H Bora, B Sharma, P Rasane, VK Bajpai (2020) <i>Tinospora cordifolia</i> (Giloy): Phytochemistry, Ethnopharmacology, Clinical Application and Conservation Strategies. <i>Current Pharmaceutical Biotechnology</i> . https://doi.org/10.2174/1389201021666200430114547 (IF 2.097)
38.	Bajpai VK, Khan I, Shukla S, Kumar P , Chen L, Anand SR, Tripathi KK, Bhati A, Kang SM, Lee H, Kwak, Minghan Huang CH, Sonkar SK, Huh YS, Han YK (2020) N,P-Doped Carbon Nanodots for Food-Matrix Decontamination, Anticancer Potential, and Cellular Bio-Imaging Applications. <i>J. Biomed. Nanotechnol.</i> 16, 283–303. (IF 4.483)
Published in Conference Proceedings:	
39.	Karuna Shrivastava (2019). Phylloplane and phyllosphere mycobiota of <i>Gmelina arborea</i> Roxb. along vertical gradient, In: Proceedings of Second International Conference on Global Initiatives for Sustainable Development: Issues and Strategies held at Bangkok, Thailand from June 23-27, Publisher: Anu Books, Meerut, Pp. 205-225. ISBN: 978-93-87922-79-2

(b) Conference Papers:

Papers presented in conferences/Invited/Plenary lectured delivered/Abstract Published:		
In International Conferences/Symposium-		
1.	Prof. C. L. Sharma	1. Sharma, C. L., Sharma, M. B. and Lema, D. D. 2019. Evaluation of pulp and paper making potential of some weeds of Arunachal Pradesh, India. Paper presented in 606 th International Conference of Agricultural

		and Biological Science (ICABS) on 18th-19th June, 2019 at Los Angeles, USA.
2.	Prof. M. B. Sharma	1. Sharma, M. B., Sharma, C. L., Tado, N. and Laishram, D. 2019. Physical properties of Apatani bamboo (<i>Phyllostachys bambusoides</i> Siebold & Zucc.) in relation to age and height. A paper presented in 606 th International Conference of Agricultural and Biological Science (ICABS) on 18th-19th June, 2019 at Los Angeles, USA
3.	Karuna Shrivastava	1. Bhaskar Jyoti Sharma, Karuna Shrivastava and S. Sureshkumar Singh (2020). “Analysis of rhizospheric soil supporting Bharat Moni cultivar (Plantain type) of banana in Lakhimpur district of Assam, Northeast India”. A paper presented (orally) in 7th International Conference on “Phytopathology in Achieving UN Sustainable Development Goals” held at New Delhi, India from January 16 th -20 th , 2020. Abstract no. O (S 07) 17 at page no. 194 published by Indian Phytopathological Society, IARI, New Delhi. 2. Karuna Shrivastava (2019). “Phylloplane and phyllosphere mycobiota of <i>Gmelina arborea</i> Roxb. along vertical gradient” A paper presented (orally) in International conference on “Global initiatives for sustainable development: issues and strategies” held at Bangkok, Thailand from 23rd – 27th June, 2019.
4.	S. Sureshkumar Singh	1. S. Sureshkumar Singh , P. R. Gajurel, Karuna Shrivastava (2020). Diversity of wild bananas (<i>Musa</i> species) in Arunachal Pradesh, India. A paper presented in International Conference on Banana (ICB)-2020. ICAR-NRCB, Trichy, Tamil Nadu & Biodiversity International, France (04 days 24-26/02/19). 2. S. Sureshkumar Singh , W. Robindro Singh and Karuna Shrivastava (2020). Molecular identification of <i>Musa yunnanensis</i> from Manipur, India using ITS sequence analysis. A paper presented in International Conference on Banana (ICB)-2020. ICAR-NRCB, Trichy, Tamil Nadu & Biodiversity International, France (04 days 24-26/02/19) 3. S. Sureshkumar Singh , P. R. Gajurel, Karuna Shrivastava (2020). Diversity of wild bananas (<i>Musa</i> species) in Arunachal Pradesh, India. A paper presented in International Conference on Banana (ICB)-2020. ICAR-NRCB, Trichy, Tamil Nadu & Biodiversity International, France (04 days 24-26/02/19) 4. Gurumayum Ranibala, S. Sureshkumar Singh and Mohamed Latif Khan (2020). Genome characterization of wild and cultivated banana plants occurring in Arunachal Pradesh and Manipur. A paper presented in International Conference on Banana (ICB)-2020. ICAR-NRCB, Trichy, Tamil Nadu & Biodiversity International, France (04 days 24-26/02/19)
5.	Awadhesh Kumar	1. Awadhesh Kumar , G.S. Solanki, Ashalata Devi, Kuladip Sarma, Parimal Chandra, Ray, C. Murali Krishna, Barin Kumar Boro (2020). Distribution and Conservation of Capped langur (<i>Trachypithecus pileatus</i>) in Eastern Himalayan of Arunachal Pradesh, Northeast India. A paper presented in 7 th Asian Primate Symposium & 1 st International Conference on Human-Primates Interface’ held in Zoology Department, Gauhati Univ. at Guwahati, Assam, India from 8-10 February, 2020.

In National Conferences/Symposium/Seminar -		
1.	S. Sureshkumar Singh	1. Khaidem Kennedy Singh, S. Sureshkumar Singh and Chaman Lal Sharma (2019). Hypoglycemic and antioxidant properties of fourteen ethnomedicinal plant species from North East, India. A paper presented in National Seminar on REDIMAP-2019. 2 days 29th -30th August 2019. ADP College, Nagaon
2.	Awadhesh Kumar	<p>1. Diana E. Amonge, Kuadip Sarma, Awadhesh Kumar and Madhubala Sharma (2020). Activity pattern of Eastern hoolock gibbon (<i>Hoolock leuconedys</i>) in three different Environments: An approach to compare the suitability of captive breed population for releasing into their natural habitats with protected and non-protected habitat population. A paper presented in 'National symposium on recent trends in zoological sciences' held in Department of Zoology, North Eastern Hill University, Shillong, Meghalaya, India from 28-29th February, 2020.</p> <p>2. Diana E. Amonge, Awadhesh Kumar and Madhubala Sharma (2020). Zoos as promising ex-situ models towards conservation breeding of threatened species- A case study of Eastern Hoolock gibbon <i>Hoolock leuconedys</i> at Biological Park, Itanagar, Northeast India. A paper presented in 'National symposium on recent trends in zoological sciences' held in Department of Zoology, North Eastern Hill University, Shillong, Meghalaya, India from 28-29th February, 2020.</p>
3.	M. Kamle	1. Kamle, M. Identification and Characterization of Desert Truffle. A paper was presented (Oral) in National Conference on Recent Advances in Agriculture, Food Tech and Human Health (BioMilaap -2019) at Department of Molecular and Cellular Engineering, Jacob Institute of Biotechnology and Bioengineering, SUATS, Prayagraj (5-6 Nov 2019).
4.	P. Kumar	<p>1. P. Kumar (2019) Isolation of Bioactive Compound antimicrobials from natural sources against foodborne pathogens. A paper was presented in National Conference on "Recent Advances in Agriculture, Food Tech and Human Health" at JIIB SUATS, Allahabad. November 05-06, 2019.</p> <p>2. Bora H, Bui S, Kamle M, Kumar P (2019) Phytochemistry of medicinal important plant <i>Litsea cubeba</i>. Abstract published in "Recent Discoveries in Medicinal and Aromatic Plants Research and it's Sustainable Development in North East India" (REDIMAP - 2019) 29th - 30th August 2019.</p>
Invited Lecture Delivered		
1.	S. Sureshkumar Singh	1. Delivered an 'Invited Talk' on Intellectual Property Rights (IPR) And Biodiversity in 5 days workshop on EDPTC-Entrepreneurship Development Program and Technical Communication. 4th-8th November 2019. NIT Arunachal Pradesh (under TEQIP-III).
2.	P. Kumar	1. Delivered an 'Invited Lecture' on Isolation of Bioactive Compound antimicrobials from natural sources against foodborne pathogens in National Conference on "Recent Advances in Agriculture, Food Tech and Human Health" at JIIB SUATS, Allahabad. November 05-06, 2019.

(c) Books/ Book Chapter:

Books published	
1.	Microbial Genomics in Sustainable Agro-ecosystem. (Eds.) V Tripathi, P Kumar , P Tripathi and A K Singh, M. Kamle -Vol. II (2019). Springer-Nature , Singapore. ISBN: 978-981-13-8739-5. https://www.springer.com/gp/book/9789813298590
2.	Plant Pathogens: Detection and Management for Sustainable Agriculture (Eds.) P. Kumar , A K Tiwari, M. Kamle , Z. Abbas and P. Singh. Publisher: Apple Academic Press (Taylor's & Francis group) ISBN: 9781771887885. https://www.routledge.com/Plant-Pathogens-Detection-and-Management-for-Sustainable-Agriculture/Kumar-Tiwari-Kamle-Abbas-Singh/p/book/9781771887885
3.	Microbial Genomics in Sustainable Agro-ecosystem. (Eds.) V Tripathi, P Kumar , P Tripathi and A K Singh-Vol. I (2019). Springer-Nature , Singapore. ISBN: 978-981-13-8739-5. DOI:10.1007/978-981-13-8739-5 https://www.springer.com/gp/book/9789811387388
Book Chapters published	
1.	Karuna Shrivastava , Biswajit Pramanik, Bhaskar Jyoti Sharma and Greeshma A.G. (2020). Ethnic Fermented Foods and Beverages of Arunachal Pradesh. In: Ethnic Fermented Foods and Beverages of India: Science, History and Culture, Springer Nature Singapore Pte Ltd. J. P. Tamang (ed.), 41-84. ISBN 978-981-15-1485-2 ISBN 978-981-15-1486-9 (eBook). DOI: https://doi.org/10.1007/978-981-15-1486-9
2.	Bora H, Bui S, Konyak Z, Kamle M , Tripathi P, Kishore A, Tripathi V, Kumar P (2019) Current Status and Future Prospects of Omics Tools in Climate Change Research. In: Tripathi V., Kumar P., Tripathi P., Kishore A., Kamle M. (eds) Microbial Genomics in Sustainable Agroecosystems. Springer, Singapore https://doi.org/10.1007/978-981-32-9860-6_12
3.	Kamle M. , Borah R., Bora H., Jaiswal A.K., Singh R.K., Kumar P. (2020) Systemic Acquired Resistance (SAR) and Induced Systemic Resistance (ISR): Role and Mechanism of Action Against Phytopathogens. In: Hesham AL., Upadhyay R., Sharma G., Manoharachary C., Gupta V. (eds) Fungal Biotechnology and Bioengineering. Fungal Biology. Springer, Cham. 457-470 https://doi.org/10.1007/978-3-030-41870-0_20
4.	AK Pal, J Singh, R Soni, P Tripathi, M Kamle , V Tripathi, P Kumar (2020) The role of microorganism in bioremediation for sustainable environment management. In: Pandey VC and Singh V (eds) Bioremediation of Pollutants: From Genetic Engineering to Genome Engineering, Pages 227-249, 227-249 Elsevier, Netherlands https://doi.org/10.1016/B978-0-12-819025-8.00010-7
5.	P Kumar , M Kamle*, P K Maurya and Ravi Kant Singh (2019). Beneficial uses and application of Plant growth promoting rhizobacteria (PGPR) in sustainable agriculture. Chapter 2 In: In book: Microbiology for Sustainable Agriculture, Soil Health, and Environmental Protection. Eds. D. K. Verma. Apple Academic Press (Taylor & Francis Grp.), USA.
6.	JK Patra, DK Mahato, P. Kumar* (2019) Biosensor Technology—Advanced Scientific Tools, With Special Reference to Nanobiosensors and Plant-and Food-Based Biosensors. In book: Nanomaterials in Plants, Algae and Microorganisms. Eds. Editors: Durgesh Kumar Tripathi Parvaiz Ahmad Shivesh Sharma Devendra Chauhan Nawal Kishore Dubey. Elsevier: Academic Press. DOI: 10.1016/B978-0-12-811488-9.00014-7 https://doi.org/10.1016/B978-0-12-811488-9.00014-7
7.	Kumar P* , Mahato DK, Kamle M, Mahmud MMC, Rawal D, Maurya M, Islam D, Kumar P, Tripathi V (2020) Clean energy production form lignocelluloses based agricultural crops-importance and necessity from environmental prospects. In Recent Developments in

Bioenergy Research Ed. Gupta VK, Treichel H, Kuhad RC, Rodriguez-Cout S, pp 181-193. Elsevier, Netherlands DOI: https://doi.org/10.1016/B978-0-12-819597-0.00009-X

4.1.11 Interaction of faculty/department with outside agencies (give details regarding membership of outside committee, executive committee of professional bodies etc.)

The faculty members are actively interacting with the following outside agencies/ organizations for academic, research and development works:

- Botanical Survey of India (BSI), Kolkata, Shillong and Itanagar
- Department of Biotechnology (DBT), Delhi
- Department of Science and Technology (DST), Delhi
- Forest Research Institute (FRI), Dehradun
- Forest Survey of India (FSI), Dehradun
- Rain Forest Research Institute, Jorhat
- State Forest Research Institute, Chimpur, Itanagar
- North East Institute of Science & Technology, Jorhat,
- NEIST, Naharlagun Unit
- Foundation for Revitalization of Local Health Tradition (FRLHT), Bangalore
- Indian Institute of Remote Sensing (IIRS), Dehradun
- Indian Space Research Organization (ISRO-SAC), Ahmedabad
- North Eastern Council (NEC), Shillong
- National Institute of Technology, Agartala.
- Interacted with the scientist of NBRI (Lucknow)
- ICAR-Directorate of Mushroom Research, Solan, Himachal Pradesh
- JNTBGRI (Trivandrum)
- CSIR-CDRI, Lucknow
- NBPGR-ICAR, New Delhi
- NRCB, Thiruchinapalli, Tamil Nadu
- ATREE (Bangalore)
- NIFTEM, Haryana
- IIT, BHU
- NBRI (Lucknow),
- JNTBGRI (Trivandrum),
- Singapore Botanic Garden
- As 'External experts' for recruitments of project positions, dissertations, practical examinations, etc. in various Institutions.
- With Scientists/Faculties of Universities like NEHU, Manipur University, Delhi University, Tezpur University, Rajiv Gandhi University, Assam agricultural University, Guwahati University, Mizoram University, Nagaland University, SAS, TERI University, New Delhi, DDU Gorakhpur, Punjabi University, Ludhiana, etc.

4.1.12 Consultancy Projects undertaken: Nil

4.1.13 Achievements of Students

Some of the former / current students (7 nos.) have been selected to hold key positions in different government sectors during last one year while 17 Ph.D. students have been qualified prestigious NET-JRF, NET (Asstt. Prof.) or GATE examinations, or selected for



‘National Fellowship and Scholarship for Higher Education of ST Students’ during 2019-2020. The details are mentioned below:

Sl. No.	Name of students	Details of student	Selected in / Agency	Year
Selected as Faculty:				
1.	Dr. Subhasish Das	M.Sc. Forestry student of 2011 pass out batch	Assistant Professor, Mizoram University	2019
2.	Ms. Deepika Parbo (PhD/FT/17/FO/05)	Current Ph.D. scholar	Assistant Professor, Moran College, Sivasagar, Assam	2019
Selected as Scientist:				
3.	Dr. Amal Bawri	Ph. D. awardee (2016)	Botanist, North Eastern Institute of Folk Medicine, Govt. of India, Pasighat	2019
Selected for State Administrative services:				
4.	Ms. Mide Bage	Former M.Sc. Forestry students of 2019 pass out batch	Arunachal Pradesh Public Service Commission Exam	2020
Selected as Forest Range Officer:				
5.	Mr. Barin Boro (PhD/FT/16/FO/02)	Current Ph. D. Scholar	Govt. of Assam	2020
6.	Ms. Roji Barman (Ph.D/ FT/19/FO/11)	Current Ph. D. Scholar	Govt. of Assam	2020
7.	Ms. Paporri Khatonier	Former M.Sc. Forestry student of 2015 pass out batch	Govt. of Assam	2020
Qualified NET- JRF / NET (Asstt. Professor) / GATE exam:				
8.	Mr. Narang Doley (Ph.D/ FT/19/FO/16)	Current Ph. D. Scholar	ICAR, NET	January, 2020
9.	Mr. Cheebam Mallo (Ph.D/FT/19/FO/02)	Current Ph. D. Scholar	CSIR NET JRF	July, 2019
10.	Ms. Rimi Barman (Ph.D/ FT/19/FO/05)	Current Ph. D. Scholar	CSIR NET JRF	July, 2019
11.	Mr. Zeiwang Konyak (Ph.D/FT/18/FO/04)	Current Ph.D. Scholar and former M.Sc. student	UGC NET in Environmental Science	June 2019
12.	Ms. Reetashree Bordoloi (PhD/FT/17/FO/01)	Current Ph. D. Scholar	UGC NET (Assistant Professor)	June 2019.
13.	Ms. Tage Yakang, (PhD/FT/19/FO/10)	Current Ph. D. Scholar	UGC NET (Assistant Professor)	June 2019.
14.	Ms. Dipika Parbo (PhD/FT/17/FO/05)	Current Ph. D. Scholar	UGC NET (Assistant Professor)	June 2019.
15.	Mr. Wungshap Hungyo	Former M.Sc. Forestry student	UGC NET (Assistant Professor)	June 2019.
16.	Ms. Horter Padu (Ph.D./FT/19/FO/03)	Former M.Sc. student & Current Ph.D. Scholar	UGC NET (Assitant Professor)	June, 2019

17.	Ms. Sukni Bui (Ph.D/ PR/18/FO/04)	Current Ph. D. Scholar	GATE exam in life sciences	March, 2020
Selected for National Fellowship and Scholarship for Higher Education of ST Students:				
18.	Ms. Momang Tali (Ph.D./FT/19/FO/01)	Current Ph.D. Scholar	UGC New Delhi	2019-20
19.	Ms. Horter Padu (Ph.D./FT/19/FO/03)	Current Ph. D. Scholar	-do-	2019-20
20.	Ms. Pakpi Niri (Ph.D./FT/19/FO/07)	Current Ph. D. Scholar	-do-	2019-20
21.	Ms. Joysree Debbarma (Ph.D./FT/19/FO/12)	Current Ph. D. Scholar	-do-	2019-20
22.	Ms. Nabam Api (Ph.D./FT/19/FO/13)	Current Ph. D. Scholar	-do-	2019-20
23.	Ms. Jompi Nacho (Ph.D./FT/19/FO/14)	Current Ph. D. Scholar	-do-	2019-20
24.	Mr. Simanta Taid (Ph.D./FT/19/FO/15)	Current Ph. D. Scholar	-do-	2019-20
25.	Mr. Narang Dolley (Ph.D./FT/19/FO/16)	Current Ph. D. Scholar	-do-	2019-20
26.	Ms. Tage Yakang (Ph.D./FT/19/FO/)	Current Ph. D. Scholar	-do-	2019-20
27.	Ms. Binu Nguso (Ph.D./FT/19/FO/)	Current Ph. D. Scholar	-do-	2019-20

4.1.14 Any other relevant information:

- i. The process for obtaining accreditation from Indian Council of Forestry Research and Education (ICFRE), Dehradun was initiated in December, 2019 to obtain accreditation for all courses (B.Sc., M.Sc. and Ph.D.) run by the department by submitting the self-appraisal report.
- ii. A brief profile of forestry department was presented during ICFRE's evaluation team visit held on 3rd & 4th March, 2020.
- iii. The major revision of UG courses (B. Sc. In forestry) as per fifth Deans Committee report of ICAR were carried out and approved through BOS of the department in February, 2020.
- iv. Enhancement of laboratory facilities was done through the funds received from institute and 16 externally funded R&D project grants in different laboratories and it is still continued.
- v. Nursery developmental activities through plantations and Forest Nursery management work were also done.
- vi. Sharing of 'Technical Know How' to various farmers interested in cultivation and plantation management was carried out through the funds of externally funded projects.
- vii. Study tours, field visits of students in different Forest areas, Institution etc. were regularly conducted as part of course curriculum.
- viii. All faculty members were actively involved in guiding research work under different externally funded R&D projects and in Ph.D. supervision of 51 currently enrolled Ph.D. scholars of the department. The List of the scholar with their topic of research and supervisors are given below :



List of Ph. D Student continuing their thesis work during 2019-2020

Sl. No.	Student Name and Roll No.	Title of the proposed Ph. D. work	Supervisor(S)
Full –Time Scholars			
1.	MS. SOYALA KASHUNG (PHD/FT/14/FO/02)	Taxonomic diversity, distribution and resource values of climbing species occurring in Papum Pare district of Arunachal Pradesh, India	Dr. P. R. Gajurel (Supervisor) Prof. Binay Singh (Co-Supervisor)
2.	MR. TAJUM DONI (PHD/FT/15/FO/01)	Taxonomy and ethnobotany of non-timber forest products used by Galo tribe of Arunachal Pradesh	Dr. P. R. Gajurel (Supervisor)
3.	MR. RAKESH BASNETT (PHD/FT/15/FO/02)	Ecology and human – Asiatic black bear (<i>Ursus thibetanus</i>) conflict in and around Khangchendzonga National Park, Sikkim, India	Dr. A Kumar (Supervisor)
4.	MR. BARIN KUMAR BORO (PHD/FT/16/FO/02)	Population demography, habitat characterization and conservation issues of endangered Asiatic wild water Buffalo (<i>Bubalus amee, kerr</i>) in Manas National Park, Assam, India	Dr. A Kumar (Supervisor)
5.	MRS. SANGEETA DEKA (PHD/FT/16/FO/03)	Assessment of selected Ecosystem services in tropical forest of Kamrup and Goalpara district, Assam	Dr. O. P. Tripathi (Supervisor) Dr. L.B. Singha (Co-Supervisor)
6.	MS. DHANASHREE LAISHRAM (PHD/FT/16/FO/05)	Evaluation of Anatomical and Physical properties of Bamboo species of Manipur, India	Dr. C. L. Sharma (Supervisor) Dr. M. B. Sharma (Co-Supervisor)
7.	MS. REETASHREE BORDOLOI (PHD/FT/17/FO/01)	Land use change implications on terrestrial ecosystem carbon dynamics of Western Arunachal Pradesh, India	Dr. O. P. Tripathi (Supervisor) Dr. L.B. Singha (Co-Supervisor)
8.	MS. YAKHARI KASHUNG (PHD/FT/17/FO/02)	Carbon pool and its sequestration in natural stands of tropical and sub-tropical bamboo species in Arunachal Pradesh	Dr. L.B. Singh (Supervisor) Dr. O. P. Tripathi (Co-Supervisor)
9.	MR. TAJUM YOMCHA PHD/FT/17/FO/03	Estimation of terrestrial mammalian species diversity and habitat structure in Namdapha National Park, Arunachal Pradesh, India	Dr. A Kumar (Supervisor) Dr. P. R. Gajurel (Co-Supervisor)
10.	MR. NEELAM GAP (PHD/FT/17/FO/04)	Tree diversity, community characteristics and biomass of subtropical forest of Kra Daadi district, Arunachal Pradesh	Dr. Ashish Paul (Supervisor) Dr. O. P. Tripathi (Co-Supervisor)
11.	MS. DIPIKA PARBO (PHD/FT/17/FO/05)	Role of Fig plants in conservation of Frugivores in Pakke Wildlife Sanctuary, Arunachal Pradesh, India	Dr. A Kumar (Supervisor)
12.	MR. DEEPANKAR BARMAN (PHD/FT/17/FO/07)	Studies on Mishmi Takin (<i>Budorcas taxicolor taxicolor</i> , Hodgson) in Eastern Arunachal Pradesh, India	Dr. A Kumar (Supervisor)
13.	MR. DANIEL DEBBARMA (PH.D/FT/18/FO/01)	Mapping and Assessment of bamboo resources in homesteads at north bank of Brahmaputra, Assam and their role in livelihood.	Dr. L.B. Singha (Supervisor) Dr. O.P. Tripathi (Co-Supervisor)



14.	MR. PINAKI ADHIKARY (PH.D/FT/18/FO/02)	Studies on taxonomic diversity and ethno-botany of Rosaceae plants of Arunachal Pradesh, India	Dr. P.R. Gajurel (Supervisor)
15.	MR. DIPANKAR GOGOI (PH.D/FT/18/FO/03)	Diversity and Market potentials of Non-Timber Forest Products in two districts of Arunachal Pradesh, India	Prof. B. Singh (Supervisor) Dr. P.R. Gajurel (Co-Supervisor)
16.	MR. ZEIWANG KONYAK (PH.D/FT/18/FO/04)	Isolation, Molecular Characterization and Bioformulation of Termitarium Soil Inhabiting Bacteria (ISIB) and their biocontrol efficacy against important phytopathogens.	Dr. P. Kumar (Supervisor) Dr. M. Kamle (Co-Supervisor)
17.	MS. HIMASHREE BORA (PH.D/FT/18/FO/05)	Screening of phytochemicals against human pathogenic bacteria from selected indigenous medicinal plants of Arunachal Pradesh, India.	Dr. P. Kumar (Supervisor) Dr. M. Kamle (Co-Supervisor)
18.	MR. YENGKHOM ROAMER ZEST PH.D/FT/18/FO/06	Population Status and Conservation Strategies of Critically Endangered Chinese Pangolin (<i>Manis pentadactyla</i> , L.) in Manipur, Northeast	Dr. A Kumar (Supervisor) Dr. O.P. Tripathi (Co-Supervisor)
19.	MR. ARIBAM ROCKY SHARMA (PH.D/FT/18/FO/07)	Potential effect of climate change on hydro-chemical properties of wetlands of Tawang district, Arunachal Pradesh.	Dr. O.P. Tripathi (Supervisor) Dr. A. Paul (Co-Supervisor)
20.	MR. RITURAJ BORAH (PH.D/FT/18/FO/08)	Isolation and characterization of Anti-Coleopteran <i>cry</i> genes from <i>Bacillus thuringiensis</i> of Arunachal Pradesh, India.	Dr. M. Kamle (Supervisor) Dr. P. Kumar (Co-Supervisor)
21.	MS. SWASTIKA SHARMA (PH.D/FT/18/FO/09)	Screening and characterization of selected industrial enzymes from filamentous fungi	Dr. S. S. Singh (Supervisor) Prof. Karuna Shrivastava (Co-Supervisor)
22.	MR. BHASKAR JYOTI SHARMA (PH.D/FT/18/FO/10)	Micropropagation of Bharat Moni cultivar of banana and its field establishment using microbial inoculant(s)	Prof. Karuna Shrivastava (Supervisor), Dr. S.S. Singh (Co-Supervisor)
23.	MR. ANURAG VISHWAKARMA (PH.D/PR/18/FO/01)	Course work Completed	Dr. A. Kumar (Supervisor),
24.	MR. JAYANTA GOGOI (PH.D /PR/18/FO/02)	Course work Completed	Prof. M. B. Sharma (Supervisor)
25.	MR. NIRAJ RAI (PH.D/ PR/18/FO/03)	Course work Completed	Prof. M. B. Sharma (Supervisor)
26.	MS. SUKHNI BUI (PH.D/ PR/18/FO/04)	Course work Completed	Dr. Madhu Kamle (Supervisor), Dr. P. Kumar (Co-Supervisor)
27.	MS. TAGE YAMA (PH.D/ PR/18/FO/05)	Course work Completed	Dr. S. S. Singh (Supervisor) Prof. Karuna Shrivastava (Co-Supervisor)
28.	MR. M. SANJAY SINGH (PH.D/ PR/18/FO/06)	Course work Completed	Dr. L. B. Singha (Supervisor)
29.	MS. MOMANG TALI (PH.D/ FT/19/FO/01)	Newly Admitted	Dr. C. L. Sharma (Supervisor)



			Dr. M. B. Sharma (Co-Supervisor)
30.	MR. CHEEBUM MALLO (PH.D/FT/19/FO/02)	Newly Admitted	Prof. Karuna Shrivastava (Supervisor)
31.	MS. HORTER PADU (PH.D/ FT/19/FO/03)	Newly Admitted	Dr. A. Paul (Supervisor) Dr. L. B. Singha (Co-Supervisor)
32.	MR. MAHESH WANGKHEM (PH.D/ FT/19/FO/04)	Newly Admitted	Dr. M. B. Sharma (Supervisor) Dr. C. L. Sharma (Co-Supervisor)
33.	MS. RIMI BARMAN (PH.D/ FT/19/FO/05)	Newly Admitted	Dr. P. R. Gajurel (Supervisor) Prof. B. Singh (Co-Supervisor)
34.	MS. ROONA SINGHA (PH.D/ FT/19/FO/06)	Newly Admitted	Dr. O. P. Tripathi (Supervisor) Dr. L. B. Singha (Co-Supervisor)
35.	MS. PAKPI NIRI (PH.D/ FT/19/FO/07)	Newly Admitted	Dr. L. B. Singha (Supervisor) Dr. A. Paul (Co-Supervisor)
36.	MS. DOJUM PAKAM (PH.D/ FT/19/FO/08)	Newly Admitted	Dr. M. B. Sharma (Supervisor) Dr. C. L. Sharma (Co-Supervisor)
37.	MS. RADHE B. MONYA (PH.D/FT/19/FO/09)	Newly Admitted	Prof. Karuna Shrivastava (Supervisor)
38.	MS. TAGE YAKANG (PH.D/ FT/19/FO/10)	Newly Admitted	Dr. P. R. Gajurel (Supervisor) Prof. B. Singh (Co-Supervisor)
39.	MS. ROJI BARMAN (PH.D/ FT/19/FO/11)	Newly Admitted	Dr. P. R. Gajurel (Supervisor) Dr. S. S. Singh (Co-Supervisor)
40.	MS. JOYSREE DEBBARMA (PH.D/ FT/19/FO/12)	Newly Admitted	Dr. C. L. Sharma (Supervisor) Dr. M. B. Sharma (Co-Supervisor)
41.	MS. NABAM API (PH.D/ FT/19/FO/13)	Newly Admitted	Dr. G. Pangging (Supervisor) Dr. M. B. Sharma (Co-Supervisor)
42.	MS. JOMPI NACHO (PH.D/ FT/19/FO/14)	Newly Admitted	Dr. M. B. Sharma (Supervisor) Dr. C. L. Sharma (Co-Supervisor)
43.	MR. SIMANTA TAID (PH.D/ FT/19/FO/15)	Newly Admitted	Dr. S. S. Singh (Supervisor) Dr. P. R. Gajurel (Co-Supervisor)



44.	MR. NARANG DOLLEY (PH.D/ FT/19/FO/16)	Newly Admitted	Dr. Karuna Shrivastava (Supervisor)
45.	MR. GENIUS TERON (PH.D/ FT/19/FO/18)	Newly Admitted	Dr. A. Paul (Supervisor) Dr. L. B. Singha (Co-Supervisor)
PART-TIME SCHOLARS			
46.	MS. SONIA DEVI (PHD/PT/17/FO/01)	Studies on diversity, nutritive and antioxidant values of banana from Manipur, India	Dr. S. S. Singh (Supervisor)
47.	MR. LIAGI TAJO (PH.D/PT/17/FO/01)	Ecological implication on productivity of selected crops of tropical agroforestry systems of Papum Pare district, Arunachal Pradesh	Dr. O. P. Tripathi (Supervisor) Prof. C.L. Sharma (Co-Supervisor)
48.	MR. ABDUS SAMAD (PHD/PT/17/FO/02)	Propagation techniques of three selected underutilized vegetable plants of North-East India	Prof. B. Singh (Supervisor) Dr. P. R. Gajurel (Co-Supervisor)
49.	MS. SONIA PANIGRAHI (PHD/PT/19/FO/01.)	Newly Admitted	Prof. M. B. Sharma (Co-Supervisor) Prof C. L. Sharma (Supervisor)
50.	MS. LOD YAMA (PHD/PT/19/FO/02)	Newly Admitted	Dr. Ashish Paul (Supervisor) Prof. K. Shrivastava, (Co Supervisor)
51.	MS. NEMJONG RONRANG (PHD/PT/19/FO/03)	Newly Admitted	Dr. O. P. Tripathi (Supervisor) Dr. L. B. Singha (Co-Supervisor)

4.2 DEPARTMENT OF AGRICULTURAL ENGINEERING

4.2.1 A Brief Profile of the Department

Agricultural Engineering is the application of engineering principles in agriculture. Agricultural Engineering deals with the use of engineering tools and practice to solve crop production, handling and processing problems for food and fiber along with the production to consumption chain. It includes the application of scientific knowledge in diverse and multidisciplinary activities for the overall development of the nation and farming community under protective environment.

The Agricultural Engineering Department started its B. Tech. program in Agricultural Engineering in the year 1986. The department adopts modular pattern of education leading to the degree of B.Tech. in Agricultural Engineering, in three modules viz., base (in two separate trades of (i) Food Processing and (ii) Tractor Mechanic, diploma and degree. Each module provides terminality corresponding to an occupational level and at the same time provides entry to the next higher module finally leading to degree in Agricultural Engineering. After B.Tech they may join postgraduate programmes and Ph.D.

Department has 14 faculty members of which 02 are on lien and 01 is on study leave. Five sponsored research projects (SERB, DST, AICTE and MoEF & CC) on emerging areas of Agricultural Engineering are running in the department besides one All India Coordinated Research Project (AICRP) on Human Engineering and Safety in Agriculture, funded by ICAR, New Delhi.

4.2.2 Academic Activities

Modification of existing courses	: Yes
(a) Introduction of new elective	: Yes
(b) Laboratory Works Sheets designed	: Yes
(c) Modification in the course structures	: Yes

4.2.3 Laboratories and Laboratory Development:

Sl. No.	Name of the Equipment/Instrument
1.	Oscilloscope Waveform Generator, Make: Scientific Tech Pvt. Ltd., Indore, Model 2 Channel, 120 MHz
2.	Oscilloscope Model SMO2204X with SMO2200X-LA, Make: Scientific Tech Pvt. Ltd., Indore, Mixed Singal Type 4 Analog and 16 digital channels 200 MHz with MSO function software for SMO2000X Oscilloscope 16 Channel, 500 MSa/s, 14 Mpts and Logic Prob for SMO2000x series, 16 Channel
3.	Soil/Water Model Tank (Arm Field) Tank Size 1000mm x 450mm x 25mm
4.	Cut-model of Chute Spillway and Drop Spillway
5.	Coshocton Wheel Sampler with H-flume
6.	Cut model of Mixed Flow Pump
7.	Cut model of Reciprocating Pump
8.	Cut model of Propeller Pump
9.	Cut model of Turbine Pump
10.	Weighing type of self-recording raingauge

11.	Natural Syphon type self-recording raingauge
12.	Snow Gauge, Turbidity meter, Conductivity meter
13.	Headspace Analyser (Model 6600) for analysis of Oxugen and Carbon dioxide in the head space of flexible and rigid packages
14.	pH meter

4.2.4. Projects completed by the PG and UG students.

A. Ph.D.

S.No	Title of the Thesis	Name of the guide	Name of the student
1.	Spatially distributed hydro-ecological modelling on a representative watershed in eastern Himalayan region	Aditi Bhadra Arnab Bandyopadhyay	Pooja Mishra

B. M. Tech. Project

S.No	Title of the project	Name of the guide	Name of the student
1.	Effect of body mass, seat geometry and gender on body mass supported on seat pan and back rest.	K.N. Dewangan and Anubhab Pal	Sarju Thockchom
2.	Investigating Periodicity in Rainfall of Districts of Arunachal Pradesh	S.K. Shrivastava	Doyaram Sengdo
3.	Spatial and Temporal Variations in the Snow Cover and Snow Parameters using SDSRM for Dibang River Basin of Arunachal Pradesh	Aditi Bhadra Arnab Bandyopadhyay	P. C. Vanlalnunchhani
4.	Development and performance evaluation of manually operated tillage tool	T. Patel	Tapo Ngute Gumsar
5.	Development of remote controlled areca nut harvester	Anubhab Pal	Rahul Sarkar
6.	Copula based probabilistic modeling of reference evapotranspiration at Gangtok, Sikkim	Vanita Pandey (supervisor) Dr. Pankaj Kr Pandey (Co- Supervisor)	Lalhriatpuii Khiangte
7.	Development and evaluation of thermal efficiency of coconut fibre insulated flatbed solar collector	Tage Tapang	Khriezehou Seyie

C. Degree projects (B. Tech.)

S.No	Title of the project	Name of the guide	Name of the student
1	Effect of body mass, gender and seat geometry on foot and leg mass on tractor pedals	K.N. Dewangan	Lekjum Yudik and Anamika Thaosen

2	Temporal Variability of River Flow in Arunachal Pradesh of Eastern Himalayas of India.	S.K. Shrivastava	Samai Debbarma Sanjit Jamatia
3	Estimation of Precipitation Lapse Rate in Arunachal Pradesh	Aditi Bhadra	Ngilyang Sumpi Takhe Munni
4	Improvement of Abtew model for reference evapotranspiration estimation using temperature data of Dibrugarh Northeast India.	P.K. Pandey	Pankaj Kumar Lheineiting Touthang
5	Development and Ergonomics Evaluation of Manually Operated Tillage Tool for Ploughing	T. Patel	Jayantifull Hoojon Rikuthakani Phawa
6	Comparative study of anthropometric database for Agricultural workers of India	T. Patel	Th. Macedonia Devi Mriganka Sarma
7	Packaging of Capsicum for Extending Shelf Life	A K Choudhary	Yapuk Pordung Tolito shohe
8	Development of hydraulically operated cone penetrometer	Anubhab Pal	L Yaiphaba Meetei Taram Nilling
9	Impact of irrigation water quality on infiltration rate in loamy-sand soil.	Vanita Pandey	Bishwanath Singh Nyigam Bole Kayinto Lego
10	Measurement of dynamic load of front axle of 2wd tractor using strain gauge	Tage Tapang	Roshna Khawas and Lalenkawli
11	Study of thermal insulation properties of coconut fibre	Tage Tapang	Emily PC Lalnunhlimi and Srijana Gurung

D. Diploma projects

S.No	Title of the project	Name of the guide	Name of the student
1	Measurement of tea plucking rates by traditional hand plucking method and by using mechanical aid	K.N. Dewangan	L.I. Meitei, S.S. Singh and P.S. Sherpa
2	Climatic Classification and its Variability over the districts of Arunachal Pradesh and Nagaland	S.K. Shrivastava	Tatunak Jamir Hojam Tamin Nitto N. Chishi
3	Development of yearly and monthly rating curves for Mago river of Arunachal Pradesh	Aditi Bhadra	Oyi Pertin Peteneinuo Yhome
4	In Situ Measurement of Soil Moisture and its Validation	Arnab Bandyopadhyay	Hage Lotus Dani Rinyo Salony Sangma
5	Comparison of FAO-56 with Estimated PMT and HS Values Under the Climatic Condition for Dibrugarh, Assam	P.K. Pandey	Keneiselcho TethsolenSor HeluipungNdang

6	Measurement of Maximal Isometric Handgrip Strength of Agricultural Workers	T. Patel	Hibu Moda Maga Manu Dogin Omo
7	Bamboo food products in Arunachal Pradesh	A K Choudhary	Nolum Lingri Tayar Tamut
8	Development of a 3-point hitch mounted cone penetrometer	Anubhab Pal	Shayaan Ahmed Souvik Kumar Ghosh Songthat Lungoulien Haokip
9	Radiation based calibration of Hargreaves equation under the climatic condition of Dibrugarh, Assam	Vanita Pandey	Mr. Nikam Tawe Mr. DaniesHaokip
10	Development of instrumentation system for hydraulically varying the hitch height of tractor trailer combination	Tage Tapang	Tadar Mamang, Richa Roy and Tarh Tariang

4.2.5. Short-term course/seminars/workshops/conferences organized at NERIST:

1.	Prof. K.N. Dewangan and Dr. T. Patel organised one day Krishi Mela on 13th March, 2020 sponsored by Indian Council of Agricultural Research (ICAR), New Delhi.
2.	Prof. K.N. Dewangan and Dr. T. Patel organized one-day awareness-cum-demonstration mela on 'Farm Technology' Sponsored by AICRP on Ergonomics and Safety in Agriculture and the Union Ministry of Human Resource Development Govt. of India on 14th February 2020.
3.	Dr. A. Bhadra and Dr. A. Bandyopadhyay organised AICTE sponsored two week FDP on "Impact of Climate Change on Water Resources" during 14 th -25 th October 2019.

4.2.6. Short-term courses/seminars/workshops/conferences attended by the faculty.

1.	Prof. K.N. Dewangan one week faculty development programme on "ICT Tools for Teaching, Learning Process and Institutes" from January 13 – 17, 2020 organized by Electronics and ICT Academics and held at NERIST.
2.	Prof. K.N. Dewangan attended Social Median Champions Workshop on December 27, 2019 organized by MHRD, New Delhi and held at Vigyan Bhawan, New Delhi.
3.	Prof. K.N. Dewangan attended 54 th Annual Convention of ISAE and International Symposium on "Artificial Intelligence Based Future Technologies in Agriculture" from January 7 – 9, 2020 held at Hyatt Regency, Pune
4.	Dr. Aditi Bhadra attended short Term Training Programme on "Behavioral Remodelling and Research Methodology" by Electronics and ICT Academy, IIT Guwahati at NERIST during 01-05 April, 2019.
5.	Dr. Arnab Bandyopadhyay attended one Day Workshop on Python by Teaching Learning Centre (ICT) at IIT Bombay on 22 June 2019.
6.	Dr. Arnab Bandyopadhyay attended two Days Brainstorming Workshop on River-Research to Evolve Sustainable-Projects for People with Ecofriendly Climate-resilient Technology (RESPECT) at IIT Guwahati during 15-16 Nov 2019.



7.	Dr. T. Patel attended 21st SINGAPORE International Conference on Advances in Agricultural and Industrial Ergonomics (SAAIE-19) on Dec. 10-12, 2019 at Singapore.
8.	Dr. T. Patel attended AICTE Sponsored Two Weeks Faculty Development Programme (FDP) on Impact of Climate Change on Water Resources on October 14–25, 2019 at NERIST.
9.	Dr. T. Patel one-week Faculty Development Programme on "Network Security" jointly organised by Electronics and ICT Academies held at NERIST from May 20 - 24, 2019.
10.	Dr. T. Patel participated in one-month MOOC programme on Teaching Excellence during 1-30, November 2019 organised by ICAR, NAARM, Hyderabad.
11.	Dr. T. Patel participated in the "National Level Training Programme on DISASTER MANAGEMENT" held during February 27-29, 2020 at NERIST.
12.	Mr. A.K. Choudhary attended one-day workshop on “Invasive Alien Plants in Himalayas: status, ecological impact and management” organized by Deptt. of Forestry, NERIST during Feb 10 th 2020.
13.	Mr. A.K. Choudhary attended AICTE Sponsored Two Weeks Faculty Development Programme (FDP) on Impact of Climate Change on Water Resources on October 14–25, 2019 at NERIST.
14.	Mr. A.K. Choudhary attended one-month MOOC course on “Teaching Excellence” organized by ICAR-NAARM held during, Nov 1-30, 2019.
15.	Mr. A. Pal attended One week FDP on Antenna Trends, Organized by Electronics and ICT academy, from 01–05 July, 2019
16.	Mr. A. Pal attended one week faculty development programme on “ICT Tools for Teaching, Learning Process and Institutes” from January 13 – 17, 2020 organized by Electronics and ICT Academics and held at NERIST.
17.	Mr. A. Pal presented a paper titled “Development of a Battery Operated Arca-nut Harvester” at 21st SINGAPORE International Conference on Advances in Agricultural and Industrial Ergonomics (SAAIE-19) from 10 to 12 December 2019 at Singapore.
18.	Mr. A. Pal attended AICTE Sponsored Two Weeks Faculty Development Programme (FDP) on Impact of Climate Change on Water Resources on October 14–25, 2019 at NERIST.
19.	Mr. A. Pal attended one-week Faculty Development Programme on "Network Security" jointly organised by Electronics and ICT Academies held at NERIST from May 20 - 24, 2019.
20.	Mr. A. Pal participated in one-month MOOC programme on Teaching Excellence during 1-30, November 2019 organised by ICAR, NAARM, Hyderabad.
21.	Mrs. Vanita Pandey attended AICTE Sponsored Two Weeks Faculty Development Programme (FDP) on Impact of Climate Change on Water Resources on October 14–25, 2019 at NERIST.
22.	Mr. T. Tapang attended AICTE Sponsored Two Weeks Faculty Development Programme (FDP) on Impact of Climate Change on Water Resources on October 14–25, 2019 at NERIST.
23.	Mr. T. Tapang attended 5 th International Conference on Computers and Management Skills (ICCM) from 15 th to 16 th December, 2019.
24.	Mr. T. Tapang attended National Level Training Programme on Disaster Management organized by the Deptt. of Civil Engg. At NERIST from 27 th to 29 th February, 2020.

4.2.7. New Degrees/Professional Memberships obtained by the faculty.

1.	Dr. Arnab Bandyopadhyay obtained membership of Soil Conservation Society of India.
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4.2.8. Achievements/awards/recognition earned by the faculty.

1.	Prof. K. N. Dewangan Chaired a Session and delivered a key note speech during 5 th International Conference on Computers and Management Skill (ICCM) 2019 held on December 15 – 16, 2019 organized by NERIST and held at NERIST.
2.	Prof. K.N. Dewangan delivered a lecture as a resource person in the National Seminar on “Socio-Cultural and Economic Linkages to Sustainable Development in North East India” on August 9 – 10, 2019 organized by Don Bosco College, Jollang, Itanagar
3.	Best Paper Award awarded to Nunchhani, V., Golom, T., Nirin, L., Bandyopadhyay, A., Bhadra, A. 2019. Prioritization of Mago Basin based on Erodibility through Morphometric Analysis using GIS Technique: A PCA-based Approach. Abstract Volume, International Conference on Soil and Water Resources Management for Climate Smart Agriculture, Global Food and Livelihood Security, NASC Complex, New Delhi, Org. by Soil Conservation Society of India, New Delhi, November 5-9, 2019, pp. 364.
4.	1st Position in Poster Session awarded to Nengzouzam, G., Bandyopadhyay, A., Bhadra, A. 2019. Forecasting of NIR over India using bias-corrected spatially downscaled dataset. Poster presented in 2nd International Conference on Sustainable Water Management, Pune, Maharashtra, Org. by Ministry of Jal Shakti, Govt. of India, under the aegis of National Hydrology Project, November 6-8, 2019.
5.	3rd Position in Poster Session awarded to Kiba, L.G., Nunchhani, V., Chipang, N., Bandyopadhyay, A., Bhadra, A. 2019. Comparison of Snowmelt runoff between eastern and western part of the Indian Himalayan region using Spatially Distributed Snowmelt Runoff Model. Poster presented in 2nd International Conference on Sustainable Water Management, Pune, Maharashtra, Org. by Ministry of Jal Shakti, Govt. of India, under the aegis of National Hydrology Project, November 6-8, 2019. – Awarded 3rd Position in Poster Session.
6.	Dr. Aditi Bhadra got recognition as Elsevier Reviewer for reviewing from Journal of Remote Sensing Applications: Society and Environment, in May 2019.
7.	Dr. Aditi Bhadra received Certificate of Outstanding Contribution in Reviewing from Elsevier Journal of Hydrology in recognition of the contributions made to the quality of the journal.
8.	Dr. Arnab Bandyopadhyay received Certificate of Outstanding Contribution in Reviewing from Elsevier Agricultural Water Management in recognition of the contributions made to the quality of the journal.
9.	Dr. T. Patel acted as reviewer of “Inspire awards-Manak Million Minds Augmenting National Aspiration and Knowledge” programme organized by National Innovation Foundation of India in 2019.
10.	Dr. T. Patel delivered a keynote Speech in 21st SINGAPORE International Conference on “Advances in Agricultural and Industrial Ergonomics (SAAIE-19)” on Dec. 10-12, 2019 Singapore.
11.	Dr. T. Patel acted as Editorial board member of Journal of Ergonomics.

4.2.9. Projects sanctioned by outside agencies to the faculty of the department.

S.No.	Name of PI	Co-PI	Title of the Project	Funding Agency	Date of Sanction	Total Amount received during the year under review
1	K.N. Dewangan	T. Patel	AICRP on ESA, NERIST Center	ICAR New Delhi	2004	36,47,822.00
2	Aditi Bhadra	Arnab Bandyopadhyay	Assessment of Variability in Glacier melt and Snow melt Runoff under Projected Climatic Scenarios for Data Scarce Himalayan River Basins	DST	19/06/2019	44,57,061.00
3	Aditi Bhadra	Arnab Bandyopadhyay	Spatially distributed erosion estimation and hydrological modelling on a glaciated and ungauged river basin of Arunachal	SERB	25/06/2019	6,50,000.00
4	T. Patel	P. K. Pranav	Effect of Climate Changes on Working Capacity and livelihood Sustainability for Agricultural Worker of Arunachal Pradesh	DST	April 2019	33,27,103.00
5	T. Patel	-	Ergonomic Design and Performance Evaluation of Self-Propelled Multipurpose Weeder Suitable to Northeast Hilly Agriculture	AICTE	April 2019	2,23,000.00

4.2.10. Publications:

(a) Referred Journal

S.No.	Name of the author(s)	Title of the paper	Name of the Journal	Volume	Year	Month	Page nos.
1.	Rakheja, S., Dewangan, K.N. , Dong, R.G. and Marcotte, P.	Whole-body vibration biodynamics - a critical review: I. Experimental biodynamics	<i>International Journal of vehicle performance</i>	6	2020	-	1-51
2.	Rakheja, S., Dewangan, K.N. , Dong, R.G. and Marcotte, P. and Pranesh, P.	Whole-body vibration biodynamics - a critical review: II. Biodynamic modeling	<i>International Journal of vehicle performance</i>	6	2020	-	52-84
3.	Lalremruata, Dewangan, K.N. and Patel, T.	Noise exposure to tractor drivers in field operations.	<i>International Journal of vehicle performance</i>	5	2019		430-442
4.	Mahato, D.K., Lee, K.E., Kamle, M., Devi, S., Dewangan, K.N. , Kumar, P. and Kang, S.G.	Aflatoxins in food and feed: An overview on prevalence, detection and control strategies	<i>Frontiers in Microbiology</i>	10	2019		1-10
5.	Khayer, S.M., Patel, T. and Dewangan, K.N.	Structural design optimization for pedal operated paddy thresher using response surface methodology	<i>Agricultural Engineering International: CIGR Journal</i>	21	2019		67-73
6.	Rajkumari, S., Chiphang, N., Kiba, L.G., Bandyopadhyay, A. , Bhadra, A.	Development and Application of a Spatially Distributed Snowmelt Runoff Model for Limited Data Condition.	Arabian Journal of Geosciences	12 (15)	2019	August	488

7.	Nengzouzam, G., Hodam, S., Bandyopadhyay A., Bhadra, A.	Spatial and temporal trends in high resolution gridded temperature data over India.	Asia-Pacific Journal of Atmospheric Sciences	55(4)	2019	November	761-772
8.	Nunchhani, V., Golom, T., Nirin, L., Bandyopadhyay, A., Bhadra, A.	Prioritization of Mago Basin based on erodibility through morphometric analysis using GIS technique: A PCA-based approach.	Journal of Soil and Water Conservation	19(1)	2020	January -March	10-16
9.	Das, B., Bordoloi, R., Thungon, L.T., Ashish Paul, Pankaj K Pandey, et.al. (2020)	An integrated approach of GIS, RUSLE and AHP to model soil erosion in West Kameng watershed, Arunachal Pradesh	J Earth Syst Sci	129, 94	2020	13, March	DOI: 10.1007/s12040-020-1356-6
10.	J Sanjog, T Patel, S Karmakar	Occupational ergonomics research and applied contextual design implementation for an industrial shop-floor workstation	International Journal of Industrial Ergonomics	72	2019	July	188-198
11.	Sonu Kumar, Prabhanjan K. Pranav, Anubhab Pal	Effect of hitch distance on haulage performance for 2WD tractors: A theoretical analysis	Spanish Journal of Agricultural Reserach	18/2	2020	April	

(b) Conference papers

S. No.	Name of the author(s)	Title of the paper	Name of the conference	Volume	Year	Month	Page nos.
1.	Dewangan, K.N. and Owary, C.	Physiological cost of male agricultural workers of north east India in rice cultivation	54 th Annual Convention of the Indian Society of Agricultural Engineers (ISAE)	-	2020	Jan	171
2.	Chhetry, B.S.K., Dewangan, K.N. and Patel, T.	Performance Evaluation of remote control turning mechanism in a walk behind power tiller	54 th Annual Convention of the Indian Society of Agricultural Engineers (ISAE)	-	2020	Jan	94
3.	Nunchhani, V., Golom, T., Nirin, L., Bandyopadhyay, A., Bhadra, A.	Prioritization of Mago Basin based on Erodibility through Morphometric Analysis using GIS Technique: A PCA-based Approach	International Conference on Soil and Water Resources Management for Climate Smart Agriculture, Global Food and Livelihood Security, NASC Complex, New Delhi, Org. by Soil Conservation Society of India, New Delhi, November 5-9, 2019	Abstract	2019	Nov	364
4.	Nengzouma, G., Bandyopadhyay, A., Bhadra, A.	Forecasting of NIR over India using bias-corrected spatially downscaled dataset.	2 nd International Conference on Sustainable Water Management, Pune, Maharashtra, Org. by Ministry of Jal Shakti, Govt. of India, under the aegis of National Hydrology Project, November 6-8, 2019	Poster	2019	Nov	
5.	Kiba, L.G., Nunchhani, V., Chipang, N., Bandyopadhyay, A., Bhadra, A.	Comparison of Snowmelt runoff between eastern and western part of the Indian Himalayan region using	2 nd International Conference on Sustainable Water Management, Pune, Maharashtra, Org. by Ministry of Jal Shakti, Govt. of India, under the aegis of National	Poster	2019	Nov	



		Spatially Distributed Snowmelt Runoff Model.	Hydrology Project, November 6-8, 2019				
6.	Vanlalnunchani, P.C., Pertin, O., Yhome, P., Bandyopadhyay, A., Bhadra, A.	Development of Yearly and Monthly Rating Curves for Mago River of Arunachal Pradesh	International Conference on Water, Energy and Biodiversity (WEB) for Sustainable Development of BIMSTEC Countries (IC_WEB_BIMSTEC_2019), Agartala, Tripura, Org. by The Institution of Engineers (India), Tripura State Centre and Other NE and WB State Centres of IEI in association with NIT Agartala, NIT Mizoram, NIT Arunachal Pradesh, NIT Silchar, NIT Nagaland, NIT Manipur, NIT Goa in collaboration with Federation of Engineering Institutions of South and Central Asia (FEISCA), The Institution of Engineers, Bangladesh, Dhaka Centre, International Institute for Carbon-Neutral Energy Research, Kyushu University, Japan, December 12-14, 2019	Abstract	2019	Dec	
7.	Mishra, P., Sumpi, N., Munni, T., Bandyopadhyay, A., Bhadra, A.	Estimation of Precipitation Lapse Rate in Arunachal Pradesh	International Conference on Water, Energy and Biodiversity (WEB) for Sustainable Development of BIMSTEC Countries (IC_WEB_BIMSTEC_2019), Agartala, Tripura, Org. by The	Abstract	2019	Dec	

			Institution of Engineers (India), Tripura State Centre and Other NE and WB State Centres of IEI in association with NIT Agartala, NIT Mizoram, NIT Arunachal Pradesh, NIT Silchar, NIT Nagaland, NIT Manipur, NIT Goa in collaboration with Federation of Engineering Institutions of South and Central Asia (FEISCA), The Institution of Engineers, Bangladesh, Dhaka Centre, International Institute for Carbon-Neutral Energy Research, Kyushu University, Japan, December 12-14, 2019				
8.	Rajkumari, S., Chiphang, N., Bandyopadhyay, A., Bhadra, A.	Assessment of Impacts of Climate Change on Runoff from Nuranang Watershed of Arunachal Pradesh	Roorkee Water Conclave 2020, Roorkee, Org. by Indian Institute of Technology Roorkee and National Institute of Hydrology, February 26-28, 2020	Online Proceedings	2020	Feb	
9.	Anubhab Pal and Rahul Sarkar	Development of a Battery Operated Arca-nut Harvester	21 st SINGAPORE International Conference on Advances in Agricultural and Industrial Ergonomics (SAAIE-19)	21	2019	Dec	79
10.	<i>B. S. K. Chhetry, T. Tapang and P. K. Pranav</i>	Effect of Hitch Height on Wheel Slip and Stability of 2WD Tractor	5th International Conference on Computers and Management Skills (ICCM) 2019	NA	2020	Jan	54 to 58

(c) Chapters in Books:

S.No.	Name of the author(s)	Title of the paper	Title of the book	Publisher	Year	Page nos.
1.	S M Khayer, T Patel, B Ningthoujam	Ergonomic postural and biomechanical analysis of manual weeding operation in agriculture using digital human models	Research into Design for a Connected World	Springer	2019	451-462

(d) Books: NIL
4.2.11. Interaction of faculty/department with outside agencies:

1.	A Delegation of European Union to India led by Ms. Tania Friederichs, First Counsellor and Head of Research & Innovation, visited NERIST on 4th April 2019 during 11:30 AM to 1:30 PM. The meet was coordinated by Dr. Aditi Bhadra , Associate Professor of Department of Agricultural Engineering, in which the Delegation interacted with NERIST faculty members to apprise them about various opportunities and avenues for collaborative research with scientists/ universities of different European countries. The other members of the Delegation were Dr. Vivek Dham, Advisor – Research & Innovation; Dr. Srinivas Kaveri, Director CNRS Office in India; Ms. Inger Midtkandal, Science and Technology Counsellor, Royal Norwegian Embassy; Mr. Alain Ghislain Baetens, First Secretary, Embassy of Belgium; Dr. Massimo Spadoni, Scientific Attaché, Embassy of Italy; and Dr. Jakob Williams Oerberg, Counsellor for Research, Higher Education and Innovation, Royal Danish Embassy. After the welcome address by Director NERIST, in which he briefed the Delegation about the institute, Dean (Admin) Prof. K. N. Dewangan presented the ongoing research activities undertaken by faculty members of different departments. Several fields of research and development were identified of mutual interest in which future collaboration can take place.
2.	Dr. Arnab Bandyopadhyay attended the 14 th Meeting of the Regional Coordination Committee of NIH-Centre for Flood Management Studies (NIH-CFMS), Guwahati held on 15 th November 2019 at CFMS, Guwahati as Director, NERIST's Nominee.
3.	Dr. Arnab Bandyopadhyay attended a one-day workshop on Review of Progress of the Satellite Hydrology Model 2.0 Development as Invited Expert held on 23 January 2020 at National Institute of Hydrology, Roorkee.

4.2.12. Consultancy projects undertaken:

S.No.	Name of the Faculty member	Name of the staff member	Agencies	Title of the consultancy project	Amount
1.	Anubhab Pal	-	M&M Ltd.	Software Validation	₹208000/-

4.2.13. Achievements of students: Following students have cleared the GATE, 2019

1. NGILYANG SUMPI (D/15/AE/003)
2. NYIGAM BOLE (DE/16/AE/005)
3. JAYANTIFULL HOOJON (D/15/AE/09)

4.3 DEPARTMENT OF CIVIL ENGINEERING

4.3.1 A Brief Profile of the Department

The Department of Civil Engineering came into existence as a part of the Institute since its inception in 1985. Over the years the Department has developed and is recognized as one of the major engineering departments in the north-eastern region of the country. The main objectives of the Department are to develop high quality technical manpower at Certificate, Diploma, Degree, and Post Graduate levels catering to the needs of the North Eastern Region in particular and the nation in general. The Department has capability of imparting quality education to the students through well-qualified faculty and staff.

Presently, the Department has 14 well-qualified faculty members with specialization in different areas of Civil Engineering.

There is one technical officer, three senior instructors, one senior technician, one technician, and five laboratory attendants. The staff members are well trained and one Senior Instructor, Dr. P. Sivakumar, obtained his Ph. D. from NERIST.

The laboratories of the Department are well equipped to meet the requirements of undergraduate as well as postgraduate courses. The Department has the competency of carrying out challenging consultancy works and sponsored research projects. The Department organizes workshops, short-term training programmes and conferences to disseminate the knowledge to the teaching community, government officials particularly of Arunachal Pradesh, NGO's as well as village level community of the state.

At present there 82 students in Base Module, 79 in Diploma Module, 110 in Degree Module, with total 271 students registered in UG programmes. There are 34 students in M Tech in ESE, and 32 students in M Tech in GTE. Total 22 Research Scholars are registered for Ph. D. programme.

4.3.2. Academic Activities

The Department of Civil Engineering offers Certificate, Diploma and Degree programmes since inception of the institute. After obtaining the Deemed-to-be-University status, two M. Tech programmes, one in Environmental Science and Engineering (ESE) and the other in Geo-Technical Engineering (GTE), are also offered by the Department. Ph. D. programmes are available in the major and emerging areas of civil engineering.

Some of courses offered by the Department are: Structural Engineering, Geotechnical Engineering, Structural Dynamics, Earthquake Engineering, Computational Methods in Civil Engineering, Advance Mechanics of Solids, Hydraulics and Water Resources Engineering, Fluid Mechanics, Environmental Engineering, Transportation Engineering, Geodetic Surveying, Engineering Graphics and Drafting, Building Science, Town Planning, Planning Estimation and

Valuation, etc. Projects are offered to the Diploma, and Degree students and dissertations are offered to Post Graduate final year students keep in view the academic advances, requirements of the industry as well as the local needs.

The total No of publications by the faculty in the year under review is 04 with 02 in Refereed Journals and 02 in National and International Conferences.

4.3.3. Laboratories and Laboratory Development

The Department has the following laboratories:

1. Computer Lab
2. Drawing and Drafting Section
3. Engineering Geology Lab
4. Environmental Engineering Lab - I
5. Environmental Engineering Lab - II
6. Field Engineering Lab
7. Geotechnical Engineering Lab -I
8. Geotechnical Engineering Lab -II
9. Highway Engineering Lab
10. Material Testing Lab
11. Structures Lab
12. Surveying Lab
13. Water Resources Engineering Lab.

In addition, it has a Seminar Hall equipped with audio visual teaching and presentation facilities. All the laboratories are equipped with modern equipment's required for teaching, research and consultancy services. New equipment's costing Rs.6,57,875.00 are purchased and details of the same are given below:

(b) New Equipment's Purchased During 2019-2020

Sl. No.	Item	Make	Qty	Amount	
1	Integral Proving Ring 5KN	LABARD	1 no.	11,000.00	Subject to technical verification and acceptance
2	Integral Proving Ring 2.5KN	LABARD	1 no.	11,000.00	
3	Integral Proving Ring 10KN	LABARD	1 no.	11,000.00	
4	Direct Shear Test Aparatus, 60x60x25 (Complete Set)	LABARD	1 no.	75,000.00	
5	Electric Balance 100 kg x 10gm	LABARD	1 no.	10,000.00	
6	Hot Air Oven 150mmx450mmx450mm	LABARD	1 no.	16,000.00	
7	Arrow (PEG) standard	LABARD	100 nos.	6,250.00	
8	Survey Metallic chain 30m standard	LABARD	10 nos.	22,500.00	
9	Prismatic Compass with stand 125mm size standard	LABARD	06 nos.	18,750.00	
10	Survey Umbrella (Big size) standard	LABARD	05 nos.	15,625.00	
11	Levelling Staff (Standard)	LABARD	10 nos.	18,750.00	
12	Cross Staff with stand (standard)	LABARD	10 nos.	15,000.00	
13	Plumbing Fork (U Type)	LABARD	10 nos.	5,000.00	
14	Plain Alilade (standard)	LABARD	10 nos.	10,000.00	
15	Trough Compass (Standard)	LABARD	10 nos.	22,500.00	



16	Ranging Rod 2mtr standard (not folding type)	LABARD	13 nos.	24,375.00
17	Dumpy Level (Auto Level) with stand	LABARD	01 no	18,125.00
18	Aggregate impact tester with accessories	LABARD	01 no.	11,250.00
19	Curing Tank for 12/24 cubes of 150mm/70.6mm with boiling water method and temp range 100+2c	LABARD	01 no.	1,43,750.00
20	Muffle Furnace Cabinet size 60cmx60cm	LABARD	01 no.	73,000.00
21	Tension Test Apparatus	LABARD	01 no.	35,000.00
22	UPS 1.1 KVA	APC Make	14 No.	84,000.00

4.3.4. Projects completed by the UG/PG/Ph.D. Students (Please specify the title of the project and name of the guide.)

(a) Diploma Projects completed

Sl. No.	Project Title	Name of Students	Project Guide
1.	Determination of Allowable Bearing Pressure of a Shallow Foundation in a Given Site	Didung Tadi	Prof. S. Baishya
		Anish Dural	
		Punit Basumatary	
2.	Study on Selected Parameters of Cement Concrete and Mortar	Saurav Prasad Thakur	Prof. S. Mishra
		Irshad Ansari	
		Deepa Das	
		Adrina Rai	
		Ruchi Sharma	
3.	Analysis of Cylindrical Pressure Vessels	Anamika Singh	Mr. S. K. Sahu
		Pura Yakang	
		Pritamjit Tripura	
		Shivani Kumari	
		Nako Umpo	
4.	Study on the Effect on movement of Cars Plying Opposite Directions on a Bidirectional Traffic Stream	Mr Ujual Basnet	Dr. D. Pal
		Rusmin Leriak Tamin	
		Pebam Sunandeeep Singh	
		Aruna Sharma	
5.	A Study on Water Quality and Pollution Status of Dikrong River Water and Suggestion of Economical Water Filter	Rupam Khargharia	Ms. Mudo Puming
		Chand Prakash Sharma	
		Mr. Archit Sharma	
		Mr. Subhrajit Dhar	
6.	Mapping of Urban Sprawl along the NH-53A Segment Stretching from Bandedewa to Itanagar, Aunachal Pradesh	T. Nemneihling Haokip	Mr. K. J. Singh.
		Muskaan Khanikar	
		Lamneihoi Haokip	
		Rhondemo P Kithan	
7.	Road Traffic Accident Analysis of Capital Complex Region – Itanagar, Arunachal Pradesh	Senge Ete	Mr. N. G. Sorum
		Rose Ambuse Lyngdoh	
		Likha Tajam	
		Sedi Kiiling Mitkong	

8.	The Effects on Coagulation by Moringa Oleifera and Alum on Kitchen Wastewater Treatment	Michael E Kurkalang	Ms. Y. B. Devi
		Yingaupeu Nidang	
		Saikhom Rohit Singh	
		Diptojoyoti Datta	
9.	Analysis of Foot Over Bridge – A Case Study on Foot Bridge at Naharlagun, NH-415	Tomar Gara	Ms. Y. Tamut
		Tage Oya	
		Khoda Ripa	
		Angela K Dengtluangpuii	

(b) B. Tech. Projects completed

Sl. No.	Project Title	Name of Students	Name of Project Guide
1	Preparation of Landslide Hazard Map from PappuNalah to Holongi, Arunachal Pradesh	Mr. Rajiv Ranjan Ray	Prof. S. K. Singh
		Vivi Kiso	
		Jayalaxmi Ngasepam	
		Baniengskhem D. Nongrum	
2	Analysis of Tropic State of Loktak Lake and Establishment of Relationship between the Eutrophication Paramerters	Mhabeni Tsopoe	Prof. R. K. Prasad
		Petsho U	
		Cheerfree K.T	
		Shreyasee Dutta	
3	Study of Non-Linear Slope Stability Analysis Using Finite Element Method	Mashi Longdo	Prof. S. Baishya
		Kevilhoukho Lhousa	
		Vikas Pandey	
		Madhurima Das	
4	Estimation of Minimum Cement Content for M50 Grade Concrete	Tasso Tarun	Prof. S. Mishra
		Pranab Jyoti Bora	
		C. Zonunsiamia	
		Samdup Lachungpa	
5	Verification of Various Parameters of Hydraulic Jump in a Rectangular Channel on Slopping Floor	Thejasietuo Yhoshu	Mr. S. K. Sahu
		Satyabrata Nag	
		Sonjuraj Pegu	
		Hemant Lakra	
6	Comparative Study of Efficiency of Removal of Iron from Groundwater Using Different Filter Media	Leejum Subba	Dr. Ajay Bharti
		Gagan Pradhan	
		Khwairakpam Bidya Devi	
		Alonika Chopi	
7	Study of Consolidation Characteristics of Clayey Soil by Using Fly Ash as Admixture	Dikshita Baishya	Dr. D. Devi
		Boishali Buragohain	
		Parishmita Das	
		Kawsar Ahmed Barbhuiya	
8	Vehicle Trajectory Extraction using Image Processing Techniques	Atom Uttamkumar Singh	Dr. D. Pal
		Prakas Chaudhury	
		Mr. Shahjahan Kalai	
		Animesh Deb	

9	Rainfall Runoff Modelling Using SCS-CN Curve Number	Mr. Sandipon Garg	Mr.K. J. Singh
		Mr. Ramesh Kumar	
		Ms. Linda Lalmuanpuii	
		Bhagyashri Deuri	
10	Study on Generation of Bio-gas from Anaerobic Digestion of Kitchen and Poultry Waste	Ijom Ninu	Ms. Mudo Puming
		Oyinto Mengu	
		Raja Gyadi	
		Onminlal Guite	
11	A case Study on Difficulties in Maneuvering Right Turn at Intersection Location in Capital Complex	Abhijeet Basfore	Mr. N. G. Sorum
		Debajit Barman	
		K. Lalsiammawia	
		Kelhoukhrietuo	
12	Effect of Domestic Wastewater on Soil Parameters	Ms. Triple Grace Mawlein	Ms.Y. B. Devi
		David. C. Lalawmpuia	
		Sakimi Shylla	
		R. Lalbiakzuali	
13.	Study of Improvement of of Sub-grade Soil Using Waste Glass Material	Kojeen Gyati	Ms. Y. Tamut
		Lishi Talin	
		Tenod Raji Tamin	
		Devid Kakati	

(c) M. Tech Projects Completed

Sl. No	Name of Student	Title of the Dissertation	Name of the Supervisor
1.	Ms. Anuptitee Das	Green Sythensis of Silver Nanoparticles using Plant Extract (Latex), their Characterization and Application in Petroleum Remediation	Dr. A. Bharti & Dr. P. Kumar
2.	Mr. Habung Bida	Spatial Distribution of water quality parameters in Lower Subansiri District of Arunachal Pradesh	Dr. A. Bharti
3.	Mr. Jesu Venia	Spatial Distribution of water quality parameters in East Kameng District of Arunachal Pradesh	Dr. A. Bharti
4.	Mr. Tado Gyadi	Biogas Production from the Co-digestion of Kitchen Waste and Cow Manure	Mrs. Mudo Puming
5.	Ms. Ipi Bagra	Windrow Composting of Vegetable waste Using Naturally available Activated material.	Mrs. Mudo Puming
6.	Ms. Sonia Dawe	Wastewater Treatment using Enzyme	Mrs. Yumnam Bidyalaxmi Devi
7.	Mr. Riba Gyadi	Dairy Wastewater Treatment by Vermifiltration for Irrigation Purposes	Mrs. Yumnam Bidyalaxmi Devi
8.	Mr. Geto Kamda	Simulation of Pressure-Deficient Water Distribution Network	Dr. R. K. Prasad
9.	Mr. Mido Nyodu	The Effect of Freezing and Thawing on the Strength Parameter of Cement Stabilised Soil aided with Wood Ash and Polypropylene Fibre.	Mrs. Yamem Tamut
10.	Ms. Priscilla Jamoh	Soil Stabilization Using Cement and Chir Pine Needles	Mrs. Yamem Tamut

11.	Mr. Prashant Kumar	Improvement of unpaved shoulder using geocell	Dr. Dibyendu Pal
12.	Nikkita Gurung	Numerical Investigation of Behaviour of Counterfort Retaining Wall using ABAQUS	Dr. D. Devi
13.	Amar Kumar Singh	Numerical Investigation of Behaviour of Cantilever Retaining Wall using ABAQUS	Dr. D. Devi
14.	Bishwajoty Paul	Verification of Available Correlation Equations for Compression Index Estimates for Untreated Soil and Study of their Applicability to Related Soils	Prof. S. K. Singh
15.	Birsurang Daimary	A Study on the Effect of Molten Waste Plastic on the Geotechnical Properties of Coarse Grained Soil	Prof. S. K. Singh

(d) Ph. D. thesis submitted /awarded to research Scholar/ Faculty / Laboratory assistant

S. No.	Name of Student	Title of the Dissertation	Name of the Supervisor
1.	Mr. Takum Nalo	Performance Studies for Anaerobic Digestion of Municipal Solid Waste (Awarded)	Dr. A. Bharti & Dr. Sunil Kumar
2.	Mr. Tomi Ete	A Study of Traditional Toilets and Sanitary Practices of Selected Indigenous Tribes of Arunachal Pradesh (Awarded)	Dr. A. Bharti & Dr. R. K. Prasad
3.	Ms. Mudo Puming	Performance Evaluation and Selection of Landfill Liner with Solid Waste Management at Selected Landfill Sites of Arunachal Pradesh. (Thesis Submitted)	Dr. M. Hussain & Dr. A. Bharti
4.	Ms. Omem Paron	Composting of Municipal Solid Waste and Assessment of Associated Green House Gas Emission (Thesis Submitted)	Dr. A. Bharti & Dr. Sunil Kumar
5.	Mr. Yachang Omo	Strength Enhancement, Modelling and Application of Cement-Fly Ash Treated Soil Reinforced with Glass and Natural Fibres (Thesis Submitted)	Dr. A. Kalita

4.3.5. Short term courses/seminars/workshops attended by the faculty

1.	Mrs. Yumnam Bidyalaxmi Devi participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27 th to 29 th February, 2020.
2.	Mrs. Yumnam Bidyalaxmi Devi participated in “Behavioral Remodeling and Research Methodology” organized by E and ICT Academy IIT Guwahati in association with NERIST, Nirjuli, held during April 01-05, 2019.
3.	Mr. K. James Singh participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27 th to 29 th February, 2020.
4.	Mr. K. James Singh attended a 03 days (14-16 Jan, 2020) AICTE sponsored Faculty Development Program for Student Induction (FDP-SI) at MIT, Imphal.

5.	Mr. K. James Singh attended a 05 days (03-07 Feb, 2020) Workshop on Typesetting with LATEX, organized by the Department of Physics, Manipur University, Imphal.
6.	Mrs. Mudo Puming participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
7.	Dr. Ajanta Kalita participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
8.	Dr. Ajanta Kalita attended One week FDP titled “ICT Tools for Teaching, Learning Process & Institutes” held at NERIST during 13th -17th Jan’2020.
9.	Dr. Dibyendu Pal participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
10.	Dr. R. K. Prasad participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
11.	Dr. S. Baishya participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
12.	Mrs. Yamem Tamut attended a training programme on "Feasibility Study and Preparation of Detailed Project Reports (DPR) for Highway Projects" from 3rd - 8th June, 2019 at IAHE, Noida
13.	Mrs. Yamem Tamut participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
14.	Mr. S. K. Sahu participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
15.	Mr. N. G. Sorum participated in “National Level Training Programme on Disaster Management”, held at NERIST during 27th to 29th February, 2020.
16.	Prof. R. K. Prasad attended “MHRD thematic workshop on vulnerability Atlas of India and Disaster Resistant Design and Construction Practices” at New Delhi on May 3, 2019.
17.	Prof. S. Mishra attended “MHRD thematic workshop on vulnerability Atlas of India and Disaster Resistant Design and Construction Practices “at New Delhi on May 3, 2019.

4.3.6. Short term courses/seminars/workshops organised in the Department

1.	Prof. S. Mishra organized a Two Days’ “National Level Training Programme on Disaster Management” in collaboration with National Institute of Disaster Management (MHA) New Delhi, held at NERIST during 27th to 29th Feb’2020
2.	Prof. S. Mishra organized Three Training Programmes for APPWD Engineers for two day duration each on “Concrete Mix Design” during June 29-30, 2019, July 06-07, 2019 and July 13-14, 2019 respectively.
3.	Prof R. K. Prasad organised International Conference on “Water Energy and Biodiversity (WEB) for Sustainable Development of BIMSTEC Countries (IC-WEB-BIMSTEC) 2019 during December 12-14, 2019 at Agartala in collaboration with all IEI centres and NITs of North East India.
4.	Mrs. Yumnam Bidalaxmi Devi was among the organiser of 5 th International Conference on “Computing and Management Skills (ICCM) 2019”, 15 th -16 th December 2019

4.3.7. New Degrees/Professional Memberships obtained by the members of faculty

- i) Mrs. Yamem Tamut got the Membership of ASCE.
- ii) Prof. R. K. Prasad became Fellow, Indian Water Resources Society (IWRS), (Membership No. F-2019-1463)

4.3.8. Publications

(a) Referred Journals:

1. **Pal, D.**, and Chunchu, M. 2019. Effect of Vehicular Lateral Gap Models on Heterogeneous Traffic Stream Behavior. *Transportation Letters*. (ISSN: 1942-7875). DOI: 10.1080/19427867.2019.1611709.
2. Omo, Y. and **Kalita, A.** 2019. “Energy Absorption, Secant Modulus and Compressive Strength of Fiber Reinforced High Fly Ash Content Treated Soil”, *International Journal of Innovative Technology and exploring Engineering*, ISSN: 2278-3075(Online), Vol. 08, Issue 11, Sep’2019, Pg. 1902-1909.

(b) Conference Papers:

1. **Pal, D.**, Suvin, P. V., and Chunchu, M. (2019). Characteristics of Vehicular Lateral Shifts in Non-lane-disciplined Traffic Stream. 15th World Conference on Transportation Research (WCTR), IIT Bombay, Mumbai, India, May 26-31.
2. Doly, N and Prasad, R. K (2019). “Water Quality of River Dikrong in Arunachal Pradesh, India” International Conference IGWC 2019} on Sustainable Management of Soil Water Resources at IIT Roorkee during Dec. 21-24, 2019.

4.3.9. Interaction of faculty/department with outside agencies / institute (Give details regarding membership of outside committee, executive committees of professional bodies etc.)

1.	Mrs. Yumnam Bidyalaxmi Devi has been invited as a Resource person on 260 hours Certificates Course on 25 th to 31 st October under Green Skill Development Programme (GSDP) for Pollution Monitors: “Air & Water” supported by MoEF & CC Govt. of India held from 22 nd October to 30 th November 2019 at Itanagar, Papumpare District, Arunachal Pradesh
2.	Dr. Ajay Bharti has been invited as a Resource person on 260 hours Certificates Course on 25 th to 31 st October under Green Skill Development Programme (GSDP) for Pollution Monitors: “Air & Water” supported by MoEF & CC Govt. of India held from 22 nd October to 30 th November 2019 at Itanagar, Papumpare District, Arunachal Pradesh
3.	Dr. Ajay Bharti is a Nodal Officer, STA (State Technical Agency), Public Health Engineering and Water Supply Department, Arunachal Pradesh.
4.	Dr. Ajay Bharti is a Member of SEIAA (State Level Environment Impact Assessment Authority), Arunachal Pradesh.
5.	Dr. Ajay Bharti is a Member, State Pollution Control Board, Arunachal Pradesh
6.	Dr. Ajay Bharti is in the Editorial Board, <i>International Journal of Pollution and Noise Control</i> , www.journalspub.com
7.	Dr. Ajanta Kalita has been assigned for “Arunachal Soil Chapter” to be incorporated in book titled “Indian Soil” being coordinated by Prof. Sanjay Kumar Shukla, Edith Cowan University, Joondalup, Australia.

8.	Prof. S. Baishya has been assigned for “Arunachal Soil Chapter” to be incorporated in book titled “Indian Soil” being coordinated by Prof. Sanjay Kumar Shukla, Edith Cowan University, Joondalup, Australia.
9.	Prof. S. K. Singh acted as a Member on AIB-UGET of AICTE, New Delhi.
10.	Prof. S. K. Singh acted as a Member on Board of Studies, School of Engineering & Technology, Mizoram University.
11.	Prof. S. K. Singh acted as a Member on State Higher Education Council, Government of Arunachal Pradesh.
12.	Prof. S. Mishra acted as Nodal Officer for Technical Scrutiny of Detailed Project Reports (DPRs) under NESIDS, Govt. of Arunachal Pradesh.
13.	Prof. S. Mishra (Head, Civil Engineering Department) acted as a member of Building Construction Committee, in Rajiv Gandhi University, Itanagar, Arunachal Pradesh

4.3.10. Consultancy Projects undertaken

(a) The details of the consultancy services tendered by the department are as follows:

Sl No	Agencies	Title of consultancy project	Amount (Rs)
1.	Tripura State Electricity Corporation Limited (TSECL), Govt. of Tripura. (With out sourced / hired expertise for Electrical Components)	Vetting of DPR	16,28,900.00
2.	Chief Engineer (SID&P) PWD, AP, Itanagar, Govt. of Arunachal Pradesh.	Training Programme on Concrete Mix Design	7,57,971.00
3.	Secretary Planning Department, Govt. of Arunachal Pradesh	Vetting of DPR	1,50,000.00 (Yet to be received)
4.	Assistant Engineer, PWD, Naharlagun, A.P.	Construction Materials (Brick, Course Aggregate, Sand, Cement, 8mm and 10 mm dia, Tor Steel Bars) Testing.	1,42,308.00
5.	Chief Manager, Comp. Scheme, Gohpur, Tinali-A.P.	Cement Concrete Cube Testing	5,900.00
6.	Mr. HIRAK CHOUTHURY, Engineer Camp, T&D Sagali-791112	Cement Concrete Cube Testing	11,800.00
7.	Mr. H. K. Saikia, FE (Electrical)	Cement Concrete Cube Testing	11,800.00
8.	Executive Engineering, PWD, Nacho Division, Nacho, Upper Subansiri, A.P.	Cement Concrete Cube Testing	5,900.00
9.	A.E. PWD, Naharlagun, A.P.	Cement Concrete Cube Testing	23,600.00
10.	M/S H.B. ENTERPRISES, A.P.	Fine Aggregate, Coarse Aggregate and Cement Concrete Cube Testing	29,264.00
11.	M/S N.T. Agency, B-Sector, Naharlagun, A.P.	Fine Aggregate and Coarse Aggregate Testing	41,949.00



12.	Assistant Engineer, PWD, Naharlagun Sub Division -IV, A.P.	Cement Concrete Cube Testing	5,900.00
13.	Executive Engineer, Rajiv Gandhi University, Rhono Hills, Doimukh, A. P.	Fine Aggregate and Coarse Aggregate Testing	13,098.00
14.	Assistant Engineer, PWD, Naharlagun Sub Division -IV, A.P.	Coarse Aggregate Testing	5,900.00
15.	A.E. Powergrid Corporation of India, Nirjuli, A.P.	Cement Concrete Cube Testing	11,800.00
16.	Sr. Manager (C), PHEP, Dam Division, Jampa -A.P.	Cement Concrete Cube Testing	5,900.00
17.	Executive Engineer (Civil) Officers Commanding, 756 GREF	Cement Concrete Cube Testing	17,700.00
18.	A.E. Powergrid Corporation of India, Nirjuli, A.P.	Cement Concrete Cube Testing	11,800.00
19.	M/s TT Enterprise, A.P.	CBR Testing	22,833.00
20.	M/s TT Enterprise, A.P.	CBR Testing	22,833.00
21.	M/s Sunwin Energy and Infra Pvt. Ltd. Guwahati	CBR Testing	22,833.00
22.	M/s ATW India Pvt. Ltd. A.P.	CBR Testing	22,833.00
23.	M/s O.G. Enterprise, A.P.	CBR Testing	22,833.00
24.	M/s B. K. Construction Pvt. Ltd. Dibrugarh	CBR Testing	22,833.00
25.	Executive Engineer, Rajiv Gandhi University, Rono Hills Doimukh, Arunachal Pradesh.	Construction Material Testing.	13098.00
Total			30,31,586.00

(b) Detailed Project Reports (DPRs) Under NESIDS (Govt. of Arunachal Pradesh) Vetted by the department are as:

Sl No.	Name of the Projects
1	Construction of Road Dari – Chambang, under NESIDS, Kra-Daadi District, Arunachal Pradesh.
2	Construction of Road from Lumdung NH-229 to 9 Km point of PMGSY Nere” under NESIDS, East Kameng District, Arunachal Pradesh.
3	Promotion of Tourism Through Augmentation of Power Infrastructure - Construction of 400 Kv Sub-Station at Surjamaninagar, West Tripura

4.3.11. Achievement of students

(a) Name of the student who have gone for Industrial Training in June 2018

Sl.No	Name	Roll No.	Name of Training Centre	Remarks
1	MR. DABA NALO	D/16/CE/001	MECL, Shillong	
2	MR. KABIT KETAN	D/16/CE/002	IIT Guwahati	



3	MR. SUMAN SARKAR	D/16/CE/003	IIT Guwahati	
4	MR. DEEPAK RAJ	D/16/CE/004	IIT Guwahati	
5	MR. ROHAN KUMAR SAHANI	D/16/CE/005	IIT Guwahati	
6	MR. SAIKAT DAS	D/16/CE/006	NEEPCO, Doimukh	
7	MR. CHITEO N CHAH	D/16/CE/007	MECL, Shillong	
8	MR. DEBOTUSH MUKHERJEE	D/16/CE/008	MECL, Shillong	
9	MS. BIJETA BORAH	D/16/CE/010	MECL, Shillong	
10	MR. PARTHA PRATIM BORUAH	D/16/CE/011	IIT Guwahati	
11	MS. RIYA RAI	D/16/CE/012	IIT Guwahati	
12	MS. ANULEKHA CHAKRABORTY	D/16/CE/013	IIT Guwahati	
13	MS. VERONICA R PEGHA	D/16/CE/014	MECL, Shillong	
15	MR. ASHIQ SUBBA	D/16/CE/015	PHE, Itanagar	
16	MR. ZACHITO VESWUH	D/16/CE/016	IIT Guwahati	
17	MS. TWINKLE LAMHOITING	D/16/CE/017	IIT Guwahati	
18	MR. ROKOCAKHO LHOUSA	D/16/CE/018	MECL, Shillong	
19	MS. SHWETA SHARMA	D/16/CE/019	IIT Guwahati	
20	MR. MEBALAMKI LANGSTANG	D/16/CE/021	MECL, Shillong	
21	MR. PRAJNAN PARTHASARATHI	D/16/CE/022	MECL, Shillong	
22	MS. KIME MAMUNG	D/16/CE/023	IIT Guwahati	
23	MR. RICHMOND NONGRUM	D/16/CE/024	MECL, Shillong	
24	MR. DEBIA TAMIN	D/16/CE/025	NEEPCO, Doimukh	
25	MR. JAMLAR KOJAM TUNGI	D/16/CE/027	NEEPCO, Doimukh	
26	MR. YIMLOCHANG EZUNG	D/16/CE/028	NEEPCO, Doimukh	
27	MR. HAGE TAKKE	D/16/CE/029	IIT Guwahati	
28	MR. PRASHANT SINGH	D/16/CE/030	IIT Guwahati	
29	MR. BAKI KAMGO LOBOM	D/16/CE/031	NEEPCO, Doimukh	
30	MR. SUBRAJIT DAS	D/16/CE/032	IIT Guwahati	
31	MR. LOGYO TAGU	D/16/CE/101	MECL, Shillong	
32	MR. SANASAN BIDYALAL SINGH	D/16/CE/102	IIT Guwahati	
33	MS. YANGLIKHUMLA SANGTAM	D/16/CE/104	IIT Guwahati	
34	MR. ABHILASH CHANDA	D/16/CE/106	IIT Guwahati	
35	MR. ANKIT KUMAR	D/16/CE/107	IIT Guwahati	

36	MR. CHANYA RAI	D/16/CE/108	NEEPCO, Doimukh	
37	MR. KALING TAYENG	D/16/CE/109	NEEPCO, Doimukh	
38	MS. ANUSHIYA PRADHAN	D/16/CE/205	PHE, Itanagar	
39	MS. SUDARSHANA GOSWAMI	D/17/CE/201	IIT Guwahati	
40	MS. BAISALI SANDILLYA	D/17/CE/203	IIT Guwahati	
41	MR. DEBABRATA DAS	D/17/CE/204	IIT Guwahati	
42	MS. JENITOLI ACHUMI	D/17/CE/205	NEEPCO, Doimukh	
43	MS. DEBJANI PAUL	D/17/CE/206	IIT Guwahati	
44	MS. JIANTHAILU PAME	D/17/CE/207	NEEPCO, Doimukh	
45	MR. PALCHEN LEPCHA	D/16/CE/209	PHE, Itanagar	
46	MR. NILAJYOTI NATH	D/17/CE/210	IIT Guwahati	
47	MS. INCHI CH MARAK	D/17/CE/211	MECL, Shillong	
48	MR. KENJOM LOLLEN	D/16/CE/212	PHE, Itanagar	
49	MR NYAJUM BAME	D/17/CE/213	IIT Guwahati	

(b) Campus Placement during April 01, 2019- March 31, 2020

Sl. No	Name of the Student	Roll. No	Organization
1	Pranabjyoti Bora	D/15/CE/09	Site Engineer Rishishwar Construction Pvt Ltd
2	Sandipon Garg	D/15/CE/10	Site Engineer Rishishwar Construction Pvt Ltd
3	Devid Kakati	D/15/CE/12	Site Engineer Rishishwar Construction Pvt Ltd
4	Ramesh Kumar	D/15/CE/13	Site Engineer Rishishwar Construction Pvt Ltd
5	Madhurima Das	D/15/CE/16	Trainee Graduate Engineer Tata Projects Ltd.
6	Bhagyashri Deuri	D/15/CE/20	Trainee Graduate Engineer Tata Projects Ltd.

(c) Direct Admission to Higher Education during April 01, 2019 - March 31, 2020

- i) Mr. Prashant Kumar is selected for Early Admit M. Tech Programme, 2020-21, IIT Gandhi Nagar
- ii) Ms. Anulekha Chakraborty is selected for direct Ph. D. programme, IIT Guwahati.

(d) Students Qualified GATE – 2020

Sl No.	Name	Roll No.	GATE Score
1	ANULEKHA CHAKRABORTY	D/16/CE/013	43.86
2	DEBABRATA DAS	D/17/CE/204	42.84
3	PRASHANT KUMAR SINGH	D/16/CE/30	42.02
4	PRAJNAN PARTHA SARATHI	D/16/CE/022	36.68
5	NILAJYOTI NATH	D/17/CE/210	32.77
6	ZACHITO VESWUH	D/16/CE/016	27.08
7	HAGE TAKKE	D/16/CE/29	25.50

8	YANGLIKHUMLA SANGTAM	D/16/CE/104	24.62
9	NYAJUM BAME	D/17/CE/213	24.30
10	LOGYO TAGU	D/16/CE/101	23.50
11	SUMAN SARKAR	D/16/CE/003	23.32
12	MEBALAMKI LANGSTANG	D/16/CE/021	23.32

4.3.12. Any other relevant Information

1. Prof. S. Baishya delivered one expert lecture in “National Level Training Programme on Disaster Management” held at NERIST during 27th to 29th Feb. 2020.
2. Prof. R. K. Prasad delivered one expert lecture in “National Level Training Programme on Disaster Management” held at NERIST during 27th to 29th Feb. 2020.
3. Prof. S. Mishra delivered nine lectures in Three Training Programmes for APPWD Engineers for two days’ duration each on “Concrete Mix Design” during June 29-30, 2019, July 06-07, 2019 and July 13-14, 2019 respectively.
4. Prof. R. K. Parasad delivered four lectures during practical sessions in Three Training Programmes for APPWD Engineers for two days’ duration each on “Concrete Mix Design” during June 29-30, 2019, July 06-07, 2019 and July 13-14, 2019 respectively.
5. Dr. D. Pal delivered four lectures during practical sessions in Three Training Programmes for APPWD Engineers for two days’ duration each on “Concrete Mix Design” during June 29-30, 2019, July 06-07, 2019 and July 13-14, 2019 respectively.
6. Dr. D. Devi delivered two lectures during practical sessions in Three Training Programmes for APPWD Engineers for two days’ duration each on “Concrete Mix Design” during June 29-30, 2019, July 06-07, 2019 and July 13-14, 2019 respectively.
7. Prof. R. K. Prasad chaired a technical session of the 5th International Conference on Computers and Management Skills (ICCM) 2019 at NERIST during Dec. 15-16, 2019.
8. Prof. R. K. Prasad was invited (but not attended) for Chairing and Key note for a technical session of the International Conference on Sustainable Systems at MVGR College of Engineering, Vizianagaram, Andhra Pradesh during Nov. 15-16, 2019.
9. Prof. R. K. Prasad chaired a technical session and delivered keynote for the International Conference IGWC 2019 on Sustainable Management of Soil Water Resources at IIT Roorkee during Dec. 21-24, 2019.
10. Prof. R. K. Prasad delivered a lecture on “Impact of Climate Change on Water Resources: Need for Change” at a Workshop on Engineering for Change } on Engineers day, Itanagar, Sept. 15, 2019.

4.4 DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

4.4.1 A Brief Profile of the Department

The Computer Science and Engineering Department of NERIST came into existence right at the inception of the institute in 1986. It offers a unique combination of courses and projects that helps the students to cope with the recent advancements in the computer industry and information technology. The department gives diploma and degree in computer science and engineering using a modular pattern.

- M.Tech in Computer Science and Engineering started in 2006-07.
- M.Tech in Information Technology started in 2011-12.
- The PhD programme started in 2007-2008.

The department offers regular courses like Computer Organization, Application Software, Operating System, Discrete Mathematics, Digital Electronics, Microprocessors, Database Management Systems, Compiler Design, Data Communications, Computer Networks, Design and Analysis of Algorithm to name a few of them. Apart from the regular courses a few of the important courses offered are Artificial Intelligence, VLSI Design, Image Processing, Fault Tolerant Computing, Information Theory, etc.

The faculty members of the department are involved in various inter-disciplinary research projects funded by agencies like CISR, MHRD, NEC, DoE etc.

The department has well equipped LAN connected laboratories System Lab, PC Lab, Microprocessor Lab, Hardware Lab, Networking Lab and Embedded Systems Lab with state-of-the-art machines.

The department has 1GBPS internet connectivity through NKN.

Our graduates are well placed in organizations like, Infosys, C-Dot, SIEMENS, Tata Telecom, British Mahindra Telecom, DRDO, NICNET, ISRO, OIL, CSIR, Telecom, CMC, PCL, HCL, IDPL, IOC, SAIL, TELCO, TISCO, ESCORTS, Mindtree, State Departments of Electronics, Power & PHED.

4.4.2. Academic Activities

The department offers Diploma, Degree and M.Tech and Ph. D programme. Besides undergoing the regular courses, the students of each module carry out project in the second year. The degree first year students also undergo industrial training for 50 days. The department student counselor guides these students in allotment of training seats. The students also give seminar presentation after completion of their summer training.

4.4.3. Laboratories and Laboratory Development

PC Lab I

The practical classes of Diploma Module and Base Module are held in this laboratory. The students get exposure to various types of Application Software such as Visual Basic, C++, Visual C++, etc in this lab. Basic Computer training for the students of all the Departments of NERIST is also given here. It is well equipped with Intel i3 PC's, Laserjet printers, Deskjet printers, Line Printers etc.



PC Lab II

This is a newly setup lab where practical classes of Diploma Module and Base Module are held. The students get exposure to various types of Application Software such as Turbo C++, Dev C++, etc in this lab. High level language programming for the students of all the engineering departments of NERIST is given here. It is well equipped with i5 PC's.

System Lab I

The Systems Laboratory - I is well equipped with servers and terminals basically for working in UNIX/LINUX, Windows and MAC environment as well. Practical classes for Diploma and Degree and PG students are held here. Hands on exposure to various programming Software such as C, C++, and RDBMS software like Oracle 10g and SQL Server, Visual Studio.NET and MATLABR2016a are available in this lab. The lab has several HCL Infinity Globalline Servers, a HP Proliant ML 5350e Gen 8V2 server which are connected to highend Intel i5 PC's and iMAC desktops. This lab also has a Dell PowerEdge T430 server which is the Matlab Server and is accessed by users of the entire institute The lab also has Laserjet printers, Line matrix printer, Scanner etc. All the machines are on the institute LAN and thus have Internet access. The students are encouraged to do network related projects in this lab.

System Lab II

System laboratory II is well equipped with two HCL Infinity Global Line Servers running on Red Hat Linux 4.0 Enterprise Edition, and several HP Thin clients for working purely in UNIX/LINUX environment. This lab also has high end Intel i7 PCs and MAC mini desktops. Practical classes for M.Tech and Degree students are held here.

Microprocessor & Digital Lab

Training in various types of Microprocessors and Computer hardware is imparted in Microprocessor laboratory. This laboratory is complete with different types of Microprocessor and Micro-controller Kits and hardware related equipment. It also has the facility for training in Digital Electronics, which is the heart of every Computer. Practical classes for Diploma and Degree students are held here. The lab is well equipped with Frequency counters, Oscilloscopes, Analog Multi-meters, Power supplies, Digital IC trainers, Electronic Multi-meters, Functional Generators, Audio Generators, Pulse Generators, Microprocessor Trainer Kit IMPACT, Microprocessor Trainer Kit Star 85, Microprocessor Kit 68 K, Microprocessor Trainer Kit 6802, Microprocessor Trainer Kit DYNA86, Micro-controller Kit DYNA 51, STD Based Card for Computers, Servo Controlled Voltage Stabilizers, Isolation Transformer, Bread Boards, Bush Monitors for 85 kit, Colour TVs etc.

Hardware Lab

The Hardware lab is set up in the Computer Science and Engineering Department for subjects like Peripherals, Assembling of Computer, Fault tolerance and different hardware related topics. To carry on these classes the lab is well equipped with Pentium PCs (100 Mhz, 16 MB RAM,

2.1 GB HDD), different 386 machines like a set of PC ORG SYSTEM XT, PC ORBIT XT, PCL PC AT 386, WIPRO GENIUS 386, ESPL SUPERCHIP XT, ESPL SUPERCHIP AT, PCL-

HALLMARK-II and various types of monitor like GeBBS COLOUR MONITOR, DOSL/50 MONO MONITOR, HCL GR-86 VDU, WEBEL MONITOR, one color TV, TVSE, L&T and INKJET printers, 1KV UPS and Tool kits like ISA Post Card (Hardware Diagnostic Card), Advanced Hardware Debugger Card, PC Trainer Cum Demonstrators etc.

Network Lab

This lab is equipped with PCs which are connected to LAN T (LAN Trainer kits) consisting LANT – NIU, LAN-T PS and LANT Software. It also has ISECURIT - a Network and Data Security Training System and and QUALNET 5.0. M.Tech and B.Tech lab assignments on Computer Communication, Networking, Simulation and Network Security are carried out in this lab.

4.4.4. Projects Completed by the UG/PG/Ph.D. Students

M.TECH CSE

Sl. No.	Name of the student	Roll No.	Guide Allotted	Project Topic
1	Chingmuankim	MT/17/CS/001	Mr. K. Legoh	Speech recognition using hidden Markov Model
2	Kajari Ananya Das	MT/17/CS/002	Mr. M. Saikia	Mobile Sink Trajectory Planning in Wireless Sensor Networks for Efficient Data Collection
3	Spandan Kumar Barthakur	MT/17/CS/003	Dr. M. Marjit Singh	Misdirection Attack Detection in Wireless Sensor Networks
4	Poulami Banik	MT/17/CS/004	Mr. Ajit Kr. Singh Yadav	Text Mining of Meaningful Words with Stemming Algorithm of Bengali Language
5	Ananya Patra	MT/17/CS/005	Mrs. M. Kathing	Classification of human facial expressions using multi layer perceptron
6	Rupam Sarmah	MT/17/CS/006	Dr. N. Marchang	Detection of Byzantine Attack in Cognitive Radio Networks using Machine Level Techniques
7	Manmi Nath	MT/17/CS/007	Mr. A. Taggu	Secure Cognitive Radio Networks using Hidden Markov Model
8	Tockchom Anandkumar Singh	MT/17/CS/008	Mr. Y. Mohan	An Efficient and Secure user Authentication and Communication Scheme using Blowfish and Blake2b algorithm based on cloud computing
9	Samuel Wangno	MT/16/CS/006	Mr. A. Taggu	Mitigation of SSDF attack in CRN using Trust-based Technique

DEGREE

Sl. No.	Name of student	Roll No.	Supervisor	Title
1	Anirban Sarkar Arup Roy	D/15/CS/05 D/16/CS/213	Mr. Ajit Kr. Singh Yadav	Text Mining: Sentiment Analysis using Twitter as Corpus
2	Rachna Raj Viphrenuo Kiso	D/15/CS/106 D/15/CS/01	Dr. Ningrinla Marchang	Mobile Crowd Sensing: A Disaster Management Mobile Application.
3	Jyosmita Das Manjit Kumar	D/16/CS/210 D/16/CS/206	Mr. Amar Taggu	Smart Wearable Security Device
4	Thanghaukhup Zou C. Brandon K. Gangte	D/15/CS/102 D/15/CS/107	Mr. Pradeep Kamboj	Review Analysis with NLP
5	Irom Purnima Malemnganba Soubam	D/15/CS/03 D/15/CS/101	Mrs. Margret Kathing	GAIT Analysis for Human Identification
6	Kipa Tachak Dipankar Mitra	D/15/CS/109 D/16/CS/207	Mr. Yogendra Mohan	A Secure P2P Event Notifier
7	Manju Kumari Rotinsiana	D/16/CS/208 D/16/CS/209	Dr. Moirangthem Marjit Singh	Study of Selective forwarding attacks in WSN
8	Bhaskar Ranjan Bora Manoj Tamang	D/16/CS/202 D/16/CS/05	Dr. Satya Jyoti Borah	An Energy Efficient Encounter and Probability based Routing Protocol in Opportunistic Network

DIPLOMA

Sl No	Students Name	Roll No.	Supervisor	Topic
1	Mayank Kumar Mishra Mangsatabam Kishnanda	D/17/CS/110 D/17/CS/002	Margaret Kathing	Interactive Single Web Page Design (HCI Approach)
2	Gopal Narayan Singha Sandeepan Adhikari	D/17/CS/109 D/17/CS/003	Ajit Kr. Singh Yadav	Image Compression using K-means Clustering
3	Prasant Nawani Gambo Jamoh	D/17/CS/108 D/17/CS/001	Yogendra Mohan	Fitness Guru
4	R. Jones Kharshandi Hibu Talyang	D/17/CS/107 D/17/CS/113	Pradeep Kamboj	Emergency Contact Application in Android
5	Abhisik Paul Amylia Marbaniang	D/17/CS/106 D/17/CS/102	N. Marchang	Weather Analysis (Nirjuli) Using Internet Of Things
6	Adella Risa Syngskor Sanjit Akoijam	D/17/CS/101 D/17/CS/104	Amar Taggu	RFID Based Attendance Monitoring System
7	Kekhelolo Lasushe Praseer Paul Thiemneichong	D/17/CS/103 D/17/CS/111 D/17/CS/112	Yogendra Mohan	LAN Messenger in VB.NET

4.4.5. Short Term Courses/ Seminars/Workshops Conferences Organized

Sl.No.	Title	Coordinator(s)	Duration	Sponsored by	No of Participants
1.	Foundation Course on Computer Skill for MBBS 1st Year Students	Dr. M. Marjit Singh	17 th &24 th August 2019	TRIHMS, Govt. of Arunachal Pradesh	50

4.4.6. Short Term Courses/ Seminars/Workshops Conferences attended by the Faculty

Dr. M. Marjit Singh

1. One-week Faculty Development Programme on "Network Security" Jointly organized by Electronics and ICT Academics at NERIST held from May 20-24, 2019.
2. One-week Faculty Development Programme on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academics at NERIST held from May 27-31, 2019.
3. One-week Faculty Development Programme on "Advancements in Signal Processing & Optimization Techniques" Jointly organized by Electronics and ICT Academics at NERIST held from June 3-7, 2019
4. International Conference on "Recent Trend and Practices in Science, Technology, Management and Humanities for Sustainable Rural Development (STMH- 2019) at University of Science and Technology Meghalaya on 7 September 2019.

Dr. (Mrs.) N. Marchang

“Must know tips for publishing in premium journals” Researcher Academy On Campus at Joule, Cell Press, Thursday 05 March, 2020, Presented by Dr. Philip Earis, Editor-in-Chief, Joule

Mr. Monjul Saikia

1. Faculty Development Programme on "Behavioral Remodeling and Research Methodology" Jointly organized by E&ICT Academy IIT Guwahati held from 01-05 April 2019 in association with NERIST, Nirjuli.
2. One-week Faculty Development Programme on "Network Security" Jointly organized by Electronics and ICT Academics at NERIST held from May 20-24, 2019.
3. One-week Faculty Development Programme on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academics at NERIST held from May 27-31, 2019.
4. One-week Faculty Development Programme on "Advancements in Signal Processing & Optimization Techniques" Jointly organized by Electronics and ICT Academics at NERIST held from June 3-7, 2019.
5. One-week Faculty Development Programme on "VLSI Chip Design Hands on using source EDA" Jointly organized by Electronics and ICT Academics at NERIST held from July 8-12, 2019.
6. Short term training program on "Control Engineering with Matlab" organized by NITTTR, Kolkata held during 16-20 September 2019 at Remote center Guwahati.

7. One-week Faculty Development Programme on "VLSI Chip Design Hands on using source EDA" Jointly organized by Electronics and ICT Academics at NERIST held from December 16-20, 2019.
8. One-week Faculty Development Programme on "ICT Tools for Teaching, Learning Process & Institutes" Jointly organized by Electronics and ICT Academics at NERIST held from January 13-17, 2020.

Mr. Pradeep Kamboj

1. One-week Faculty Development Programme on "Network Security" Jointly organized by Electronics and ICT Academics at NERIST held from May 20-24, 2019.
2. One-week Faculty Development Programme on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academics at NERIST held from May 27-31, 2019.
3. Short term training program on "Data Analytics Tools for Research" organized by NITTTR, Chandigarh during Nov 04-08, 2019.
4. One-week Faculty Development Programme on "ICT Tools for Teaching, Learning Process & Institutes" Jointly organized by Electronics and ICT Academics at NERIST held from January 13-17, 2020.

Mr. Ajit Kr. Singh Yadav

1. One-week Faculty Development Programme on "Network Security" Jointly organized by Electronics and ICT Academics at NERIST held from May 20-24, 2019.
2. One-week Faculty Development Programme on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academics at NERIST held from May 27-31, 2019.

Mr. Yogendra Mohan

1. Faculty Development Programme on "Behavioral Remodeling and Research Methodology" Jointly organized by E&ICT Academy IIT Guwahati held from 01-05 April 2019 in association with NERIST, Nirjuli.
2. One-week Faculty Development Programme on "Network Security" Jointly organized by Electronics and ICT Academics at NERIST held from May 20-24, 2019.
3. One-week Faculty Development Programme on "Deep Learning and Applications" Jointly organized by Electronics and ICT Academics at NERIST held from May 27-31, 2019.
4. Short term training program on "Data Analytics Tools for Research" organized by NITTTR, Chandigarh during Nov 04-08, 2019.

4.4.7. New Degrees/Professional Memberships obtained by the Faculty

Dr. (Mrs.) N. Marchang

IEEE Senior Membership, August 16, 2019

4.4.8. Projects Sanctioned by Outside Agencies to the Faculty of the Department

Name of the PI: Mr. Amar Taggu. **Title of the project:** Network Analytics for user performance management, using machine learning and data analytics. **Funding Agency:** AICTE. **Date of Sanction:** 14th March 2019 (*The order was received only in May 2019*). **Total Amount:** Rs.12,71,000 (Rupees Twelve Lakhs Seventy One Thousand Only). **Amount Received:** Rs.12,51,000 (Rupees Twelve Lakhs Fifty One Thousand only)

4.4.9. Publications

A. Referred Journal

Dr. Ningrinla Marchang, W. Singh N., Marchang N. and Taggu A.", "Mitigating SSDF Attack using Distance-based Outlier approach in Cognitive Radio Networks", International Journal of Ad Hoc and Ubiquitous Computing (Inderscience), [2019 Vol.32 No.2](#), doi.org/10.1504/IJAHUC.2019.102452. Published online 25 September 2019

Mr. Amar Taggu. Wangjam Niranjana Singh, Ningrinla Marchang, Amar Taggu Mitigating SSDF attack using distance-based outlier approach in cognitive radio networks International Journal of Ad Hoc and Ubiquitous Computing. Volume 32. 2019. 119-132

Mr Monjul Saikia

1. Choudhury, H.A., Sinha, N. and Saikia, M., Application of nature-inspired algorithms (NIA) for optimization of video compression. Journal of Intelligent & Fuzzy Systems, (Preprint), pp.1-25.
2. Monjul Saikia and Md. Anwar Hussain, "Delaunay Triangulation Based Key Distribution for Wireless Sensor Network," Journal of Communications, vol. 14, no. 7, pp. 530-537, 2019. Doi: 10.12720/jcm.14.7.530-537
3. Monjul Saikia and Md. Anwar Hussain, "Wireless Sensor Node Deployment Strategy for Hilly Terrains - A Surface Approximation based Approach" IET Wireless Sensor Systems, May 2019. Volume: 9 , Issue: 5 , 10 2019 DOI: 10.1049/iet-wss.2018.5095
4. Choudhury HA, Sinha N, Saikia M. Nature inspired algorithms (NIA) for efficient video compression—A brief study. Engineering Science and Technology, an International Journal. 2019 Nov 8.

B. Conference papers:

Dr. M. Marjit Singh

1. Nandi, U., Ghorai, A., Laya, B. and **Singh, M.M.**: A fast partitioning strategy: Its application to fractal image coding, ETAEERE 2020, March 5-6, KIIT Bhubaneswar, India.
2. **Singh, M.M.**, Dutta, N., Singh, T.R. and Nandi, U.: A technique to detect wormhole attack in wireless sensor network using artificial neural network, ICECMSN 2020, Feb 20-21, Sir MVIT Bangalore, India.
3. Nandi, U., Ghorai, A., Laya, B. and **Singh, M.M.**: Three-level hierarchical classification scheme: Its application to fractal image compression technique, FICTA 2020, Jan. 4-5, NIT Surathkal, India.

Dr. Ningrinla Marchang

1. "Wiswanath A., Datta, R. and Marchang N.", "Probabilistic Node Scheduling in Dense Wireless Sensor Networks", IEEE TENCON, 2019, Kochi, Kerala, Oct. 17-20, 2019
2. "Thakur T. and Marchang N.", "Provisioning Privacy and Accountability in Participatory Sensing," 2020 Third ISEA Conference on Security and Privacy (ISEA-ISAP), Guwahati, India, 2020, pp. 100-105. doi: 10.1109/ISEA-ISAP49340.2020.235007 Feb 27- March 1, 2020
3. "Meitei M. G. and Marchang N.", "A User-Centric Task Allocation Approach in Mobile Crowdsensing", Springer International Conference on Electronic Systems and Intelligent Computing, March 02-04, 2020.

4. "Kumar R., Marchang N. and Tripathi R.", "Distributed Off-Chain Storage of Patient Diagnostic Reports in Healthcare System Using IPFS and Blockchain," 2020 International Conference on COMMunication Systems & NETWORKS (COMSNETS), Bengaluru, India, 2020, pp. 1-5, January 2020, doi:10.1109/COMSNETS48256.2020.9027313

Mr. Amar Taggu

1. Amar Taggu, Ningrinla Marchang, "Random-Byzantine Attack Mitigation in Cognitive Radio Networks using a Multi-Hidden Markov Model System" at IEEE International Conference on Electrical and Computing Technologies and Applications (ICECTA). November 2019.
2. Amar Taggu, Ningrinla Marchang, "Mitigating Smart Primary User Emulation Attackers in Cognitive Radio Networks." at 4th IEEE Technology Innovation Management and Engineering Science International Conference (TIMES-iCON). December 2019

Mr. Ajay Kr. Singh Yadav

1. Presented a Paper on " Text Mining effect of Data Cleaning and Feature Selection" in National Conference on ROASET-2019 during 24-25 Apr-2019, AKGEC, Ghaziabad, India.

Mr. Yogendra Mohan

1. "An efficient source authentication scheme for multicast communication based on adaptive hash tree". at National Conference On Relevance Of Applied Sciences To Emerging Technology , 24-25 April 2019 Organized By AKGEC Ghaziabad.
2. "An efficient and secure user authentication and communication scheme based on cloud computing" at International Conference On Networks And Cryptology 14-16 June 2019 organized by School of Computer and Systems Sciences, Jawaharlal Nehru University, New Delhi.
3. "A secure user authentication and communication scheme based on blowfish and blake2b algorithm" at National Conference on Computational and Characterization Techniques in Engineering & Sciences (CCTES-19) 6-7 Sept 2019 Organized by REC Akbarpur Ambedkernagar, UP.

C. Books / Book Chapter:

Mr Monjul Saikia

1. Monjul Saikia and Md. Anwar Hussain "A Novel Key Predistribution Scheme for Minimum Angle Routing in Wireless Sensor Network", In *Integrated Intelligent Computing, Communication and Security*, Springer Singapore 2019, pp. 301--309, ISBN 978-981-10-8797-4, doi=10.1007/978-981-10-8797-4_32.
2. Saikia M, Hussain MA. Implementation of Lightweight Crypto Processor Using Logistic Map for Wireless Sensor Network. In *Advances in Communication, Devices and Networking* 2019 (pp. 509-519). Springer, Singapore.

4.4.10. Interaction of Faculty with outside agencies:

1. **Dr. Moirangthem Marjit Singh** has become the Honorary Joint Secretary of IE(I) Arunachal Pradesh State Center w.e.f. 30th September 2019.



2. **Dr. Moirangthem Marjit Singh** delivered an Invited Talk titled "*Machine Learning Techniques for Wireless Sensor Network: Issues and Challenges*" at International Conference on "*Recent Trend and Practices in Science, Technology, Management and Humanities for Sustainable Rural Development (STMH- 2019)*" at University of Science and Technology Meghalaya on 7 September 2019.

4.4.11. Achievements of Students:

Ksh. Simanta Singh (D/16/CS/108) and N. Shamananda Singh (D/16/CS/112) has qualified in GATE 2020.

4.5 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

4.5.1 A Brief Profile of the Department

The Department of ECE was established in the year 1985. The first batch of intake was taken in the year 1986. The Department of Electronics and Communication Engineering runs courses for three modules, namely Base, Diploma and Degree, giving B.Tech degree to the students who pass out degree module successfully and M.Tech in Electronics and Communication Engineering with two specialization communication and VLSI. The courses are designed by taking into consideration of present trends in technology, basic knowledge to pursue technological steps in the fields of Electronics and Communication Engineering and to meet the demand of manpower in the technology development and support to the country. The department of Electronics and Communication Engineering also runs PhD (part time and full time) in the fields of Optical Fiber Communication, DSP & Embedded systems, Microelectronics, Instrumentation, VLSI, Computer Networking, Information Security, Wireless Communication, Microwave Engineering and VLSI. There are 14 regular faculty members in the department of which two are on QIP leave and pursuing Ph. D. at IIT, Kharagpur and IIT, Guwahati. Two faculty members are on lien and working at MMMEC Gorakhpur and Tripura University.

4.5.2. Academic Activities

The department conducts academic activities based on the modular pattern of NERIST-certificate in Maintenance Engineering, Diploma and Degree in Electronics and Communication Engineering. The students of M.Tech and Ph.D students are encouraged to attend and present their research publication in international and national conferences. All the research scholars are motivated to publish their research work in esteemed journals worldwide. A departmental society named as NERIST Electronics Society (NES) is a pioneer body for professional activities of students. The department has organized workshops, seminars with technical collaboration by the faculty members /experts of other universities.

4.5.3. Laboratories and Laboratory development

The department has 14 numbers of laboratories to conduct practical classes for various courses. The department has modernized research laboratory with funds from MHRD under visvesvaraya PhD Scheme. The department is also further developing the existing VLSI and Computer Networking laboratories. The department has taken up steps to develop PG labs for M.Tech courses for which Silvaco, Xilinx ISE series along with VHDL based kits, TI 6713 series DSP kits, etc. have been procured along with ORCAD and Microwind Design Software and cadence.

4.5.4. Projects completed by the UG/PG/PhD students:

Under-graduate Projects: List of Degree,2017 students who has submitted Thesis

Sl. No.	Name	Roll No.	Title	Name of Guide
1.	Amal R. Namboothiri Ankur Bikash Borah	D/15/EC/05 D/15/EC/08	Design of Arduino Tricopter	Dr. A. Dinamani Singh
2.	Shashwatee Das Pankaj Kumar Borah	D/15/EC/003 D/15/EC/009	Automatic Patholes and Humps	Dr. Rajesh Kumar



	Eleaus Hrangkhawl	D/15/EC/010	Detection and Notification	
3.	Khusbu Kumari Privenchi Buragohain	D/15/EC/014 D/16/EC/209	Study and Design of CCII+ and its Applications	Dr. Tripurari Sharan
4.	Mayanmi Zimik Piyush Kumar Arpan Sharma	D/15/EC/07 D/15/EC/17 D/16/EC/206	Cardiac Monitoring System using ARDUINO	Mr. Madhusudhan Mishra
5.	Ankita Deb Masum Imran Laskar	D/15/EC/04 D/15/EC/22	3D Scanning using Laser Triangulation Method	Dr. Pranab Kishore Dutta
6.	Kime Tarun Sagar Bhowmik Dhritiman T. Saikia	D/15/EC/107 D/16/EC/201 D/17/EC/03	Performance Analysis Of Conventional And Wavelet Based OFDM Using Different Digital Modulation Techniques (Using Rayleigh Fading Channel)	Dr. Joyatri Bora
7.	Shreeja Ray Trisha Chakraborty	D/15/EC/12 D/15/EC/19	Study of GaN/AlGaN High Electron Mobility Transistor	Mr. Ashok Kumar Ray
8.	Abhishek Baba Kumar Gaurav Sneha Pradeep	D/15/EC/01 D/15/EC/06 D/15/EC/15	Automatic Target Positioning with Computer Vision	Mr. R. K. Mangang
9.	Vanlalremruata Bipasha Debbarma Susmita Saha	D/15/EC/102 D/16/EC/208 D/16/EC/207	Design of Cross Coupled Resonator Filter using Substrate Integrated Waveguide	Mr. Moirangthem Edison Singh
10.	Shivam Parashar Bikash Malakar Toshezulu Jamir	D/15/EC/13 DE/17/EC/02 DE/17/EC/01	Separation of Heart and Lung Sound	Mr. Anil Kumar Gautam
11.	Langpoklakpam Rishikanta Singh Mhachamo Lotha Nula Kenison Anal	D/16/EC/203 D/15/EC/104 D/16/EC/204	Internet of Things (IoT) Smart Home	Mr. Akho John Richa

Post Graduate (M.Tech) Projects: List of M.Tech,2017 students who has submitted Thesis

S.No	Name	Roll No.	Title	Name of Guide
1.	N. LTHOINGAMBI CHANU	MT/17/ECE/001	Performance of Quadrature Amplitude Modulation over One Wave with Diffuse Power Fading Channel.	DR. A. DINAMANI SINGH

2.	ARATI KUMARI SHAH	MT/17/ECE/002	A Design and Simulation of Photonic Crystal Fibre to improve dispersion.	DR. R. KUMAR
3.	KARIK LEGO	MT/17/ECE/003	Analysis of MIMO antenna for co-operative cognitive radio network.	DR.MD.A HUSSAIN
4.	NIKITA PAUL	MT/17/ECE/004	Phonocardiogram signal analysis for diagnostic purpose.	MR. M.MISHRA
5.	PRITIMOYEE DOWARAH	MT/17/ECE/005	Detection of glaucoma using retinal images.	MR. R. K. MANGANG
6.	LAIKANGBAM ANEKA	MT/17/ECE/006	Synthesis and design of Cross-Coupled Resonator filter with substrate integrated waveguide.	Mr. M.EDISON SINGH
7.	PARNASHREE DEBBARMA	MT/17/ECE/008	Performance analysis of variable rate orthogonal space time block code in MIMO OFDM system.	DR. J. BORA
8.	SINAM ASHINIKUMAR SINGH	MT/17/ECE/010	Design and Implementation of a Low Power Voltage CMOS Second Generation Current Conveyor	DR. T. SHARAN
9.	DEEPTI TRIPATHI	MT/17/ECE/011	Design and Implementation of a Low Leakage Energy Efficient Domino Circuit	DR. P. K. DUTTA
10.	MUNAN KUMAR THAKUR	MT/17/ECE/012	A Low-Voltage CMOS Current Feedback Operational Amplifier and its Applications	DR. T. SHARAN
11.	RIYONA NAMEIRAKPAM	MT/17/ECE/013	Effect of trap below the Source and Drain of a AlGaIn/GaN HEMTs	MR. A. K. RAY
12.	NEMTHIANHOI ZOU.P	MT/17/ECE/014	Low Voltage Low Power Second Generation Current Conveyor	MR. A.K. GAUTAM
13.	PHUNTSO CHOTTEN	MT/17/ECE/015	Performance Enhancement of Sense Amplifier for SRAM applications.	Mr. AKHO JOHN RICHA

4.5.5. Courses/Seminars/Workshops/Conferences Organized at the ECE department

Sl. No	Courses/Seminars/Workshops/Conferences Areas & Title	coordinator	duration	Funding agencies	Number of Participants
1.	FDP on Behavioral Remodeling and Research Methodology	Dr. Joyatri Bora as a Coordinator	01-05 April, 2019.	E&ICT academy IIT Guwahati & NERIST	30

2	FDP on Network Security	Dr. R Kumar Mr. A K Ray	20 th -24 th May 2019	E&ICT academy IIT Guwahati	43
3	FDP on Deep Learning and applications	Dr. R Kumar Mr. A K Y Singh	27 th - 31 st May 2019	E&ICT academy IIT Guwahati	48
4	FDP on Advancements in Signal Processing and optimization	Dr. R Kumar Mr. A K Ray	03 rd - 07 th June 2019	E&ICT academy IIT Guwahati	33
5	FDP on Antenna Trends	Dr. R Kumar Mr. A K Ray	01 st - 05 th July 2019	E&ICT academy IIT Guwahati	21
6	FDP on VLSI Chip Design Hands on using open source EDA	Dr. R Kumar Mr. A K Ray	08 th - 12 th July 2019	E&ICT academy IIT Guwahati	27
7	FDP on ICT Tools & Techniques for Teaching, Learning process	Mr. A K Ray	13 th - 17 th Jan 2020	E&ICT academy IIT Guwahati	38
8	5th International Conference on Computer and Management Skills (ICCM) 2019.	General Chair Prof. A Hussain Dr. A D Singh Program Chair Dr. R Kumar Organising Member Dr. T Sharan Dr. J Bora Mr. M Mishra Dr. P K Datta Mr. A K Ray Mr. ME Singh Mr. A K Gautam Mr. A J Richa	December 19-20, 2019.	Department of Electronics and Communication Engineering, NERIST	

4.5.6. Short term courses/Seminars/Workshops/Conferences attended by the faculty

Sl. No	Name of Faculty/ Staff	Description of STTP/ Training Programme	Period	Organized by
1.	Dr. Aheibam Dinamani Singh	FDP on VLSI Chip Design Hands on using open source EDA	08 th - 12 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
2.	Dr. Aheibam Dinamani Singh	FDP on Antenna Trends	01 st - 05 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati



3	Dr. Aheibam Dinamani Singh	FDP on Network Security	20 th -24 th May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
4.	Dr. Rajesh Kumar	National Level Training Programme on Disaster Management	27-29, February 2020	Jointly organized by the National Institute of Disaster Management, New Delhi along with Department of Civil Engineering, NERIST, Arunachal Pradesh
5.	Dr. Rajesh Kumar	NPTEL- AICTE FDP & NPTEL online certification course on Fiber – Optic Communication Systems and Techniques	July-October 2019 (12 weeks)	IIT Kharagpur and SWAYAM
6.	Dr. Rajesh Kumar	NPTEL- AICTE FDP & NPTEL online certification course on Accreditation and Outcome Based Learning	August-October 2019 (8 weeks)	IIT Kharagpur and SWAYAM
7.	Dr. Rajesh Kumar	FDP on VLSI Chip Design Hands on using open source EDA	08 th – 12 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
8.	Dr. Rajesh Kumar	FDP on Antenna Trends	01 st – 05 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
9.	Dr. Rajesh Kumar	FDP on Advancements in Signal Processing and optimization	03 rd - 07 th June 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
10.	Dr. Rajesh Kumar	FDP on Deep Learning and applications	27 th - 31 st May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
11.	Dr. Rajesh Kumar	FDP on Network Security	20 th -24 th May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
12.	Dr. Tripurari Saran	Behavioural Remodelling and Research Methodology	01-05 April, 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
13.	Dr. Tripurari Saran	ICT Tools for Teaching, Learning Process & Institutes	13th-17th January 2020	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati



14.	Dr. Joyatri Bora	FDP on “Behavioural Remodelling and Research Methodology”	01-05 April, 2019.	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
15.	Dr. Joyatri Bora	FDP on “Advancements on Signal Processing and Optimization Techniques”	03-07 June 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
16.	Dr. Joyatri Bora	International conference on Electronic Systems and Intelligent Computing (ESIC-2020), Springer Nature Singapore Pte Ltd,	02-04 March 2020	NIT Arunachal Pradesh
17.	Dr. Joyatri Bora	National Level Training Programme on Disaster Management	27-29, February 2020	Jointly organized by the National Institute of Disaster Management, New Delhi along with Department of Civil Engineering, NERIST, Arunachal Pradesh
18.	Dr. Pranab Kishore Dutta	FDP on VLSI Chip Design Hands on using open source EDA	08th – 12th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
19.	Dr. Pranab Kishore Dutta	FDP on Antenna Trends	01st – 05th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
20.	Dr. Pranab Kishore Dutta	FDP on Advancements in Signal Processing and optimization	03rd - 07th June 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
21.	Dr. Pranab Kishore Dutta	NPTEL FDP online certification course on CMOS Digital VLSI Design.	Feb 2019 to April 2019 (8 weeks)	NPTEL
22.	Dr. S Mujumdar	FDP on Advancements in Signal Processing and optimization	03rd - 07th June 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
23.	Dr. S Mujumdar	FDP on VLSI Chip Design Hands on using open source EDA	08th – 12th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
24.	Madhusudhan Mishra	FDP on “Behavioural Remodelling and Research Methodology”	01-05 April, 2019.	Jointly by the Department of ECE and the Centre for Management Studies, NERIST in association with E&ICT academy IIT Guwahati



25.	Madhusudhan Mishra	IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Auckland, New Zealand.	20-23, May 2019.	IEEE International Instrumentation and Measurement Technology Society Auckland, New Zealand
26.	Madhusudhan Mishra	FDP on “Advancements on Signal Processing and Optimization Techniques”	03-07 June 2019	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati
27.	Madhusudhan Mishra	Elsevier Third International conference on Computing and Network Communications (CoCoNet’19).	18-21, December 2019.	Indian Institute of Information Technology and Management (IIITM-K), Trivandrum, Kerala, India.
28.	Madhusudhan Mishra	“Regional Workshop for Orientation of Participating Institutes to Initiate Work in Adopted Village Clusters” sponsored by the Ministry of Human Resource Development, Government of India	22nd February 2020.	NERIST- Regional Coordinating of UBA, Nirjuli, Arunachal Pradesh.
29.	Madhusudhan Mishra	National Level Training Programme on Disaster Management	27-29, February 2020	Jointly organized by the National Institute of Disaster Management, New Delhi along with Department of Civil Engineering, NERIST, Arunachal Pradesh
30.	Madhusudhan Mishra	International conference on Electronic Systems and Intelligent Computing (ESIC-2020), Springer Nature Singapore Pte Ltd,	02-04 March 2020	NIT Arunachal Pradesh
31.	A K Ray	FDP on ICT Tools & Techniques for Teaching, Learning process	13 th - 17 th Jan 2020	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati



32.	A K Ray	Frontiers of Excellence in Wide and Ultrawide Bandgap Semiconductors and Electronic Systems.	14-15 December 2109	Dept of EE IIT BOMBAY
33.	A K Ray	FDP on VLSI Chip Design Hands on using open source EDA	08 th – 12 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
34.	A K Ray	FDP on Antenna Trends	01 st – 05 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
35.	A K Ray	FDP on Advancements in Signal Processing and optimization	03 rd - 07 th June 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
36.	A K Ray	FDP on Network Security	20 th -24 th May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
37.	R K Mangang	FDP on VLSI Chip Design Hands on using open source EDA	08 th – 12 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
38.	R K Mangang	FDP on Antenna Trends	01 st – 05 th July 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
39.	R K Mangang	FDP on Advancements in Signal Processing and optimization	03 rd - 07 th June 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
40.	M Edison Singh	FDP on Deep Learning and applications	27 th - 31 st May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
41.	M Edison Singh	FDP on Network Security	20 th -24 th May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
42.	Anil Kumar Gautam	FDP on Network Security	20 th -24 th May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
43.	Anil Kumar Gautam	FDP on Deep Learning and applications	27 th - 31 st May 2019	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
44.	Anil Kumar Gautam	Summer Training (2 Weeks)	17-29, June 2019	RTTC, BSNL Lucknow

45.	Anil Kumar Gautam	Orientation Programme (OP-132) (3 Weeks)	22 April-11 May, 2019	HRDC, Himachal Pradesh University, Shimla
46.	Anil Kumar Gautam	FDP on ICT Tools & Techniques for Teaching, Learning process	13 th - 17 th Jan 2020	Deptt of ECE, NERIST, and E & ICT Academy, Indian Institute of Technology Guwahati
47.	Anil Kumar Gautam	FDP on “Behavioural Remodelling and Research Methodology”	01-05 April, 2019.	Deptt of ECE, NERIST, and E & ICT Academy, IIT Guwahati

4.5.7. New Degree/Professional membership obtained by the faculty:

Dr. Rajesh Kumar becomes life fellow of Institute of Engineers (India) (IEI).

4.5.8. Achievements/Awards/recognition by the faculty: Nil

4.5.9 Projects Sanctioned by outside agencies to the faculty of the department

Name of PI and Co-investigator	Title of the Project	Funding agency	Date of Sanction	Total amount	Year
Dr. Rajesh Kumar	“A Prototype of Auto-navigating E-Cart using Multispectral Imaging”	Ministry of Electronics and Information Technology (MeitY), New Delhi	26/10/2018	40.00 Lakh	For Three years
Mr. Madhusudhan Mishra (Co-PI) PI: Dr. O. P. Tripathi, Department of Forestry, NERIST Co-PI: Dr. A. Pal, Department of Forestry NERIST	“Characterizing Patterns and Processes of Alpine Ecosystem in Indian Himalaya with Special Emphasis to Arunachal Pradesh”	Space Applications Centre , Indian Space Research Organization (SAC-ISRO), Ahmedabad, India.	2019-2022	21. 24 Lakhs	

4.5.10. Publications

Referred Journal: 48
Conference papers: 42
Books/ chapter: 03

Faculty wise details are as follows:

Publication of Prof. Md. Anwar Hussain

1. Tasher Ali Sheikh, Joyatri Bora and **Md. A. Hussain**, “Capacity Maximizing in Massive MIMO with Linear Precoding for SSF and LSF Channel with Perfect CSI”, *Digital Communications and Network*, In press.
2. Tasher Ali Sheikh, Joyatri Bora and **Md. A. Hussain**, “Performance Analysis of Massive Multi-input and Multi-output with Imperfect Channel State Information”, *Traitement du Signal*, vol.36, no.4, pp.361-368, 2019. (**Impact factor: 0.387**).
3. Tasher Ali Sheikh, Joyatri Bora and **Md. A. Hussain**, “Combined User and Antenna Selection in Massive MIMO Using Precoding Technique”, *International Journal of Sensors, Wireless Communications and Control*, Vol. 9, No. 1, pp.1-10, 2019. (**Impact factor: 0.18**).
4. **Md. A. Hussain**, Tasher Ali Sheikh and Joyatri Bora, “Group Based Semi-Orthogonal User Scheduling for Massive MIMO Wireless Communication,” 13th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), Goa, India, 16-18 December 2019.
5. Monjul Saikia and **Md. A. Hussain**, “Delaunay Triangulation based Key distribution for Wireless Sensor Network”, 2nd International Conference on Signal Processing and Information Communications will be held in Phuket, Thailand during January 19-21, 2019.
6. Monjul Saikia and **Md. A. Hussain**, “A Novel Key Predistribution Scheme for Minimum Angle Routing in Wireless Sensor Network”, In *Integrated Intelligent Computing, Communication and Security*, Singapore 2019, pp. 301-309, 2019.
7. M. Saikia **M. A. Hussain**, “Implementation of Lightweight Crypto Processor Using Logistic Map for Wireless Sensor Network”, In *Advances in Communication, Devices and Networking 2019* (pp. 509-519). Springer, Singapore, 2019.
8. Monjul Saikia and **Md. Anwar Hussain**, “Delaunay Triangulation Based Key Distribution for Wireless Sensor Network,” *Journal of Communications*, vol. 14, no. 7, pp. 530-537, 2019.
9. Monjul Saikia and **Md. Anwar Hussain**, “Wireless Sensor Node Deployment Strategy for Hilly Terrains - A Surface Approximation based Approach”, *IET Wireless Sensor Systems*, May 2019.
10. Faiz, M.F.I., and Marchang, N. and **Md. A. Hussain**, “App-Collusion Detection Using a Two-Stage Classifier”, *Web, Artificial Intelligence and Network Applications (WAINA'2019)*, vol. 927, Cham, 2019.
11. Faiz, M.F.I., and Marchang, N. and **Md. A. Hussain**, “Machine Learning Based App-Collusion Detection in Smartphones,” *IEEE 23rd International Symposium on Consumer Technologies (ISCT)*, Ancona, Italy.
12. Janmoni Borah, **Md. Anwar Hussain** and Joyatri Bora, “Effect of Inter-Cell Interference on Cell-Boundaries Users in 3-Cell and 7-Cell HetCN,” *Radioelectronics and Communications Systems*, 2019. (**Impact factor: 0.39**).
13. Janmoni Borah, **Md. Anwar Hussain** and Joyatri Bora, “Effect on Energy Efficiency with Small Cell Deployment in Heterogeneous Cellular Networks,” **Internet Technology Letters**, 2019.
14. S. Md. S. Askari, and **Md. Anwar Hussain**, “E-Transactional Fraud Detection Using Fuzzy Association Rule Mining”, 2nd International Conference on Information Systems & Management Science (ISMS), Tripura University, Agartala, Tripura, India, 2019.

15. **Md. Anwar Hussain** and Popi Bora, "Novel Watermarking Technique Using Encryption Steganography, Chaotic Logistic Map and Multiple Embedding", *3rd International Conference on Computing and Network Communications (CoCoNet'19)*, To be published in the Journal of Procedia Computer Science, Elsevier) Trivandrum, India, December 18-21, 2019.
16. Janmoni Borah, **Md. Anwar Hussain** and Joyatri Bora, "Dynamic and Energy-efficient ICI Mitigation Techniques for Mobility based 5G HetCN," *IET Communications (IET)*, 2020, In press. (**Impact factor: 1.779**).
17. Janmoni Borah, **Md. Anwar Hussain** and Joyatri Bora, "ICI effects on user mobility with different FR-schemes in a multi-cell cellular network," *IET Communications (IET)*, Vol.14, No.1, pp.84-88, 2020. (**Impact factor: 1.779**).
18. Tasher Ali Sheikh, Joyatri Bora and **Md. A. Hussain**, "Massive MIMO system lower bound spectral efficiency analysis with precoding and perfect CSI", *Digital Communications and Network*, In press.
19. S. Md. S. Askari and Md., **Anwar Hussain**, "IFDTC4.5: Intuitionistic Fuzzy Logic based Decision Tree for E-transactional Fraud detection," *Journal of Information Security and Applications*, 2020. (**Impact Factor: 1.537**)
20. Afruza Begum and **Md Anwar Hussain**, "A simple void node and loop-free three-dimensional routing protocol for multi-hop wireless networks," *International Journal of Communication Systems*, vol.33, no.3, pp.e4185, 2020. (**Impact Factor: 1.278**).
21. Afruza Begum and **Md. Anwar Hussain**, "Projection Based Throughput Computation of 3D Geographical Routing Protocol for multiple Wireless Sensor Networks", *International Conference on Electronics System and Intelligent Computing (ESIC)*, Arunachal Pradesh, India, 2020.
22. D. Borah, **Md. A. Hussain**, J. Bora, "Performance Analysis of Interference Alignment Based Precoding", *ESIC*, NIT Arunachal Pradesh, 2020.
23. **Md. Anwar Hussain** and Popi Bora, "Integrated Partial Encryption and Watermarking Technique for Digital Video using Chaos and Support Images", *International Journal of Engineering and Advanced Technology (IJEAT)*, vol.9, no.4, pp. 364-373, April 2020.

Publication of Dr. A. D. Singh

1. Wahengbam Kumar, Kishorjit Nongmeikapam, **Aheibam Dinamani Singh**, "Enhancing Scene Perception using a Multispectral Fusion of Visible-Near Infrared Image pair." *IET Image Processing*, PP-2467-2479, Aug, 2019 (DOI: 10.1049/iet-ipr.2018.5812). *Supervisor
2. Ningombam Ajit Kumar, **Aheibam Dinamani Singh***, and Nameirakpam Basanta Singh, "Examining the Short Channel Characteristic and Performance of Triple Material Double Gate Silicon-on-Nothing MOSFETs with Grading Channel Concentration.", *Journal of Nanoelectronics and Optoelectronics* Vol. 14, pp. 1–8, 2019. (doi:10.1166/jno.2019.2667). *Supervisor
3. Md. Farid Shah, **A. Dinamani Singh**, Moirangthem Edison Singh, "Enhanced Performance of Inset Fed Microstrip Patch Antenna Arrays Using CPW Feed for Millimeter Wave Wireless Communication.", *Jour of Adv Research in Dynamical & Control Systems*, Vol. 11, Special Issue-02, 2019, pp-1895-1902. *Supervisor
4. Nibedita Das, Laishram Mona Devi, Suparna Goswami and **Aheibam Dinamani Singh** "A Study of Digital Communication over Generalized K Fading Channels" *Advances in*

- Communication, Devices and Networking, Springer Nature Singapore Pte Ltd. 2019, pp 277 - 284. *Supervisor*
5. Laishram Mona Devi, Nibedita Das, Suparna Goswami and **Aheibam Dinamani Singh** “A Study on Capacity of MRC over OWDP Fading Channels” *Advances in Communication, Devices and Networking, Springer Nature Singapore Pte Ltd. 2019, pp 229 - 238. *Supervisor*
 6. Laishram Mona Devi, Nibedita Das, Suparna Goswami and **Aheibam Dinamani Singh** “Capacity Analysis in Generalized K Fading Channels”, *Advances in Communication, Devices and Networking, Springer Nature Singapore Pte Ltd. 2019, pp 297 - 305. *Supervisor*

Publication of Dr. Rajesh Kumar

1. Arati Kumari Shah, **Rajesh Kumar**, “A Review On Photonic Crystal Fibers” in Algorithms for Intelligent Systems: International Conference on Intelligent Computing and Smart Communication 2019, Proceedings of ICSC 2019, Springer Nature Singapore Pte Ltd. 2020, ISBN 978-981-15-0633-8 (eBook), volume-1, page: 1241-1249.
2. Sarfraz Hussain, **Rajesh Kumar**, Gaurav Trivedi “Methodology and Comparative design of an efficient 4-bit Encoder with bubble error corrector for 1-GSPS Flash type ADC” in IET Circuits, Devices & Systems 2020, IET, March 2020.
3. Sarfraz Hussain, **Rajesh Kumar**, “Design of a Low Power and High Speed Wallace Tree Encoder for Flash ADC ” in 5th International Conference on Computers & Management Skills (ICCM 2019) | North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India. Available at SSRN: <https://ssrn.com/abstract=3516639> or <http://dx.doi.org/10.2139/ssrn.3516639>
4. Arati Kumari Shah, **Rajesh Kumar**, “Design and Simulation for Highly Nonlinear Solid-Core Photonic Crystal Fiber” in International Journal of Engineering and Advanced Technology (IJEAT), ISSN: 2249-8958 (Online) | Reg. No.: C/819981 | Published By BEIESP | B Impact Factor: 5.97 | Scopus Journal, Volume-8, Issue-3S, Pages: 275-278, Year- 2019, Blue Eyes Intelligence Engineering & Sciences Publication (BEIESP).
5. Arati Kumari Shah, **Rajesh Kumar**, published a Book on “Design and Simulation of photonic crystal fiber to improve dispersion” in 2019 by LAP LAMBERT Academic Publishing, Mauritius, ISBN:978-620-0-24704-9.
6. Kurmendra, **Rajesh Kumar**, “Novel capacitance evaluation model for microelectromechanical switch considering fringe and effect of holes in pull-up and pull-down conditions” in Microsystem Technologies <https://doi.org/10.1007/s00542-019-04611-z>, <https://doi.org/10.1007/s00542-019-04611>, Dec 2019, Springer-Verlag GmbH Germany, part of Springer Nature 2019.
7. Kurmendra, **Rajesh Kumar**, “Design and Analysis of MEMS Shunt Capacitive Switch with Si₃N₄ Dielectric and Au Beam Material to Improve Actuation Voltage and RF Performance in Consideration With and Without Circular Perforations” in Transactions on Electrical and Electronic Materials, The Korean Institute of Electrical and Electronic Material Engineers (KIEEME), <https://doi.org/10.1007/s42341-019-00112-y>, online, issue:3,Page: 1-10, April 2019, Springer, **Online ISSN**2092-7592.

Publication of Dr. T. Sharan

Book Chapter Published:

1. **Tripurari Sharan**, Khoirom Johnson Singh and Anil Kumar Gautam, “Current Feedback Operational Amplifier-Based Biquadratic Filter,” Advances in VLSI, Communication, and Signal Processing Book (Springer), Chap. 47, Lecture Notes in Electrical Engineering 587, https://doi.org/10.1007/978-981-32-9775-3_43.

Publication in Conferences:

1. Sandeep Kumar Singh, **Tripurari Sharan** and Arvind Kumar Singh, “A Compact Multiband Rectangular Microstrip Antenna for UWB Applications,” International Conference on Start-up Ventures: Technology Developments and Future Strategies 8–9 October 2018, Manipal University Jaipur, Rajasthan, India, vol. 594, 1st August 2019, <https://iopscience.iop.org/article/10.1088/1757899X/594/1/012028/meta>.
2. Anil Kumar Gautam, **Tripurari Sharan**, Nemthianhoi Zou P. “DTMOS based Low-Voltage Low-Power CCII+ and Biquad Filter using ± 0.25 V supply,” 2nd International Conference (Springer) on VLSI, Communication and Signal Processing (2nd VCAS 2019), 21-23 October 2019.
3. **Tripurari Sharan**, Akho John Richa, Anil Kumar Gautam, “Low-power Bulk-driven Subthreshold OTA and CCII+ Cells based Instrumentation Amplifier for LF Applications,” Fifth International Conference proceedings on Computers & Management Skills (ICCM-2019), 10th Jan 2020, <https://dx.doi.org/10.2139/ssrn.3517435>.
4. Anupam Kumari, **T. Sharan**, “CCII+ Cell Based Instrumentation Amplifier Using BD-CM Gain Enhanced OTA,” International Conference proceedings on Computers & Management Skills (ICCM-2019), 10th Jan 2020, <https://dx.doi.org/10.2139/ssrn.3517362>.
5. **T. Sharan**, A. K. Gautam, “Low-voltage CCII+ Cells-based Tunable, Variable Gain Instrumentation Amplifier for Sub-Audio Frequency Signal Processing,” 7th International IEEE Conference on Signal processing and Integrated Networks (SPIN-2020) held on 27th to 28th Feb. 2020, pp. 224-229, Feb. 2020, DOI: <https://doi.org/10.1109/SPIN48934.2020.9071338>.

Publication in Journals:

1. Sandeep Kr. Singh, **Tripurari Sharan**, Arvind Kr. Singh, “Characterization of Broadband Antenna Based on FR-4 Substrate Material,” Materials today: Proceedings (ScienceDirect), vol.12 (3), pp. 628-635, 2019, DOI: <https://doi.org/10.1016/j.matpr.2019.03.107>.
2. Sandeep Kr. Singh, **Tripurari Sharan**, Arvind Kr. Singh, “A comparative performance analysis of various shapes and substrate materials loaded coplanar waveguide-fed antennas,” Materials today: Proceedings Journal Science Direct (Elsevier, published on 4th April-2020, <https://doi.org/10.1016/j.matpr.2020.03.133>

Publication of Mr. M. Mishra

A. Journals

1. M. Mishra, H. Menon and A. Mukherjee, "Characterization of S1 and S2 Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network," in *IEEE Transactions on Instrumentation and Measurement*, vol. 68, no. 9, pp. 3211-3220, Sept. 2019.
2. M. Mishra, S. Pratiher, H. Menon and A. Mukherjee, "Identification of S1 and S2 Heart Sounds Using Spectral and Convex Hull Features," in *IEEE Sensors Journal*, December 2019 (Accepted).
3. B. Das., R. Bordoloi, L.T. Thungon, A. Paul, P. Pandey, M. Mishra and O.P. Tripathi, "An integrated approach of GIS, RUSLE and AHP to model soil erosion in West Kameng watershed, Arunachal Pradesh " in *Journal of Earth System Science* 129, Article number: 94 (March 2020), Springer Link published by the Indian Academy of Sciences <https://doi.org/10.1007/s12040-020-1356-6>.
4. V. Pandey, A. Kumari, S. Parashar, A. J. Richa, and M. Mishra, "Solar Tracking Systems for Increasing Throughput of Solar Panels: A study" in *Journal of Analysis and Computation*, ISSN 0973-2861, Volume 12, Issue I, Jan-June 2019.
5. N. Paul, S. Parashar, P. Kumar, R. K. Mangang, and M. Mishra, "Advancements in Signal Processing Techniques for Detecting Cardiac Abnormalities: A Study" in *Journal of Analysis and Computation*, ISSN 0973-2861, Volume 12, Issue I, Jan-June 2019.
6. P. Kumar, S. Parashar, A. K. Gautam, J. Bora, and M. Mishra, "Techniques for lung sounds analysis to assist medical professionals: a study", *Journal of Analysis and Computation*, ISSN 0973-2861, Volume 12, Issue I, Jan-June 2019.

B. Conferences

1. P. Elangovana, M. K. Nath, and M. Mishra, "Statistical Parameters for Glaucoma Detection from Color Fundus Images", Third International Conference on Computing and Network Communications (CoCoNet'19) Trivandrum, Kerala, in association with ACM Trivandrum Professional Chapter, India during December 18-21, 2019.
2. M. Mishra and A. Mukherjee, "Detection of Heart Murmurs for Imbalanced Dataset Using Adaptive Synthetic Sampling Approach," 2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Auckland, New Zealand, May 2019, pp. 1-5.
3. S. A. Singh, S. Majumder and M. Mishra, "Classification of short unsegmented heart sound based on deep learning," 2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Auckland, New Zealand, May 2019, pp. 1-6.
4. S. Trivedy, M. Goyal, M. Mishra, N. Verma and A. Mukherjee, "Classification of Spirometry Using Stacked Autoencoder based Neural Network," 2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Auckland, New Zealand, May 2019, pp. 1-5.

5. M. Mishra, S. Banerjee, D. C. Thomas, S. Dutta and A. Mukherjee, "Detection of Third Heart Sound Using Variational Mode Decomposition," IEEE Instrum. In Meas. Technol. Conf. (I2MTC), New Zealand, May 2019 (poster @ IEEE TIM).
6. V. Pandey, A. Kumari, S. Parashar and M. Mishra, "A Study on Solar Tracking Systems for increasing throughput of Solar Panels" as an extended abstract in national conference on National Conference on Recent Trends in Devices, Circuits and Communication (RTDC2-2019) April 15-16, 2019.
7. S. Parashar, T. Jamir, B. Malakar, V. Pandey, A K Gautam, M. Mishra, "A Study on Heart and Lung Sounds Segregation Signal Processing Techniques for Assisting Medical Professionals" as an extended abstract in the National Conference on Recent Trends in Devices, Circuits and Communication (RTDC2-2019) April 15-16, 2019.
8. P. Kumar, A. Sharma, M. Zimik, S. Parashar, R. Singh, A. K. Patra, J. Bora, and M. Mishra, "Measurement of Heartbeats for Well- being Assessment using Photoplethysmographic Signals", Electronic Systems and Intelligent Computing (ESIC-2020), Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted).
9. R Singh, U. Bhattacharjee, A K Singh, and M. Mishra," Impact of Noise Levels on SVM-GMM based Speaker Recognition System", Electronic Systems and Intelligent Computing (ESIC-2020), Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted).

Publication of Dr. P.K.Dutta

1. SR Ghimiray, PK Dutta, **2019**, Novel leakage current reduction domino technique for Leakage tolerant hybrid XOR gate, Journal of Analysis and Computation, 13(2), <http://www.ijaonline.com/novel-leakage-current-reduction-domino-technique-leakage-tolerant-hybrid-xor-gate/>
2. SR Ghimiray, P Meher, PK Dutta, **2018**, Ultralow power, noise immune stacked- double stage clocked- inverter domino technique for ultradeep submicron technology, International Journal of Circuit Theory and Applications 46 (11), 1953-1967, <https://doi.org/10.1002/cta.2524> (**SCI Impact Factor 1.444**)
3. A Jain, A Ghosh, PK Dutta, NB Singh, SK Sarkar, **2018**, Error probability independent delay analysis of single electronics circuits, International Journal of Circuit Theory and Applications, 46 (2), 290-298, <https://doi.org/10.1002/cta.2389>. (**SCI Impact Factor 1.444**)
4. C Langpoklakpam, SR Ghimiray, PK Dutta, **2019**, A Novel High-Performance Leakage-Tolerant Keeper Domino Circuit for Wide Fan-In Gates, Advances in Communication, Devices and Networking, Springer, Singapore, pp 11-19.
5. Khuraijam Nelson Singh, Pranab Kishore Dutta, **2019**, Comparative Analysis of Underlapped Silicon on Insulator and Underlapped Silicon on Nothing Dielectric and Charge Modulated FET based Biosensors, 3rd IEEE International conference Devices for Integrated Circuit (DevIC 2019), Kalyani, West Bengal.
6. Sapna Rani Ghimiray, Pranab Kishore Dutta, **2018**, Strength-Varying keeper based 4: 1 MUX for low-leakage and low jitter at 500 MHz Clock, IEEE International Conference on Computing, Power and Communication Technologies (GUCON-2018), Pg. No 997-1002. DOI: 10.1109/GUCON.2018.8675094.

Publications of Dr. Joytri Bora

A. Referred Journal

1. P. Kumar, S. Parashar, A. K. Gautam, J. Bora, and M. Mishra, "Techniques for lung sounds analysis to assist medical professionals: a study", *Journal of Analysis and Computation*, ISSN 0973-2861, Volume 12, Issue I, Jan-June 2019.
2. Janmoni Borah, Md. Anwar Hussain and Joyatri Bora, "Dynamic and Energy-efficient ICI Mitigation Techniques for Mobility based 5G HetCN," *IET Communications (IET)*, 2020. (SCI, SCOPUS, Web of Science, DOI: [10.1049/iet-com.2019.0898](https://doi.org/10.1049/iet-com.2019.0898), IF: 1.779)
3. Janmoni Borah, Md. Anwar Hussain and Joyatri Bora, "ICI effects on user mobility with different FR-schemes in a multi-cell cellular network," *IET Communications (IET)*, Vol.14, No.1, pp.84-88, 2020. (SCI, SCOPUS, Web of Science, DOI: [10.1049/iet-com.2019.0397](https://doi.org/10.1049/iet-com.2019.0397), IF: 1.779)
4. Janmoni Borah, Md. Anwar Hussain and Joyatri Bora, "Effect of intercell interference on cell boundary users in three-cell and seven-cell HetCN," *International Journal of Communication Systems (WILEY)*, pp. e4257, 2019, (SCI, SCOPUS, Web of Science, DOI: [10.1002/dac.4257](https://doi.org/10.1002/dac.4257), IF: 1.278)
5. Janmoni Borah, Md. Anwar Hussain and Joyatri Bora, "Effect on energy efficiency with small cell deployment in heterogeneous cellular networks," *Internet Technology Letters (WILEY)*, Vol.2, No.3, pp.e97, 2019. (ESCI, Web of Science, DOI: [10.1002/itl2.97](https://doi.org/10.1002/itl2.97))
6. Smriti Baruah, Santanu Maity and Joyatri Bora, "High performance wide response GaAs based photo detector with nano texture on nanopillar arrays structure," *Microsyst Technol (2020)(SPRINGER), IF:1.513* (SCI, SCOPUS, DOI:<https://doi.org/10.1007/s00542-020-04804-x>)
7. Tasher Ali Sheikh, Joyatri Bora, and Md. Anwar Hussain, "Massive MIMO System Lower Bound Spectral Efficiency Analysis with Precoding and Perfect CSI", *Digital Communications and Networks*, 2020 (SCI-E, SCOPUS, UGC Care list) Accepted.
8. Tasher Ali Sheikh, Joyatri Bora, and Md. Anwar Hussain, "Capacity Maximizing in Massive MIMO with Linear Precoding for SSF and LSF Channel with Perfect CSI", *Digital Communications and Networks*, (SCI-E, SCOPUS, UGC Care list) in Press. <https://doi.org/10.1016/j.dcan.2019.08.002>.
9. Tasher Ali Sheikh, Joyatri Bora, and Md. Anwar Hussain, "Performance analysis of massive multi-input and multi-output with imperfect channel state information", *Traitement du Signal*, (SCI-E, SCOPUS, UGC Care list), Vol. 36, No. 4, pp. 361-368, 2019. <https://doi.org/10.18280/ts.360409>.

B. Conferences

1. P. Kumar, A. Sharma, M. Zimik, S. Parashar, R. Singh, A. K. Patra, J. Bora, and M. Mishra, "Measurement of Heartbeats for Well-being Assessment using Photoplethysmographic Signals", *Electronic Systems and Intelligent Computing (ESIC-2020)*, Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted).
2. Janmoni Borah, Kshetrimayum Linthoinganbi Devi, and Joyatri Bora, "ICI mitigation with Fixed-Number (FN) and Fixed-Region (FRgn) based BS coordination and cooperation in a multi-cell cellular network", *Electronic Systems and Intelligent Computing (ESIC-2020)*, Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted).

3. Smriti Baruah, Santanu Maity and Joyatri Bora, “Analysis of photodetector performance through front surface modification,” *ICAEENSE’2019, (IEEE)* (Presented).
4. Smriti Baruah, Santanu Maity and Joyatri Bora, “InGaAs based square-shaped nanopillar array for high photodetector performance,” *Electronic Systems and Intelligent Computing (ESIC-2020)*, Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted). (Presented).
5. Janmoni Borah, Md. Anwar Hussain and Joyatri Bora, “ICI Analysis and Mitigation with Dynamic Fixed Region Cooperation in 5G HetCN,” *ICAEENSE’19 (IEEE)*, 2019.
6. Amlan Borah, Md. Anwar Hussain and Joyatri Bora, “Performance Analysis of Interference Alignment Based Precoding”, *Electronic Systems and Intelligent Computing (ESIC-2020)*, Springer Nature Singapore Pte Ltd, Int. Conf., NIT Arunachal Pradesh, India, March 2020. (Accepted).
7. Md. Anwar Hussain, Tasher Ali Sheikh, and Joyatri Bora, “Group-Based Semi-orthogonal User Scheduling for Massive MIMO Wireless Communication”, *13th IEEE Conference on ANTS 2019*, Presented.

Publication of Mr. A K Ray

1. Zohmingmawia Renthlei, Sushanta Bordoloi, Ashok Ray and Chaitali Koley, “Analytical study of breakdown characteristics in AlGa_N/Ga_N HEMT” 6th international conference on microelectronics, circuits and systems, micro2019’ 6th and 7th July, 2019, Amity University, New Town, Kolkata , India
2. Ashok Ray, Sushanta Bordoloi, Pratima Agarwal, Gaurav Trivedi, “Investigation of electrical aspect in lateral and vertical SiC Diodes”, poster in XXth International Workshop on Physics of Semiconductor Devices organized by S. N. Bose National Centre for Basic Sciences, Kolkata and IIT Kharagpur from 17-20 December 2019 Novotel Hotel And Residences, Kolkata, India
3. Ashok Ray, Sushanta Bordoloi , Biplab Sarkar, Pratima Agarwal, Gaurav Trivedi: ‘Numerical Simulation of Enhanced-Reliability Filleted-Gate AlGa_N/Ga_N HEMT’, *J. Electro. Mater.*, 2020, 49, (3), pp. 2018–2031

Publications list of Mr. A. K. Gautam

1. Tripurari Sharan, Anil Kumar Gautam, “Low-voltage CCII+ Cells-based Tunable, Variable Gain Instrumentation Amplifier for Sub-Audio Frequency Signal Processing,” 7th International IEEE Conference on Signal processing and Integrated Networks (SPIN-2020) held on 27th to 28th Feb. 2020, pp. 224-229, Feb. 2020, DOI: <https://doi.org/10.1109/SPIN48934.2020.9071338>.
2. Tripurari Sharan, Akho John Richa, Anil Kumar Gautam, “Low-power Bulk-driven Subthreshold OTA and CCII+ Cells based Instrumentation Amplifier for LF Applications”, 5th International Conference proceedings on Computers & Management Skills (ICCM-2019), 10th Jan 2020, <https://dx.doi.org/10.2139/ssrn.3517435>.
3. Anil Kumar Gautam, Tripurari Sharan, Nemthianhoi Zou P., “DTMOS based Low-Voltage Low-Power CCII+ and Biquad Filter using ± 0.25 V supply,” 2nd International Conference (Springer) on VLSI, Communication and Signal Processing (2nd VCAS 2019), 21-23 October 2019.

4. Tripurari Sharan, Khoirom Johnson Singh and Anil Kumar Gautam, "Current Feedback Operational Amplifier-Based Biquadratic Filter," Advances in VLSI, Communication, and Signal Processing Book (Springer), Chap. 47, Lecture Notes in Electrical Engineering 587, https://doi.org/10.1007/978-981-32-9775-3_43.
5. Piyush Kumar, Shivam Parashar, A K Gautam, J Bora, M. Mishra, "TECHNIQUES FOR LUNG SOUNDS ANALYSIS TO ASSIST MEDICAL PROFESSIONALS: A STUDY", Journal of Analysis and Computation (JAC) Volume XII, Issue I, pp. 1-8, Jan-June 2019 ISSN 0973-2861.
6. Shivam Parashar, Toshezulu Jamir, Bikash Malakar, Vikash Pandey, Anil Kumar Gautam, Madhusudhan Mishra, "A Study on Heart and Lung Sounds Segregation Signal Processing Techniques for Assisting Medical Professionals (Abstract accepted)", National Conference on Recent Trends in Devices, Circuits and Communication (RTDC²-2019) held at MMMUT, Gorakhpur (UP), India during 15-16 April, 2019.

Publications of M Edison Singh

Conference:

M Edison Singh , Sandip Singh, "A Compact 3rd Order SIW Filter with Improved Upper Band Performance for Ku-Band Applications " 2nd International Conference on Innovations in Electronics, Signal Processing and Communication 2019

Journal:

Md. Farid Shah,A. Dinamani Singh,Moirangthem Edison Singh, "Enhanced Performance of Inset Fed Microstrip Patch Antenna Arrays Using CPW Feed for Millimeter Wave Wireless Communication" Jour of Adv Research in Dynamical & Control Systems(JARDCS), Vol. 11, Special Issue-02, 2019.

4.5.11. Interaction of faculty/department with outside agencies

Prof. Md. Anwar Hussain, Dr. Rajesh Kumar and Dr. A D Singh are the external member of BOS for department of Electronics & Communication Engineering, Rajiv Gandhi University, Arunachal Pradesh.

Dr. Rajesh Kumar had interaction with IIT Guwahati and APJ Abdul Kalam University, Lucknow, UP as Joint research Publication.

Dr. A D Singh had interaction with IIIT, Manipur (Joint Research Project) and RGU, Rono Hills (Joint Research Publication)

Dr. Joyatri Bora Served as a Session Chair in the International conference on Electronic Systems and Intelligent Computing (ESIC-2020), Springer Nature Singapore Pte Ltd held at NIT Arunachal Pradesh, India, March 02-04, 2020.

Mr. P. K Dutta was invited as a guest faculty in the department of Electronics (PG Section), North Lakhimpur College, North Lakhimpur, Assam. He was also invited as an external



examiner to conduct practical examination in the department of Electronics & Communication Engineering, Rajiv Gandhi University, Arunachal Pradesh.

Our faculty members have a very good relationship with other organisations. Department of ECE have organised short term courses in collaboration with Jadavpur University and Calcutta University in past. Resource persons from different IITs have helped to organise the short term programmes at NERIST. Also, our faculty members have attended short term courses, conferences and training program organised by IITs, IISc and other reputed institutes.

4.5.12. Consultancy projects undertaken : NIL

4.5.13. Achievements of Students

Our passed out students have been recruited by reputed companies. Moreover, few students have scored in GATE and pursuing higher studies in the reputed Institutes.

4.5.14. Any other information

The department has revised its curriculum for Diploma and Degree modules.

Suparna Goswami for her thesis Performance Analysis of Diversity Systems over Fading Channels under the supervision of Dr. Aheibam Dinamani Singh on 10/01/2020.

4.6 DEPARTMENT OF ELECTRICAL ENGINEERING

4.6.1 A Brief Profile of the Department

The Department of Electrical Engineering has been playing a vital role in producing highly competent electrical engineers and scientists ever since the institute was established. The first batch of students graduated in 1992. A two-year modular pattern/structure of the institute is being followed in undergraduate programmes and offer courses in Base module, Diploma module and Degree module. The students in each module are admitted through NERIST Entrance Examination namely, NEE-I, NEE-II and NEE-III respectively. The Department also offers postgraduate (M.Tech.) programme with specialization in Power System Engineering and Ph.D. programme in all fields of Electrical Engineering to cater the ever increasing needs of highly skilled technical manpower in the country.

The Department has distinguished and well qualified faculty members having Ph.D./M.Tech. Degrees from renowned institutes in India. The infrastructure and laboratory facilities are upgraded from time to time and provide adequate opportunities to students and researchers to learn and innovate. Many faculty members are handling research projects sponsored both by the government and the industry.

The broad objectives of the undergraduate/postgraduate programmes in the Department are:

- Train the base module students in the art of troubleshooting, servicing and maintenance of electrical circuits and systems.
- Impart enough supervisory and guiding skills to the diploma module students.
- Provide sound knowledge to the degree module students so as to make them able to analyze, design and capable to lead with innovative ideas in the field of Electrical Engineering suitable for the current need of modern industries and public sectors.
- Train students at post graduate level for carrying out researches relevant to industrial needs.
- Research and development in Electrical Engineering.

Programs

The Department offers the following programmes:

- a) Undergraduate Programmes
 - Certificate courses
 - Diploma in Electrical Engineering
 - B. Tech. in Electrical Engineering
- b) Post Graduate Programs
 - M. Tech. in Power System Engineering
- c) Ph.D. programmes
 - In all fields of Electrical Engineering

Facilities

There are 13 well equipped laboratories offering facilities to work in all areas of electrical engineering. They are provided with number of high end PCs, servers and workstations hosting several software packages and linked through a local area network. Uninterrupted internet services are available for both students and faculty members. A departmental library houses books/journals for ready reference.

Research

The Department of Electrical Engineering works under three main research groups namely, (i) Electrical Power and Energy Systems, (ii) Control and Instrumentation, and (iii) Electrical Machine, Drives and Power Electronics. In addition to carrying out research in the above areas, the members of the groups are also involved in

- Review of undergraduate and postgraduate curricula.
- Organizing seminars/workshops/conferences.
- Supervising B.Tech./M.Tech./Ph.D. Projects/Dissertations/Theses.
- Providing consultancy services.
- Facilitating Institute-Industry interaction.
- Publication in National and International Journals/Conferences.

List of faculty members of the Department with Qualification and area (s) of specialization (s)

Sl. No.	Name	Designation	Areas of specialization
1.	Dr. S. K. Bhagat Ph. D. (IIT, BHU, Varanasi)	Professor	Control Systems
2.	Dr. R. K. Mehta Ph. D. (Jadavpur University)	Professor	Control Systems
3.	Dr. O. P. Roy Ph. D. (IIT, Dhanbad)	Professor	Microprocessor based Control & Instrumentation, Power System Reliability
4.	Dr. Sarsing Gao Ph. D. (IIT, Delhi)	Professor	Electrical Machines, Energy, Distributed Power Generations & Power Quality
5.	Dr. A. K. Singh Ph. D. (Tezpur University)	Professor	Power System, Electrical Machines & Drives
6.	Mr. Radak Blange M. Tech. (NERIST, Nirjuli)	Associate Professor	Control Systems, Energy, Electrical Machines & Drives
7.	Mr. T. V. P. Singh M. Tech. (MNNIT, Allahabad)	Associate Professor	Control Systems, VLSI Design
8.	Mr. M. D. Singh Ph.D. (NERIST)	Assistant Professor	Power Electronics, Digital Systems
9.	Dr. A. K. Parida Ph.D. (Jadavpur University)	Assistant Professor	Industrial Drives, Power Electronics & Energy Audit
10.	Dr. Anu K. Das Ph.D. (NERIST)	Assistant Professor	Power System Stability, FACTS & Renewable Energy

11.	Mr. N. L. Meitei M. Tech. (Tezpur University)	Assistant Professor	Energy Management
12.	Ms. Somila Hashunao M. Tech. (Jamia Milia Islamia, Delhi)	Assistant Professor	Electrical Power System Management
13.	Mr. Akhilesh Sharma M. Tech. (MMMEC, Gorakhpur)	Assistant Professor	Power Electronics and Drives
14.	Ms. Piyali Das M. E. (Jadavpur University)	Assistant Professor	Illumination Engineering, Control System
15.	Mr. P. Devachandra Singh M. Tech. (NERIST, Nirjuli)	Assistant Professor	Power System Engineering

4.6.2. Academic Activities

In addition to regular academic activities, consultancy and other forms of collaborative ventures with various organizations are being carried out. A number of sponsored research projects have been completed and others are going on as a part of the Department's continuing institute-industry interactive approach of education. Many workshops, seminars and symposia in various specialized fields have been organized with participations of persons from industry and academia from all over the country.

4.6.3. Laboratories and laboratory development

The theoretical knowledge imparted to the students is further supplemented by the practical classes. Some of the equipment and software available in the various laboratories are detailed as under:

Power System Lab

Power System lab is equipped with Distribution Line Simulator, PC controlled Power Analyser, Oil test set, Different types of Electromagnetic and Static Relays, Dielectric Purification Plant, Analog Oscilloscope, Digital Storage Oscilloscope, 3-phase Variable Inductor, 1-phase and 3-phase Loading Rheostats, Digital Clamp or Power meters, LCR-Q meter, 3-phase Capacitor Bank, Capacitance and Tan Delta Test Set, Circuit Breaker Analyser, Liquid Dielectric Purification Plant.

High Voltage Engineering Lab

This lab houses the latest 100 kV AC/145 kV DC Dielectric Test Set & 300 kV, 7.5 kJ, 1.2/50 microsecond Impulse Test Set, Measuring Sphere Gap MF-100, Electronic Sphere EZK, 2-Channel, 200MHz Digital Storage Oscilloscope with software for direct transfer of data from Oscilloscope to PC.

Electrical Machine Lab

Electrical machine lab has wide range of motors and generators including DC Compound Motor, DC Compound Generator, 3-Phase Induction Motor, both Squirrel Cage and Slip Ring type, DC Shunt Motor, DC Series Motor, Universal Motor, AC Synchronous Generator, AC Synchronous



Motor, Scan Drive System for DC and AC Drive Speed Control, Motor Fault Simulator, Logic Pulse Generator, Function Generator, Digital Storage Oscilloscope, 3-Phase Fluke Power Analyzer, 1-phase Induction Motor and Thyristor Control Panel, DG set, Stepper Motor Training System, PWM based Induction Motor Drive, V/f Controlled AC Drive, d-Space Real Time Simulator Software.

Power Electronics Lab

This lab is equipped with EMMA Microcomputer, Fast AD/DA converter, DDC Motor Module, Command Potentiometer, LCR Q-tester, SCR Firing Unit, Industrial Electronics Trainer with Oscilloscope, Digital Storage Oscilloscope (4-channel), HP Computer (Pentium-IV), Motion Control Development Kit, MCK240 Development Package with Kit, Thyristor and Motor Control (Make: Feedback, UK), Power-scope, Oscilloscope (Make:Yokogawa), CASPOC Simulation Software, Bedford and Parallel Inverter Trainer Kit, Micro Controller based Firing Circuit for Controlled Rectifier Trainer Kit, Speed Control of Universal Motor using SCR Trainer Kit, 1-Phase Controlled Rectifier with Cosine Firing Scheme Trainer Kit, 1-phase Controlled Rectifier with Ramp comparator firing scheme Trainer kit, IGBT characteristics Trainer kit, 1-phase Cyclo-Converter Trainer kit, Speed Control of AC Motor using TRIAC Trainer kit.

Digital Electronics and Microprocessor Lab

This lab is equipped with Microprocessor Training Kits such as Dyna 8085 , STAR 85, VPL 8086/8088, Micro controller training Kit such as VMC-ICE31/51 and 80C196KC, Advance Handy Serial Programmer, Universal Programmer, Universal and Analog IC tester, Data Acquisition Software, Study Cards such as Memory Decoders, Usart, Programmer Timer, DMA, PPI with timer and Latch Cards, PC based Analog and Digital motor control teaching set, Robotics, Thermocouple, Load Cell, LVDT and DC motor speed control, 485 Protocol based Distributed Control System, Gain Measuring Instruments.

Electrical Maintenance Lab

This lab is mainly for the students of Base module who are expected to learn hands on training on repair and maintenance of electrical appliances. Number of appliances such as Domestic Refrigerator, Air conditioners, Geysers, Heat Convector, Table and Ceiling Fans, Vacuum Cleaner, UPS set, Water Cooler, Hot Plate, Immersion Heater, Different types of lamps with fittings, Oscilloscopes, Working Models for Electrical Circuits of Automobiles (in order) etc.

Electrical Workshop

This lab is also dedicated to the students of Base module who are expected to learn hands on training on electrical wiring and related activities. This laboratory is equipped with Mini Lathe Machine, Winding Machine, Drilling Machine, Cubical for different types of Wiring Practice, Necessary tools, Tools Display Boards, 1-phase and 3-phase Energy meters, Charts etc.

Circuits and Measurement Lab

This lab is equipped with Wave Analyser, Double Channel Recorder, Analog Oscilloscope, DC Power supply unit (0-300V), DC power supply (0-60V) and Storage adapter, Wheatstone Bridge, Kelvin Double Bridge, VTVM, Instrumentation Tutor, Digital Storage Oscilloscope (2-channel),



HP Computer (Pentium-III), LCR-Q Meter, Megger, etc. are some of the equipment available in this lab.

Control and Instrumentation Lab

This lab has DC Position ServoTrainer Unit, AC Servo Motor Speed/Torque Control Unit, DC Motor Speed Control Unit, Magnetic Amplifier, Synchro Transmitter and Receiver, Experimental PID Controller Unit, Digital ON-OFF Temperature Controller Unit, Analog and Digital Storage Oscilloscope (4-channel), Training and Development System for 8086, Data Acquisition of Control system, Direct Digital Control Training System, IBM Computer (Pentium-III), CA-06 Digital Motor, PC based Analog and Digital Motor Control, Distributed Control system DCS-5000, PC 45/ML programmable control teaching set, Digital Transducer and Instrumentation Trainer, Direct Digital Control System (CA-04), Rotary Servo 9 Plant (Servo 2).

PC Lab

The Department has a well-furnished PC lab for undergraduate students with more than 40 computers with internet connectivity. Softwares such as Matlab, Multisim, etc. are installed in all the computers.

Energy Lab

In this lab energy related experiments are performed both by undergraduate and postgraduate students. The lab is equipped with advanced experimental setups such as Photo Voltaic Test Rig, Photo Voltaic Electric Generator, anemometers, solarmeter, etc. Experiments are carried out to plot I-V characteristics of PV modules, determine efficiency of PV driven water pumping system, etc.

Research and Project Lab

This lab is dedicated to mainly postgraduate students and research scholars for modeling and simulation works along with hardware implementation. Twenty PCs with 4 GB RAM has been provided in the lab. Uninterrupted internet connectivity is made available. Students can browse and download journal/conference papers from institutionally subscribed site such as IEEExplore, ScienceDirect, Elsevier, etc. The lab houses softwares like COMSOL, Matlab, PSCAD, PSSE, etc.

VLSI Lab

VLSI lab is equipped with Cadence PG Bundle and Mentor Graphics HDL Simulator.

4.6.4. Projects completed by UG/PG Students

B. Tech/Diploma Projects completed

Sl. No.	Project Title	Student (s)	Faculty member(s)
1.	Analysis of Hydrokinetic Power Generation System	D/15/EE/26 D/15/EE/31	Prof. Sarsing Gao
2.	Application of PLC in Industrial Automation	D/15/EE/04 D/15/EE/07	Prof. O. P. Roy



		D/15/EE/10 D/15/EE/12	
3.	IoT based lighting controller for visual comfort	D/15/EE/104 D/16/EE/206 D/16/EE/210 DE/17/EE/01	N.L.Meitei
4.	Study of symmetrical hybrid multilevel inverter for linear and non-linear load	D/15/EE/08 D/15/EE/11 D/15/EE/105	Akhilesh Sharma
5.	Study of asymmetrical hybrid multilevel inverter for linear and non-linear load	D/15/EE/05 D/15/EE/06 D/15/EE/101	Akhilesh Sharma
6.	Design of an efficient microgrid system	(D/15/EE/17) (D/15/EE/15) (D/16/EE/203)	P. Devachandra Singh
7.	Performance analysis of variable speed 3-phase induction generator	(D/15/EE/110) (D/16/EE/202)	P. Devachandra Singh
8.	Study of Wireless Power Transmission System	D/15/EE/09 D/15/EE/14 D/15/EE/21 DE/17/EE/02	M. D. Singh
9.	Fuzzy Logic Based controller design for a MIMO system	D/16/EE/205 DE/17/EE/03	Piyali Das
	Performance analysis of micro grid system for rural area		Piyali Das
10.	Techno-Economic Feasibility Analysis of Renewable Energy in Remote Areas	D/15/EE/19 D/15/EE/28 D/16/EE/204 D/16/EE/211	Somila Hashunao
11.	Analysis of Electric Stress in HVAC cable	D/15/EE/01 D/15/EE/108 D/16/EE/209	Dr. A.K.Das
12.	VLSI design of multiplier	D/16/EE/22 D/16/EE/207	T. Vimal Prakash
13.	Analysis of ECG for diagnosis	D/15/EE/18 D/15/EE/27 D/15/EE/32 D/15/EE/106	T. Vimal Prakash
14.	Performance analysis of microgrid for rural area	D/15/EE/15 D/16EE/201 D/16EE/208	Piyali Das

M. Tech. Dissertations Completed

Sl. No.	Title of Dissertation	Student (s)	Faculty member(s)
1.	Vector Control of Induction Generator Suitable for Renewable Power Generation Applications		A. K. Singh
2.	Modelling and performance analysis of parallel operated three phase self-excited induction generator for application in microgrid	Domni Gamkak (MT/17/PSE/03)	P. D. Singh
3.	Analysis of Distributed Energy Resources	Nibha Borah	Sarsing Gao

4.	Micro grid based micro-hydro power generation for rural population.		A.K.Parida
5.	Survey on consensus application of multi-agent systems	R. Choudhary	Piyali Das & R.K.Mehta
6.	Programmable Logic Controller based Conveyor control system by	Hage Nanya (MT/18/PSE/014)	O. P. Roy
7.	M. Tech Project- Survey on consensus application of multi-agent systems		Miss. Piyali Das

Ph.D. Theses completed/submitted

Sl. No.	Name of student (s)	Title of Thesis	Supervisor (s)	Status
1.	Mr. M. D. Singh	Custom Power Devices for Power Quality Improvement	Prof. R. K. Mehta & Prof. A. K. Singh	Submitted
2.	Rinchin Mosobi PhD(FT)/14/EE/03	Power Quality Analysis of Integrated Renewable Energy Systems	Prof. Sarsing Gao	Degree awarded

4.6.5. Short term courses/seminars/workshops/conferences organised at NERIST

Sl. No.	Title	Coordinator	Date	No. of Participants	Funded by
1.	NKN course on VLSI Chip Design Hands on Using open source EDA	Mr. T, V. P. Singh, NERIST	16th to 20th Dec 2019 at NERIST		

4.6.6. Short-term courses/seminars/workshops/conferences attended by the faculty.

Title	Venue	Duration	Organized by	
Name of Faculty Member: O. P. Roy				
Advancements in Signal Processing and Optimization Techniques	MEITY in	3 June – 7 June 2019.	NERIST	
Control Engineering with MATLAB	Extension Centre, Girls' Polytechnic, Bamuni Maidan, Guwahati	September 16 – 20, 2019	NITTTR Kolkata	
VLSI Chip Design Hands-on Using	MeitY	December 16 – 20, 2019	Electronics and ICT Academies through National Knowledge Network under the "Scheme of Financial Assistance for setting up of Electronics and Academies	



Name of the faculty: Mr. Akhilesh Sharma				
Coordinators' Workshop on Scilab	NERIST	16th April 19	NMEICT IITB	
Real Time Simulation Methods of Power Electronic Systems presented by Dr. Fei Gao - Joint PELS/TEC Webinar	Webinar	16 January 2020	by IEEE	
Name of the faculty: Mr. P. Devachandra Singh				
1. National Level Training Programme on DISASTER MANAGEMENT	NIDM Govt. of India at NERIST	27th Feb to 29th Feb 2020		
2. 2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020)	Cochin, India, 2020	2 nd – 4 th January 2020		
3. 2019 Research, Invention, and Innovation Congress (RI2C),	King Mongkut Technological University, Bangkok, Thailand	11 th Dec to 13 st Dec 2019		
4. VLSI Chip Design Hands on Using open source EDA	Winter NKN Summer courses of IIT Guwahati at NERIST	16th to 20th Dec 2019		
5. Workshop on Distributed Generation in Power System Engineering	TEQIP-III sponsored at NIT Arunachal	21th – 25th Oct 2019	Workshop on Distributed Generation in Power System Engineering	
6. Workshops on Recent trends in High Voltage and Power System Engineering	TEQIP-III sponsored at NIT Arunachal	26 th to 30 th Aug 2019		
7. NPTEL-AICTE FDP on Introduction to Smart Grid	Swayam-AICTE	Jul-Sep 2019	by Ministry of Electronics and Information Technology (MeitY), Govt. of India. This Programme is endorsed by AICTE/UGC/NBA.	
8. ARPRIT on Fundamentals of Outcome-based Curriculum in Engineering Education	Swayam-AICTE	April-May 2019	under the sponsorship of Technical Education Quality Improvement Programme-III	
9. 1st International Conference on Advances in Electrical and Computer Technologies 2019	Coimbatore, Tamil Nadu	26 th -27 th April 2019	Organized by the teaching learning centre (ICT) at IIT, Bombay, funded by PMMMNMTT	



Name of the faculty: Mrs. S. Hashunao			
Behavioural Remodeling and Research Methodology		01 – 05 April, 2019	E& ICT Academy IIT Guwahati
NKN Course on “VLSI Chip Design Hands on Using Open Source EDA		16 – 20 Dec, 2019.	organized by E & ICT Academy IIT Guwahati
ICT Tools for Teaching, Learning Process & Institute		Jan 13-17, 2020.	jointly organized by Electronics and ICT Academy
Two Days National Level Training on Disaster Management		27 – 29 February, 2020	in collaboration with National Institute of Disaster Management, GoI
Name of the faculty: Dr. A.K Das			
Coordinators’ Workshop on Scilab	NERIST	16th April 2019	NMEICT IITB
Name of the faculty: Ms. Piyali Das			
Two days national level training programme on disaster management	NERIST	27 th -28 th Feb, 2020	NIDM, GoI
VLSI Chip Design Hands on Using open source EDA	IIT Guwahati	16 th -20 th Dec, 2019	E & ICT Academy IIT Guwahati
Behavioral Remodelling and Research Methodology	IIT Guwahati	1st April to 5th April 2019	E& ICT Academy IIT Guwahati
Name of the faculty: Dr. A. Parida			
Design and development of MOOC based e-content	NITTTR Kolkata	02/02/2020-14/02/2020	NITTTR
Name of the faculty: M. D. Singh			
Two days national level training programme on disaster management	NERIST	27 th -28 th Feb, 2020	NIDM, GoI

Name of the faculty: N. L. Meitei			
Two days national level training programme on disaster management	NERIST	27 th -28 th Feb, 2020	NIDM, GoI
2019 4th International Conference on Recent Trends on Electronics, Information, Communication & Technology (RTEICT)	Bangalore	17 th -18 th May, 2019	IEEE Bangalore Section
Distributed Generation in Power System Engineering	NIT Arunachal	21 st – 25 th Oct 2019	TEQIP-III
2019 Research, Invention, and Innovation Congress (RI2C)	Bangkok, Thailand	11 th -13 th Dec 2019	KMUTNB
ICT Tools for Teaching, Learning Process & Institutes	MeitY	Jan 13-17, 2020	Govt. of India
Impact of Climate Change on Water Resources,	NERIST	Oct 14-25, 2019	AICTE

4.6.7. New Degrees/Professional Memberships obtained by Faculty members

New Degrees/Professional Memberships	Faculty
Member of IEEE (PES & DEIS)	Dr. A.K Das
Member of IET	Dr. A.K Das
ISTE Life Member	Dr. A.K Das
Member of IEI	Dr. A.K Das
Member IEEE	Mr. Akhilesh Sharma
Member IAENG	Mr. Akhilesh Sharma
Member of IEEE Industrial Applications Society 93314064	Mr. P. Devachandra Singh
Life Membership of IE (I)	Dr. A.K Singh
Life Membership of ISTE	Dr. A.K Singh
Life Membership of IETE	Dr. A.K Singh
IEEE Membership for 2019-2020	Miss. Piyali Das

4.6.8. Achievements/awards/recognition earned by faculty member

P. Devachandra Singh has received IEEE-IAS Travel Grant Award for attending conference, “2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020)” at Cochin, Kerala.

4.6.9. Projects sanctioned by outside agencies to the faculty of the department

1. Project title: Evaluation of Coconut Oil for Application in High Voltage Transformer Funding Agency: Coconut Development Board, Ministry of Agriculture & Farmers Welfare, Government of India, Kochi (India). PI: Dr. Anu Kumar Das
Date of sanction: 11.04.2019, Total amount: Rs. 27.98 Lakh, Fund received: Rs. 13.99 Lakh.
2. NMHS, GOI2018-03 to 2020-03 | Grant Rs. 40.6 lakhs, Grant: GBPNI/NMHS-2017-18/SG - 15 DATED 28-03-2018, Co-PI: Dr. A.K. Parida.
3. DST/ SEED/TITE/001/2017 APPROVED ON 24-01-2020. 47 Lakhs. PI: Dr. A.K. Parida.

4.6.10 Publications

(a) Refereed Journal

1	Das, P., Mehta, R.K. & Roy, O.P. "Optimized methods for the pre-eminent performance of LQR control applied in a MIMO system". <i>Int. J. Dynam. Control</i> 7, 1501–1520 (2019). https://doi.org/10.1007/s40435-019-00587-w
2	S Choudhury, A Parida, RM Pant, S Chatterjee, GIS augmented computational intelligence technique for rural cluster electrification through prioritized site selection of micro-hydro power generation system; <i>Renewable Energy</i> , 142, 487-496.2019
3.	A Parida, D Chatterjee; Remote area power supply through suitable solar PV augmented micro-hydro generation: A case study; <i>International Transactions on Electrical Energy Systems</i> , e12247; 2019.
4.	M. Deben Singh, R. K. Mehta, A. K. Singh, "Performance Assessment of Current Source Converter Based UPQC for Power Quality Improvement with Simple Control Strategies", <i>Journal of Electrical Systems</i> , vol. 15 (2), pp. 276-290, June 2019, France.
5.	Singh, Pukhrambam Devachandra, and Sarsing Gao. "Fuzzy based AC-DC-AC Converter Controlled Micro Hydro Renewable Power Generation using Parallel Asynchronous Generators for Remote Areas." <i>International Journal of Renewable Energy Research (IJRER)</i> , Vol. 10, no. 1, 2020, pp. 260-274. (ESCI and Scopus)
6.	Singh, P. D., Ajay Upadhaya, Michael Simte, and Heisnam Jimbrown Singh. "DESIGN OF AN EFFICIENT MICROGRID SYSTEM FOR A LOCAL AREA." <i>Journal of Electrical Engineering & Technology</i> , Vol. 10, no. 3, 2019: pp. 64-72. DOI: 10.34218/IJEET.10.3.2019.008 (UGC listed)
7.	Singh, P. D., Ajay Upadhaya, Michael Simte, and A. Sanyal " Optimal Design and Performance Analysis of a Grid Connected Microgrid System" <i>International Journal of Information Technology and Electrical Engineering</i> , Vol. 8, no. 3, 2019: pp. 78-82. (UGC CARE listed)
8.	Akhilesh Sharma and Vikas Pandey, "PWM Technique for Single Phase Asymmetrical Hybrid Multilevel Inverter for Non-linear and Dynamic loads", <i>International Journal of Recent Technology and Engineering (IJRTE)</i> , ISSN: 2277-3878, Vol.-8 Iss. 3, Sept. 2019. Page No.: 7713-7716; DOI:10.35940/IJRTE.C6280.098319.
9.	Murmu, Rajendra and Singh Arvind Kumar, "FPGA based Performance Analysis of Speed Control Permanent Magnet Synchronous Motor drive with PI and Fuzzy Logic Controller", <i>International Journal of Recent Technology and Engineering (IJRTE)</i> ISSN: 2277-3878, Volume-8 Issue-6, March 2020 pp 5317-5321
10.	Murmu, Rajendra and Singh Arvind Kumar, "Performance evaluation of PI and PI-Fuzzy logic controller FPGA based permanent magnet synchronous motor drive", <i>International Journal of Engineering & Technology (IJET)</i> ISSN: 2227-524X, Vol-9 (2) (2020), pp 410-414
11	Debashish Pal , Shiv Kumar Bhagat . "Optimization Based Integrated Fuzzy Logic PID Controller for Networked Controlled Systems (NCSs)." <i>Universal Journal of Electrical and Electronic Engineering</i> , 2019, vol. 6.5A, pp. 31 - 41. DOI: 10.13189/ujee.2019.061504 .
12	Debashish Pal & S.K. Bhagat, "Design and Analysis of Optimization based Integrated ANFIS-PID Controller for Networked Controlled Systems (NCSs)," <i>Cogent Engineering</i> , 2020, vol. 7(1), pp. 1-21. DOI: 10.1080/23311916.2020.1772944 .
13	Das, Piyali and Mehta, Ram Krishna and Roy, Om Prakash, Application of Anti-Windup Phenomenon for an Estimator Design in A Multivariable System (November 19, 2019). Available at SSRN: https://ssrn.com/abstract=3489698 or http://dx.doi.org/10.2139/ssrn.3489698

(b) Conference papers

1.	Suman Yadav and R K Mehta, "FEM Based Study of Short Circuit Forces on Power Transformer Windings", RDCAPE 2019, Presented on 10th Oct, 2019
2.	Suman Yadav and R K Mehta, "Study of Electromagnetic Forces on High Voltage Winding of Power Transformer During Short Circuit Fault", ICE2M 2019, Presented on 10th Oct, 2019
3.	R. Singh, A. K. Singh, U. Bhattacharjee (2019), "Performance of Feature Extraction Techniques in Uncontrolled Environments," IEEE ICECEIC Conference (Scopus), (Accepted and online awaited)
4.	Singh, AK, "Study and analysis of STACOM in transmission line" in International conference of numerical analysis and applied mathematics 2019, (ICNAAM 2019), Sheraton Hotel, Rhodes, Greece 23- 28 September 2019
5.	Sandeep Kr. Singh, Tripurari Sharan, Arvind Kr. Singh, "A comparative performance analysis of various shapes and substrate materials loaded coplanar waveguide-fed antennas," Materials today: Proceedings (Science Direct), ISSN 2214-7853, 2020, DOI: https://doi.org/10.1016/j.matpr.2020.03.133 .
6.	R. Singh, U. Bhattacharjee, A. K. Singh, M. Mishra (2020), "Impact of noise levels on SVM-GMM based speaker recognition system," Lecture Notes in Electrical Engineering (Springer Book Series, Scopus), (Accepted)
7.	R. Singh, A. K. Singh, U. Bhattacharjee (2020), "Performance of speaker recognition system using Kernel functions approach for different noise levels," Lecture Notes in Electrical Engineering (Springer Book Series, Scopus), (Accepted)
8.	R. Singh, U. Bhattacharjee, A. K. Singh (2019), "Analysis of spectral features for speaker verification," IEEE ICECEIC Conference (Scopus), (Accepted and online awaited)
9.	Sandeep Kr. Singh, Tripurari Sharan, Arvind Kr. Singh, "Compact Multi-band Rectangular Micro strip Antenna for UWB Applications," IOP Conference Series: Materials Science and Engineering, 594 (2019) 012028, DOI: https://doi.org/10.1088/1757-899X/594/1/012028
10.	R. Singh, U. Bhattacharjee, A. K. Singh, M. Mishra (2020), "Impact of noise levels on SVM-GMM based speaker recognition system," Lecture Notes in Electrical Engineering (Springer Book Series, Scopus), (Accepted)
11.	Akhilesh Sharma, Deepak Singh, Vikas Pandey and S. Gao, "Selective Harmonic Elimination for Cascaded H-bridge MLI using Genetic Algorithm and NR-Method", International Conference on Electrical and Electronics Engineering (ICE3), held at Gorakhpur, Uttar Pradesh, India, between 14-15th Feb 2020.
12.	P. D. Singh and S. Gao, "A New Scheme of Micro Hydro Power Generation Using AC-DC-AC Converter and Parallel Asynchronous Generators With Variable Turbines," 2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020), Cochin, India, 2020, pp. 1-6. 10.1109/PESGRE45664.2020.9070651
13.	P. D. Singh and S. Gao, "D-STATCOM based Voltage Compensator for a new Micro Hydro Power Generation Scheme Supplying Remote Areas," 2019 Research, Invention, and Innovation Congress (RI2C), Bangkok, Thailand, 2019, pp. 1-6. 10.1109/RI2C48728.2019.8999921
14.	P. Devachandra Singh and S. Gao, "Grid Connected Hydro Power Generation with Variable Turbine Input Using PWM Based AC-DC-AC Converter", 1st International Conference on Advances in Electrical and Computer Technologies 2019, Coimbatore, 26-27 April 2019, Lecture Notes in Electrical Engineering, Springer Publisher.
15.	Bhadra Naorem, Robert and Singh, P.D. and Prakash Singh, T. Vimal, "Optimal Siting and Sizing of Grid-Connected Microgrid System for an Educational Institution Using HOMER Software" (January 10, 2020). Proceedings of the 5th International Conference on

	Computers & Management Skills (ICCM 2019) North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India. Available at SSRN: https://ssrn.com/abstract=3517384 or http://dx.doi.org/10.2139/ssrn.3517384
16	Oying Doso and Sarsing Gao, "Alternative Hydroelectric Power Generation" ICPEDC Conference, IEEE, Aug 20-23, 2019. [DOI: 10.1109/ICPEDC47771.2019.9036523]
17	Oying Doso and Sarsing Gao, "Hydropower generation using Cascaded Savonius Turbine" ICAESEE Conference, IEEE, Nov. 2-3, 2019.
18	Oying Doso and Sarsing Gao, "A short Review on Savonius Rotor", ICMMRE, AIP Conference, Dec 6-7 2019.
19	Oying Doso and Sarsing Gao, "Power Quality improvement of Cascaded Savonius rotor based Hydrokinetic power System", ESIC Conference, March 2-4 2020.
20	Linthoingambi Chanu, Nameirakpam and Dinamani Singh, Aheibam and Loyalakpa Meitei, N., Performance Analysis of QAM Over One Wave Diffused Power Fading Channels (January 9, 2020). Proceedings of the 5th International Conference on Computers & Management Skills (ICCM 2019) North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: https://ssrn.com/abstract=3516705 or http://dx.doi.org/10.2139/ssrn.3516705
21	N. L. Meitei, R. K. Mehta and K. Wahengbam, "Meticulous Illumination Controller for Visual Comfort Using Wireless Sensor," 2019 Research, Invention, and Innovation Congress (RI2C), Bangkok, Thailand, 2019, pp. 1-5, doi: 10.1109/RI2C48728.2019.8999897
22	N. L. Meitei and R. K. Mehta, "Fuzzyfied Lux Value Selector Lighting Controller for Visual Comfort," 2019 4th International Conference on Recent Trends on Electronics, Information, Communication & Technology (RTEICT), Bangalore, India, 2019, pp. 380-386, doi: 10.1109/RTEICT46194.2019.9016932.
23	Kumar, Vinod and Roy, Om Prakash, "Ad Hoc Network Based Energy Efficient Reactive Routing Algorithm for Internet of Things and VoIP" (January 9, 2020). Proceedings of the 5th International Conference on Computers & Management Skills (ICCM 2019) North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: https://ssrn.com/abstract=3516707 or http://dx.doi.org/10.2139/ssrn.3516707
24	Das P., Bhutia P.R., Mehta R.K., Roy O.P. (2020) "Performance Analysis of a Twin Rotor MIMO System Using Fuzzy Logic Controller". Intelligent Computing Applications for Sustainable Real-World Systems. ICSISCET (International Conference on Sustainable and Innovative Solutions for Current Challenges in Engineering & Technology) 2019. Proceedings in Adaptation, Learning and Optimization, vol 13. Springer, Cham https://doi.org/10.1007/978-3-030-44758-8_13 Print ISBN 978-3-030-44757-1, Online ISBN 978-3-030-44758-8
25	Das, Piyali and Mehta, Ram Krishna and Roy, Om Prakash, "Stability Analysis of a Nonlinear MIMO System using Fractional Order Active Disturbance Rejection Controller" (January 10, 2020). Proceedings of the 5th International Conference on Computers & Management Skills (ICCM 2019) North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: https://ssrn.com/abstract=3517372 or http://dx.doi.org/10.2139/ssrn.3517372
26	Gourav Kumar Suman, Suman Yadav, Om Prakash Roy, "HOMER Based Optimal Sizing of a PV/Diesel/Battery Hybrid System for a Laboratory Facility", 2019 International Conference on Energy, Environment and Material Sciences (ICE2M), IEEE CONFERENCE
27	G. K. Suman and O. P. Roy, "Microgrid System for A Rural Area - An Analysis of HOMER Optimised Model Using MATLAB," 2019 3rd International Conference on Recent

	<i>Developments in Control, Automation & Power Engineering (RDCAPE)</i> , NOIDA, India, 2019, pp. 534-539, doi: 10.1109/RDCAPE47089.2019.8979097.
28	Shubham, Sourabh Prakash Roy, R. K. Mehta and Dr. O. P. Roy, "Reducing Frequency Deviation of Two Area System Using Full State Feedback Controller Design" published in the Proceedings of International Conference on Data Science and Application (ICDSA – 2019), jointly organised by Rajasthan Technical University, Kota and Kautilya Institute of Technology and Engineering, Jaipur, India, December 02 – 03, 2019
29	Shubham, Sourabh Prakash Roy, R. K. Mehta and Dr. O. P. Roy, "Reducing Frequency Deviation of Two Area System Using Full State Feedback Controller Design" published in the Proceedings of International Conference on Data Science and Application (ICDSA – 2019), jointly organised by Rajasthan Technical University, Kota and Kautilya Institute of Technology and Engineering, Jaipur, India, December 02 – 03, 2019
30	Kumar A. and Bhagat S. K., "Study of Stability Analysis using Lyapunov function for IEEE-9 bus system," In Proc. IEEE Int. Conf., ICECCT, 20-22 Feb, Chennai, India, 2019.
31	Pal D., Shah D. and Bhagat S. K., "Design of a Genetic Algorithm based Shortest Path Routing with different Mutation Techniques," In Proc. IEEE Int. Conf., ICECCT, 20-22 Feb, Chennai, India, 2019. DOI: 10.1109/ICECCT.2019.8869199.
32	Pal D. and Bhagat S. K., "Design of an Efficient Fuzzy based Cluster Routing Protocol in Wireless Sensor Networks," In Proc. IEEE Int. Conf., ICECCT, 20-22 Feb, Chennai, India, 2019. DOI: 10.1109/ICECCT.2019.8869243.
33	Ningombam H., Roy O.P. (2020) "A Systematic Approach on Design of Automation System for Tea Farming Based on Embedded Wireless Sensor Network". Inventive Computation Technologies. ICICIT (International Conference on Inventive Computation Technologies) 2019. Lecture Notes in Networks and Systems, vol 98. Springer, Cham https://doi.org/10.1007/978-3-030-33846-6_33 , Print ISBN - 978-3-030-33845-9, Online ISBN - 978-3-030-33846-6
34	A. Sanyal, P. Das, J. Thabab, "Design and Analysis of A Cost effective Model for Remote Areas of Arunachal Pradesh," <i>2020 Advances in Science and Engineering Technology International Conferences (ASET)</i> , Dubai, United Arab Emirates, 2020, pp. 1-6, doi: 10.1109/ASET48392.2020.9118261.
35	Piyali Das, Rashmi Choudhary, Abhishek Sanyal, "Review Report on Multi-Agent System Control Analysis for Smart Grid System" (January 10, 2020). Proceedings of the 5th International Conference on Computers & Management Skills (ICCM 2019) North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: https://ssrn.com/abstract=3517356 or http://dx.doi.org/10.2139/ssrn.3517356
36	Piyali Das, Ram Krishna Mehta, Om Prakash Roy, "Comparative Performance Analysis using ESO Optimal Controller for a Rotational Electro-Mechanical System", ICAEES 2019 in November 2019 at Gauhati University, Guwahati, Assam, India
37	Das P., Bhutia P.R., Mehta R.K., Roy O.P. (2020) "Performance Analysis of a Twin Rotor MIMO System Using Fuzzy Logic Controller", Intelligent Computing Applications for Sustainable Real-World Systems. ICSISCET 2019. Proceedings in Adaptation, Learning and Optimization, vol 13. Springer, Cham

(c) Books/Book Chapters:

1. Das P., Mehta R.K., Roy O.P. (2020) Performance Analysis of Mechanical Rotary System Using Linear Quadratic Regulator Controller.

In: Singh S., Pandey R., Panigrahi B., Kothari D. (eds) *Advances in Power and Control Engineering*.

Lecture Notes in Electrical Engineering, vol 609. Springer, Singapore, https://doi.org/10.1007/978-981-15-0313-9_16

Name of the book- Lecture Notes in Electrical Engineering, vol 609.

4.6.11. Interaction of faculty/department with outside agencies

- Prof. S. Gao
- Reviewer, IEEE and IET Journals, IE (I)
 - Member, National Advisory Committee, National Conf. on New Horizons in Technology for Sustainable Energy and Environment (NHTSEE 2017), Mar. 9-10, 2017, Faridabad, Haryana, India.
- Dr. A.K. Parida
- Reviewer, IET Journals.
- Ms. P. Das
- Reviewer IE (I) journals
 - Thesis evaluation, UTS, Sydney, Australia
 - Delivered lecture in FDP on Developing teaching and learning techniques on engineering education , 30th Dec to 11th Jan 2020, Venue- Bineswa Brahma College of Engineering, Kokrajhar, Assam.
- Prof. A. K. Singh
- Served as member in Scrutiny Committee at Technical Institution/adding new program in AICTE, Kanpur (AICTE - Northern Regional Office, Kanpur)
- Mr. N. L. Meitei
- Delivered a lecture on the topic “Inputs on: Environment/Pollution Control/ Energy saving/Non- conventional Energy Sources” on 28th April, 2019 in the National Faculty Development Programme (FDP) in Entrepreneurship held during April, 23rd- May 4th, 2019 organised by the Centre for Entrepreneurship, Rajiv Gandhi University in collaboration with the National Science & Technology Entrepreneurship Development Board (NSTEDB), DST, Government of India and the Entrepreneurship Development Institute of India (EDII), Ahmedabad.

4.6.12. Consultancy projects undertaken

The faculty members of the Department are actively considering improved institute-industry interaction as well as consultancy services with PGCIL, NEEPCO and nodal agencies of the Govt. of Arunachal Pradesh.

4.6.13. Achievements/Placements/Higher Studies of students

PLACEMENT			
Sl.No	Name	Roll NOs.	Company/Firm
1	Karsen Lusi Tanim	D/15/EE/004	Infosys
2	Sangita Saikia	D/15/EE/011	PGCIL
3	Heisnam Jimbrown Singh	D/15/EE/014	BCPL

4	Romi Kino	D/15/EE/018	PGCIL
5	Laipyntngen Kharbani	D/15/EE/032	MeCL
6	Sanjeev Kumar Soni	D/15/EE/101	PGCIL
7	Pema Sonam Bhutia	D/15/EE/105	PGCIL
8	Abhishek Kumar	D/15/EE/108	PGCIL
9	Mr. Vaibhav Srivastava	D/16/EE/001	Vedanta & Infosys
10	Mr. Kaustav Singh	D/16/EE/002	Cognizant
11	Ms. Chonchuirin Awungshi	D/16/EE/014	PIE INFOCOMM & 12Go Speedy Go
12	Ms. Juhi	D/16/EE/107	Go Speedy Go
13	Mr. Tana Sera	D/16/EE/012	Pie Infocomm
14	Ms. Priyanka Patil	D/16/EE/106	Go Speedy Go
15	Mr. Mayanglambam Gobin Singh	D/16/EE/008	Go Speedy Go
16	Mr. Manikant Prasad	D/16/EE/003	GO SPEEDY GO
17	Donkuper Kharsaw	D/16/EE/204	MeCL
18	Ronak Sahu	D/16/EE/205	AEGCL
HIGHER STUDIES			
1	Antor	D/15/EE/010	NIT, Mizoram
2	Azay Uphadaya	D/15/EE/017	M.E, Hochschule Stralsund University of Applied Science, Germany
3	Taken Nguri	D/15/EE/019	M.Tech, NERIST
4	Puspal Manna	D/15/EE/005	M.Tech, NERIST

4.6.14. Any other relevant information

The faculty members of the Department are also rendering additional responsibilities in the Institute.

1. Prof. A. K. Singh is Chairman, Central Time Table Committee, NERIST.
2. Dr. M. D. Singh is working as Programme Officer, NSS CELL, NERIST.
3. Mr. P. D. Singh is working as Programme Officer, NSS CELL, NERIST.
4. Mr. A. Sharma is working as Warden, Boys Hostel Block E, NERIST.
5. Ms. P. Das is working as Programme Officer, NSS CELL, NERIST.
6. Ms. P. Das is working as Warden, Girls Hostel, NERIST.
7. Prof. S. Gao is working as Controller of Examination, NERIST.
8. Mrs. S. Hashunao is working as Chairman, SC/ST Cell.
9. Mr. N. L. Meitei is working as Departmental Automation Coordinator.
10. Prof. S. K. Bhagat is working as Head of the Department (EE).
11. Mr. T. V. P. Singh is NBA Co-ordinator, EE Dept.

4.7 DEPARTMENT OF MECHANICAL ENGINEERING

4.7.1 A Brief Profile of the Department

Department of Mechanical Engineering came into existence as one of the core branches of engineering and started since the inception of the institute in 1986. The department offers Base, Diploma, Degree in Mechanical engineering. M.Tech. programme and Ph.D. programmes were started from 2006 onwards. The department is run by a mix of experienced as well as young motivated well-qualified faculty members (16) and experienced supporting staff (22) to generate human resources to cater the fast-growing industrial and academic need of the country. There are about 220 students including 22 research scholars, 12 M.Tech. students currently pursuing their studies at various levels. The department also revised its syllabus as 2+1 Diploma and 4 year Degree programme; the same is likely to be implemented from the upcoming academic session. At present the department offers about 125 courses and nearly 30 student's projects every year, all the modules combined. The departmental vision and mission is as follows:

Vision

- To create a niche in the field of Mechanical Engineering through education and research to develop a sound human resource by nurturing the young talents especially from the North Eastern States and also from other states of India, matching the global standards and demands.

Mission

- To create an environment for providing balance education in Mechanical Engineering through teaching, learning and practice rendering equal weightage in all.
- To create a centre of excellence in research that will provide the students necessary impetus for future development and life-long learning.
- To create technical manpower in different levels for the North Eastern States in particular and for the country in general.

4.7.2. Academic activities

Apart from B.Tech.programme, the department runs two PG programmes (i) M. Tech in Computer Integrated Manufacturing (CIM) and (ii) M. Tech. in Thermal and Fluid Engineering as well as Ph.D programme. Besides conventional teaching methodology, the department provides facility of audio-visual sessions on selected areas conducted in the departmental seminar hall through e-learning CDs. Several proposals have been processed to streamline the course contents or credit distribution of a course. New and emerging elective courses are offered to the students. Vocational Training is included as a part of the curriculum for certificate and degree modules.

Mechanical Association of NERIST (MAN), jointly officiated by faculty, staff and students of the department, provides a platform to resolve academic issues solely related to the departments. MAN also organizes lecture series, mock interviews, technical competitions etc. for the students of NERIST in general and students of mechanical engineering department in particular.

Students of the department take active role in organizing and participating in various academic, cultural and sports activities at the Institute level such as RACAF, SHRISTI etc. Students are also encouraged to participate in technical events organized by various other Institutions of India.

4.7.3. Laboratories and Lab development

The department has 15 Labs, 1 Seminar Hall and set of workshops. All these facilities are used to impart practical knowledge and training in the field of mechanical engineering for Base. Diploma, Degree and PG Students. In addition, some lab equipments are used by PhD research scholars for their research activities. Few labs are mainly dedicated for research works.

The department updates its laboratories with induction of new lab equipments every year. The list of new equipments procured during current year (2019-2020) is listed below. In addition the maintenance activities of different laboratories were carried out in order to upkeep lab and workshop equipments. The construction of Central workshops under ME department is in final stage.

S.No	Name of the Laboratory	New Equipments Inducted
1	Fluid power control and Automation	Bernoulli's apparatus and Orifice Apparatus.
2	R & A/C Lab.	Desert Air Cooler, Air Conditioner (2 Nos.) and Refrigerator.
3	Kinematics and Dynamics Lab.	Static and Dynamic Balancing Demonstrator, Cam Analysis Apparatus, Motorised Gyroscope and Coriolis's Acceleration Apparatus.
4	Composite Lab.	Ultrasonic bath, Hot air oven and Muffle furnace.
5	Advanced Manufacturing Lab.	HP desktop – 5 Nos.
6	Seminar Hall	Invertor with Batteries for uninterrupted power supply.

4.7.4. Projects completed by UG/PG/PhD Students.

(a) Ph.D. awarded / theses submitted.

S. No	Name of the Scholar	Supervisor (s)	Status	Title
1.	Mr. Santosh Kumar Dash	Prof. P. Lingfa	Awarded	Studies of biodiesel production from Nahar oil using Calcium and its utilization in CI engine.
2.	Mr. Dipankar Buyan	Prof. A. Giri & Prof. P. Lingfa	Awarded	Study of filmwise condensation from moist air inside a parallel plate channel
3.	Ms. Sangeeta Das	Dr. S. S. Gautam	Awarded	Characterizations of lead calcium titanate borosilicate glass and glass ceramics.
4.	Ms. Sweety Mahanta	Dr. S. Samanta & Prof. M. Chandrasekaran	Awarded	Studies on characterization & EDM of Al 7075 hybrid nano composites for sustainable production.
5.	Mr. Shubhajit Das	Prof. M. Chandrasekaran & Dr. S. Samanta	Awarded	Study on characterization and WEDM investigation of



				AA6061/SiC/B ₄ C hybrid nano composite.
6.	Mr. Nitesh Dhar Badgayan	Dr. S. Samanta	Awarded	Fabrication and Characterization of HDPE/MWCNT/h-BNNP hybrid nano composite.
7.	Mr. Santosh kumar Sahu	Dr. S. Samanta	Awarded	Influence of cell size variation structural performance of honey comb core sandwich beam.
8.	Miss Sohini Chowdhury	Dr. N. Yadaiah & Prof. M. Muralidhar	Awarded	Experimental Investigation and Numerical Modeling of Laser and Electron beam Welding Processes.

(b) M. Tech. project completed by PG Student

S.No	Name of Student	Supervisor(s)	Thesis Title
M. Tech (CIMA)			
1	Mr.Pakme Kamki	Dr. N. Yadaiah	Influence of process variables on metallographic properties during fiber laser welding process.
2	Mr. Bipin Kumar	Dr.V.Yadav and Prof.S.Mahto	Determination of friction in metal forming processes by inverse modeling.
3	Mr. Akhsya Bohra	Prof.M.Chandrasekaran	An Experimental Study to Investigate the Influence of Process Parameters on Temperature Rise in Cortical Bone Drilling.
4	Mr.Karanjit Kapila	Dr.S.Samanta	Fabrication and characterisation and characterisation of epoxy based ramie-basalt and ramie-glass hybrid composites.
5	Mr.Samnur Islam	Prof.M.Muralidhar	Studies on Industry 4.0 application domains and development of a framework for an SME.
M. Tech (TFE) 2017 batch. Completed in May 2019.			
6	Mr. Chiranjeev Palit	Prof.P.Lingfa	Production of Bioethanol from Zymomonas Mobilis and study its performance and emission parameters on diesel engine.
7	Mr. Lalhruaitluanga	Prof.P.Lingfa and Prof. A.Giri	Study of engine performance characteristics of single cylinder diesel engine using a liquid fuel produced from plastic waste.
	Mr.Saitluangpuia	Prof.P.Lingfa and Md.S.M.Khan	Production and characterization of bio-diesel obtained from Toko Patta.

**(c) B. Tech Projects completed by UG students.**

Gr. No.	Students Name	Faculty Supervisor	Thesis title
G-1	Prathistha G. Sharma (D/15/ME/30) Harsh kumar (D/15/ME/04) Ashish Kumar Patra (D/15/ME/101) Subhranilbanik (D/15/ME/13)	Dr. S. K. Tamang	FEM analysis on cutting temperature distribution during turning of Inconel 718
G-2	Amit Deb (D/15/ME/002) Sabita Roy (D/15/ME/23) Jayesh Prakash (D/15/ME/001)	Dr. K. K. Mandal	Prediction of Kerf Qualities on fiber laser machining of Al 7075 Alloy through ANN
G-3	S Thangkhanlen Haokip(D/15/ME/17) Anirban Das (D/15/ME/21) Mashun jelly (DE/17/ME/01)	Prof. M. Muralidhar	Productivity Analysis of Road Transport Corporation in Northeast India
G-4	Shubham Sarkar (D/15/ME/19) Pritam Sarkar (D/15/ME/18) Shiv Shakti Rai (D/15/ME/14)	Prof. S. Mahto	Parametric dynamic analysis of simply supported Euler Bernoulli Beam using FEM
G-5	Vareithing s (D/15/ME/16) Siddarth Singh (D/15/ME/103) TaruYallu(D/15/ME/22)	Prof. AsisGiri	Study on Natural Condensation using extended surfaces.
G-6	Rohit Goutam Kashyap (D/15/ME/08) Rounokbose (D/15/ME/06)	Dr. S. Samanta	Fabrication & Characterization of sisal based hybrid composite
G-7	Deepty Pandey (D/15/ME/24) Arun Kalita (D/15/ME/07) Monoj Kanti Chakraborty (D/15/ME/05)	Dr. N. Yadaiah& Md. S. Mujahed Khan	Multi-objective optimization of fusion welding parameters using NSGA II
G-8	Deep Bahadur Thapa(D/15/ME/09) PranabTripathy(D/15/ME/11) Ashish Anand (D/15/ME/12) Sudhansu Kumar (D/15/ME/10)	Dr. N. Yadaiah& Md. S. Mujahed Khan	Analysis of heat transfer through fins of different profiles and of different materials
G-9	Nabajet Sen (D/16/ME/204) MrinalJyotiKalita (D/15/ME/201) PrasantMadhukar (D/15/ME/204)	Prof. P. Lingfa	Analysis of Bio-gas production
G-10	Jintu Borah (D/15/ME/206) Diken Sharma (D/15/ME/202) Chandan Kumar (D/15/ME/205)	Prof. S. Mahto	Dynamic behavior of single span FRP beam subjected to moving Load
G-11	Padi Takh (D/15/ME/20) Robert Singh (D/15/ME/29) Rizwan Hashmi (D/16/ME/21)	Dr. N. K. Rana	Analysis on linear vibration of a prismatic jointed flexible cantilever beam

**4.7.5. Short term courses/ seminars/ workshops/ conferences organized at NERIST.
(Please specify the areas, title, coordinator, duration, and funding agencies/
sponsors, no. of participants)**

Name of courses/ seminars/ workshops/ conferences	Sponsored By	Date
Regional workshop for Orientation of participating Institutes to Initiate Work in Adopted Village Cluster. (Coordinator: Prof. P. Lingfa)	Ministry of Human Resource Development Govt. of India.	22th Feb. 2020

4.7.6. Short term courses/ seminars/ workshops/ conferences attended by the faculty.

Prof. M.Chandrasekaran	FDP on "ICT Tools for Teaching, Learning Process & Institutes", Organised by Electronics & ICT Academy, MNIT Jaipur collaboration with Department of ECE, NERIST 13 th Jan.2020-17 th Jan. 2020.
	National Level Training Programmed On "Disaster management", Organized by National Institute of Disaster Management Ministry of Home Affairs, Govt. of India in collaboration with NERIST, 27th – 28th February 2020 at NERIST, Nirjuli, Itanagar, Arunachal Pradesh.
Prof. P. Lingfa	One day orientation workshop on Unnat Bharat Abhiyan (UBA) sponsored by Ministry of Human resource Development, Govt of India, February 2020.
	National conference on "Rural Immersion Management" organised by Mahatma Gandhi National Council of Rural Education, Department of Higher Education, Ministry of Human Resource Development, Govt. of India at Telangana, July 2020.
Dr. S. Samanta	Attended STTP on "Computer Aided Design using Ansys," 16 th 20 th March. 2020, NITTTR Kolkata.
Dr. K. K. Mandal	Attended STTP on "Computer Aided Design using Ansys," 16 th 20 th March. 2020, NITTTR Kolkata.
	"Theory and Practices of CNC Machining Operations," 26 th August - 6 th September 2019, NITTTR Kolkata.
	"Computer Aided Design With Ansys ", 16 th – 2 nd March 2020, NITTTR Kolkata.
Dr. S. S. Gautam	Attended STTP on "Computer Aided Design using Ansys," 16 th 20 th March. 2020, NITTTR Kolkata.
	Attended International Conference ICNMM 2019 held in Bangkok, Thailand during 17 th - 19 th May, 2019.
Mr. Maryom Dabi	Attended the 5 th National Workshop on <i>Research Methodology in Fluid Mechanics</i> jointly organized Department of Mechanical Engineering and National Society of Fluid Mechanics and Fluid Power, India held during June 22 – 23, 2019 at IIT Guwahati.
Dr. S. K. Tamang	FDP on "ICT Tools for Teaching, Learning Process & Institutes" organised by Electronics & ICT Academy, MNIT Jaipur collaboration with Department of ECE, NERIST 13 th Jan.2020-17 th Jan. 2020.
Dr. S. K. Tamang	National Level Training Programmed On DISASTER MANAGEMENT Organized National Institute of Disaster Management Ministry of Home Affairs, Govt. of India collaboration with NERIST, 27th – 28th February 2020 at NERIST, Nirjuli, Itanagar, Arunachal Pradesh.

4.7.7. New Degrees/ Professional Memberships obtained by the faculty members: Nil

4.7.8. Achievements/ Awards/ Recognition earned by the faculty:

- Granted **Indian Patent** (dated 16/03/2020) for the invention of “**A LEAK-PROOF SEAL ASSEMBLY FOR OPENING OF A CONTAINER**” for the period of 20 years from the 20th day of May 2019 in accordance with the provisions of the Patents Act,1970, Granting Authority :Controller of Patent, Intellectual Property India, The Patent Office, Govt. of India. **Patentee: Mr.Teyi, Nabam and Dr.Singh, Sandeep.**

4.7.9. Projects sanctioned by outside agencies to the faculty of the department (Name of PI and Co-investigator, if any, title of the project, funding agency, date of sanction, total amount, fund received during the year under review)

- AICTE sanctioned a MoDRoB project titled “**Development of modern facilities using cryogenic and minimum quantity lubrication (MQL) machining of hard materials**”, Sanction order F.No.9-31/RIFD/MODROB/Policy-1/2017-18 dated 26.3.2019 (Total Cost: Rs.17, 63, 000) (**P.I.: Prof. M.Chandrasekaran.**)

4.7.10. Publications

(a) Journal papers published (63 Nos.)

1. S. Chowdhury, **Y. Nirсанametla, M.Muralidhar, S.Bag,** and S.K.Patra, (2019). “Influence of weld parameters on weld regimes and vaporization rate in electron beam welding of Ti6Al4V alloy”. Int. Jr. Braz. Soc. Mech. Sci. & Eng. 41, 180. (DOI: <https://doi.org/10.1007/s40430-019-1689-8>).
2. **S. Chowdhury, Y. Nirсанametla,** and **M. Muralidhar,** (2019) “Finite element based transient heat transfer analysis of Ti2AlNb electron beam welds using hybrid volumetric heat source” , Indian Welding Journal, vol. 52, pp.49-55. (DOI:10.22486/iwj/2019/v52/i1/178190).
3. Sohini Chowdhury, **Yadaiah Nirсанametla, M Muralidhar,** Swarup Bag and S K Patra (2019), “Influence of weld parameters on weld regimes and vaporization rate in electron beam welding of Ti6Al4V alloy”, *Journal of the Brazilian Society of Mechanical Sciences and Engineering (Springer, SCI, 1.743 Impact Factor)*, 41:180. DOI: 10.1007/s40430-019-1689-8.
4. **S. Chowdhury, Y. Nirсанametla,** and **M. Muralidhar** ,(2019). “Finite element based transient heat transfer analysis of Ti2AlNb electron beam welds using hybrid volumetric heat source” Indian Weld J.52, 49-55. (DOI: 10.22486/iwj/2019/v52/i1/178190)
5. **S.N.Singh, S. Chowdhury,** Md.S.M.Khan, Muralidhar Manapuram, and Y.Nirсанametla, (2019). “FE based heat transfer analysis of laser additive manufacturing on Ti-6Al-4V alloy”, 2nd International Conference on Computational Methods in Manufacturing (ICMM 2019),held at IIT Guwahati, Guwahati, India, Paper ID: 025. (DOI-https://doi.org/10.1007/978-981-32-9072-3_25)
6. **S. Chowdhury, Y. Nirсанametla,** and **M.Muralidhar,** (2019), “Investigation on metallographic analysis of electron beam Ti6Al4V alloy welds”, 2nd International Conference on Computational Methods in Manufacturing (ICMM 2019),held at IIT Guwahati, Guwahati, India,, Paper ID: 013. Pp121-132, DOI-https://doi.org/10.1007/978-981-32-9072-3_13 **Publisher Name** Springer, Singapore, **Print ISBN** 978-981-32-9071-6, **Online ISBN** 978-981-32-9072-013.

7. **M.Muralidhar**, R. Ozah, (2019) “Fifty Years of World Casting Production Censuses and Analysis of Casting value Indices: A Study”, 67th Indian Foundry Congress, Noida,India, January 18-20, 2019, Paper No- 10.
8. S. Islam, **M.Muralidhar**, (2019). “Study of Application domains of Industry4.0 for an SME in Arunachal Pradesh”, Journal of Material Science and Mechanical Engineering (IMSME), ISSN: 2393-9095, Vol-6, Issue –I, Jan-March 2019,pp 46-50.
9. R.Ozah, **M.Muralidhar**, (2019). “Development of Conceptual Framework for Industry 4.0 and its Subsystems in Automotive Piston Casting”, 59th International Foundry Conference and WFO Technical Forum, Slovenia. ISBN- 978-961-93723-9-5.
10. S.N.Singh, S.Chowdhury, **M.S.M. Khan, Manapuram Muralidhar and Yadaiah Nirsanametla**, (2019). “Finite Element based Heat Transfer Analysis of Laser Additive Manufacturing on Ti-6Al-4V-Alloy”, ICCMM-2019, IIT,Guwahati, India. (DOI-<https://doi.org/10.1007/978-981-32-9072-3>) **Publisher Name** Springer, Singapore, **Print ISBN** 978-981-32-9071-6, **Online ISBN** 978-981-32-9072.
11. Rupshree Ozah, **M. Muralidhar**, (2019). “Development of Methods for Machine Intelligent Quotient measurement for Piston Casting by Die Casting Machines : A Study”, ICCMM-2019, IIT, Guwahati. (DOI- <https://doi.org/10.1007/978-981-32-9072-3> 37) **Publisher Name** Springer, Singapore, **Print ISBN** 978-981-32-9071-6, **Online ISBN** 978-981-32-9072-3
12. R. Ozah, Y. Nirsanametla, **M.Muralidhar**, (2019). “Casting Process Selection by Analytical Hierarchy process for Hybrid Engine”, published in 67th IFC and 15th AFC, Noida, India, Paper No-11.
13. **M. Muralidhar**, (2019). “A Forecast of casting casts Casters Castfuture”, 59th International Foundry Conference and WFO Technical Forum, Slovenia, published in Sept,2019. ISBN- 978-961-93723-9-5.
14. S. Kumar, and **M.Muralidhar**, (2019). “CTS estimation in shock absorber assembly workforce in Indian automobile industry: a study”, published in 15th Int. conf. on Humanizing work and work environment, published in Sept, 2019.
15. **M. Muralidhar**, (2019). “A Forecast of casting casts Casters Castfuture”, International Journal of Livarski Vestnik, Sept,2019, Slovenia, pp-221n ISSN- 0024-5135.
16. Gyati Chatung and **Muralidhar Manapuram**, (2019),”Industry 4.0 and its application domains for a steel melting shop of an SME”, Journal of Basic and Applied Engineering Research, p-ISSN- 2350-0077, e-ISSN- 2350-0255, Vol-6, Issue-9, Oct-Sec,2019, pp-544-548.
17. Gyati Chatung and **Muralidhar Manapuram**,(2020) “Development 4.0 Technology Domains for a Steel Melting Shop, International Conference on Industry 4.0” (IC-2020), 25th January2020,, Delhi, ISSN- 2581-8953, pp-12.
18. S.S.Kumar, R. Ozah and **M. Muralidhar**, (2019) “Development Of Application Domains of Industry4.0 for Light Motor Vehicle Engine Assembly System”, ICIATI, June 2020 Chennai, India.
19. Sapam Ningthemba Singh, **Yadaiah Nirsanametla**, Sohini Chowdhury and **M. Muralidhar** (2020), “Influence of laser power and scan speed during laser assisted multi-layer additive manufacturing using finite element modelling”, in **3D printing in biomedical engineering**, Springer, Accepted.
20. Sohini Chowdhury, **Yadaiah Nirsanametla, M. Muralidhar** (2019), “Investigation on Keyhole Mode Fiber Laser Welding of SS 316 in a Self-Protected Atmosphere”, *The Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science* (**Springer, SCI, 1.359 Impact Factor**), Vol. 233(18), 6602-6615. DOI: 10.1177/0954406219864137.
21. Awinash Kumar and **Pradip Lingfa**, ‘Physico-chemical characterization of hydrochloric acid-treated kaolin clay: An industry approach as a potential catalyst’, Combinatorial

- Chemistry & High Throughput Screening February (2020)23(3), p.p. 205-213. DOI 10.2174/1386207323666200219123459. **SCIE IF- 1.195**
22. Awinash Kumar and **Pradip Lingfa**, "Acid-activated Sodium Bentonite and Kaolin Clay: Comparative Study by Physicochemical Properties", *Combinatorial Chemistry & High Throughput Screening* 23(5), March, 2020, p.p. 433-445. DOI: 10.2174/1386207323666200311114349. **SCIE IF-1.195**
 23. M.S Ahamed, Santosh Kumar Das, A. Kumar, **Pradip Lingfa**, "A Critical Review on the Production of Biodiesel from Jatropha, Karanja and Castor Feedstocks", *Bioresource Utilization and Bioprocess*, March 2020, DOI: 10.1007/978-981-15-1607-8_12.
 24. Kumar, A., **Lingfa, P.**, "Sodium bentonite and kaolin clays: Comparative study on their FT-IR, XRF, and XRD", *Materials Today: Proceedings*, 22P3, 2020, pp. 737-742.
 25. Santosh Kumar Das, Supriya Chawan, A. Kumar, M.S. Ahamed, **Pradip Lingfa**, "Jatropha Biodiesel Blends as Renewable Diesel Fuel Additives", *Bioresource Utilization and Bioprocess*, March 2020, DOI: [10.1007/978-981-15-1607-8_11](https://doi.org/10.1007/978-981-15-1607-8_11).
 26. Santosh Kumar Dash, **Pradip Lingfa**, Debabrata Barik, "Combined adjustment of injection timing and compression ratio for an agricultural diesel engine fueled with Nahar methyl ester", **January 2020**, *International Journal of Ambient Energy*, DOI: 10.1080/01430750.2020.1712250.
 27. A. Kumar, **P.Lingfa** "Physicochemical characterization of sodium bentonite clay and its significances as a catalyst in plastic wastes valorization", **February, 2020**, Doi:10.1109/IEMENTech48150.2019.8981195.
 28. A. Kumar, **P.Lingfa** "Characterization of Acid-activated sodium bentonite clay; A potential catalyst for recycling plastic wastes." December 2019, Published in AIP Conference Proceedings.
 29. M. S Ahamed, N.H. Papu, **Pradip Lingfa**, **Muthumari Chandrasekaran** "Production of biodiesel from Livistona Jenkinsiana Griff", December 2019, Published in AIP Conference Proceedings.
 30. N.H. Papu, **Pradip Lingfa**, M. S Ahamed, A Kumar "Effects of different solvents and solvents to Euglena sanguinea biomass ratios on total lipid productivity" December 2019, Published in AIP Conference Proceedings.
 31. S.K. Das and **P. Lingfa**, 'Combustion analysis of a single cylinder variable compression ratio small size agricultural DI diesel engine run by Nahar biodiesel and its diesel blends', April 2019. SCI. Impact Factor-0.898) Taylor & Francis, *Energy Resource: Part A Recovery, Utilization and Environmental effects*, <https://doi.org/10.1080/15567036.2019.1604878>.
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 34. Devarasiddappa, D.; **Chandrasekaran, M.** (2020) Experimental Investigation and Optimization of Sustainable Performance Measures during WEDM of Ti6Al4V Alloy using Preference Based TLBO Algorithm. **Materials and Manufacturing Processes**. DOI: 10.1080/10426914.2020.1762211 (*SCI and Scopus indexed; Impact factor: 3.686 (2019); H-Index: 53; Quartile: Q1*)
 35. Devarasiddappa, D.; **Chandrasekaran, M**; Arunachalam, R. (2020) Experimental Investigation and Parametric Optimization for Minimizing Surface Roughness during WEDM of Ti6Al4V alloy using Modified TLBO Algorithm. **Journal of the Brazilian Society of Mechanical Sciences and Engineering**, 42(3), 128-145. DOI: 10.1007/s40430-

- 020-2224-7 (*SCI and Scopus indexed; Impact factor: 1.980 (2019); H-Index: 29; Quartile: Q2.*)
36. Devarasiddappa, D.; **Chandrasekaran, M.** (2020) Estimation of Power Consumption and Optimization using TLBO algorithm for Sustainable WEDM of Ti-6Al-4V Alloy. **Journal of The Institution of Engineers (India): Series C.** 101(2), 257-270. DOI: 10.1007/s40032-020-00560-z (*Scopus indexed; Impact factor: NA; H-Index: 9; Quartile: Q3.*)
 37. Choudhury B, **Chandrasekaran M**, Devarasiddappa D, (2020) Development of ANN modeling for estimation of weld strength and integrated optimization for GTAW of Inconel 825 sheets used in aero engine components. **Journal of the Brazilian Society of Mechanical Sciences and Engineering.**42:308. <https://doi.org/10.1007/s40430-020-02390-7> (*SCI and Scopus indexed; Impact factor: 1.980 (2019); H-Index: 29; Quartile: Q2.*)
 38. Choudhury B, **Chandrasekaran M.** (2020) Gas tungsten arc welding of Inconel 825 sheet: Study on weld bead geometry and GA optimization. *Advances in Materials and Manufacturing Engineering. Lecture Notes in mechanical engineering.* PP. 413-420. Springer, Singapore. https://doi.org/10.1007/978-981-15-1307-7_46.
 39. Singh V, **Chandrasekaran M, Samanta S.** (2020) Investigation of Weld Bead Characteristics and Optimization of GMAW of Nitrogen Strengthened Austenitic Stainless Steel (AISI 201Gr). In *Advances in Mechanical Engineering.*(pp. 333-346). *Lecture Notes in Mechanical Engineering.* Springer, Singapore. https://doi.org/10.1007/978-981-15-0124-1_30.
 40. Singh V, **Chandrasekaran M, Samanta S.** Investigation on Weld Bead Geometry of AISI 201LN in GMAW-Cold Metal Transfer (CMT) Process. In *Advances in Materials and Manufacturing Engineering 2020* (pp. 379-386). *Lecture Notes in Mechanical Engineering.* Springer, Singapore. https://doi.org/10.1007/978-981-15-1307-7_42.
 41. Sweety Mahanta, **M. Chandrasekaran** and **Sutanu Samanta** (2020) New Emerging Al7075 Based Hybrid Nanocomposite for Automotive Applications: A Sustainability Approach, *Key Engineering Materials, ISSN: 1662-9795, Vol. 856, pp 29-35, Trans Tech Publications Ltd, Switzerland.*
 42. Das, S., **Tamang, S.K., Chandrasekaran, M., Samanta, S.,** 2019. Experimental Investigation, Modeling and Optimization of Tribological Parameters of AA6061/SiC/B4C Hybrid Nano Composites. *Key Engineering Materials.* Vol. 801, pp.83–88. (Scopus).
 43. Kundan Kumar Prasad, **Santosh Kumar Tamang** and **M. Chandrasekaran** (2020) Comparative Study on Cutting Force Simulation Using DEFORM 3D Software during High Speed Machining of Ti-6Al-4V, *Key Engineering Materials, ISSN: 1662-9795, Vol. 856, pp 50-56, Trans Tech Publications Ltd, Switzerland.*
 44. Singh V, **Chandrasekaran M, Samanta S,** Palanikumar K. Welding Investigation on GMAW–Cold Metal Transfer of AISI 201LN for Superior Weld Quality. *International Journal of Manufacturing, Materials, and Mechanical Engineering.* (Vol. 10, Issue 4). (on Press).
 45. Krishna Roy, **Asis Giri,** Biplab Das, Laminar entry region mixed convection heat transfer from an inclined rectangular fin array, *International Journal of Numerical Methods for Heat & Fluid Flow,* Vol. 30 No. 6,(2020) pp. 3283-3305. <https://doi.org/10.1108/HFF-04-2019-0275>. IF-1.958, SCIE.
 46. Sidhartha Das, **Asis Giri, S Samanta,** ‘Heat transfer enhancement in a thermosyphon using TiO₂ nanofluid through natural convection, *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects,*Taylor & Francis,42(2020), 1-18, <https://doi.org/10.1080/15567036.2020.1727998>. IF-0.894, SCIE.

47. Pathak, K.K., **Giri, Asis**, Das B., ‘Thermal performance of heat sinks with variable and constant heights: An extended study,’ *Int. J. Heat Mass Trans.*, 146(2020), 118916-1-14. <https://doi.org/10.1016/j.ijheatmasstransfer.2019.118916>, IF: 4.346, SCIE.
48. Dasgupta, D., Pathak, K.K., **Giri, Asis**, ‘A Study of Enhanced Heat and Mass Transfer From Variable Height Fin Array Undergoing Natural Convection’, *ASMEJ. Thermal Science and Engg. Applications* 12 (1)(2020), 011013-1-11. doi:<https://doi.org/10.1115/1.4044426>, IF: 1.115, SCIE, CITE: 1
49. Pathak, K.K., **Giri, Asis**, **Lingfa, P.**, ‘Computational study of mixed convective heat transfer from a shrouded vertical dual-height plate fin array’, *Int. J. Thermal Sciences*, 145(2019), 105958. <https://doi.org/10.1016/j.ijthermalsci.2019.05.014>, IF: 3.488, SCIE, CITE: 6.
50. **Das, S., Giri, Asis, Samanta, S.**, Kanagaraj, S., ‘An experimental investigation of properties of nanofluid and its performance on thermosyphon cooled by natural convection’, *ASMEJ. of Thermal Science and Engg. Applications*, 11(4)(2019), 044501-1-9. DOI: 10.1115/1.4044138, IF: 1.115, SCIE, CITE:1.
51. Roy, K., **Giri, Asis**, Das, B., ‘A computational study on natural convection heat transfer from an inclined plate finned channel’, *Applied Thermal Engineering*, 159(2019), 113941-1-13, IF: 4.026, SCIE.
52. **Das, S., Giri, Asis, Samanta, S., Kanagaraj, S.**, ‘Role of graphene nanofluids on heat transfer enhancement in thermosyphon,’ *Journal of Science: Advanced Materials and Devices*, vol. 4(1), March 2019, pp. 16.
53. S. Das, **S. S. Gautam**, C. R. Gautam, “Electrical study of lead calcium titanate borosilicate glass ceramics,” *Lecture Notes in Mechanical Engineering* (Scopus), 2020. (Accepted) Paper Submission ID: S-V1-055.
54. S. Das, S. Das, **S. S. Gautam**, C. R. Gautam, “Optimization of wear coefficient and coefficient of friction of borosilicate glass ceramics using Taguchi coupled grey fuzzy logic technique,” *Materials Today: Proceedings*(Scopus), 2020, (DOI: 10.1016/j.matpr.2020.03.262).
55. **N. K. Rana, S. S. Gautam**, S. Verma, “Stiffness and damping characteristics of conical multirecess hybrid journal bearing for different load arrangements,” *Journal of SN Applied Sciences*, 2019, 1:604. (DOI: 10.1007/s42452-019-0609-y).
56. Das S, Giri A, **Samanta S**, Kanagaraj S (2019), “An experimental investigation of properties of nanofluid and its performance on thermosyphon cooled by natural convection”, *Journal of thermal science and engineering Applications*”, *Transactions of the ASME*, Vol.11, August 2019/044501-1 to 044501-9.
57. Das S, Giri A, **Samanta S**, Kanagaraj S (2019), “Role of graphene nanofluids on heat transfer enhancement in thermosyphon”, *Journal of Science: Advanced Materials and Devices* , Vol.4, issue.1, 163-169, DOI:doi.org/10.1016/j.jsamd.2019.01.005.
58. Badgayan N.D, Sahu S.K, **Samanta S**, Sreekanth P.S.R ,“Evaluation of Dynamic Mechanical and thermal behavior of HDPE reinforced with MWCNT/h-BNNP: An attempt to find possible substitute for a metallic knee in transfemoral prosthesis” *International Journal of Thermophysics*, Springer,2019, 40:93, (doi.org/10.1007/s10765-019-2559-4).
59. Dey S.K, Chatterjee. S, Spieckermann F, Ghosh P, Samanta S, “Reversing and non reversing effects of PEEK-HA Composites on tuning cooling rate during crystallization”, *Journal of Polymer Research*, Springer, 2019, 26:279 (doi.org/10.1007/s10965-019-1967-2).
60. Sidhartha Das, **Asis Giri**, and **Sutanu Samanta**, “Heat transfer enhancement in thermosyphon using nano-fluid”, *Journal of Physics*, 1326(2019) 012083.(IOP Science).
61. Dharmeswar Dash, Ram Singh, **Sutanu Samanta** and Ram Naresh Rai, “ Influence of TiC on Microstructure, Mechanical and Wear Properties of Magnesium alloy (AZ91D)

- Matrix Composites”, Journal of scientific & Industrial research, Vol79, February 2020, pp164-169. <http://nopr.niscair.res.in/handle/123456789/53583>.
62. **Samanta S** & Singh T.J “Effect of Kevlar hybridization on dry sliding friction and wear behaviour of Bamboo/Epoxy Composites”. Presented in 4th International Conference on Composite Materials and Material Engineering (ICMME-2019), 19-22 Jan, 2019, Tokyo Japan. Key Engineering Materials, Trans TECH Publications, Vol. 801, pp.89-94. (DOI: 10.4028/www.scientific.net/KEM.801.89).
 63. Das, S., **Tamang, S.K., Chandrasekaran, M., Samanta, S.**, 2019. Experimental Investigation, Modeling and Optimization of Tribological Parameters of AA6061/SiC/B4C Hybrid Nano Composites. Key Engineering Materials. Vol. 801, pp.83–88. (Scopus).

(b) Conference papers published (05 Nos.)

1. Devarasiddappa, D., **Chandrasekaran, M.** and Palanikumar, K. Taguchi Analysis of MRR and PC for Sustainable Machining of Ti6Al4V alloy using WEDM Process. **Presented in International Conference on Advances in Material Science and Mechanical Engineering (ICAMSME 2020)**, N.B.K.R.I.S.T., Vidyanagar, Andhra Pradesh, India, 7-9 Feb 2020.
2. Devarasiddappa, D. and **Chandrasekaran, M.** Fuzzy logic modelling of sustainable performance measure (MRR) during WEDM of Ti/6Al/4V alloy. **3rd International Conference on Materials, Manufacturing and Mechanical Engineering for Sustainable Developments (ICMSD-2020)**, 13-14, August 2020, Sri Sai Ram Institute of Technology, West Tambaram, Chennai, India
3. Choudhury B and **Chandrasekaran M.** (2020) Multi Optimization of Weld bead Characteristics during GTAW of Inconel 825 Using Teaching Learning Based Optimization. Materials. **International Conference on Advanced Trends in Mechanical & Aerospace Engineering (ATMA-2019)**, 7-9 November 2019. Dayananda Sagar University, Bangalore-68.
4. Singh V, **Chandrasekaran M** and **Samanta S**, “Study on the influence of heat input on mechanical property and microstructure of weld in GMAW of AISI 201LN Stainless steel,” **International Conference on Advances in Material Science & Mechanical Engineering, 7-9, Feb 2020. (ICAMSME) -2020.** N.B.K.R. Institute of Science and Technology, Nellore, India.
5. **Sidhartha Das, Asis Giri, and Sutanu Samanta**, “**Heat transfer enhancement in thermosyphon using nanofluid**”, **9th International Conference on Science and Innovative Engineering, Tamil Nadu, 24th March, 2019.**

(c) Book/ Book Chapters (14 Nos.)

1. Lata K., **Chandrasekaran M., Tamang S.K., Ramesh R., Rana N.K.** (2019) GMAW Investigation of AISI 201 Stainless Steel and Industry Need Optimization Using Genetic Algorithm. In: Narayanan R., Joshi S., Dixit U. (eds) Advances in Computational Methods in Manufacturing. Lecture Notes on Multidisciplinary Industrial Engineering. Springer, Singapore
2. Santosh Kumar Dash, Supriya Chavan, A. Kumar, **Pradip Lingfa**, “Jatropha Biodiesel Blends as Renewable Diesel Fuel Additives”, March 2020, DOI: [10.1007/978-981-15-1607-8_11](https://doi.org/10.1007/978-981-15-1607-8_11), In book titled ‘Bioresource Utilization and Bioprocess’ (pp.93-105).
3. M. S. Ahamed, Santosh Kumar Dash, A. Kumar, **Pradip Lingfa**, “A Critical Review on the Production of Biodiesel from Jatropha, Karanja and Castor Feedstocks”, March 2020,

- DOI: [10.1007/978-981-15-1607-8_12](https://doi.org/10.1007/978-981-15-1607-8_12), In book titled Bioresource Utilization and Bioprocess (pp.107-115).
4. Santosh Kumar Dash, **Pradip Lingfa**, Dharmeswar Dash, "Effect of Compression Ratio and Injection Timing on the Performance of a B20 Biodiesel Blend Fueled Diesel Engine", January 2020, DOI: [10.1007/978-3-030-24314-2_91](https://doi.org/10.1007/978-3-030-24314-2_91).
 5. M. S. Ahamed, Sa ntosh Kumar Dash, A. Kumar, **PradipLingfa**, "A Critical Review on the Production of Biodiesel from Jatropa, Karanja and Castor Feedstocks", March 2020, DOI: [10.1007/978-981-15-1607-8_12](https://doi.org/10.1007/978-981-15-1607-8_12), In book titled Bioresource Utilization and Bioprocess (pp.107-115).
 6. A. Kumar, **P.Lingfa**, S.K. Das, M. S. Ahmed" Study on Conversion Techniques of Alternative fuels from Waste Plastics " Energy Recovery Processes from Wastes, Springer Nature Singapore Pte Ltd., Dec 2019. https://doi.org/10.1007/978-981-32-9228-4_18.
 7. Awinash Kumar and **Pradip Lingfa**, "An Exploration of Waste Plastic Oil and Different Hydrocarbon Fuels Derived from Plastic Wastes, Emerging Renewable Energy Technologies, ISBN:978-81-935731-5-0, July, 2019, pp-1-13.
 8. S. Das, **Asis Giri**, **S. Samanta**, 'Influence of nanofluid and inclination angle on the temperature distribution of thermosyphon', Proceeding of ICDMC 2019, LECTURE Notes in Mechanical Engineering Book Series (LNME)(2020), pp 653-657.
 9. K. Roy, **Asis Giri**, M.R. Singh, 'Experimental Investigation of Forced Convection Cooling of Rectangular Block', Advances in Mechanical Engg.-Lecturer note in Mechanical Engg., Springer Nature Singapur Pte. Ltd., 2020.
 10. **Teyi N.**, Singh S. (2020) "*Handling Phase Ambiguity in Full Spectrum from FFT.*" © Springer Nature Singapore Pte Ltd. 2020, M. Awang et al. (Eds.), Advances in Material Sciences and Engineering, Lecture Notes in Mechanical Engineering, pp 519-525; https://doi.org/10.1007/978-981-13-8297-0_54.
 11. Doley H., **Singh S.**, **Teyi N.** (2020) "*Design and Development of Apparatus for Evaluating Galling Resistance Test.*" © Springer Nature Singapore Pte Ltd. 2020 M. Awang et al. (eds.), Advances in Material Sciences and Engineering, Lecture Notes in Mechanical Engineering, pp 547-554; https://doi.org/10.1007/978-981-13-8297-0_56.
 12. Rupshree Ozah and **Muralidhar Manapuram**, "Development of Methods for Machine Intelligence Quotient Measurement for Piston Casting by Die Casting Machines: A Study", Advances in Computational Methods in Manufacturing, **Publisher Name-** Springer Nature, Singapore, pp 425-437, chapter no.34, First online 18th Oct, 2019. DOI https://doi.org/10.1007/978-981-32-9072-3_37.
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 14. Sohini Chowdhury, Yadaiah Nirsanametla and **M. Muralidhar**, "Investigation on metallographic analysis of electron beam Ti6Al4V alloy welds", Advances in Computational Methods in Manufacturing , **Publisher Name-** Springer Nature, Singapore, pp- 121-132 , chapter no. 47, First online 18th Oct, 2019. DOI https://doi.org/10.1007/978-981-32-9072-3_11.

4.7.11. Interaction of faculty members/department with outside agencies (Give details regarding membership of outside committees, executive committees of professional bodies etc.)

Faculty members are engaged in joint research with faculty members from IIT Delhi (P. Lingfa), Jadavpur University (A. Giri), IIT Guwahati (M. Chandrasekaran, S. Mahto, S. Singh, M. Dabi,

N. Yadaiah), KIIT Univeristy, Odisha and Sultan Qaboos University, Sultanate of Oman and Sai Ram college of Engg., Chennai (M.Chandrasekaran), Jadavpur University (K.K. Mandal), Bengal Engineering and Science University, NIST, Orissa, NIT AP (S. Samanta), Raja Ramanna Centre for Advanced Technology, Indore (N. Yadaiah) and Hindustan Aeronautics Limited, Koraput, Odisha (N. Yadaiah). The details regarding participation of faculty members in various international/ national levels committee for different activities is mentioned in Sl. No.14.

4.7.12. Consultancy projects undertaken (Agencies, title of the consultancy project, amount, faculty and staff associated)

i) Consultancy work: Design and preparation of “Clamping bolts” for check nuts of lower nozzle of turbine (3 x 1500 kW) for Ziro Hydro Power Division, Deptt. of Hydro Power Development, Arunachal Pradesh.

4.7.13. Achievements of students

The following students of B.Tech Final year qualified in GATE 2019.

S.No	Name of the student	Gate Score
1	Mr.Suraj Kumar	48.48
2	Mr.Monojit Sarkar	33.54
3	Mr.Alok Nath Gupta	29.64
4	Mr. Ige Riram	29.00
5	Mr.Dhrubajyoti Das	27.00

Some of the passed out students of year 2018 got admission in reputed institutions like IITs, NITs and other institutions. Students have also been sending to other premier institutions such as IITs for summer internship training and for conducting experiments for their project work. Eighteen (18) students have been selected in reputed companies conducted on/off campus interview arranged by Placement cell. The details of placement record of the students are as follows:

Placement Record

Sl. No.	Name	Roll No.	Company	Date Of Interview	Post Offered
1	Mr. Alok Nath Gupta	D/16/ME/021	Infosys	17 th & 18 th Oct'19	System Engineer
2	Mr. Rohit Kr. Puri	D/16/ME/023	Infosys	17 th & 18 th Oct'19	System Engineer
3	Mr. Rohan Sarkar	D/16/ME/003	Infosys	17 th & 18 th Oct'19	System Engineer
4	Mr. Shubham Choudhary	D/16/ME/002	Infosys	17 th & 18 th Oct'19	System Engineer
5	Mr. Shubhamkar Barman	D/16/ME/004	Infosys	17 th & 18 th Oct'19	System Engineer
6	Mr. Subhajit Sarkar	D/16/ME/012	Infosys	17 th & 18 th Oct'19	System Engineer
7	Mr. Shubham Rai	D/16/ME/013	Cognizant	9 th & 10 th Nov'19	Engineer Trainee

8	Mr. Suraj Kumar	D/16/ME/019	Pie infocomm	15 th & 16 th Feb'20	Autocad Desginer
9	Mr. Soibam Ahok Singh	D/17/ME/202	Pie infocomm	15 th & 16 th Feb'20	Autocad Desginer
10	Mr. Abhishek Saha	D/16/ME/014	Go speedy go	12 th March'20	Training module
11.	Mr. Manish Chanda	D/16/ME/001	Go speedy go	12 th March'20	Training module
12.	Mr. Rishi Raj Pritam	D/16/ME/024	Go speedy go	12 th March'20	Training module
13.	Ms. Mridula Barman	D/16/ME/006	Go speedy go	12 th March'20	Direct module
14.	Mr. Pintu Kumar Sah	D/17/ME/211	Go speedy go	12 th March'20	Training module
15.	Mr. Mayebinson Marbaniang	D/16/ME/104	Go speedy go	6 th June'20	Training module
16.	Mr. Vikas Prasad Singh	D/16/ME/020	Go speedy go	6 th June'20	Training module
17.	Mr. Angshuman Barman	D/16/ME/015	Go speedy go	6 th June'20	Training module
18.	Mr. Alok Nath Gupta	D/16/ME/021	Oil india ltd.	9 th June'20	Sr.Officer/Engineer

14. Any other relevant information:

Prof.M.Muralidhar	<ul style="list-style-type: none"> • Member, Scientific Committee for International Foundry Conference, 2019 (59 IFC and WFO-TF) and 2020 (IFC 60) Portoroz, Slovenia. • Evaluated PhD thesis entitled ‘Investigation on the behavior on nano SiC reinforced 6061 aluminium alloy under cold extrusion, December, 2019, Andhra University, Visakhapatnam, AP. • Attended an online International Conference on ICIATI 4.0 March 2020 (held in June), Chennai for paper presentation. • Attended 3 webinars on Casting simulation using Z-CAST software, Integrated systems and innovation defence systems, workforce of the future aerospace domains, to guide students meaningful projects. • Reviewer for International Workshop on Materials and Design, MatDes 2020, Spain in December 2019. • Member, Board of Management, NERIST, 2019-20 • Appointed as Reviewer of International Journal IJTech. • Reviewed one research paper (MME 2866) titled “Wear behavior of glass/ Jute hybrid epoxy composites with addition of fillers” in July 2019.
Prof.M.Chandrasekaran	<ul style="list-style-type: none"> • Appointed as an External Examiner for conducting Viva-voce exam for PhD thesis entitled ‘Experimental evaluation of high-temperature properties of friction welded austenitic stainless steel and titanium alloy joints, March 2019, Anna university, Chennai.

	<ul style="list-style-type: none"> • Evaluated PhD thesis entitled ‘Performance evaluation of atomized cutting fluids during turning AISI 316 SS, September 2019, KIIT University Odisha. • Appointed as Reviewer for different International/National Journals viz., Institution of Engineers (India), Materials Research Express, Materials Today: Proceedings. Eleven number of research papers are reviewed. • Member of Expert committee for framing standard operating procedure (SOP) in respect of Arunachal Pradesh State paper Lottery, March 2020. • Attended and presented a research paper titled “Multi optimization of weld bead characteristics during GTAW of Inconel 825 using Teaching Learning based optimization” in ATMA 2019 organised by Dayanada Sagar university, Bengaluru -68 during November 7-9, 2019. • Attended and presented a research paper titled “New Emerging Al7075 Based Hybrid Nanocomposite for Automotive Applications: A Sustainability Approach” in Research, Invention and Innovation Congress (RI2C-2019) organized by King Mongkut’s University of Technology North Bangkok (KMUTNB) during December 11-13, 2019 in Bangkok, Thailand.
<p>Prof. P. Lingfa</p>	<ul style="list-style-type: none"> • Resource person during a Mock Interview Assistant Engineer Qualified Candidates held on 10th June 2019 at Hotel Todo, organized by the Nyishi Elite Society Career Guidance Cell, Itanagar Arunachal Pradesh, India. • Resource person during One Day Counselling cum Mock Interview programme for APPSCC (Main) Examination- 2018 qualified candidates held on 15th March 2020, organized by the Nyishi Elite Society at Science Centre, IG Park Itanagar, Arunachal Pradesh, India. • Resource person for delivering a lecture on “Role of Unnat Bharat Abhiyan (UBA) in Nation Building” in one day regional workshop for Orientation of participating Institutes to Initiate Work in Adopted Village clusters, Sponsored by Ministry of human resource development, Got. Of India, held at NERIST, February 2020. • Resource person for delivering a invited lecture on “Bio fuel: A sustainable energy source” in the Conference organised at Assam Engineering College, Jalukbari, Assam, February, 2020. • Resource person for delivering an expert talk titled Life cycle reliability aspects of energy systems” in International workshop on Life cycle reliability of engineering systems (IWLTES, 2019) organised by Kaziranga university, April 2019. • Resource person to deliver keynote speech on “Bio=fuel as a Renewable Source of energy” In the Intrnational Conference on materials Engineering and Chraterization (ICMEECh’19) held at Adhi College of Engineering and Technology, Kanchipuram, May 2019.

Prof.S.Mahto	<ul style="list-style-type: none"> Delivered a lecture in NIT Arunachal on "Dynamic Modelling of Flexible Robotic Systems" during TEQIP-III Workshop "Recent Trends in Embedded Sys., IOT and Mechtronics", September, 2019.
Mr.N.Teyi	<ul style="list-style-type: none"> Presented a research paper titled "Stress Analysis of a Flange Stiffened FRP Composite Panel with Varying Stacking Sequence" in the 5th International Conference of Composite Materials and Materials Engineering (ICCMME-2020) organized by South Asia Institute of Science and Engineering (SAISE) from January 13 to January 16, 2020 at Yonsei University, Seoul, South Korea. Presented a research paper titled "Numerical Simulation of Cutting Force in High Speed Machining of Inconel 718" in Research, Invention and Innovation Congress (RI2C-2019) organized by King Mongkut's University of Technology North Bangkok (KMUTNB) from December 11 to December 13, 2019 in Bangkok, Thailand. Reviewed research papers as an Invited Reviewer of the 5th International Conference of Composite Materials and Materials Engineering (ICCMME-2020) organized by South Asia Institute of Science and Engineering (SAISE) from January 13 to January 16, 2020 at Yonsei University, Seoul, South Korea.
Dr. S.K. Tamang	<ul style="list-style-type: none"> Presented a research paper titled "<u>Comparative Study on Cutting Force Simulation Using DEFORM 3D Software during High Speed Machining of Ti-6Al-4V</u>" in Research, Invention and Innovation Congress (RI2C-2019) organized by King Mongkut's University of Technology North Bangkok (KMUTNB) from December 11 to December 13, 2019 in Bangkok, Thailand.

Appendix A: List of laboratories and equipments

Sl. No.	Name of the laboratory	Major Equipments
1	Gas Dynamics	Wind Tunnel, Air Flow rig, Smoke tunnel, Nozzle testing apparatus, compressor, Three component balance, Data acquisition system
2	HMT Lab	Multi-purpose air duct, fluidized bed apparatus conductivity apparatus, convection and radiation apparatus, computer linked boiling apparatus
3	Thermal Engg.	Air compressor test rig, Two-shaft gas turbine, Fire and Flash point apparatus, cloud point apparatus, Bomb calorimeter, Viscosity apparatus, etc.
4	Fluid power and Automation	Centrifugal, gear & reciprocating pumps, Pelton wheel, Meta centric height apparatus, Pipe friction, Francis turbine, Hydraulic trainer, PLC trainer, Bernoulli's apparatus and Orifice Apparatus, etc
5	I.C Engines	Two strokes and four stroke diesel engines test rig, engine cut section model, 5-gas analyzer, smoke meter, temperature synergy, etc



6	Biodiesel	Integrated Biodiesel Reactor System (consists of mechanical oil expeller, decorticator, baby bath boiler and oil filtering unit), magnetic oil stirrer, 1-litre capacity biodiesel reactor, Gas chromatograph(GC), bomb calorimeter, Centrifuge, flash and fire point apparatus, cloud, pour point apparatus, Setavis viscometer.
7	R &A/C	Computer linked ref. unit, Computer linked A/C unit, vapor compression R & A/C unit, Heat pump, Mini cold storage, Ice plant, Refrigerator, cut section models, Desert Air Cooler, Air Conditioner (2 Nos.) and Refrigerator, etc
8	Dynamics and Kinematics	Universal vibration testing operators, CAM analysis machine, Reciprocating and Rotating mass balancing units, Gyroscope, Governor apparatus, function generator, digital oscilloscope, acoustic insulation test apparatus with amplifier, Static and Dynamic Balancing Demonstrator, Cam Analysis Apparatus, Motorised Gyroscope and Coriolli's Acceleration Apparatus, etc.
9	Strength of Material	UTM, Torsion testing unit, Impact testing unit, fatigue testing unit, hardness tester, etc
10	Tribology	Hertzian, Contact apparatus, Air bearing apparatus, Multi-purpose friction and wear tester
11	CIM and Robotics	Duet CNC-cum milling m/c. Max Turn CNC production, CNC machine with external turning carbide tool holder, Max Mill CNC production milling machine with tooling and holder adaptors, SCARA robot, etc
12	Computer Lab &CFD	PC , related peripherals, printers and softwares
13	Metrology and Material Science	Measuring instrument, Microscope, Pit furnace, profile projector, polishing machine
14	Composite lab	Ultrasonic bath, Hot air oven and Muffle furnace,etc
15	Advanced Manufacturing Lab	HP Desk top Computer system – 5 Nos,etc
16	Seminar Hall	LCD projector, Smart class room system and PA system, Invertors, etc
17	Workshops	Different workshops such as carpentry & pattern shop, machine and maintenance shop, fitting shop, welding shop, forging & foundry shop and sheet metal shop with various equipments/machineries, hand tools and measuring instruments.



4.8 DEPARTMENT OF CHEMISTRY

4.8.1. A Brief Profile of the Department

The Department offers courses for Under-Graduate levels (Base/ Diploma/ Degree module) of Engineering & Technology streams. The Department also offers courses for Degree module of Forestry stream. The department has started M Sc programme since the academic session, 2009-10. Initially the department was offering only Organic Chemistry specialization in M Sc. We started offering Inorganic Chemistry specialization also since the academic session, 2015-16. Consequently, the 2015-16 Batch of M Sc students were able to take Inorganic chemistry specialization also since Jul-Dec, 2016 semester. Admission process for 11th batch in M. Sc (Chemistry) was completed in July, 2019 through the Written Test conducted by NEPGET. Admission Test for Ph D programme was also conducted in July, 2019. 22 M Sc and 04 Ph D students were admitted in 2019.

Contributions of the faculty members in the Institute administration are given below:

1. Prof. H. S. Yadav joined is the Director, NERIST, Nirjuli, Arunachal Pradesh w.e.f. 06 March, 2018. He is a member of BoS of Chemistry Department.
2. Prof. P. K. Tripathy is a member of AC of the Institute. He is a member of BoS and DPGC of Chemistry Department.
3. Prof M F Hussain is the member of BoS of Chemistry Department. He is a member of AC of the Institute.
4. Prof N Deb is a member of BoS and DPGC of Chemistry Department. He is amember of NEPGET of the Institute. He is a member of AC of the Institute.
5. Dr. J. Bhuyan is looking after the Central Research Facility (CRF) as Coordinator in this period and still continuing. He is the convenor, DPGC, of Chemistry Department. He is the Departmental Coordinator, automation, and NEE Committee.
6. Prof A K Gupta has taken the charge of Head, Department of Chemistry, from 24.04.2018. He is also a member of BoS of Chemistry Department. He is the Chairman, DPGC, of Chemistry Department. He is a member of AC of the Institute.
7. Dr M Yadav is a member of BoS of Chemistry Department. She is the Departmental representative, Member, Committee for Internal Complaint Committee under Sexual Harrassment of Women at Workplace Act 2013 and Member of Parent Teacher Association of KV, NERIST.
8. Dr S L Bharati is a member of BoS of Chemistry Department.

Participation of the Faculty members in the Departmental administration were as follows:

1. Dr. Meera Yadav is the Laboratory in-charge of Chemistry Lab-II
2. Dr. J. Bhuyan is the Laboratory in-charge of PG Lab-I & Instrumentation Lab.
3. Dr. N. N. Yadav is the Laboratory in-charge of PG Lab-II
4. Dr A. Murugan is the Laboratory in-charge of PG Lab-III
5. Dr. S.L. Bharati is the Library in-charge of the department, and the departmental representative to the Central Library, NERIST
6. Mr N G Singh is the Laboratory in-charge of Chem Lab-I

4.8.2. Academic activities:

The revised courses of UG, PG and Ph D courses (approved by the fourth Board of Studies held on 23.03.2017) have been implemented from academic session, 2017-18. The DPGC of the department looks after various activities of the students of M Sc and Ph D Courses. The various DC committees of the research scholars have been constituted to look after the progress of the work of the Ph D students. Systematic approach has been made to engage theory and practice classes regularly. All the courses were fully covered in time. Tests and practical examinations were conducted successfully. Results of Semester examinations, supplementary examinations, make up tests and quizzes of all the courses were conducted as per schedule and the results submitted to the Controller of examination.

4.8.3. Laboratories and Laboratory Development:

In the Laboratories, Instrumentation facilities that are in working conditions are given below

- i) Digital Conductivity meters
- ii) Polarimeters
- iii) Digital pH meters
- iv) Differential Scanning Calorimeter (DSC)
- v) Rotary evaporator
- vi) Melting Point apparatus
- vii) Digital Magnetic Stirrer with hot plate
- viii) Quartz Bi-Distillation
- ix) Variable volume micropipette
- x) Analytical balance
- xi) FT IR instrument
- xii) UV-VIS instrument

4.8.4. Projects completed by the UG/PG/Ph D students:

The presentation of the following project reports were conducted on 14.05.2019 for the M.Sc Final year (PG) students before the Committee constituted for the purpose.

Sl No.	Title of Project	Roll No.	Name of the Student	Supervisor
01	A Peroxidase Biomimetic System Based on CeO ₂ Nanoparticles	MS/17/CH/03	Mr Debashis Bora	Prof H S Yadav
02	Reinvestigation of Conversion of Eugenol and Isoeugenol to their Acetyl and Methyl Derivatives: Reproducibility and Usefulness as an Industrial Process	MS/17/CH/04	Miss Seema Gupta	Prof A K Gupta
03	Comparison of Peroxidases from Radish Source with Ceric Ammonium Nitrate for Green Chemistry Oxidation	MS/17/CH/05	Miss Shilpa Saikia	Prof H S Yadav
04	Decolourization of Methylene Blue by Mn (III) Complexes	MS/17/CH/06	Miss Baisali Hazarika	Dr S L Bharati
05	Synthesis and Characterization of some Zinc (II), Iron(III) and Oxovanadium	MS/17/CH/07	Mr Anurag Deka	Dr J Bhuyan



	(IV) Porphyrin and Isoporphyrin Complexes			
06	Synthesis of Three-Membered Azaheterocycle Aziridine and its opening Reaction	MS/17/CH/08	Mr Monuranjan Gogoi	Dr N N Yadav
07	Purification of Catalase to Homogeneity from Chayote Squash	MS/17/CH/09	Miss Mridusmita Barman	Dr Meera Yadav
08	Phenylisothiocyanate mediated facile Synthesis of 4-Arylidene-1-phenyl-2-substituted Styryl-2-imidazolin-5-ones and their Anti-Microbial Assessment	MS/17/CH/10	Mr Suprobh Saurabh Bordoloi	Prof P K tripathy

4.8.5. Short-term courses/seminars/workshops organized at NERIST: NIL

4.8.6. Short-term courses/seminars/workshops/conferences attended by the Faculty:

Dr J Bhuyan attended the following Programmes:

1. Participated at the AICTE sponsored Two-weeks Faculty Development Programme on “Impact of Climate Change on Water Resources” during 14/10/2019 – 25/10/2019, held at the Department of Agricultural Engineering, NERIST .
2. Attended and presented paper on Modern Trends In Inorganic Chemistry, MTIC-XVIII, Organized by Department of Chemistry, IIT Guwahati in association with Gauhati University and Tezpur University, during 11-14th December, 2019, at IIT Guwahati (Paper title: Isoporphyrins of water-soluble porphyrins: Synthesis, properties and potential applications).
3. One week Faculty Development Programme on “ICT Tools for Teaching, learning Process and Institutes” held on 13th-20th January 2020, Jointly organized by Electronics and ICT Academics by the Ministry of Electronics and Information Technology, Govt. of India

Dr Meera Yadav attended the following Orientation Programmes:

1. **FDP for two weeks on “Impact of climate change on water resources” AICTE sponsored**, organised by Dept. of Agricultural Engineering, NERIST. Oct 14-25, 2019.
2. **International conference on “Modern trends in Inorganic chemistry”** Organised by Dept. of Chemistry, IIT Guwahati. Dec 11-14, 2019.
3. **107th Indian Science Congress**, Venue: University of Agricultural Sciences, Bangalore, Jan 3-7, 2020.
4. **FDP for one week on “ICT Tools for teaching, Learning process & Institutes”**. Organised by Electronic & ICT academics. Jan 13-17, 2020.
5. **National level training programme on “Disaster management”**. Organised by National Institute of Disaster management in collaboration with NERIST. Feb 27-29, 2020.

Dr N N Yadav attended the following Programmes:

1. Participated in Faculty Development Programme on topic “**Network Security**” at NERIST” on May 20-24, 2019 at NERIST conducted by Electronics and ICT Academics.
2. Participated in AICTE Sponsored Two Week Faculty Development Programme on topic “**Impact of Climate Change on Water Resources**” on October 14-25, 2019 at NERIST conducted by Department of Agricultural Engineering, NERIST.



3. Delivered Invited Lecture in M. P. P. G College, Jungle Dhushan (Affiliated to DDU Gorakhpur University, Gorakhpur on topic “**Green Chemistry**” on 13th February 2020.
4. Participated in 107th Indian Science Congress held at University of Agricultural Sciences, Bangalore, Title “**Ring expansion of Chiral Aziridines: Application towards the Asymmetric Synthesis of Nitrogen Containing Natural Products**” on January 3-7, 2020.

Dr Shashi Lata Bharati attended the following Orientation Programm:

1. FDP attended (13-17 January 2020), Title: ICT tools for Teaching, Learning Processes and Institutes jointly organised by Electronics and ICT Academies at NERIST, Nirjuli, AP.
2. Two days National Level Training Programme attended on Disaster Management from 27-28 February 2020 at NERIST in collaboration with National Institute of Disaster Management, New Delhi.

Dr A Murugan attended the following Courses:

1. A one-week Faculty Development Programme on “**Network Security**” jointly organized by Electronics and ICT Academics held from **May 20-24, 2019** through National Knowledge Network under the “**Scheme of financial assistance for setting up of Electronics and ICT Academies**” by the Ministry of Electronics and Information Technology (MeitY), Government of India.
2. A one-week Faculty Development Programme on “**Deep Learning and Applications**” jointly organized by Electronics and ICT Academics through National Knowledge Network under the “**Scheme of financial assistance for setting up of Electronics and ICT Academies**” by the Ministry of Electronics and Information Technology (MeitY), Government of India from **27 May – 31May, 2019 at NERIST, Nirjuli.**
3. A one-week Faculty Development Programme on “**VLSI Chip Design Hands on using open source EDA**” jointly organized by Electronics and ICT Academics held from **08-12 July 2019** through National Knowledge Network under the “**Scheme of financial assistance for setting up of Electronics and ICT Academies**” by the Ministry of Electronics and Information Technology (MeitY), Government of India **at the remote center NERIST, Nirjuli** of E & ICT Academy IIT Guwahati.
4. AICTE sponsored two weeks Faculty Development Programme on “**Impact of Climate Change on Water Resources**” organized by the **Department of Agricultural Engineering, NERIST, Nirjuli** during **October 14-25, 2019.**

Mr N G Singh attended the following Courses:

1. One –week Faculty Development Programme on “**ICT Tools for Teaching Learning Process & Institutes**” January 13-17, 2020 at NERIST, Nirjuli, Arunachal Pradesh, Jointly organized by Electronics & ICT Academies under MeitY, Govt. of India
2. Participated and presented a poster at “**the National Conference on Recent Advances in Chemistry**”, Organized by Department of Chemistry, NIT, Meghalaya, October 14-15, 2019

4.8.7. New degrees/ Professional Memberships obtained by the faculty:

Dr N G Singh obtained the membership of the following institutions:

1. Life Member, Membership no. 1727, w.e.f. 2015, The Association of Chemistry Teachers, Homo Bhaba Centre for Science Education, TIFR, Mumbai
2. Life Member, Membership No. LM 625, w.e.f. 2013, ISMC, Chemistry Division, BARC, Mumbai.

4.8.8. Achievements/awards/recognition earned by the faculty: NIL

4.8.9. Projects sanctioned by outside agencies to the faculty of the Department: ONE

Title of the project: **Density functional theory (DFT) investigation of metalloisoporphyrins as near infra-red dyes and photosensitizers for photodynamic therapy and iron(III) isoporphyrins as alternatives to iron(IV)-oxo porphyrin π -cation radical**

Funding Agency: **Science and Engineering Research Board (SERB), DST, New Delhi, Govt. of India**

Date of sanction: 05-02-2020, Total Amount: Rs. 6,60,000/-

4.8.10. Publications:

(a) In journals:

1. N. G. Singh, K. D. Borah, S. Majumder, and J. Bhuyan, "Ethanol coordinated zinc trimethoxyphenylporphyrin: Structure, theoretical studies and formation of isoporphyrin", *Journal of Molecular Structure*, Elsevier, 2020, 1200, 127116
2. K.D. Borah and J. Bhuyan, "Methoxy-isoporphyrins of water-soluble porphyrins: Synthesis, characterization and electrochemical properties", *J. Coord. Chem.*, 2019, 72, 2251-2260
3. Meera Yadav, Dencil Basumatary, Parag Nath and Hardeo Singh Yadav, "Catalytic biotransformations and inhibition study of Peroxidase from *Luffa aegyptiaca*", *Current Organocatalysis.*, Vol 7, DOI 10.2174/2213337207666200211095038 (2020).
4. Meera Yadav, Nivedita Rai and Hardeo Singh Yadav, "Bioconversion of Lignocellulose materials using different pre-treatment strategies - A review", *Research Journal of Chemistry and Environment.* (2020) Accepted.
5. **Yadav, N. N.**; Lee, Y.-G.; Srivastava, N.; Ha, H.-J. (Alkylative Ring-Opening of Bicyclic Aziridinium Ion and Its Application for Alkaloid Synthesis) *Frontiers in Chemistry* **2019**, (7), doi: 10.3389/fchem.2019.00460
6. Suryachandra, D. K.; Tenneti, S.; **Yadav, N. N.**; Yadav, J. S. "Stereoselective synthesis of C1-C11 fragment of antitumor cyclodepsipeptide (-)-doliculide", *Indian Journal of Chemistry* **2020**, 59B, 376–384.
7. Niharika Anand, Sudha Yadava, Pankaj Kumar Chaurasia and **ShashiLataBharati**. Synthesis of a novel manganese (III) porphyrin and its catalytic role in the selective oxidation of

- aromatic alcohols. **Russ. J. Inorg. Chem.**, 2019, 64(9), 1101-1104. ISSN 0036-0236 (SCI and SCOPUS indexed journal, **Pleiades-Springer**).
8. Pankaj Kumar Chaurasia, **ShashiLataBharati**. Recent Myco-Dye Decolorization Studies (Mini-review). **J. Biotechnol. Bioeng.**, 2019, 3(4), 27-31. ISSN 2637-5362 (Sryahwa publication, USA).
 9. ChandanaSarma, **ShashiLataBharati** and Pankaj Kumar Chaurasia. Manganese Schiff Base Complexes and their Biological Catalytic Applications. **Open Access J. Chem.**, 2020, 4(1), 39-43. ISSN 2637-5834. (Sryahwa publication, USA).
 10. Study on the condensation of different hydroxyl aromatic aldehydes with 2-Substituted 2-oxazolin-5-ones generated in situ, Pubanita Bhuyan and P. K. Tripathy *American J. Heterocyclic Chem.*, 5(1), 1-3 (2019)
 11. Solvent free quick conversion of mono- and dicarboxylic acids into their corresponding anilidea with phenylisothiocyanate, Gunanka Hazarika and P. K. Tripathy *American J. Heterocyclic Chem.*, 5(1), 4-6 (2019)
 12. A facile synthesis of 1,2-disubstituted 4-arylmethylene-2-imidazolin-5-ones via 2-substituted 2-oxazolin-5-ones, Sangeeta Kalita and **P. K. Tripathy**, **International Journal of Chemical Studies**, 7 (3), 3655- 3658 (2019). (Online ISSN:: 2321-4902, Print ISSN: 2349-8528, Impact factor: GIF: 0.565.
 13. Phenyl isothiocyanate mediated facile synthesis of 4-Arylidene-1-phenyl-2-substituted styryl-2-imidazolin-5-ones and their anti-microbial assessment, Suprobh Saurabh Bordoloi and **P. K. Tripathy**, **International Advanced Research Journal in Science, Engineering and Technology**, 6 (6), 63- 67 (2019). (Online ISSN: 2393-8021, Print ISSN: 2394-1588) ,Impact Factor: 5.551, DOI: 10.17148/ IARJSET.2019.6609

(b) Conference papers:

1. Paper presented Title “**Ring expansion of Chiral Aziridines : Application towards the Asymmetric Synthesis of Nitrogen Containing Natural Products**” in 107th Indian Science Congress held at University of Agricultural Sciences, Bangalore, January 3-7, 2020
2. Murugan, Mithun Chakrabarty and V. Thandiayyakone , Cyclic Voltammetric Studies of Vanadyl porphyrin, 5th National Conference on Technologically Important Crystalline and Amorphous Solids (TICAS-2019) at Kalasalingam Academy of Research and Education, Krishnsnkoil, (ISBN: 978-81-909237-4-3), 5th & 6th April 2019
3. CeO₂ nanoparticle as an emerging catalase mimicking activity. Authors: Meera Yadav and Anandita Hazarika, Indian science congress in the section of chemical sciences. pp 128, Jan 3-7, 2020. Univ. of Agricultural sciences, Bangalore.
4. B. J. Gogoi, K. Sundaramahalingam, N. Nallamuthu and A. Murugan, Electrical Impedance Studies of PVA-PVP-Na₂SO₄ Polymer Electrolytes for Solid State Battery Application, 5th National Conference on Technologically Important Crystalline and Amorphous Solids (TICAS-2019) at Kalasalingam Academy of Research and Education, Krishnsnkoil, (ISBN: 978-81-909237-4-3), 5th & 6th April 2019

(c) Books:

1. Pankaj Kumar Chaurasia, **ShashilataBharati (Eds). Book:** Research Advances in the Fungal World: Culture, Isolation, Identification, Classification, Characterization, Properties and Kinetics, **Publisher:Nova Science Publisher, Inc., USA.** ISBM: 978-1-53617-197-6 (2020).
2. Yadav, M., 2019. Ecofriendly development of environmental sustainability by ligninolytic enzymes article in Kalita, U., Kakati, D., Patgiri, D.(Eds.), Reflection, Purbayon publication, Guwahati University, India, pp 228-230. ISBN:978-93-88593-16-8

(d) Chapters in a book:

1. **Bioinspired Models of Mo and W-Enzymes in CO₂ Reduction** Jagannath Bhuyan and Sabyasachi Sarkar Chapter in Volume 5, Bioinspired Chemistry: From Enzymes to Synthetic Models, Edited By: Marius Réglier. Series on Chemistry, Energy and the Environment, World Scientific, Publishing Co. Pte. Ltd. 5- Toh-Tuck Link, Singapore- 596224, **2019**, ISBN 9789813274433
2. Pankaj Kumar Chaurasia and **ShashiLataBharati**.Fungi and Their Associated Enzymes (**Chapter 1**).Book Title: Research Advances in the Fungal World: Culture, Isolation, Identification, Classification, Characterization, Properties and Kinetics. 2020, Pages 03-20. ISBN: 978-1-53617-197-6. **Nova Science Publisher, USA.**
3. Pankaj Kumar Chaurasia and **ShashiLataBharati**.Introductory Approach to the Kinetic Properties of Fungal Laccases(**Chapter 17**).Book Title: Research Advances in the Fungal World: Culture, Isolation, Identification, Classification, Characterization, Properties and Kinetics. 2020, Pages 373-383. ISBN: 978-1-53617-197-6. **Nova Science Publisher, USA.**

4.8.11. Interaction of faculty / department with outside agencies: Nil

4.8.12. Consultancy Projects undertaken: Nil

4.8.13. Achievements of students : One PhD student, Ms Nivedita Rai has been awarded PhD degree

4.8.14. Any other relevant information:

Two new laboratories are under construction in the department. One of the two laboratories will be for M Sc and the other will be a research Laboratory.

4.9 DEPARTMENT OF PHYSICS

4.9.1. A Brief Profile of the Department

Faculty Profile

Faculty members who were engaged in teaching, research, administration for minimum one semester in the period from 1st April 2019 to 31st March 2020

Sl. No.	Name & Designation	Qualification, Year & University	Areas of Research Interest
1.	Prof. Tado Karlo, Professor & (HOD)	Ph.D., 1997 Delhi University	Mathematical Physics, Climate Physics, Solar Energy, Acoustic Phonetics, Rainwater Harvesting, Science Popularization, Group Theory
2.	Dr. Th. Gombi Devi Associate Professor	Ph.D., 2005 NEHU, Shillong	Chemical Physics, Biophysics
3.	Dr. Mukesh Upadhyay Associate Professor	Ph.D., 2005 Dr. R. M. L. Awadh University	Solid State Physics, Electronics
4.	Dr. Rajesh Kumar Yadav Associate Professor	D.Phil., 2007 Allahabad University	Theoretical Condensed Matter Physics
5.	Dr. Kamal Saharia Assistant Professor	Ph.D., 2009 Gauhati University	Theoretical Plasma Physics
6.	Dr. Akbari Jahan Assistant Professor	Ph.D., 2014 Gauhati University	Theoretical Physics, High Energy Physics Phenomenology
7.	Dr. Kunal Borah Assistant Professor	Ph.D., 2014 Tezpur University	Electronics, Microwave Electronics, Antenna

*Prof. P.R. Alapati is serving in West Bengal on deputation and Prof. Arvind Pandey is serving in Jharkhand on lien.

Staff Profile

S.No.	Name	Designation	Deployment
1.	T.K. Ghosh	Scientific Officer	5 M.Sc. Labs and Research Labs
2.	B.P. Deka	Sr. Instructor	Diploma/Degree Lab
3.	O.S. Rathor	Sr. Instructor	Base Lab
4.	Bulu Roy	Lab Attendant	Base Lab
5.	Manoj Engti	Lab Helper	Diploma/Degree Lab
6.	Dogin Rinya	Mali	5 M.Sc. Labs
7.	B.P. Dasgupta	UDC	HoD Office
8.	S.M. Roy	Peon	HoD Office

M.Sc./Ph. D. Students' Profile

Intake (PG&PhD)

Intake			Out-turn	
M.Sc.		Ph.D.	M.Sc.	Ph.D.
1 st Year	2 nd Year			
23	10	3	22	1

Placement/Achievement (PG&PhD)

NET/JRF	Employed
0	2

4.9.2. Academic Activities

As in the previous year, the Department of Physics offered **eight core courses** for the undergraduate students at different levels (Base, Diploma, and Degree) of Engineering and Applied Science Streams. Details of these courses are:

Module	Course Code	L-T-P-Cr	Title of the course
Base	PH1101	4-0-2-5	Physics- I
	PH1201	4-0-2-5	Physics- II
Diploma	PH3101	4-0-2-5	Physics-III
	PH3102	2-0-2-3	Physics-IIIB (for AE, CE,CS& ME)
	PH 3201	2-0-2-3	Physics- IVA (for CS)
	PH3202	2-0-2-3	Physics- IVB (for AE, CE & ME)
Degree	PH3103	3-0-0-3	Atmospheric Physics and Climate Change (for Forestry)
	PH4301	4-0-2-5	Comprehensive Physics (Bridge course)
	PH5101	3-0-2-4	Modern Physics (for EE and EC)

(A) Department of Physics offered Condensed Matter Physics centric M.Sc. (Physics) program, course details of which are given below:

Module	Course Code	L-T-P-C	Title of the course
M.Sc.	PH-7101	3-1-0-4	Classical Mechanics
	PH-7102	3-1-0-4	Mathematical Physics
	PH-7103	3-1-0-4	Computational Physics & Programming
	PH-7104	3-1-0-4	Quantum Mechanics-I
	PH-7151	0-0-6-3	General Physics Lab-I
	PH-7152	0-0-6-3	Computer Lab (Programming in C++)
	PH-7201	3-1-0-4	Electrodynamics
	PH-7202	3-1-0-4	Statistical Mechanics
	PH-7203	3-1-0-4	Elementary Condensed Matter Physics
	PH-7204	3-1-0-4	Quantum Mechanics-II
	PH-7251	0-0-9-5	General Physics Lab-II
	PH-7252	0-0-9-5	Condensed Matter Physics Laboratory

	PH-8101	3-1-0-4	Atomic & Molecular Physics
	PH-8102	3-1-0-4	Electronics
	PH-8103	3-1-0-4	Nuclear Physics
	PH-810*	3-1-0-4	Special Paper-I (Condensed Matter Physics)
	PH-8151	0-0-6-3	Optics & Nuclear Physics Laboratory
	PH-8152	0-0-9-5	Electronics Laboratory
	PH-8201	3-1-2-5	Group theory & Applications
	PH-820*	3-1-0-4	Special Paper –II (Condensed Matter Physics)
	Ph-825*	0-0-6-3	Special Paper Laboratory (Condensed Matter Physics)
	PH-80**	3-0-0-3	Elective
	PH-8299	0-0-16-8	Project

(B) Due to faculty shortage, research scholars, along with regular faculty members, were engaged for conducting all the practical classes of UG courses. The practical physics classes for all the UG and PG courses were conducted in the following laboratories.

Module	Course(s)	Labs
Base	PH1101, PH1201	Physics Lab I
Diploma	PH3101	Physics Lab II
	PH3201	
	PH3202	
Degree	PH4301, PH5101	
M.Sc.	PH7151	Physics Lab III/General and Nuclear Physics Lab, Optics Lab I & II
	PH7251	
	PH-810*	Solid State Physics Lab
	PH-820*	
	PH-8152	Electronics Lab

4.9.3. Laboratories & Laboratory Development

1. The M.Sc. Program of the Physics Department has a curriculum designed to train M.Sc. students to pursue research mainly in Chemical Physics, Soft and Condensed Matter Physics. Accordingly, M.Sc. and Ph.D. laboratories have been developed to meet the experimental requirements in these fields only. This kind of academic ecosystem has been unfair to those interested in areas of theoretical physics like particle physics, mathematical physics, plasma physics, quantum field theory, climate physics, etc. Therefore, mid-course correction is underway.
2. The dream of having UG labs with sufficient sets of apparatuses for “one class, one experiment” continues to remain a remote possibility. Ideally, in a given practical class, only one experiment should be done by all the students. This is possible only if (a) there are as many sets of apparatus as there are students and (b) there is a writing board on which the theory, procedure, precautions, etc., can be explained before the students start doing the experiments. Sufficient lab space, equipments and technical manpower are required for developing the ideal labs for Base, Diploma and Degree engineering students of NERIST.
3. Initiative has been taken to replace the existing lighting system with more efficient LED lighting system to overcome the problem of illumination in all the labs.

4. Due to power shortage, the 10 KVA UPS of Computer Lab developed issues. Further, with the doubled intake of M.Sc. students, the Department needed a room with more space for the Computer Lab. Room No. 26 has been allotted to Physics Department for Computer Lab. Forty-five computers along with necessary furniture have been requisitioned for procurement. The new Computer Lab will have uninterrupted power supply and will be used by M.Sc. and Ph.D. students.
5. Malfunctioning ACs and complete absence of AC in Computer Lab and M.Sc. Labs have been a nagging problem for the sensitive instruments and also their users. Efforts were made to get the ACs but without success. AC requirements for longevity of instruments and better working condition for students will be pursued vigorously and outcome will be reported in the next Annual Report.
6. Seepage problem of the room for the new Computer Lab has been taken up with the Civil Maintenance Cell.
7. Department of Physics has been permitted by Academic Council to generate Internal Revenue from the FIST Project. The amount collected will be deposited into the Institute Account and will be utilized only for running the facility smoothly. Internal revenue will be generated from the service charges for sample analyses using the following equipments of the FIST Lab:
 - 1) XRD Ultima IV
 - 2) LASER Raman Spectroscopy
 - 3) Impedance Analyzer (Wynn Kerr) with high temperature attachment
 - 4) Differential Scanning Calorimeter

The following equipments were procured for past DST funded project:

- 1) Hot stage polarizing microscope
- 2) Density measurement set up (bicapillary pycnometer technique)
- 3) Ultrasonic velocity measurement set up
- 4) Impedance analyzer (H-P 4192 A)
- 5) Accessories (heating) for X-ray diffraction studies on liquid crystals using XRD facility available at Central Research facility of NERIST
- 6) Facilities for synthesis of liquid crystal materials

With the expiry of project period years back, the equipments are now housed in the Liquid Crystal Lab which is/shall be under the direct control of the Head of the Physics Department.

The following instruments from past DST/MHRD projects have remained without proper care after the expiry of the projects. They will be housed in the Materials Science Lab under construction with proper care for better utilization. The list of the equipments is:

- 1) Medium Frequency (40Hz-100Hz) LCR Hi Tester (HIOKI, Japan).
- 2) Low Frequency (1mHz-100 KHz) Computer Controlled Impedance Analyzer (HIOKI, Japan).
- 3) Computer Controlled Analytical Work Station for Cyclic Voltammetry, etc. (Sycopel, UK).
- 4) Indigenous techniques to prepare ion electron conducting polymers and for their basic characterization.
- 5) X- Y-t Recorder (Graphtec, Japan)

- 6) Vacuum Coating Unit (Hind Hi-Vac., Banglore, India -Model 12A 4D) with facility of IEEE 488 interface and software.
- 7) Source - Measure Unit (Keithley Instruments, USA - Model 236) with facility of IEEE 488 INTERFACE and software.
- 8) Chemical Bath Deposition/electrodeposition set up for the preparation of semiconducting thin films and conducting polymers.
- 9) Solar Cell Performance measurement set up with the W-Halogen lamp with varying intensity.
- 10) Suryamapi, a device to measure the intensity of the light.
- 11) Keithley electrometer.
- 12) Weighing Balance.
- 13) Hydraulic Press.
- 14) Rotary Vacuum pump.
- 15) Ball milling machine.
- 16) Microprocessor based furnace.
- 17) Furnaces.

4.9.4. Projects completed by the UG/PG/PhD students

M. Sc. Physics Projects (2019-2020):

Student	Project Title	Supervisor
DhrubaJyoti Borah Ms/17/PH/01	Design of frequency reconfigurable micro-strip patch antenna	Dr. Kunal Borah
Damayanti Hazarika MS/17/PH/02	Proton structure in deep inelastic scattering at HERA.	Dr. Akbari Jahan
Jyotshna Saikia MS/17/PH/03	Structural and Electrical Properties of Ti and GdCO Doped $\text{Bi}_2\text{VO}_{5.5}$ System	Dr. Arvind Pandey
Kaushik Raj Borah MS/17/PH/04	Theoretical study of structural, electric, and vibrational properties of $\text{Cd}_m\text{S}_n(m+n=2-4)$ nanoclusters.	Dr. Rajesh Kr. Yadav
Ranjita Das MS/17/PH/05	Analysis of the logistic equation of chaotic system	Dr. Akbari Jahan
Tilling PushangTagia MS/17/PH/06	Synthesis and characterization of ZnO nanoparticles	Dr. Mukesh Upadhyay
Menlar Rallen MS/17/PH/07	Study of Helicon wave in bounded plasma systems	Dr. Kamal Saharia
Mohan Daimary MS/17/PH/08	Synthesis and characterization of SnO nanoparticles	Dr. Mukesh Upadhyay
Kaustov Moni Borah MS/17/PH/09	Review on occurrence of Landau damping in different plasma systems.	Dr. Kamal Saharia
Janardhan Boruah MS/17/PH/11	The effects of $\text{La}_2\text{Mo}_2\text{O}_9$ addition on structure and ion conductivity of $\text{Bi}_2\text{VO}_{5.5}$	Dr. Arvind Pandey
Madhuri Rajbongshi MS/17/PH/12	A DFT study of physical properties of $\text{In}_x\text{O}_y(x+y=2-4)$ nanoclusters.	Dr. R. K. Yadav

4.9.5. Short-term courses/seminars/workshops/conferences organized at NERIST

- 1) Dr. Kunal Borah organized an outreach program of CSIR-CSMCRI, Bhavnagar, Gujarat, on February 27, 2020 at NERIST, with Dr. N. K. Saha, Senior Scientist, CSIR-CSMCRI as the resource person.
- 2) Dr. Akbari Jahan organized a two-day “Workshop on An Introduction to LHC Physics”, on January 8-9, 2019 at NERIST.

4.9.6. Short-term courses/seminars/workshops/conferences attended by the faculty

Date	Short-term courses/seminars/conferences	Attended by
April 1-5, 2019	FDP on “Behavioral Remodeling and Research Methodology”, NERIST	Dr. Kunal Borah
May 20-24, 2019	One-week FDP on “Network Security”, NERIST	Dr. R. K. Yadav
May 27-31, 2019	One-week FDP on “Deep Learning and Application”, NERIST	Dr. R. K. Yadav
July 1-5, 2019	FDP on “Antenna Trends”, NERIST	Dr. M. Upadhyay
July 8-12, 2019	FDP on “VLSI Chip Design Hands Using Open Source EDA”, NERIST	
September 6-7, 2019	National Conference on Computational and Characterization Techniques in Engineering and Sciences, , REC, Ambedkar Nagar,	
September 15-19, 2019	XV th International Conference Molecular Spectroscopy, Wroclaw, Poland	Dr. Th. Gomti Devi
October 14-25, 2019.	Two weeks FDP on “Impact of Climate Change in Water Resources”, NERIST	Prof. Tado Karlo Dr. Kunal Borah
November 15-16, 2019	National Conference on Application of Mathematical Modelling Optimization Techniques in Mechanical Engineering, SRMS CET, Bareilly	Dr. M. Upadhyay
February 27-29, 2020	National Level Training Programme on Disaster Management, NERIST	Dr. R. K. Yadav Dr. Kunal Borah

4.9.7. New Degrees/Professional Memberships obtained by the faculty: No new membership/degrees.

4.9.8. Achievements/awards/recognition earned by the faculty:

Dr. Mukesh Upadhyay gave an Invited Talk at SRMS, Bareilly on the topic “Mathematical Modeling in Engineering and Some Technical Terminologies” in September 2019.

4.9.9. Projects sanctioned by outside agencies to the faculty of the department: NIL**4.9.10. Publications:****(a) Refereed Journals**

- 1) *Role of Al and Ti doping in modelling electrical properties of BIVOX system*, Journal of Advanced Ceramics, Diptimayee Tripathy, Amarjyoti Saikia, Gyati Tachang Tado and Arvind Pandey, December 1, 2019.
- 2) *Effect of none-extensivity on the characteristics of super solitons in a two temperature electron plasma*, *Contribution to Plasma Physics*, Rajkamal Kakoti and K. Saharia, January 2020
- 3) “Synthesis and Characterization of ZnO Nanoparticles”, Mukesh Upadhyay, Vigyan Garima Sindhu, Issue 112, pp. 127-131, Jan-March 2020.

(b) Conference Papers

- 1) Vibrational Spectroscopic study of bio molecules, National Conference on Green, Sustainable and Evolving Sciences, Th. Gomti Devi (GSES-2019), page-114, June 28-29, 2019
- 2) A comparative study of L-Threonine: Both experimental and computational approach, Bhargab Borah and Th. Gomti Devi, GSES-2019, page-157, June 28-29, 2019
- 3) Synthesis and characterization of Cd complex L-Proline molecule using vibrational techniques and molecular docking analysis of the complex, Th. Gomti Devi and Bhargab Borah, CMS2019, page-146, September 15-19, 2019.
- 4) Investigation of interacting states and binding sites of aminobenzoic acid (PABA) and L-Proline using vibrational spectroscopy and molecular docking, Bhargab Borah and Th. Gomti Devi, ICMS2019, page-35, September 15-19.
- 5) Vibrational spectroscopic studies and molecular property analysis of Tamosifen in monomer and dimer states, Th. Gomti Devi and Mukunda Madhav Borah, page-147, ICMS2019, September 15-16, 2019.
- 6) Synthesis and characterisation of drymaria cordata using Raman, SERS and quantum chemical calculation, Neelam Kuma and Th. Gomti Devi, ICMS2019, page-148, September 15-16.
- 7) Vibrational Band Shape Analysis of Threonine in Polar aprotic solvent, Neelam Chetry and Th. Gomti Devi, ICOPVS-2020, page-152, Feb, 24-28, 2020.
- 8) Theoretical investigation on structural and molecular properties of Megastigma-4, 7-diene-3,9-dione, Neelam Kuma and Th. Gomti Devi, ICOPVS2020, Feb. 24-28, 2020.

(c) Books: No books.**4.9.11. Interaction of faculty/department with outside agencies:** NIL**4.9.12. Consultancy projects undertaken:** NIL**4.9.13. Achievements of students:**

- 1) Mr. Bhargav Borah received the “Best Poster” award for the presentation on the topic “A comparative study of L-Threonine: Both experimental and computational approach” at GSES-2019, Cotton University, Assam, June 28-29, 2019,

- 2) Dr. Mukund M. Borah was appointed as Assistant Professor at DCB Girls' College, Jorhat, Assam in February, 2020.
- 3) Ms. Sarah Um Lego was appointed as Assistant Professor, Govt. College, Tezu, Arunachal Pradesh in July 2019.

4.9.14. Any other Achievements/relevant information:

Multidisciplinary Contributions and Achievements of Prof. Tado Karlo

Around the year 1980, the shortage of trained technical manpower in North East was acute. This led to the migration, illegal and legal, of skilled manpower to the region from rest of the country and from across the international border at alarming rate. The movement of the All Assam Students' Union (AASU) was borne out of this burning issue. In the backdrop of this, Prof. B. K. Roy Burman, the then Advisor to Prime Minister, Mrs. Indira Gandhi, proposed the setting up of a technical institution with a modular structure to address the regional technical manpower requirement of engineers, supervisors and technicians, in one go. Such an Institute for North East was set up at Nirjuli, Itanagar, with the name and nature of North Eastern Regional Institute of Science & Technology (NERIST) in 1984. The vertical and horizontal academic expansion effectively took place after 20 years.

The Nodal Office of the National Technical Manpower Information System (NTMIS) for North East at NERIST kept the Planning Commission of India updated annually through All India Council for Technical Education (AICTE) and Institute of Applied Manpower Research (IAMR) for identifying gaps in technical manpower development in North East. Based on the research data generated by this Nodal Centre for North East (except Assam), Govt. of India has expanded the infrastructure for technical manpower development of the region over the years.

At the time NERIST was set up, the very same shortage of regional manpower at state level led to the employment of negligible number of technical staff, teachers, Group C and D employees, from Arunachal Pradesh. This led to a series of unrests within NERIST after 1995. Since the chairs were already occupied and aspiring Arunachal youth could not find jobs in the Institute despite entitlement under reservation policy of Govt. of India, there appeared to be no solution within sight to the protests by the locals over employment problems.

Prof. Tado Karlo took the initiative to find a way out of the crisis by advising the Chairman, BOM, Prof. L. Dhoopar: (1) to appoint security guards from among the locals and (2) to direct the research works being done in NERIST for Arunachal development. Consequently, a proposal to set up an in-house Mini-Research Scheme for Arunachal development was formally placed in the Academic Council (AC) by Prof. Tado Karlo as its Member. Consequent upon approval of the proposal by AC, a Committee comprising of three AC Members was constituted to draft the guidelines:

1. Prof. Kalyan Kumar (Chairman)
2. Prof. K.K. Srivastava (Member)
3. Prof. Tado Karlo (Member)

Starting seed money was Rs. 50,000/- per department. Each department was asked to identify five thrust areas for the mini-projects. The following thrust areas were identified for the Department of Physics:

1. Solar Energy
2. Rainwater Harvesting

3. Science Popularization
4. Acoustics Phonetics & Script Development
5. Environmental Physics

Accordingly, Prof. Karlo attended the Master Resource Training Program at Centre for Science Education, NEHU and organized a DST sponsored Workshop on “Puppetry for Science Communications” at NERIST in collaboration with State Science Council. Need for conservation of hornbill by way of promotion of artificial beaks and importance of AIDS awareness were highlighted.

Prof. Tado Karlo also presented a paper on Hill Top Rainwater Harvesting for Drinking with Reference to Arunachal Pradesh in a regional seminar organized at NERIST by GB Pant Institute for Himalayan Environment and Development (GBPIHED), with a perspective for development of North East.

Meanwhile, Prof. Kalyan Kumar, the then Professor of Electrical Engineering and former Director of NERIST, had a project sponsored by Commission for Scientific and Technical Terminology (CSTT), for development of technical terminologies in tribal languages of Arunachal Pradesh. The project proposed to develop dictionaries of technical terminologies in various tribal dialects among other things. In the absence of scripts, this project could not take off.

Therefore, Prof. Tado Karlo organized the first ever regional seminar on Script Development for the Tribes of Arunachal Pradesh at NERIST, which was funded by Indira Gandhi Rashtriya Manav Sangrahalay (IGRMS), Govt. of India. Subsequently, a workshop on Phonetic Features funded by Indian Institute Indian Languages (CIIL), Govt. of India, was organized at NERIST. Prominent participants included:

1. Tabom Bam (former Chairman, NERIST BOM)
2. Prof. A.L. Verma (former Director, NERIST)
3. Prof. Tamo Mibang (former Director, NERIST)
4. Dr. Joram Begi (former Director, NERIST)
5. Dr. Sujit Som (former Director, IGRMS)
6. Dr. A. Borah (former Director of Research, GoAP)
7. Dr. A.C. Bhagabati (former Vice Chancellor, Arunachal University)
8. Prof. Tabu Taid (former Chairman, Assam Staff Selection Board)

Thereafter, the first ever Consultation on Script Development for Arunachal Tribes with the participation of all the tribes of the state, was organized by Prof. Tado Karlo, in collaboration with Indian Institute of Languages, Govt. India and Directorate of School Education, Govt. of Arunachal Pradesh. The Consultation was blessed by the then Governor, S.K. Singh, Chief Minister, Gegong Apang and Education Minister, Chowna Mein (incumbent Deputy Chief Minister).

End product of all these efforts is a Replicable Model which can be used by all tribes for the development of their scripts, technical terminologies, dictionaries, primers, etc. Such technical terminologies can be used for science popularization, awareness about energy conservation and environmental protection, etc., in mother tongues. Govt. of Arunachal Pradesh has approved the script for one of the major tribal languages of the state for introduction in schools.

Next, Prof. Tado Karlo was asked to look after the Community Polytechnic Scheme (CPS) of Govt. India, operating at NERIST. The Community Polytechnic Scheme was part of Common

Minimum Program of the Government under the then Prime Minister, Atal Behari Vajpayee. From government's perspective, huge public funding for technological research did not have the expected usable output for the development of the mass. The few usable research products also could not be transferred from "lab to land" due to the absence of any government mechanism. Hence, a Scheme with a Comprehensive Plan for technology transfer for rural development, which was to be directly monitored by Prime Minister's Office through a Committee of Members of Parliament, was launched by Govt. of India. Now renamed as Community Development Through Technology Programme (CPDT), the CPS operated at NERIST basically for development of Arunachal through Technology Transfer to rural communities. As its Project Officer, Prof. Karlo took the project under the Scheme at NERIST to great heights. Where no office with necessary facilities pre-existed, he got sufficient space allotted, office created with furniture and computers. Where no staff pre-existed, he got appointed Assistant Project Officer, Data Entry Operator, Field Assistants and Instructor. Where the training programs were limited to one or two, Prof. Karlo launched Nine training programs. Where no Self-Help Groups existed, he created one; where no link up with banks existed, he established links with number of banks by developing a Business Model. Where no extension centre existed, he set up Five extension centres.

As the Nodal Officer of NTMIS for North East (except Assam), Prof. Karlo created technical manpower database for Arunachal Pradesh, Nagaland, Manipur, Mizoram, Meghalaya and Tripura, thereby facilitated Govt. of India plan establishment of appropriate technical institutions at appropriate places in North East. Thus, he worked closely with AICTE and IAMR (Institute of Applied Manpower Research), Govt. of India.

Prof. Tado Karlo got the following recognitions for dedicated works, on mission mode, for development of Arunachal Pradesh in particular and North East in general, through the Department of Physics, NERIST:

- A. Prof. Tado Karlo was co-opted as a Member of a National Committee for Impact Assessment of Asian Highway through North East, other members of which included
 - a. Prof. B. K. Roy Burman, former Advisor to Prime Minister of India (Chairman)
 - b. Prof. A. C. Bhagabati, former Vice Chancellor of Arunachal University (President)
 - c. Prof. David R. Syiemlieh, former UPSC Chairman
 - d. D.K. Chakrabarty, Secretary to Govt. of India (Member)
- B. Prof. Tado Karlo was appointed by MHRD, Govt. of India as a Member of the National Committee on Indian Language of Central Institute of Indian Languages, Mysore. Prominent Literary figures from all the Indian languages, including Hindi, were members of the Committee.
- C. Prof. Karlo was appointed as Consultant by IFAD of United Nations to evaluate international projects for its funding.
- D. Prof. Karlo was selected by Govt. of United States of America to participate in an International Visitors Program on organizational management under Indo-US Exchange Program, prominent alumni of which include former Prime Ministers, Indira Gandhi and Atal Behari Vajpayee.

In pursuit of the thrust areas approved by the Academic Council for Physics Research (without availing any fund from the Institute under the dedicated scheme), Prof. Tado Karlo worked on Solar Energy and developed Dye Sensitized Solar Cells (DSSCs), by making use of dyes extracted from plants endemic to Arunachal Pradesh. DSSCs were developed with the hope that

its successful R&D has the potential to boost the rural economy of Arunachal Pradesh via cultivation of the dye-plants on large scale. Prof. Tado Karlo became the first from Arunachal Tribes to have successfully supervised a PhD scholar in Physics with good number of publications and conference papers on DSSCs; including one in a journal of American Institute of Physics and another in a journal published by Elsevier.

One of the thrust areas of the in-house Mini-Research Scheme of NERIST was Environmental Science. Prof. Karlo pursued this area by converting the “Comprehensive Physics for Forestry” into “Atmospheric Physics & Climate Physics” and designed its syllabus. Prof. Karlo taught this paper for 10 years thereafter. Further, Prof. Karlo successfully guided another Ph.D. student who worked in the field of Climate Physics.

Prof. Karlo also worked on the properties of Rice Beer (Opo) of Arunachal Pradesh, in collaboration with Dr. P.K. Neema of Agricultural Engineering Department of NERIST with a view to remove drudgery of tribal women folk. The work was reported in an International Conference held in Ahmedabad.

Prof. Tado Karlo was one of the organizers of the International Conference on Liquid Crystals and was the Convenor of the National Physics Conference of PANE, both held at NERIST. Prof. K.A. Suresh, President of Liquid Crystal Society of India, was honoured in the Conference and made Associate Member of PANE. Highly impressed by the way the Conference was organized he was instrumental in the award of the Project under FIST Scheme of DST, Govt. of India

4.10 DEPARTMENT OF CHEMISTRY

4.10.1. A Brief Profile of the Department

Introduction and brief profile of the department: The department of Mathematics came into existence as a full-fledged department in 1993. Earlier, it was a part of the Physical Science Group since the inception of the Institute in 1986. The department has highly qualified faculty members with a wide variety of specializations with a mix of both Pure & Applied Mathematics. In addition to teaching, the faculty members are actively involved in research. Also, some of the faculty members have acted as reviewers of Defence Science journal, Mathematical Review and other reputed journals and examined several Ph.D. theses of different Universities. The department is a member of NBHM, Department of Atomic Energy, Govt. of India, which provides new books and journals free of cost regularly. The department is running M.Sc. and Ph.D. programmes successfully. Department has started Ph.D. programme since 2007. At present there are twelve research scholars registered for Ph.D. degree under the supervision of faculty members of the department. Nineteen students have been awarded Ph.D. degree. At present, there are **One Professor, one Associate Professor and two Assistant Professors in the department.**

4.10.2. Academic Activities

UG and PG Syllabus revision completed. Ph.D. syllabus has been approved through BPGS.

4.10.3. Laboratories and Laboratory Development:

Lab work sheet have been designed for both UG & PG courses, Computation Laboratory has been established.

4.10.4. Projects completed by the UG/PG/Ph.D. students. Please specify the title of the project and name of the guide.

Sl.No.	Title of the Thesis	Name of the Supervisor	Name of the student
1.	Improvements in Estimation of Finite Population Mean Under Non-Response	Prof. B.K. Singh	Ms. Upasana Gogoi Regn. No.51540
2.	Study of Some General Classes of Estimators in Compromised Imputation in Two-phase Sampling	Prof. B.K. Singh	Mr. Krishnajyothi Nath Regn.No.51513
3.	On Some Generalization of Non-Commutative Rings and Their Extension to Modules.	Dr. Kh. Herachandra Singh	Nazeer Ansari Regn. No.516/033
4.	Diffraction and Radiation of Water Waves by a Vertical Cylinder in a Channel of Finite Width.	Dr. M. Hassan	Manoj Biswakrama Regn.No.51511

4.10.5. Short-term courses/seminars/ workshops/conferences organized at NERIST. Nil

4.10.6. Short-term courses/seminar/ workshop/conferences attended by the faculty.

Prof. B. K. Singh : *Population Mean Estimation using Ratio-cum Product Compromised method of Imputation in Two-Phase Sampling Scheme.* Presented in International

Conference of Numerical Analysis and Applied Mathematics 2019 (ICNAAM 2019),
Rhodes, Greece, 23-28 September 2019.

Dr. C.P.Pandey and Dr. M. M. Dixit : *Wavelet transforms Associated with Laguerre Polynomial*. Presented in National conference held at AKGEC Ghaziabad during April 24-25, 2019

Dr. M. Hassan : (1) *Hydrodynamic coefficients due to cylindrical hollow structure with water of infinite depth* . Presented in Department of Mathematics, Rajiv Gandhi University, Rono Hills, Doimukh-791112, Arunchal Pradesh, March 25- 26, 2019.

(2) One week of faculty development programme on Deep learning and application held at NERIST, Arunchal Pradesh-791109, May 27-31, 2019 organised by IIT Guwahati.

(3) One week of faculty development programme on Antenna Trends held at NERIST, Arunchal Pradesh-791109, July 01-05, 2019 organised by IIT Guwahati.

(4) One week of faculty development programme on VLSI Chip Design Hands on using open source EDA held at NERIST, Arunchal Pradesh-791109, July 08-12, 2019 organised by IIT Guwahati.

4.10.7. New Degrees/Professional Memberships obtained by the faculty : Nil

4.10.8. Achievements/awards/recognition earned by the faculty : Nil

4.10.9. Projects sanctioned by outside agencies to the faculty of the department : Nil

4.10.10. Publications:

(a) Referred journal

Upasana Gogoi and **B.K. Singh**. *Study of One Parameter Class of Ratio-cum Product Type Compromised Imputation Technique in Sample Surveys*. International Journal of Mathematics and Statistics, **Year 2019**, Vol.20; Issue Number 2; ISSN: 0974-7117(print); ISSN: 0973-8347(online).

C.P.Pandey, M.M.Dixit and Deepanjan Dass. *Calderon's Reproducing Formula for Generalized Chebyshev Convolution*. Journal of Computer and Mathematical Sciences, Vol.10(2),384-391,**2019**

M.M.Dixit, C.P.Pandey and Deepanjan Dass. *Generalized Continuous Wavelet Transform On Locally Compact Abelian Group*. Advances in inequalities and Application, Vol. 10, 1-10,(**2019**)

M. Hassan and S. N. Bora. *Diffraction of water waves by a finite circular hollow cylinder in water of infinite depth*. Applied Science (Geometry Balkan Press, Bucharest, ROMANIA), 21, 119-135, **2019**, ISSN -1454-5101, an UGC journal no. 8080.

P. Bora and **M. Hassan**. *An Analytical Solution for the Diffraction Problem by a Pair of Submerged Cylinders in Water*. 10(2), **2019**, 351-360, J. of Com. and Math. Sci., an

- International Journal, ISSN 0976-5727 (Print), ISSN 2319-8133 (Online) an UGC journal no. 44720, impact factor 4.65.
- M. Biswakarma and **M. Hassan**, P. Bora. *Added mass and damping coefficients in sway motion for a floating hollow cylinder in a channel of finite width.* Universal review (international journal) 10(5), pp.201-211 (**2019**), ISSN 2277-2723 (P), ISSN 2277-2726 (Online), an UGC journal no. 40792, impact factor 5.52.
- M. Biswakarma, P. Bora, and **M. Hassan**. *Analytical solution of surge hydrodynamic coefficients by an offshore-structure model in a channel of finite width.* J. Comp. and Math. Sci., 10(5), 961-971 (**2019**), ISSN 0976-5727, (Print), ISSN 2319-8133 (Online), an UGC journal no. 44720.
- M. Hassan**, P. Bora, and M. Biswakarma. *Wave forces due to interaction of water wave with a cylindrical hollow structure in water of finite dept.* Int. J. Sci. Res. Math. and Stat. Sci., 6(2), 73-77 (**2019**), ISSN 2348-4519, an UGC journal no.63061.
- M. Hassan**, P. Bora and M. Biswakarma. *Exciting Force by an Oscillating Water Column in Presence of Channel of Finite Width.* J. of applied Sci. and Computation. VI(V), 752-761 (**2019**), ISSN 1076-5131, Impact factor 5.8, an UGC journal no. 41238.\
- P. Bora, **M. Hassan**. *Wave loads by an oscillating water column in presence of a bottom-mounted obstacle in a channel of finite width.* SN Applied Sciences (SPRINGER NATURE), 1(10): **2019**, 1:1289, 1-8, ISSN-2523-3971, E-SCI index.
- P. Bora, **M. Hassan**. *Diffraction problem due to water wave loads on a cylinder over a coaxial bottom-mounted barrier in a channel.* Malaya Journal of Matematik, 8(1): **2020**, 171-176, UGC Care list Sr. No. (1): ISSN-2319-3786, E-ISSN-2321-5666, University press publisher.
- C.P.Pandey**, P.Phukan. *Inversion Formula For Fourier- Jacobi Wavelet Transfor.*, International Journal of Scientific and Technology Research, Vol. **8**(11), 3344-3349,**2019**
- C. P. Pandey**, P. Phukan. *Continuous and discrete Wavelet Transforms associated with Hermite Transform.* International Journal of Analysis and Applications, Vol. **18** (4), 531-549, **2020**.
- N. Ansari & **Kh. Herachandra Singh**. *On CM-Armendariz Ring.* Journal of Tripura Mathematical Society, Vol-29(56-63), **2019**
- N. Ansari & **Kh. Herachandra Singh**. *On Weak Armendariz Module.* JP Journal of Algebra, Number Theory and Its Applications, Vol-44(1-14), **2019**.
- N. Ansari & **Kh. Herachandra Singh**. *On Weak-I- Armendariz Ring.* Far East Journal of Mathematical Science, Vol-121(1-20), **2019**.
- J. Borah and S. N. Bora. *Existence of mild solution of a class of nonlocal fractional order differential equation with not instantaneous impulses.* Fractional Calculus and Applied Analysis, 22(2), 495-508, 0192.



(b) Book.

Generalized Wavelet Transforms authored by C.P. PANDEY AND M.M.DIXIT, Lambert Academic Publishing, Germany, ISBN: 978-613-9-49281-7, **2019**

4.10.11. Interaction of faculty/department with outside agencies : Nil

4.10.12. Consultancy Projects undertaken : Nil

4.10.13. Achievements of students : Four students have been awarded Ph.D. Degree.

4.10.14. Any other relevant information : Nil

4.11 DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

4.11.1. A Brief Profile of the Department

Engineering and technologies have become one of the predominant forces in shaping our vision of reality in the contemporary world. And the domain of humanistic learning enables a future technocrat to sustain the resilience of human spirit in all spheres of life. The department of Humanities and Social Sciences (HSS) of NERIST fulfills this vision of projecting a human content and consciousness required for the expansion of technological and scientific knowledge by synthesizing the sciences and technologies with social sciences and humanities. Coupled with Forestry, the Humanities and Social Sciences were initially tagged with the Applied Sciences group of NERIST. However, since 1993, it has been functioning as an independent department offering courses in English, Economics, Sociology, Psychology and Management. The department has earned a distinctive name for itself, primarily due to the wide-ranging experience of the members of its faculty and the application of innovative teaching methods, keeping in tune with the emerging developments in their respective fields of expertise. With the introduction of the research programme in the year 2006, leading to the degree of Ph. D., in various disciplines of Humanities and Social Sciences and Management, the department of HSS has taken a giant leap in fulfilling the institutional vision of “*nurturing talent and giving wings to imagination.*” The prescribed courses apart, the department is well set to provide consultancy services to various small and medium scale industries of the North Eastern region. This is coupled with a successful hosting of various short-term and need-based training programmes, seminars and special lecture series for executives, teachers and the students alike. Most of the faculty members of the department have the distinction of successfully completing research projects sponsored by such agencies as ICSSR, ICAR, McArthur Foundation, Ministry of Social Justice and Empowerment of the Government of India, AICTE, Ministry of Human Resource Development, etc. Further, the faculty members are engaged in supervising research scholars on such subjects as Economics, Human Resource Management, Marketing Management, Financial Management, and Organizational Behavior, etc. leading to Ph. D. degrees. A developing technical mind must also acquire sensitivity to socio-cultural needs of human beings. With the experience of the old and the energy of the youth, the department of HSS strives to ensure that the budding technocrats and entrepreneurs are armed with the quality of vision and personality which will enable them to use their skills in bridging the socio-technical gap and establish a strong interface between science, technology and society.

4.11.2. Academic Activities : Normal Teaching and other academic related activities

4.11.3. Laboratories and Laboratory Development: No new development during the said period.

(a) Communication Skills Development Laboratory : No new development during the said period.

Department of HSS has developed Language and communication Skills Development Laboratory recently under MHRD MODROB Scheme under the leadership of **Prof. B.D. Nayak (P.I.)** and **Shri Ranendra Prasad, (Co-P.I.)**. This laboratory is equipped with modern and latest equipment and audio system LCD TV, LCD Projector and Computer facility. This laboratory has the capacity of accommodation for 45 students.

Department of HSS has also developed a Seminar Hall under AICTE MODROB Scheme under the leadership of **Prof. B.D. Nayak (P.I.)** and **Shri Raju Barthakur, (Co-P.I.)**. This

laboratory is equipped with modern and latest equipment and audio system LCD TV, LCD Projector and Computer facility. This laboratory has the capacity of accommodation for 56 students

4.11.4. Projects completed by the PG students : Nil

4.11.5. Short-term courses/seminars/workshops/ conferences organized at NERIST : Nil

4.11.6. New Degrees/Professional Memberships obtained by the faculty : Nil

4.11.7. Achievements/awards/recognition earned by the faculty : Nil

4.11.8. Project sanctioned by outside agencies to the faculty of the department : Nil

4.11.9. Consultancy Project : Nil

4.11.10. Publications: Nil

4.11.11. Interaction of faculty/department with outside agencies : Nil

4.11.12. Consultancy Projects undertaken : Nil

4.11.12. Achievement of Students : NA

4.11.13. Any other relevant information :

Ph.D. Degree Awarded under the Supervision of **Prof. B. D. Nayak** : Biren Saikia has been awarded his Ph. D. Thesis on “Rule of Human Capital Formation in Economic Development of Assam” in September, 2019.

Dr. Shyamolee Sinha : Maw Sorum has been awarded his Ph. D. Thesis on “Performance Management Practices of LIC in Arunachal Pradesh” in September 2019.

Additional responsibilities taken up by the Faculty Members of the Department:

Prof. B.D. Nayak	➤ In-charge Seminar Hall
Prof. P. Parida	➤ Dean, Academic.
Mr. Ranendra Prasad	➤ Head of the Department ➤ In-charge Computer Lab. ➤ In-charge Communication Skills Lab.
Dr. Shyamolee Sinha	➤ Member of Library Advisory Committee
Mr. Raju Barthakur	➤ In-charge, <i>Interface</i> The NERIST News Letter

4.12 DEPARTMENT OF CENTRE FOR MANAGEMENT STUDIES

4.12.1. A Brief Profile of the Department

Centre for Management Studies (CMS) intends to impart management education to the future managers and policy makers of the region. CMS aims to pursue global vision without losing local priorities and train future managers to develop a synergy between global and local value systems.

Centre offers two years residential fulltime MBA program with a strength of 30 seats as approved by AICTE in various specialization areas i.e. Human Resource Management, Marketing Management, System Management and Financial Management. Besides MBA program, other activities of the Centre are as follows:

- Ph.D. program in Management,
- Management Development Program (MDPs) for Executive, government officers
- Personality Development Programs (PDPs) for different target groups.
- Motivational workshops.
- Consultancy in diverse areas of Management.

To promote intellectual and professional activities in Centre, the Management Forum of NERIST (MaFoN), a body comprising of student and teachers, has been very actively organizing professional activities like conducting expert talks by eminent speakers, seminars, GDs and outdoor Management Development Activities.

4.12.2. Academic activities

Name of faculty members	Course code	Course Title	No. of students	No. of weekly hours	
Dr. S Choudhury	MB 6003	Entrepreneurship in Renewable Energy	60	03	
	MB7103	Quantitative Techniques	30	03	
	MB7105	Operations Management	30	03	
	MB 7151	Business Communication & IT Lab	30	02	
	MB 8191	Industrial Training	30	04	
	MB7204	Management Information Systems	30	03	
	MB7205	Financial Markets Institutions & Services	30	03	
	MB8201	International Business	22	03	
		MB8130	Strategic Human Resource Mgt.	14	03
	MB 8299	Dissertations	07	08	
Dr. B Sarmah	MB7101	Principles of Management	30	03	
	MB8120	Sales & Distribution Management	12	03	
	MB8121	Marketing of Services	12	03	
	MB7201	Marketing Management	30	03	
	MB8220	Integrated Marketing Communication	12	03	
	MB8221	Consumer Behavior & Retail Marketing	12	03	
	MB7108	Business Environment	30	03	
	MB7151	Business Communication & IT Lab	30	02	

Dr. M Mall	MB7102	Business Economics	30	03
	MB7104	Accounting for Managers	30	03
	MB7106	Business Law	30	03
	MB8151	Enterprise Resource Planning	22	04
	MB8111	Corporate Taxation	14	03
	MB9001	Research Methodology [Ph.D.]	14	03
	MB8101	Project Management	22	03
	MB8110	Security Analysis & Portfolio Mgt.	14	03
	MB8210	International Financial Mgt.	14	03
	MB8211	Financial Derivatives & Risk Mgt.	14	03

4.12.3. Short-term courses/seminars/workshops/conferences organized by faculty members.

- a) Organised workshop cum national seminar on National Mission on Himalayan Studies, Ministry of Environment, Govt. of India sponsored “Tribal Empowerment through Entrepreneurship of Indigenous Produced Products”, 2019 (TETEIPP-2019) held on May, 9th & 10th 2019 in collaboration with Tezpur University and GB Pant National Institute of Himalayan Env. & Sustainable Development, Itanagar, Arunachal Pradesh, India.
- b) Organised workshop sponsored by NEDFi and IIM, Calcutta Innovative Park sponsored one-day workshop Comprehensive Roadmap for the development of a startup support ecosystem for north east region.
- c) All faculty members have also been involved with the development of e-content for the PG and Ph. D. students amid the pandemic COVID-19.

4.12.4. Short-term courses/seminars/workshops/conferences participated by faculty members.

Dr. S. Choudhury has participated in 2 weeks Short Term Training Programme on “Design and Development of MOOC based e-content”, 02-03-2020 to 13-03-2020 at NITTTR, Kolkata.

4.12.5. Projects sanctioned by outside agencies to the faculty of the department

- a) “Large Cardamom and Other Multilayer Innovative Farming in Mengio Circle of Arunachal and Its Impact on Sustainable Rural Livelihood.” PI: Dr. S. Choudhury, Amount: ₹40.7 Lakh, Source: NMHS, Govt. of India.
- b) “Sustainable bio-tourism in Ziro of Arunachal Pradesh: promoting micro hydel-solar PV hybrid generation operated cottage industry for biodegradable disposable serving dish utilizing locally available non-poisonous leaves”, PI: Dr. S. Choudhury, Amount: ₹40.7 Lakh, Source: DST, Govt. of India.
- c) "An assessment of health care waste management practices in health care units", Amount: ₹.10L, PIs : B. Sarmah, Source IMPRESS ICSSR, Govt. of India.
- d) Works study for review of Establishment and Personnel at Raj Bhawan (H.E.Governor's House) at Raj Bhawan, Itanagar. PIs : B. Sarmah, K. N. Dewangan, Report number: GS/RGU/10/2012(PUJ/662).

4.12.6. Publications

a) Dr. S. Choudhury

- S. Choudhury, A. Parida, R. M. Pant, S. Chatterjee S. (2019) "GIS augmented computational intelligence technique for rural cluster electrification through prioritized site selection of micro-hydro power generation system" in *Renewable Energy*, Volume 142, November 2019, Pages 487-496. <https://doi.org/10.1016/j.renene.2019.04.125>. (Elsevier)
- J. H. Boruah, R. M. Pant, S. Choudhury (2020) "Sustainable livelihood by HR capacity building in multi-cropping practices of Indian Eastern Himalayan region: A case study", in *Journal of Statistics and Management Systems*, vol.23, no.2, pages 277-284. <https://doi.org/10.1080/09720510.2020.172462>. (Taylor & Francis)
- D. Lalrochunga, A. Parida, S. Choudhury (2020) "Sustainability of UAVs in developing countries: Prospects and challenges", in *Journal of Discrete Mathematical Sciences and Cryptography*, vol.23, no.1, pages 237-248. <https://doi.org/10.1080/09720529.2020.1721887>. (Taylor & Francis)
- A. Parida, S. Choudhury and D. Chatterjee, "Optimized Solar PV Based Distributed Generation System Suitable for Cost-Effective Energy Supply," 2020 IEEE 9th Power India International Conference (PIICON), SONEPAT, India, 2020, pp. 1-6, doi: 10.1109/PIICON49524.2020.9113018. (IEEE)
- R, Athira and A. Parida, S. Choudhury, "Proposed Cooperative Farming as a Catalyst to Livelihood Augmentation for the Marginal Farmers in Majuli Island" (January 1, 2020). Proceedings of the 2nd International Conference on Information Systems & Management Science (ISMS) 2019 | Tripura University, Agartala, Tripura, India. SSRN: <https://ssrn.com/abstract=3512400> or <http://dx.doi.org/10.2139/ssrn.3512400>. (Elsevier)
- P. Biman, A. Parida, S. Choudhury, S. Chatterjee, "Augmenting Farmer Producer Company through Aligning Indigenous Community Based Beliefs and Practices: Learnings from Abotani Community of Eastern Himalayan Region" (December 30, 2019). Proceedings of the 2nd International Conference on Information Systems & Management Science (ISMS) 2019 | Tripura University, Agartala, Tripura, India. Available at SSRN: <https://ssrn.com/abstract=3511431> or <http://dx.doi.org/10.2139/ssrn.3511431>(Elsevier)

b) Dr. B. Sarmah

- N. Sharma, B. Sarmah, "Consumer engagement in village eco-tourism: A case of the cleanest village in Asia – Mawlynnong", *Journal of Global Scholars of Marketing Science*, Vol. 29, no. 2, (Taylor & Francis)
- B. Sarmah, N. Sharma, "Village Eco-Tourism and Tourist Engagement: A Case Study" (February 23, 2019). Proceedings of International Conference on Sustainable Computing in Science, Technology and Management (SUSCOM), Amity University Rajasthan, Jaipur - India, February 26-28, 2019, Available at SSRN: <https://ssrn.com/abstract=3355113> or <http://dx.doi.org/10.2139/ssrn.3355113>o. 2, 2019. (Elsevier)
- N. K. Phookan, B. Sarmah, T. S. Devi, "Exploring Determinants of Green Marketing Practices in Food Service Industry to Attain Environmental Sustainability: A Conceptual Analysis" (January 10, 2020). Proceedings of the 5th International Conference on Computers & Management Skills (ICCM 2019) | North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: <https://ssrn.com/abstract=3517420> or <http://dx.doi.org/10.2139/ssrn.3517420>. (Elsevier)
- T. S. Devi, N. K. Phookan, Sarika, B. Sarmah, "Mobile Vaani Media: A Case of Community Engagement through Mobile in India" (January 10, 2020). Proceedings of the 5th

International Conference on Computers & Management Skills (ICCM 2019) | North Eastern Regional Institute of Science & Technology (NERIST), Nirjuli, Arunachal Pradesh, India, Available at SSRN: <https://ssrn.com/abstract=3517397> or <http://dx.doi.org/10.2139/ssrn.3517397> (Elsevier)

c) Dr. M. Mall

- P. C. Mishra, M. K. Mohanty M. Mall, “Exploration of attributes influencing productivity in opencast mines”, International Journal of Business Excellence, Vol-17, no.1, 2018. (Inderscience).
- T. Norbu, M. Mall, B. Sarkar, S.Pal, A. Chakrabarty, “Revitalizing MSMEs’ Performance with Transparency: Monitoring, Mentoring and Malwaring Through IoT Intervention” Gunjan V., Garcia Diaz V., Cardona M., Solanki V., Sunitha K. (eds) ICICCT 2019 – System Reliability, Quality Control, Safety, Maintenance and Management. ICICCT 2019. (Springer, Singapore)
- A.Chakrabarty, T Norbu, M. Mall, “Fourth Industrial Revolution: Progression, Scope and Preparedness in India—Intervention of MSMEs” Solanki V., Hoang M., Lu Z., Pattnaik P. (eds) Intelligent Computing in Engineering. Advances in Intelligent Systems and Computing, vol 1125. (Springer, Singapore)
- J. P. Duarah, M. Mall, “Diversified fish farming for sustainable livelihood: A case-based study on small and marginal fish farmers in Cachar district of Assam, India”, Aquaculture, Vol. 529, 15 December 2020, 735569. (Elsevier)

4.12.7. Any other relevant information

Summer Internship Project (SIP) for 45 days by MBA Students

Students have undergone SIP in various organizations situated in various parts of north eastern region as well as in different cities of India such as: Ayana, Axom Urja, Department of Planning-Govt. of Arunachal Pradesh, India Post Payments Bank (IPPB), NEEPCO, Nestle, Odisha Coffee Growers Association, Poct Services Private Limited, Pratihtha NGO, UCO Bank.

Doctoral student guidance by the faculty members

- Dr. S. Choudhury
Ms. Soumya Das, Ms. Jyoti Hatiboruah, Ms. Athira R., Mr. Pill Biman, Mr. David Lalrochunga, Mr. S. K. Ghosh
- Dr. B. Sarmah
Mr. N. K. Phookan, Ms. T. S. Devi, Mr. S. Ghosh
- Dr. M. Mall
Ms. Priyanka Chetia, Ms. Laxmi Roy, Mr. K D Vizo, Mr. Tenzing Norbu, Mr. Jyoti Prabhat Duarah

SECTION – 5

CENTRAL FACILITIES SERVICES AND ACTIVITIES

5.1. CENTRAL LIBRARY

5.1.1. Brief Profile of the Department:

The Central Library which is the heart of the Institute was established in 1983. It provides one of the important academic services to the Institute. It is a well-equipped Library, centrally located with easy access and does provide right impetus for the intellectual growth of the students, teachers, research scholars & others around. Library has its own independent building of three floors with the carpet area of 3888 Sq. Meter. The library has a collection of 63767 text books and reference books in its stack and 37638 vols. of text books in its book bank. Library is subscribing 104 national journals, 10 magazines and 10 national & regional dailies to provide a base for enhanced learning. The Central Library with its modern collection of knowledge resources and innovative information services supports a complementary role for students, faculty, and the surrounding community in their intellectual pursuits. The library holds knowledge resources predominantly related to Science and Technology, Humanities & Social Sc., Management & other allied subjects. The whole library is covered with high speed WI-FI/ Internet facilities for its registered users.

The Institute is a member of E-Sodh Sindhu (Formerly INDEST) Consortium, MHRD, Govt. of India. and also a member of Department of Biotechnology Sponsored DeLCON Consortium. It possesses IS Codes on CD-ROM and other educational DVDs. Being an institutional member of Indian Liquid Crystal Society, Bangalore and Kaziranga Wild Life Society of Assam, it receives literature and information services from them. Library is registered member of National Digital Library, Sponsored by MHRD, New Delhi Coordinate by IIT, Kharagpur.

5.1.2. Staff Structures :

A) Assistant. Librarian	- 01
B) Sorter	- 01
C) Ministerial	- 01
E) Xerox Operator	- 02
D) Helper	- 02
E) Peon	- 04
F) MTW	- 02

5.1.3. Books/Journal & Newspapers

A) Books (Text & Reference)	= 63767
B) Books (Text) in Books Bank	= 37638
C) Journals	= 104
D) Magazines	= 10
E) News Papers	= 10

5.1.4. E-Resources/Journals

Being a core member of ESS (formerly INDEST) consortium, the faculty members & students of NERIST is entitled to receive the following E-resources:

1. ACM Digital Library- 1139 titles
2. ASCE Journals online -35 titles
3. ASME Journals online -28 titles
4. JSTORE (Data Base)
5. Economic & Political weekly
6. Web of knowledge (Data Base)
7. Oxford University Press – 141 Titles

NERIST being a member of the DeLCON Consortium can access 800+ plus e-journals. Full text e-journals are available online access through DBT-DeLCON member Institutions till 30th September, 2019. In addition to the e-journals, EBSCO-Discovery Database and Annual Review's Knowable Magazine are also available. The number of e-journals and publisher details are as follows.

1. Springer-291 e-journals
2. Elsevier-210 e-journals
3. Oxford University Press (OUP)-141 e-journals
4. Kargar-80 e-journals
5. Wiley-54 e-journals
6. AAAS-4 e-journals
7. CSHL-4 e-journals
8. MBS-1 e-journal
9. ASBMB- 1 e-journal

5.1.5. Indian Standards : Library possess a set of Indian Standard published by BIS on CD ROM.

5.1.6. A/V Materials : 139nos.DVD “Video Training Program” is available for different departments.

5.1.7. Institutional member:

1. Indian Liquid crystal society, Bangalore,
2. Kaziranga Wild life society, Assam,
3. Association of Indian University, N. Delhi
4. National Digital Library, Sponsored by MHRD, New Delhi
5. NDL (National Digital Library)

5.1.8. Departmental Library:

Departmental library has been set up for all 11 departments. Books have been procured by the library for departments are as:

i) Physics = 29	ii) Chemistry = 86	iii) Mathematics = 740	iv) Humanities = 252
v) Agri. Eng. = 275	vi) Civil Eng. = 111	vii) Elect. Eng.= 118	viii) EC Eng = 434
ix) Comp.Sc. = 234	x) Mech. Eng. = 190	xi) Forestry = 71	

5.1.9. Uservices/ Facilities:

A) Circulation Service: Library provides its core service of circulation from stack with brown's charging systems. Every user gets issued a book against a library card issued in the beginning of the session. Students and faculties are issued library cards as stated below.

- | | |
|------------------------------|-------------------------|
| a) Faculty member's | 15 cards to each member |
| b) Technical staff | 5 cards to each member |
| c) Officers | 3 cards to each member |
| d) Base module Students | 3 cards to each Student |
| e) Diploma Module Students | 4 cards to each Student |
| f) Degree Module Students | 5 cards to each Student |
| g) M.Sc./M.Tech. Students | 6 cards to each Student |
| h) MBA Students | 6 cards to each Student |
| i) Ph.D (Full Time) Students | 6 cards to each Student |

B) Reference service/ Reading facility: Library provides reference service to the users with sitting capacity of 80 persons with 3500 books of text & reference. Reading facility is provided separately with a sitting capacity of 160 seats. The reference section and reading room remains open from 9.00AM to 11.00 PM on Monday to Friday & 9.00AM to 5.30PM on Saturday.

C. Book Bank: There is separate Book bank of 37638 vols., provided to UG students as per new syllabus. The students get a set of text books for the semester covering all courses of that semester. Number of text books available module- wise, are as stated below.

- | | |
|--------------------|----------------------------|
| 1. Base Module | : 10522 vols. - 154 titles |
| 2. Diploma Module | : 12142 vols. – 208 titles |
| 3. Degree Module | : 12324 vols. – 270 titles |
| 4. Degree Forestry | : 2650 vols. – 100 titles |

5.1.10. Library Automation: Users OPAC. Online public access is available.

5.1.11. Average circulation Issue/Return

300 books per day in the beginning of the semester & App. 100 books per day in other days.

5.1.12. Library Advisory Committee.

Sl	Name	Deptt	Member
1.	Mr. N.G. Sorum	Civil Eng.	Chairman
2.	Mr. D.M. Sahu	Central Library	Member Sec.
3.	Dr. S.L.Bharati	Chemistry	Member
4.	Dr. K. Saharia	Physics	Member
5.	Ms. Piyali Das	Electrical Eng.	Member
6.	Mr. S.M. Khan	Mechanical Eng.	Member
7.	Dr. C.P. Pandey	Mathematics	Member
8.	Dr. Raju Borthakur	HSS	Member
9.	Dr. S. Choudhury	CMS	Member

10.	Dr. P.K. Pandey	Agriculture Eng.	Member
11.	Dr. Awadesh Kumar	Forestry	Member
12.	Dr. P.K. Dutta	Electronic Eng.	Member
13.	Dr. A.K. Singh Yadav	Computer Sc.	Member

5.2. TRAINING AND PLACEMENT CELL

5.2.1. A Brief Profile of the Section:

Since its inception in 1991, T & P Cell is instrumental in counseling the final year students in securing jobs in consonance with their knowledge and skills by organizing campus interviews, while simultaneously exploring various avenues for their placement. Workshops are also being organized by the Cell for the pre final and final year students to provide them with substantial exposure in the areas pertaining to their recruitment and facilitate their entry into leading and highly professional organizations.

5.2.2. Status report regarding activities:

a) Training:

The cell organized Industrial Training or field training for a minimum period of four weeks/30 days for Agricultural, Civil, Computer Science, Electrical, Electronics & Communication, Mechanical Engineering students, at the end of the pre-final year during Summer vacation, which is a compulsory requirement in partial fulfillment of the requirements of B.Tech. curricula. Some of the organizations where NERIST students undergone their training during summer 2019 are: IITs, Variable Energy, NESAC, Meghalaya Energy Corporation Ltd., NEEPCO, Power Grid Corpn. of (I) Ltd., NF Railways, ONGC, IOC (Digboi, Guwahati & Bongaigaon), Oil India Ltd., DDK, BSNL, NIC, NHPC, NERIWALM, IICPT, Modern Foods etc.

b) Placement:

This Cell arranged On-Campus and Pool Campus drives for the final year B.Sc./ M.Sc. (Forestry), B. Tech./M.Tech. and MBA students. All facilities are provided to officials of companies to conduct campus interview at NERIST. Arrangements are also made for conducting Pool campus interviews at NIT Arunachal/Shillong, Tezpur University, SIT Siliguri, SMIT, Gangtok and AEC Guwahati. The organizations which recently came to conduct campus interviews/pool campus at Guwahati/Jorhat/Shillong include: Cognizant, IBM, Axis Bank, Value Labs., Capgemini, Infosys, Oil India Ltd., Vedanta, Pie Infocom, Go Speedy Go etc.

c) Initiatives of T&P towards improvement of Placement statistics:

Considering the lack of preparedness and proper sensitization of our students for appearing screening tests during campus interviews and in order to facilitate screening and interface with major companies, T&P Cell organized mock online screening tests for the B.Tech. final year students which was conducted by M/s Ion CoCubes, Bangalore. A substantial number of students from different disciplines participated on the different types of 'On-line Tests' conducted by M/s Ion CoCubes. The Tests were conducted from 1st November to 6th November'19, on 10th & 11th December'19 & on 6th & 7th May'20.

To streamline the entire placement process, the Training & Placement Cell has entered into an agreement with M/s GREEKTURTLE, Bhopal, and adopted 'TNPSUITE' now called 'Superset' a software by the Firm. Now the placement process(s) has been totally automated and overcome operational challenges thereby forming a platform that connects students and recruiters to Placement Cell, which is serving as a Central Placement System, where we are connecting the students and the Companies, managing all Data, tracking own work, automating all placement process steps, monitoring offers, analyzing student performance to determine training needs, gaining insights from reports and customizing the system to office specific needs.

d) MoU with nearby technical Institute/University:

NERIST has entered into a tripartite agreement with the Rajiv Gandhi University, Doimukh and National Institute of Technology (NIT), Arunachal Pradesh to study, deliberate and suggest ways and means to improve the institutional ranking prospects and opportunities for the students for job placements within the existing human and financial resources of the Universities/Educational Institutions. Accordingly, the three institutions have decided to conduct joint workshops for students in areas like Communication and Soft skills, etiquette, and other skills as required by the industry and markets. Further, it has been decided to share the database of the students of three institutions with the prospective recruiters and conduct joint recruitment drives as well.

5.3. SPONSORED RESEARCH AND INDUSTRIAL CONSULTANCY (SRIC)

5.3.1. A Brief Profile of the Section

The NERIST Board of Management in its 51st meeting held on 28.08.2001 had approved the Sponsored Research and Industrial Consultancy (SRIC) Cell in NERIST to look after the smooth running of various sponsored research projects in the Institute. Presently the Cell is headed by a Professor as Coordinator. One PA and one Peon are attached with this Cell to help the day to day works of the Coordinator SRIC. The financial matters & other relevant records of all the projects of various departments like Forestry, Agriculture Engineering, Civil Engineering, Mechanical Engineering etc. are being dealt by the Finance Section.

5.3.2. Status Report regarding activities.

Presently about 34 Nos. of projects in various departments of NERIST is going on. Each project is being run by a P.I and other office functionaries as per guidelines of the sponsoring agency.

5.4. CONTINUING EDUCATION PROGRAMME

5.4.1. A Brief Profile of the Section:

- a. To provide information to the bright meritorious students about Early Faculty Induction Programme (EEIP) sponsored by AICTE and other agencies
- b. To provide information to faculty members regarding financial assistance from Government/Sponsoring agencies so that faculty members can get grant from these agencies for book writing/material preparation etc.
- c. To provide timely information and proforma to faculty members for applying AICTE or other sponsored Short Term Training Programme etc.

- d. To encourage and coordinate faculty members/departments for specially formulated self financing/sponsored short term courses for Industry, R&D personal

5.4.2. Status report regarding activities:

- a) A number of faculty members have attended Seminar/Workshops/Short Term courses/National & International Conferences during this period.
- b) Various departments of NERIST have also organized some short term programme in NERIST during this period.

5.5. KENDRIYA VIDYALAYA

5.5.1. A Brief Profile of the KV and its Activities

Kendriya Vidyalaya NERIST is a prestigious educational institute in Nirjuli. It is a single section school with the highest class being class XII. At present there are around 485 students studying in this Vidyalaya.

1. **Result of this Vidyalaya:** The Vidyalaya has produced 100% in class X and 95.83% in class XII respectively for the academic session 2019-20. And one student Miss Pragya Bhowmik class -X secured 98.4% marks and she is the 1st rank holder in the Tinsukia Region.
2. KV NERIST follows CBSE curriculum which aims at all round development of the students. The Vidyalaya not only provides quality education but also organizes many co-curricular activities to make students fit for the global competitive job market.
 - (a) Social Science exhibition: 58 students of the Vidyalaya have participated in Cluster Level Social Science Exhibition that held at KV No-2 Itanagar. It is a matter of great pride that our Vidyalaya stood first in the Cluster Level Social Science Exhibition (b) Science exhibition: Vidyalaya has participated at regional level science exhibition in 2019 and tree models have been selected for KVS National level science exhibition. And one model of Miss Lanngambi Thounaojam selected for all India National Science Exhibition.
 - (b) Scout & Guide: Our school plays an important role in Scout & Guide field. Many students have participated in different Scout Guide activities like Dwitiya Sopan testing camp, Tritiya sopan testing camp, Pre Rajya Puruskar testing camp and they are selected. The Vidyalaya also organized different activities at Vidyalaya level.
 - (c) CCA: Vidyalaya organized CCA activities for all round development of students in the Vidyalaya premises and distribute prizes for the same.
 - (d) Sports: Vidyalaya orginsed many sports activities in order to inculcate sportsmanship and leadership qualities. Further, many students participated in Regional Sports Meet in different events.
 - (e) Olympiad: Students of this Vidyalaya participated in different Olympiads time to time. 1 student of the Vidyalaya have been selected for JNSMEE-2019 and 11 students of the Vidyalaya have been selected for RMO-2019
3. KV NERIST is one of the best schools in this region. Many teachers of this Vidyalaya got trainings and in-service courses.
4. Many students of this Vidyalaya have been selected in different prestigious Institutions of Medical and engineering and national level entrance examination.

5.6. NERIST KG SCHOOL

5.6.1. A Brief Profile of the KG School

NERIST KG School was established in the year 1992. It has been started with a mission to provide pre-school education and to promote healthy peer group activity among children of the institution's employees. The school is self-financed for its recurring expenditure and is running on no profit no loss basis. Presently, the school is running three classes: Play class, Lower Kindergarten (LKG) and Upper Kindergarten (UKG).

Class	Maximum Strength	Present strength	Min. Age of Admission
Play	16	16	2.5 Years
LKG	45	44	3 Years
UKG	45	40	4 Years

Organization structure:

1. Mrs. Meenaxi Arora - Principal-cum-Teacher
2. Mrs. Mithu Sarkar - Assistant Teacher
3. Mrs. Jyoti Basumatari - Assistant Teacher
4. Mrs. Adam Bage - Assistant Teacher
5. Mrs. Rupa Khargharia - Assistant Teacher
6. Ms. Mamoni Chetri - Assistant Teacher
7. Mrs. Radhe Jailyang - Non-Teaching Staff
8. Mrs. Geeta Mili - Non-Teaching Staff
9. Mrs. Renu Swargiary - Non-Teaching Staff

5.6.2. Status report regarding activities

During the academic session (April 2019 - March 2020), various activities, competitions and celebrations were organized in addition to Kindergarten level teaching for all round development of the children. National festivals were celebrated to grow patriotic feelings inside the children right from early age. Various other activities were conducted to develop competitive skill in the wards of school which includes:

- Drawing competition,
- Handwriting completion,
- Fancy dress competition,
- Rhyme reciting competition,
- Story telling competition etc.

The School celebrated Children's day and its Annual day on 14th of November, 2019. The School organized sports day on Republic day (26th January 2020) for physical development of the children. A school picnic was also organized for entertainment. At times, parent's-teacher's meetings (PTM) were organized for free interactions and conversations between parents/guardians and the teachers. The first PTM was organized on 1st week of August, 2019. The school celebrated Independence day on 15th August, 2019.

5.6.3. Highlights

The basic infrastructure like space & building for school have been provided and maintained by the NERIST authority. The school is equipped with all kinds of teaching & learning aids, outdoor & indoor games and facilities to develop extracurricular abilities in small children. It includes a big play ground and children's park within the school premises with the facilities such as two safe plastic plane slides, a tunnel slide, Swings, Marry-go-round, See-saw etc. For class room learning, toys, tricycles, slide, charts, audio-video systems, computer, indoor play items etc. are available.

5.6.4. List of Committee Members, if any

The school management committee is responsible for running the school. The committee is headed by the chairperson/chairman, who is nominated by the Director, NERIST and has one representative member each from NFA, NTSU & the principal-cum-teacher of the school as member secretary.

Present Structure of School Management Committee

- | | |
|-----------------------|-------------------------------|
| 1. Dr. Dipika Devi | – Chairperson |
| 2. Dr. S. Choudhury | – NFA representative |
| 3. Mr. T. Debnath | – NTSU representative* |
| 4. Mr. Nabam Hari | – NTSU representative |
| 5. Mrs. Meenaxi Arora | – Principal, NERIST KG School |
- (* Note: No representative after his retirement on 31st January 2019)

5.7. TRANSPORT SECTION

5.7.1. A Brief Profile of the Section:

Transport section of NERIST was established in 1987 under the administrative control to fulfil the need of in – campus and off- campus transport requirements of the institute, the Transport section was initially developed and it was kept under the control of Chairman (TPT) and under supervisor of Transport Officer, As the institute requirements for vehicle servicing and maintenance started growing. The Transport Section providing better service round of the clock for Institute all activities were is necessary for student, staff departmental works and other official works of NERIST including medical emergency for NERIST Student, staff and their family member.

5.7.2. The Various service offered by the transport section present are as follows: -

- Providing the vehicles for in campus and off –campus official duty as and when required including odd hours.
- Providing the Bus service to NERIST students for their attending classes to degree block as per their schedule every day (Monday to Friday 7.45am to 5.30pm)
- Providing School Bus service to the word of NERIST employees for kendriya Vidyalaya, NERIST from T/I Campus NERIST.
- Providing the vehicle to the employees and students under staff welfare and students scheme for religious and social functions on payment basis as and when vehicles are available.

- e) Providing the vehicle for campus interview of students at NERIST campus, Guwahati and other places seminars, conferences short term course short term training programs, students study tour, shristi and workshops organized by the faculty of various department of NERIST.
- f) Providing the vehicle to various departments for conducting of practical training to different module students including field visits, Industrial visits in campus and off campus for students developments.
- g) Providing the vehicle to NCC/NSS of NERIST for attending camps and awareness camping etc.
- h) Providing the ambulance service for students and employees of NERIST as and when required with capital and up to Guwahati or emergency medical treatment (24x7).
- i) Providing vehicles to physical handicap students' duty for their attending classes and other purpose like practical classes etc.

5.7.3 Status report regarding activities:-

The Transport Section is one of the most important supporting departments of the institute. This runs fleet of vehicles for official purposes. **This department has 2 nos of heavy motors vehicle (Bus), 2 Nos medium vehicle i.e. Winger and Tata Mobile, 8 Nos light vehicles.** 2 nos buses are normally engaged for various activities such as departmental purchase (local and outside) NERIST student duty for their attending to classes (7.45am to 5.30pm), School duty for NERIST employee ward, NERIST Students Educational tour, Student's industrial visits, Practical duty and Departmental/official duties.

2 Nos. Winger (13+1 seater) and AR01 A 8290 (Versa) this vehicle is used for physically handicap student's duty, Security patrolling duty and other official duty when required by the department and office.

2 Nos of light vehicle (Innova and AVEO-LT) earmarks for Director, NERIST, Chairman BOM and other official dignitaries visiting the institute guest etc.,

01no of (Optra -LT) is detailed under Registrar, NERIST, for official duties.

01no of AVEO-LT is detailed under all Deans for their official duties.

01nos of (Scorpio) is detailed under Director's cell, Registrar's Cell, Finance Section, departmental seminar, S&P Section, T&P Cell for campus interview, Academic Section Exam Cell, HMC Gymkhana Library and other official/departmental works like meeting, seminar etc.,

01no. (Tata mobile) is detailed for Transportation of material for Departmental works /laboratory works, EE (Civil) office (Institute Engineer), E.O office, store & purchase section, Hostel HMC, Library, EMC, Gymkhana and as per departmental/official requirement etc.

02 nos Tata Sumo Ambulance and Tavera Ambulance is detailed to service for students and employees and their family members of NERIST as and when require in-campus and off-campus (like Tamo Riba Institute of Health and Medical Sciences, Naharlagun, RKM Hospital, Niva Hospital, Papu Nallaha, Hema Hospital and up to Guwahati Hospital/ Airport) for emergency medical treatment around the clock (24x7).

The institute had Condemn/auctioned the following below old condemned vehicles.

The Institute Vehicle No. AR0A 4887 (Ambassador Car), auctioned as scarp

The Institute Vehicle No. AR01 2104 (Maruti Gypsy), auctioned as scarp.

The Institute Vehicle No. AR01 4600 (Maruti Gypsy), auctioned as scarp.

The Motors Cycle Bearing Registration No. AR01 B 7520, auctioned as scarp,

The Transport Section has water servicing /washing equipment for vehicle servicing and maintenance of institute vehicle time to time.

The Transport Section has 12 nos. of Institute Vehicle out of 09 nos of Driver only at present, the transportation section required additional 3 nos of Drivers for smoothly function of transport section.

5.7.4. Highlights:

Transport Section has helped to Institute in a big way to speed up the administrative activities by best utilization of the vehicles, Provision for (24X7) ambulance service for NERIST Students and employees and their family member's Provision of Vehicle to NERIST Students for attending their classes to degree block (7.45am to 5:30pm) departmental seminar study tour, practical class as per their requirement and also provision for vehicle to all students and employees of NERIST at subsidized rates to their best satisfaction are some of the other highlights of this section.

5.8. NERIST HEALTH UNIT

5.8.1. NERIST Health Unit is functioning with the following number of staff and Officers as under: -

1.	Dr. Popi Camdir Tok	-	Chief Medical Officer In Charge.
2.	Dr. Sushimita P Taggu	-	Medical Officer
3.	Dr. Gyamar Inja	-	Medical Officer
4.	Hareendran P M	-	Pharmacist
5.	Mrs.Mary Biswas	-	Nursing Sister
6.	Mr. Dhiren Kr Nath	-	Dresser
7.	Mrs. O.barman	-	Xerox operator
8.	Mr. Minyo Blange	-	Lab Assistant
9.	Mr. E Deomari	-	Lab Attendant
10.	Miss.Poornima Deb	-	Attendant
11.	Mrs.Koj Yallo	-	Helper
12.	Mrs.Tana Parbati	-	Peon
13.	Mr. Surendra Prasad	-	L D C
14.	Mr. Mahesh Mallick	-	Sweeper

5.8.2. Activities

During the above period an approximate 1600 students and 8000 patients (including staff and relatives) were examined from the OPD. An approximate 600 patients were referred to nearby Hospitals for further treatment from Nerist Health Unit and approximate 300 emergency cases were attended.

The unit is providing OPD facility for all the staff and their relatives and also for the nearby public those who approach for treatment without any consultation cost. The medicine counter is providing free medicines to the authorized staff through out the year. And also 24X7 emergency service is provided to the resident of the campus through out the year.

N H U actively participated in Pulse Immunization program conducted by Govt. of India twice in this year also. Apart from the above NHU observe diarrhea control fortnight this year.

As earlier NHU conducted blood donation camps twice this year in collaboration with APACS and NSS NERIST.

NHU staff participated in DOTS under RNTCP.

This year also NHU conducted anemia, diabetic, bone density/osteoporosis, Asthma (Respiratory disease) screening and detection camp quarterly.

NHU organized free Dental Check UP for all residents of NERIST.

NHU also conducted awareness program on Japanese Encephalitis and Dengue.

Apart from above NHU conducted routine health check up of K V Students and NEE students of NERIST and issued Medical Fitness certificates. Deworming program also conducted in nearby schools as per the National Health Program

5.9. CENTRE FOR APPROPRIATE TECHNOLOGY & RURAL DEVELOPMENT (CATRD)

5.9.1 A Brief Profile of the Department

The Board of Management of NERIST in its 62nd meeting held on August 11, 2007 had resolved to establish the Centre for Appropriate Technology & Rural Development (CATRD) at NERIST. It is a multifunctional and multi disciplinary Centre to meet the needs of NE Region. Centre for Appropriate Technology and Rural Development started its activities from August 2007 at NERIST. It is an independent Centre of NERIST with the under mentioned objectives:

- To cater to the technical needs of the people living in Arunachal Pradesh and neighboring states of the North Eastern Region.
- To support in Technical and Vocational Educational activities of the people of the NE Region.
- To assist the development of social welfare and economic growth of the people in NE Region.
- To establish a consortium of scientific and technical talents to undertake activities that will help to promote and provide Technical Manpower base to cater to Non-formal Sector for Technical and Vocational Education and Training (TVET) for Rural Stakeholders
- To encourage Appropriate Technology adaptation and transfer through conducting pilot studies on specific projects.
- To develop documentary films on the lives of the people of the region by use and application of science and technology in socio-economic growth and development.



- To preserve rural and indigenous technologies of the NE Region and assist in technical documentation and dissemination of knowledge.
- To conduct Certificate, Diploma, Degree, Post Graduate Diploma/Degree and Research Degrees in Appropriate Technology and Rural Development for regular or sponsored candidates for State/Central Govt., UN sponsored organizations, SAARC Countries through Multilateral & bilateral agreements under UNDP, UNEP, UNRSCO, WHO, UNIDO, NEC, ADB etc.
- To organize and support Research, Colloquium, Seminar, Workshops, Conference on various Scientific and Technological advancements leading to the social and economic growth and progress of the region.
- To use the concept of Remote Sensing (RS) to Sector Professionals and academic community for forecasting Disaster and ensure remedial measures.
- To solicit, receive and accept grant from Central and State Govt. and other recognized agencies and also materials in the shape of equipments, technical knowledge, documents etc. and also from recognized international funding agencies.
- To develop necessary infrastructure to conduct various programmes in future.

5.9.2 List of Committee Members

Dr. S.K.Shrivastava	Head of the Centre
Dr. P.R. Gajurel	Assoc.Prof. (Forestry)
Ms. B.L. Sarmah	A.P. (CMS) on QIP Leave
Ms. Mudo Pumming	A.P. (Civil Engg)

SECTION – 6

MANPOWER AS ON 31.03.2020

6.1.1. Teaching (Faculty)

Department wise break-up of faculty as on 31.03.2020

1	Forestry	13
2	Agriculture Engineering	13
3	Civil Engineering	14
4	Computer Science & Engineering	11
5	Electrical Engineering	16
6	Electronics & Communication Engineering	13
7	Mechanical Engineering	16
8	Physics	09
9	Chemistry	11
10	Mathematics	05
11	Humanities & Social Sciences	05
12	Centre for Management Studies	04
Total (I)		130

6.1.2. Non-Teaching (Officers and staff)

Break-up of Officers, Technical, Ministerial and Group -C staff in position as on 31.03. 2020 is given below:

(i) Officers

a	Group 'A'	11
b	Group 'B'	04
Total		15

(ii) Technical/vocational staff (Non-teaching)

a	Group 'A'	03
b	Group 'B'	22
c	Group 'C'	37
Total		62

(iii) Ministerial Staff

a	Group 'B'	08
b	Group 'C'	55
Total		63

(iv) Non Ministerial Staff Group – C

a	Lab Attendants/Helpers/Pump Attendants	36
b	Security Guard	07
c	Malis, Labourers & Sweepers	25
d	Peons	33
e	Cook & Cook Helpers	66
Total		167

Total (II) 307

GRAND TOTAL (I +II) = 437

SECTION – 7

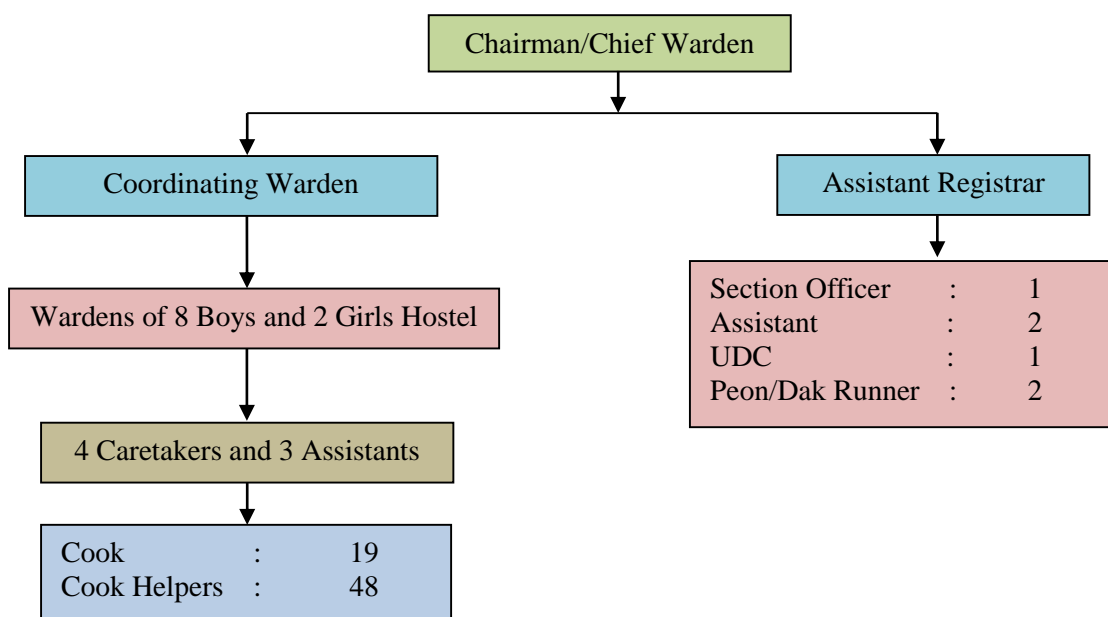
CAMPUS LIFE AND EXTRA CURRICULAR ACTIVITIES

7.1. HOSTEL MANAGEMENT COUNCIL

7.1.1. A Brief Profile of the Department.

NERIST is a residential technical Institute and declared as Deemed to be University by Ministry of Human Resource Development, Govt. of India in the year 2005. There are Halls of Residence under section 26(a) of NERIST MoA, 2005 under which there are various hostels namely Hostel Block-A, Hostel Block-B, Hostel Block-C, Hostel Block-D, Hostel Block-E, Hostel Block-F, Hostel Block-G, Hostel Block-H, Hostel Subansiri and Hostel Brahmaputra respectively. Students (both boys and girls) are mandatorily required to stay in the Hostels within the Campus. For the Maintenance of Discipline among students and also for proper maintenance of the condition of Residence and Health of students of the institute, Hostel Management Council(HMC) has been established under section 26(h) and (j) of NERIST MoA, 2005. The Hostel Management Council being an autonomous body of the institute has varied range of functions which includes accommodation of students in hostels, Mess Facilities and staffs management, accounting of students, deposit and hostel expenditure, implementation of hostels Rules for students and enforcement of Conduct and Discipline among the students in accordance with the Academic bye-laws of the Institute. By implementing the above functions, the Hostel Management Council creates and develop an integrated personality development amongst the students and enables the students to receive training in co-operate living and continuous communication with fellow students and teachers in a most discipline manner and thereby producing a good human being. As on today there are 10(ten) numbers of hostels as mentioned above, out of which 8(eight) hostels are for boys and 2(two) hostels namely hostel Block-G and Hostels Subansiri are for girl students of the institute. Among the boys hostels, Hostel Block-H and Hostels Brahmaputra are meant for Post Graduate students (M.Tech./M.Sc/MBA) and Ph.D students respectively, while for the girls students hostel Subansiri is meant for Post Graduate and Ph.D students on sharing accommodation basis. In no case, single accommodation is allotted to the students.

Organizational structure of Office of HMC



7.1.2. Status Report

Presently Radak Blange, Associate Professor in the Department of Electrical Engineering is the Chairman cum Chief Warden of the Hostel Management Council. Among the wardens, one of the wardens is appointed as coordinating warden. Following are the details of coordinating warden/Wardens and Assistant/Mess-Manager-Cum-Caretakers posted in different Hostels.

Sl. No.	Hostels	Hostel Capacity	Hostel Wardens	Mess Manager-cum-Caretakers/Assistants
1	Block -A	124	Dr. C. P. Pandey	Mr. Dorjee Shongmu
2	Block -B	124	Dr. M. Hassan	
3	Block -C	124	Mr. A. K. Chowdhury	Mr. B. Patir
4	Block -D	124	Mr. Ajit Kr. Singh Yadav	
5	Block -E	250	Dr. K. Borah	Mr. A. Gogoi
6	Block -F	250	Mr. Akhilesh Sharma	Mr. E. N. V. Nair
7	Block -G	250	Miss. Piyali Das	Mrs. M. Roy Choudhury
8	Block -H	250	Dr. M. Upadhaya (also Coordinating warden)	Mr. T. Mathew
9	Brahmaputra	416	Dr. Ashsih Paul	
10	Subansiri	250	Dr. (Mrs.) Deepika Devi	Mrs. N. Siyum

7.1.3. Highlights

Like previous years, a Hostel Level Anti-Ragging Squad consist of faculty members including hostels wardens has been constituted to visit hostels between 8 p.m. and 12 a.m for three weeks after admission of new students to build confidence in their minds. Apart from the above squad there was another Flying Squad headed by Dean(SA) with other three Deans, COE & Chairman(HMC) as members. The Institute constituted an Institute Level Anti-Ragging Committee to contain the ragging as per UGC guidelines.

The Independence and Republic Days are being celebrated in all the Hostels by hoisting the National Flag by the respective Wardens/Chief Warden(Hostel) in the front of the respective Hostel Blocks.

The Boarders of Hostels celebrated Block Day separately in each Hostel Block which the Director, Deans, Registrar, Chief Warden (Hostel), Coordinating Warden, Hostel Wardens and other Faculty members and Officers are being invited in the said function.

The ERP module for the hostels have been created for the smooth regulation of online mess advance fees for the compilation of details of the students and respective rooms/furniture etc, while doing their registration. Accordingly emails addresses for all caretakers have been generated in the name and style of careHostel@nerist.ac.in e.g email ID for hostel block-A is careA@nerist.ac.in. The overall status of Hostel ERP module is near implementation and is likely to be operational by next semester. For daily student's online Mess advance payment reports to be sent by bill desk, the Emails IDs for different hostels caretakers have been generated.

Administrative Staffs in the office of Hostel Management Council

Chairman cum Chief Warden : Mr. Radak Blange, Associate Professor, Dept. of Elect. Engg.

Assistant Registrar	: Mr. Animesh Basu
Section Officer	: Mrs. Pratibha Saikia
Assistants	: (i) Mr. Thomas Mathew, (ii) Mrs. A. Adhikari
UDC	: Mr. E.N.V Nair
Peon/Dak Runner	: (i) Mr. J. Milli, (ii) Mr. N. B. Thapa

7.2. NATIONAL CADET CORPS (NCC)

7.2.1. A Brief Profile of the Section

NERIST is having two NCC wings one is SD (Boys), which is fully funded by Non-plan of NERIST, and another one is SW (Girls), which is centrally funded by Tezpur NCC unit directly. For the academic year 2019-20 total students (SD) enrolled (out of 160) is given below:

Cadets Enrolled	SD
1 st Year	79
2 nd year	45
3 rd Year	36
Total	160

i) Manpower status

	Present	Requirement	Deficiency
CTO	02	02	NIL
Supporting staff	02	04	02

ii) Infrastructure

	Present	Requirement	Deficiency
Office	01	01	NIL
Store room (Big)	01(Small)	02	01

iii) Budget allocation

During the session 2018-2019 a total of ₹ 1, 64,350.00 (Rupees One Lakh Sixty Four Thousand Three Hundred Fifty) only was spent, washing and refreshment allowance distribution for the students (₹ 62,275.00), Rising Day (₹ 10,00.00) Camps (₹ 22,662.00 + ₹ 16,103.00 + ₹ 30,998.00 + ₹ 22,312.00 = ₹ 92,075.00) were incurred.

7.2.2. Status Report regarding Activities

- i) NCC Rising Day Celebration
- ii) Parades Conducted
Total 72 parades



- iii) Ceremonial Drill participated
 - a) Independence Day (15-08-2018) : 48 SD & 24 SW Cadets
 - b) Republic Day (26-01-2019) : 54 SD & 24 SW Cadets
- iv) Camps Attended by the NCC cadets : Total 5 camps
 - v) CATC Camp at DNGC, ITANAGAR, AR : WEF 16/06/2019 to 25/06/2019
 - vi) CATC Camp at PTC, Banderdewa, AR : WEF 27/08/2019 to 05/09/2019
 - vii) CATC Camp at RGGP, ITANAGAR, AR : WEF 18/10/2019 to 27/10/2019
 - viii) AAC Camp at Missamari, Assam : WEF 15/12/2019 to 26/12/2019
 - ix) EBSB (NIC) at RGU, Rono hills Itanagar, AR : WEF 06/01/2020 to 17/01/2020

7.2.3. Highlights

- i) 'B' Certificate Exam Appeared - 11 SD Cadets
- ii) 'C' Certificate Exam Appearing - 16 SD Cadets

There are 52 SW fresh cadets in NCC Wing, NERIST. Five (05) with B and C certificate holders are in the extension list. Seventeen (17) SW cadets who are also permitted for the improvement, are also in the extension list. So total strength are 74 SW cadets.

All the SW cadets had active roles to Republic Day 2019 and Independence Day 2019 Celebrations. They also had active roll to Unit, 1 AP Bn, Naharlagun, Arunachal Pradesh for any Officers visit.

Seventeen (17) SW cadets were participated at CATC at Rajiv Gandhi Government Polytechnic, Itanagar from 03rd -12th January 2019.

Five (05) SW cadets were participated at CATC at Rajiv Gandhi Government Polytechnic, Itanagar from 16th -23rd June 2019.

Yashikala N. Yaden, bearing regimental number AR/18/SWA/100675 got **Best Command** from CATC at Rajiv Gandhi Government Polytechnic, Itanagar held from 16th -23rd June 2019.

Prity kumari gupta bearing regimental number AR/18/SWA/100674 got **Best Anchor** at CATC at Rajiv Gandhi Government Polytechnic, Itanagar held from 16th -23rd June 2019.

NCC (SW), NERIST troop got **First on Tent Pitching** at CATC at Rajiv Gandhi Government Polytechnic, Itanagar held from 16th -23rd June 2019.

Four (04) SW cadets were participated at CATC at PTC, Banderdewa held from 27th Aug-5th Sept. 2019.

Yashikala N. Yaden, bearing regimental number AR/18/SWA/100675 got **Best Cadet and Best Firing** at CATC at PTC, Banderdewa held from 27th Aug-5th Sept 2019.

Yashikala N. Yaden, bearing regimental number AR/18/SWA/100675 was selected for **Pre RDC** to attend the IG 2019 Camp from 01st -10th Nov. 2019 at Umroi Cantt, Meghalaya.

Five (05) SW cadets were participated at EBSB-II, RGU, Rono Hill, Doimukh, Itanagar from 6th-17th January 2020.



Ten (10) SW cadets appeared B-Certificate Examination held at NIT, Yupia. Itanagar on 09th February 2020.

One (01) cadet is appearing C-Certificate examination to be held after pandemic is over.

7.3. NATIONAL SERVICE SCHEME (NSS)

7.3.1. A Brief Profile of the Section

Dr.A.Dinamani Singh/ Dr.Ajay Bharti,Coordinator, NSS Unit NERIST, participated actively in various NSS programmes to guide and motivate NSS volunteers. Other Programme Officers and Group Leaders also extended very good support and cooperation leading to the success of the NSS programmes. One Group 'C' and One Group 'D' employees are in the NSS Cell to look after the office works and also to assist the Coordinator, Programme Officers and Group Leaders for smooth conducting of the NSS programmes.

1.	Total No. of Volunteers enrolled	: 850 Nos.
2.	Male	: 530 Nos.
3.	Female	: 320 Nos.
4.	No. of Male Volunteers (APST)	: 120 Nos.
5.	No. of Female Volunteer (APST)	: 70 Nos
6.	Name of NSS Programme Co-Ordinator	: Dr.A.Dinamani Singh/ Dr.Ajay Bharti
7.	No. of trees planted during year 2019-20	: 300 Nos.

7.3.2. Status Regarding Activities

NSS activities for the Academic Session 2019- 20 commenced with an orientation programme with the newly joined volunteers on 25.08.2019. Prof.H.S.Yadav, Director, NERIST participated in the orientation programme, who highlighted in his address about the importance of NSS and its role played for the development of a person. Prof.Pradeep Lingfa, Dean(SA) also addressed the newly joined volunteers and enlightened about the aims and objectives of NSS, significance of its motto, badge, about the role expected from an NSS volunteers etc. A lecture was also delivered by Dr. A. Dinamani Singh, Coordinator, (NSS) about the aims and objectives of NSS.

The National Service Scheme Cell of NERIST observed the NSS day on 24.09.2019. The occasion was marked by a function followed by plantation of tree and awareness campaign on Environment. The ceremony was attended by Program Officers and Volunteers. Speaking on the occasion, the Co-ordinator of the NSS Cell, NERIST emphasized the role of the NSS for the welfare of the society. He also stated that keeping the all-round developments and changes taking place around us the horizon of NSS needs to be enlarged.

Regular activity was organized on 07.09.2019, 02.10.2019 and 07.3.2020 (Swatcha Bharat Abhiyan) at NERIST main campus and Degree block. Approximately 550 number of volunteers participated in it. The campus cleaning along with plantation of 300 saplings were carried out at PG Hostel & Degree block.). A Massive Blood donation camp was organized by NSS cell, NERIST, Nirjuli (A.P) in coordination with Naharlagun General Hospital and Medical Health Unit, NERIST on 09.11.2019, 45 Nos of NSS Volunteers, Programme Officer, donated blood out of which 05 nos were girls. The Blood donation camp was followed by a lunch party at NERIST Guest house for Doctors, Technician, Medical Staff and Programme officers.



7.3.3. Report for the Month of October 2019 NSS Cell of NERIST

150th Birth Anniversary of Mahatma Gandhi Celebrated.

Nirjuli : 02/10/2019 : NSS Cell along with Horticulture section of NERIST today celebrated 150th Birth Anniversary of Mahatma Gandhi. Around 50 saplings were planted on the roadsides of NERIST Degree block. Fit India Plog Program was carried out from Bagetinali to NERIST main gate as a part of the celebration.

Prof. H.S. Yadav stressed upon the significance of Gandhian Philosophy in the present-day affairs. He also recommended the volunteers to read about the Mahatma and tried to apply his thinking in one's life. He further stated that we need to instill the philosophy of Gandhiji's teaching in our daily life and this will solve many of the problems that we are facing.

A peaceful society and nation will be there if all of us take the path of "Ahimsa", stated Mr. M. K. Camder, Registrar, NERIST while addressing the gathering the occasion.

Dr. A. Dinamani Singh, Coordinator, NSS Cell of NERIST requested the gathering to keep their surroundings clean.



7.3.4. Voluntary Blood Donation Camp Organised at NERIST



Nirjuli, 09/11/2019: The NSS Cell of NERIST in collaboration with the Tomo Riba Institute of Health Medical Science, Naharlagun organised a Voluntary Blood Donation camp at NERIST Health Unit. During the camp, Dr. Tashi Paleng, Blood Bank Officer, TRIHMS briefed the donors about the benefits of blood donation and about the dos and don'ts of post donation. He also cleared many doubts of the donors regarding voluntary blood donations. Dr. A. Dinamani Singh, Coordinator, NSS

NERIST requested the concerned officials to maintain proper haemovigilance to encourage

holistic blood donors. “India is a country of youths; hence many issues being faced at our country can be solved with the involvement of youths. People who are fit and between the ages of 18-65 years should make a habit donating blood atleast twice a year.” stated Prof. H. S. Yadav, Director, NERIST, while addressing the donors.

A total of 45 volunteers turned up to donate. After deferring some of the volunteers, 34 units of blood were collected during the said camp. The blood bank staffs of TRIHMS along with faculty members and students of Zion Institute of Nursing, Nirjuli provided the technical support for the camp.

On 7th March 2020 about 300 NSS volunteers along with their group leaders and 15 Programme Officers participated in the activities of cleanliness of Environment and awareness of Prime Minister’s Swachh Bharat Abhayan.



On 8th March 2020, NERIST celebrated International Women’s Day with the help of NSS cell. On this occasion the following events were organized:

1. Quiz competition among school children (separately for Junior and Senior batch)
2. Essay writing competition among school children (separately for Junior and Senior batch)
3. Women Marathon (separately for students and ladies)
4. Yoga by ladies in K G School, NERIST
5. Skit play by students at NERIST Gate
6. Cultural programme and prize distribution



Quiz conducted by K V NERIST



Participants of Women Marathon



Students performing Skit play



Ladies performing yoga

7.3.5. Special Camp Report

Special camp was to conduct at Nirjuli Village – II by the NSS, NERIST in the third week of March, 2020 like every year. It was not conducted due to COVID 19.

7.3.6. List of NSS Committee

1. Dr. M. Deben Singh, Asstt.Prof. (Elect.Engg.)
2. Ms. Piyali Das, Asstt.Prof. (Elect. Engg)
3. Dr.Akhilesh Sharma, Asstt.Prof. (Elect.Engg.)
4. Mr. P. Devchandra Singh, Asstt.Prof. (Elect.Engg.)
5. Dr. Ashish Paul, Asstt. Prof. (Forestry)
6. Dr.Kh. Herachandra Singh, Asstt.Prof. (Maths)
7. Dr. P. C. Pandey, Asstt.Prof. (Maths)
8. Dr.Kunal Borah, Asstt. Prof. (Physics)
9. Dr. AkbariJahan, Asstt.Prof. (Physics)
10. Mr. Santosh Tamang, Asstt.Prof. (Mech. Engg.)
11. Mr. Mujaheed Khan, Asstt.Prof.(Mech. Engg.)
12. Mr. M. Edison Singh, Asstt. Prof. (ECE)
13. Mr. Yogendra Mohan, Asstt.Prof. (CSE)
14. Dr.Dibyendu Pal, Asstt.Prof. (Civil Engineering)
15. Mr. Arun Kr. Choudhury, Asstt. Prof. (Agri. Engg.)

7.4. ESTATE OFFICE

7.4.1. A Brief Profile of the Section and its Activities :

The Estate Office has been established to look after the day to day estate matter of the Institute, dealing with matters like land encroachment, illegal construction, Liaoning with the District Administration officials of the Capital Complex, Itanagar & Papumpare, Yupia, Government of Arunachal Pradesh. The Estate Office staffs are also visits site along with committee members before allotment of any land/space within Institute's campus, for internal departmental uses, like implementation of central Government sponsored projects as and when required, day to day records keeping works like inventory of residential quarters, house Allotment to the institute's employees and issue of furniture to the residential quarters etc.

7.4.2. Strength of staffs of Estate Office:

1. Assistant Registrar/Estate officer : 01
2. UDC : 01
3. Peon : 01
4. TS Employee : 01
5. Hand Receipt Employee : 01

7.4.3. Existing Institute quarters at Present

Sl.No.	Type of Qtrs./Accommodation	Totals Nos. of Qtrs./ Accommodation	Remarks
01.	Type - I	132	Double Storey
02.	Type - II	124	Double Storey
03.	Type - III	122	Single/ Double Storey
04.	Type IV	98	Single/ Double Storey
05.	Type - V	20	Single/ Double Storey
06.	BTA	09	Single Storey
07.	Type - VI	01	Director's Banglow

7.5. INSTITUTE ENGINEER OFFICE

7.5.1. A Brief Profile of the Section and its Activities:

Executive Engineer (Civil) office is one of the important offices in NERIST which plays a pivotal role in the overall development and maintenance of total Institute's infrastructural facilities under the overall supervision of E.E (Civil).

Under this Executive Engineer Office, Civil Maintenance and Sanitation wings are in operation and working for the development of Institute's infrastructural facilities. Civil Maintenance wings carry out day to day civil maintenance, repairs of buildings in the campus including hostels, offices, residential and non-residential including water supply & sanitation. Further Engineers of the Civil Engineering Cell monitor the work executing by the various working agencies under the guidance of Planning and Monitoring Committee. The Sanitation wing maintains good hygienic atmosphere by keeping up the overall campus in neat and clean.

Executive Engineer (Civil) to supervise all the major & minor works under their control.

To vigil the works, a Planning & Monitoring Committee was constituted in September 2015 for identifying the developmental works to be taken up by the Institute on priority and to monitor the progress & quality of works in the Institute.

7.5.2. Status report of the ongoing constructional activities in the campus:

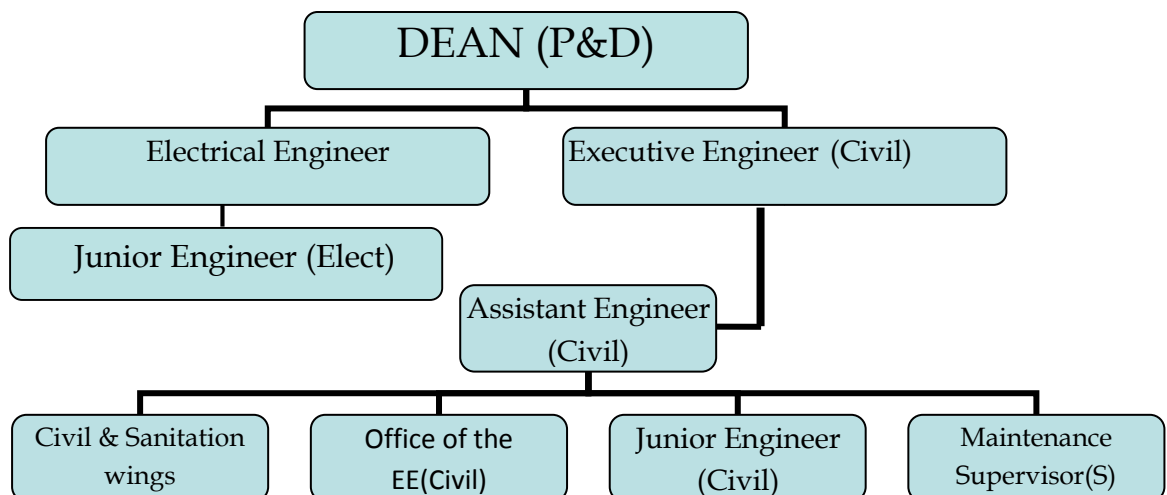
Sl. No.	Name of Work	Estimate cost in Lakh	Amount Release(in Lakh)	Agency	Physical Progress	Remarks
1	Construction of Utility Center.	831.52	725.00	CPWD, Kimin	98%	
2	Site Development works around 24 Nos.	330	322 lakh	APPWD	100%	Taken over



	Class Room at NERIST					
3	Site Development work in 375 Capacities Boys Hostel at NERIST	330	322 lakh	APPWD	100%	Taken over
4	Construction of Permanent Administrative Building	3604.00	2866	NPCCL, Guwahati	95%	
5	Construction of VVIP Guest House	796.000	784.00	APPWD,NLG Division	100%	Taken Over
6	Construction of Residential Quarters Type – III, IV & V	1671.00	1622	Dept. of UD & H Govt. of A.P.	95%	
7	Construction of Central Work shop	2927.00	2862.00	APPWD,NLG Division	85%	
8	Construction of consolidated drain network (Phase – II)	192.00	192.00	M/s T.T. Enterprise	100%	Taken over
9	Examination & Seminar Hall Building	1812.00	100.00	CPWD, KIMIN	20%	
10	Repair & Renovation of General Play Ground at NERIST	109.73	50.09	M/s Roshan Construction	80%	
11	Earth filling in Silver Jubilee Hall at NERIST	147.30	1,47,27,656	M/s Tow Tollu	100%	Taken over
12	Earth filling for Agriculture farm near PG Boys Hostel at NERIST	60.29	60,23,621	M/s T.Z.T. Trade Agency	100%	Taken over
13	Construction of CC Pavement in Degree Block	244.00	2,43,87,244.00	M/s R Y Z J Enterprises	100%	
14	Up-gradation of Existing Children Park of Type-VI,V & III/II	46.71	26.49 lakh	M/s Zee Engineering & Construction	80%	1 st RA bill processed for release of payment
15	Repair & Renovation of Academic Building at NERIST	58.75	-	M/s Camdir Trading Co.	95%	
16	Repair & Maintenance of Director Banglow at NERIST	71.68	71.63	M/s Decem Enterprises	100%	
17	Repair & Renovation of Boundary wall from NH415 to Anya & Rayo Colony near Degree Block at NERIST	45.25	45.16	M/s Neelam Sanju Eneprise	100%	
18	Repair & Renovation apron fall to protect flood protection wall in Nirjuli River at NERIST	98.44	97.22	M/s CD & Sons	100%	
19	Raising of Boundary Wall RCC protection	61.00	60.99	EE office	100%	

20	RCC Retaining Wall sitting Gallery cum Gymnasium at General Play Ground	454.00	-	M/s R Y Z J Enterprises	50%	
21	Renovation of Guest House Building and Compound Development at NERIST	170.00	-	M/s Rainbow Enterprises	100%	
22	Extension of CC Pavement road from round about to Degree block part "A" to "C" at NERIST.	159.85	-	M/s Camdir Trading Co.	80%	
23	Repair and Renovation of Apron in Nirjuli Nallah to protect the Flood Protection Wall at NERIST	98.14	97.22	M/s Rainbow Enterprise	100%	
24	Renovation of Flood Protection work near Steel Bridge in Nirjuli River at NERIST	99.54	-	M/s Rainbow Enterprise	100%	
25	Construction Flood protection work in the Intake Point at Bulk Water Supply NERIST	49.86	-	M/s T.K. Construction	100%	
26	Repair & Renovation of Forest Nursery in Forestry department in degree block at NERIST	29.57	-	M/s Rainbow Enterprise	90%	

7.5.3. The Present organization setup



7.5.4. Future Works Planned to be take up

In future Engineering cell of the institute has planned to take up the following works subject to the availability of fund from the MHRD, Govt. of India and as per priority fixed by the Institute authority.

Sl. No.	Name of Work	Estimated cost in Lakh	Remarks
1.	Construction of Permanent Health Unit Building	1390.00	
2.	Construction of Research & Project Building	10851.88	
3.	Construction of new Boys Hostel	18098.88	
5.	Construction of Permanent K.V. Building	4054.00	
6.	Construction of Class Rooms	1812.00	
7.	Constructing of Water Treatment Plant (WTP) of NERIST	10,00.00	
8.	Construction of 500 Capacity Girls Hostel at NERIST	38.50	

7.6. EDUCATIONAL TECHNOLOGY

7.6.1. A Brief Profile of ET Cell

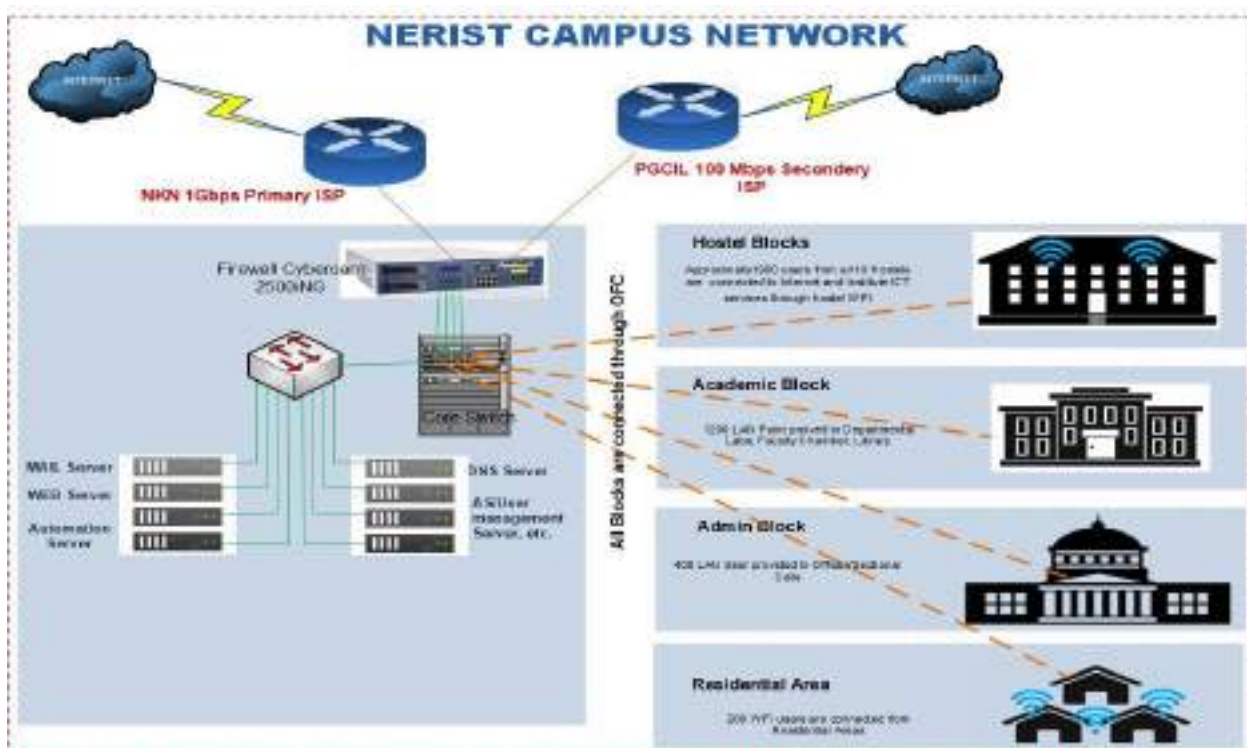
The ET cell has been established as a project sponsored by the MHRD, Govt. of India with an objective to increase the effectiveness of teaching-learning process with the help of modern audio-visual equipment and Information and Communication Technology (ICT). Presently, the cell mainly manages and maintains the Internet Connectivity to the Institute, Local Area Network (LAN), Wi-Fi LAN, and Server Firm, and different ICT Services. The Cell consists of processing laboratory, seminar room, and board room that are well equipped with the state of art audio-visual equipment. These are used for Seminars, Conferences, Workshops and special lectures by faculty members and professionals from institutions and industries. ET Cell also supports/manages different Academic activities in online mode, i.e. Conducting Online Classes, Online Ph.D. defence, Video Conferencing, Interviews for student's recruitments as well as conducts computerised recruitments for different govt. organizations.

7.6.2. The major ICT Services facilitating by ET Cell are as follows:

1. Managing/maintaining the 1Gbps Internet Connectivity to the Institute provided by NKN ISP(Internet Service Provider) and a 100 Mbps failover Internet Link provided by.
2. Provides and maintain LAN Connectivity to all the 12 Academic Departments/Centres, 10 Hostels, Offices, and the Schools in the campus.
3. Wifi LAN Connectivity to Hostels and Residential Areas.
4. E-mail Services to Students, Research Scholars, Faculties and Staff.
5. Locally hosting and maintaining the Institute Web Server.

6. ET Cell also houses a number of high-end Servers that facilitates number of Services as: Hyper-V Virtual Platform, DNS, DHCP, Active Directory, RADIOUS, Microsoft SCCM, and so forth.
7. Development, Management, and Maintenances of CORE Hardware Infrastructure of Institute's Datacentre as well as IT infrastructures deployed in whole Institute Campus.
8. Provides support for online classes to all students and faculties.
9. Provides support for any issue related to Internet access of all users of the Institute.
10. Arrangement of online Seminar, Video Conferencing, Online PhD Oral Defense, etc. whenever required.

7.6.3. General Network Diagram of NERIST Campus:



7.6.4. Network Devices/Servers:

Network Devices			
Sr. No	Item	Quantity	Objective
1	UTM/Firewall (Cyberoam 2500iNG)	1	To provide user-based Internet access, traffic filtering and restricting.
2	Core Switch (Cisco 6509)	1	All NERIST Campus Network Segments are Interconnected through Core Switch.
3	Distribution switch (Cisco 4503)	1	All LANs of Degree Blocks are connected to Distribution Switch.

4	Access Switch	85	All Departments/Sections/Hostels users are connected through Access Switches.
5	Wireless Controller (Ruckus ZD3000)	2	Manage policies, rules and configurations of all Access Points.
6	Access Points (Ruckus ZF 7782, R610, T610)	90	To provide Wireless connectivity to Residential Area.
7	SAN Switch (Brocade)	1	To provide connectivity between storage and Servers over fibre channel.
Servers and Storage:			
8	Dell PowerVault R430 Rack Server	6	Using for Automation (App Server1, App Server2, DB Server, Load Balance Server) and Hyper-V node.
9	Storage Power Vault MD 3000	1	Using for Automation
10	IBM SystemX Rack Server	3	Using for Hyper-V node, Microsoft SCCM, and AD Sever.
11	IBM and HCL Tower Server	3	Using for Public DNS, Web Server, and Mail Server.

7.6.5. Status Report Regarding Activities, 2019-2020:

1. Renewed the Microsoft Campus Agreement Licences for 300 FTE users for One Year.
2. Renewed the 100 Mbps ISP link from PGCIL, which facilitates backup of primary NKN ISP Link.
3. ET Cell established an underground OFC Link to CEP Guest House and I.E office to provide Internet connectivity.
4. ET Cell also deployed high end WiFi Access Points in CEP Guest House, which provides reliable and secure Internet services to the users.
5. E.T. Cell Developed **MS Teams Online Class Environment** in collaboration with Microsoft for NERIST to conduct online classes and other Academic activities in online mode.
6. Provided support to arrange different online Seminar, FDP, Video Conferencing, Online PhD Oral Defence, etc. whenever required.
7. Provided support for any issue related to Internet access of all users of the Institute.
8. Provided support to conducted different Online Campus Interviews for students during 2019-2020 session.
9. Provided supports to conducted different computerised recruitment process for different govt. organisations using Institute IT infrastructure.
10. Provided IT infrastructure supports during online Registration, Counselling, and Admission process for NEE-2019-20/PG/Ph.D of 2019-20 session.



7.7. GYMKHANA

7.7.1. A Brief Profile of the Section and its Activities

- a) Inter Hostel Football tournament was held from 14th September to 3rd October 2019. The event witnessed a very enthusiastic participation, from the boarders of the NERIST hostels.
- b) NERIST cultural fest “RACAF-2019” was held from 31st October to 2nd November 2019. The event had lots of activities and it witnessed around 1300 students participating in the various cultural activities.
- c) More than 50 students participated in inter-block chess tournament that was held from 9th to 10th November 2019.
- d) A total of four students each from all the hostel blocks including girls participated in inter block table tennis tournament during 17th to 26th January 2020.
- e) A total of four students each from all the hostel blocks including girls participated in inter block Badminton tournament was held from 17th to 20th January 2020.
- f) More than 100 students participated in inter-block carom tournament which was held from 18th to 19th January 2020.
- g) Annual Athletic meet was organized during 29th January to 1st February 2020, where more than 1000 students comprising (both boys and girls) of Base module to PG and PhD students participate different the events. Major events include, Long runs (500m and 3000m race); Sprints (100m, 200m, 400m & 800m race); Relays 4X100m and 4X400m race); Long jump, High jump, Triple jump; Throws (Javelin, Discuss, shot-put, Hammer); Slow cycling race etc.
- h) Gymkhana also facilitated numerous memorial tournaments during the last calendar year 2019-20.
 1. SDP memorial inter-state football tournament organized by NERIST Tripura Students Union during 23rd to 1st September 2019.
 2. NMZP Basket ball tournament was held from 1st to 20th September 2019, in which about 200 students participated.
 3. Tadar Echu memorial inter-state football tournament organized by NERIST Arunachal Pradesh students’ union during 8th February to 1st March 2020.
 4. BD memorial football tournament was held from 11th to 26th January 2020, in which there was active participation from the NERISTian community.

SECTION – 8**FUND AND AUDIT**

The Institute is a Central Scheme of the Ministry of Human Resource Development and is fully funded by the Government of India through the MHRD.

At the beginning of the financial year 2019-20, the institute had an unspent balance of 1522.18 lakhs. During the year, the Institute received 12384.00 lakhs as grant and 555.87 lakhs as IRG. The unspent balance as on 31.03.2020 is 3957.92 lakhs which will be adjusted towards the grant in aid payable during the next financial year 2020-21. Brief breakup of fund received and expenditure incurred is given as under :-

₹ in lakhs

Details of Account	HEAD			Grand Total (2+3+4)
	OH-31 (General)	OH-35 (Capital)	OH-36 (Salary)	
1	2	3	4	5
Previous Balance	17.20	(-) 3.35	1508.34	1522.18
Fund received during 2019-20	4884.00	2500.00	5000.00	12384.00
IRG 2019-20	555.87	0	0	555.87
Expenditure incurred during 2019-20	2785.77	1797.32	5921.04	10504.13
Unspent Balance as on 31.03.2020	2671.30	699.33	587.29	3957.92

The details information related to the accounts of the Institute for the year 2019-20 and the audited accounts of the Institute is given in Annexure.

ANNEXURE – I

MEMBER OF THE NERIST SOCIETY AS ON 31ST MARCH 2020

1.	Brigadier (Dr.) B.D. Mishra (Retd), His Excellency the Governor of Arunachal Pradesh, Raj Bhawan, Itanagar, Arunachal Pradesh	--	President
2.	Joint Secretary & F.A IFD, MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi.	--	Member
3.	Joint Secretary (DL & Admn.) MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi.	--	Member
4.	Hon'ble Minister, Education and Technical Education, Govt. of Assam, Dispur, Guwahati.	--	Member
5.	Hon'ble Minister, Education, Govt. of Mizoram, Aizawl, Mizoram	--	Member
6.	Hon'ble Minister, Education, Govt. of Nagaland, Kohima, Nagaland.	--	Member
7.	The Hon'ble Minister, Education, Govt. of Tripura, Agartala, Tripura.	--	Member
8.	The Hon'ble Minister, Education, Govt. of Manipur, Imphal , Manipur.	--	Member
9.	The Hon'ble Minister, Education, Govt. of Meghalaya, Shillong , Meghalaya.	--	Member
10.	The Hon'ble Minister, Education, Govt. of Sikkim, Gangtok, Sikkim.	--	Member
11.	The Hon'ble Minister, Education, Govt. of Arunachal Pradesh, Itanagar , Arunachal Pradesh.	--	Member



12.	Dr. Neeraj Sharma, Head (TDT), Ministry of Science & Technology, Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi.		Member
13.	Prof. Anoop K Das, Nominee, AICTE Dept. of Mechanical Engineering IIT, Guwahati , Assam.	--	Member
14.	Shri Tarh Nachung, Industrialist P-Sector, P.O. Nirjuli, Arunachal Pradesh.	--	Member
15.	Prof. Umesh Chandra Ray Chairman, BoM, NERIST W/2, Ashiana Nagar, Phase-I, Patna, Bihar.	--	Member
16.	Prof. H.S. Yadav, Director, NERIST	--	Member
17.	M.K. Camder Registrar i/c	--	Non-Member Secretary

ANNEXURE – II**MEMBER OF NERIST BOARD OF MANAGEMENT AS ON 31ST MARCH 2020**

1. Prof. Umesh Chandra Ray Chairman, BoM, NERIST W/2, Ashiana Nagar, Phase-I, Patna, Bihar.	--	Chairman
2. Joint Secretary & F.A IFD, MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi.	--	Member
3. Joint Secretary (DL & Admn.) MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi.	--	Member
4. Prof. S. Kushwaha Vice Chancellor, Rajiv Gandhi University, Rono Hill, Doimukh, A.P.	--	Member
5. Commissioner & Secretary, Higher & Technical Education, Govt. of Mizoram.	--	Member
6. Principal Secretary, Technical Education, HRDD Govt. of Sikkim.	--	Member
7. Principal Secretary Higher & Technical Education, Govt. of Meghalaya.	--	Member
8. Principal Secretary Higher & Technical Education, Govt. of Nagaland.	--	Member
9. Commissioner & Secretary Higher Education, Govt. of Manipur.	--	Member
10. Principal Secretary Higher Education, Govt. of Tripura.	--	Member
11. Principal Secretary Higher & Technical Education, Govt. of Assam.	--	Member



12. Secretary, Education, Govt. of Arunachal Pradesh,	--	Member
13. Prof. Samarendra Dandapat Department of EEE, IIT, Guwahati.	--	Member
14. Lambert V. Hynniewta Sr. Manager (Consumer Sales) Indian Oil-AOD, Guwahati – 781020.	--	Member
15. Prof. P. Parida, Dean (Academic), NERIST, Nirjuli.	--	Member
16. Prof. R.K. Prasad, Dean (Planning & Development), NERIST, Nirjuli.	--	Member
17. Prof. K.N. Dewangan Dean (Administration) NERIST, Nirjuli.	--	Member
18. Prof. M. Muralidhar, Representative of Professor's NERIST, Nirjuli.	--	Member
19. S.K. Sahu, Representative of Associate Professor's, NERIST, Nirjuli.	--	Member
20. Kajal Kumar Mandal, Representative of Assistant Professor's NERIST, Nirjuli.	--	Member
21. Prof. H.S Yadav Director, NERIST.	--	Member
22. M.K.Camder Registrar i/c, NERIST	--	Non-Member Secretary

ANNEXURE - III**MEMBER OF NERIST FINANCE COMMITTEE AS ON 31ST MARCH 2020**

1. Prof. Umesh Chandra Ray Chairman, BoM, NERIST W/2, Ashiana Nagar, Phase-I, Patna, Bihar	--	Chairman
2. The Joint Secretary & F.A IFD, MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi.	-	Member
3. The Joint Secretary (DL&Admn) MHRD, Govt. of India, Shastri Bhavan, 'C' Wing New Delhi.	-	Member
4. The Commissioner/Secretary to Governor Nominee of HE the Governor of AP & President of NERIST Society Itanagar, Arunachal Pradesh.	--	Member
5. The Vice Chancellor, Rajiv Gandhi University, Rono Hill, Doimukh. Arunachal Pradesh.	--	Member
6. The Secretary (Education) Govt. of Arunachal Pradesh, Itanagar, Arunachal Pradesh	--	Member
7. Prof. H.S Yadav Director , NERIST	--	Member
8. Shri M.K.Camder Registrar i/c, NERIST	--	Member
9. Shri M. K. Camder, Deputy Registrar (Fin)	--	Ex- Officio Non- Member Secretary

ANNEXURE - IV**MEMBER OF ACADEMIC COUNCIL AS ON 31ST MARCH 2020**

1.	Prof. H.S. Yadav, Director, NERIST & Chairman, Academic Council	Chairman
2.	Dean (Academic)	Member
3.	Dean (Planning & Development)	Member
4.	Dean (Admn.)	Member
5.	Dean (Students Affairs)	Member
6.	Prof. Sankar Chandra Deka, Deptt. of Food Engg & Tech., Tezpur University	Member
7.	Prof. B.P. Mishra, Department of Environmental Science, Mizoram University, Aizwal,	Member
8.	Mr. Talo Potom, ADM cum CEO, Office of the Chief Estate Officer Govt. of A.P., Itanagar	Member
9.	Prof. N.S. Raghuwanshi, Deptt. of Agricultural & Food Engg., IIT, Kharagpur	Member
10.	Prof. D.N. Das, Faculty of Life Science, Rajiv Gandhi University, Doimukh	Member
11.	Prof. Dilip Kumar Saikia, Deptt. of Computer Science Tezpur University, Napaam, Tezpur	Member
12.	Prof. Arbind Kumar Singh, Deptt. of Civil Engg, IIT, Guwahati	Member
13.	Prof. P. Parida, Deptt. Of HSS	Member
14.	Prof. R.K. Prasad, Deptt. of Civil Engg.	Member
15.	Prof. K.N. Dewangan, Deptt. of Agri. Engg.	Member
16.	Prof. P. Lingfa, Deptt. of Mech. Engg.	Member
17.	Prof. S.K. Shrivastava, Deptt. of Agri. Engg	Member
18.	Prof. S.K. Singh, Deptt. of Civil Engg.	Member
19.	Prof. S. Mishra, Deptt. of Civil Engg	Member
20.	Prof. S. Baishya, Deptt. of Civil Engg	Member
21.	Prof. O.P. Roy, Deptt. of Electrical Engg	Member
22.	Prof. R.K. Mehta, Deptt. of Electrical Engg.	Member
23.	Prof. S.K. Bhagat, Deptt. of Electrical Engg	Member
24.	Prof. S. Gao, Dept. of Electrical Engg & CoE	Member
25.	Prof. A.K. Singh, Deptt. of Electrical Engg	Member
26.	Prof. M. Muralidhar, Deptt. of Mechanical Engg	Member
27.	Prof. M. Chandrasekaran, Dept. of Mech. Engg.	Member



28.	Prof. A. Giri, Deptt. of Mechanical Engg.	Member
29.	Prof. P.K. Tripathy, Deptt. of Chemistry	Member
30.	Prof. A.K. Gupta, Deptt. of Chemistry.	Member
31.	Prof. M.F. Hussain, Dept. of Chemistry	Member
32.	Prof. N. Deb, Dept. of Chemistry	Member
33.	Prof. L.K. Arora, Dept. of Mathematics	Member
34.	Prof. K. Shrivastava, Dept. of Forestry	Member
35.	Prof. Md. A. Hussain, Deptt. of ECE.	Member
36.	Prof. T. Karlo, Deptt. of Physics	Member
37.	Dr. Rajesh Kumar, Deptt. of ECE.	Member
38.	Prof. S. Mahto, Dept. of Mech. Engg.	Member
39.	Prof. B.K. Singh, Dept. of Mathematics	Member
40.	Prof. Ajay Bharti, Deptt. of Civil Engg.,	Member
41.	Prof. B.D. Nayak, Dept. of HSS	Member
42.	Prof. C.L. Sharma, Dept. of Forestry	Member
43.	Prof. (Mrs.) M. Sharma, Dept. of Forestry	Member
44.	Prof. Binay Singh, Deptt. of Forestry	Member
45.	HoD (AE)	Member
46.	HoD (CE)	Member
47.	HoD (CSE)	Member
48.	HoD (ECE)	Member
49.	HoD (EE)	Member
50.	HoD (ME)	Member
51.	HoD (CH)	Member
52.	HoD (MA)	Member
53.	HoD (FO)	Member
54.	HoD (PH)	Member
55.	HoC (CMS)	Member
56.	Mr. R. Prasad, Deptt. of HSS.	Member
57.	Dr. S. Samanta, Associate Prof., Deptt. of ME	Member
58.	Shri Ashok Kr. Ray, Assistant Prof., Deptt. of ECE	Member
59.	Dr. G. Pangging, Assistant Prof., Deptt. of FO	Member
60.	Smt. Mudo Puming, Assistant Prof., Deptt. of CE	Member
61.	Controller of Examination	Invitee
62.	Registrar	Non-Member Secy.

**ANNEXURE - V****MEMBER OF BUILDING AND WORKS COMMITTEE AS ON 31ST MARCH 2020**

1. Prof. H. S. Yadav Director, NERIST Itanagar, Arunachal Pradesh	--	Chairman
2. Dean (Planning & Development) NERIST Itanagar, Arunachal Pradesh	--	Member
3. Secretary (Higher Education) Govt. of Arunachal Pradesh Itanagar	--	Member
4. Chief Engineer (PWD) Western Zone, Itanagar Arunachal Pradesh	--	Member
5. Director (T) Department of Higher Education MHRD, Govt. of India, Shastri Bhavan, 'C' Wing, New Delhi – 110 015.	--	Member
6. Senior Architect, PWD, Govt. of Arunachal Pradesh Itanagar, Arunachal Pradesh	--	Member
7. Registrar, NERIST	--	Member
8. Deputy Registrar (Finance) NERIST	--	Member
9. Head of the Department (Civil Engg.) NERIST.	--	Member
10. Head of the Department (Electrical Engg.) NERIST.	--	Member
11. Electrical Engineer NERIST	--	Member
12. Executive Engineer (Civil) NERIST	--	Member-Secretary



ANNEXURE - VI

INSTITUTE ADMINISTRATION AS ON 31ST MARCH, 2020

1. Director	:	Prof.H.S. Yadav
2. Deans:		
Administration	:	Prof. K.N. Dewangan
Academic	:	Prof. P. Parida
Student's Affairs	:	Prof. P. Lingfa
Planning & Development	:	Prof. R.K. Prasad
3. Group – A Officers		
Registrar	:	Shri M.K. Camder (in-charge)
Deputy Registrar (Fin)	:	Shri M.K. Camder
Assistant Registrars:		
Academic	:	Dr. K.K. Rajesh
Examination Cell	:	Shri Gautam Kumar Roy
Store & Purchase	:	Shri Toko Shama
Hostel Manage Council	:	Shri Animesh Basu
Medical Officers:	:	Dr. P. Camdir Tok
	:	Dr. Sushmita P. Taggu
	:	Dr. Gyamar Inja
Technical Officer	:	Smti G.J. Laxmi
Scientific Officers	:	Dr. H.S. Gangwar
	:	Sjri T. Ghosh
Assistant Workshop Superintendent	:	Shri Harshendra Misra
Network Administrator	:	Shri Dewan Rasidul Alam
Executive Engineer (Civil)	:	Shri Toko Lento (in-charge)
4. Group – B Officers		
Security Officer	:	Shri Toko Shama (in-charge)
Section Officers:		
Establishment	:	Shri Doge Kamduk
Store & Purchase	:	Shri Rabindra Deb
Academic	:	Shri Radhe Tadu
Hostel Management Council	:	Smti. Pratibha Saikia
5. Chief Vigilance Officer	:	Prof. K.N. Dewangan
6. Estate Officer	:	Shri Gautam Kumar Roy
7. Liaison Officer (SC/ST)	:	Dr. G. Pangging
8. Hindi Officer	:	Shri Ratan Singh



9. Head of the Departments:
- | | | |
|---|---|-----------------------------|
| Agriculture Engineering | : | Prof. S.K. Shrivastava |
| Civil Engineering | : | Prof. S. Misra |
| Computer Science & Engineering | : | Dr. M. Marjit Singh |
| Electrical Engineering | : | Prof. S.K. Bhagat |
| Electronics & Communication Engineering | : | Dr. Rajesh Kumar |
| Mechanical Engineering | : | Prof. M. Chandrasekhran |
| Forestry | : | Prof. (Mrs.) K. Shrivastava |
| Physics | : | Prof. Tado Karlo |
| Chemistry | : | Prof. A.K. Gupta |
| Mathematics | : | Prof. L.K. Arora |
| Humanities & Social Sciences | : | Shri R. Prasad |
| Centre for Management Studies | : | Dr. S. Choudhury |
10. Chairman:
- | | | |
|---------------------------|---|----------------------|
| NEE Committee | : | Dr. Mukesh Upadyay |
| Hostel Management Council | : | Shri Radak Blange |
| Gymkhana | : | Shri Ashok Kumar Ray |
| Telecom | : | Dr. Rajesh Kumar |
| Transport | : | Prof. S. Mahto |
| Library | : | Shri N.G. Sorum |
| HAC | : | Dr. M.M. Dixit |
11. Training & Placement Cell in-charge : Prof. M. Chandrasekaran
12. ET Cel in-charge : Shri Pradeep Kamboj
13. Co-ordinators:
- | | | |
|------|---|-----------------------|
| SRIC | : | Prof. B.K. Singh |
| NSS | : | Dr. Ajay Bharati |
| CEP | : | Dr. Pankaj Kr. Pandey |
| CRF | : | Dr. Jagannath Bhuyan |
| ACCF | : | Shri Pradeep Kamboj |
14. Controller of Examination in-charge : Prof. Sarsing Gao
15. Secretary NEE Committee : Dr. K.K. Rajesh
16. NCC Officer : Dr. Mukesh Upadhyay



ANNEXURE - VII

MEMBERS OF LIBRARY COMMITTEE AS ON 31ST MARCH, 2020

Sl	Name	Deptt	Member
1.	Mr. N.G. Sorum	Civil Eng.	Chairman
2.	Mr. D.M. Sahu	Central Library	Member Sec.
3.	Dr. S.L.Bharati	Chemistry	Member
4.	Dr. K. Saharia	Physics	Member
5.	Ms. Piyali Das	Electrical Eng.	Member
6.	Mr. S.M. Khan	Mechanical Eng.	Member
7.	Dr. C.P. Pandey	Mathematics	Member
8.	Dr. Raju Borthakur	HSS	Member
9.	Dr. S. Choudhury	CMS	Member
10.	Dr. P.K. Pandey	Agriculture Eng.	Member
11.	Dr. Awadesh Kumar	Forestry	Member
12.	Dr. P.K. Dutta	Electronic Eng.	Member
13.	Dr. A.K. Singh Yadav	Computer Sc.	Member



ANNEXURE - VIII

MEMBERS OF NERIST ENTRANCE EXAMINATION COMMITTEE

1.	Dr. Mukesh Upadhyay	Associate Professor	Chairman
2.	Dr. M. Marjit Singh	Assistant Professor	Member
3.	Dr. Pankaj Kumar Pandey	Assistant Professor	Member
4.	Dr. Jagannath Bhuyan	Assistant Professor	Member
5.	Dr. A Paul	Assistant Professor	Member
6.	Dr. K.K. Rajesh	Assistant Registrar (Acad)	Member Secretary



ANNEXURE - IX

MEMBERS OF HOSTEL MANAGEMENT COUNCIL AS ON 31.03.2020

Sl.No.	Hostel Management Council	
1	Chief Warden	Chairman
2	Warden-A	Member
3	Warden-B	Member
4	Warden-C	Member
5	Warden-D	Member
6	Warden-E	Member
7	Warden-F	Member
8	Warden-G	Member
9	Warden-H	Member
10	Warden-Subansiri	Member
11	Warden- Brahmaputra	Member

ANNEXURE - X
NERIST ENTRANCE EXAMINATION
**REPORT ON ADMISSION DURING 2019-20 SESSION THROUGH
NERIST ENTRANCE EXAMINATION (NEE – I, II & III)**

Admission notice :

The admission notification was published in the following newspapers:

Sl. No.	Name of News Paper
1	Assam Tribune, Guwahati
2	The Telegraph (All India Edition)
3	Shillong Times
4	Nagaland Post
5	Sikkim Express
6	Mizoram Post
7	Dainik Sambad
8	Employment News
9	Arunachal Times, Itanagar
10	Echo of Arunachal
11	Sangai Express, Imphal

Date of Examination: **20. 04. 2019 - NEE – II & III**
 21. 04. 2019 - NEE - I

Candidates Appeared in NEE-2019 (State, Category & Module wise)

Name of state	Module						Total
	NEE-I		NEE-II		NEE-III		
	Male	Female	Male	Female	Male	Female	
Arunachal Pradesh	1258	976	793	824	75	29	3955
Assam	329	183	332	178	121	57	1200
Manipur	122	62	157	122	10	02	475
Meghalaya	85	36	79	67	34	24	325
Mizoram	28	06	18	10	06	02	70
Nagaland	105	65	148	125	46	18	507
Sikkim	03	00	04	06	07	04	24
Tripura	198	86	32	31	36	20	403
All India	122	63	64	25	18	09	301
PD	03	03	01	01	03	01	12
Total	2253	1480	1628	1389	356	166	7272

STATE & BRANCH WISE DETAILS OF CANDIDATES APPEARED IN NEE-III, 2019

Name of State	AE		CE		ME		ECE		CSE		EE	
	M	F	M	F	M	F	M	F	M	F	M	F
Arunachal Pradesh	01	00	62	18	02	00	00	01	06	04	04	06
Assam	07	05	40	24	22	02	17	08	09	12	26	06
Manipur	00	00	04	00	03	00	03	02	00	00	00	00
Meghalaya	00	02	17	08	06	01	02	01	02	04	07	08
Mizoram	00	00	01	00	01	01	03	00	01	00	00	01
Nagaland	02	00	26	11	07	02	01	02	04	00	06	03
Sikkim	00	00	01	01	01	00	01	02	03	01	01	00
Tripura	00	00	16	08	06	00	03	06	00	03	11	03
All India	00	00	05	01	03	00	01	03	01	00	08	05
PD	00	00	01	01	00	00	00	00	00	00	02	00
Total	10	7	173	72	51	06	31	25	26	24	65	32

RESULT ANNOUNCEMENT

- 1) Result approved on : 13-05-2019
 2) Declaration on notice boards : 13-05-2019
 3) Result given in NERIST website : 13-05-2019

Candidates selected (state and module wise): 2019

Name of state & category	MODULE				Total
	NEE-I	NEE-II		NEE-III	
		Technology	Forestry		
PRC	14	07	02	05	28
PHYSICAL HANDICAPPED	06	01	01	02	10
EWS	20	08	03	06	37
Arunachal Pradesh	20	08	03	07	38
Assam	20	08	03	06	37
Manipur	20	08	03	04	35
Meghalaya	20	08	03	06	37
Mizoram	19	08	03	05	35
Nagaland	20	08	03	07	38
Sikkim	02	04	02	05	13
Tripura	20	07	03	05	35
All India	20	08	03	05	36
Floating	NA	NA	NA	02	02
Total	201	83	32	65	381

Candidates wait-listed (State & module-wise) 2019

Name of state & category	MODULE				Total
	NEE-I	NEE-II		NEE-III	
		Technology	Forestry		
PRC	40	16	06	10	72
PHYSICAL HANDICAPPED	00	00	00	01	01
EWS	33	16	00	08	57
Arunachal Pradesh	40+20	16+08	06+03	06+03	68+34
Assam	40	16	06	08	70
Manipur	40	16	06	05	67
Meghalaya	40	15	06	10	71
Mizoram	02	07	06	02	17
Nagaland	40	16	06	12	74
Sikkim	01	02	01	03	07
Tripura	40	09	06	07	62
All India	38	16	06	08	68
Floating	NA	NA	NA	04	04
Total	354+20	145+08	55+03	84+03	638+34

SUMMARY OF NEE-2019

POSITION	NEE-I	NEE-II	NEE-III	Total
No. of candidates appeared	3733	3017	522	7272
No. of candidates selected (Technology)	201	83	65	349
No. of candidates selected (Forestry)	--	32	--	32
No. of candidates waitlisted (Technology)	384	153	58	595
No. of candidates waitlisted (Forestry)	585	268	123	976

HIGHLIGHTS OF NEE-2019

Sl.No.	Events	2018	2019	Remarks
1.	No. of candidates appeared in NEE - I	4449	3733	Decreased by 716 Nos.
2	No. of candidates appeared in NEE - II	4265	3017	Decreased by 1248 Nos.
3.	No. of candidates appeared in NEE - III	663	522	Decreased by 141 Nos.
4.	Total No. of candidates appeared in NEE	9377	7272	Decreased by 2105 Nos.



Adoption of online application process through www.neeonline.ac.in and www.nerist.ac.in. Online process has helped the NEE Cell to publish the NEE result in time as per the schedule. Payment mode for application was also available to the candidates via online banking, debit cards and credit cards. All the information relating to the online application, result declaration and schedule for counseling were made available in the institute website for the information to the candidates and parents in particular and for general information at large.

Thus the total process of NEE-2019 completed successfully.

ANNEXURE - XI
DEPARTMENT WISE LIST OF FACULTY AS ON 31ST MARCH, 2020

Sl.No	Name of Faculty Members	Post Holding
DEPARTMENT OF FORESTRY		
1	Dr. Binay Singh	Professor (CAS)
2.	Dr. C. L. Sharma	Professor (CAS)
3.	Dr.(Mrs) M. sharma	Professor (CAS)
4.	Dr. (Mrs.) K. Shrivastava	Professor (CAS)
5.	Dr. S. Suresh Kumar Singh	Associate Professor
6.	Dr. Awadhesh Kumar	Associate Professor
7.	Dr. P. R. Gajurel	Associate Professor
8.	Dr. O. P. Tripathi	Associate Professor
9.	Dr. L. B. Singha	Associate Professor
10.	Dr. Gobinda Pangging	Assistant Professort
11.	Dr. Ashish Paul	Assistant Professor
12.	Dr. (Ms) Madhu Kamle	Assistant Professor
13.	Dr. Pradeep Kumar	Assistant Professor
DEPARTMENT OF AGRICULTURAL ENGINEERING		
1.	Dr. P.P. Dabral	Professor
2.	Dr. K. N. Dewangan	Professor (CAS)
3.	Dr. S. K. Shrivastava	Professor (CAS)
4.	Shri D. K. Shyamal	Associate Professor
5.	Dr. (Ms) Aditi Bhadra	Associate Professor
6.	Dr. Arnab Bandopadhyay	Associate Professor
7.	Dr. P. K. Pranav	Assistant Professor
8.	Dr. Pankaj Kumar Pandey	Assistant Professor
9.	Dr. Thaneswar Patel	Assistant Professor
10.	Shri Ukil Singh	Assistant Professor
11.	Shri Arun Kumar Choudhary	Assistant Professor
12.	Shri Anubhab Pal	Assistant Professor
13.	Shri Tage Tapang	Assistant Professor
14.	Mrs. Vanita Pandey	Assistant Professor
DEPARTMENT OF CIVIL ENGINEERING		
1.	Dr. S. K. Singh	Professor
2.	Dr. R. K. Prasad	Professor (CAS)
3.	Dr. S. Baishya	Professor (CAS)
4.	Dr. S. Mishra	Professor (CAS)
5.	Shri S. K. Sahu	Associate Professor
6.	Dr. Ajay Bharati	Associate Professor
7.	Dr. (Ms.) Dipika Devi	Associate Professor
8.	Mrs. Y. Bidyalaxmi Devi	Assistant Professor
9.	Ms. Mudo Puming	Assistant Professor
10.	Ms. Yamem Tamut	Assistant Professor
11.	Shri Neero Gumsar Sorum	Assistant Professor
12.	Shri K. James Singh	Assistant Professor
13.	Dr. (Ms) Ajanta Kalita	Assistant Professor
14.	Dr. Dibyendu Pal	Assistant Professor



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING		
1.	Dr. (Ms.) N. Marchang	Associate Professor
2.	Ms. Margaret Kathing	Associate Professor (CAS)
3.	Dr. S. J. Borah	Associate Professor (CAS)
4.	Shri K. Leogh	Associate Professor (CAS)
5.	Dr. M. Marjit Singh	Assistant Professor
6.	Shri Aswinii Kumar Patra	Assistant Professor
7.	Shri Manul Saikiia	Assistant Professor
8.	Shri Amarr Taggu	Assistant Professor
9.	Shri Ajit Kumarr Singh Yadav	Assistant Professor
10.	Shri Yogendra Mohan	Assistant Professor
11.	Shri Pradeep Kamboj	Assistant Professor
DEPARTMENT OF ELECTRICAL ENGINEERING		
1.	Dr. S. Chatterjee	Professor (CAS)
2.	Dr. R. K. Mehta	Professor (CAS)
3.	Dr. O. P. Roy	Professor (CAS)
4.	Dr. Sarsing Gao	Professor (CAS)
5.	Dr. S. K. Bhagat	Professor (CAS)
6.	Dr. A. K. Singh	Professor (CAS)
7.	Shri R. Blange	Associate Professor (CAS)
8.	Shri T.V.P. Singh	Associate Professor (CAS)
9.	Dr. Adikanda Parida	Assistant Professor
10.	Shri Deben Singh	Assistant Professor
11.	Dr. Anu Kumar Das	Assistant Professor
12.	Shri N. L. Meitei	Assistant Professor
13.	Ms. Somila Hashunao	Assistant Professor
14.	Shri Akhilesh Sharma	Assistant Professor
15.	Ms. Piyali Das	Assistant Professor
16.	Shri P. Devachandrra Singh	Assistant Professor
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING		
1.	Dr. Md. Anwar Hussain	Professor (CAS)
2.	Dr. Aheiban Dinamani Singh	Associate Professor
3.	Dr. Rajesh Kumar	Associate Professor
4.	Dr. Tripurari Sharan	Assistant Professor
5.	Shri Madhusudan Mishra	Assistant Professor
6.	Dr. Pranab Kumar Dutta	Assistant Professor
7.	Dr. (Mrs) Joyatri Bora	Assistant Professor
8.	Dr. Swanirbhar Majumdar	Assistant Professor
9.	Shri Ashok Kumar Ray	Assistant Professor
10.	Shri Rusni Kima Mangang	Assistant Professor
11.	Shri Akho mJohan Richa	Assistant Professor
12.	Shri Anil Kumar Gautam	Assistant Professor
13.	Shri M. Edison Singh	Assistant Professor



DEPARTMENT OF MECHANICAL ENGINEERING		
1.	Dr. M. Muralidhar	Professor (CAS)
2.	Dr. Asis Giri	Professor (CAS)
3.	Dr. Pradip Lingfa	Professor (CAS)
4.	Dr. M. Chandrasekhran	Professor (CAS)
5.	Dr. S. Mahto	Professor (CAS)
6.	Dr. S. Samanta	Associate Professor
7.	Dr. Satyam Shivam Gautom	Associate Professor
8.	Dr. Sandeep Singh	Associate Professor(CAS)
9.	Shri K. K. Mondal	Assistant Professor
10.	Dr. M. P. Thaddues	Assistant Professor
11.	Shri Maryom Dabi	Assistant Professor
12.	Dr. Narendra Kumar Rana	Assistant Professor
13.	Shri Nabam Teyi	Assistant Professor
14.	Dr. Santosh Kumar Tamang	Assistant Professor
15.	Md. S. Mujaheed Khan	Assistant Professor
16.	Dr. Yadaiah Nirsanmetla	Assistant Professor
DEPARTMENT OF CHEMISTRY		
1.	Dr. H. S. Yadav	Professor (CAS)
2.	Dr. P. K. Tripathy	Professor (CAS)
3.	Dr. M. F. Hussain	Professor (CAS)
4.	Dr. N. Deb	Professor (CAS)
5.	Dr. A. K. Gupta	Professor (CAS)
6.	Shri N. Ghanashyam Singh	Assistant Professor
7.	Dr. Shahi Lata Bharati	Assistant Professor
8.	Dr. (Ms) Meera Yadav	Assistant Professor
9.	Dr. Jagannath Bhuyan	Assistant Professor
10.	Dr. A. Murugan	Assistant Professor
11.	Dr. Nagendra Nath Yadav	Assistant Professor
DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES		
1.	Dr. B. D. Nayak	Professor (CAS)
2.	Dr. P. Parida	Professor (CAS)
3.	Dr. (Ms) S. Sinha	Associate Professor(CAS)
4.	Shri R. Prasad	Associate Professor (CAS)
5.	Dr. Raju Barthakur	Associate Professor (CAS)
DEPARTMENT OF MATHEMATICS		
1.	Dr. L. K. Arora	Professor (CAS)
2.	Dr. B.K. Singh	Professor (CAS)
3.	Dr. M. M. Dixit	Associate Professor
4.	Dr. Jayanta Bora	Assistant Professor
5.	Dr. Herachandra Singh	Assistant Professor
6.	Dr. Mohammad Hassan	Assistant Professor
7.	Dr. Chandra Prakash Pandey	Assistant Professor
DEPARTMENT OF PHYSICS		
1.	Dr. P. R. Alapati	Professor (CAS)
2.	Dr. Tado Karlo	Professor (CAS)



3.	Dr. Arvind Pandey	Associate Professor (CAS)
4.	Dr. (Mrs) Th. Gomti Devi	Associate Professor
5.	Dr. Mukesh Upadhyay	Associate Professor
6.	Dr. Rajesh Kumar Yadav	Associate Professor
7.	DR. Kamal Saharia	Assistant Professor
8.	Dr. (Ms.) Akbari Jahan	Assistant Professor
9.	Dr. Kunal Borah	Assistant Professor
DEPARTMENT OF CENTRE FOR MANAGEMENT STUDIES		
1.	Dr. R. M. Pant	Professor (CAS)
2.	Dr. Shibabrata Choudhary	Assistant Professor
3.	Dr. (Mrs) Bijoylaxmi Sarmah	Assistant Professor
4.	Dr. Manhoman Mall	Assistant Professor
Total : 133		