

## SCHOOL OF TECHNOLOGY

**Dean** : Professor K. Ismail  
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The School of Technology was established in the year 2006 and consists of the Departments of (i) Electronics and Communication Engineering (ECE) (ii) Information Technology (IT) and (iii) Basic Sciences and Social Sciences (BSSS). The Departments of ECE and IT offer B.Tech Programmes in ECE and IT, respectively, while the Department of BSSS offers the courses that are common to all the B. Tech students. Infrastructure has been further improved during the year.

### DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

**Head** : Dr. L. Joyprakash Singh  
**Telephone** : 272 3662(O), 9436349192(M)  
**Email** : jplairen@nehu.ac.in

**Brief Statement of Academic Activities** : The Department is engaged in training the students for Electronics and Communication industries and developing their capacity for tackling engineering problems in the field of Electronics and Communication. The Department started the B.Tech programme in Electronics and Communication Engineering from August 2006. Laboratory equipments have been procured to run the first and second year laboratory classes. The syllabus was revised in May, 2007. Departmental meetings are held from time to time to discuss the planning and development of the department. The department is also planning to start M. Tech. and Ph. D. programmes in near future.

#### Faculty :

**Readers** : L. J. Singh, M. Tech. (Tezpur), Ph. D.(Jadavpur),  
S. K. Dutta, M.Tech. ( Manipal Institute of Technology)  
**Lecturers** : Juwesh Binong, B.E. (Bavnagar)

Rajkishur Mudoi, M.Tech.(Tezpur)

#### Student intake :

Enrolment capacity: 60

Actual Admission : SC ST Gen. Male Female Meghalaya Outside Meghalaya  
B.Tech(ECE) 5 9 41 44 11 7 48

**Courses Conducted :**

**Semester I:** Basic Electrical Engineering and Basic Electrical Laboratory

**Semester II:** Basic Electronics and Basic Electronics Laboratory

**Semester III:** Analog Electronic Circuits – I, Digital Electronics, Signals and Systems, Electrical Network Theory, Analog Electronic Circuits-I Laboratory and Digital Electronics Laboratory.

**Semester IV:** Electromagnetic Theory, Analog Electronic Circuits –I I, Digital System Design (DSD), Linear Integrated Circuits and Systems (LICS), Analog Electronic Circuits –I I Laboratory, DSD Laboratory, and LICS Laboratory.

**Infrastructure Facilities :** A Computer Laboratory was set up with 31 PCs and 1 Server.

**Other Activities :**

Dr. L. J. Singh (i) presented a talk on “Wi-Fi technology and its application” during SCC Seminar cum Workshop 2007 organized by Indian Air Force, Air Force Station, Laitkor Peak, Shillong on 13<sup>th</sup> June 2007. (ii) He attended the “WISP-2007(Workshop on Image and Signal processing)” organized jointly by the Department of ECE, IIT, Guwahati and C. R. Rao AIMSCS, Hyderabad held during December 28-29, 2007. (iii) He also attended the “ISI-MU Winter School on Data Mining and Computational Biology” jointly organized by Machine Intelligence Unit, ISI Kolkata and Department of Computer Science, Manipur University, Imphal during January 28- February 01, 2008.

Mr. S. K. Dutta and Mr. R. K. Mudoi attended the “North East School on Computational Geometry” jointly organized by Advanced Computing & Microelectronics Unit (ACMU), Indian Statistical Institute (ISI), Kolkata and Department of Computer Science, St. Anthony’s College, Shillong held during November 1-3, 2007.

## DEPARTMENT OF INFORMATION TECHNOLOGY

**Head** : Dr. S. Tripathy  
**Telephone** : 0364-2723612 (O), 0364-2723611 (O)  
**E-mail** : somanath.tripathy@gmail.com

**Brief Statement of Academic Activities** : The Department is training the students for I.T. industries and developing their capacity to tackle related engineering problems. The B.Tech. programme in Information Technology started from August 2006 onwards and two batches of students are studying now. The faculty members are making all out effort in developing the department, besides imparting quality teaching. Laboratory equipments have been procured to run the first and second year laboratory classes. The syllabus was revised in May, 2007.

**Faculty :**

Readers : S. Tripathy, Ph. D.(IIT Guwahati)

I. Hussain, M. Tech. (Tezpur)

Lecturers : S. Roy, M. Tech. (Tezpur)

A. Maji, M. Tech. (BESU, Shibpur)

S. Neog, M. Tech. (Tezpur)

**Student intake :**

Enrolment capacity: 60 Outside

Actual admission : SC ST Gen OBC Male Female Meghalaya Meghalaya

B. Tech (IT) 9 6 30 11 42 14 10 46

**Course Conducted :**

**Semester I** - Basic Electrical Engineering, Electrical Laboratory, Engineering Graphics.

**Semester II** - Computer Systems and Programming, Computer Programming Laboratory.

**Semester III** - Discrete Mathematics, Data structure & Algorithm, Numerical Lab, Data structure Lab.

**Semester IV** - Formal Language and Automata Theory, Computer Graphics & Multimedia, System Programming, Computer Organization & Architecture, Computer Graphics & Multimedia Lab, System Programming Lab, Computer Organizational & Architecture Lab.

**Publications :**

Tripathy S. 2008. Defense against outside attacks in wireless sensor networks. J.C.C., 3 : 818-826.

**Book/Book Chapter/Proceedings Publications**

Tripathy S. 2007. "LISA: Lightweight security algorithm for wireless sensor networks", Proceedings of the International Conference on Distributed Computing and Internet Technology **ICDCIT-07**, Bangalore, LNCS, 4882: 129-134.

**Infrastructure Facilities :**

The following facilities were set up for B. Tech students:

1. High performance Computer Laboratory.
2. SUN Virtual Desktop Solution.
3. Computer Organizational and Architecture Laboratory.

**Research projects :**

**Ongoing :** Studies on health Status and Demographic Pattern of population, around Domiasiat Area, West Khasi Hills. Co-investigator: Mr. A.K. Maji. Sponsored by the Environment Assessment Division, Bhaba Atomic Research Centre (Rs. 54.50 lakhs)

**Other Activities :**

Mr. S. Roy delivered lectures as a resource person on "Data mining and Gene Expression Data Analysis" in the workshop on "Bioinformatics for

Biologist" sponsored by DBT, India and held at Rajiv Gandhi University, Itanagar on 3<sup>rd</sup> – 5<sup>th</sup> March, 2008. He delivered lectures as a resource person on "Computer Aided Learning" & "Information Retrieval Storage" in the UGC-ASC 2<sup>nd</sup> Orientation Course organized by the Department of Education, NEHU from 26<sup>th</sup> February to 26<sup>th</sup> March 2008. Mr. S. Roy attended North East School on Computational Geometry, conducted by ACM Unit, Indian Statistical Institute and organized by St. Anthony's College on 1-3 November, 2007, Shillong. Mr. S. Roy attended ISI-MU Winter School on Data mining and Computational Biology, conducted by MIU Unit Indian Statistical Institutes, Kolkata and organized by Manipur University on 28-31 January, 2008, Manipur.

Mr. A. Maji attended a refresher course on "Mobile Communication system & Applications" at Indian Institute of Technology, Guwahati from 4- 8 June, 2007. He also delivered lecture on "Multimedia & its application" and "Usage of Internet" at orientation course organized by the Department of Education, NEHU, Shillong from 26<sup>th</sup> February, 2008 to 26<sup>th</sup> March, 2008.

Mr. I. Hussain delivered two lectures on "Introduction to Information and Communication Technology" and "Application of I.T in Society" in U.G.C- ASC 2<sup>nd</sup> Orientation course organized by the Department of Education, NEHU, Shillong in the month of March, 2008. He delivered two lectures on " Introduction to Computer Systems and Information technology" and "Current Trends in I.T" in the U.G.C- Sponsored Refresher Course organized by the Department of English, NEHU, Shillong on 19<sup>th</sup> March, 2008. He also attended a school on " Computational Geometry" organized by ACM Unit, ISI Kolkata and St Anthony's College, Shillong jointly during November, 1-3, 2007.

Mrs. S. Neog attended a school on "Computational Geometry" jointly organized by ACM Unit, ISI Kolkatta and St Anthony's College, Shillong during 1-3 November, 2007.

## DEPARTMENT OF BASIC SCIENCES & SOCIAL SCIENCES

**Teacher-in-charge** : Dr. A. K. Das

**Telephone** : 2723643 (O), 2506251 (R), 9436152058 (M)

**E-mail** : [dask\\_anup@yahoo.co.in](mailto:dask_anup@yahoo.co.in)

**Thrust Areas of Research** : The thrust areas of research of the department are Basic & Applied Mathematics, Basic & Applied Physics, Chemical Science & Technology, Basic & Applied Environmental Sciences, Biotechnology, Basic & Applied Economics, Applied Statistics, and Communicative English with emphasis on interdisciplinary and multidisciplinary studies.

**Brief Statement of Academic Activities** : The Department conducts all the core courses of Basic Sciences, Humanities and Social Sciences that appear in the B.Tech. curricula of Department of Electronics & Communication

Engineering (ECE) and Department of Information Technology (IT) of the School of Technology. In addition, the members of the Faculty have been engaged in research activity in their respective fields of interest as also in the interdisciplinary and multidisciplinary areas.

**Faculty :**

Lecturers :

Mathematics : M. D. Kushwaha, M. A., Ph. D. (BHU)

: M. M. Singh, M. Sc. (BHU), Ph. D. (PU)

: Sainkumar M.N. Mawiong, M. Sc. (NEHU)

Physics : A. K. Das, M. Sc. (IIT, Kgp), Ph. D. (CU)

: Regenel S. Kharwanlang, M. Sc. (NEHU)

: Amal Medhi, M. Sc. (GU)

: P. V. Koparkar, M. Sc., Ph.D.(Nagpur)\*

Chemistry : A. B. Chetry, M. Sc. (GU)

: A. Sinha, M. Sc. (LU), Ph.D. (NEHU)

: Lokman H. Choudhury, M. Sc., Ph. D. (IITG)

: Jyoti Narayan, M. Sc., M. Phil, Ph. D. (KU)

Statistics : Phrangstone Khongjee, M. Sc. (NEHU)

Env. Science : Krishna Upadhaya, M. Sc., Ph. D. (NEHU)

Biotechnology : Hiranjit Choudhury, M. Sc., Ph. D. (NEHU)

English : Evapynhun Giri, M. A., M. Phil. (NEHU)

Economics : Veronica Pala, M. A., Ph. D. (NEHU)

**\* Adjunct Professor**

**Courses Conducted :** The following core courses of the B. Tech. programmes of ECE and IT have been conducted:

**Semester I :** English & Communication Skills, Engg. Mathematics I, Engg. Physics I, Engg. Chemistry, Basic Electrical Engg., Elements of Biotechnology, Engg. Chemistry Laboratory, Basic Electrical Laboratory, and Engg. Graphics

**Semester II :** Engg. Mathematics II, Engg. Physics II, Engg. Chemistry II, Engg. Physics Laboratory and Engg. Chemistry Laboratory, Applied Mathematics II, Applied Physics II, Applied Chemistry, Elements of Environmental Sciences, Biotechnology, Applied Physics Laboratory and Applied Chemistry Laboratory

**Semester III :** Engineering Mathematics III, Organizational Management

**Publications :**

**Published in India**

Das, S., Dubey, A. and Pala, V. 2007. "The Non-farm Sector in the Rural North- Eastern Region of India: Some Correlates and Determinants", *Manpower Journal*, 42 (2): 51-72.

Tandon, P., Kumaria, S., and Choudhury, H. 2007. "Plantlet regeneration of *Pinus kesiya* Royle ex. Gord. from mature embryos." *Indian J. Biotechnology*, 6 (2): 262-266.

#### **Published Abroad**

Medhi A., Basu S. and Kadolkar C. 2007. "Coexistence of magnetism and superconductivity in a t-J bilayer", *Physical Review B*, 76: 235122.

Khan, A.T., Parvin, T., Gazi, S., and Choudhury, L. H. 2007. "Bromodimethyl sulphonium Bromide mediated aza-michael addition of amines to electron deficient alkenes." *Tetrahedron Letters*, 48: 3805-3808.

Khan, A.T., Parvin, T., and Choudhury, L. H. 2008. "Bromodimethylsulphonium Bromide (BDMS) catalyzed three components mannich-type reactions." *Euro. J. Org. Chem.* 834-839.

#### **Book/Book Chapter Publications**

Das, S., Dubey, A. and Pala, V. 2007. "Migration in the North- Eastern Region of India: Some Issues" In: Dubey, Amaresh, M. Satish Kumar, N. Srivastava and E. D. Thomas (eds.) *Globalisation and North- East India: Some Developmental Issues*, Standard Publishers, New Delhi, pp. 55-92.

Das, S., Dubey, A. and Pala, V. 2007. "The Employment Situation in the North- Eastern Region Of India: A Gender Perspective" In: Dubey, Amaresh, M. Satish Kumar, N. Srivastava and E. D. Thomas (eds.) *Globalisation and North- East India: Some Developmental Issues*, Standard Publishers, New Delhi, pp. 115-146.

Das, S., Dubey, A. and Pala, V. 2007. "The Non-farm Sector in the Rural North- Eastern Region of India: Some Correlates and Determinants" In: Dubey, Amaresh, M. Satish Kumar, N. Srivastava and E. D. Thomas (eds.) *Globalisation and North- East India: Some Developmental Issues*, Standard Publishers, New Delhi, pp. 147-170.

#### **Research Projects :**

##### **Ongoing**

(i) "Measurements of radionuclides and trace elemental concentrations and their transfer factors in environmental matrices around the proposed uranium mining, milling and tailing pond site at K. P Mawthabah (Domiasiat), West Khasi Hills, Meghalaya" (Principal investigator: B. Kharbuli; Co-investigators: A.K. Das and Jyoti Narayan). Sponsored by DAE, Government of India (Rs. 69.17 lakhs)

(ii) "Studies on health status and demographic pattern of population around Domiasiat area, West Khasi Hills, Meghalaya" (Principal investigator B. Kharbuli; Co-investigators: S. K. Mawiong, Eva Giri, B. S. Mipun, D. K. Nayak, A. K. Maji, S. S. Chaturvedi). Sponsored by DAE, Government of India (Rs. 54.50 lakh)

### **Completed**

“Determinants of Post-Higher Secondary Enrolment in India”, (Amaresh Dubey and V. Pala). Sponsored by UGC (Rs. 1.73 lakh)

### **Academic/Professional Collaboration :**

Dr. A.K. Das and Dr. Jyoti Narayan have collaborative research works with Prof. B. Kharbuli of Department of Zoology, NEHU, Shillong and Dr. S. K. Jha of BARC, Trombay on study of Radionuclides and Trace Elements' concentrations in the Environmental Matrix around the Uranium mining sites at Domiasiat in Meghalaya.

Mr. S.K. Mawiong and Ms. Eva Giri have collaborative studies with Prof. B. Kharbuli of Department of Zoology, NEHU, Shillong and Prof. B.S. Mipun and Prof. D. K. Nayak of the Department of Geography, NEHU, S. S. Chaturvedi of Centre for Environmental Studies, NEHU and Mr. A. K. Maji of the Department of Information Technology, NEHU, Shillong and Dr. Mohan Chougaongar of BARC, Trombay on health status and demographic pattern of population around Domiasiat area, West Khasi Hills, Meghalaya.

### **Other Activities :**

Dr. L.H. Choudhury visited University of Manchester, U.K., on Royal Society Incoming Fellowship.

Dr. M.D. Kushwaha attended Refresher course in Mathematics at North-Eastern Hill University October 24 -15 November, 2007.

Dr. Jyoti Narayan attended Refresher course in Chemistry at North-Eastern Hill University from 20 September to 12 October, 2007.

Dr. Krishna Upadhaya attended Refresher course in Botany at North-Eastern Hill University from 20 November to 11 December, 2007.

Dr. H. Choudhury acted as Nodal In-Charge of DBT Network Programme on Pinus Meeting organized at NEHU under the Coordinatorship of Prof. P. Tandon from August, 13- 14, 2007.

Prof. P. V. Koparkar (Professor, USIC, NEHU) joined the Department as an Adjunct Faculty member on 07.08.2007.

Dr. M. M. Singh visited Assam University, Silchar during 16.04.2007 to 21.04.2007 as a Visiting Fellow.

Dr. H. Choudhury visited Shillong Engineering College, Jorabat during the entire month of June 2007 as a visiting lecturer.