



पर्वोत्तर पर्वतीय विश्वविद्यालय
NORTH-EASTERN HILL UNIVERSITY
A Central University Established under the Act of Parliament

Electronics and Communication Engineering

Session-3-SIP-2023-24

**Embarking on a Journey of Innovation:
Welcome to the Electronics and Communication
Engineering Family!!**

By

Subhash C. Arya

HoD (ECE), SOT, NEHU, Shillong



Outlines

- Introduction
- Overview of the ECE Department
- Programmes offered
- Faculty and expertise
- Facilities and Student Support
- Industry and Career Opportunities
- Future Prospectus



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Welcome

S. No.	Name	S. No.	Name
1	Vipin	11	David Manta
2	Himangshu Das	12	Angshuman Swargiary
3	Harshajyoti Nath	13	Likha Tath
4	Bibek Riyan Barman	14	Sivaraj Panging
5	Mrigankasekhar A J Borthakur	15	TINA BORO
6	Mir Zaman Laskar	16	Jatin Singh
7	Himashree Barman	17	Prachya Priyam Rajkhowa
8	SAYED SHAH NAWAZ	18	ANKITA HAZARIKA
9	Diya Mushahary	19	Jyotirmoy Deuri
10	Bikash Deuri		

Welcome

S. No.	Name	S. No	Name
20	ALOK MISHRA	26	MD AKHTAR
21	AYUSH RAJ	27	PACHLORE CHANDRASHEKHAR BHARATKUMAR
22	RANA CHOUDHURY	28	ANURUP BISWAS
23	BANDEEP BHATTA	29	NALUVALA SHIVA SAI
24	DIMPAL KALITA	30	KULIANG M
25	ATHUL S	31	RUNAM BELLAI



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Overview of the Department of ECE

- Vision and Mission of the ECE Dept.
 - To be acknowledged by the society at large, as an excellent Department, offering quality higher education in the area of Electronics and Communication Engineering with a research focus catering to the needs of the region and being in line with the advanced technology.
 - Short term goals (5 Years) and Long term goals (25 Years)

Overview of the Department of ECE (Cont..) Short Term Goals (5 Years)

– Duration: 2022-2027

1. Implementation of NEP: Restructure of course curriculum of B.Tech, MTech and PhD as per NEP 2020/NHEQF(National Higher Education Qualification Framework). To emphasis outcome based student-centric learning curriculum
2. Development of courses for skill development programs: As a part of supplementary course of multiple exit and extension activities
3. Manpower development/skill development of staff and students to get ready for contemporary and futuristic technology: Like Electric vehicle, Drone technology, Robotics, Solar power, Cyber Security, AI-ML, IOT etc

Overview of the Department of ECE (Cont..) Short Term Goals (5 Years)

– Duration: 2022-2027

4. Infrastructure/ facility development for Electric vehicle, Drone and Robotics technology and online curriculum development under Swayam/MOOC scheme
5. Development of industry and Dept. linkage/ relationship, exploring the possibility of MOUs for students' internship, collaborative research, working on live projects, faculty exchange programs etc. Moreover, nomination of people in different statutory bodies for getting better inputs in curriculum development
6. Getting approval from NBA
7. To strengthen the placement of department students



Overview of the Department of ECE
(Cont..) Long Term Goals (25 Years)

Duration: 2022-2047

Academic activities

Research Activities

Extension Activities

Overview of the Department of ECE (Cont..) Long Term Goals (25 Years)

Duration: 2022-2047

Academic activities

- To develop outcome based student-centric learning curriculum
- Incorporating some special subjects like Robotics, AI-ML, Photonic ICs , IOT in B.Tech and M.Tech courses./ Developing/B.Tech, M.Tech programmes/curriculums in more specialized area like Electric Vehicle, Drone Technology, Robotics, AI-ML, Photonic ICs , IOT.
- Developing online courses and other innovative learning materials for increasing the enrollment of students in B.Tech and M.Tech programmes

Overview of the Department of ECE (Cont..) Long Term Goals (25 Years)

Duration: 2022-2047

Academic activities

- Developing better online assessment tools to assess the skills and competencies of learners
- Working for a Sustainable Engineering program

Overview of the Department of ECE (Cont..) Long Term Goals (25 Years)

Research Activities

(1). Setting up of Centre of Excellence in areas of :

- (i) VLSI Design
- (ii) Communication and Photonics
- (iii) Signal processing and Control

(2) Setting up of start-ups based on the research outcomes of above centers: Testing and packaging unit to commercialize the products

(3) Extension activities: Regular training programs for students to nearby colleges, institutes and field demonstrations etc

(4) Collaborative research: Setting up bridge between Department and premier institutes of the NE-region and industry

Overview of the Department of ECE (Cont..) Long Term Goals (25 Years)

Extension Activities

- (1): To conduct Refresher and Orientation courses on regular basis for teachers and scholars
- (2): To organize workshop/FDP/Hand-on-Training programme for skill development of teachers and scholars
- (3): To organize National/International Conference/seminar on contemporary issues of research
- (4): To provide consultancy services in the respective area of expertise of the department
- (5): To host summer/winter internship programmes for researchers at UG/PG levels
- (6): Effort shall be put to understand the nearby societal problems and providing technological solutions
- (7): To open local chapters of IEEE/ other relevant societies in the department of ECE/NEHU in the area related with our research



Outlines

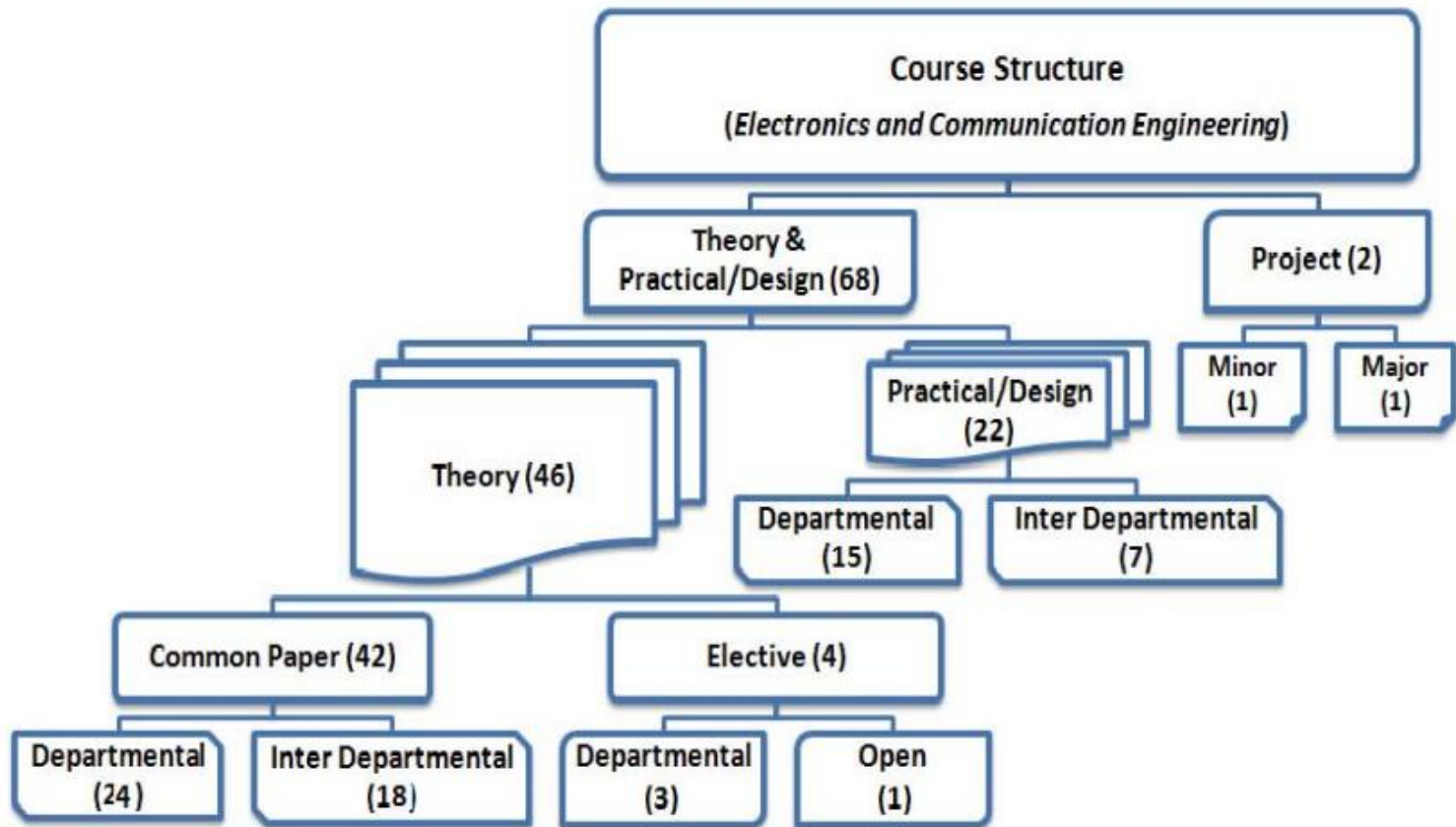
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Overview of the Department of ECE (Cont..)

Programmes Offered in the Department of ECE:

- 4 Year B.Tech in Electronics and Communication Engineering (Vertical-4 years/Lateral Entry-3 years)
- 2 Year M. Tech in ECE as per NEP-2020 syllabus
- Ph.D. programme in various specializations i.e. VLSI, Microwave, Signal Processing, Control Engineering, Communication, Optical Communication and Photonics, AI and Machine Learning

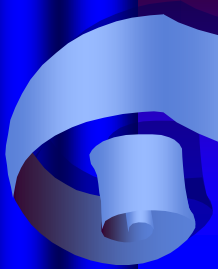
Generalized Course Structure of B.Tech (ECE)





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Research and Innovation

About 850 Engineering Graduates, 100+ M.Tech Dissertation work and 17 Ph.D.s have been awarded till date...and about 20+ Ph.D scholars are working in various domain of ECE



Fostering Next Generation Capabilities Among
Ministry of Electronics & Information Technology (MeitY)
Chips to Startup (C2S)

Chips to Start-up (C2S) Programme



**Chips to Startup
Programme**



Research and Innovation

5G Training Lab at North-Eastern Hill University, Shillong, Meghalaya

Under

PROJECT - 5G APPLICATIONS IN NER WITH HUB AT AMTRON GUWAHATI



North Eastern Council
Government of India

EXECUTION PARTNERS



5G LAB MANAGED BY: **TELECOM SECTOR SKILL COUNCIL**

POWERED BY **5G TOUCH**



The Department have successfully completed following Extension Activities:

1. International Conference on Data, Electronics and Computing (ICDEC-2022), 7th - 9th September, 2022
2. 2nd International Conference on Frontiers in Computing and Systems(COMSYS-2021), September 29-October 1, 2021.
3. One week Online Faculty Development Programme (FDP) On *SENSORS TECHNOLOGY* during 8 th to 12th February 2021
4. One week ATAL Faculty Development Programme (FDP) on *ARTIFICIAL INTELLIGENCE* October 21 – 25, 2019.
5. A 3-Day National Workshop on *Embedded Systems & Its Applications* during 20th – 22nd February, 2019.
6. Workshop on ‘*Micro Electro Mechanical System (MEMS) Technology and its Application*’ in collaboration with North Eastern Space Application Centre (NESAC), DOS, Govt. of India, Shillong.
7. International seminar on IEEE EDS WIMNACT-23, in collaboration with IEEE EDS Kolkata Chapter.



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Facilities and Student support

- Supporting Staffs in the ECE Department
- Mr. B. D. Gupta (STA)
- Mrs. Lapdiang Khongwar (LDC)
- Mr. Wankitbok Lynrah (LA)
- Mr. Enbokthiaw Syngwan (TA)
- Mr. Beneficial Rani (STA)
- Ms. Avana Elizabeth Hynniewta (STA)
- Kong Syrpailin (Peon)
- Mr. Saranjit and Mrs. Parminder (Cleaners)

List of Laboratories

- a) CE-116: Engineering Graphics
- b) EC-204 Basic Electronics
- c) EC-214 Basic Electronics and Electrical Lab
- d) EC-312 Electronic Devices Laboratory
- e) EC-316 Circuit Simulation Laboratory (with Synopsis, cadance, COMSOL Multiphysics)
- f) EC-411 Instrumentation and Measurement Laboratory
- g) EC- 412 Digital Electronics Laboratory
- h) EC-414 Analog Communication Laboratory
- i) EC-512 Microprocessor Laboratory
- j) EC-513 Digital Communication Laboratory
- k) EC-514 Linear IC System Laboratory
- l) EC-611 Digital Signal Processing Laboratory (Matlab)
- m) EC-612 Microcontroller and Embedded Systems Laboratory
- n) EC-613 Microwave Engineering Laboratory
- o) EC-713 VLSI Systems Laboratory (Xilinx and other related software, Labview)
- p) EC-816 PCB Laboratory and Electronics Workshop
- q) EC-CC-502 FPGA Implementation Practices (Xilinx and other related software)
- r) EC-DSEC-5081 Advanced Communication Practices (Matlab)
- s) EC-DSEC-5082 Advanced Practices in VLSI Devices and RF Circuits
- t) Ligthtwave Communication System Laboratory (COMSOL, OptiSystem, Klayout)
- u) Signal Processing Laboratory (Research Lab)
- v) 5-G Training Laboratory

Student Support System

- Mentor-Mentee for each student of the Department
- Electrophonix Student forum (mostly BTech students): FA: Ms. Fidalizia Pyrtuh
- ECE-RS Research Scholar Forum: FA: Prof. Rupaban Subadar
- Departmental Anti-Ragging Committee
- Career and Counselling Cell: FR: Dr. Juwesh Binong from the Dept.
- Departmental Disciplinary Committee



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MoU between AMTRON and NEHU



অসম ASSAM

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MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made on 17.10.2023 between:

✓ AMTRON (Assam Electronics Development Corporation Ltd.), a Government of Assam Undertaking having office at Industrial Estate, Bamunimaidan, Guwahati- 781 021, Assam (hereinafter referred to as "AMTRON" which expression shall unless repugnant to the context include its successors, administrators, liquidators and its permitted assigns or legal representatives) of the 'FIRST PARTY'.

AND

✓ North Eastern Hill University, having office at Umshing Mawknroh, Shillong, Meghalaya - 793022 (hereinafter referred to as "NEHU" which expression shall unless repugnant to the context include its Successors, administrators, liquidators and its permitted assigns or legal representatives) of the 'SECOND PARTY'.

Each of AMTRON and NEHU being referred to individually as 'PARTY', and jointly as 'PARTIES'.

1-NEC(AMTRON)/2023-SRI
Ministry of Communications
Department of Telecommunications
(Standards-R&D-Innovation Division)

1420, Sanchar Bhawan, New Delhi-01
Dated: 15-03-2

Office Memorandum

Subject: Support on 5G usecases and engagement from Department of Telecom/ Convergence with all DOT Initiatives -reg.
Ref: MD AEDC letter No. AEDC/MD/2022-23/NEC/5G/06 Dated: 15/02/2023(enclosed)

This is in reference to letter dated 15.02.2023 as mentioned above, seeking support on the deployment of 5G Use Case Solutions/ Experience Centre / Other Interventions in North Eastern region.

2. It is to apprise that DoT is actively facilitating 5G ecosystem including taking up with AICTE for content, 5G use case workshops, Dissemination on use cases etc. DoT takes this opportunity to acknowledges the efforts from NEC and AMTRON for facilitating 5G engagement.

3. DoT would extend necessary knowledge support to the Northeast Council (NEC) and Assam Electronics Development Corporation Limited to deploy 5G usecase labs in all the 8 states of NE region in coordination through following units of DoT. AMTRON is also requested to enable the establishment of 5G usecase labs in NE states in partnership with STPI CoEs with specific verticals and academia:

S.No	Support Requested	DoT Nodal Division
a)	Providing all support / resources under its domain for formulating new courses (MOOC Courses / Short Term / Long Term Courses) on 5G which can be introduced in Industrial Training Institutes / Polytechnics / Engineering Medical institutes.	Skill Development Division, DOT HQ
b)	Providing manpower / technical support for Workshops on 5G use cases across North-East.	National Telecommunications Institute for Policy Research, Innovations & Training (NTIPRIT), Telecommunication Engineering Centre (TEC)
c)	Supporting convergence for best practices across India for mutual synergies and prevent duplication / reinvesting the wheel for North East in the initiatives of AMTRON	SRI Division, DOT HQ

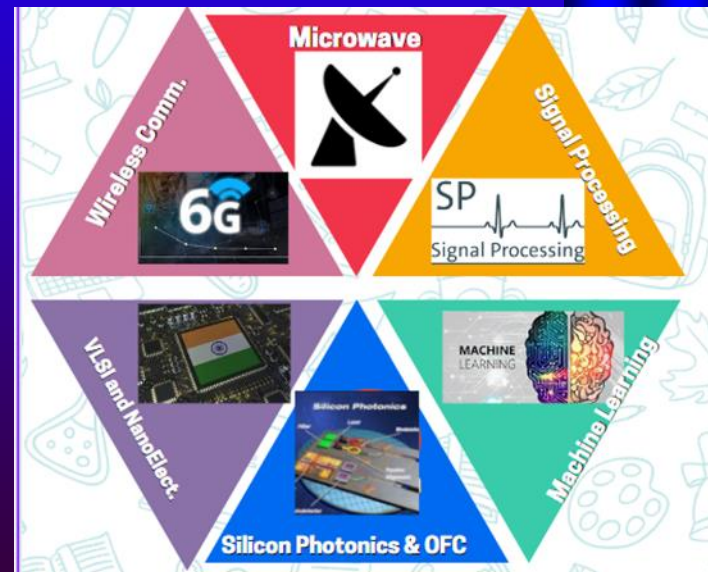


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Higher Education in India and Abroad including Research

- Every year many students of ECE get admission in IITs, NITs, Central Universities, State Universities, IIMs and other Business Schools for higher education. Few pursue for MS in USA and in European countries also.
- You are most welcome to join here:



Higher Education in India and Abroad including Research

- Future Prospects:
- Higher Studies: Provide information on pursuing postgraduate studies or research opportunities after graduation.
- Career Paths: telecommunications, embedded systems, networking, research, and more.



Thank you, Best wishes for your
bright future.. Enjoy your four
years Learning Journey started in
NEHU



*Thank
you*