



Siliguri Institute of Technology

Department of Electronics & Communication Engineering



ELECTRONIKA

APRIL 2018(VOL II)

VISION:

To become a nationally recognized center of excellence that produces skilled, innovative and ethical engineers relevant for academics and industry.

MISSION:

1.To offer qualitative Electronics & Communication Engineering education and professional ethics of global standards through innovative methods of teaching and learning with practical orientation so as to prepare students for successful career/higher study.

2. Foster culture of innovation and research in the field of Electronics & Communication Engineering.

3. To provide best learning environment to the students, faculty and staff members conducive for creating excellence in technical education.

Message from the Director:

It is a great pleasure for me to know that the Electronics and Communication Engineering department is going to publish their newsletter. I am confident that this newsletter will be a real mirror of the activities of the department.

Prof. (Dr). Jyotirmoy Jhampati
Director, Siliguri Institute of Technology

Message from the Editor:

It is a matter of great pleasure that I was given the opportunity to work on the second edition of "Electronika". It highlights different activities of student and faculties, events, academic proficiency and achievements of departments. I do hope that newsletter will encourage students to use it as a platform to convey their creativities.

Mrs.Anindita Sinha
Assistant Professor, Siliguri Institute of Technology

1. Student Corner

1.1 Academic Achievements:

College Topper, 2016-17
B.Tech (1st year)



Mr. Lokbahadur Chhetri

College Topper, 2016-17
B.Tech (3rd year)



Ms. Ankita Saha

1.2 Co-Curricular Activities:

1.2.1 External Activities

- i) 6 students from 3rd year ECE successfully attended the training at **Jadavpur University**, Kolkata on "Embedded System and Robotics" from 29th June-29th July 2017.
- ii) 25 students from 2nd year and 4 students from 3rd year successfully attended the workshop at **IIT Guwahati** on "Internet of Things", "Android App Development" and "Sixth Sense Robotics" from 1st Sep-3rd Sep 2017.
- iii) 8 students from 3rd year ECE successfully attended the training at **Jadavpur University**, Kolkata on "Microelectronics & VLSI Design" from 8th Jan-3rd Feb 2018.
- iv) Sandipan Ray, Rajib Nandy, Suvadip Das from 3rd year ECE selected amongst

- top 8 contestants across India in the final round of Strategy Storm 18-Social Business Case Competition at **IIT Guwahati** during 19th Jan-21st Jan 2018.
- v) 13 students from 3rd year ECE successfully attended the training at **ALL INDIA RADIO**, Siliguri on "Prasar Bharati" from 22nd Jan-28th Jan 2018.
- vi) Rina Gupta and Sanjib Das, 3rd year ECE participated in the final round of InTech Olympiad 2018 at **College of Engineering**, Pune on 17th Feb 2018.
- vii) Ozoswita Roy Deb, Pragyanika Pradhan, Priyanka Mahajan students from 3rd year ECE had been selected to attend the final round of TATA Crucible Hackathon at **NIT Jamshedpur** on 17th March 2018.

1.2.2 Internal Activities

Awardees of different competitions during Annual Cultural Fest (SITEX2K18), Annual Games & Sports 2018, Annual Technical & Management Fest (Technovision 2K18) and Days with Books (Book Fair)

- i) **Quiz:** Akash Ghosh and Koshish Kumar Gupta from 2nd year ECE secured second position
- ii) **Dance:** Ozoswita Roy Deb from 3rd year ECE secured 1st position.
- iii) **Elocution:** Agrapriya Das and Durba Sarkar from 3rd year ECE secured 1st position and 2nd position respectively.
- iv) **Sit & Draw competition:** Ankita Prasad from 2nd year ECE secured 3rd position.
- v) **Athletics:** Sudeshna Saha from 2nd year ECE secured 1st position in Tennis Ball Throw (Girls) and 100 m Run (Girls) and secured second position in 200m Run (Girls). Anish Bhattacharya from 2nd year ECE secured third position in **Javlin Throw** and **200m Run (Boys)**.
- vi) **Futsal:** Student's Team from ECE secured 2nd position and Anish Bhattacharya from 2nd year ECE awarded for kicking the best goal in "Futsal".
- vii) **Badminton:** Sweety Kumari and Versha Rani from 3rd year ECE were declared as champions.
- viii) **Hardware Project Competition:** Arpita Das, Sayantani Jana, Subarnasree Saha, Taniya Bhadra from 3rd year ECE secured 3rd position on the project of "Gesture Controlled Robo Car".
- ix) **Robotics Competition:** Reshu Kumar and Kishore Kumar from 3rd year ECE secured 2nd position.

1.3 Industrial Visit:

1.3.1 The department organized “two days visit” at **All India Radio (AIR), Siliguri** from 23.08.2017 to 24.08.2017 with 60 students from 3rd year. The program was co-ordinated by **Mr. Debajyoti Misra** and **Mr. Anindya Basu**.



Training at All India Radio,
Siliguri



Training at Hindustan Coca-
Cola, Jalpaiguri

1.3.2 The department organized “one day visit” at **Hindustan -Cola Beverages Pvt. Ltd, Jalpaiguri** on 10.02.2018 with 40 students from 3rd year. The program was co-ordinated by **Mr. Debajyoti Misra, Mr. Sudip Kumar Ghosh** and **Ms. Priyanka Nandy (Das)**.

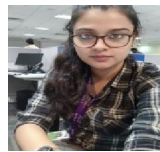
1.4 Some of our best Placed Students



Saransh Choudhary
at INTEL



Subham Chakrabarty
at ROBERT BOSCH



Anasuya Bhattacharjee
at BYJUS



Vaibhav Singh
at TCS



Jayantika Mitra
at SIMPLILEARN SOLUTIONS PVT.LTD.

2. Faculty Corner

2.1 List of Faculty publication in Journal & Conference:

- i) Debajyoti Misra, Gautam Das, Trinankur Chakraborty, Debaprasad Das, “An IoT based waste management system monitored by cloud”, *Journal of Material Cycles and Waste Management*, Springer (Sci and Scopus indexed), Vol.20, Issue 56, Print ISSN 1438-4957, 2018, Online ISSN 1611-8227, DOI: 10.1007/s10163-018-0720-y,
- ii) Banasree Das and Manas Kumar Parai, “Influence on Characteristics of RTD due to Variation of Different Parameters and material Properties”, *Int. J. Hi. Spe. Ele. Syst.* **26**, 1740022 (2017) [17 pages] <https://doi.org/10.1142/S0129156417400225>
- iii) Dia Ghosh, Arindum Mukherjee, Nikhil Ranjan Das, Baidya Nath Biswas, “Multiple Rhythms in an Optoelectronic Oscillator”, *Proceedings of 3rd International Conference on Microwave and Photonics (ICMAP-2018)*, 9th -11th February 2018, IIT (ISM) Dhanbad, Dhanbad, The paper will be available at IEEE explore digital Library.
- iv) Jayati Routh, Subhamay Sarker, “GSM Based Electricity Theft Identification System”, *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (IJAREEIE)*, ISSN (Print) : 2320 – 3765, ISSN (Online): 2278 – 8875. Vol. 6, Issue 12, December 2017, DOI:10.15662/IJAREEIE.2017.0612022.
- v) Proteem Ganguly, Shalini Dey, Sayani Nandy, Avirup Basu, Sourav Sarkar, “The Third Eye”, *Advances in Industrial Engineering And Management*, ISSN:2222-7059 (Print); EISSN: 2222-7067 (Online), DOI: 10.7508/aiem.2017.01.005, 2017.

- vi) Anindita Sinha, Sarmistha Mondal, "RPR-A Bridge between ETHERNET and SONET Technology", Proceedings of 5th International Conference on Science, Technology and Management: ICSTM 2017, ISSN 2348 117, 2017, 3rd December 2017.
- vii) Dia Ghosh, Arindum Mukherjee, Nikhil Ranjan Das, BaidyaNath Biswas, "A Study on the Effect of an External Periodic Signal in a Chaotic Optoelectronic Oscillator", Proceedings of International Conference on Modelling and Simulation (MS-17), 4th -5th November 2017, Kolkata.
- viii) Sudip Kumar Ghosh, Subhradeep Chakraborty, Sudipta Chattopadhyay, "Probe-fed Semi Circular Microstrip Antenna vis-a-vis Circular Microstrip Antenna", Proceedings of 3rd International Conference on Communication Systems (ICCS-2017), 14th -16th October 2017, Conference Proceeding will be published in IOP Conference Series: Materials Science and Engineering by IOP Publishing (UK).
- ix) Dabajyoti Misra, Gautam Das, Deba Prasad Das, "Review on Internet of Things (IOT): Making World Smart", Proceedings of International Conference on Communication Devices and Networking, ICCDN-2017, ISSN: 1876-1100, 3rd -4th June 2017.

2.2 List of Workshop/Conference/Seminar attended by Faculty members:

Sl No	Name of the Faculty	Name of the conference	Date	Organized by
1	Dia Ghosh	International conference on modeling and simulation (MS-17)	04-05 Nov 2017	Association for the advancement of modelling and simulation techniques and the institute of engineering and Technology (TET-UK) Kolkata Local Network, Kolkata
2.	Dia Ghosh	International conference on microwave and photonics [ICMAP]	09-11 Feb 2018	Department of Electronics Engineering IIT (ISM) Dhanbad, Jharkhand
3.	Sudip Ghosh	3rd International Conference on Communication Systems, [ICCS-2017]	October 14-16, 2017	B K Birla Institute of Engineering & Technology Pilani
4	Debajyoti Misra	International Conference in Communication Devices and Networking (ICCDN-2017)	3-4 th June 2017.	Sikkim Manipal Institute of Technology (SMIT), Sikkim
5.	Sarmistha Mondal	Hands-on Workshop on IoT	2 nd Feb 2018	MCA Dept, Siliguri Institute of Technology, Siliguri
6.	Anindita Sinha	Hands-on Workshop on IoT	2 nd Feb 2018	MCA Dept, Siliguri Institute of Technology, Siliguri
7.	Subhamay Sarkar	Hands-on Workshop on IoT	2 nd Feb 2018	MCA Dept, Siliguri Institute of Technology, Siliguri

2.3 Guest Faculty: Mr. Manas Parai, Assistant Professor has acted as a visiting faculty for Electronics and Communication Engineering Department of CoochBehar Govt Engineering College for odd semester 2017-18.

3. Events Organized:

3.1 The department organized one day seminar on “**Emerging Trends of Mobile Communication**” on 14.09.2017 at Sir J.C.Bose Seminar Hall, Siliguri Institute of Technology.

The program was co-ordinated by Mr. **Debajyoti Misra**.

A talk was delivered by Mr. **Subhrajit Roy**, Junior Telecom Officer (JTO), Internal & NIB, BSNL, Jalpaiguri based on various schemes of mobile communication technology starting from 1G to 4G.

The students from 3rd year ECE was enlightened with the basic concept of **Global System of Mobile Communication (GSM), GPRS, 3G Technologies and Long Term Evolution (LTE)** etc.



3.2 The department organized two days workshop on “**DSP System Design**” on 2nd & 3rd November 2017 at ECE Seminar, Siliguri Institute of Technology. **Dr. Subhojit Sarker** and **Mr. Subhamay Sarker** acted as the Jt. Convener for organizing the program. The workshop was conducted by **Mr. Biswajit Banerjee**, Sr. Field Application Engineer from Trident Techlabs Pvt. Ltd. ECE students from 3rd year had acquired information from the advanced concept of **Signal Processing and its application** using CCStudio and DSP Kit (TMS320C6748), **embedded C Programming** for DSP C6748

Audio Signal Processing, Image Processing application



3.3 The departmental wall magazine “**Creazione**” was inaugurated by the hon’ble Director, **Dr. J Jhampati** and the Principal-in-Charge, **Dr. S Mantha** on 17.02.2018. The dignitaries delivered their speech to motivate the students. The wall magazine was prepared by students of 2nd year and 3rd year under the supervision of **Ms. Jayati Routh, Mrs. Jhumki Dutta** and **Mrs. Misti Sarkar**.



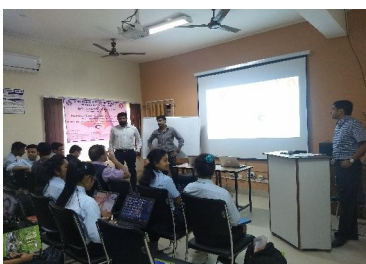
3.4 The department organized one day seminar on “**Machine Learning**” on 08.03.2018 at ECE Seminar hall, Siliguri Institute of Technology. The program was co-ordinated by **Mrs. Anindita Sinha**, and **Ms. Jayati Routh**. A talk was delivered by **Mr. Abhishek Nandy**, Application Architect AI & IoT from Prescriber 360 Solutions based on Machine Learning and Artificial Intelligence. The students from 3rd year ECE were trained.



3.5 The department celebrated the “**International Women’s Day**” on 08.03.2018 at ECE Seminar hall, Siliguri Institute of Technology. The students of 3rd year ECE participated in the event and the female students have presented their innovative ideas on recent trends of technologies. **Mr. Abhishek Nandy**, Application Architect AI & IoT from Prescriber 360 Solutions judged the event and the deserving female candidates were awarded by **swags** and **pendrives**. The program was arranged by **Mrs. Anindita Sinha** and **Ms. Jayati Routh**.



Celebrating “International Women’s Day”



Three days workshop on “Matlab-SIMULINK with Raspberry Pi”

3.6 The department organized three day workshop on “**Matlab-SIMULINK with Raspberry Pi**” from 4th-6th April 2018 in collaboration with **I & WE** (Seekhlo Education Private Limited), Kolkata at ECE Seminar hall, Siliguri Institute of Technology. **Mrs. Sarmistha Mondal & Mr. Sudip Ghosh** acted as the Jt. Convener for organizing the program. The students from 3rd year ECE was enlightened with **different programming techniques, modeling with SIMULINK** and **interfacing with Raspberry Pi**.

4. Know Our New Faculty Members:

Prof. (Dr.) Srinivas Mantha:

BE: NIT, Nagpur [Electronics and Power Engineering] 1986
 ME: US Florida [Electrical Engineering: Telecommunication and Digital Signal Processing] 1989
 PhD: Vinayaka Mission University, 2011
 Publication: Total 28 including 9 SCI Journals
 Patents: Two Indian and one US Patents



Prof. (Dr.) S. Mantha

Mrs. Aditi Sengupta

B.TECH: Siliguri Institute of Technology, Siliguri [ECE] 2009
 M-TECH: Calcutta University (University college of Science Technology and Agriculture) [Optics and Optoelectronics] 2012; Pursued **DRDO** Sponsored M.Tech Project.
 Publication: Total 3



Mrs. Aditi Sengupta

5. Alumni Interaction:

Hi. I certainly do not want to be too preachy here with my message. It goes without saying that I am always being grateful to my Alma Mater. My suggestion to all of you would be very simple, work to the best of your ability, if needed, even more. The fact that you are studying ECE in SIT is an excellent platform for all of you. What you make of this opportunity is all in your hands. At the end of the day when you stand in front of the mirror you should be able to face yourself and say you tried your best and gave it your all. That's all that matters. You achieved it or not is secondary.



**Syed Danish Abbas–
2012 Pass Out,
Application
Development Team
Lead, Accenture Pvt.
Ltd**

6. Technical Articles:

6.1 Internet of Things (IoT)-The Present & Future of the Industry:

Prof. (Dr.) S. Mantha, Principal-in-Charge & Professor, ECE Department

IoT is the concept of connecting any device to the Internet and to other connected devices. The vast network of devices connected to the Internet; include smart phones & tablets and almost anything with a sensor on it – wearable fitness devices, cars, and machines in production plants, microwave at home, jet engines, oil drills, and more. The IoT is a giant network of connected things and people – all of whom collect and share data. The IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention. When IoT is augmented with sensors and actuators, the technology becomes an instance of the general class of cyber-physical systems, which has a hold on technologies such as smart grids, virtual power plants, smart homes, intelligent transportation and smart cities.

6.2 A Smart Waste Management System Controlled by IoT:

Mr. D. Misra, Assistant Professor, ECE Department

The increase in population day by day, the condition of cleanliness with respect to garbage management is degrading staggeringly. The discharging of garbage in public areas makes the unhygienic scenario in the nearby areas. It may responsible for various severe diseases amongst the nearby people. It also reduces the grading of the area. To overcome this and to improve the cleanliness, an 'IoT based garbage management system' is very important in present day to create a smarter and a healthy city. The smart waste bin is based on distance sensor and various gas sensors which are automatically sense the hazardous gases and the maximum limit of waste. The main components of such bin are Microcontroller, gas sensor like MQ135, 136, Access Network Interface and server. The approach uses cloud and mobile app based monitoring. Two important feature of the system is, it not only checked the maximum waste level of the bin but also check various stinky gases. The other part of the project is conveying the information to the responsible authority. The unique approach take the assistance of cloud sever because of its advantages in field of usability, accessibility and disaster recovery.



A smart waste bin with HC-SR04 and gas sensors.

6.3 Complex Dynamics of an Optoelectronic Oscillator:

Ms. D. Ghosh, Assistant Professor, ECE Department.

Optoelectronic oscillator (OEO) is a high quality microwave oscillator. The OEO is based on the use of optical delay line and capable of producing signal with ultra high spectral purity over a large frequency range. Nowadays this oscillator has found a substantial application in high frequency communication system. Due to the presence of delay line in its feed-back loop, OEO belongs to the family of delayed feedback oscillators. It is a well known fact that time delayed oscillators can produce variety of complex behavior like bifurcation, chaos, hyper chaos, multistability, amplitude death etc and an OEO is not an exceptional case. The complex dynamical behavior of a single loop optoelectronic oscillator (SLOEO) with the variation of feedback loop delay is explored. The feedback delay can be varied by changing the length of the optical fiber delay line. From the numerical study it is observed that with the variation of the delay, the oscillator produces chaotic oscillation following the sequence of Hopf bifurcation, stable periodic and period doubling oscillation.

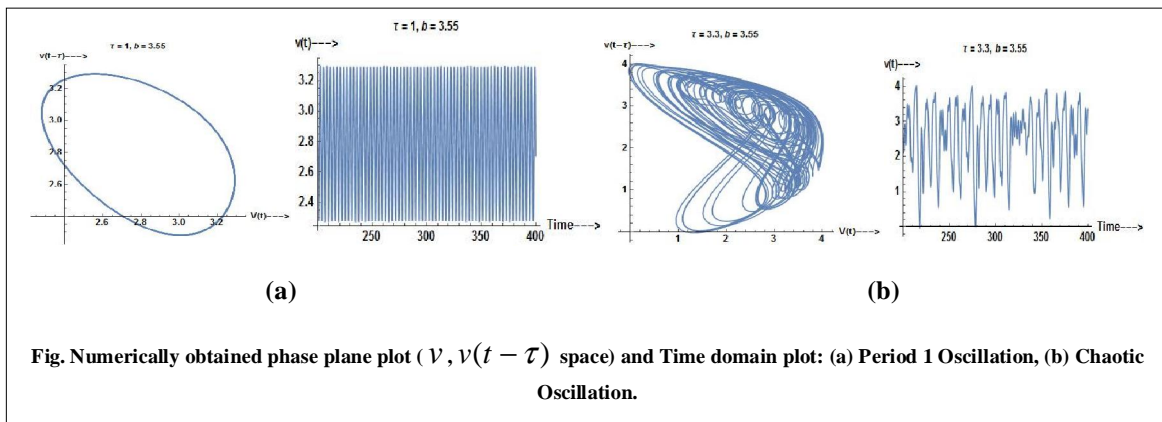


Fig. Numerically obtained phase plane plot ($v, v(t - \tau)$ space) and Time domain plot: (a) Period 1 Oscillation, (b) Chaotic Oscillation.

About the department:

The department of Electronics and Communication Engineering (established in the year 1999) is one of the oldest and NBA (National Board of Accreditation) accredited department of the Siliguri Institute of Technology, with Prof. (Dr.) Manas Saha currently being at the helm of the affairs. Under his valuable guidance, the department has been excelling in manifold aspects of academics as well as extra co-curricular activities. The department has its course strength in the field of Electronics, Communication, Signal/Image Processing and VLSI. It is endowed with highly qualified and vastly experienced faculty members including the technical assistants. The departmental laboratories provide state-of-the-art infrastructure for the budding engineers, which are aimed at making them competent enough not only to provide a practical approach to the theoretical concepts, but also to stay at par with modern day technology and meet contemporary industrial demands. The students are encouraged to indulge themselves in various research activities supervised by the department faculty members. All these factors culminate in the all round development of the pupils, who after passing out are either placed in leading industries or pursue higher studies in various reputed University across India and abroad. The strength of the students belonging to the department is there excellent technical skills augmented by their steadfast motivation to excel in core technical areas-which is quite evident in the form of eminent alumni spread across the globe.



Faculty & Staff Members of the Department

Editorial Team: Mrs. Anindita Sinha (Assistant Professor), Mrs. Aditi Sengupta (Assistant Professor), Mrs. Banasree Das (Technical Assistant), Sudeshna Saha & Nilanjan Deb (2nd year ECE), Poulami Ghosh & Ozoswita Roy Deb (3rd year ECE).