ELECTRONIKA

February 2019 (VOL III)

A Newsletter from Electronics & Communication Engineering Department (Accredited by NBA)
Siliguri Institute of Technology, Siliguri.

"We want that education by which character is formed, strength of mind is increased, intellect is expanded and one can stand on one's own feet "

------- Swami Vivekananda

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 Department of Electronics & Communication Engineering of Siliguri Institute of Technology is going to publish their departmental Newsletter **"ELECTRONIKA"** Vol-3 to explore the activities of the department.

I do hope this will cultivate and inspire all the faculty, staffs and students and education lovers curious about the topic. It will also create a platform for curious persons. I wish its successful propagation.

Prof. (Dr.) Jyotirmay Jhampati
"Banga Ratna"
B.E. (1st Class 1st), Ph.D. (Engg.),
M.I.E.E. (UK), C.Engg.(I), F.I.E.(I)
DIRECTOR
Siliguri Institute of Technology
e-mail: j.jhampati@rediffmail.com, director@sittechno.org

Message from the Editor:

It is a matter of great pleasure that I was given the opportunity to work on the third 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, Department of ECE, Siliguri Institute of Technology.

Siliguri Institute of Technology Campus

STUDENT CORNER

Academic Achievement:

Mandira Saha, B.Tech 2nd year College Topper

Ms. Mandira Saha, currently studying in 3rd year, scored 9.16 (YGPA) and became **B. Tech 2nd year College Topper in the year 2017-18.**

Co-Curricular Activities:

- **3rd year students (2020 Pass Out)** bagged the **Runners Up** trophy in project competition on **"project exhibition cum competition on Solid waste management"** organized by Solid waste Management unit of the institute on April 21st, 2018. Mr. Debajyoti Misra and Mr. Subhamay Sarker, Asst. Prof. of ECE Department assigned as Project Supervisor for the said event.

ECE students are receiving trophy

- A Technical training program on **Advanced Java** for 2019 passing out batch students was organized by the Training and Placement Cell of the institute from **9th July 2018 to 18th July 2018**. The session was conducted by **I & We,** Seekhlo Education Private Limited, Kolkata.

- A FSP training program for 2019 pass out batch students was organized by the Training and Placement Cell of the institute from **19th July 2018 to 24th July 2018**. The topic of the training was **Advanced Java** and the session was conducted by **Career Launcher, Delhi.**

- Shankhadeep Dey, student of 3rd Year, got **3rd position** in coding competition "**CODER of THE CAMPUS"** at Inspiria Knowledge Campus, Siliguri on 21st July, 2018.

- Shankhadeep Dey, student of 3rd Year, cleared 1st round of **"CodeVita 7"** conducted by Tata Consultancy Services (TCS) through online portal.

- Subham Upadhyay, student of 3rd Year, **wins** the 25 meters **Swimming Competition** organized by Siliguri Club, Siliguri on 15th Aug, 2018.

- **Fresher's Welcome** was conducted for the students of **1st year ECE**, organized by the students of **2nd year ECE** on 28th Aug, 2018 at the department.

Some joyful moments to welcome the Fresher

- Subham Upadhyay, student of 3rd Year, received the **"BEST GOALKEEPER"** award in Inter-College Football Tournament organized by North Bengal Medical College on 5th Sep, 2018.




Cloth donation drive **"Joy of Giving: Cloths are handed over to NGOs"**

- A cloth donation drive, **'The Joy of Giving'**, was jointly organized by the department of Electronics and Communication Engineering, Siliguri Institute of Technology and National Service Scheme (NSS), Siliguri, from 10th-14th September 2018.

- **ECE 3rd year students** (2020 Pass Out) become the **"CHAMPION"** in **Volleyball competition** organized by the institute on 29th Sep, 2018.

- 12 students and 02 faculty members successfully completed NPTEL courses conducted by IITs & IISC during July-October 2018. Amongst them, **Vishaka Subba** is entitled with certificate type: **Elite +Gold** for appearing in **"Developing Soft Skills and Personality"**, and **Ayush Gupta** is one of the toppers in **"Introduction to Programming in C"** during July-December, 2018.

- The student of **ECE 2nd year** (2021 Pass Out) and **ECE 3rd year** (2020 Pass Out) actively participated the technical training program on **"Problem Based Coding Approach via the understanding the concepts of Object Oriented Programming Principle and JAVA Language" and "Networking Concepts & Architecture"** respectively from October 3rd to 6th, 2018.

- Two days **Industrial Visit** was organized for the 3rd year students at BSNL Jalpaiguri from 6th-7th September, 2018 to improve their concept of applying the theoretical knowledge in the relevant field of industrial needs.

- Department used to organize a parent teacher meeting in each semester to make the guardians aware about the regular activities of their wards. After participating in this meeting the parents get informed about the updated class and training attendance of ward during current semester.

The meeting aimed at reducing the gap between teacher and students.

Recruitment at a glance:


Intern Engineers at Intel Corporation

- 8 students from **3rd year ECE** (2019 Pass Out) had been selected as an **Intern Engineer** at **Intel Corporation** on May 13, 2018.
- **Mr. Rajdeep Bhattacharya (**2018 Pass Out**)** got placed in **RIVIGO,** Gurgaon on May, 2018.


Saransh Choudhary (2018 PO)

- **Mr.Saransh Choudhury** (2018 Pass Out) joined as a **SoC Design Engineer** at **Intel Corporation** on July, 2018 at Bangalore.


Shiwangi Singh, Gopal Krishna, Ashish Kumar Gupta, Rupam Kumari, Surupa Ghosh

- **Ms. Shiwangi Singh, Mr. Gopal Krishna, Mr. Ashish Kumar Gupta, Ms. Rupam Kumari, Ms. Surupa Ghosh** from **final year** (2019 Pass Out) got placed in **TEABOX** on August 18, 2018.
- **Mr. Himangshu Kumar** (2019 Pass Out) has been appointed as Diploma Engineer Trainee – Customer Engineering in **CAT Vision** in August 2018.


Aditya Nag, Madhubarsa Thakur, Rajib Singha

- **Mr. Aditya Nag, Mrs. Madhubarsa Thakur, Mr. Rajib Singha** from **final year** (2019 Pass Out) got selected in **PRIME FOCUS** on August 20, 2018.


Vishaka Subba (2019 PO)

- **Ms. Vishaka Subba** (2019 Pass Out) has been selected as an **Engineer** at **Robert Bosch** on August 29, 2018.


Satkar Tamang(2019 PO)

- **Mr. Satkar Tamang (2019** Pass Out**)** has been selected as an **Intern Engineer** at **Intel Corporation** on August, 2018.


Harshan Bhattacharya, Madhubarsha Thakur, Ayush Kumar Gupta

- Final year students (2019 Pass Out) **Mr. Harshan Bhattacharya, Ms. Madhubarsha Thakur, Mr. Ayush Kumar Gupta** were placed in **TCS** on September 9, 2018.


Ayush Kumar Gupta (2019 PO)

- **Mr. Ayush Kumar Gupta** (2019 Pass Out) was selected in **Capgemini** on September 14, 2018.
- **Ms. Piyali Paul (**2018 Pass Out**)** joined as a **Process Associate** at **Genpact, Hyderabad** on Sep, 2018.

❖ **Ms.Tritasha Mani and Mr. Samaun Ali** (2019 Pass Out) got selected in **Stryker as an Service Engineer** on October 3, 2018.

Tritasha Mani & Samaun Ali

❖ **Mr. Souradip Sarkar** (2019 Pass Out) got placed in **Extramarks** on October 6, 2018.

❖ **Mr. Ashish Kumar Gupta** (2019 Pass Out) had been selected in **Byjus as** Business Development Associate on October 10, 2018.

❖ **Ms.Romita Chowdhury** (2018 Pass Out) joined as **Optimization Specialist** at **Amazon Development Centre (India) Private Limited**, Bangalore in Nov, 2018.

❖ **Ms. Champa Pal (**2018 Pass Out) joined as a **Software Engineer** at **Accenture India**, Bangalore on Nov 28, 2018.

Major Recruiters & Our Best Placed Students:

Major Faculty Publication in Conference, Journal & Book:

❖ CONFERENCE PUBLICATION:

- Anindita Sinha, **Li-Fi: A protected wireless network structure for prospect of Internet services,** 3rd International Conference on Innovative Trends in Engineering, Applied Science and Management (ICITEASM-2018), organized by Osmania University Campus, Hyderabad, Telangana State, India on 24th June, 2018.

- Aditi Sengupta and Sanjib Bhattacharya, **AC Conductivity of Ionic Conductors: Comparison between Transport of Lithium and Silver**, 3rd Regional Science and Technology Congress, 12th-13th December 2018 at Jalpaiguri Govt. Engineering College.

- Debajyoti Misra, Gautam Das, Debaprasad Das, **An IoT based wireless energy harvesting using efficient voltage doubler stages in an RF to DC Converter**, 4th International Conference on Computing Communication and Automation (ICCCA-2018) , Jointly Organized by IEEE-Up section and **Galgotias University**, Greater Noida, Delhi, 14th -15th December 2018. IEEE Conference Record No. 44295.

❖ JOURNAL PUBLICATION:

1. 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

2. B. Das, M. Parai, ***"Influence on Characteristics of RTD due to Variation of Different Parameters and material Properties",*** International Journal of High Speed Electronics and Systems, Vol. 26, No. 4(2017) 1740022 (17 pages) Published by World Scientific publishing company, DOI: 10.1142/S0129156417400225, 2018

❖ BOOK CHAPTER:

1. **D. Ghosh,** A.Mukherjee, N.R. Das, B.N.Biswas**, *"A Study on the Effect of an External Periodic Signal in a Chaotic Optoelectronic Oscillator",*** Modelling and Simulation in Science, Technology and Engineering Mathematics, Springer Nature, ISBN 978-3-319-74808-5

2. Debajyoti Misra, Gautam Das and Debaprasad Das, ***"Review on Internet of Things (IoT): Making the World Smart"*** © Springer Nature Singapore Pte Ltd. 2018 R. Bera et al. (eds.), Advances in Communication, Devices and Networking, Lecture Notes in Electrical Engineering 462,https://doi.org/10.1007/978-981-10-7901-6_89

❖ BOOK :

Title of Book: CHARACTERISTICS OF RTD FOR DIFFERENT PARAMETERS AND MATERIAL PROPERTIES
Authors: Banasree Das (Parai), Manas Parai
Publisher: LAMBERT ACADEMIC PUBLISHING, MAURITIUS.
ISBN: 978-613-8-23601-6
Copyright: @2018, International Book Market Service Ltd., Member of Omni Scriptum Publishing Group, 17, Meldrum Street, Beau Bassin 2018.

EVENTS ORGANIZED BY THE DEPARTMENT

❖ Department organized presentation competition for 2nd year students and aptitude test for 3rd year students for the overall development of them apart from their regular curricular activities.

Presentation Competition

Aptitude Test For 3rd Year

❖ A Two Days National Seminar on "**Application of Modern Control System in Electrical and Electronics Engineering**" was held during 06.08.2018 to 07.08.2018 at Sir J. C Bose Memorial Hall, Siliguri institute of technology. Dr. Rajeeb Dey, Assistant Professor, Dept. of EE, NIT Silchar, was the speaker of the seminar. The seminar focused on the recent trends of modern control system in Electrical and Electronics Engineering.

Dr. Rajeeb Dey, was felicitated by HOD

❖ A two days special lecture session was organized by Department of Electronics and Communication Engineering for 2nd year ECE students on 28.09.18 and 29.09.18. The topic of the session was "**Fundamentals of Field Effect Transistor**". Prof. Sourav Sarkar from School of Material Science and Nanotechnology, Jadavpur University, Kolkata was the honorable guest lecturer for this session.

Prof. Sourav Sarkar was felicitated by HOD

❖ Three Days Hands-On Training Program on **"Basics of Electronics & Microsoft Office"** for 1st Year ECE Students was held **during 09.10.2018 to 11.10.2018** at the department. This specific training program enhances their capability to present a topic after preparing the spreadsheet and writing a document with the help of a computer. They will also be able to understand and demonstrate how to select, use and test electronic components. All the sessions were completely Hands-on.

Hands-on Software Training

Hands- On Training on Basics of Electronics

❖ Two days National Seminar on " Recent Trends & Technology in Industry" jointly organized by the Department of Electronics and Communication Engineering and Electrical Engineering (EE) Siliguri institute of technology on 16th -17th November. Mr. Abhishek Roy, Solutions Architect, Tata Consultancy Services, Kolkata, was the speaker of the seminar. The seminar focused on the recent trends of modern technology in industry. The following topics were discussed

Mr. Abhishek Roy was felicitated by HOD

- ✓ ***Machine Learning,***
- ✓ ***Artificial Intelligence,***
- ✓ ***Internet of Things.***
- ✓ ***Cyber Security.***
- ✓ ***Block Chain.***

Alumni Messages:

Hope all are well.

I had completed my degree of Electronics & Communication Engineering from Siliguri Institute of Technology in the year of 2016. It was a very grateful journey over there with lots of memories. My teachers and all the faculty members had supported me for every individual subjects and other extra curriculum like Robotics, IoT etc. Had organized some event in our department and as well as whole college called 'IntZilla - 2016' which took a great success and that time got proper support from everyone. Got placed in Altimetrik India Pvt ltd. Bangalore in the year of 2016 and it was a campus Recruitment drive. Currently I am working in KPMG Global Service, Bangalore.

Dibyo Ghosh Chowdhury
Analyst at KPMG Global Services (KGS)
Bangalore B.Tech ECE
(2012-2016) Batch

****

Hello everyone,

It's refreshing for me to get back to my alma mater. My heartiest ***greetings*** *to all of you. To the new comers in the department, I welcome you once again to this wonderful and exciting world of Electronics and Communication Engineering. This program would help you to acquire diverse skill-sets which, in turn, would enable you to transit smoothly from academia to professional world. From my own experiences, I can safely claim that the various topics distributed across 4 years of learning coupled with the outstanding faculty which you have at your disposal would mould you into an engineer with manifold skills. Just figure out what creates the buzz in your mind whenever you think of it and go on exploring it to the furthest possible. Modern industry generally values skills more than theoretical knowledge; so try your level best to practice in real what you read. Please remember, at the end it's your efforts which count at the end. The faculty and the institute will always be there for your aid. You just need to work hard to extract whatever you need from the department. Whether it be industry or academics, everything's there for the taking. It's you who decides your future. I would be more than happy to help you with everything I am capable of. I could go on writing forever, but the words themselves impose constraints.*

Looking forward to hearing from you soon!

Thanks and regards,

Saransh Choudhary,
SoC Design Engineer,
Intel Technology Private Limited,
Bengaluru, Karnataka-560103
e-mail: scsc2699@gmail.com

About the Department:

The department of Electronics and Communication Engineering of S.I.T was established since the very inception of the college. During its journey of about 20 years, the department has developed itself and has been accredited by National Board of Accreditation (NBA) in the year of 2017. NBA is a regulator under Washington Accord which undertakes the assessment of quality standards of various educational institutions. At present the department runs about 15 state-of-the-art laboratories for undergraduate and R&D activities. The department regularly organizes seminars, workshops and invited talks to enrich the academic ambience of the Institute. The faculty of ECE department consists of well qualified and experienced teachers with noteworthy research background.

Faculty & Staff Members of ECE Department, SIT

Editorial Team:

==========

Mrs. Anindita Sinha
Mrs. Banasree Das

Student Coordinators:
Nilanjan Das (3rd Year ECE), Sudeshna Saha (3rd Year ECE), Pratik Gautam (2nd Year ECE)

We welcome your comments and ideas for future issues. Write us at hod_ece@sittechno.org
For latest news and information follow us: https://www.facebook.com/Department of Electronics Communication-Engineering-SIT-956557904503854/

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:

1.2.1External 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

VaibhavSingh 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, BaidyaNath 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, Dhnbad,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, ShaliniDey, SayaniNandy, AvirupBasu, 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 of3rd 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]	09-11Feb 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)	3-4th June 2017.	Sikkim Manipal Institute of Technology(SMIT), Sikkim
5.	Sarmistha Mondal	Hands-on Workshop on IoT	2nd Feb 2018	MCA Dept, Siliguri Institute of Technology, Siliguri
6.	Anindita Sinha	Hands-on Workshop on IoT	2nd Feb 2018	MCA Dept, Siliguri Institute of Technology, Siliguri
7.	Subhamay Sarkar	Hands-on Workshop on IoT	2nd 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.

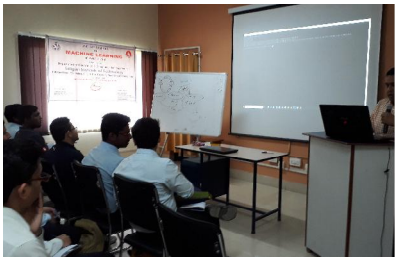
One Day Seminar on "Emerging Trends of Mobile Communication"

Two days workshop on "DSP System Design"

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 organizingthe 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**.

Wall Magazine Inauguration

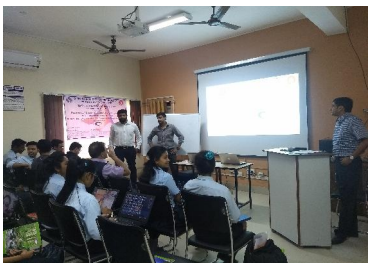


One Day Seminar on "Machine Learning"

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:

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

*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.*

6. Technical Articles:

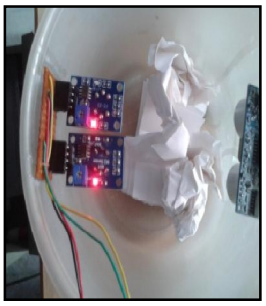
6.1 Internet of Things (IoT)-The Present & Future of the Industry:

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



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

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.

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.

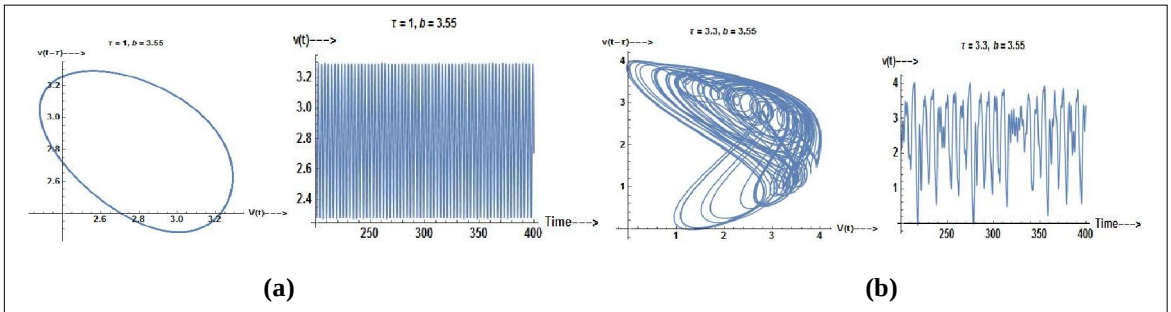


Fig. Numerically obtained phase plane plot (V , $V(t-\tau)$ space) and Time domain plot: (a) Period 1 Oscillation, (b) Chaotic Oscillation.

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).

VOLUME I, ISSUE I

MARCH,2017

ELECTRONIKA

DEPARTMENT OF ECE,SILIGURI INSTITUTE OF TECHNOLOGY

Special Points of Interest:

- *Inaugural edition of the newsletter*
- *Recent developments in Nanoscience and Nanotechnology*
- *Achievements and recent publications by members of the department*

ABOUT THE DEPARTMENT

The Department of Electronics and Communication Engineering (started in the year 1999) is one of the oldest departments of the Siliguri Institute of Technology, with Prof. (Dr.) Gautam Das currently being at the helm of the affairs . Under his valuable guidance, the department has been excelling in manifold aspects of academic as well as extra co-curricular activities. The department has its core strength in the field of Electronics, Communication, Signal 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 is 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 at various reputed institutes across India and abroad. The strength of the students belonging to the department is their 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.

RECENT DEVELOPMENTS

- *UC physicists control luminescence of semiconductor nanowires using gold coating*
- *Researchers capture real-time dynamic visualizations of atoms to build better batteries*
- *Validation of heat transport at the nanoscale*
- *Microbiologists help advance development of 'Green' Electronics using microbial nanowires*

Inside this issue:

VISION & MISSION OF ECE DEPARTMENT, SIT

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.

FROM THE DESK OF THE DIRECTOR

Prof .(Dr.) Jyotirmoy Jhampati

It is a great pleasure for me to know that the Electronics & Communication Engineering Department of the Institute launched its News letter "ELECTRONIKA" to explore the activities of the department.

I do hope this will cultivate and inspire all the students and education lovers curious about the activities of the department.

This will also culminate a ray of thought for their progressive career.

I wish its colourful propagation all through.

—Prof. (Dr.) Jyotirmoy Jhampati,
"Banga Ratna"
B.E. (1st Class 1st), Ph.D. (Engg.),
M.I.E.E. (UK), C.Engg.(I), F.I.E.(I)
Director,
Siliguri Institute of Technology.

FROM THE DESK OF THE HOD

It gives me immense pleasure to note that the "ELECTRONIKA", the news letter of the department is ready for launch.

The big theme today is to focus on creativity and innovation alongside academics. The news letter is the best platform to showcase the innovations, achievements & thoughts of the students, faculty & staff of the department.

This news letter should be a good source of guidance for faculty and students in choosing activities of their choice in their future for building their careers.

I appreciate the efforts of the editorial team who have done an excellent job in compiling departmental activities over the year and disseminate them through this news letter.

—-Dr. Gautam Das,
HOD,
Department of ECE.
Email : gdas321@yahoo.co.in

Dr. Gautam Das

STUDENT ARTICLE : A QUANTITATIVE APPROACH TO SOLAR ENERGY

The nomenclature has evidently changed since the time when commercializable solar cells appeared on the scene. Conversion efficiency rates of 6% are

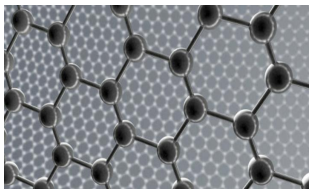
heralded, enough they say so that"...a wafer-thin slab of crystal, 4 ft. x 15 ft., either resting on or built into the roof of a house, could supply enough current to operate all the lights, stove, refrigerator, and other appliances in the house - 24 hours a day." The universe's greatest source of potential power - even greater than the atom - has been harnessed. A solar battery, the first successful device to convert useful amounts of the sun's energy directly and efficiently into electricity, has been demonstrated by the Bell Telephone Laboratories. With an amazingly simple - looking apparatus made of strips of silicon, the scientists demonstrated how the sun's rays could be used to power the transmission of voices over telephone wires, thanks to its excellent electronic stability at higher temperatures. These strips are extremely sensitive to light. *Linked together electrically, they can deliver power at a rate of 50 W/square yard. It is possible to achieve 6% efficiency in converting sunlight directly into electricity in contrast with other photoelectric devices, which have never been rated higher than about 1%.* Although the sun supplies over a thousand trillion kilowatt hours of energy daily-comparable with all the reserves of fossil fuel and other resources found on earth, man has never been able to convert more than a small fraction of this energy directly to his use.

—Sweta Mitra,
3rd year.

STUDENT ARTICLE : LIQUID METAL NANOPRINTING

Two-dimensional (2D) semiconductors made of materials such as transition metal dichalcogenides (TMDs) are forming the future of electronic devices. For these applications, 2D semiconductors provide the electronic and photonic properties that are of significant importance in determining the performance capability of certain transistors and lasers, two of the many electronic products currently utilizing this technology.

To create such devices, a 2D sheet is formed onto a substrate through several different mechanisms including the exfoliation of



flakes from a layered bulk source, as well as atomic layer and chemical vapor deposition. However, these techniques are limited only to small-scale production needs.

With an average temperature requirement of above 550°C to deposit the material onto the substrate, a process that requires many hours to conduct, cost and practicality of the production of these devices are also important parameters to consider.

Until now, no current technologies have been capable of creating atomically thin semiconductors with a large surface area; the factor that plays a significant role in determining the power potential of the device .

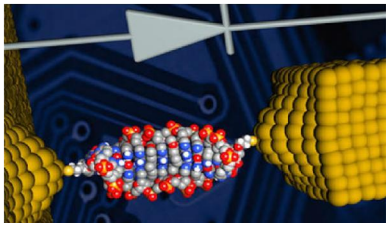
——Amit Sharma,
2nd year.

STUDENT ARTICLE : MAKING A DIODE OUT OF DNA

Researchers at University of Georgia have shrunk down one of the fundamental components in electronics, creating the world's smallest diode out of a single DNA molecule. Lead researcher Bingqian Xu said, "*Our discovery can lead to progress in the design and construction of nanoscale electronic elements that are at least 1000 times smaller than current components.*"

Following the line of thought that single molecules are the smallest imaginable stable structure, the team figured DNA would be the perfect candidate, for its predictable structure and programmability.

Interestingly, the problem of reverse leakage current in diode was significantly overcome by adding a molecule called coralyne to into a DNA helix (11 base pairs long) and connecting the whole thing to a nano-electronic circuit. Surprisingly the DNA turned out to perform well, with 15 times more conductivity for



negative voltages than for positive ones.

"This finding is quite counter-intuitive because the molecular structure is seemingly symmetrical after coralyne intercalation", said Xu. The research has been published in

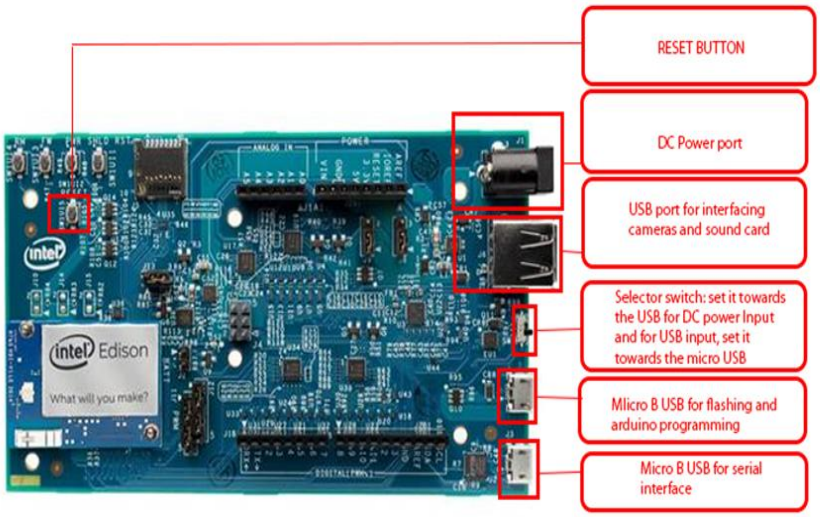
ALUMNI COLUMN : INTEL EDISON

In every IoT or robotics project, we have a controller that is the brain of the entire system. Similarly we have Intel Edison. The Intel Edison computing module comes in two different packages. One of which is a mini breakout board the other of which is an Arduino Compatible board. One can use the board in its native state as well but in that case the person has to fabricate his/hers own expansion board. The Edison is basically a size of a SD card. Due to its tiny size, it's perfect for wearable devices. However it's capabilities makes it suitable for Internet of things application and above all, the powerful processing capability makes it suitable for robotics application. However we don't simply use the device in this state. We hook up the board with an expansion board. The expansion board provides the user with enough flexibility and compatibility for interfacing with other units. The Edison has an operating system that is running the entire system. It runs an embedded Linux image. Thus, to setup your device, you initially need to configure your device both at the hardware and at software level. The Intel Edison can be programmed in C,C++, Python, Node.js and Arduino processor language. The possibilities of using the Intel Edison is great and the languages it supports provides more flexibility.

Some sample projects that can be developed are :

1. All robotics advanced projects where image processing is required
2. Security systems using face recognition and Microsoft Oxford API
3. Wearables for tracking human vitals
4. Smart homes
5. Drones and UAVs

—-Avirup Basu,
Associate Developer,
Altimetrik (Batch of 2016)



ANNOUNCEMENTS

1. The department is going to form Robotics club which will be concerned with all kinds of activities, viz., seminars, workshops, conferences, etc. related to robotics and automation. Interested participants are asked to contact with Mr. Sourav Sarkar(Assistant Professor, Department of ECE) and Arpan Sarkar (3rd year).
2. The department is going to publish the next edition of the wall magazine. The students are encouraged to submit relevant articles, materials, pictures, poems, etc. For further queries, contact Jayantika Mitra(3rd year) and Anasuya Bhattacharjee(3rd year).

GUEST COLUMN : ANTENNAS IN ASTRONOMY

An antenna is a device used to convert radio waves to electrical signal and vice versa. Hence, antennas are applicable only to Radio Astronomy, which deals with studying radio signals from space. Radio telescopes usually have a huge concave dish, which acts like a mirror and focuses all the radio signals from space onto the antennas at the centre of the dish. Based on this radio signal as input, the antennas then produce electrical signals which astronomers study to discover all the exciting phenomenon going on in distant galaxies. Scientists can see things like: fierce sharp jets of hot material being shot out into the universe from cores of galaxies like fountains, gal-

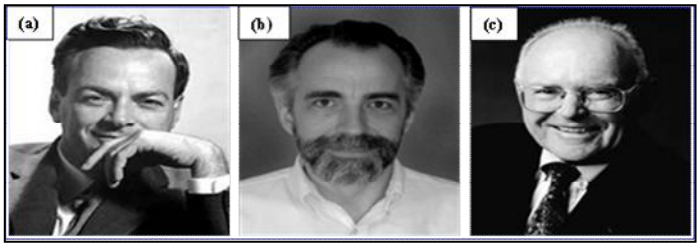
axies having collided with nearby ones in the past and left a trail of gas in the process, and much more ,all thanks to radio astronomy! Astronomers have found several new classes of objects, e.g, quasars, pulsars and masers, all of which emit radio signals. The Big Bang was established as a valid theory by discovering the cosmic microwave background radiation from space, which was detected using radio antennas. Radio waves are electromagnetic waves, just like ordinary light, except that they are invisible to human eye. So we would not be able to "see" radio waves through a conventional optical telescope; hence the dish -antenna arrangement! Interestingly, since radio waves have large wavelengths, the antennas are unaffected by all external physical factors including sunlight. So, antennas can carry out radio observations incessantly, even during bad weather! Thus, antennas are at the heart of radio astronomy, without which this branch would not even exist, and we would never have been able to know how galaxies dance in space!

—-***Ayan Acharyya,***
Mount Stromlo Observatory,
Canberra, Australia.

GUEST COLUMN : IMPACT OF NANOTECHNOLOGY & MOORE'S LAW

The word "Nano" is not new to us anymore. We all know that nanomaterials are materials having dimension 1 to 100 nm at least along one direction. It can be noted that the nano materials get more active compared to its' bulk form because of its increased surface area and change in density of states. The technology based on nano materials started with the famous quote of Nobel laureate scientist Richard P. Feynman in the year of 1959 that was published in 1960 entitled "there is plenty of room at the bottom". If Feynman was the philosopher of this new field then Eric Drexler should be considered as the guide to steer this new technology predicting unlimited scope of nanotechnology for developing molecular nanodevices. Gordon Moore, the founder of Intel, in the year of 1965 predicted, that the number of transistor per circuit would double every year through the decade follow that year. However in general he himself described the law as *"Moore's law has been the name given to everything that change exponentially*". His prediction has proven to be uncannily accurate, in part and the law is now used in the semiconductor industry to guide long-term planning and to set targets for research and development.

"There is plenty of room at the bottom"
- Richard Feynman(1960)



Three pioneer workers in nanotechnology : (a) Richard Feynman (b) Eric Drexler, (c) Gordon Moore

The growth of nanotechnology patenting in the fields of electronics, chemicals and instruments is the most while sub-fields with above-average growth rates include machines and tools, materials and metallurgy, materials processing, information technology and semiconductors. Nanotechnology is enabling diversification beyond fields of previous specialization into the application fields of instruments, chemicals, pharmaceuticals and biotechnologies.

Nanotechnology has found its applications in numerous fields each of which can be a topic of several big fat books here just few names are mentioned that includes: nanocosmetics, textiles, sensors, drug delivery, cancer therapy, tissue engineering, water purifications, lab-on-a-chip, display, lighting, computers, dip pen lithography, MRI with magnetic nanoparticles, porous materials.

—-***Dr. Diptonil Banerjee,***

M.N. Dastur School of Materials Science Engineering,
IIEST, Shibpur (Howrah)

RECENT ACHIEVEMENTS OF STUDENTS

- Debabrata Banerjee of 4th year won the hardware project competition in Technovision 2K17.
- Swapnil Pradhan of 3rd year and Pragyanika Pradhan of 2nd year secured the runner-up position in hardware project competition in Technovision 2K17.
- Ankita Saha, Kajal Kumari and Saransh Choudhary of 3rd year were awarded the Devang Mehta Excellence Awards for distinguished academic performances, presented by NASSCOM in September '16.
- Jayantika Mitra of 3rd year stood the champion and runner-up in Fashion Show and Dance events respectively organized by IILS Siliguri in June '16

Debabrata Banerjee

ACHIEVEMENTS OF ALUMNI

Following is a list of alumni placed in top-notch industries in the year 2016 :

NAME OF THE PLACED STUDENTS	NAME OF THE COMPANY
AMALENDU PAUL	TIRUMALA
AMAN SHAW	ROBERT BOSCH
AMIT KUMAR	SYSTROM
ANANDA SHANKAR BAGCHI	ZENPACT/ZOMATO
ANTARA BANERJEE	ALTEMETRIC
AVINASH KUMAR	SYSTROM
AVIRUP BASU	ALTEMETRIC
BIBEK RAUTH	TCS
DEBAJYOTI SARKAR	TCS
DIBYO GHOSH CHOWDHURY	ALTEMETRIC
DRAVID KUMAR	SYSTROM
JAYA BISWAS	TATA COMMUNICATION
JOYDEEP MAJI	TCS
KHALIDA TABASSUM	TCS
KRISHNA KUMAR JHA	TCS
MILAN MAHADANI	JEOL INDIA PVT. LTD.
NEHA PANKAJ	AMAZON
PRITAM SINGHA ROY	SYSTROM
NIVEDITA MISHRA	TCS
PIYUSH BENIA	TATA COMMUNICATION
PRIYA DEB ROY	TCS
RAHUL KUMAR SINGH	EMERSION
PROMIT ROY	TIRUMALA/VEDIOCON D2H

NAME OF THE PLACED STUDENTS	NAME OF THE COMPANY
RAVI SHANKAR	SYSTROM
RIMA DAS	TCS
RITIKA SAHA	TCS/ALTIMETRIC
ROSHAN KUMAR GUPTA	TIRUMALA/TECH MAHINDRA/SRIRAM
SANDIPAN BANERJEE	TLC/SRIRAM
SHOURYADEEP SANYAL	TCS
SHREYA CHANDRA	TATA COMMUNICATION
SMITHODHY RUDRA	VEDIOCON D2H
SMRITIKANA ROY	TIRUMALA
SOUBHIK PAL	TLC/DATA64
SOUMI GHOSH	TCS/ALTIMETRIC
SRAMANA TALUKDAR	TATA COMMUNICATION
SUBHADIP MUKHERJEE	TLC/ZOMATO/CGI/TECH MAHINDRA
SUDESHNA CHATTERJEE	ROBERT BOSCH
SULAGNA PRAMANICK	Tech Mahindra
SUMAN DHAR	TCS
SUNANDO DEBNATH	TLC
TRINALEENA KUNDU	SYSTROM
VISHANT PRASAD SHARMA	ROBERT BOSCH
WATAN AGARWAL	TCS
MRINMAY DAS	WIPRO
SOUMASREE SARKAR	Deto ex IT sector
SUCHANDA ROY	TATA COMMUNICATION

ACHIEVEMENTS OF FACULTY

Dr. Subhojit Sarker (Assistant Professor, Department of ECE) was awarded PhD degree from Jadavpur University, Kolkata for his work on *"Application of Non-Linear techniques in the Analysis of Heart Rate Variability (HRV)"* in August '15.

Dr. Subhojit Sarker

RECENT PUBLICATIONS

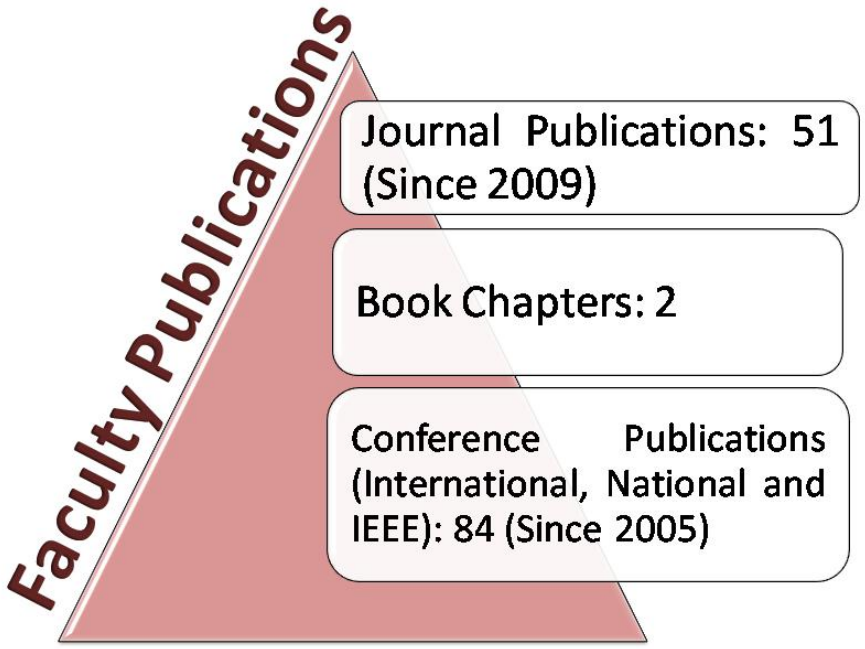
It has been a zeal of the department of ECE to instil among its pupils, faculty and students alike, a strong interest to get involved in various research works, of which the following publications are testimonials:

PUBLICATIONS IN PEER REVIEWED JOURNALS BY FACULTY MEMBERS OF ECE DEPT. (2016-17) :

1. Sourav Sarkar, Diptonil Banerjee, U. K. Ghorai, N.S. Das and K. K. Chattopadhyay, *Size Dependent Photoluminescence Property of Hydrothermally Synthesized Crystalline Carbon Quantum Dots*, Journal of Luminescence (Elsevier) 178 (2016) pp-314-23.
2. Dia Ghosh, Arindum Mukherjee, Somnath Chatterjee, Baidya Nath Biswas, *A comprehensive theoretical study of Dual loop optoelectronic oscillator,* Optik, Elsevier, Vol.127 (2016) pp-3337-3342.
3. Dia Ghosh, Arindum Mukherjee, Baidyanath Biswas, *On the effect of combining an external Synchronizing signal Feeding the Mach–Zehnder modulator In an optoelectronic oscillator*, Optik, Elsevier, Vol.127 (2016), pp-3576-3581.
4. Dheeraj Kumar, Diptonil Banerjee, Sourav. Sarkar, Nirmalya S. Das and Kalyan K. Chattopadhyay, *Easy synthesis of porous carbon mesospheres and its functionalization with Titania nanoparticles for enhanced field emission and photocatalytic activity*, Materials Chemistry and Physics (Elsevier) 175 (2016) pp-22-32.
5. Anindita Sinha, Tania Bhowmick, Saugata Sinha, *Practical Approach of Producing Delta Modulator and Demodulator Circuit*, IOSR-JECE, ISSN: 2278-8735.Volume 11, Issue 3, Ver. II (May-Jun .2016).
6. A.Mukherjee, D.Ghosh, N.R. Das, B.N. Biswas, Harmonic distortion and power relations In a single loop optoelectronic oscillator, Optik, Elsevier, Vol.127 (2016), pp-973-980.

PUBLICATIONS OF STUDENTS FROM FINAL YEAR PROJECT (2016-17) :

1. Proteem Ganguly, Shalini Dey, Sayani Nandy, Avirup Basu, Sourav Sarkar, *"The Third Eye"*, 1st International Conference on VLSI devices, Circuits and Systems 2016, American Scientific Publisher (ASP), Advances in Industrial Engineering And Management, ISSN:2222-7059 (Print); EISSN: 2222-7067 (Online).
2. Avirup Basu, Sudip Ghosh, Sourav Sarkar, *"Autonomous navigation and 2D mapping using SONAR"*, WECON-2016, Chitkara University, Rajasthan (Paper will be included in IEEE Explore).



We would like to learn from our readers as well. You can send your valuable suggestions at the following :

Phone: +919933332948
+918906437047

Email: sitelectronics900@gmail.com

FROM THE STUDENT EDITOR'S DESK

It gives us immense pleasure to announce the publication of the inaugural edition of the departmental newsletter on such an auspicious occasion. The work for the publication started back in late February and thanks to the relentless efforts of the entire team, the project has been materialized within such a short span of time. We are highly indebted to faculty and staff members who guided us throughout the process, starting from the contents as well as making crucial edits and additions to the newsletter. We also thank respected Director Sir, HOD Sir as well as the entire department for consistently encouraging us and giving us a chance to put forward our ideas. Finally ,kudos to the team without which this task seemed insurmountable. We hope that our work will generate the interest of everyone in this field of engineering and we will put our best efforts for further improvements.

Also, in the coming months, manifold activities have been planned as a part of which we ae going to publish the next issue of wall magazine.

Saransh Choudhary,
Student Editor
ELECTRONIKA.

FROM THE EDITOR'S DESK

We are happy to announce that ECE Department is going to publish its newsletter titled "ELECTRONIKA". We believe that no matter whether a magazine is delivered to our doorstep or to our Laptop, printed on paper, appearing on our iPad or our cell-phone screen, it is still and foremost the work of an editorial team to package meaningful ideas, words, information and images for its readers. We hope that we will be successful in publishing articles of different flavor through "ELECTRONIKA" in coming months.

As an Editor, I want to thank the Honourable Director Sir, HOD Sir, College administration, our editorial team, Techno India Group and our writers for helping us to publish this issue of our newsletter.

We, the editorial team, will always try to keep our readers engaged. So, please feel free to send your feed-back and suggestions to sitelectronics900@gmail.com and souravsarkars@gmail.com.

Sourav Sarkar,

Editor, Email:souravsarkars@gmail.com

ELECTRONIKA.

MEMBERS OF COMMITTEE :

Mr. Manas Saha (Asst. Professor, Department of ECE, SIT)
Mr. Sourav Sarkar (Asst. Professor, Department of ECE, SIT)
Mr. Sudip Ghosh (Asst. Professor, Department of ECE, SIT)
Saransh Choudhary (3rd Year)
Kajal Kumari (3rd Year)
Poulami Ghosh (2nd Year)
Ozoswita Roy Deb (2nd Year)
Sudeshna Saha (1st Year)
Nilanjan Deb (1st Year)

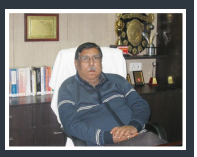
INAUGURAL EDITION, 2018

VOLUME 1, ISSUE 1

TechTime

A Newsletter Published by Department of Information Technology

Message from the desk of Director, SIT



It is a great pleasure for me to know that the Department of Information Technology is going to publish its news letter "TechTime".

I do believe that this news letter will reflect the ideas and planning of the Department for fruitful utilization of the knowledge base of the teachers and students as a whole.

The focus will also be given in the innovative practices of the Department to culminate the new thinking amongst the budding engineers for positive contribution in the real life.

I wish a colorful opening of the news letter.

[Dr. J. Jhampati] Banga Ratna
Director

Message from the Editor

We are delighted to announce the publication of the inaugural edition of our departmental newsletter "TechTime" - a biannual publication, concerned with providing the latest information and trends in technology across the world.

"TechTime" will send a positive signal to the students and staffs who are interested in the educational and literary activities. Like a mirror it reflects the clear picture of all sorts of activities undertaken by the department and develops writing skills among students. We fervently hope that our students and teachers will keep their unremitting support for the issue to come to enrich the quality of our news letter.

Mr. Prasanta Kr. Roy

Mr. Mainak Sanyal

Vision :

To produce competent IT professionals who will contribute towards the advancement of engineering, science and technology for the benefit of society, industry and academia.

Mission :

- **To impart quality and value based education towards achieving excellence in teaching-learning and inculcate research environment.**
- **To produce successful graduates with professional ethics, responsibilities and commitment towards the society.**
- **To enable graduates for providing effective solutions to real life engineering problems and thereby incorporate self-development entrepreneurship skills.**

Information-Centric Networking: The Future Internet

The current Internet addresses content by location. It is based on point-to-point connections, which eventually means that every connected device has to be uniquely addressable through a hostname or an IP address. This paradigm was originally designed for sharing resources rather than data. Nowadays most people exploit the internet to get contents such as web pages, music or video files. These users only value "what" they download and are not interested about "where" content are actually stored. But, the IP layer does the opposite and cares about the "where" and not about the "what". This contrast between the actual usage of the Internet and the service offered by the IP layer is deemed to be the source of several problems concerning usability, performance, security, and mobility issues. The recently emerged Information-Centric Networking (ICN) paradigm and its most prominent realizations such as Named Data Networking (NDN) and Content-Centric Networking (CCN) provide an efficient communication model suitable for present and future internet applications. Information-Centric Networking (ICN) is a new networking paradigm that addresses content by name instead of location. Its goal is to replace the current "where" with "what", since the location of most content on the Internet is irrelevant to the end user. Within the last few years, ICN/NDN/CCN has evolved from the basic research phase and into the applied research phase to address real world problems including industrial control systems, scientific applications, as well as tactical network environments. The core building blocks of ICN/NDN/CCN provide features such as application-defined hierarchical naming, built-in security, stateful forwarding (which enables network intelligence and packet loop suppression), in-network caching, and organic multicast support. These ICN/NDN/CCN features enable more efficient communication, better resilience to challenging network dynamics, and improved latency and data delivery.

Prasanta Kumar Roy
Asst. Professor
Dept. of Information Technology

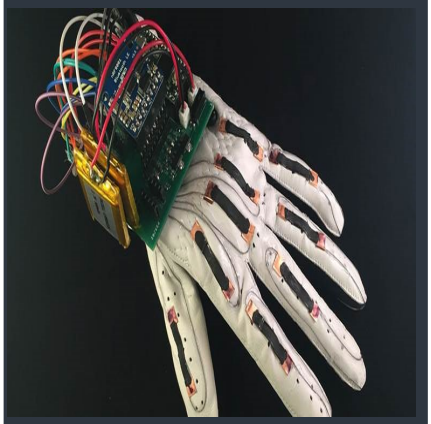
Concept of Smart City

Arzu Das
IT 6th Sem.

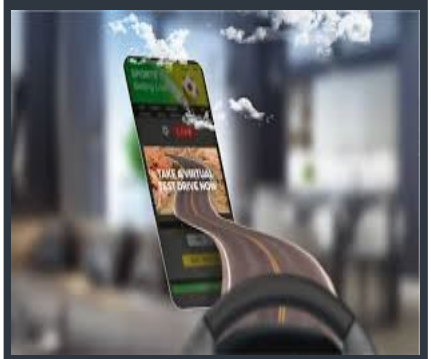
A **smart city** is an urban area that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently.This includes data collected from citizens, devices, and assets. That is processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals, and other community services.Smart city concept integrates information and communication technology (ICT), and various physical devices connected to the network (the Internet of things or IoT). Those optimize the efficiency of city operations and services and connect to citizens. Smart city technology allows city officials to interact directly with both community and city infrastructure and to monitor what is happening in the city and how the city is evolving.

ICT is used to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to increase contact between citizens and government.Smart city applications are developed to manage urban flows and allow for real-time responses.A smart city may therefore be more prepared to respond to challenges than one with a simple "transactional" relationship with its citizens.

Major technological, economic and environmental changes have generated interest in smart cities, including climate change, economic restructuring, the move to online retailand entertainment, ageing populations, urban population growth and pressures on public finances. Major technological, economic and environmental changes have generated interest in smart cities, including climate change, economic restructuring, the move to online retailed entertainment, ageing populations, urban population growth and pressures on public finances. Examples of Smart City technologies and programs have been implemented in Dubai, Milton Keynes, Southampton, Amsterdam, Barcelona, Madrid, Stockholm, China and New York.



"**The Language of Glove**", a smart glove that can wirelessly translate sign language into text and control objects in virtual reality games.



Augmented Reality

Augmented Reality

Gargi Bhattacharya
IT 6th Sem.

Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are "augmented" by computer-generated perceptual information, ideally across multiple sensory modalities, including auditory, haptic, somatosensory, and olfactory. Augmented reality alters one's current perception of a real world environment. Augmented Reality is related to two largely synonymous terms: mixed reality and computer-mediated reality. The first functional AR system that provided immersive mixed reality experiences for users were invented in the early 1990s, starting with the Virtual Fixtures system developed at the U.S. Air Force's Armstrong Labs in 1992. Augmented reality experiences were used in entertainment and gaming businesses, now other industries are also getting interested about AR's possibilities for knowledge sharing, educating, managing the information flood and organizing distant meetings. Augmented reality is also transforming the world of education, where content may be accessed by scanning or viewing an image with a mobile device.

Augmented reality is used to enhance the natural environments or situations. Information about the surrounding real world of the user becomes interactive and digitally manipulable.

Various technologies are used in augmented reality rendering, including optical projection systems, monitors, handheld devices, and display systems worn on the human body. Modern HMDs often employ sensors for six degrees of freedom monitoring that allow the system to align virtual information to the physical world and adjust accordingly with the user's head movements. Games such as Pokémon Go and Ingress utilize an Image Linked Map interface, where approved geotagged locations appear on a stylized map for the user to interact with.

The concept of modern augmented reality depends on the ability of the device to record and analyze the environment in real time.

VOLUME 1, ISSUE 1

Crypto Currency

Megha Bhattacharjee
IT 4th Sem.

One of the most trending topics now is **crypto currency**. Which is a digital currency, uses cryptography for it's secure transactions. The validity of each crypto currency coins is provided by a block chain. The best known example is 'Bitcoin'.

The process here is complex. When transaction takes place and is broadcasted to P2P technology, consisting of computers, known as nodes. The network of nodes then validates the transaction using predefined algorithms. Once the transaction is completed, it is no more forgeable. Its supply is not determined by a central bank and the network is completely decentralized.

There are over 740 types of crypto currency. But out of which only 24-26 has market capitalization.

Multi-Core Processors

Subrata De
Asst. Professor , Dept. of Information Technology

Multi-Core Processors are basically a processing system composed of two or more independent cores or CPUs. The cores are typically integrated onto a single integrated circuit silicon die or they may be integrated on multiple dies in a single-chip package. Cores share memory. In modern multi-core systems, typically the L1 and L2 cache are private to each core, while the L3 cache is shared among the cores. **i.)** In symmetric multi-core systems, all the cores are identical. Example: multi-core processors used in computer systems, **ii)** In asymmetric multi-core systems, the cores may have different functionalities.

To meet high performance demands of various applications, multi-core systems are used, since we can not increase clock frequency beyond certain limit, mainly due to power consumption issues. So, possible solution is to replicate hardware and run them at a lower clock rate to reduce power consumption i.e. 1 core running at 3 GHz has the same performance as 2 cores running at 1.5 GHz, with lower power consumption.

Traditional Multiprocessor Architectures can be broadly classified into two types: a) Tightly coupled multiprocessors b)Loosely coupled multiprocessors. Multi-core architectures fall under tightly coupled multiprocessors category. Here the processors access common shared memory. Inter-processor communication takes place through shared memory. In this category, it is very difficult to extend it to a large number of processors because memory bandwidth requirements increase with the number of processors. Here memory access time for all processors is uniform i.e. *Uniform Memory Access*. In Loosely coupled multiprocessors category, Memory is distributed among the processors. Processors typically communicate through a high-speed interconnection network.

OUR PRIDE

Rajarshi Bhose , IT 2003 passout .

General Manager at IBM. He has **5 granted patents on Big Data & Distributed Computing** and several in patent pending stages and also has deep experience in enterprise architecture, product development, research on Big Data, Cloud and Distributed Computing.

Rupsa Chakraborty , IT 2003 passout .

Principal Software Engineer at Cadence Design Systems . First student of SIT who got the GATE score. She completed her ME from Shibpur and submitted her PhD, from **IIT, Kharagpur.** She also served as a reviewer for IEEE Transactions on Circuits and Systems.

Samrat Seal, IT 2003 passout .

Sr.Project Manager (Agile) at MLC Australia, with more than 14 years of overall experience in Project/Program Management Consulting practices across Digital Transformation, Business System Integration, Enterprise Application Development.

Departmental Achievements

Paper Publication of our faculties

1. **Asit Barman** and Paramartha Dutta, "Facial expression recognition using distance and shape signature features", Pattern Recognition Letters, Elsevier (2017). DOI: https://doi.org/10.1016/j.patrec.2017.06.018.
2. **Asit Barman** and Paramartha Dutta, "Facial expression recognition using distance signature feature", in proceedings of International Conference on Advanced Computational and Communication Paradigms (ICACCP), Sikkim (2017), Springer. [In Press]
3. **Prasanta Kumar Roy**, Sangram Ray and Mou Dasgupta, "Energy Efficient Content dissemination architecture for content centric network", in proceedings of Innovative research in engineering and science (IRES), Bankok, Thailand (2017), Springer. [In Press]
4. **Prasanta Kumar Roy**, Krittibas Parai, **Sathi Ball** and Bipin Kumar, "A new enhanced Secure anonymous communication with authentication and session key agreement in global mobility network", in proceedings of 3rd IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), Kolkata (2017), IEEE . DOI: 10.1109/ICRCICN.2017.8234490.

EVENTS ROADMAP

Faculty & Staff Members of IT Dept.

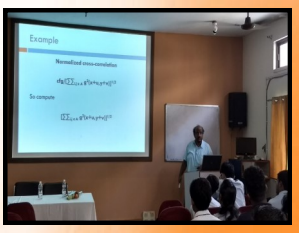
Wall Magazine LOGIC

Induction Program

Fresher's

Two days seminar on Image Processing

Lecture session of seminar



Lecture session of seminar

Group photo with the speaker

Two days workshop on IoT

Inaugural of two days seminar

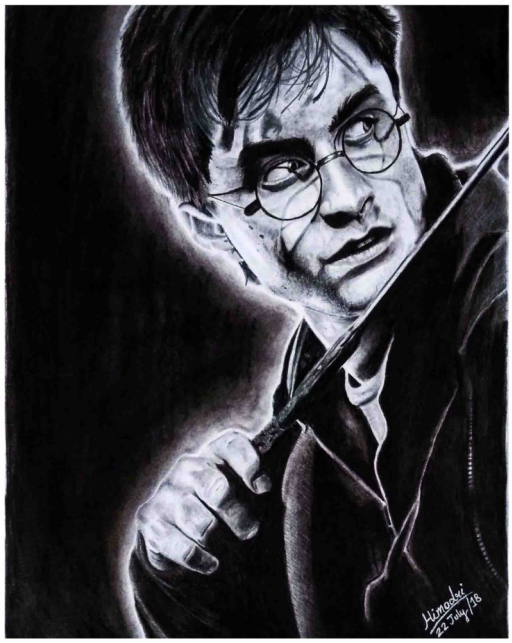
Lecture session of seminar

Group photo with the speaker

VOLUME I, ISSUE II

Tech Time

A Newsletter Published by Department of Information Technology



Himadri Bhattacharya, IT 4th Semester

Vision :

To produce competent IT Professionals who will contribute towards the advancement of engineering, science and technology for the benefit of society, industry and academia.

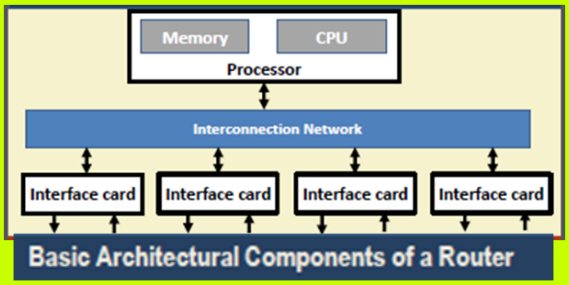
Mission :

- **To impart quality and value based education towards excellence in teaching-learning and inculcate research environment.**
- **To produce successful graduates with professional ethics, responsibilities and commitment towards society.**
- **To enable graduate for providing effective solutions to real life engineering problems and thereby incorporate self-development entrepreneurship skills.**

IP ROUTER

Subrata De, Asst. Prof., **IT**

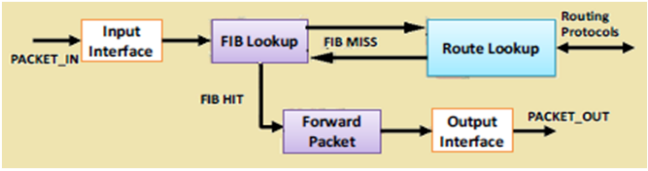
The life cycle of a router can be represented by a simple do-repeat loop i.e. find a path to the destination and then forward multiple packets to that destination. This is repeated until the router gets powered off.



Basic Architectural Components of a Router

Router have two basic components. i)Route processor which contains memory and CPU. ii) Then we have an internal interconnection network bus with which individual interface cards are connected. These interface cards work as the input/output for the Router.

The entire router architecture is actually divided into two parts i)Control part and ii)Datapath part. In router control part we have different routing functions or routing protocols which are implemented. Those routing functions or routing protocols help us in constructing the routing table. In general in a typical router, **control part** is implemented as a part of the routing operating system.



Then at the ***datapath*** level, whenever we have an input packet, the packet header is looked into for destination ip address. Based on the destination ip address routing table is searched for finding out the next hop and accordingly the packet is forwarded to the next hop. This ***datapath*** need to be very fast because every second around 1000 and even much more packets(for high speed network) need to be processed. That is why the **datapath** is normally implemented in a faster hardware using **TCAM** memory architecture. TCAM (Ternary Content Addressable Memory) is a specialized high speed memory which searches its entire content in a single clock cycle.

Data Analysis

Ashmita Basu Mazumdar

IT, 6th semester

Data analysis is a procedure of inspecting , cleansing, transforming and modeling data with the goal of discovering useful information, informing conclusions and supporting decision-making .Data analysis is basically a process for obtaining raw data and converting it into information useful for decision-making by users. The data is necessary as inputs to the analysis, which is specified based upon the requirements of those directing the analysis. Data is collected from a variety of sources. The requirements may be communicated by analysts to custodians of the data, such as information technology personnel within an organization. The data may also be collected from sensors in the environment, such as traffic cameras, satellites, recording devices, etc. It may also be obtained through interviews, downloads from online sources, or reading documentation. The benefits of data analysis are almost too numerous to count but some of the most rewarding benefits include getting the right information for business, getting more value out of IT departments, creating more effective marketing campaigns, gaining a better understanding of customers and so on.

Programmable neural silicon, Neuromorphic chip

Neuromorphic technology aims to mimic the neural network architecture of the brain. Neuromorphic computers could accentuate social problems as the very notion of human potential would become less relevant. It consists of the artificial synapses made from silicon germanium, each synapse measuring about 25 nanometers across. Voltage is applied to each synapse and found that all synapses exhibited more or less the same current, or flow of ions, with about a 4 per cent variation between synapses. This 'brain-on' chip introduced, works on analogue fashion (unlike the previously fabricated computer chips which worked on digital signals) so that it can process multiple parallel computations, like our brain does.

Scientists have developed "neuristor" circuits which can perform complex computations using an incredibly small amount of power. More recently, a vital component of this neuristor circuit was created using niobium dioxide (NbO_2), which replicates the switching behavior observed in ion channels within biological neurons. These NbO_2 devices are created by applying a large voltage across a non-conductive niobium pentoxide (Nb_2O_5) film, causing the formation of conductive NbO_2 filaments which are responsible for the important switching behavior. Unfortunately, this high-voltage and time-consuming post-fabrication process makes it near impossible to create the dense circuits needed for complex computer processors.

Instead of designing different electronic circuits, we came up with a versatile analog that emulates the range of behavior they display. Some open when the voltage across the membrane is high, others open when the voltage is low, and everything in between. Nevertheless, the fraction that opens always follows a sigmoid-curve, and the time it takes always follows a bell-curve. As few as eight transistors sufficed to replicate this behavior—thanks to the common physical forces—allowing millions of distinct ion-channel populations to be modeled with a single chip. After it is fabricated, its sigmoid- and bell-curves are tailored to fit any desired ion-channel type by computer-controlled bias voltages.

Whereas simulation refers to software, emulation refers to hardware—a physical realization of a neural model that operates

Bidisha Das

IT, 4th semester

Google Fuchsia OS - The Future of IoT Devices

Kishan Biswakarma,
IT, 4th semester

Google has introduced a new Operating System called Fuchsia OS. As Google already has two of its operating system i.e Android and ChromeOS, you must think that what is the need of new operating system rather than to concentrate and increase the functionality of the Android and Chrome OS.

The peak point to be noted among these two Operating System is the restriction of the application on its respective platform only. For better understanding, in nearly all Operating System there is a special store that contains all the apps that run on that platform only, like Apple Store in iOS, Play Store in Android, Microsoft Store in Windows Operating System. But as the world is more concentrated towards developing the IoT devices, here comes the Fuchsia OS by Google in the limelight.

The Fuchsia OS is basically the cross-device, open source operating system, optimized for both personal computing and running low-power devices such as the Internet of Things (IoT) equipment. The OS is based on the Zircon (formerly Magenta) kernel, written by a combination of C, C++, Dart, Go, Python, Rust, Shell, Swift, and Futter SDK. As Fuchsia OS is a hybrid, that offers mobile-designed views "Armadillo" and traditional desktop interfaces "Capybara". Users will be able to interact with apps designed on Armadillo and Capybara that are displayed as cards on a home screen. This framework will enable multitasking, allowing you to collapse different apps into each other and work on them using a split-screen interface.

Fuchsia would enable developers to code apps, programs, and tools that could work on all of Google's platforms, without the need for the time-consuming process of optimization. That means coders would be able to create a messaging app that would work on smartphones, tablets, laptops, desktops, and even smart home devices.

But still, the OS is under alpha-phase, so we can expect Fuchsia OS ruling over the global market due to its power of optimization and compatibility of accommodating into the IoT devices.

Artificial Intelligence and its current development

Aditya Halder
IT, 4th Semester

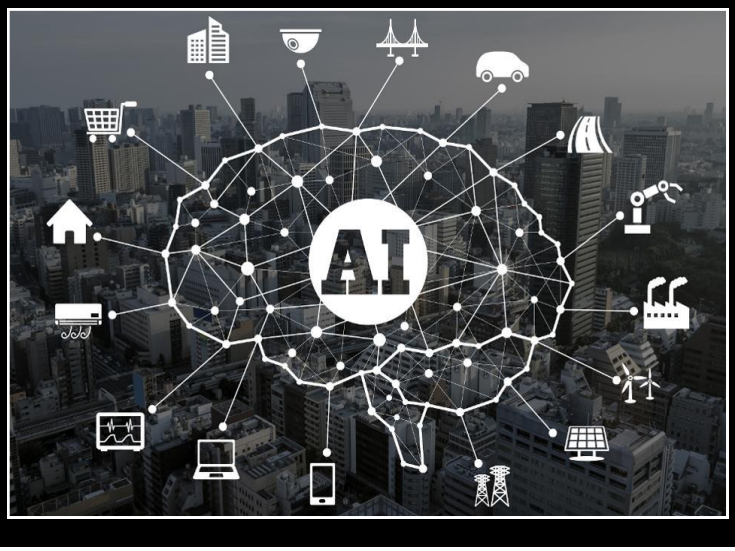
Artificial Intelligence or AI is the current hot commodity in market. As far as we can see people with skills in AI are highly sought after. The idea of making machines that can think and act like humans from Sci-Fi movies isn't very far off from becoming reality. We have already made some notable achievements in this field.

Goals for AI:

- To Create Expert Systems – The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users.
- To Implement Human Intelligence in Machines – Creating systems that understand, think, learn, and behave like humans.

Now let us talk about one of the great masterpiece work in this field:

Google's AlphaGo zero, the bot that has learned from itself by playing against its own self rather than studying moves of players ranging from noob to pro. After just three days of self-play training, AlphaGo Zero emphatically defeated the previously published version of AlphaGo - which had itself defeated 18-time world champion Lee Sedol - by 100 games to 0. After 40 days of self training, AlphaGo Zero became even stronger, outperforming the version of AlphaGo known as "Master", which has defeated the world's best players and world number one Ke Jie. Even though the AI bot has defeated the world champion many people would say that it's just a game, but if we think about it a bit more thoroughly we can see the fact that AI has already crossed the threshold beyond which it can affect our daily life. Be it for the greater good or something



Departmental Achievements

Faculty Level

⇒ Mr. Asit Barman registered for Ph.D degree at Calcutta University.

⇒ Mr. Subrata De enrolled for Ph.D degree at Techno India University.

⇒ Mr. Asit Barman, Assistant Professor: Two SCI Indexed Journals.

⇒ Ms. Sathi Ball, Assistant Professor: Two International Conference Papers.

⇒ Mr. Debaditya Kundu, Assistant Professor: One International Conference Paper.

Students Level

⇒ Adrija Roy got selected in BOSCH.

⇒ Gargi Bhattacharjee got selected in Capgemini.

⇒ MD Mukhlesur Rahaman got selected in TCS.

⇒ Arzu Das got selected in CGI.

⇒ Arindam saha, Aijura Kshiar got selected in Extra Marks.

EVENTS ROADMAP

Fresher's welcome on 1st September, 2018

Hands-on Workshop on "Internet of Things (IoT) & Machine Learning" on 3rd and 4th February , 2018

Image processing & Pattern Recognition on 27th and 28th April , 2018

Two days workshop on "Data Analysis using Python" on 28th and 29th September, 2018

Two days Seminar on "Cryptography & Network Security" on 13th and 14th August, 2018

Sudoku Competition conducted by CES on 2nd February, 2019

Team Members

Anupam Mukherjee(HOD), Mainak Sanyal .
IT 6th Sem. : Raina Choudhury, Ashmita Basu Mazumdar.
IT 4th Sem. : Nancy Kumari Prasad, Himadri Bhattacharya.

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 5 ISSUE 1

Vision & Mission

Vision

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty.

...In The News

1st International Conference on Innovation in Modern Science and Technology 2019 (ICIMSAT-2019)

Department of Electrical Engineering, Siliguri Institute of Technology, West Bengal, India will bring a platform for all researchers.

Date: 20th-21st September 2019

ICIMSAT-2019

Publication Partner

Springer Book Series: Learning and Analytics in Intelligent Systems (LAIS)

Springer

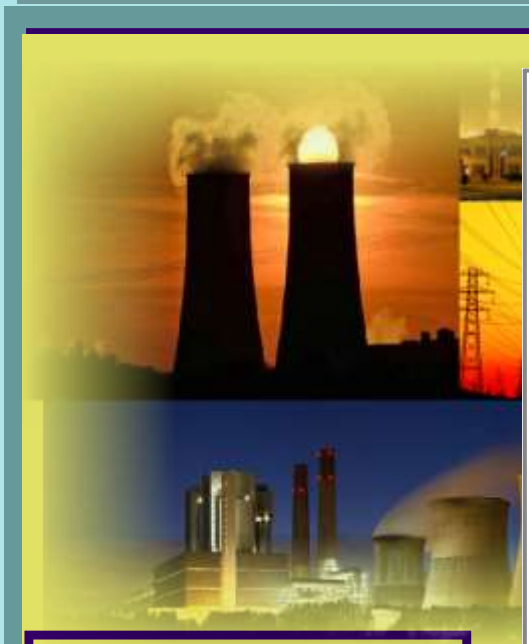
Technical and Advisory Partner

Automatic Control & Dynamic Optimization Society (ACDOS)

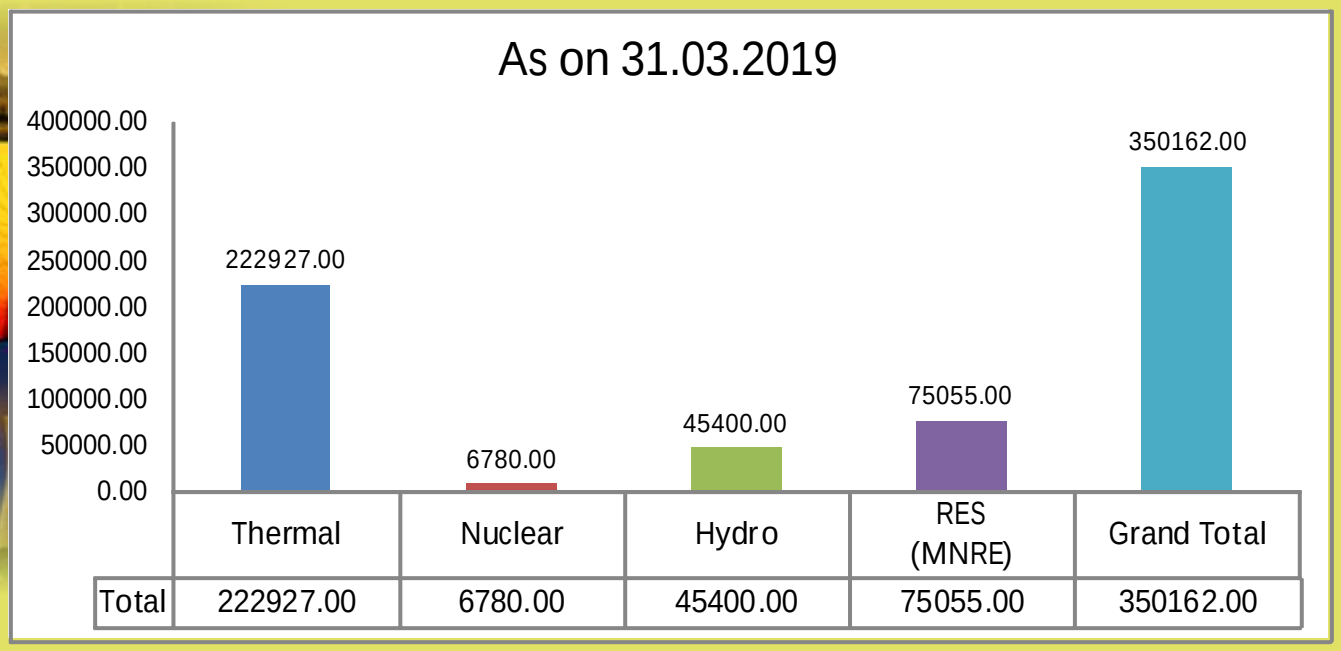
ACDOS

For Details Visit—https://www.icimsat2019.com/

INDIA'S POWER
India's Total Power Generation Capacity



Source Ministry of Power, GOI



Congratulations

ODD SEMESTER 2018 TOP PERFORMERS IN UNIVERSITY EXAMINATION

PAYEL MAJUMDAR

1ST YEAR

MADHU AGARWAL

2ND YEAR

SUMAN DUTTA

3RD YEAR

ANWESHA KAR

4TH YEAR

ELECTROWRITE

VOL 5 ISSUE 1

Deregulation: A new concept in Electricity Market

Dr. Subhojit Dawn, Assistant Professor, EE

In the very first era of 1970s, the concept of deregulation has built with the track of the Public Utilities Regulatory Policies Act (PURPA), which created an arrangement for independent power producers.

Structure of Regulated Industry

In the regulated structure of the electrical industries, all energy delivering procedures (including pricing) are directed by a regulatory body (mainly government body) and only the local utility is able to sell the power directly to the customers. The utility set the electricity prices with considering the associated transportation, distribution and ancillary costs with those commodities. Consumers therefore have no choice in choosing their energy provider.

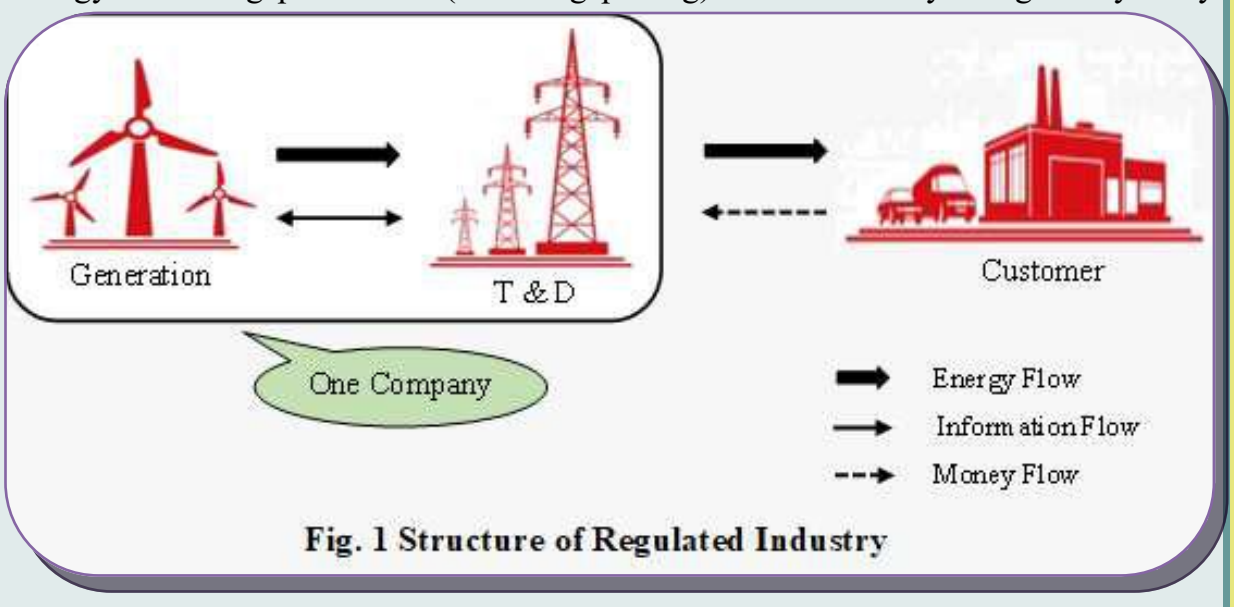


Fig. 1 Structure of Regulated Industry

A typical structure of a regulated industry is shown in Fig. 1. In this power environment, the money flow is unidirectional, i.e. from the customer to the electric company. Generation, Transmission & Distribution (T&D) are operated by a single company under the regulated market structure. The information flow exists only between the generators and the transmission systems. So, customers don't know any information about the internal matter of the generation companies (including energy prices). There is a lack of transparency in this structure of the power market.

Structure of Deregulated Industry

Deregulation in power industry is the restructuring of rules and economic incentives that governments set up to control and drive the electric power industry. Now a day, deregulation has taken place in many countries throughout the world. It has permitted competitive energy suppliers to come into the markets and offer their energy supply products to consumers. Fig. 2 displays the typical structure of a deregulated industry with links of energy, information and money flow among different market players.

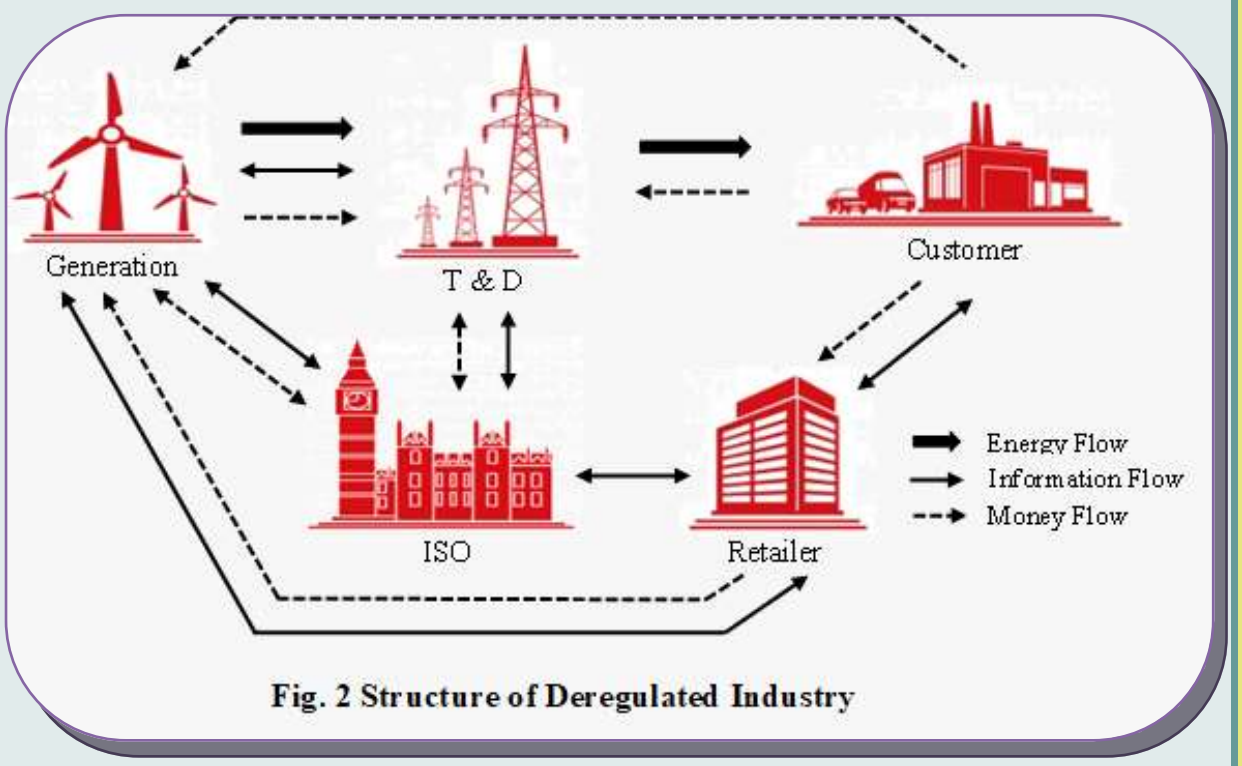


Fig. 2 Structure of Deregulated Industry

A system operator is appointed for the whole system and it is entrusted with the obligation for keeping the system in balance, i.e. to warrant that the production and imports continuously match the consumption and exports. This system operator is known as Independent System Operator (ISO). The main purpose of ISO is to control the total electricity market for maintaining the system economy, stability and power quality. The ISO has the rights to give rewards or imposes penalties to any market entities for their good and bad works respectively.

In terms of energy flow, there are no changes between the regulated and deregulated industries (as shown in Fig. 1 and Fig. 2). The customer does its transactions through a retailer or transacts directly with a generating company, depending on the type of market model (pool, bilateral or hybrid model). Different power sellers will provide their product to their customers (via retailers) over a common set of T&D channels, which is operated by the ISO. The generators, T&D and retailers communicate to the ISO for any types of power transactions. On the other side, customer talks with the retailer for demanding their required power.

The retailer contacts the generating company and purchases the power from it and makes it transferred to its customer's place via regulated T&D lines. The ISO is the one responsible for keeping track of various transactions taking place between various entities. In the regulated environment, the electricity bill consisted of a single amount to be paid towards the generation, transmission and all other costs. But, in the restructured environment, the electricity price gets separated into the following: (i) Price of electrical energy, (ii) Price of energy delivery (wheeling charges) and (iii) Price of other services (frequency regulation and voltage control) which are charged independently.

Several market players are present in the deregulated power system for doing their operation towards benefitted customers. The different entities in deregulated market are as follows– (i) GENCOs (generating companies), (ii) TRANSCOs (transmission companies), (iii) DISCOs (distribution companies), (iv) RESCOs (retail energy service companies or retailers), (v) ISO and (vi) Customers.

ELECTROWRITE

VOL 5 ISSUE 1

EVENTS AND ACTIVITIES

Technical training for 3rd semester & 5th semester

3rd Oct to 6th Oct, 2018

'Workshop on MS Office' for 1st semester-

9th Oct to 11th Oct, 2018

Industrial Visit at Teesta Cannel fall hydel project, power station-1 for 2nd year students

31st Oct, 2018

Workshop on Auto-CAD

15th Feb to 16th Feb, 2019

Expert Lecture & Career Counseling at CCCT, Sikkim

16th Feb, 2019

Technovision, Annual Games & sports, SITEX 2k19

19th Feb to 23rd Feb, 2019

Celebration of International women's day

8th March , 2019

ELECTROWRITE

VOL 5 ISSUE 1

ALUMNI SPEAKS

It is my immense pleasure to write in the Department Newsletter and I feel privileged to be a part of the Institution. I was a student of the Electrical Engineering Department of 2017 pass out batch. The four years of the college life would remain as memories to me which I will cherish until my end. Our department has been the backbone for this. The faculty and staff nurtured and guided us in the right path and always taught us the true meaning of education. Not only studies they always encouraged us into various co-curricular activities be it Cultural activities or Sports. The Department has provided us with the best facilities so as to make the monotonous and conventional study process into an interesting one with smart classes and the use of various technologies. Innovations by the students in various fields was always encouraged by the faculty and they would also impart and share their knowledge to make it more technologically advanced.
Thus I would like to conclude by saying that the four years of my college life has taught me a lot and I will always carry these beautiful memories for the rest of my life.

Abhisek Bhattacharjee
SIT EE 2017 passout.

Innovative Project / Model Competition (College Level) organised from 29.01.2019 to 31.01.2019 at North Bengal Science Centre, Siliguri.

In the event following students from EE Department participated and was the winner in the competition.

- Simantika Saha, 2nd Year
- Paulami Ghosh, 2nd Year
- Debojit Biswas, 2nd Year
- Prasanjit Sarkar, 2nd Year
- Mainak Biswas, (Mentor, 4th Year)

Creative Touch

SOHEL ANJUM, 2ND YEAR, EE

AKASH SARKAR, 3RD YEAR, EE

PUBLICATIONS

Subhojit Dawn et al., 'Wind power: Existing status, achievements and government's initiative towards renewable power dominating India', Energy Strategy Reviews 23, 178-199, 2019

Chiranjit Sain et al., 'Performance Optimization for Closed Loop Control Strategies towards Simplified Model of a PMSM Drive by Comparing with Different Classical and Fuzzy Intelligent Controllers'- International Journal of Automation and Control, Inderscience Publications, Accepted, February 2019

Chiranjit Sain, A Banerjee, P K Biswas, P Sanjeevikumar 'A State of the Art Review on Solar Powered Energy Efficient PMSM Drive Smart Electric Vehicle for Sustainable Development'. **Book Chapter:** Advances in Greener Energy Technologies & Springer Book Series: Green Energy and Technology (ISSN: 1865-3529), Accepted, March 2019.

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 4 ISSUE 2

Vision & Mission

Vision

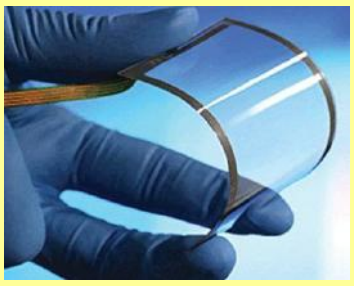
To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty.

...In The News

Graphene Supercaps

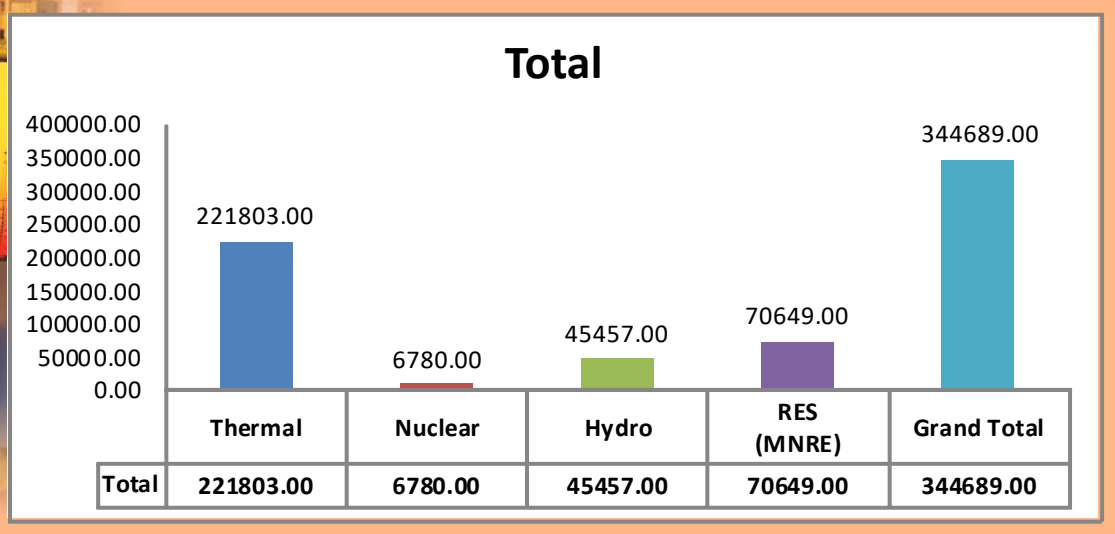


Used in everything from military applications to elevators and cars, supercapacitors are attractive sources for clean energy because they quickly charge and discharge and have long cycling lives. But there's one big drawback: low energy density.

"Today's supercapacitors have only one-tenth the energy density of lithium-ion batteries," pointed out Meilin Liu, a Regents Professor in Georgia Tech's School of Materials Science and Engineering. "For the device to give you the same electrical energy, the device would have to be much bigger." Working with C.P. Wong, another Regents Professor, Liu is developing graphene -based supercapacitors that offer significantly increased energy density while maintaining high power and long operational life. The research is funded by ARPA-E. Graphene is a two-dimensional material that conducts electricity better than copper and is both lighter than steel and 100 times stronger. Yet graphene has a tendency to stack together and form graphite. To prevent this, the researchers place molecular spacers between the graphene sheets, creating a 3-D porous structure that demonstrates a capacitance of 400 Faradays per gram — four times higher than current supercaps. The researchers have also improved capacitance by dispersing transition metal compounds into the graphene-based structure. Graphene alone can only produce a capacitance of about 400 Faradays per gram of material. In contrast, transition metal compounds have higher energy density (2,000 to 3,000 Faradays per gram), but poor electronic connectivity, which slows down the flow of electrons required for charging and discharging. Yet by combining the metal compounds with the 3-D porous graphene, which scores high marks for connectivity, the researchers have achieved capacitance of about 1,500 Faradays per gram while maintaining superior cycling. The researchers are also improving energy density by broadening voltage using two different electrode materials (one positive and one negative). "Each redox material has its own operating window of potential, and we optimize the nanostructure to achieve their highest energy density," Liu explained.

INDIA'S POWER — India's Total Power Generation Capacity

As on 31.08.2018



	Thermal	Nuclear	Hydro	RES (MNRE)	Grand Total
Total	221803.00	6780.00	45457.00	70649.00	344689.00

Source Ministry of Power, GOI

Congratulations

EVEN SEMESTER 2018 TOP PERFORMERS IN UNIVERSITY EXAMINATION

MADHU AGARWAL

1ST YEAR

ANIRUDDHA CHAKI

2ND YEAR

SNIGHDHA DAS

3RD YEAR

SATARUPA MUKHERJEE

4TH YEAR

ELECTROWRITE

VOL 4 ISSUE 2

Alumni meet 2018

A brief report

The program started with the registration of alumni at 10.00 am by the registration committee. Most of the Alumni were visiting their Alma mater after a long time and naturally were thrilled to be back in the campus again. Some of them attended the meet with their children and family members as well.

The ceremony began at 11.30 am with the traditional lighting of lamp by Prof. J.B.Basu, H.O.D, EE Department, Prof. M.R.Chakraborty, Coordinator of EE Department and all the invited alumni. Prof. J.B.Basu, H.O.D, extended a hearty welcome to the alumni and the dignitaries to the Alumni Meet. In his speech, he updated the alumni about new initiatives taken up by the institute as well as department and congratulated student members of EES for organizing such a prestigious event. Prof. M.R.Chakraborty, invited the few alumni members to share their experiences of their graduation period. They shared their various wonderful experiences of the college with the students and advised them to attend classes regularly. They also highlighted important criterion which current industry normally seeks from any candidate and motivated the students to understand the fundamentals of every subject so that after completion of their course it becomes easy for them to choose a specific field.

After a joyful interaction with the students, a short 15 minutes tea break was organized for all the alumni. Post tea break session, a faculty and alumni interaction was arranged. Mr. Sudeep Das, Training and Placement Officer, SIT along with departmental Training and Placement in charges interacted with all the alumni. They asked for suggestions and modification regarding trainings that are provided to the students. Mr. Sudeep Das, also urged the alumni members to kindly provide their references in core as well as software sector for improving the placement of Electrical Engineering graduates. Mr. Avishek Gupta Roy, Associate Consultant, TCS suggested various training programs such as Code Vita, Java , IOT, Ruby, Python, etc. for the students as it will be very helpful for those students who want to apply for software sector. Mr. Arindam Mallick, Deputy Chief Engineer, M.N.Dastoor & Co., also suggested to conduct trainings on software automation, ETAP, PDMS, AutoCad.

As many of the alumni are now part of recruitment process, according to them the students over here lack analytical skills which are one of the most important criteria's for placements. Furthermore, Alumni after sharing their experiences assured all kinds of help, support, and cooperation for the betterment of the students and institute as whole.

After a serious discussion a lunch session was organized for the alumni. It was observed that old students reliving their old memories with their batch mates, seniors and juniors. Many of the current students were also seen interacting with their pass out seniors and learning from their experiences. In all, the ambience was electric with people seen chatting and enjoying in groups.

Post lunch session, a student and alumni interactive session was organized where students were allowed to ask any doubt or query related to placement and future career prospects and recent trends in Electrical Eng.

Mrs. Joyita Ghosh, Delivery Manager, IBM in her speech suggested students that salary should not be important concern for the fresher's. Initially they need to gain experience and emphasized on the fact that there is no short cut in life to achieve success unless you put labor into it as 'the word labour comes first in dictionary than salary'.

All the queries were answered by the alumni. They said that initially they should remove the tag of fresher's from their CVs and gain experience. They also suggested the students to explore various companies and attend all the campus drives conducted by the college.

The Alumni showed their willingness to help and partner in various ways. The Meet ended with a sweet hope of Meeting again next year.

ELECTROWRITE

VOL 4 ISSUE 2

EVENTS AND ACTIVITIES

One Day Seminar on "Smart Grid Technology and Integration of Renewable Energy Sources" - 21st April, 2018

Technical training on Industrial Automation with PLC SCADA for 4th Year - 9th July to 18th July, 2018

Awareness campaign on consequences of Ragging by Anti ragging Cell—16th July, 2018

Induction program of the newly admitted batch— 20th July, 2018

Finishing School Program (FSP) for 4th Year - 30th July to 3rd Aug, 2018

Celebration of Akshay Urja Diwas by EES - 19th Aug, 2018

Industrial visit at Teesta Cannel fall hydel project, power station-1 — 20th Aug,2018

Voluntary Blood Donation Camp by EES— 27th Aug,2018

Freshers Day –VITAJTE 4.0 -2k18 by EES- 29th Aug, 2018

Celebration of Engineer's Day by EES- 15th Sept, 2018

Parents-Teachers Meet - 15th Sept, 2018

NostalgEEa – Alumni Meet 2018 - 29th Sept, 2018

ELECTROWRITE

VOL 4 ISSUE 2

ALUMNI SPEAKS

Myself Amit , currently working in Amazon Development Center, Bangalore as Investigation Specialist I am working here from September 2017, and it's been more than 1 year I'm here,

I've been learning many new technologies and a way to work in a smart & professional way. Therefore, I am very excited to share my experiences so far.

Being a B.Tech. (2013-17) student of electrical in SIT, I was not very bright and intelligent, but always wanted to learn something new out of my daily life example and tried to related them into the subjects. While having the tendency to learn subject via Applied Method of Engineering, the way of making the topics crystal clear and to related them into real time problems, our faculty have always the dynamic techniques , whether, it was HOD Sir's methodology to related complex problem into simple problems ,or Subhajit Sir's, MRC Sir's & DB Sir's alternative ways of making me to understand the subject into a different manner altogether. The faculty and classes of Electrical Department have magnificent command over the subject and various other Soft skills as well which gave me immense opportunity to learn some drops of tools in their ocean of knowledge. The Infrastructure of the department is evolving as well.

Talking about my learning in SIT, I always enjoyed this freedom from department's end to explore the technical world in any innovative way I wanted. The Department provided me the resources and assistance beyond its capacity to experiment and learn the skills whichever I wanted to . it is due to their sole effort, that I was able to grasp the blend of electrical technology along with the computer science technology as well.

The Department has all the world class facilities along with departmental library, dynamic & Well equipped laboratories and research labs as well. At times it has evolved in process, methodology, research areas, but there are still many things that can be worked upon for sure. Stress on theoretical knowledge practices should definitely be balanced upon by more practical & Smart classes where every student should be given a particular task he have to work and project by the end of timeframe. it will enhance their skills in a pro-efficient and steady way.

Stress on development of projects (latest 2 in a semester) would definitely led them to learn the upcoming technologies, challenges and innovation this industry is going through.

Some surprise technical Quiz, Soft Skill Sessions, presentation, giving responsibilities of preparing Data Sheets, hackathons, thorough Group Discussions should be implemented and students should be encouraged to participate into these activities Students should always try to make the best utilization of the cumulative resources the Department have in form of everything and Epitome of excellence (The Professors). . By this, students will enjoy the development of all round of Soft Skills and technical development.

There are always many areas to be improved, Effort, Dedication will result into the blend of success. Recalling once My Guru at SIT made me learn, ***"LABOUR always comes before SHORTCUT",*** which I always follow.

I would like to thank all the faculties of Department of EE for providing so much love and support in chasing my dreams and to become what I am today .

Amit Kumar
SIT EE 2017 passout.
akumartj@amazon.com

EES

Voluntary Blood Donation Camp

EES, Department of Electrical Engineering in association with NSS unit of SIT conducted a voluntary blood donation camp on 27th August, 2018 at the Institute premise. The program was inaugurated by **Dr. Rudranath Bhattacharya, Ex-MLA, Siliguri and Chairman, Rogi Kalyan Samiti of NBMC, North Bengal Dental College & Siliguri Sadar Hospital** in presence of **Dr. J. Jhampati, Director of Siliguri Institute of Technology & Prof. J. B. Basu, HOD, EE**. Dr. Bhattacharya appreciated the initiative taken for the noble cause and highlighted the benefits of blood donation. He also said that this kind of program will encourage the budding technocrats and future managers to be socially responsible. Dr. Jhampati has happily consented to extend necessary support for organizing this type of program in the surrounding area to create awareness as part of social responsibilities that Techno India Group always carries out.

এসআইটি–র উদ্যোগে রক্তদান শিবির

আজকালের প্রতিবেদন
শিলিগুড়ি, ২৭ আগস্ট

শিলিগুড়ি ইনস্টিটিউট অফ টেকনোলজির ইলেকট্রিকাল ইঞ্জিনিয়ারিং সোসাইটি ও এনএসএস ইউনিটের উদ্যোগে উত্তরবঙ্গ মেডিক্যাল কলেজের ব্লাড ব্যাঙ্কের সহযোগিতায় সোমবার আয়োজিত হল রক্তদান শিবির। এসআইটি প্রাঙ্গণে শিবিরটির উদ্বোধন করেন শিলিগুড়ির প্রাক্তন বিধায়ক তথা শিলিগুড়ি হাসপাতাল, উত্তরবঙ্গ মেডিক্যাল কলেজ ও ডেন্টাল কলেজের রোগী কল্যাণ সমিতির চেয়ারম্যান করুনাথ ভট্টাচার্য।

এসআইটির শিক্ষক, ছাত্র-ছাত্রী ও কর্মীরা ছাড়াও টেকনোর অন্য প্রতিষ্ঠানগুলি থেকেও অনেকে উৎসাহের সঙ্গে এই রক্তদান শিবিরে অংশ নেয়। শিবির থেকে মোট ১৪০ ইউনিট রক্ত সংগৃহীত হয়। সংগৃহীত রক্ত উত্তরবঙ্গ মেডিক্যাল কলেজের ব্লাড ব্যাঙ্কের হাতে তুলে দেওয়া হয়েছে। শিবিরটির উদ্বোধন করে রুদ্রনাথবাবু এহেন উদ্যোগের প্রশংসা করেন। তিনি জানান, এধরনের অনুষ্ঠান ছাত্রছাত্রী–সহ সবাইকে সামাজের প্রতি আরও দায়বদ্ধ হতে শেখাবে। শিলিগুড়ি ইনস্টিটিউট অফ টেকনোলজির ডিরেক্টর ডাঃ জ্যোতির্ময় কাম্পটি জানান, টেকনো ইন্ডিয়া গ্রুপ সামাজিক দায়বদ্ধতার প্রতি খেয়াল রেখে এ ধরনের অনুষ্ঠান আয়োজনে সবসময় সহযোগিতার হাত বাড়িয়ে দেবে।

শিলিগুড়ি ইনস্টিটিউট অফ টেকনোলজির রক্তদান শিবিরে ছাত্র–ছাত্রীদের সঙ্গে রুদ্রনাথ ভট্টাচার্য ও ডিরেক্টর ডাঃ জ্যোতির্ময় কাম্পটি। ছবি: আজকাল

Snigdha Chakraborty, EE, 4th year student was the 1st donor.

There were total 200 online registrations done before the blood donation and out of that 160 donors came forward for donation.

PUBLICATIONS

Subhojit Dawn et al., 'An Approach for System Risk Assessment and Mitigation by Optimal Operation of Wind Farm & FACTS Devices in Centralized Competitive Power Market', IEEE Transactions on Sustainable Energy, Accepted, July 2018

Subhojit Dawn et *al*., 'An efficient approach for establishing the economic and operating reliability via optimal coordination of wind-PSH-solar-storage hybrid plant in highly uncertain double auction competitive power market', **IET Renewable Power Generation**, 2018**.**

Subhojit Dawn et *al*., 'An approach for efficient assessment of the performance of double auction competitive power market under variable imbalance cost due to high uncertain wind penetration', **Renewable Energy (Elsevier)**, vol. 108, pp. 230-243, 2017.

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 4 ISSUE 1

Vision & Mission

Vision

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty.

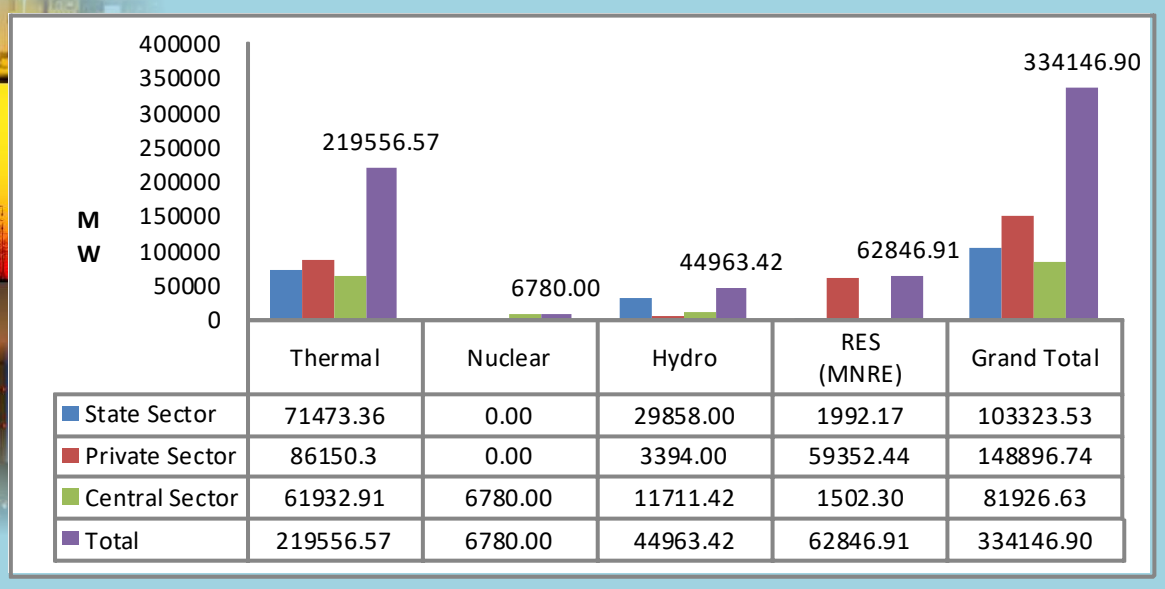
...In The News

1942- Born on January 8, 1942, in Oxford, England.
1958- Graduated from St. Albans school
1959-1962- Aattended college at Oxford and graduated with a first-class honors degree in Natural Science.
1963- Diagnosed with the degenerative nerve disorder ALS, or Lou Gehrig's disease.
1974- "Hawking Radiation" proved that black holes aren't vacuums and won three awards.
1985- Lost ability to speak, and began using a machine to talk with his finger.
1988- Published A Brief History of Time. He also won the Wolf Prize for assisting mankind.
1989: Received a Companion of Honor by Queen Elizabeth II.
2006- Won the Copley Medal of the Royal Society award for outstanding research .
2007- Space simulation at Kennedy Space Center
2009- Given highest civilian honor award in the US: the Presidential Medal of Freedom.
2014: Hawking's life is celebrated in the Oscar-winning biopic "The Theory of Everything,"

INDIA'S POWER — India's Total Power Generation Capacity

Source Ministry of Power, GOI

As on 28.02.2018



	Thermal	Nuclear	Hydro	RES (MNRE)	Grand Total
State Sector	71473.36	0.00	29858.00	1992.17	103323.53
Private Sector	86150.3	0.00	3394.00	59352.44	148896.74
Central Sector	61932.91	6780.00	11711.42	1502.30	81926.63
Total	219556.57	6780.00	44963.42	62846.91	334146.90

Congratulations

ODD SEMESTER 2017 TOP PERFORMERS IN UNIVERSITY EXAMINATION

MADHU AGARWAL
1ST YEAR

SUMAN DUTTA
2ND YEAR

SNIGHDHA DAS
3RD YEAR

SATARUPA MUKHERJEE
4TH YEAR

ELECTROWRITE

VOL 4 ISSUE 1

STEPHEN HAWKING

A Name beyond Infinity…

NIRVESANKA ROY , 2ND YEAR, EE, SIT

Stephen William Hawking an eminent Theoretical Physicist, a

cosmologist, a Philanthropist, a visionary, and most importantly a man with unimaginable courage and unbeatable mental strength. Stephen Hawking is a name that is impossible to ignore, at least if you are a human from earth. Although, to be fair, I'm willing to bet that aliens also know a thing or two about him.

He was born on 8th of January 1942, exactly on the day of 300th anniversary of Galileo's death. He was born as some say into a family of intellects. His father Frank Hawking was at Oxford University as a medical researcher and mother Isobel Hawking, was also a student of Oxford University. It is quite strange that when he was 9 years old, his grades ranked among the worst in his class. But despite of his poor grades, both his teachers and peers seemed to understand that they had a future genius evidenced by the fact that his nickname was "Einstein". He completed his early study in St. Albans school and then on to university college, Oxford in the year of 1957.In October 1962, Stephen arrived at the Department of Applied Mathematics and Theoretical Physics (DAMTP) at the University of Cambridge to do research in cosmology. In that time there was no one interested in that field to work in but he was eager to work in that field. Later in 1965 he gained his PHD with the thesis titled "Properties of Expanding Universes", and after that he came up with numbers of thesis and formulas like Hawking Radiation, Hawking's Energy, Gibson-Hawking effect etc. But He is well-known for his work on Black Holes and 'The String Theory'.

Stephen Hawking had a rare early-onset slow progressing form of motor neuron disease also known as amyotrophic lateral sclerosis "ALS" or Lou Gehrig's disease that gradually paralyzed him over time decades. Hawking had experienced increasing clumsiness during his final years at oxford including a fall on some stairs and difficulties when rowing. The problems worsened, and his speech became slightly slurred and his family noticed the changes when he returned home for Christmas and then the medical investigations started. The diagnosis of motor neuron disease came when hawking was 21, in 1963.

The experts gave him a life expectancy of two years but this miracle man proved them wrong. He not just lived more than two years he also continued his work and research throughout his life. As he lost his ability to write and talk it was much harder for him to live and work like a normal man but where there is a will there is a way.

Hawking talked through 'The computer', using a speech generation device "SGD" or a voice output communication aid.

He wrote numerous of books and thesis. One of his famous book "A Brief History of Time" Appeared on the 'British Sunday Time' best seller list for a record breaking 237 weeks. His other famous creations are "The Grand Design", "The Universe in a Nutshell", "Georges Secret Key to the Universe". He was an atheist who truly believed that the Universe is governed by laws of nature and science. He was also a socialist and humanist. His believe was that the future of humanity is in outer space. Acknowledging the vastness of the universe he also accepted the existence of extraterrestrial life form but he also warned that their contact should be avoided.

His wife Jane was his constant source of courage, love and support. During his harsh times she never left his sight and supported him in every way possible. She even took the responsibility of raising their 3 children by herself alone.

Stephen said that their engagement gave him "something to live for". Stephen and Jane's story is a perfect example of what true love is.

But unfortunately his extraordinary life comes to an end on March 14, 2018 which is 139th anniversary of Einstein's birth and the day constant pi was discovered. He died peacefully at his home in Cambridge at an age of 76. He is buried at the Westminster abbey where his grave is located near to Sir Isaac Newton and Charles Darwin. He was always desirous to know what lies beyond the infinity maybe today he knows it or he knew it from the beginning…!?

THE ICE STUPA– A FORM OF ARTIFICIAL GLACIER

SAJAN PRADHAN , 2ND YEAR, EE, SIT

The idea behind artificial glaciers is to freeze and hold the water that keeps flowing and wasting away down the flowing and wasting away down the streams and into the rivers throughout the winter. Instead, the ice will melt in the springtime, just when the fields need watering. Our ancestors used to have a process of 'grafting glaciers' in the very high reaches of mountains. In recent years, one of senior engineers Mr. Norphel, has been working on a similar idea of water conservation.

However, since these are based on horizontal ice formation, they need very high altitude locations (above 4000m),constant maintenance and a north facing valley to shade the ice from the spring sun. Seeing these problems Mr. Norphel Sonam Wangchuk started working on new approach in which the glaciers would be free of location, frequent maintenance and shading requirements etc.

In new model, this is achieved by freezing the stream water vertically in the form of huge towers or cones of 30 to 50m height that look very similar to the local sacred mud structures called Stupa or Chorten. These ice mountains can be built right next to the village itself where the water is needed. Very little effort of investment would be needed except for laying one underground pipeline from higher point on the stream to the outskirts of the village. Normally the head difference is easily 100m over a distance of roughly one to three kilometers.

HOW IT WORKS:

The idea is very simple and needs no pumps or power. We all know that water maintains its level. Therefore water piped from 60m upstream would easily rise close to 60m up from ground when it reaches the village. The water would freeze by the time it reaches the ground and slowly form a huge cone or Ice Stupa roughly 30 to 50m high. In reality we won't need a tower structure since we can let the piped water freeze at ground level and then mount higher as the thickness of ice grows, finally reaching close to the height of the source. The idea is to conserve this tower of ice as long into the summer as possible so that it melts, it feeds the field until the glacial water melts.

MERITS OF ICE STUPA:

The conical shaped of glaciers resemble Buddhist stupas means minimum surface area with maximum volume.

Reservoirs can be constructed anywhere, even at lower altitudes.

Design does not need many labor, barring the one-time installation of pipes.

ELECTROWRITE

VOL 4 ISSUE 1

EVENTS AND ACTIVITIES

* **Awareness campaign on the eve of Diwali by EES - 18th Oct, 2017**
* **One Day Seminar on "Sustainable Energy & Energy Storage System"—3rd Nov, 2017**
* **Industrial Visit of 5th Sem - 7th Nov, 2017**
* **Training on Energy Management Introduction (1st Phase) for 4th Sem— 15th Jan,2018 to 17th Jan, 2018**
* **Training on Energy Management & Advanced (Autocad Electrical Designing) for 6th Sem (1st Phase)—18th Jan, 2018 to 20th Jan, 2018**
* **NEXT Steps' 2018 by EES- 3rd Feb, 2018**
* **National Science Day Celebration by EES—28th Feb, 2018**
* **Women's Day Celebration by EES - 8th March, 2018**
* **Alumni Talk with Mr. Amit Kumar (2013 - 2017 Batch) - 15th March, 2018**
* **One Day Seminar on "Prospects of Electrical Engineers in IT Industry " - 17th March, 2018**
* **Training on Energy Audit of 4th Sem Students (2nd Phase)—19th March,2018 to 21st March, 2018**
* **Training on AUTOCAD Electrical of 8th Sem Students - 19th March,2018 to 27th March, 2018**
* **World Water Day Celebration by EES - 22nd March, 2018**

ACHIEVEMENTS

Name of the Event	Name of the participant	Rank
Hardware Based Project Competition, TECHNOVISION 2K18	Arup Sarkar, Mainak Biswas, Bhaskar Roy	Winner
	Bedant Singh Shankar, Mrinal Chanda, Arindam Mandal, Riya Sarkar	1st Runner Up (TIE)
	Susanta Saha, Soyeb Parvez, Arghya Deep Saha	1st Runner Up (TIE)
Tennis Ball Throw (Girls), Annual Games & Sports—2018	Jalima Khatun	2nd
Shot Put (Boys), Annual Games & Sports—2018	Subhabrata Panja	1st
Singing competition, SITEX—2K18	Snigdha Chakraborty	1st
Treasure Hunt, SITEX—2K18	Binit Kumar Yadav, Akash Sarkar, Nilrudra Sarkar, Dipu Das	Winner
International Day of Girl Child	Priyanka Das	Honorary

ELECTROWRITE

VOL 4 ISSUE 1

ALUMNI SPEAKS

SWASTI ARYA
AMAZON.IN
HYDERABAD

Hello SIT,

Warm wishes from my side to each and everyone there. Hope everything is going perfect there with more increasing graphs of progress.

Here I am to tell some experience of a phase of my life with respected professors and beloved juniors from which mostly the students must be going through right now. Yes, THE JOB. most needed thing in your life after your breath when you are at the end of your B.Tech studies.

Let me share something with you people.

An year ago, we were at the place exactly where you are right now. Being a student of ELECTRICAL trade, semesters ending and looking over the job scenario. I can completely understand the stuffs going through your head every second these days.

" I should go for core jobs -> but core sectors are recruiting very less, how will I be able to make it -> Should I appear in the non technical campusings or not -> Oh, I will not be able to do this particular thing -> Will this profile suit me or not -> higher studies or jobs..... etc etc with endless ??? "

Well, on that note, I was recruited as a "CUSTOMER SERVICE ASSOCIATE" for giant e-commerce website Amazon.in.

Yes, Customer Service, BPO in most common language they say. Since job was the greatest need for me , preparations was a little unaffordable due to some personal reasons and I wasn't having any other better option than this at that time, so I decided to fly to Hyderabad and joined without any second thought here as the mentioned role in the Amazon Development Centre. The days started in the corporate world. Giant company obviously, so they have giant facilities and acceptance here. Amazing work culture, too friendly to expect. With your co-workers, team managers, senior managers. Everyone is ready to help you in their best possible ways. Its just you have to be ready to grasp things.

The hiking in salary, positions, knowledge in your work area and the quality of life depends very proportionally with the respective performance here. You perform good and you will be rewarded every month. In case your performance goes down, there are people to help and motivate you to get the things right. Its been more than 3 months here, I personally see a lot and lot of opportunities here every time.

You have to be work ful to get anything in life. Specifically, for companies like Amazon, be it L2, L3, L4.... whatever position, where ever you are you are serving customers only in different ways. Even Jeff Bezoz sitting with his cup of coffee thinks for every possible way to delight his customers and to serve them in the best possible way. So starting with the position of Customer Service should never be a feeling of shame or meaning less, in my opinion. We are here in life to achieve the greatest and live the fullest of us, for that we need to start from somewhere. The more you delay, the more you will loose the chances.

IF YOU CANT FLY, RUN. IF YOU CANT RUN, WALK. IF YOU CANT WALK,CRAWL. WHATEVER HAPPENS YOU HAVE TO KEEP MOVING FORWARD. — Martin Luther King Jr.

Its really very important to analyse yourself correctly and take decisions depending on your own conditions, requirements and potentials, only then you will get the best results for self. Analysing others and expecting the results for yourself is biggest foolishness. Never do this. Just be true to yourself, seek the best of advises you can and have faith in god, everything will fall in right place after that.

So, dearest mates, please take the decisions with full confidence and an attitude of responsibility. Appear in as many campusings you can. Do well and get hired. Get rejected and be intensely prepared to get selected with improvements the very next time.

One thought really inspires me every time, I'd love to share here : "Man ka ho to achha, man ka na ho to aur bhi acchaa"~ Mr. Harivansh Rai Bachchan. It holds very deep meaning. It gives strength to hold and praise the things you achieved till now and a sort of optimsm to achieve more which you deserve.

Amazon is really a nice place to work with fun and learning. Being Amazonion and sharing a part of the company's success is seriously a matter of proud for me.

Yet a lot more to achieve in this journey, Its just started now. There are milestones to achieve. I hope I will be able to.

ALL THE VERY BEST to every student going to appear in the campus recruitment. You will get frustrated, irritated, nervous, confident.. full of emotional attacks, just be calm, trust yourselves, prepare well and eliminate the fears while interviewing. Be confident enough to express your words in front of them. I'm very positive everyone will achieve their targets (being employed, cracking the competitive exams for government sectors or higher studies or any thing else) soon.

I'll be glad if my words really could be of your help any of the ways. Thanks for reading this long text. Its always my pleasure.

With lots of best wishes and respect for professors (miss all of them)

MS. SWASTI ARYA
BATCH: 2013- 2017
WORKING AS : CUSTOMER SERVICE ASSOCIATE- AMAZON.IN, HYDERABAD

Congratulations

Mr. Subhojit Dawn, Asst. Professor of Dept. of Electrical Engineering has been **Awarded Ph.D** by National Institute of Technology, Silchar.

PUBLICATIONS

Subhojit Dawn et *al*., 'An efficient approach for establishing the economic and operating reliability via optimal coordination of wind-PSH-solar-storage hybrid plant in highly uncertain double auction competitive power market', **IET Renewable Power Generation**, 2018**.**

Subhojit Dawn et *al*., 'An approach for efficient assessment of the performance of double auction competitive power market under variable imbalance cost due to high uncertain wind penetration', **Renewable Energy (Elsevier)**, vol. 108, pp. 230-243, 2017.

National / International Conferences:

Subhojit Dawn et *al*., 'Transmission Congestion Relief with Integration of Photovoltaic Power using Lion Optimization Algorithm', **7th International Conference on Soft Computing for Problem Solving (SocProS) (Springer), IIT Bhubaneswar,** 2017.

Subhojit Dawn et *al*., 'Maximization of Social Welfare by Enhancement of Demand Side Bidding in a Deregulated Power Market, **7th International Conference on Soft Computing for Problem Solving (SocProS) (Springer), IIT Bhubaneswar,** 2017.

Chiranjit Sain, P K Biswas, Atanu,Banerjee, Sanjeevikumar Padmanaban" An Efficient Flux Weakening Control Strategy of a Speed Controlled Permanent Magnet Synchronous Motor Drive for Light Electric Vehicle Applications"- **IEEE-CALCON Conference, December 2-3, 2017**, available at ***http://ieeexplore.ieee.org***

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 3 ISSUE 2

Vision & Mission

Vision

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty.

...In The News

Tata Motors launched the future of mass public transportation

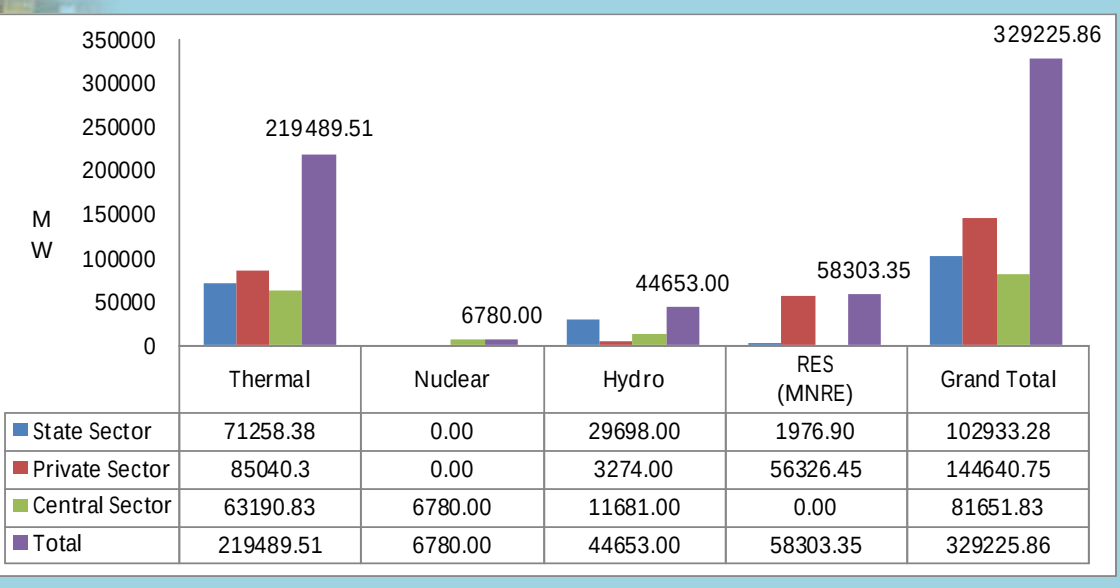
Tata Motors launched the future of mass public transportation at its Pune facility and took another step in the direction of green technology and mobility solutions. The company launched the Starbus Electric 9m, Starbus Electric 12m and the Starbus Hybrid 12m range of buses which are designed, developed, powered by alternate fuels and made in India. The company says will be a good for smart cities.

The Hydrogen Powered Starbus Fuel Cell bus is a zero-emission mass transport solution, for inter-city commute and has been developed in partnership with ISRO (Indian Space Research Organisation). Combining hydrogen gas and oxygen, the fuel cell produces electricity to power the electric motor, with water and heat as a by product. This is the first time an Indian manufacturer has ventured in this direction.

INDIA'S POWER
India's Total Power Generation Capacity

Source Ministry of Power, GOI

As on 31.08.2017



	Thermal	Nuclear	Hydro	RES (MNRE)	Grand Total
State Sector	71258.38	0.00	29698.00	1976.90	102933.28
Private Sector	85040.3	0.00	3274.00	56326.45	144640.75
Central Sector	63190.83	6780.00	11681.00	0.00	81651.83
Total	219489.51	6780.00	44653.00	58303.35	329225.86

Congratulations

EVEN SEMESTER 2017 TOP PERFORMERS IN UNIVERSITY EXAMINATION

SAYANTANI DEY

1ST YEAR

SNIGHDHA DAS

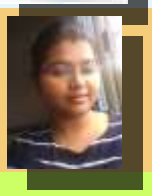
2ND YEAR

SATARUPA MUKHERJEE

3RD YEAR

NEELU KUMARI

4TH YEAR



ELECTROWRITE

VOL 3 ISSUE 2

SOCIAL MEDIA OR CONVENTIONAL MEDIA

SATARUPA MUKHERJEE ,
4TH YEAR, EE, SIT

"Necessity is the mother of Invention" this quote aptly describes a situation where people expect for a change, 'Media' is one such change in the field of Technology which has grown over the years by leaps and bounds.

A question might haunt the mind of my readers that why the word "Media" holds importance in the present context. The reason being it has the power to change, to communicate and it provides a platform of variance. "Media" in itself has come as a boon for the entire world provided it is used in a proper way.

The world is shrinking, its boundaries are slowly being invisible and the people are better connected than ever. The reason being "Social Media" which provides a platform for interaction, pooling in ideas, pouring news from all over the world, updating one's intelligent quotient and increasing interactivity and globalism within the touch of a button. Social Media has a great impact on human life. It is a platform that gives one immense freedom without any set of rules and regulations. The use of Social Media is on its hike nowadays, it has driven the world through a new surge of applications that helps in communicating and leads to growing connectivity starting from Facebook , Youtube , DailyMotion , Twitter, Tumble etc.

PROS OF SOCIAL MEDIA:

1) **World wide connectivity**: Sites like twitter, facebook, pinterest, linkedIn, Skype are some of the famous sites that are popping out over and over again to increase interactivity over the web with multiplying effects like

Seeking new jobs.
Locating Assistance.
Accessing news in real time.
Receiving support from likeminded people.

In many ways these connectivity helps us in building innate relationships with the world as a whole just like we develop our relations with our family members.

2) **Commonality of Interest**: Social Media is a media which does not force an individual to go beyond the interests of an individual for example if one is a book lover, a chess aficionado or a game lover one can interact with those who share the same interests.

3) **Real Time Information Sharing**: Nowadays we find that each and every individual prefers to navigate through the web pages for fulfilling one's own demands. These may include teachers-students studying online through various sites then patients searching for some of the best doctors worldwide and so on.

4) **Promotes Electronic Commerce:** In modern times people seem to be least interested to go to the markets for shopping when sites like "Flipkart", "Amazon", "Shopclues" and "SnapDeal" can serve their purpose within the click of the button. Thus people are giving a shift from the conventional media that includes pamphlets, brochures or posters to various advertising sites to increase their business.

5) **Increased news cycle speed**: Recent reports states that "Twitter" is one of the main sites for breaking news. This statement makes it evident that we no need to wait for one long day to know what is happening globally as we have electronic papers coming up that has led a shift from the normal black and white papers. This has also led to the development of an instantaneous news cycle as everything from terrorist attacks to local area news are available on the social media creating awareness amidst the masses.

CONS OF SOCIAL MEDIA:

1**) Backlash**: This happens when we are not aware of our usage of freedom of speech which includes posting of some highly offensive views in the social media that might hurt the religious sentiments of a religion creating a long term impact on the minds of an individual. So an individual must keep an eye on his or her speech because words once spoken cannot be taken back.

2) **Diminishing privacy**: Certain networking sites require constant upgradation in their security settings which makes it difficult for the users to enable their settings for appropriate privacy.

3**) Cybercrimes or Bullying**: One of the major disadvantage of social media. Providing relevant details of an individual can pose a major threat to an individual like hacking an account, creating false identity which might harm an individual.

4) **Isolation**: Social media creates complete isolation from ones surroundings even though it provides a platform for global communication.

Seeing the pros and cons of social media, it depends on us where we drive the technology. But yes Social Media definitely has an upper hand over conventional media and our drive for "Digital India" will be successful if we have Social Media in our pockets and not the Conventional Media.

AISHIKA NANDY
3RD YEAR EE, SIT

ELECTROWRITE

VOL 3 ISSUE 2

EVENTS & ACTIVITIES:

SAYONARA – 2017—31.05.2017

SEMINAR ON BANKING SUPPORT FOR THE BUDDING ENTREPRENEURS - 03.05.2017

TRAINING ON INTERNET OF THINGS AND ITS BASIC APPLICATIONS (FOR 4TH YEAR) - 03.07.2017-15.07.2017

TRAINING ON INTRODUCTION TO ARDUINO (FOR 3RD YEAR) - 18.072017-22.07.2017

FINISHING SCHOOL PROGRAM (FOR 4TH YEAR) - 19.07.2017-22.07.2017 & 24.07.2017-26.07.2017

TRAINING ON HTML, JAVASCRIPT, CSS, BOOTSTRAP (FOR 2ND YEAR) - 31.07.2017-04.08.2017

ONE DAY SEMINAR ON WHO WANTS TO BE AN ENTREPRENEUR - 11.08.2017

SEMINAR ON STARTING A CAREER IN ROS ROBOTICS AND MACHINE LEARNING - 17.08.2017

WORKSHOP ON DESIGN & FABRICATION OF CIRCUITS (FOR 3RD YEAR) - 23.08.2017-24.08.2017

FRESHERS INDUCTION PROGRAM – 26.07.2017

CLENLINESS DRIVE – 10.08.2017

CELEBRATION OF AKSHAY URJA DIWAS – 19.08.2017

CELEBRATION OF TEACHERS DAY – 05.09.2017

PUBLICATION OF WALL MAGAZINE "*GEENUS* "– 05.09.2017

FRESHERS WELCOME – 08.09.2017

PARENT - TEACHER MEET – 15.09.2017

CELEBRATION OF ENGINEERS DAY – 15.09.2017

ELECTROWRITE

VOL 3 ISSUE 2

ALUMNI SPEAKS

PRIYANKA SHAW

Research group PLASMANT
Department of Applied Engineering
University of Antwerp, Belgium
Email: sweety05.shw@gmail.com

Myself Priyanka Shaw, I did my master in Bioelectrical physics from one of the prestigious university, Kwangwoon university Seoul, south Korea. Recently I got the chance for the doctoral study in the field of applied engineering at world renowned university of Antwerp, Belgium that is high repertoire of denigratory gestures for me. However, this all possible due to best effort and supervision which I got from the fine learned professors during my Bachelor study.

Therefore, I am so energized to share few words related with ours departments and faculties.

During my bachelor's course in S.I.T, I found that faculty are very much keen knowledge and command his own subjects as well as such a magnificent character that is impressed upon us that we were about to become trustees of our society and that we would graduate not just with opportunity but with responsibility that would stay with us a lifetime. This is the reason, I could not unmemorable my department, faculties and colleagues belongs to S.I.T.

Since, I persuade my master in engineering from abroad after bachelor in engineering from S.I.T India. Comparable, I had been felt even ours departments equips with world class facilities, still there is discrepancy in student practical skill as well as self-representation that's we are lack form the abroad university and IITs.

As per my experience, I would like to propose some of few point to make a more betterment of education & quality of students in S.I.T, especially department of electrical engineering. Such as,all the internals exams should be replaced by small surprise test which would help to maintain the attendance in the class. Every month seminars should be deliver by experts or alumni which belongs to particular related area. Laboratory assistant should attained the industrial training together with the students for advance experimental acquisition, indeed they could aware about latest tool and techniques. Departments or college should motivate the student by giving some reward, not only on the basis of grade or marks, it should be on the basis of overall performance.

Eventually, I would like to say that, I am very satisfied with my professional and personal life and most of the credits goes to S.I.T faculty and their continuous support.

Thank you
Mrs. Priyanka Shaw
(2010-2014 batch)
Electrical Engineering Department, SIT

Q&A — Your questions answered

State the difference between generator and alternator.

Generator and alternator are two devices, which converts mechanical energy into electrical energy. Both have the same principle of electromagnetic induction, the only difference is that their construction. Generator persists stationary magnetic field and rotating conductor which rolls on the armature with slip rings and brushes riding against each other, hence it converts the induced emf into dc current for external load whereas an alternator has a stationary armature and rotating magnetic field for high voltages but for low voltage output rotating armature and stationary magnetic field is used

Why star delta starter is preferred with induction motor?

Star delta starter is preferred with induction motor due to following reasons:

- Starting current is reduced 3-4 times of the direct current due to which voltage drops and hence it causes less losses.
- Star delta starter circuit comes in circuit first during starting of motor, which reduces voltage 3 times, that is why current also reduces up to 3 times and hence less motor burning is caused.
- In addition, starting torque is increased and it prevents the damage of motor winding.

Name the types of motors used in vacuum cleaners, phonographic appliances, vending machines, refrigerators, rolling mills, lathes, power factor improvement.

- Vacuum cleaners- Universal motor.
- Phonographic appliances – Hysteresis motor.
- Vending machines – Shaded pole motor.
- Refrigerators – Capacitor split phase motors.
- Rolling mills – Cumulative motors.
- Lathes – DC shunt motors.
- Power factor improvement – Synchronous motors.

Send your queries to newsletter.ee.sit@gmail.com

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 3 ISSUE 1

Vision & Mission

Vision

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty.

...In The News

Researchers find a new way to convert heat into electricity by developing a new thermoelectric material

Power plants may be able to reclaim more power from heat waste in the future.

When we think about ways to make existing power plants more efficient, we typically look at waste heat. Capturing and using this heat to generate electricity which can save money and reduce fossil fuel consumption.
A team of researchers from the University of Houston, Cambridge, Morgan State University and other institutions have created a new thermoelectric material that offers almost more than twice as much power output than the average power conversion compound. The thermoelectric are measured by either their power efficiency or their power factor. Most materials are considered "good" if they have a power factor of about 40. The group's new material -- a compound made up of niobium, iron, antimony, niobium and titanium -- boasts a power factor of 106.

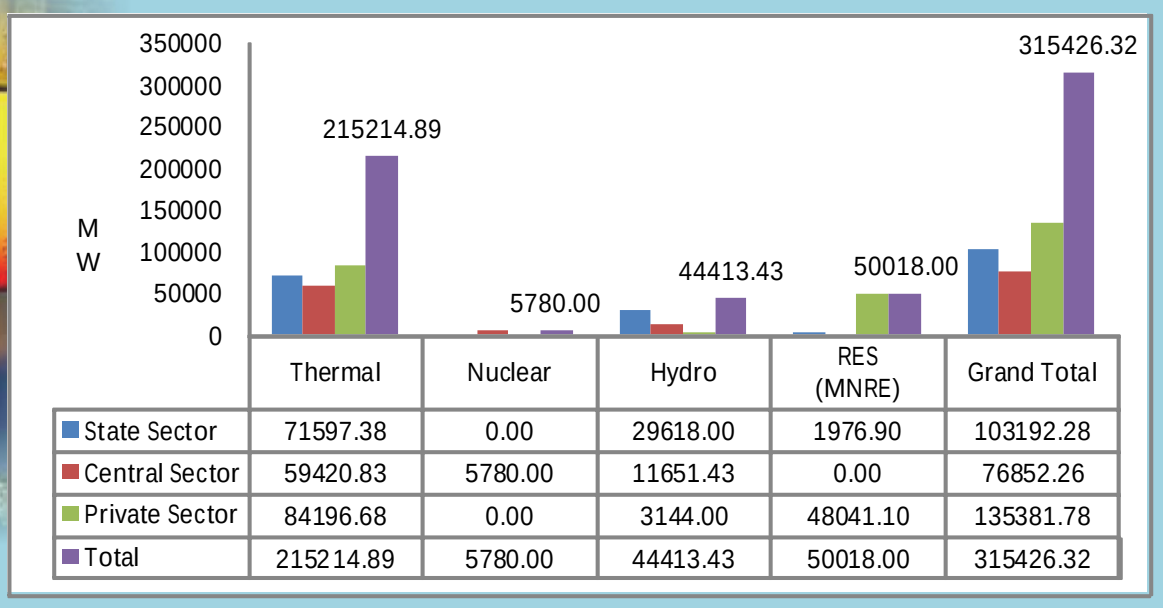
This means the new material can output 22 watts per square centimeter, as oppose to the 5 to 6 watt output that's typically produced from thermoelectric heat reclamation materials. Ironically, this doesn't mean it's more efficient, but it does mean that the new compound could be a better solution for large-scale heat waste sources like coal plants. That could both increase the profitability of a plant *and* help slow climate change by reducing emissions.

Source : www.engadget.com

INDIA'S POWER — India's Total Power Generation Capacity

Source Ministry of Power, GOI

As on 28.02.2017



	Thermal	Nuclear	Hydro	RES (MNRE)	Grand Total
State Sector	71597.38	0.00	29618.00	1976.90	103192.28
Central Sector	59420.83	5780.00	11651.43	0.00	76852.26
Private Sector	84196.68	0.00	3144.00	48041.10	135381.78
Total	215214.89	5780.00	44413.43	50018.00	315426.32

Congratulations

ODD SEMESTER 2016 TOP PERFORMERS IN UNIVERSITY EXAMINATION

MR. PROJOY ROY, 2ND YEAR

MS. SATARUPA MUKHERJEE, 3RD YEAR

MS. KABITA GUPTA, 4TH YEAR

ELECTROWRITE

VOL 3 ISSUE 1

HV TRANSMISSION LINES EFFECTS ON HUMAN BEINGS

SUBRATA KUMAR KAPAT, B. E.E, M.TECH,
CHIEF ENGINEER,M.N.DASTUR,KOLKATA

The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the live beings and the nearby objects located at ground surfaces. The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects.

The Electric and Magnetic fields:

- **EMF (Electro Magnetic Field)** is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- **Electric fields** : When a conductor carries current due to voltage so they are present in electrical electromotive force.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- **Magnetic fields** result from the motion of the electric charge or current, such as when there is current flowing through a power line .
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- Both fields are invisible and perfectly silent.
- Extremely high voltages in EHV lines cause electrostatic effects, where as short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

EMF Effects Human beings:

- The human body is a composed of some biological materials like blood (presence of iron particle), bone, brain, lungs, muscle, skin etc. The permeability of human body is equals to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force.
- The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.
- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field stimulates some tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of live beings, having a resistance of about 2000 ohms. Body resistance of a general human body is 5000 Ω. A person touches a any electrofied object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from the electrofied affect the brain and heart. 9mA current flow for 3secs may fatal for human.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines indicated in IS 5613(4parts).

According to research and publications put out by the World Health Organization (WHO), EMF such as those from power lines, can also cause:

Short term Health Problem

(a) Headaches. (b) Fatigue (c) Anxiety (d) Insomnia (e) Prickling and/or burning skin (f) Rashes (g) Muscle pain

Long term Health Problem

(a) Risk of damaging DNA. (b) Risk of Cancer (c) Risk of Leukemia (d) Risk of Neurodegenerative disease (e) Risk of Miscarriage

Electric fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart as per the following current density chart:

In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100μT in public areas.

Surface Current Density(mA/m^2)	Health Effect
<1	Absence of any established effects
1 To 10	Minor biological effects
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation

ELECTROWRITE

VOL 3 ISSUE 1

EVENTS & ACTIVITIES:

Parents teacher meeting of 4th semester students of EE Department—24.03.2017

Interview Skills and and Industry orientation Program—23.03.2017

Hon'ble Consul General of France Mr.Damien Syed addressed the students of SIT on prospect & facilities for higher studies at France. - 09.03.2017



Workshop on ENTREPRENEURSHIP ORIENTATION—03.03.2017

"Days with Books"2017 - 16.02.2017 to 18.02.2017

Communication and Administration Workshop—07.02.2017


Interactive session with Mr.Robert Jackson, Director Security of Australian Federal Police. Ms.Fran Raymond,CFO of Australian Army.— 04.01.2017


TECHNOVISION 2017—23.03.207 to 24.03.2017

The annual intra-college technical exhibition.

Industrial training at L & T switchgear , Kolkata - 06.03.2017 to 08.03.2017

Orientation programme on "Outcome Based Education" for the staff members of EE - 18.02.2017

Remedial coaching classes for reserved category weak students organized by MAKAUT - 08.02.2017

Workshop on Fabrication of Potential Transformer—19.12.2016 to 21.12.2016

Live Broadcast of Smart India Hackathon 2017 by Shri Prakash Javadekar, Hon'ble Union Minister for HRD, Govt. Of India— 18.01.2017

Awareness on usage of Earthen Diyas instead of electric lights during Diwali –an initiative by EES– 18.10.2017

ELECTROWRITE

VOL 3 ISSUE 1

ALUMNI SPEAKS

Present Role-
Section Head & team lead of Electrical design engineering team of L&T Engineering Design & Research Center Commercial Building and Airports division Kolkata

Functional Area –
Detail engineering of Electrical power distribution system for Airports, Commercial Buildings, Hospitals starting from Substation to further distribution for the projects which involves sizing of equipment, design calculations and simulation through different software .

Some experience want to share
I can highlight some of the important criteria which core sector industry normally seeks from a candidate.
Very basic knowledge and the concept about the Electrical engineering and power distribution system.
Normally it depends on the companies profile where you are giving interview. Like if you are giving interview for a company which is manufacturing industry they will ask according to the requirement like traction, DC machines , starters , earthing , AC and DC motors. If it is a company who is in transmission and distribution business they may ask Voltage levels , conductor sizing ,Earthing, wave traps , insulator ect.Other sector like power /construction /substation they may ask for distribution schematic, transformer sizing, load calculation. APFC sizing calculation, Earthing, starters , cables and conductor ect.
Basic fundamental of protection relay like overcurrent relay, overvoltage and under voltage relay, earth fault protection relay, normally add some value. You can refer Satnam & Gupta . So lets have study on type of business company is doing where you are going for interview.
But if anyone is attending off campus or on campus interview like major companies like TCE, Jacobs, Siemens, ABB , L&T normally basic shortlisting is done by written examination. In this case last few years question papers , normally available in different website may help to get the idea of questions. However the answer shall be validated by teacher .Moreover in this case as per aforesaid statement preparation by type of business is quite difficult since all this companies are doing all type of business.

Some **major and general calculation** like load calculation, transformer sizing calculation, Alternator sizing calculation , short circuit , voltage drop , power factor correction , battery sizing , earthing calculation ,illumination calculation, lightning protection calculation ect; Conductor sizing calculation are some of the important calculation based on which any Electrical industry works.
Presentation skills, Communication skills and Confidence (not over confidence) is most important part to face an interview particularly for fresher because 90% case interviewer start the interview asking question " Please introduce yourself with us". And it the opportunity for the interviewee to break the ice .Most of the time interviewer make their mind of selection based on the first question. It shall be polite and prompt maximum 8 lines.
Software like E-TAP normally adds to much value in any CV since most of the design sector uses it and expertise available in this software is very very less.
Dia-Lux is another software(It is freely available) which plays a major role in lighting industry. All design companies use it as their basic design tool .It is a very very easy software but added some vale in CV.
Core sector is suffering from a huge scarcity of good manpower and they gives values to the people who are in this sector. Starting may be difficult for fresher but journey becomes smooth and valuable as per experience once you start gaining experience.

Suman Bhattacharya
Electrical Engineering-2002-2006 Email: sbhattacharya@lntecc.com

Q&A — Your questions answered

What is the difference between MCB & MCCB, Where it can be used?

MCB is miniature circuit breaker which is thermal operated and use for short circuit protection in small current rating circuit. Normally it is used where normal current is less than 100A.

MCCB is moulded case circuit breaker and is thermal operated for over load current and magnetic operation for instant trip in short circuit condition. Under voltage and under frequency may be inbuilt. Normally it is used where normal current is more than 100A.

Which type of A.C motor is used in the fan?

It is Single Phase squirrel cage induction motor and are capacitor start capacitor run.

What is the difference between power transformers & distribution transformers?

Distribution Transformers are designed for a maximum efficiency at 50% of load. Whereas power transformers are designed to deliver max efficiency ay 90% and above loads.

The distribution transformers have low impedance so as to have a better regulation whereas power transformers have higher impedance so as to limit the SC current.

Power transformers are used to step up voltages from 11 KV which is the generating voltage to 132 or whatever will be the transmission voltage levels. Power transformers are having Star-Delta connection. It will be located at power generating stations. Distribution transformers are used to step down voltages from transformer levels to 11 KV/415 V. Will be having Delta-Star. It will be located in substations near load centers.

Send your queries to newsletter.ee.sit@gmail.com

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

VOL 2 ISSUE 2

DEPARTMENT MISSION & VISION

Vision

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry by the year 2020 in the region.

Mission

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty

Graphene solar panels harvest energy from rain

Rain is normally a solar energy cell's worst nightmare, but a team of Chinese scientists could make it a tremendous ally. They've developed a solar cell with an atom-thick graphene layer that harvests energy from raindrops, making it useful even on the gloomiest days. Water actually sticks to the graphene, creating a sort of natural capacitor -- the sharp difference in energy between the graphene's electrons and the water's ions produces electricity.

The catch is that the current technology isn't all that efficient. It only converts about 6.5 percent of the energy it gets, which pales in comparison to the 22 percent you see among the world's better solar panels. If the creators can improve the performance of this graphene-coated cell, though, they could have a dream solution on their hands -- you wouldn't have to live in a consistently sunny part of the world to reduce your dependency on conventional power.

Source: Science News Journal

TECH NEWS

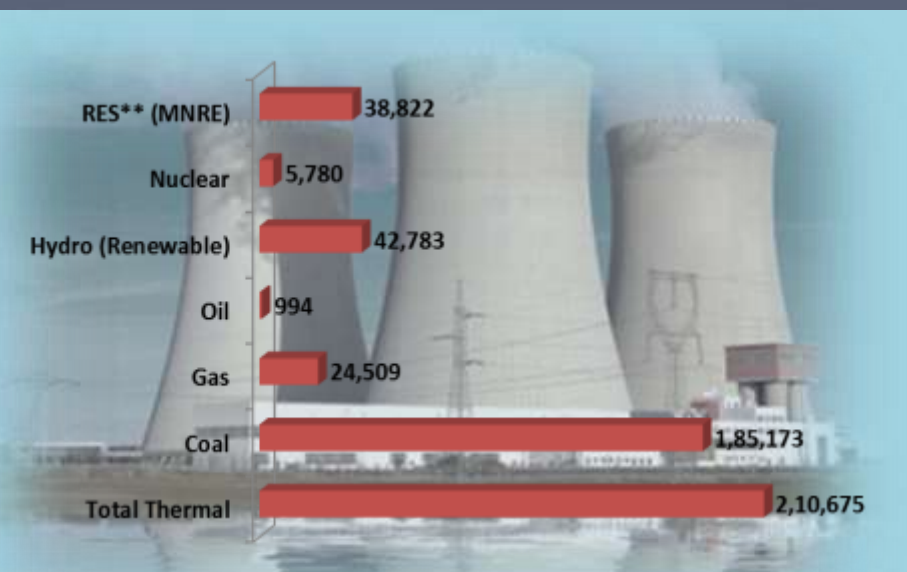
INDIA'S POWER

India's Total Power Generation Capacity

as on 31.03.2016

Sector	MW	%age
State Sector	1,01,761	34.1
Central Sector	76,297	25.6
Private Sector	1,20,003	40.3
Total	**2,98,060**	

Source Ministry of Power, GOI



Renewable Energy Sources(RES) include SHP, BG, BP, U&I and Wind Energy
SHP= Small Hydro Project ,BG= Biomass Gasifier ,BP= Biomass Power,
U & I=Urban & Industrial Waste Power, RES=Renewable Energy Sources

ODD SEMESTER 2015 TOP PERFORMERS IN UNIVERSITY EXAMINATION

⇒ 2ND YEAR, 1ST SEMESTER	ANKITA SAHA	ROLL— 11901614006	SGPA—8.74
⇒ 3RD YEAR, 1ST SEMESTER	AKASH KIRODIWAL	ROLL—11901613007	SGPA—9.14
⇒ 4TH YEAR, 1ST SEMESTER	NIKITA SHREYA	ROLL—11901612060	SGPA—8.63

CONGRATULATIONS

ELECTROWRITE

VOL 2 ISSUE 2

ADVANTAGES OF OUTCOMES BASED EDUCATION SYSTEMS

DR. R. N. MATHUR, FOUNDER PRESIDENT, EQUATE, NEW DELHI & FORMER ADVISOR, NPIU, MHRD, GOVT. OF INDIA

Outcomes based education systems (OBE) is a process that involves the restructuring of curriculum, assessment and reporting practices in education to reflect the achievement of high order learning and mastery rather than the accumulation of course credits. Thus the primary objective of OBE is to facilitate desired changes within the learners, by increasing knowledge, developing skills and/or positively influencing attitudes, values and judgment.

OBE embodies the idea that the best way to learn is to first determine what needs to be achieved. Once the end has been determined the strategies, processes, techniques, and other ways and means can be put into place to achieve the goal.

If courses are planned with an outcomes-based approach the initial task is

To identify desired outcomes.

When best practice is employed, the starting point for determining the desired outcomes of programmes and courses is student needs.

What knowledge, skills and capabilities do students need on graduation?

In professional programmes, this implies that the students need to graduate as competent professionals in the field. Only theories are not sufficient – the students need to be able to put theory into practice.

Course planning needs to look beyond the end of a course to consider lifelong learning needs. Most commonly this is by ensuring that courses play a part in developing the intellectual capabilities needed for lifelong learning.

OBE Philosophy

OBE can be regarded as a philosophy of education .Within OBE there are a certain set of beliefs and assumptions about ***learning, teaching and the systemic structures*** within which activities take place. There are two basic types of outcome.

Traditional/Transactional (content based) Education

The first includes performance indicators.(Measured in terms of tests results, completion rates, post course employment, and so forth)

Transformational (outcomes based) learning systems

The second is less tangible and usually expressed in terms of what the learners know & are able to do as a result of their education. (It stresses long term, cross-curricular outcomes which relate to future life roles of the learner such as being a productive worker, a responsible citizen or parent).

Content Based Learning Versus Outcomes Based Learning

Content Based Learning System	Outcomes Based Learning System
Passive students	Active learners
Assessment process – exam & grade driven	Continuous assessment
Rote learning	Critical thinking, reasoning, reflection & action
Content based/broken into subjects	Integration knowledge, learning relevant/ connected real life situations
Textbook/worksheet focused & teacher centred	Learner centred & educator/ facilitator use group/ teamwork
See syllabus as rigid & non negotiable	Learning programmes seen as guides that allow educators to be innovative & creative in designing programmes/ activities
Teachers/trainers responsible for learning - motivated by personality of teacher	Learners take responsibility for their learning, learners motivated by constant feedback/ affirmation of worth
Emphasis what teacher hopes to achieve	Emphasis outcomes – what learner becomes & understands
Content placed in rigid time frames	Flexible time frames - learners work at own pace
Stay in single learning institution until complete	Learners can gather credits different institutions until achieve Qualification
Previous knowledge & experience in learning field ignored – Each time **attends** whole course	Recognition of prior learning: after pre-assessment, learners credited outcomes demonstrated or transfer credits elsewhere

OBE Principles

Four principles guide the transformational OBE approach, taken together they strengthen the conditions for both learner and teacher success:.

OBE Principles	Explanation	Application to practice
Clarity of focus	♦ Focus on what want learners be able to do successfully	♦ Help learners develop competencies ♦ Enable predetermined significant outcomes ♦ Clarify short & long term learning intentions ♦ Focus assessments on significant outcomes
Design down	♦ Begin curriculum design with a clear definition of the significant learning that learners are to achieve by the end of their formal education	♦ Develop systematic education curricula ♦ Trace back from desired end results ♦ Identity "learning building blocks" ♦ Link planning, teaching & assessment decisions ♦ to significant learner outcomes
High expectations	♦ Establish high, challenging performance standards	♦ Engage deeply with issues are learning ♦ Push beyond where normally have gone
Expanded opportunities	♦ Do not learn same thing in same way in same time	♦ Provide multiple learning opportunities ♦ Matching learner's needs with teaching techniques

OBE Purpose

The decision of what and whether the learners learn is more important than when it happens and through what means (how) they learn it.

Summary

Precisely we can say the focus of education has shifted from the educator to learner however this shift requires change within the educational system in order to facilitate learning.

ELECTROWRITE

VOL 2 ISSUE 2

GLOBAL DIMMING

DR. ASHUTOSH CHATTOPADHYAY,

PROFESSOR, DEPARTMENT OF ELECTRICAL ENGINEERING

Global dimming is the gradual reduction in the amount of global direct irradiance at the Earth's surface that was observed for several decades after the start of systematic measurements in the 1950s. Tiny particles that are released when fuels are burned cause global dimming. Like global warming, this process may change rainfall patterns around the world. The amount of sunlight reaching the Earth's surface has decreased by about 2 per cent every ten years, because more sunlight is being reflected back into space.

We are all seeing rather less of the Sun. Scientists looking at five decades of sunlight measurements have reached the disturbing conclusion that the amount of solar energy reaching the Earth's surface has been gradually falling. Paradoxically, the decline in sunlight may mean that global warming is a far greater threat to society than previously thought.

The effect was first spotted by Gerry Stanhill, an English scientist working in Israel. Comparing Israeli sunlight records from the 1950s with current ones, Stanhill was astonished to find a large fall in solar radiation. "There was a staggering 22% drop in the sunlight, and that really amazed me," he says.

Intrigued, he searched out records from all around the world, and found the same story almost everywhere he looked, with sunlight falling by 10% over the USA, nearly 30% in parts of the former Soviet Union, and even by 16% in parts of the British Isles. Although the effect varied greatly from place to place, overall the decline amounted to 1-2% globally per decade between the 1950s and the 1990s.

Gerry called the phenomenon global dimming, but his research, published in 2001, met with a sceptical response from other scientists. It was only recently, when his conclusions were confirmed by Australian scientists using a completely different method to estimate solar radiation, that climate scientists at last woke up to the reality of global dimming.

Dimming appears to be caused by air pollution. Burning coal, oil and wood, whether in cars, power stations or cooking fires, produces not only invisible carbon dioxide (the principal greenhouse gas responsible for global warming) but also tiny airborne particles of soot, ash, sulphur compounds and other pollutants.

This visible air pollution reflects sunlight back into space, preventing it reaching the surface. But the pollution also changes the optical properties of clouds. Because the particles seed the formation of water droplets, polluted clouds contain a larger number of droplets than unpolluted clouds. Recent research shows that this makes them more reflective than they would otherwise be, again reflecting the Sun's rays back into space.

Scientists are now worried that dimming, by shielding the oceans from the full power of the Sun, may be disrupting the pattern of the world's rainfall. There are suggestions that dimming was behind the droughts in sub-Saharan Africa which claimed hundreds of thousands of lives in the 1970s and 1980s. There are disturbing hints the same thing may be happening today in Asia, home to half the world's population. "My main concern is global dimming is also having a detrimental impact on the Asian monsoon," says Prof Veerhabhadran Ramanathan, one of the world's leading climate scientists. "We are talking about billions of people."

But perhaps the most alarming aspect of global dimming is that it may have led scientists to underestimate the true power of the greenhouse effect. They know how much extra energy is being trapped in the Earth's atmosphere by the extra carbon dioxide (CO_2) we have placed there. What has been surprising is that this extra energy has so far resulted in a temperature rise of just 0.6°C.

This has led many scientists to conclude that the present-day climate is less sensitive to the effects of carbon dioxide than it was, say, during the ice age, when a similar rise in CO_2 led to a temperature rise of 6°C. But it now appears the warming from greenhouse gases has been offset by a strong cooling effect from dimming - in effect two of our pollutants have been cancelling each other out. This means that the climate may in fact be more sensitive to the greenhouse effect than thought.

If so, then this is bad news, according to Dr Peter Cox, one of the world's leading climate modellers. As things stand, CO_2 levels are projected to rise strongly over coming decades, whereas there are encouraging signs that particle pollution is at last being brought under control. "We're going to be in a situation, unless we act, where the cooling pollutant is dropping off while the warming pollutant is going up. That means we'll get reduced cooling and increased heating at the same time and that's a problem for us," says Cox.

Even the most pessimistic forecasts of global warming may now have to be drastically revised upwards. That means a temperature rise of 10°C by 2100 could be on the cards, giving the UK a climate like that of North Africa, and rendering many parts of the world uninhabitable. That is unless we act urgently to curb our emissions of greenhouse gases.

Inauguration of GENEEUS—
Wall-magazine published by the students of EE

We are pleased to announce that the Wall-magazine published by the students of EE Department was inaugurated by Dr. J. Jhampati, Director, SIT in august presence of Dr. D. C. Roy, Registrar, SIT, Mr. J. B. Basu, HOD, EE and all the Faculty & staff members of EE and students of EE on 20.02.2016. While speaking on the occasion Dr. Jhampati appreciated the good work by the students and advised to carry forward the initiative.

ELECTROWRITE

VOL 2 ISSUE 2

ALUMNI SPEAKS

I graduated in the year 2008 in Electrical Engineering, and was placed with Cognizant Technology Solutions through the campus placement process. Back then, placements used to happen during the pre-final year, and like always it was competitive and difficult for students from non-IT and non-CSE background to get through one of the company. As an Electrical Engineering student, we (I along with my department mates) always used to wonder and ask our professors about opportunities in electrical companies. Those days there weren't many electrical companies that used to come for campus placements, but I can tell you those who were really passionate about working in Electrical companies are all working in reputed Electrical companies, so if you think that getting an opportunity in an Electrical company isn't possible, then you have a misconception! I know many from our college who are working in reputed electrical companies in various parts of the world!

During the one of last interaction that I had during college days with JB Sir and MRC sir they gave me a couple of advices i.e. to be in touch with studies and always look for opportunities in the field which I had specialized i.e. Electrical Engineering. I tried to follow the first suggestion, but working in an IT company, being in touch with Electrical Engineering subjects seemed difficult.

Today, with almost 7 years of work experience, I have come very close to realizing one of my dreams i.e. to pursue an MBA from one of the top business school of the world. As of today, I have four colleges to choose from and all the colleges lie amongst the top 50 business schools of the world! It has not been easy, and there is still a lot left to do before I achieve my goal.

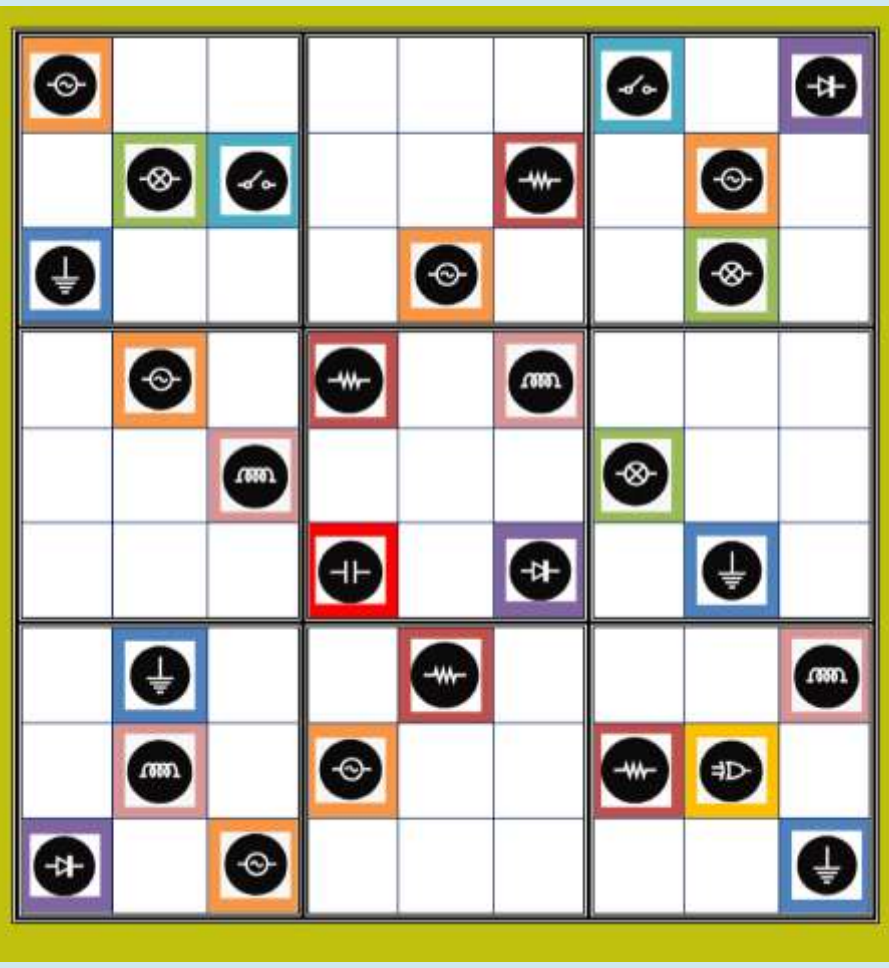
For students who intend to opt for higher studies, there are plenty of opportunities available in and out of India, you just need to be pro-active and dedicated in whatever you do. There are plenty of scholarships available that can fund your education, stipends to support your living and other additional costs. However, it is all competitive, but achievable. If your goals are clear, it would take just a few years before you realize your dream. The only reason why I am writing this is because I want SITians to do well, and take our college to a different level.

Finally, fun should never take a backseat during college days, you should enjoy each and every moment of your college days. In the beginning, 4 years seems like a long time, but these 4 years can pave way for the rest of your life, so make the most of it. For any help, please do not hesitate to contact me. All the best for your future.

Arindam Ghosh
Electrical Engineering-2004-2008
Email: army.sit@gmail.com

SUDOKU

Solution will be published in the next issue



Industry-Institute initiative—Guest lecture on "Recent trend in power generation and transmission and its Future prospects in India" *on 2nd April, 2016*

As per satisfying the increasing demand of electricity, now –a –days how much the power system became complicated and modified in practical field due to that purpose the department organised a guest lecture on ***"Recent trend in power generation and transmission and its Future prospects in India"***.
The pogram started with a **welcome speech by Mr. Pralay Roy, Asst. Prof. Of EE Dept department** & coordinator of Seminar orgasing Committee followed by presentation from **Mr. Subrata Kumar Kapat,Chief Engineer,M.N.Dastur,Kolkata.** Mr. Subrata Kumar Kapat shared his view mainly on the moderm designing aspects of distribution and substation systems. He also present the indoor and outdoor desigin of substation according to the requirment and substation size in details by taking various kind of electrical arrangements followed by the proper switchgear systems.He also advice the students to be more aware and sincere in each and every moment thus they can avoid any kind of dangerous unexpected accidents or discontineuity of power flow related with faulty conditions at the time of their practical field work for preparing the students more fit for power based industries.

Editorial Board

3rd year student Interaction with Alumni

ELECTROWRITE

A Newsletter From Dept. of Electrical Engineering, S.I.T

Vol. 2 , Issue I

Message from the Desk of Mentor, EE, SIT.
Mr.D.Bhattacharjee

It has been a great pleasure and satisfaction for Electrical Engineering Department to bring out the volume 2, issue -I of the departmental news letter. A news letter is like a mirror which reflects a clear picture of all sorts of activities undertaken by the department and develops writing skills among students in particular.

We are actually in the midst of explosion of technology and volume 2, issue -I of newsletter will enrich the readers by sharing new ideas, thoughts and information regarding up gradation of modern science and technology and the interesting facts going around the world. It would inspire all of us for a new beginning by providing a common platform for exposing the merits, achievements of the department, be it academic or non academic, training and placement activities, different types of co-curricular activities being conducted by the department. This new volume of news letter has been launched to give an opportunity to the students to craft and showcase their knowledge and skills and focuses on the technical advancements and achievements in the field of Electrical Engineering.

I congratulate our H.O.D and the entire team for their dedication in publishing this new volume of news letter and I extend my best wishes also to all the faculties and staff members and also students

Message from the Desk of Editorial Board.

"Department of Electrical Engineering - A Legacy of Learning"

-Editorial Board

On behalf of Department of Electrical Engineering, S.I.T., We are happy to come up with the next issue of the newsletter of the department **"ELECTROWRITE".**

The purpose of this technical newsletter has been to allow a platform to grow awareness about the major highlights of the department and also about the technical advancements in the field of Electrical Engineering.

We convey our heartfelt thanks to the teachers and students of the department for their continuous support in this journey. Special credit goes to our beloved students of 2nd year as a whole and Arkajit Fouzder and Abhijit Das in particular for publishing the volume 2, issue I of the newsletter.

We take the opportunity here to announce that our students are coming up with a wall magazine shortly. We expect more students to participate actively in this process. If we work together as a team then this effort can yield great result in future. We hope that this issue will be informative to our readers.

Any suggestions for betterment towards this will be highly appreciated. Please send suggestions and comments to newsletter.ee.sit@gmail.com .

DEPT. MISSION & VISION

Vision of the Department

To emerge as a leading Department of Electrical Engineering that caters to the latest needs of power sector, electrical & allied industry by the year 2020 in the region.

Mission of the Department

To evolve as an innovative & globally competent Electrical Engineering department that contributes to the socio - economic growth of region by utilizing the advancement in Electrical Engineering by providing conducive learning and interactive environment to students and faculty

Did You know

Satyndra Nath Bose (01.01.1894 - 04.02.1974)

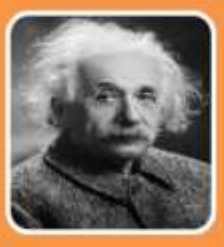
- One of the teachers in secondary school remraked that in his mathematics paper Satyen deserved 110 out of 100 marks.
- Rabindranath Tagore dedicated his only book on science, Visva-Parichay, to this eminent scientist.
- Bose was Member of the Rajya Sabha, Chancellor of Viswa Bharati University and also Govt. of India appointed him as natinal professor.
- Bose received a Bachelor of Science in mixed mathematics in 1913 from Presidency College and a Master of Science in the same subject in 1915 from Calcutta University. He received such high scores on the exams for each degree that not only was he in first standing, but, for the latter, he even created a new record in the annals of the University of Calcutta, which has yet to be surpassed.

Dmitri Mendeleev (08.02.1834 - 02.02.1907)

- In the periodic table, The Element 101 Md (mendelevium) was named after him.
- Dmitri Mendeleev was known to have long hair and a long beard. He would trim his hair once every year.
- There is a crater in the moon named after Mendeleev.
- In the center of the Saint Petersburg University their is a memorial named after him.
- One of the founding fathers of Russian Chemical Society was Dmitri Mendeleev. Through this organization, all of scientists living in US and Europe could communicate each other.
- There are many other disciplines that Mendeleev mastered when he was alive. You are wrong if you think that he is only good in the branch of chemical technology. He was good in physics, chemistry, and economy.
- Many scientists lay the research on their own data collection. It seems that Mendeleev had different approach when he conducted a research. He made contact with other scientists around the globe about the data that they had collected.

Galileo Galilei (15.02.1564 - 08.01.1642)

- Galileo was an accomplished lutenist, learning from his father, Vincenzo Galilei, who was a composer and music theorist.
- While Galileo firmly believed in Copernicus's theory that the Earth was not the center of the universe, he did not believe in his Kepler's theory that the moon caused the tides.
- In the last year of his life, when he was totally blind, Galileo designed an escapement mechanism for a pendulum clock called Galileo's escapement.
- The University of Pisa hired Galileo as a professor of mathematics, but because he was difficult to work with and inappropriate with his students, the university chose not to renew his contract.
- Galileo enrolled to do a medical degree at the University of Pisa but never finished, instead choosing to study mathematics.
- A hundred years after he died, when his body was being moved for reburial, a fan snipped off the middle finger of his right hand as a memento. Galileo's finger is now on display, erect, at the Museum of the History of Science in Florence. The finger points toward Rome.



Albert Einstein (14.03.1879 - 18.04.1955)

- He was a great musician. If the whole "genius" thing didn't work out, Einstein could have become a violinist.
- He could have been the President of Israel. When Israel's first president, Chaim Weizmann, died, Einstein was offered the position, but he declined.
- In 1921, He recieved Nobel Prize not for the general or special theory of relativity, but rather for the photoelectric effect.
- His brain was stolen. After Einstein died, the pathologist who did his autopsy took his brain without permission. He eventually got the permission necessary from Einstein's son, but he was fired from Princeton when he refused to turn the brain over. He kept it for over forty years before finally returning it in 1998.
- For the first time ever, scientists have directly detected gravitational waves, bizarre ripples in space-time foreseen by Einstein a century ago. The discovery was the final, acid test of Einstein's general theory of relativity.

ELECTROWRITE
A Newsletter From Dept. of Electrical Engineering, S.I.T
Vol. 2 , Issue 1

Pathways to Sustainability

-Mitul Ranjan Chakraborty, Asst. Prof., Dept. of EE

With development in technology with time we are facing a great challenge now-a-days. Global warming is a big threat to mankind in recent days. Therefore time has come to think of sustainable economic growth. It will definitely require changes in the amount & type of resources used, types of manufactured products and obviously the industrial processes. We should use our resources available more judiciously and control industrial processes in such a way that wastes are minimized and re-used i.e. we must make our path to a more energy-efficient civilization. Technologies involving all societal activities must reflect the goals of sustainable economic growth.

Energy-Evolution of energy technologies is a key factor for sustainability. This can be classified into two - short term and long term. Talking about short term policy, we can't deny the dependency on fossil fuels. But at one point of time, use of fossil fuels must be reduced. An all-out effort must be given to increase the efficiency of energy supply, optimized energy usage and above all use of these fuels in less polluting manner. Natural gas gives fewer pollutants than oil or coal and hence can prove helpful towards the journey to less fossil fuel dependent economy. Throughout the world improvement in energy efficiency of transportation system may be helpful. In fact many countries have already taken initiatives towards fuel-efficient automobiles and integrated mass transit arrangements. Important work in energy storage e.g. electric, fuel cells and hydrogen systems are also going on.

In the long term scenario, for better energy future of world lots of options are being explored. Renewable energy sources are fast becoming popular and economic. Appreciable advances in solar cell based power generation with better efficiency are taking place. Wind, bio-mass and other forms of renewable energy may also be realistic option depending upon the situation. Nuclear power is also a good possible future source of energy depending upon the public acceptance. But at the same time safe operation of nuclear power plants and very efficient management of radioactive waste are to be ensured. Safe nuclear power definitely represents an indispensable resource for future.

Public Infrastructure-For being able to achieve sustainable development through efficient functioning of society, public infrastructures are very important. It broadly includes water resource and supply systems, power systems, bridges, roads, communications and transportation facilities etc. In most of the cases technologies are well developed. Necessary steps to be taken to implement the same in developing countries, where they are most needed.

Water-Water treatment and recycling very important in sustainable development of public, industrial, and agricultural sectors. For public sector, ensuring public health is most important thing of water systems – treatment technology & transportation of water safely should be of high importance. Controlling of micro pollutants (organic) is definitely a big challenge in future. For industrial sector, where water is heavily consumed, minimization of water is must and it is going to play an important role for sustainable development of the industrial products. For agricultural sector also new technologies are to be developed for irrigation which will optimize the water consumption and prevent unsustainable groundwater extraction.

Food-Enhancement in food production and better means of storage and distribution is necessary to support hugely growing population worldwide. Biotechnology has helped by producing new strains of crops resistant to disease and drought. With new advancements in technology it is expected that crop varieties resistant to pests are no far and it will then reduce the harmful effects of toxic materials used in pesticides. Genetic engineering can also help in aquaculture resulting increased production of marine & freshwater seafood. With chemical industry producing quickly degradable pesticides, it seems that environmentally sustainable farm practices are within reach. An awareness campaign is needed and also proper training to the farmers to be provided. Crop rotation system, integrated pest management, taking the help of computer for proper chemical use etc. are few pathways for a sustainable future of agricultural sector.

Manufacturing and Mining-It is a good thing that manufacturers have already paid attention to recycle & reuse materials for better industrial ecosystems. Wastes from one part of the system are being used as input to other parts of the system. Industrial uses of renewable agricultural and forestry resources are expanding. Mining industries are also trying their best to adopt environment healthy practices and already in the process of developing various technologies for compensating past environmental damage.

Materials-For development of any civilization the raw materials plays an immense role. Scientists & engineers are doing a lot of research to modify traditional materials or design new materials to reduce environmental impact. In future we are expecting creation of new materials with specific and controlled properties. These new materials are supposed to consume less mineral resources and to be more energy efficient, lighter, stronger and recyclable.

Information Technology-It is already a proven fact that information technology has power to change the lives of people. It is helping the enterprises to be managed with better proficiency. It has already improved the efficiency of air, land, and water-based transportation systems. It is helping us in permit real-time monitoring of environmental conditions. With the help of information technology we are being able to precisely control various industrial processes which in turn are minimizing pollution to give better energy efficiency.

Action Agenda-For environmentally sound sustainable development technical advancements are obvious but while pursuing that balance is to be made between various components namely - actions of governments, international agencies, consumers, private industry, educational institutions and of course social acceptability. In spite of many obstacles to the transition to sustainable development, technology must overcome them. Developed and developing countries should cooperate to increase the technical capacity of developing nations.

Government's role: To encourage industry via provisions of incentivesto develop environment friendly technologies, To support research institutions to develop environment friendly technologies, To promote new generations of environmental technologies through international collaboration, To recognize opportunities and limitations of technology in making international agreements on environmental issues.

Industry role: To balance the efficiency of its operations with its responsibilities for environmental actions. To pursue the opportunities presented by the global market for environmentally advantageous technologies, thereby diffusing them throughout the world.**, International funding agencies should** pursue policies that encourage recipient governments and institutions to take advantage of environmental sustainable technologies developed by both the public sector and the private sector.**, Educational institutions should** integrate sustainable development concepts into all levels of education., **Engineering institutions should** advance the concepts of sustainable development as an important and integral part of their activities.

WIRELESS POWER TRANSMISSION

Akanksha Kumari

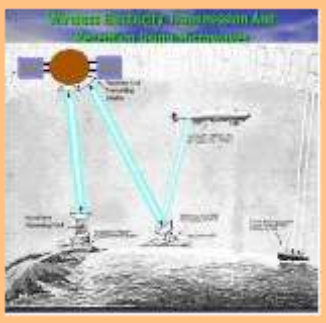
WPT is exactly what the name states; to transfer electrical power from a source to a destiny without the aid of wires. The electrical energy is first converted into microwaves then beamed to geosynchronous satellite and beamed back on earth where needed and converted back to electrical energy.

Needs of WPT: Why not Wires?

1.Wires are made up of different metals and different alloys so that they can allow the electric current to pass through them so that power can be easily transmitted from one place to another place but during the process of transmission the power which is send by the source is not totally send to the receiver, a lot of power is lost in the path of transmission. Using wire in transmission is not economical for utilization, it needs a little bit of modification or we can say there is a need to transfer electricity without using wires or conductors.

2. According to the World Resources Institute (WRI). India's electricity grid has the highest transmission and distribution losses in the world-a whopping 27%.

3. This is attributed to technical losses and theft.



Methods of transmission:

1.Induction.

2. Electromagnetic transmission

3. Evanescent wave coupling

4. Electrodynamics induction

CURRENT TECHNOLOGIES:

1. MICROWAVE TRANSMISSION THEORY

2. LASER TECHNOLOGY

Power transmission via radio waves can be made more directional, allowing longer distance power beaming ,with shorter wavelengths of electromagnetic radiation, typically in the microwave range.

- Microwave generated using the magnetron from the base station can be received at any location on earth with the help of Geosynchronous receiving and transmitting satellites.
- These satellites will use microwaves to beam power to the receiving station and mobile power receiving devices.
- Since the low orbit microwave beam would spread less, the ground based rectenna could be smaller.

The power can be received at rectenna which will be located on Earth, comprising a mesh of dipoles and diodes for absorbing microwave energy from a transmitter and converting it back into electrical power.

Laser Transmission :

- LASER converts electricity to light using laser, and projects that light onto a specialized solar cell array, which then converts the light back into electricity.
- The "wireless extension cord" delivers thousands of watts at ranges up to many kilometers
- The wireless transmission of power via laser is useful in situations where it is impractical or uneconomical to run wires, including unmanned aerial vehicles (UAVs), unmanned ground vehicles (UGVs), unattended sensors, communication towers, forward operating bases, and disaster relief
- Laser is highly directional, coherent

Advantages of wireless electricity transmission

- Power loss is very less as compared to wired electricity transmission.
- There is no need of transmission lines.

Disadvantages of wireless electricity transmission

- The size of rectenna will be massive
- The cost of this prototype project will be $74 billion
- Would require a network of hundreds of satellites

ELECTROWRITE
A Newsletter From Dept. of Electrical Engineering, S.I.T
Vol. 2 , Issue 1

Smart grid in India

- J.B.BASU, HOD,EE

The world's electricity systems face a number of challenges, including ageing infrastructure, continued growth in demand, the integration of increasing numbers of variable renewable energy sources and electric vehicles, the need to improve the security of supply and the need to lower carbon emissions.

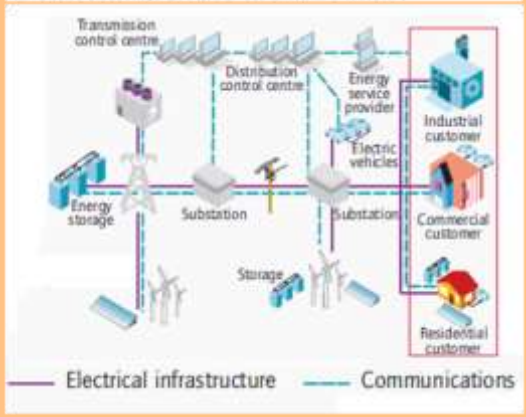
Smart grid technologies offer ways not just to meet these challenges but also to develop a cleaner energy supply that is more energy efficient, more affordable and more sustainable. Smart grids provide an opportunity to link *societal, financial, technology and regulatory and policy objectives.*

The main characteristics of smart grids are:

Enables informed participation by customers
Accommodates all generation and storage options
Enables new products, services and market
Provides the power quality for the range of needs
Optimizes asset utilization and operating efficiency
Provides resiliency to disturbances, attacks and natural disasters

The main differences between existing & smart grid are:

Existing	Smart grid
Electromechanical	Digital
One-way communication	Two-way communication
Centralized Generation	Distributed Generation
Few sensors	Sensors throughout
Manual monitoring	Self monitoring
Manual restoration	Self healing
Failures & Blackouts	Adaptive & Islanding
Passive Consumers	Active Consumers



Smart Grid Pilot Projects in India.

Ministry of Power has allocated 14 Smart Grid pilot projects that will be implemented by state-owned distribution utilities in India

The functionalities of these projects are

Advanced Metering Infrastructure- Residential Consumer (AMI R)
Advanced Metering Infrastructure-Industrial Consumer (AMI I)
Outage Management System (OMS)
Peak Load Management (PLM)
Power Quality Management (PQM)
Micro Grid (MG)
Distributed Generation (DG)

In West Bengal one such pilot project has been identified as detailed below

Utility: West Bengal State Electricity Distribution Company Limited, West Bengal, **Project Area:** Siliguri Town in Darjeeling District, **Consumers:** 4,404

Functionalities : AMI I, AMI R, and PLM
The key challenges India is going to face while implementing Smart Grid are:

Power theft:
Inadequate Grid Infrastructure:
Low metering efficiency:
Lack of awareness:

For a sustainable growth & energy infrastructure smart grid has no alternative right now. Hence together researchers and decision makers, and practitioners from academic, government, and industry need to share their research works, new ideas and requirements for advancing the knowledge and progress for building smart grids in India.

WIRELESS ELECTRICITY

- Ashim Sarkar

Technology is the collection of techniques, skills, methods and processes used in the production of goods or in the accomplishment of objectives, such as scientific investigation. Basically it is the purposeful application of information in the design, production, and utilization of goods and in the organization of human activities .I am sure we all know about electricity. Yes electricity, the greatest gift of science to mankind. We have reached a point of our civilization when electricity is used for all purposes. Without it, our existence will be impossible. Just imagine Benjamin Franklin, who discovered electricity by flying a kite with silk string in 1752, would have ever thought that electricity would become such a vital part of our life. Now when we say electricity, what come to our mind the very first? Wires and cables and plugs. What if we could transmit electricity without wires and cables. When I speak wireless the question come how are we going to transmit power without cables. Well, various methods of transmitting power wirelessly have been known for centuries. The innovation of wireless electricity started way back in 2007 at MIT (Massachusetts Institute of Technology, Cambridge United States). The CEO of MIT-inspired WiTricity (An American engineering company that manufactures devices for wireless energy transfer using resonant transfer based on oscillating magnetic fields), Eric Giler has a plan to beam electric power through the air to wirelessly power our laptop or recharge our car. WiTricity's technology of wireless electricity approach is called magnetic coupled resonance, which can provoke an energetic response at a distance between two coils, one powered, and the other not. If the two coils are correctly tuned to one another, energy flows from the connected one (installed, say, on the ceiling of a room) into the other (inside, say, our Laptop). Giler presented a demo of it at TED Global 2009.Japanese scientists from Japan Aerospace Exploration Agency (JAXA) have succeeded using microwaves to deliver 1.8kilowatts of power through the air to the pinpoint target 55 meters away. Though the energy was only enough to run an electric kettle and the distance was not huge, this appears to be a giant leap in developing new energy sources. The successful experiment could pave the way to collecting inexhaustible solar energy in space and transmitting it to Earth. Experiments in power transmission without wires in the range of tens of kilowatts have been performed at Goldstone in California in 1975 and at Grand Bassin on Reunion Island in 1997. The world's first MPT experiment in the ionosphere called the MINIX (Microwave Ionosphere Non-linear Interaction Experiment) rocket experiment is demonstrated in 1983 at Japan. Similarly, the world's first fuel free airplane powered by microwave energy from ground was reported in 1987 at Canada. This system is called SHARP (Stationary High – Altitude Relay Platform). In 2003, Dryden Flight Research Centre of NASA demonstrated a laser powered model airplane indoors. Japan proposed wireless charging of electric motor vehicles by Microwave Power Transmission in 2004. Power cast , a new company introduced wireless power transfer technology using RF energy at the 2007 Consumer Electronics show. A physics research group, led by Prof. Marin Soljacic, at the Massachusetts Institute of technology (MIT) demonstrated wireless powering of a 60W light bulb with 40% efficiency at a 2m (7ft) distance using two 60cm-diameter coils in 2007. Recently in 2008, Intel reproduced the MIT group's experiment by wirelessly powering a light bulb with 75% efficiency at a shorter distance. In the conclusion, it is clear that wireless power transmission would be extremely beneficial to society if it is implemented in homes and home electronics. From an environmental standpoint, this technology could replace disposable batteries and cords, reducing dangerous chemicals and potential for poisoning communities. The disadvantages of wireless power are greatly outweighed by the benefits and from an ethical standpoint, thus it is necessary to further develop wireless power technology to the point of large-scale production. We have the means and design; it is now a matter of obligation to create wireless powerless power on mass scales for the betterment of society.

ELECTROWRITE
A Newsletter From Dept. of Electrical Engineering, S.I.T
Vol. 2 , Issue 1

Mystery of the Devil's sea

- D.Bhattacharjee (Mentor)

The " Devil's Sea", also known as the "Dragon 's Triangle, " is a region in the Pacific ocean roughly located around the Japanese island of Miyake, about 100 kilometres south of Tokyo. The vast triangular area of ocean with imaginary points in Bermuda, Florida and Puerto Rico, popularly known as the "Bermuda Triangle" has long been associated with mysterious disappearances, paranormal activity. Like that the Dragon's Triangle or Devil's sea also is a triangle between Japan and the islands of Bonin, including a major portion of the Philippine sea. Here the ships and planes have disappeared mysteriously where the Vile Vortex of sea due to the pull of the planet's electromagnetic waves is the strongest. Chinese believed that there was a huge dragon in the sea that pulled the ships and the air-crafts to satisfy the hunger. There are many stories about the disappearances of the sea-going vessels and the aircrafts.

In the 1200s, Kublai Khan tried several times to invade Japan by crossing the Devil's sea. In this process he lost his vessels and 40,000 men in the area of the triangle. In the early 1800s many persons claimed to have seen a mysterious lady sailing in a ship in that area. In 1952 the Japanese government sent out a research vessel, the Kaio Maru No 5, to investigate the mysteries of the Devil's sea. The Kaio Maru No 5 and its crew of 31 people disappeared. While investigating under sea, about 5km south of the Devils Sea, it was destroyed by an eruption on 24 September 1952. Some wreckage was discovered later. For centuries Japanese fishermen have been lost to the waters of Devil"s sea. More recently Modern ships and Aircraft have inexplicably fallen victim to these unforgiving waters too, some disappearing without trace. The Japanese government declared the place unsafe for marine voyaging and transporting in 1990s. Several investigations were carried out on the Dragon's triangle. Charles Berlitz published a book on his research where it has been reported that the vessel was actually destroyed by an undersea volcano on september24, 1952. Some parts of the wreckage were later recovered by the Japanese government and the Dragon triangle is a volcanically active area, due to both volcanoes and seismic activity, small islands in that area frequently disappear and new island appear. Though there are scientific reasons provided , people still believe that there are some forces beyond science and laws

"Después de to do nosotros estan innovador ingenieros"

(After all we are innovative engineers)

- Abhijit Das

Sometime just an idea or a circuit, to create something from nothing. As an Electrical Engineering student I have a deeper vision of the electric industry. I can think more about what the people will follow. Top ten causes or reason, whatever you say, to study engineering or to be an Engineer are – Lessons summary + Money; Prestige; Professionalism; Flexibility & choice; Challenges; Creativity; Discovery; Helping society and last of all to make a new path which will be followed by the other people. So do creative, think creative not only in technology, on any other platform you want. Let's focus on some current affairs related to technology.

NASA's Ten-Engine Electric Plane "GL-10" prototype completed successful Flight test : The National Aeronautics & Space Administration (NASA) successfully developed & flight tested the prototype of a ten engine electric plane **'Greased Lightning (GL) – 10'** . It was revealed by the US space agency on 1st May, 2015 on its website.

Key Features of **GL-10** :The aircraft was conceptualized by the NASA in order to enhance its capabilities in using remotely piloted aircrafts in science investigations & to argument technology development for aircraft. It is a battery powered ten engine remotely piloted aircraft having eight electric motors on the wings & two electric motors on the tail. It weighs a maximum of 62 pounds (28.1 kilogram) at take off & has a 10 foot wingspan. It produces less noise in the sense that it is quieter than a neighbor mowing the lawn with a gas powered motor. It can take off like a helicopter & can fly like an airplane. In later stage, a scaled up version which can accommodate up to four persons will be developed.

Innovation by Vortex Engineering, Use of 'Solar powered bio-metric ATMs' : Vortex Engineering, a venture capital-funded company, in March 2010 announced its decision to use '**Solar powered bio-metric ATMs**' to expand ATMs in villages. This ATMs wouldn't require air-conditioning & their maintenance cost would be marginal. Solar-powered ATM is expected to save Rs. 10,000 a month on electricity bills as they consume only 72 units of power compared with the conventional ATMs which consume 1,800units. For the first time in India State Bank of India has placed order worth Rs. 18 corer with Vortex Engineering for 545 Bio-metric ATMs of which 300 would be solar powered. This kind of technologies will help the society & will be able to reduce the power consumption.

So above all the things are new innovations in last few years. All of these are gifts of Technology & Engineers. So always bear in mind that success is finding satisfaction in giving a little more than you take. Always go with the words of the great man, Sir Stephen Hawking that "Intelligence is the ability to adapt to change."

PARENT - TEACHER MEETING

Student inspired by Honorable M.D

AIR FORCE TEAM VISIT

CONGRATULATIONS

- 6 Students selected in **TLC.**
- 7 Students selected in **TCS.**
- 1 Student selected in **CAPE ELECTRIC.**
- 1 Student selected in **ALTIMETRIK.**

1 S		2 D	O	U	B	3 L	E	4 D
K						I		5 C
7 I	C	8 E	N	9 G	I	N	E	
N		A		A		E		10
		11 R	T	U		A		
12 F	E	T		13 S	14 U	R	15 G	16 E
A		17 H	E	S	S	I	A	N
18 U	V					T		I
L		19 U	N	I	T	Y		A
20 T	A	P					21 S	C

6	T
	R
	N
	R

MAJOR ORGANISATION WHERE THE STUDENTS HAVE UNDERGONE TRAINING

NEEPCO (North-Eastern Electric Power Co-operation Ltd

North-East Frontier Railway (NJP Power House)

South-Eastern Railway (Jamshedpur)

ONGC (Tripura)

NHPC (Rumbhi)

DMRC (Delhi Metro Railway Co-operation)

TSECL (Tripura State Electricity Co-operation)

DSP (Durgapur)

DVC (Mejia unit)

Power Grid Substation (Patna)

EDITORIAL TEAM

Jayanta Bhusan Basu. (H.O.D)

Mitul Ranjan Chakraborty. (Asst. Prof)

Shrabani Pal. (Asst. Prof)

Srijan Banerjee. (Asst. Prof)

Subhjit Roy. (Asst. Prof)

Mousumi Basu Das. (Asst. Prof)

Arkajit Foujder (Student, 2nd Year)

Abhijit Das (Student, 2nd Year)

ELECTROWRITE

A Newsletter Published by Dept. of Electrical Engineering, S.I.T

Vol. 1 , Issue 1 Inaugural Edition, 2015

Message From the Desk of Director, SIT

I am pleased to know that the **Electrical Engineering department** of **Siliguri Institute of Technology** is going to publish inaugural issue of its newsletter **"ELECTROWRITE"**today. I congratulate the students, faculty & staff members of the department under the leadership of Mr. Jayanta Bhushan Basu for taking the initiative in the right direction.

Electrical engineering is a vast ocean of knowledge which is being enriched everyday through introduction of new devices, materials, applications, technologies and concepts. The world civilization will stop if electrical engineers collectively fail to deliver for a minute. Millions of engineers, researchers and teachers are engaged in this branch of technology and expanding the horizon of knowledge everyday.

Message From the Desk of HOD , EE, SIT

"***Coming together is a beginning, keeping together is progress and working together is success***"

I am happy to write this foreword for the inaugural edition of the Newsletter "ELECTROWRITE" published by the department. As you continue reading this newsletter you will find interesting snippets of information about the department and some informative articles.

I Congratulate the Faculty In-charge and team for their great effort in publishing the first issue.

J.B.Basu

"Department of Electrical Engineering - A Legacy of Learning"

On behalf of Department of Electrical Engineering, S.I.T., We take immense pleasure to introduce **"ELECTROWRITE"** – the newsletter of the department.

A technical magazine which basically offers a platform to share the department's successes and keep up to date on what is happening in Electrical Engineering department. Also it focuses on the technical advancements and achievements in the field of Electrical Engineering.

We must convey our heartfelt thanks to the teachers and students of the department for their contribution and continuous support for making this effort a success. Special credit goes to our beloved student Arkajit Fouzder & Abhijit Das, 2nd Year , EE for designing the newsletter.

Special thanks to Our HOD (J .B. Basu), Mentor (D.Bhattacharya) & Co-ordinator (M.R. Chakraborty), Subhajit Roy, S Banerjee for encouraging us for coming up with this Newsletter.

We hope the issue is going to be very informative and interesting to the readers. We also expect that it will be able to enrich the readers by sharing facts and developments in Science and Technology in coming days also.

For continuous development constructive criticism plays a pivotal role. So any suggestions for betterment towards this will be highly appreciated. Please send suggestions and comments to newsletter.ee.sit@gmail.com .

Mrs. Shrabani Pal, Asst. Prof, EE Dept

Mrs. Mousumi Basu Das Asst.Prof., EE Dept.

Assistant Professor, EE

Assistant Professor, EE

Seminar Organized

1) "INDUSTRIAL MANUFACTURING, INSTALLATION, MARKETTING AND AFTER SALES, OVERALL INDUSTRIAL RESPONSIBILITY" ON 6TH April, 2015 ...by Mr. P.K. Mazumder, MD, DEUTSCHE MACHINEN, INDIA .PRIVATE LTD.

2) Recent Trends of Power Generation & Power System in India" and "Some Fundamental Aspects of Electrical Engineering" ON 27th July, 2015 ..by Dr. S. K. Bhattacharya (Dean, NSEC).

3)Economic Development & Energy Demand" on05th Aug, 2015 by Prof. H. Bhaumik, Ex Principal SIT & empanelled expert AICTE .

Industrial visit

Indian Oil Corporation Ltd, Bhaktinagar, NJP, Siliguri, for B.Tech, 2nd year students on 9th sept 2015.

Training conducted by Knowledge Lab for EE Dept

1)Application of PLC in Automation field from 28th Jan to 4th Feb, 2015.

2))Industrial Electrical Application from 28th Jan to 4th Feb, 2015

3)Industrial Control & automation using PLC & SCADA from 6th June to 16th June.

Days Celebrated

1) Farewell of 2011-2015 Batch, 21st , May 2015.

2) Fresher's Welcome for 2015-2019 Batch (Vitajte 1.0), 29th Aug 2015.

3) Teachers Day, 04th Sept., 2015

4) Engineers Day on 15th Sept., 2015

What will happen to life on Earth when our solar system dies

Formation of energy of Sun

Energy from the Sun is very important to the Earth. The Sun warms our planet, heating the surface, the oceans and the atmosphere. This energy to the atmosphere is one of the primary drivers of our weather. Our climate is also strongly affected by the amount of solar radiation received at Earth.

Just as the Solar System (including our planet) relies on the Sun as its source of energy, so does the fate of our Solar System hinge on the Sun's survival.

The Sun is right now a middle-aged star. It has existed for about 5 billion years, and will go on shining, pretty much unchanged, for about another **5 billion more**. At that time, it will go through major changes that will bring an end to the Solar System as we know it. To understand these changes, we must first understand where the Sun's energy comes from. At the core of the sun, gravitational attraction produces immense pressure and temperature, which can reach more than 27 million degrees F (15 million degrees C). Hydrogen atoms get compressed and fuse together, creating helium. This process is called nuclear fusion.

Nuclear fusion produces huge amounts of energy. The energy radiates outward to the sun's surface, atmosphere and beyond. From the **core**, energy moves to the radiative zone, where it bounces around for up to 1 million years before moving up to the convective zone, the upper layer of the sun's interior. The temperature here drops below 3.5 million degrees F (2 million degrees C). Large bubbles of hot plasma form a soup of ionized atoms and move upwards to the **potohsphere.**

The temperature in the **photosphere** is about 10,000 degrees F (5,500 degrees C). It is here that the sun's radiation is detected as **sunlight**. Sunspots on the photosphere are cooler and darker than the surrounding area. At the center of big sunspots the temperature can be as low as 7,300 degrees F (4,000 degrees C).

The **chromosphere**, the next layer of the sun's atmosphere is a bit cooler — about 7,800 degrees F (4,320 degrees C). Visible light from the chromosphere is usually too weak to be seen against the brighter photosphere, but during total solar eclipses, when the moon covers the photosphere, the chromosphere can be seen as a red rim around the sun.

Temperatures rise dramatically in the **corona,** which can also only be seen during an eclipse as plasma streams outward like points on a crown. The corona can get about 3.5 million degrees F (2 million degrees C). As the corona cools, losing heat and radiation, matter is blown off as the solar wind.

Power Of Nuclear Fusion

Like all stars, the Sun is made mostly of hydrogen. Because the Sun is so large and its gravity is so strong, the hydrogen atoms near the center of the Sun - at its core - are under extreme pressure, and are squeezed very close together. Sometimes, four of these atoms are squeezed so tightly together that they collide with enough force to stick together permanently, forming a new, larger, and more complex atom: helium. This process is called **nuclear fusion**, and when it happens, a small amount of energy is released in the form of heat and light. Due to the massive size of the sun, those small amounts of energy add up to an enormous amount Approximately 3.6×10^{38} protons (hydrogen nuclei) are converted into helium nuclei every second releasing energy at a rate of 3.86×10^{26} joules per second.

The core produces almost all of the Sun's heat via fusion: the rest of the star is heated by the outward transfer of heat from the core. The energy produced by fusion in the core, except a small part carried out by neutrinos, must travel through many successive layers to the solar photosphere before it escapes into space as sunlight or kinetic energy of particles.

The energy production per unit time (power) of fusion in the core varies with distance from the solar center. At the center of the Sun, fusion power is estimated by models to be about 276.5 watts/m^3.

Eventually, the Sun will burn all of the hydrogen in its core, and the fusion will stop. Once this happens, the core will shrink under its own gravity, until it becomes so dense that the helium atoms will begin to collide to form carbon (from three helium atoms) and oxygen (from four helium atoms). These collisions produce much more energy than the hydrogen fusion that powers the Sun today.

The extra energy will cause big changes in the Sun. The core will become much hotter, causing the Sun to swell to over one hundred times its present size, swallowing up the planets Mercury and Venus. Even though the core will be hotter, the surface will be cooler than it is today, changing in color from yellow to red. A star at this stage is called a **red giant**. Like a runaway

hot air balloon, the Sun's outer layers will reach escape velocity and peel off into space. As the Sun begins losing mass , the planet's orbits will widen because the Sun's gravitational pull will grow weaker. But Mercury and Venus will not get far enough away to avoid being gobbled by the ballooning red giant.

What is about here on Earth? When the Sun expands, the Earth will not be spared. Like Mercury and Venus, Earth will probably be absorbed by the expanding Sun. But even if it is not, it will be no place to live. The oceans will boil, and the atmosphere will be blown away. What is left will be a charred, unable to sustain life.

An unstable ending

Meanwhile, the helium-burning reaction in the Sun will produce **solar wind** much stronger than it is today. As it leaves the Sun's surface, it will carry with it some of the hydrogen in its outermost layers, forming a **planetary nebula**.

As more matter is carried away from the Sun, the solar wind will continue to strengthen. Eventually, it will blow away so much of the Sun's matter that there will no longer be enough pressure at the core to keep the helium fusion going. At that point, what's left of the Sun will contract under its own gravity, becoming a much smaller, very dense star called a **white dwarf**. The white dwarf will radiate off heat that is left over from the earlier nuclear fusion, but it will no longer generate any new energy.

HOUSTON –NASA recently published a frightening report, Sun will wake up very soon and Earth will suffer some deadly consequences including global failure of all satellite communications.

Solar storms will generate a great level of radiation that will affect the Earth's magnetic field.

This could prove to be a collapse for the humanity-trains and planes will stop, GPS- navigation will be affected, mobile and radio networks will disappear leading to the failure of all computers.

According to Scientists, Rings of fire, ready to escape from the surface of the Sun in the near future, are equal to a hundred hydrogen bombs in terms of power. If their destructive power reaches Earth, it will cause great economic losses, like 20 times greater than the damage from the famous Hurricane Katrina.

For information, solar flares are the most powerful of all manifestations of solar activity. The energy of a large solar flare reaches 1032erg, which is about 100 times greater than the thermal energy that could be obtained by burning all known oil and coal reserves on earth.

In 2002, NASA satellite recorded a giant flare on the Sun. It caused the formation of prominence whose diameter is 30 times greater than Earth's. Scientists said that we were lucky,there was no release of energy in the direction of our planet. Otherwise, the emission of such a force would have lead to significant distortions in the magnetic field. In November, 2003 there was another powerful flare that brought down a Japanese communications satellite Kodama.

However there's no need to panic, over the next 5 billion years Sun will burn the last of its hydrogen, bloat up as a red giant and consume Mercury and Venus.

In fact, we have less than a billion years to enjoy the surface of our planet before it becomes inhospitable. Because our Sun… is heating up.

D.Bhattacharya.
Mentor, EE

ELECTROWRITE
A Newsletter Published by Dept. of Electrical Engineering, S.I.T
Vol. 1 , Issue 1
Inaugural Edition, 2015

Superconductors with High Superconducting Critical Temperature..

Among molecular superconductors, fullerenes are considered to have the highest known superconducting critical temperature (Tc). The international research team successfully demonstrated the molecular electronic structure's guiding influence for controlling superconductivity and also in helping achieve the maximum Tc.

Metals are commonly used for transmission of electricity. However, as they have electrical resistance, energy loss takes place in the form of heat. Superconductors have the ability to carry electricity without any loss of energy as they do not have any electrical resistance. Hence, it would be very fruitful to discover superconductors that have the ability to function at the highest possible temperature.

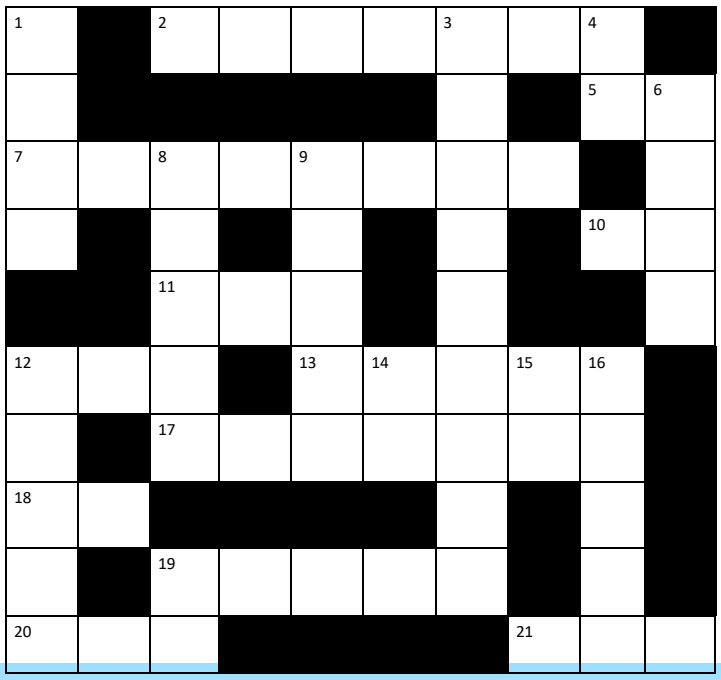
Superconductors usually have a simple structure, and they are built from atoms. However, recently, researchers have discovered some superconductors that are made up of molecules that are arranged in regular solid structure. The electronic ground state was magnetically ordered. This electronic ground state competes with superconductivity. Using external pressure, the C60 molecule arrangement in the solid can be tuned for switching on the zero-resistance superconducting state. The researchers then identified the molecular electronic structure's controlling role. They showed that the parent insulating state was connected to Jahn-Teller distortion of the molecular anions. These produced the magnetism from where the superconductivity comes forth.

In the current study, the researchers analyzed a new family of chemically-pressurized fullerene materials. They studied the relationship that existed between the superconducting pairing mechanism, the normal metallic state above Tc, and the parent insulator in these materials. The new study revealed the Jahn-Teller metal, which is a novel state of matter. It demonstrated that when the balance at the Fermi level between electrons' extended lattice and molecular characteristics was optimized, the highest possible temperature for superconductivity was achieved.

Sohini Dhar

2015 Graduate, EE Dept.

Amount of Current	Effect on a Human
1 to 4 milliamps	Can just be felt
5 to 9 milliamps	Increasing pain
10 to 20 milliamps	Cannot let go
21 to 50 milliamps	Severe pain, muscular contractions
Above 50 milliamps	May be fatal, destruction of tissue (burning), stop breathing



CROSS WORDS

UP-DOWN

1. Electron resides on this in case of AC current through conductor
3. This property of the resistor makes it different from a Transistor.
4. Thomas Edison developed electric power transmission in this format.
6. For an isolating transformer this thing is same in both windings.
8. It's an equipotential surface.
9. This German born mathematician formulated famous laws in electrostatics.
12. You don't want this to happen ; An abnormal phenomenon.
14. The first electricity system supplying incandescent lights was built in this country.
15. It's a chemical Element
16. It's the first electronic computer.
19. NTPC built its first Thermal power plant in this state.

ACROSS

2. If supply frequency is halved in a pure inductive circuit then current will be.
5. Measuring device for very high current
7. Heart of your car
10. Its true if one of you are true as well as all of you are true.
11. It's the unit which senses the information and sends the same to SCADA master system.
12. Name these unipolar transistors.
13. Thor's hammer can eventually bring these to electrical systems.
18. Type of radiation/light having wavelength < 400 nm.
19 For pure resistive circuit PF becomes.
20 For increased choice these are done on the outer (or hv) side of transformer
21. It's a 3 junction, 3 terminal device.

Solution of CROSS WORD will be publish in the next Issue

Behind the Technological

The metaphor for Internet – **CLOUD COMPUTING** has proved itself, to be a sound system of latest technological explosions, with a marketing of $100 billion a year, exploring the use of internet, instead of storing and accessing data using the hard drive.

We have **3D_PRINTED CARS**, just like the FATMAN explosion. A 2K15 discovery, from the Micro-industries which is expected to hit the roads next year, with a low-speed battery car, priced between $18,000 and $30, 000.

"**At local motors, we are hell bent on revolutionisin manufacturing." said John.B.Rogers,C.E.O, LOCAL MOTORS.**

OLA-CABS and UBER-Apps, found in every ANDROID OS, is based on latest technology of **GLONASS**. Vehicle tracking has been accomplished by installing a box into the vehicle, self-powered with a battery, which is **undoubtedly the predominant method of vehicle locating and tracking**.

" The fastest motor in the world " as discovered by Sir James, the first ever domestic appliance to incorporate a so-called digital switched reluctance motor with 104,000 revolutions-per-minute, turns ten times as fast as the commercial-aircrafts, five times as fast as the Formula1 engine.

Next, we have the "**WALKING HOUSE**," where 'home takes a whole new meaning' consisting of a basic module measuring 3.5 metres high by 3.5 metres wide and 3.72 metres long, the Walking House can cover a decidedly leisurely 60 metres an hour, on its six insect like legs, suggesting anyone feeling stressed could take the house for a walk.

Wouldn't you love a dollar for every time you heard the phrase 'paperless office' ? The answer is given. Yes, **PrePeat Rewritable Printer**, which uses rewritable plastic sheets made from PET Plastic. These sheets can be erased and reprinted about thousand times per sheet, designed by a Japanese company, **SANWA NEWTEC**, allowing you to reuse paper.

ELECTROWRITE
A Newsletter Published by Dept. of Electrical Engineering, S.I.T
Vol. 1 , Issue 1
Inaugural Edition, 2015

Artificial Bee Colony (ABC)....

Arup Das, Asst. Prof., EE

The Artificial Bee Colony (ABC) algorithm is a swarm based meta-heuristic algorithm that was introduced by Karaboga in 2005 (for optimizing numerical problems. It was inspired by the intelligent foraging behavior of honey bees. It is the advanced process of Particle Swarm Optimization(PSO). The algorithm is specifically based on the model proposed by Tereshko and Loengarov (2005) for the foraging behaviour of honey bee colonies. The model consists of three essential components: employed and unemployed foraging bees, and food sources. The first two components, employed and unemployed foraging bees, search for rich food sources, which is the third component, close to their hive. The model also defines two leading modes of behavior which are necessary for self-organizing and collective intelligence: recruitment of foragers to rich food sources resulting in positive feedback and abandonment of poor sources by foragers causing negative feedback.

In ABC, a colony of artificial forager bees (agents) search for rich artificial food sources (good solutions for a given problem). To apply ABC, the considered optimization problem is first converted to the problem of finding the best parameter vector which minimizes an objective function. Then, the artificial bees randomly discover a population of initial solution vectors and then iteratively improve them by employing the strategies: moving towards better solutions by means of a neighbor search mechanism while abandoning poor solutions.

Nowadays In Electrical Engineering research field to solve complex problems ABC technique widely used. ABC is the most advanced process by which we get fewer errors in less computation time. Other computation process are also used in research field namely Honey Bee Colony process, Ant Colony Process, Bird Flocking Process, Fish Schooling Process, Gen String Process, Cell Mass System.

ENERGY STORAGE IN A SMART GRID

A smart grid is an electricity network that uses digital and other advanced technologies to monitor and manage the transfer of electricity from all generation sources to meet the varying electricity demands of end-users. Smart grids co-ordinate the needs and capabilities of all generators, grid operators, end-users and electricity market stakeholders to operate all parts of the system as efficiently as possible, minimising costs and environmental impacts while maximising system reliability, resilience and stability.[1]

Till about a few years ago, we thought that electricity cannot be stored and needs to be consumed as and when it is generated. Times are changing; today electricity can be stored in megawatt scale thanks to developments made in storage technologies and solutions. These electricity energy storage (EES) applications are increasingly becoming viable around the world. EES is expected to solve problems – such as excessive power fluctuation and undependable power supply – which are associated with the use of large amounts of renewable energy. [2]

Electrical Energy Storage (EES): -

EES is one of the key technologies in the areas covered by the IEC. EES techniques have shown unique capabilities in coping with some critical characteristics of electricity, for example hourly variations in demand and price.

EES has played three main roles. First, EES reduces electricity costs by storing electricity obtained at off-peak times when its price is lower, for use at peak times instead of electricity bought then at higher prices. Secondly, in order to improve the reliability of the power supply, EES systems support users when power network failures occur due to natural disasters. Their third role is to maintain and improve power quality, frequency and voltage.

Energy storage technologies encompass a large set of diverse technologies. They are broadly classified into mechanical, electrochemical, chemical, electrical and thermal energy storage systems as shown in the figure below. [3]

Electrical energy systems (EES) scenarios in India: -

India has aggressive targets for shifting to renewable energy, which at present is unscheduled, and stresses the energy systems. One of the important means to meet these challenges is use of energy storage technologies. With launch of Smart Grids and Electric Vehicles missions, and new programs for on-site solar energy and rural micro-grids, energy storage has become a crucial component of energy strategy for India. [4]

REFERENCES:-
[1]http://electrical-engineering-portal.com
[2] http://indiasmartgrid.org
[3]www.iec.ch/whitepaper/pdf/iecWP-energystorage-LR-en.pdf
[4]ttp://.indiaenvironmentportal.org.in/files/file/ISGF_IES%202047%20Documentation.pdf

… Ranjan Kumar, 2014 Graduate, EE

SMART POWER MANAGEMENT

Consistent high growth of the Indian economy and the development of smart cities have resulted in surging energy demand. Since independence, the Indian power system has grown from 1362 MW to 250 GW.Far-reaching goals of the modern Indian power system can be achieved by deployment of smart grids and smart cities. The hurdles for smart cities include stable, secure and affordable energy supply, while incorporating renewable and sustainable energy sources. The demand for renewable energy increases every day. **Ministry of New and renewable energy has plans to add capacity of 30000 MW in the 12th five year plan (2012-17).**For setting up smart cities, it is crucial to evaluate energy consumption relevance of social sectors, the scarcity of materials, population growth and ageing, etc. . Further, it is required to have the right energy policy infrastructure: smartgrids, multifunctional and flexible building networks and energy performanceanalyses. Therefore, a comprehensive integration of ICT is required in buildings,homes, smart power grids,hospitals,schools, etc. Through tech driven transparency and e-governance initiatives we can bring excellence and smartness in public services. Smart homes form an integral part of smart cities and when connected to cities public infrastructure, can bring out energy efficiency. Smart homes with rooftop solar panels and two-way energy meters form a core part of thisexercise. All this will come at a cost and people living in smart cities need to be more compliant for the city's community to derive the maximum benefits…

……..*Pranay Sengupta, 7th Sem,EE*

ELECTROWRITE
A Newsletter Published by Dept. of Electrical Engineering, S.I.T
Vol. 1 , Issue 1
Inaugural Edition, 2015

India's Power Sector – the path it travelled……

J.B.Basu, HOD, EE

India is the world's fourth largest economy as well as the fourth largest energy consumer. As on August 2015 India's Generation Capacity is 2,75,912 MW with a per capita consumption touching 1000 kWh mark. With 1.2 billion people, India desperately needs energy to fuel its economic growth. Still 35.5% of the population live without access to electricity. India need to have an allout effort so that its energy demand can be met in the coming decade. Following tables indicates how the energy sector has grew post independence.

Energy generation

Financial Year	Generation Capacity (MW)	Length of T&D Lines (Ckt. kms.)	Per Capita Consumtion (kWh)
1947	1362	23238	16.3
1950	1713	29271	18.2
1956	2886	85427	30.9
1961	4653	157887	45.9
1966	9027	541704	73.9
1969	12957	886301	97.9
1974	16664	1546097	126.2
1979	26680	2145919	171.6
1985	42585	3211956	228.7
1990	63636	4407501	329.2
1997	85795	5141413	464.6
2002	105046	6030148	559.2
2007	132329	6939894	671.9
2012	199877	8726092	883.6
2014	245259	9534584	957.0
March 2015	271722	10558177	1010

Energy Consumption

Financial Year	Total Consumption (GWh)	Consumtion Across Different Sectors (% of Total Consumption)					
		Domestic	Commercial	Industrial	Traction	Agri	Misc.
1947	4182	10.11	4.26	70.78	6.62	2.99	5.24
1950	5610	9.36	5.51	72.32	5.49	2.89	4.44
1956	10150	9.20	5.38	74.03	3.99	3.11	4.29
1961	16804	8.88	5.05	74.67	2.70	4.96	3.75
1966	30455	7.73	5.42	74.19	3.47	6.21	2.97
1969	41392	7.69	5.14	72.31	3.01	8.37	3.48
1974	55557	8.36	5.38	68.02	2.76	11.36	4.13
1979	84005	9.02	5.15	64.81	2.60	14.32	4.10
1985	124569	12.45	5.57	59.02	2.31	16.83	3.83
1990	195098	15.16	4.89	51.45	2.09	22.58	3.83
1997	315294	17.53	5.56	44.17	2.09	26.65	4.01
2002	374670	21.27	6.44	42.57	2.16	21.80	5.75
2007	525672	21.12	7.65	45.89	2.05	18.84	4.45
2012	785194	21.79	8.33	44.87	1.81	17.95	5.25
2014	881562	22.95	8.80	43.17	1.75	18.19	5.14
March 2015	938823	23.53	8.77	42.10	1.79	18.45	5.37

Indian power sector is undergoing a significant change. For a sustainable economic growth a continuous power demand will be there in India. Government's focus on attaining "Power For All" has increased demand for capacity addition in the country. At the same time, a competitiveness is increasing on both market side as well as supply side. Key focus will be to increase usage of renewable energy sources for power generation in the coming future.

2011-2015 Graduate Batch

Editorial Team

Congratulations

Top performers' of Electrical Engineering Department

Sohini Dhar (2011-2015 batch)

Nikita Shreya (2012-2016 batch)

Soumalya hom Roy (2013-2017 batch)

Sanjoy Karmakar & Satarupa Mukherjee (2014-2018 batch)

Heartiest Congratulations to all the students EE Department that who have qualified in GATE, CAT, MAT..etc

Hurray!!!!

Intra College Basket Ball - Student Boys – (Runner)

Intra college Volley Ball - Student Boys & Faculty/Staff (Runner)

Congratulations

Mr. Freshers .. Sidharath Rai

Ms. Freshers.. Ankita Chakraborty

SEMINAR AND WORKSHOP

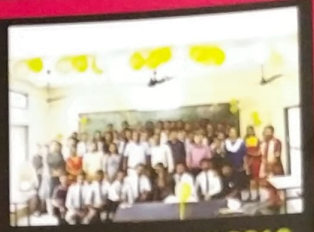
Invited Talk:
Topic:"Automata Theory",27th March,2019,given by Prof.(Dr.) Paramartha Dutta.

Seminar:
One day seminar on "Intelligent Transportation: An Application Domain in Data Analytics", (13th Sept,2019),organized by CSE/IT Dept

EVENTS ROADMAP

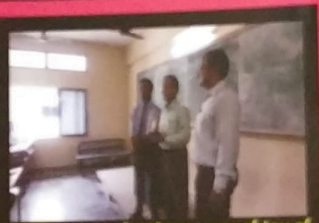
Induction program of CSE,IT


Team CSE&IT is the Winner of Tug of War Competition in Annual Games & Sports 2019.


TEACHERS DAY 2019

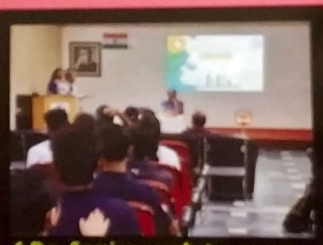

FRESHERS DAY 2019


POSTER MAKING COMPETITION


NPTEL topper for the course of Joy of computing using Python


ROBO SOCCER LEAGUE 2019


INDEPENDENCE DAY 2019


1 Day Seminar on Autonomous Transportation on 13th Sept,2019

Editorial Team: Mr. Anupam Mukherjee, Ms. Moumita Ghosh, Ms. Sutapa Bhattacharya, Students of CSE 2ND,3RD Year.

SIT INFOCAST TECHNO INDIA GROUP
Volume IV, ISSUE I September 2019
A NEWSLETTER PUBLISHED BY DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

MISSION

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.

2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.

3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

CHANDRAYAAN 2: The Voyage in Space....

Chandrayaan 2, the successor to Chandrayaan 1, was launched on 22nd of July 2019 from the Satish Dhawan Space Centre in India. The mission involves a Geosynchronous Satellite Launch Vehicle Mark III, which includes an orbiter, a lander and a rover with each one playing a specific and important role.It has been made indigenously in India. The satellite weighs a whopping 3.8 tons and carries a suite of 14 scientific experiments (eight for the orbiter, four for the lander and two for the rover).
The primary objective of Chandrayaan 2 is to demonstrate the ability to soft-land on the lunar surface and operate a robotic rover on the surface. Scientific goals include studies of lunar topography, mineralogy, elemental abundance, the lunar exosphere and signatures of hydroxyl and water ice.
Chandrayaan-2 is currently orbiting the Moon. It has mapped the lunar surface and has captured striking photos of the Jackson Crater, Mitra Crater, Sommerfeld Crater and Rozhdestvenskiy Crater.The photos were shot from an altitude of around 4,375 km above the lunar surface. Over the next few days, Chandrayaan-2 will perform a series of manoeuvres to bring itself closer and closer to the Moon. On 2nd September 2019, the lander Vikram will separate from the Chandrayaan-2 spacecraft and get into an orbit of its own around the Moon. Then finally on 6th September 2019, Vikram will begin a fifteen minute powered descent. At the end of which it will land near the south pole of the Moon and set free the six-wheeled rover Pragyaan that will roam the lunar surface for fourteen Earth days (approx).

Salinee Aich
CSE 2nd Year,SIT

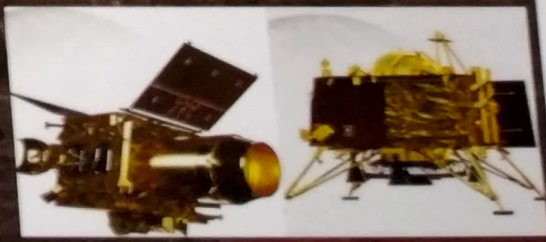
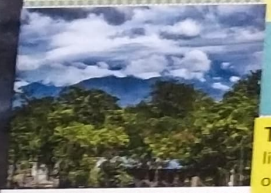


PHOTO GALLERY

ABHISHEK DEB 3RD YEAR



SUBHADEEP KUNDU 2ND YEAR

KAUSHIK DEY 3RD YEAR

THE BIG BIOTECH BREAKTHROUGH

The gift of life has always been perceived as one of the biggest acts of divinity and is a true miracle of medical science. I believe that organ donation is a vital component in this noble goal. Organ donation enables the recipient to get a second lease of life while it immortalises the donor's act of exemplary humanism.

The grim reality indicates that only 130,000 transplants are performed, which about 10% of the global demand. This situation of acute shortage causes high mortality rates and resulted in organ trafficking and transplant tourism. This unethical amplification calls for a concreted solution.

The Israeli scientists have engineered to craft out a 3D printed human heart along with the blood vessels which "behaves" like the real ones. Researchers began by taking a small sample of fatty tissue from a patient. Using genetic engineering, they tweaked the various components. These cells were then loaded — serving as "bioinks" — into the printer, which had been programmed to print a heart. The printer took between 3 and 4 hours to print the small heart with basic blood vessels. The heart was then incubated and fed with oxygen and nutrients. Within a couple of days, the cells began to spontaneously beat. They hailed it as a 'major medical breakthrough' which paves the way for trans plants without donors. This 3D printed organ technology is patient specific i.e. it uses the patient's own blood vessels and cells to generate the organ which eliminates the risk of an implant provoking an immune response and being rejected. In Indian context this will bring a remarkable change as it will shed the taboo attached to organ donation.

Aayushi Dassani
CSE 2nd Year,SIT

TIME SHIFT

The very existence of human entertainment lies in Television where programmes or shows are pre-recorded and shown at a later time. This logic although simple can be used to solve complex problems, just like light from the Sun takes 8 minutes on an average to reach us- which means we see the Sun's 8 minute past. This simple logic can be one of the theories to solve the problem of 'Time Travel'.

The time is assumed to be the library of each and every action that has taken place even before the formation of the universe. Now, if we consider this time plane to be a circle, then each and every action in the past can be once again reached in the circular loop in the future.

The 'time plane' can also be considered a straight line just like Earth was considered a flat land until satellites were sent to prove our assumptions whether Earth was elliptical. By considering it so, with each different decision a new possibility arises, hence creating multiple new 'timelines'. Thereby causing a shift.

Shifts can occur in both these cases, however we can replay the past by tapping into the 'time grid'. Only in the first one there might be a way to come back to the present but in the second one a new timeline might be created with changes unknown. These may result in 'time quakes', which may have catastrophic changes to our lives.

Thus, the only safest way to time travel would be to tap into the 'time grid', and what better way than our own mind whose power is still unknown.

Aniket Ghosh
CSE 4th Year,SIT

PUBLICATION UPDATES

1. Anupam Mukherjee, Anupam Ghosh, "Heterogeneous Decomposition of Predictive Modeling Approach on Crime Dataset Using Machine Learning", 1st International Conference on Innovation in Modern Science and Technology (ICIMSAT 2019), 2019.

2.Debajyoti Guha, Rajdeep Chakraborty and JK Mandal, "Rotational Cryptographic Technique (RCT)", Accepted and presented in 1st International Conference on Innovation in Modern Science and Technology (ICIMSAT 2019), held on 20-21 September 2019 in Siliguri, WB, India, organized and sponsored Siliguri Institute of Technology, Springer LAIS series, ADCOS, SCRC, IET, Ardent, DRDO, Scopus Indexed international conference. Book Chapter.

3.Sucharita Das,"Detection of disease and Prediction of Post Risk Level from DNA Sequence Using Pattern Matching and GA,A Proposed System", International Journal of Scientific Research and Reviews,Volume-8, Issue-2,pp. 841-848,2019

GLIMPSES OF STUDENT'S ACHIEVEMENTS

Anuradha Kumari Sah
Pass Out Batch:2020 CSE

sopra steria

Pabani Deb
Pass Out Batch:2020 CSE

Cerner

Capgemini

Vaibhav Kamani, Somedutta Debnath, Nagendra Prasad, Abhishek Bhutra, Ashish Kumar Gupta, Sudip Mistry, Bishal Das, Dipankar Mondal, Aman Sharma, Aniket Ghosh, Shalini Sengupta

GATE
Graduate Aptitude Test in Engineering

Susree Banerjee

Shubham Debnath

ZS

Moupiya Bhowmik
Pass Out Batch:2020 CSE

Karan Agarwal ,CSE,3rd Year,has scored 95% (TOP Topper 1%) in 12 week course(Jan-Apr 2019),named as " JOY OF COMPUTING USING PYTHON"

Alumni Talk

MAJOR WRICKDEV GHOSH, CSE, Batch 2003 -07 [System Manager, Cyber Emergency Response Team]

The four years at the Computer Science and Engineering department has held me in good stead as I complete 10 long years as an officer of the Corps of Signals of the Indian Army. Be it deploying a surveillance network to stop infiltration in the borders of Jammu and Kashmir, be it establishing a high speed network to relay live drone feeds in Punjab, to establishing satellite ground stations in the icy heights of Uttarakhand I had the chance to solve many real world engineering problems because of the solid foundation I received at the department. I thank my professors and my alma mater who helped shape me into who I am today.

KUMAR NISHANT, CSE, Batch 2013-17 [Pursuing M.Tech at IIT, Kanpur]

Dept. of CSE, SIT... The first place, I introduced with the Computer Science world. It was a totally different journey for me as I didn't belong to CS background. I am very thankful to my teachers who taught and supported me throughout my 4 years of "Engineering :)". Computer Science is fun but has many challenges. I gained interest in my core subject and had the zeal to explore it, how can I forget faculty found that enthusiasm in me and encourage me for the higher study as of result now, I am pursuing M.Tech at IIT, Kanpur.

It is advisable to juniors "Be interactive with your mentors and show your passion about courses. They (mentors/teacher) are always there to guide you on the right path."

Events Roadmap .....

Hands-on Workshop on "Internet of Things (IoT) & Machine Learning" on 15th September,2018

Two days workshop on "Data Analysis using Python" on 28th and 29th September,2018

Two Days Seminar on "Cryptography and Network Security "on 13th and 14th August,2018

2nd Best Business Unit Corner award at Intel India

Hands -on Workshop on "Data Analysis using Python"

Fresher's Welcome on 1st September,2018

Teacher's Day ,2018

Republic Day Celebration,2019

Uttarbanga Medha Ratna Utsav,2019

Editorial Team: Mr. Anupam Mukherjee, Ms. Sutapa Bhattacharya ,Ms. Moumita Ghosh, , Members of CES

SIT Sikkim Institute of Technology

infocast

TECHNO INDIA GROUP

A Newsletter Published by Department of Computer Science & Engineering

VOLUME III, ISSUE II

JANUARY , 2019

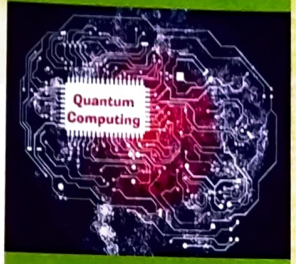
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Vision

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry"

Mission

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment



Seminar & Workshop

1.Two days workshop on "Data Analysis using Python" on 28th & 29th September, 2018.

2. Industry Awareness Program Hands-on Workshop on "Internet of Things (IoT) and Machine Learning" on 15th September,2018

3. Two days Seminar on "Cryptography & Network Security" on 13th & 14th August, 2018.

Quantum Computing: The Future Of Computers

With the advent of a new era of digitalized information, processing an information at the top speed has become one of the key aspects of modern day's worries. How can we process data faster? This thought has given rise to a number of solutions. One such solution is Quantum Computing.

Quantum Computing as the name suggests is the path the data is processed in a quantum-mechanical phenomena which uses superposition and entanglement techniques to solve problems. A normal computer basically uses binary digits to process information and thus have only one definite state at a time, i.e. 1 or 0 but a quantum computer uses the theory of superposition of states to process both 0 and 1 digits simultaneously, hence making it more reliable and useful and faster than the ordinary computers. A very large problem can be solved so easily using quantum computers than normal computer. Because of the processing speed of quantum algorithms now a hacker can breach into anyone's personal computer without breaking a sweat, hence more advanced and quantum security issues must be designed to prevent this threat. Using of quantum entanglement and cryptography can give rise to an ultimate security protocol which would be inaccessible by almost any hacker.

Quantum computing has given us a new angle to look at things. Without this the search through any long algorithms would take a considerable amount of time but with Quantum Search such tasks would only take a matter of minutes hence conserving time and helping us to be more efficient.

The present development of quantum computers are still in the preliminary stages as we haven't yet discovered the ultimate technique to use these theories to their fullest potential. Researchers are being carried on both by the government as well as military forces, once completed Quantum Computing will be the future of mankind and quantum computers will be the next gen computers for us.

Aniket Ghosh

CSE,3rd Year, SIT

SOPHIA – An *AI* Asset

Sophia, a humanoid robot is being highlighted all over the world these days.

The thing which we are observing is just a mechanical body, but at the backend there are lot of Artificial Intelligence (AI) Model which has been used to improve its way of thinking after every passage of time. Let's see how Artificial Intelligence is being used to make it perfect. Like we all know that Sophia is entirely dedicated to the Human-Machine interaction which is the future. For making human Language understandable, **Natural Language Processing (NLP)** has been used, which is a sub-field of AI. Using NLP what actually happens is, the machine can respond to the user even if the message is not pre-programmed. Now comes the Decision Making. If we are talking about a Humanoid robot, then just like Human Being, A machine should also make decisions. So for this **Artificial Neural Networks (ANN)** has been implemented in the Sophia Robot.

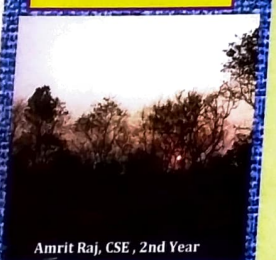
ANN works just like our Biological Neural Network works. For recognising the faces, Image Recognition technique has been used. The camera which is present in the mechanical eyes of Sophia take multiple shots and process those images using **Deep Learning** to remember the people to whom she met.

These AI technologies are the only things which helped in bringing the idea of a Humanoid Robot into a working model. The rate at which Artificial Intelligence Applications is increasing, In future it will surely replace the Human Beings at places where currently we are working. Though the Guidance will always be given by the Human Beings only.

Abhinav Kumar

CSE - 2nd Year, SIT

PHOTO GALARY



Amrit Raj, CSE , 2nd Year

Amrit Raj, CSE , 2nd Year

LI-FI

Imagine if the LED bulbs in our house could transmit high-speed data without WiFi or broadband. Or an LED-lit movie billboard that can relay high-quality promotional videos and songs to our smartphone as we pass by in a crowded mall? Well, these scenarios are not out of any sci-fi thriller the government of India is already testing technology that can enable this and other features. **Light Fidelity (Li-Fi)** is high speed technology which enables data transmission through visible light communication i.e it transmits high-speed data using lights.Google and Nasa have been testing this technology. Li-Fi requires three basic hardware devices to function: an LED lighting system, a router (which will be installed along with the lighting system), and a receiver equipped with decoder (in order to decrypt the light signal). For instance, the transmitter would be an LED bulb and the receiver would be a smartphone.In a recent pilot project, the ministry of electronics and IT successfully used a technology i.e **LiFi (Light Fidelity).** Radio Frequency technology requires spectrum which is very limited and licensed. But a Li-Fi network — which works on ethernet or a WiFi-enabled LED light — when integrated with solar panels, can further cut the cost. Li-Fi can be used in areas where Wi-Fi is either prohibited or doesn't work efficiently such as aviation, healthcare, environment etc. In the aviation industry, for example, Li-Fi technology brings a lot of value. One can use it in the cockpit securely without any requirement for cables. In fact, the primary advantage of Li-Fi is that it works in electromagnetic sensitive areas.Now the challenge is the price. Since the technology has not been adopted on a large scale, and mass production of Li-Fi enabled devices isn't a reality yet, it is more expensive than Wi-Fi. Once this technology is adopted on a mass scale, the price points will be similar. It is imperative to note that Li-Fi isn't out there to replace Wi-Fi, but compliment it.

Prasun Roy Chowdhury

CSE-3rd Year, SIT

Publication Updates ..

Paper publications by our faculties:

1. Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya, Jan Platos, "Chicago Crime Data Analysis Using PIG in Hadoop", 4th IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2018), November 22-23, 2018, at RCCIIT, Kolkata. IEEE Conference No: 45142.

2.Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya, "Indian Crime Data Analysis in Hadoop Framework", 7th International Conference on "Computing, Communication and Sensor Network", 27th -28th October, 2018, organized by Applied Computer Technology, Kolkata, In association with International Association of Science, Technology and management. Sponsored by Aliah University, Page: 17, ISBN: 81-85824-46-2.

3.Anupam Mukherjee, Sourav De, Siddhartha Bhattacharyya. (2018)(In press), A survey on big data: an emerging imparity and revolution in digital world, International Journal of Hybrid Intelligence, Inderscience

4.Mithun Roy and Indrajit Pan, "Most Influential Node Selection in Social Network using Genetic Algorithm", In Proc. International Conference on Research in Computational Intelligence and Communication Network, 2018 (In press).

5.Mithun Roy and Indrajit Pan, "Overlapping Community Detection using Clique Proximity and Modularity Maximization", In Proc. International Conference on Research in Computational Intelligence and Communication Network, 2018 (In press)

6. Sumana Kundu, Goutam Sarker, "A Multi-level Integrator with Programming Based Bososting for Person Authentication using Different Biometrics", Journal of Information Processing Systems, Vol. 14, No. 5, October 2018, pp. 1114-1135.

The expert in anything was once a beginner

Glimpses of Students' Achievements

Subham Sarda (Presently in CSE 8th Semester) presented his IEEE conference paper at Fourth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2018), held on 22-23 November 2018 at RCCIIT, Kolkata. Title of his paper is "IoT and Cloud based Integrated System For Accident Reporting And Vehicular Health Monitoring".

Sandip Prasad Jaiswal
Pass out Batch: 2019
CSE

ThoughtWorks

MD Toufikuddin
Pass out Batch: 2019 CSE

OPENTEXT

Subhajit Das
Pass out Batch: 2019 CSE

OPENTEXT

Sushil Kumar Gupta
Pass out Batch: 2019
CSE

TATA CONSULTANCY SERVICE

Sheetal Chouhan
Pass out Batch: 2019 CSE

BOSCH Invented for life

Monideep Banerjee
Pass out Batch: 2019 CSE

BOSCH Invented for life

Capgemini

Raj Mittal , Laboni Sarkar, Rajib Chowdhury
Pass out Batch: 2019 CSE

PERSISTENT

Subham Debnath, Aditya Ghosh
Pass out Batch:2019 CSE

Alumni Talk

Tinku Sarda, (CSE: 2007-11); IT Analyst, TCS, Hyderabad

"After 2 years of my recruitment, I was posted at Belgium for 3 years to work as Team Lead for a major telecom company as a part of onsite assignment. Thanks to the college and all the faculty members who played a major role for the success in my professional career. To the juniors I'd suggest to have a strong hold on general aptitude and technical skills. In addition, be good at communicating your ideas to succeed in professional career."

Prem Agrahari, (CSE: 2007-11); Sr. Consultant, Infosys, Bengaluru

"There goes a saying "every successful thing in life has a gestation period". For us it was the most glorious, memorable, happiest 4 years of our lives. Every child when comes to this universe holds the hands of his/her parents to stand and rise in life. Like ways right from the beginning of our college life till the end, we had some great faculty members from our department who taught us, mentored us, and helped us to walk the path of our college life by holding our hands. It will be unfair to name anyone as it'll be like demeaning the effort of others who pruned us for the hard, sophisticated world outside the college. Words seem to be petty things when it comes to repay our faculty member's effort, love, dedication, commitment, hard-work to prepare us for what we are today. I'll just say that you all will always remain in our heart as long there is a single breath in our body. We will always be grateful to you for giving us moments which will always remain eternal for us life-long."

Events Roadmap .....

Code Bites
22nd-23rd March 2018
Conducted by CES(Students Society)

Two days seminar on "Network Security and Cryptography" on 13th and 14th August,2018.

Two days Workshop on "Image Processing & Pattern Recognition" on 27th & 28th April, 2018.

1st Year Induction Programme,2018

Parent-Teacher Meeting (PTM),2018

Wall Magazine LOGIC 2018

HACKATHAN

Robotics Competition

Art Competition

Editorial Team: Mr. Anupam Mukherjee, Ms. Sutapa Bhattacharya ,Ms. Moumita Ghosh, , Members of CES

SILIGURI INSTITUTE OF TECHNOLOGY

infocast

TECHNO INDIA GROUP

A Quality Newsletter Published by Department of Computer Science & Engineering

VOLUME III, ISSUE I

JULY , 2018

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Vision

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

Mission

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

MY engineering LIFE

KARAN AGARWAL CSE(B) 58

Every soul has colours of Love,Happiness and Purity Within..

The more we use it the more our life be pleasing.

Listen up and you will hear...Why I am called an ENGINEER?

My Life is directly proportional to hardwork and inversely to illusion.

The force of attraction attracts me to game while the force of repulsion keeps me away from studies....

Work done initially is zero but the approaching exams generate electrical charges and makes me work like a hero.

The radioactive exams disintegrate everything in my brain..

But after the results everything is same.

I solve,I build,I invent

I'd say my time is well spent.

My Life is all about invention

Making the world work better is my intension.

Blue Brain Technology

"Time always falls short for the finest of the brains, making them unable to harness their full potential" - Subham Sarda

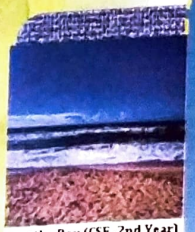
History has always produced people with the finest of brains and will continue to do so, but time and resources have always limited what they could do. But, what if their minds could be used even after they left the world? Well, until in 2009 when Prof Henry Markram spoke about the Blue Brain Technology for the first time at **TED**,nobody would have even ever thought about been able to use the brain after death.

The **Blue Brain Project**, which is a **Swiss Brain** initiative, led by *Prof Markram* proposes that, it is possible to build simulation of the entire human brain and then use it to work exactly how a human brain does. It involves reconstruction and modeling of the billions of neurons in the brain which are so complex that it would require a billions of individual laptops to generate the entire simulation, hence, the project uses the **Blue Gene**supercomputer developed by **IBM**for the same.

Today, the scientists are carrying out research to create an artificial brain that can think, respond, take decisions and store information. The main aim is to upload a human brain into the computer, which will be done with help of **nanobots**, which are so small that they can travel through our circulatory system, travelling through the spine and brain to monitor the activity of the *Central Nervous System*. These bots can provide interface with the computers and this way uploading the entire brain data into the computer. After death, this *virtual brain* can act as the man and this can be used for various situations like to continue the pending work, to decide on something based on his/her area of expertise etc.

the entire brain data into the computer. After death, this *virtual brain* can act as the man and this can be used for various situations like to continue the pending work, to decide on something based on his/her area of expertise etc.

Subham Sarda
CSE 4th Year, SIT



Sreetha Roy (CSE, 2nd Year)

Stock Android vs. Custom UI

Unlike iOS, Android is far ahead in terms of features, utility as well as customizability. Users can change the way their smart phones looks & tinker with its every possible features. With this respect Android users are divided into two teams – one who likes stock Android & one who likes custom UI. So without wasting much time, let's dissect each of its functionality.

Stock Android

It is the purest, minimalist & most simplistic Android ever. Stock Android is the Google's vision of Android. It is unadulterated from any bloat ware & only has few Google apps installed. It is obvious that since Google handles the software, it is always updated to the recent version of Android & also has the latest security patches. It has somewhat less features & less customization options when compared to its Custom UI counterpart. But in one sentence Stock Android has guaranteed faster software updates, a faster software experience, a more secure software, and less bloat ware.

Custom UI

"Android comes in various size & shapes" – Custom UI defines this statement. It is like having a skin on top of Android. TouchWiz for Samsung, MIUI for Xiaomi, VibeUI for Lenovo, EMUI for Honor, and OxygenOS for OnePlus are few examples of custom ROMS. It also suffers from various flaws like – late Android updates, lags in few cases, and loads of bloat ware. But some of its features can be very useful & time-saving for many users.OxygenOS in OnePlus phones has proved to be the best middle ground in this Stock Android-Custom UI situation.

Arghya Mitra

CSE 2nd Year,SIT

Kleptography

Kleptography is the study of stealing information securely and subliminally (out of your most trusted system component: Tamper proof **crypto-device or un**-scrutinized crypto-software).

Types of information that we want to steal:

- Private decryption keys/signing keys
- Symmetric decryption keys
- Confidential data (industrial secrets, military secrets, national secrets)

Kleptography is dedicated to (re) searching ways of obtaining such data in an **undetectable** fashion with **high security** guarantees. It is a formal cryptographic study of backdoor designs (beyond the naïve common that are detectable-e.g. weak random generation)

Goal of Kleptography:

To develop a robust backdoor within a cryptosystem that:

1. Provides the attacker with the desired secret e.g., private key of the unwary user)
2. Cannot be detected in black-box implementations(I/O access only to a hardware box/software) except by the attacker
3. If a Reverse Engineer (i.e., not the attacker) breaches the black-box ,then the previously stolen information remains confidential (secure against reverse-engineering) .Ideally, confidentiality holds going forward as well.
4. The Successful Reverse-Engineer will learn that the attack is carried out,but will be unable to use the backdoor.

Arup Jyoti Dutta

CSE 3rd Year ,SIT

Seminar & Workshop

1. *Image Processing & Pattern Recognition held on 27th &28th April,2018*
2. *Network Security and Cryptography seminar held on 13th & 14th August,2018*

Publication Updates

Paper publications by our faculties:

1. Debajyoti Guha and Rajdeep Chakraborty, " An Approach towards Design and Analysis of a Non Contiguous Block Cipher based Cryptographic System using Modular Arithmetic Technique (NCBMAT)",in Second International Conference on Computational Intelligence, Communications and Business Analytics (CICBA-2018), held on July 27 – 28, 2018, organized and sponsored by Kalyani Govt. Engineering College, India, IEEE, Computer Society of India, Springer CCIS series, ISSN 1865-0929 ISSN 1865.

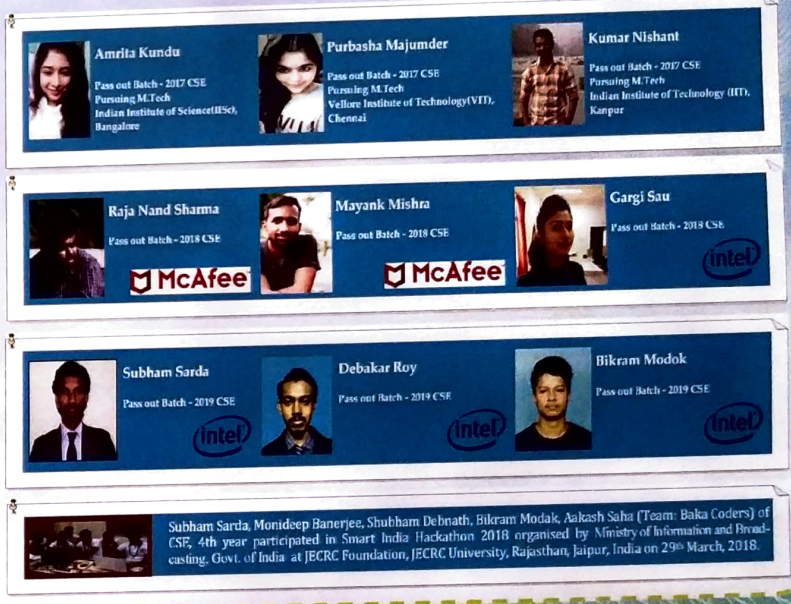
2. Prasanta Kumar Roy, Krittibas Parai, Sathi Ball "Secure Anonymous Session Key Agreement between Trusted Users in Global Mobility Network", 1st International Conference on Contemporary Advances in Innovative & Applicable Information Technology (ICCAIAIT) -AISC series of Springer,Kingston Educational Institute, Berunanpukuria, Barasat March. 24-25, 2018

3.Prasanta Kumar Roy, Krittibas Parai and Abul Hasnat,"User Authentication with Session Key Interchange for Wireless Sensor Network" ,Second International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA-2018)- Publication in Edited volume entitled "Methodologies and Application Issues of Contemporary Computing Framework" of Springer Nature.

4.Nabanita Mahata, Sayan Kahali, Sudip Kumar Adhikari and Jamuna Kanta Sing, "Local contextual information and Gaussian function induced fuzzy clustering algorithm for brain MR image segmentation and intensity in homogeneity estimation". doi. 10.1016/j.asoc.2018.04.031. *Applied Soft Computing, Elsevier*,vol. 68, pp. 586-596, 2018

You have to dream before your dreams can come true

Glimpses of Students' Achievements



Subham Sarda, Monideep Banerjee, Shubham Debnath, Bikram Modak, Aakash Saha (Team: Baka Coders) of CSE, 4th year participated in Smart India Hackathon 2018 organised by Ministry of Information and Broadcasting, Govt. of India at JECRC Foundation, JECRC University, Rajasthan, Jaipur, India on 29th March, 2018.

Alumni Talk

Supratik Saha (2003-2007), Senior Data Scientist at Kelley Blue Book, Greater Los Angeles

We are not made equal and many of us want different things in life. In this time and age where we are bombarded with bitter messages from radically opposite camps it's important to understand and honour our differences. Rather than getting immersed in meaningless arguments to prove the superiority of an idea over another, a constructive approach to life may be to do something positive for our community, our friends and family or even just ourselves. Taking the time to remember the goals that are important to us and assess if our actions are in sync with them is an exercise we should stop to repeat time and again. At the end of the day, a community and country at peace will serve all of us better individually and collectively than a community divided into resentful rival groups.

Ishani Sharma (2013-2017), Associate Developer, Mfinetrix, Chennai, India

Keep trying on new things; go beyond your normal syllabus. Try to explore new stuffs, continue making mistakes. Your mission in life should not mainly to survive, it should be to thrive. And you do so with some passion, with some compassion, with some humor and some style. Enjoy your engineering life while you also study, you also make good outcome out of your time.

Events Roadmap .....

CodeBites2
2nd-3rd November 2017
Conducted by: CES (Students Society)

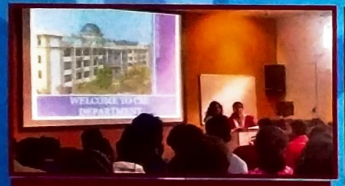
Two days Seminar on
Machine Learning
10th –11th November 2017

SUDOKU Competition
14th November 2017
Conducted by: CES (Students Society)

Basket Ball Champion 2017 (Team—CSE)

Poster Competition (Ranked—First)
Rajiv Chowdhury 3rd Year CSE, 15th Sep'17

Wall Magazine LOGIC 2017



1st Year Induction Programme

Fresher's welcome 2017

Teachers day Celebrations

Editorial Team: Mr. Anupam Mukherjee, Ms. Moumita Ghosh, Ms. Sutapa Bhattacharya, Members of CES

infocast

A Quality Newsletter Published by Department of Computer Science & Engineering

VOLUME II, ISSUE II — JAN , 2018

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

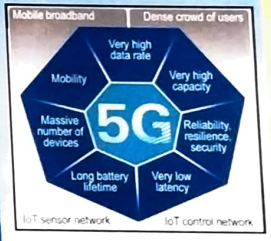
Vision

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

Mission

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

5 G Wireless Technology



5G simply refers to the next and newest mobile wireless standard based on the IEEE 802.11ac standard of broadband technology. We can say that – 5G Wireless Technology denotes the proposed next major phase of mobile telecommunications standards beyond the current 4G standards. Rather than faster Internet connection speeds, 5G planning aims at a higher capacity than current 4G, allowing a higher number of mobile broadband users per area unit, and allowing consumption of higher or unlimited data quantities in gigabyte per minute and user. This would make it feasible for a large portion of the population to consume high-quality streaming media many hours per day on their mobile devices, also when out of reach of Wi-Fi hotspots. 5G research and development also aim at the improved support of machine to machine communication, also known as the Internet of things, aiming at lower cost, lower battery consumption, and lower latency than 4G equipment.

With a huge array of innovative features, now your Smartphone would be more parallel to the laptop. The most distinguishing feature of 5G Network is that the network will be based on the User experience, System Performance, enhanced performance, business models and Management & Operations. 5G will utilize the advance access technologies such as Beam Division Multiple Access (BDMA) and Non and quasi-orthogonal or Filter Bank Multicarrier (FBMC) Multiple Access. The new advanced technology called Fog Computing is going to support the 5G development.

5G Wireless Technology uses UWB (Ultra Wide Band) networks with higher Band Width at low energy levels. Band Width is of 4000 Mbps, which is 400 times faster than today's wireless networks. It uses a smart antenna and CDMA (Code Division Multiple Access).5G will be the single unified standard for different wireless networks, including LAN technologies, LAN/WAN, WWWW – World Wide Wireless Web, unified IP & seamless combination of broadband.

5G isn't expected until 2020, a lot of buzz about its upcoming features, additional benefits in comparison to 4G, resources required to implement the 5G.5G will impact the entire Mobile Network and brings in a new era of technology.

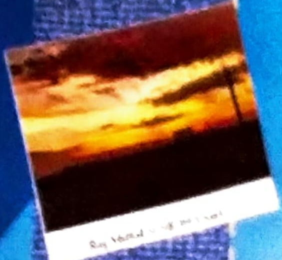
Prof. Jayashree Singha
Department of CSE, SIT

Seminar & Workshop

1. *Machine Learning*

(10th & 11th November,2017)

2. *Image Processing & Pattern Recognition (Going to be held on 27th &28th April,2018)*



THE PARALLEL WORLD: THERE IS ALWAYS SOMEONE BESIDES US

Wouldn't it be awesome if you could choose all the choices of life simultaneously? Keeping this in mind a new concept called 'parallel space' comes to the light. Parallel space is a simultaneous virtual space which exists with the real or the so called actual space where we live in. It is a space with all kind of probable situations that can arise in our day to day life. Stephen Hawkings in one of his books did mention about the parallel universes. These are the alternate universes which coexist along with our own universe in a different dimension at the same time. The combination of all these universes gives rise to an ocean of universes called the 'Multiverse'. These parallel universes may differ from each other starting from small minute changes like the mass of an atom to as large as the number of stars in a galaxy. The concept of parallel universes have been discussed ever since Einstein's proven formula, E = mc² where E is the energy liberated when m, mass of matter travels at the speed of light, c. These formula helps us derive a relation between space and time which gives the understanding of a probability of another possible space. There are a lot of theories suggesting that we can travel from one universe to another parallel universe. Even though if a person can somehow travel from one universe to another it might so happen that he may not be able to return back to his real universe cause the moment he sets foot in the other universe a different possibility altogether begins and now his real universe is left behind. Due to this reason no one has tried to do a dimensional shift or travel from one universe to another. Hence parallel space exists only in theories. However, with the passing of time and humanity reaching its peak development can overcome such a dangerous feat.

Aniket Ghosh

CSE 2nd Year, SIT

Automatic Text Summarization

Text summarization is one of application of natural language processing and is becoming more popular for information condensation. Summarization is the art of abstracting key content from one or more information sources. Summarization includes text summarization, image summarization, and video summarization. Automatic text summarization system generates a summary, i.e. it contains short length text which comprises all the key information of the document. Summary can be generated through extractive as well as abstractive methods. Summarization is the way of abstracting important information from one or more sources. It increases the likelihood of finding the points of texts, so the user will spend less time on reading whole documents. Some people make decisions on the basis of reviews they have seen and with summaries they can make effective decision in less time. With increasing volume of information summarization plays a very important role in terms of time saving. Text summarization is a difficult task which preferably involves deep natural language processing capacities and in order to simplify the issue current research is focused on extractive summary generation. Summarization task can be either supervised or unsupervised. In supervised learning training data is needed for selecting main content from the documents. Large amount of annotated or labeled data is needed for learning techniques. These systems are addressed at sentence level as two-class classification problem in which sentences belonging to the summary are termed as positive samples and sentences not present in the summary are named as negative samples. Some of the classification methods used in machine learning is Support Vector Machine (SVM) and neural networks. Unsupervised systems do not need any training data. They generate the summary by retrieving only the target documents. Therefore, they are appropriate for newly observed data without any advanced modifications. There are different types of summarization technique are present. In this document I just define some language based summarization;

i. Mono-lingual summarization:

This type of summarization include input document and the target document be in same language. Example: English to English.

ii. Multi-lingual summarization:

When source document is in a number of languages like English, Hindi, Punjabi and summary is also generated in these languages, then it is termed as a multi-lingual summarization system.

iii. Cross-lingual summarization:

This type of summary includes source document to be in one language and summary to be generated in some other language.

Ms. Sampa Das

Department of CSE, SIT

Publication Updates ..

Paper publications by our faculties:

1. Moumita Ghosh, Himadri Nath Moulick, International Journal of Trend in Research and Development (IJTRD), "Medical Image Segmentation", Volume 4, Issue 4, pp.[illegible], July-Aug 2017, ISSN: 2394-9333.

2. Prasanta Kumar Roy, Krittibas Parai, Sathi Ball, Bipin Kumar, "A new enhanced secure anonymous communication with authentication and session key agreement in global mobility network", IEEE 3rd IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), 23 December 2017.

3. Sudeep Basu, Indrajit Pan, "Overlapping Community Detection through Threshold Analysis on Disjoint Network Structures", International Conference on Advanced Computational and Communication Paradigms (ICACCP), Springer, SMIT, Sikkim, 2017), Springer (In Press).

4. Debajyoti Guha, Rajdeep Chakraborty, J.K. Mandal, "An Approach Towards Design and Analysis of a new Cryptographic System using Modular Encryption and Decryption Technique", 52nd Annual Convention of Computer Society of India (CSI 2017) as Indian National IT Congress, Theme: Social Transformation Digital Way, Kolkata Chapter 19-21 January 2018, Springer Nature Singapore [illegible] (In Press).

Glimpses of Students' Achievements

Congratulations to Ms. Neha Goyal (2017 Passout CSE): Successfully Cleared Common Admission Test 2017 (Indian Institute of Management). Her Overall percentile is 89.59.

Congratulations to Mr. Monideep Banerjee (B.Tech 3rd Year CSE) for 2nd Runners up, Inter College Chess Championship on 21st January 2018.

Congratulations to Ms. Gargi Sau (B.Tech Final Year CSE) for Successfully placed at Intel Inc. after Internship.

Inauguration of Computer Engineers' Society for the Department of CSE & IT Students. They have successfully conducted two events in this session—CodeBites2 and Sodoku competition.

Entrepreneur

Director, Int Business College, London, England

AMAR HALDER
B.TECH CSE (2003-2007)

Carrying out research and collecting data to understand the industry and conducting analysis to find out best solutions and also deliver guest lectures, Seminars and workshops. Interviewing teachers, employees, management team and other stakeholders.

http://www.intbusiness.co.uk/

CEO, Fixfin Technologies Pvt. Ltd., Siliguri

ANIRUDDHA BISWAS
B.TECH CSE (2006-2010)

Fixfin's software can be easily used by leading corporate Houses, Small and Medium enterprises, in diverse industries such as pharmaceutical, health-care, medical devices, high tech manufacturing, energy financial services, education automotive sectors and also Government Sectors to manage records, digital content, workflow, business process, process compliance and e-governance initiatives.

http://www.fixfintechnologies.com/

Founder & Owner of Appy Codes—Go Digital , Stay Ahead

Swati Agarwal
B.Tech CSE (2007-2011)

Web Design and Development, Website Development, Web Development, Mobile website development, E-commerce Web site development, Android App development, Digital Marketting, Google Ad Words, Facebook Marketing.

http://www.appycodes.com

Events Roadmap .....

Basket Ball Champion 2017

E-Quiz

Seminar on Big Data

Seminar on IoT

Neha Goyel (Managedia 2017)

Code-Bites

Rajiv Chowdhury 2nd yr CSE

Art Workshop 2017

Online Mock Test 2017

Wall Magazine LOGIC 2017

Days with Book 2017

Editorial Team

Anupam Mukherjee
Moumita Ghosh
Sutapa Bhattacharya

SILIGURI INSTITUTE OF TECHNOLOGY

infocast

TECHNO INDIA GROUP

A Quality Newsletter Published by Department of Computer Science & Engineering

VOLUME II, ISSUE I JULY , 2017

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Vision

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

Mission

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

CONGRATULATIONS! DEPARTMENT OF CSE IS NOW ACCREDITED BY NBA NATIONAL BOARD OF ACCREDITATION

MACHINE LEARNING TO AUTONOMOUS ROBOTICS

Robotics is one of the most challenging applications of Machine Learning (ML) techniques. It is characterized by direct interaction with a real world, sensory feedback and an enormous complexity of the control system. In recent years there has been an increasing interest in applying machine learning techniques to robotics. The learning techniques used range from rote learning and inductive learning algorithms over analogical reasoning to Explanation Based Learning (EBL) and Case Based Learning (CBL). **Learning by Object description:** As we assume that there are no object models given a priori, a first module builds up generic descriptions (quantitative geometrical information and structural relations) consisting of a set of 2D-views for an object. Each 2D-view is given by a set of edges being extracted in real time by vision hardware. **Learning Object by experiments:** A second learning module consists of the acquisition of further object knowledge by active experiments of the system. This is necessary because the goal of the system is not just the classification of an object but the determination of actions to solve a given task. Experimental evaluation is based on force-torque sensor values and visual information. **Learning action rules:** There are two possible ways to reuse action planning knowledge for future tasks. First, try to transform the result of a planning task according to new needs. Second, build up a set of action rules which determine an appropriate action with respect to the current context.

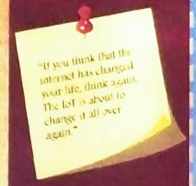
Risab Biswas
3rd Year, Department of CSE

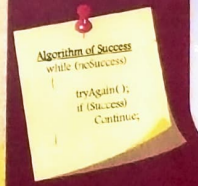
WannaCry
Ransomware Attack

World's biggest cyber attack sends countries into 'disaster recovery mode' - more than 200,000 victims in at least 150 countries

Internet of Things (IoT)

Ms. Sutapa Bhattacharya
Assistant Professor (CSE, SIT)





The **Internet of Things (IoT)** is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided **with** unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

A thing, in the Internet of Things, can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low -- or any other natural or man-made object that can be **assigned** an IP address and provided with the ability to transfer data over a network.

SECURITY & CHALLENGES

50 petabytes (a petabyte is 1,024 terabytes) of data available on the internet were first captured. IPv6's huge increase in address space is an important factor in the development of the Internet of Things.

Data privacy, data sovereignty and security are more concerned as numbers of nodes are increased. To improve security, an IoT device that needs to be directly accessible over the Internet, should be segmented into its own network and have network access restricted. The network segment should then be monitored to identify potential anomalous traffic, and action takes problem arises.

In 2013, a researcher at Proofpoint, an enterprise security firm, discovered the first **IoT botnet** where 25 percent of the botnet was made up of devices other than computers, including smart TVs, baby monitors and other household appliances.

APPLICATIONS:

Practical applications of IoT technology can be found in many industries today, including precision agriculture, building management, healthcare, energy and transportation.

Smart city is another powerful application of IoT generating curiosity among world's population. Smart surveillance, automated transportation, smarter energy management systems, water distribution, urban security and environmental monitoring all are examples of internet of things applications for smart cities.

Mayank Mishra
3rd Year, Department of CSE

Often referred to as keylogging or keyboard capturing, is the action of recording (logging) the keys struck on a keyboard, typically covertly, so that the person using the keyboard is unaware that their actions are being monitored. Keyloggers record every keystroke a computer user makes.

Uses of Keylogger

They are used to steal credit card and bank account numbers, user names and passwords. They are also used to monitor employees. Keylogging can also be used to study human–computer interaction. They are marketed to monitor the computer usage of children. They are used to steal credit card and bank account numbers, user names and passwords.

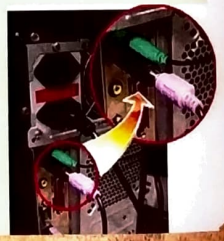
Key loggers are two types

1. Sofrware based
2. Hardware based

Countermeasures

The effectiveness of countermeasures varies, because keyloggers use a variety of techniques to capture data and the countermeasure needs to be effective against the particular data capture technique.

Anti keyloggers , Live CD/ USB , Anti-spyware / Anti-virus programs , Network monitors ,One-time passwords (OTP) , On-screen keyboards , Keystroke interference software , Non-technological methods .



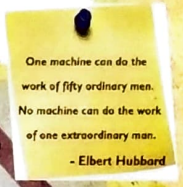
Publication Updates ..

Paper publications by our faculties:

1. **Sudeep Basu**, Shomya Shekhar, Nilesh Kumar, Subhamita Mukherjee, Indrajit Pan, ***"A particle Swarm Model For Static Community Detection Based on Homogeneous Features"***, IEEE International Conference on Recent Trends In Electronics Information Communication Technology held on 19th to 20th May,2017 at Bangaluru
2. **Sudeep Basu**, Aniruddha Banerjee, Auvik Dey, Subhamita Mukherjee, **Indrajit Pan**, ***"Clustering by Feature Optimization For Static Community Detection"***, IEEE International Conference on Recent Trends In Electronics Information Communication Technology held on 19th to 20th May,2017 at Bangaluru
3. S. Jana, **J. Singha** and S. Singha. ***Design and Implementation of Path Establishment and Maintenance Technique for MANETs.*** International Journal of Computer Application (IJCA), USA, Volume-158, No-3, pp. 5-12, January 2017.
4. J. **Singha**, S. Jana and S. Singha. ***Encoding Algorithm Using Bit Level Encryption Decryption Technique***. International Journal of Computer Application (IJCA), USA, Volume-160, No-2, pp. 23-26, February 2017.
5. **Moumita Ghosh** and Himadri Nath Moulick, ***"A Review Paper of Squamous Cell"*** International Journal of trend in Research and development (IJTRD), Vol 3, Issue 6, Nov—Dec 2016, pp-721-725.

Workshop & Seminar For Students:

1. **Three days workshop on Internet of Things (IoT) – 16th to 18th March, 2017**
2. **One Day Seminar on Big Data, conducted on 4th March 2017.**



Glimpses of Students' Achievements

- **Amit Kumar Roy (CSE 2003) got US Patent. (Title of Invention: VIRTUAL EXTENSIBILE LAN TUNNEL KEEPALIVES)**

Alumni Speak

Abhishek Roy (Assistant System Engineer at TCS) 2016 Pass-out

First of all Thanks for giving me an opportunity to share my experience. I am honored. Those 4 years was a golden period of my life which I will never forget. I must be grateful to each and every teachers as well as technical and non-technical staff's for their unbelievable contribution of our CSE department; their wonderful support all the time helped us to reach to a certain positions. Good lab facility helped to achieve more practical knowledge. Moreover if come up with any help, Our Dept Teachers were always with me. Thanks for such supports. Still I do remember overwhelming support from the seniors staring from study materials to advices. Even after coming out of college life still they are helping us for our career. Finally Thanks to juniors too, many things I learnt from them also.

Prem Agrahari (IT Consultant at Infosys) 2011 Pass-out

There goes a saying "every successful thing in life has a gestation period". For us it was the most glorious, memorable, happiest 4 years of our lives. Every child when comes to this universe holds the hands of his/her parents to stand and rise in life. Like ways right from the beginning of our college life till the end, we had some great faculty members from our department who taught us, mentored us, and helped us to walk the path of our college life by holding our hands. It will be unfair to name anyone as it will be like demeaning the effort of others who pruned us for the hard, sophisticated world outside the college. Words seem to be petty things when it comes to repay our faculty member's effort, love, dedication, commitment, hard-work to prepare us for what we are today. I will just say that you all will always remain in our heart as long there is a single breath in our body. We will always be grateful to you for giving us moments which will always remain eternal for us life-long.

Events Roadmap .....

A Days with Book 2016

Induction Program

Independence Day

Fresher's Welcome 2016

Annual Games & Sports 2016

P.C: Subham Sarda 2nd yr CSE

P.C.: Rajiv Chowdhury 2nd yr CSE

Art Workshop 2016

Online Mock Test

Wall Magazine

Faculty Members of CSE

Editorial Team

Anupam Mukherjee

Aparna Kisku Hansda

Mounita Ghosh

infocast

A Quality Newsletter Published by Department of Computer Science & Engineering

VOLUME I, ISSUE II

DECEMBER , 2016

DEPARTMENT VISION & MISSION

VISION

"To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry".

MISSION

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

Google Home

Monideep Banerjee
Student, CSE, 2nd Year

Virtual Assistant that manages every days task effectively.

Voice-activated virtual assistants for the home are all the rage these days. Google Home is a cute little air-freshener-looking contraption that responds to your voice and lets you ask questions, interact with Google apps and services, and control things like music and video playback simply by speaking. The main brain of Google Home is something Google calls the Google Assistant. It's basically an expanded and rebranded version of the voice control system we have in Android now (all the "OK, Google..." goodness), with even more focus on conversational interaction. Google Home was announced on May 18, 2016, at Google's I/O developer conference.

First and foremost, Google Home is a speaker, so naturally it will play music. This is expected to work just like the Chrome cast Audio, insofar as it will stream audio over Wi-Fi, using your voice or smart phone as a control mechanism.

'Smart' Tattoo

Joy Talukdar
Student, CSE, 2nd Year

DuoSkin: Prototyping on-skin user interface.

This article provides you an overview of the recent advances in the field of skin-worn-tattoo based wearable electrochemical devices, including electrolyte and metabolite sensors, biofuel cells and batteries. "Tattoos", a trending fashion which is being seen among the teenagers have also put a step forward to technology and with a unique style of innovative ideas. Is it believable that tattoos that act as an input device can convert skin into a track pad, letting users connect to a computer or smartphone and control apps by swiping on the tattoo itself? But its true friends. A group of PhD students from the MIT Media Lab and researchers from Microsoft have created the ultimate wearable metallic tattoo that can be used to control your computer, smartphone and other connected devices or share data using NFC. According to Hsin-Liu Kao "These tattoos enable anyone to create interfaces directly on their skin. " These temporary tattoos called DuoSkin use layers of gold leaf - usually used to decorate photo frames and chocolates that act as a conductor and connect parts of a small, simple circuit. This new technology lets anyone create their own durable, customized gold metal leaf temporary tattoo that can be worn directly on the skin and used in several ways. The third class includes a near field communication (NFC)-enabled version of the tattoos that can be used as a wireless communication device, enabling you to communicate information such as "skin status" or movie tickets, by tapping a smart phone onto the tattoo. Each tattoo can include an NFC chip, a thermo chromatic layer or light emitting diode (LED) lights.

Reference: Cindy Hsin-Liu Kao, Christian Holz, Asta Roseway, Andres Calvo, Chris Schmandt, "DuoSkin: Rapidly Prototyping On-Skin User Interfaces Using Skin-Friendly Materials.", to appear in ISWC'16. Heidelberg, Germany (September 12-16, 2016). ACM, New York, NY, USA, 8 pages.

Project Loon

Anurag Sharma, Neha Goyal
CSE, 4th Year

Internet is very crucial for everyone. However, it is grief-striking to know that still two-thirds of the world's population does not yet have internet access and is still distant from the boon of the network. To overcome this hurdle for millions of people, Google's "Project Loon"- a network of balloons travelling on the edge of space is designed to connect people in rural and remote areas, helping fit coverage gaps, and bringing people back online after natural disasters. **Project Loon** is a research and developmental project being developed by Google X with the mission of providing Internet access to rural and remote areas. The project uses high altitude balloons placed in the stratosphere at an altitude of about 18 km (11 mi) to create an aerial wireless network with up to 4G-LTE speeds. The balloons are maneuvered by adjusting their altitude in the stratosphere to float to a wind layer after identifying the wind layer with the desired speed and direction using wind data from the National Oceanic and Atmospheric Administration (NOAA). Users of the service connect to the balloon network using a special Internet antenna attached to their building. The signal travels through the balloon network from balloon to balloon, then to a ground-based station connected to an Internet Service Provider (ISP), then onto the global Internet. The system aims to bring Internet access to remote and rural areas poorly served by existing provisions, and to improve communication during natural disasters to affected regions.

Flying high in the stratosphere -twice as high as airplanes and weather, the Project Loon's balloons is carried around the earth by winds and they can be steered by rising or descending to an altitude with winds moving in the desired direction. The signal bounces from balloon to balloon, which then provides a connection back down on Earth. Each balloon can provide connectivity to a ground area of about 40 km in diameter and speeds comparable to 3G. For balloon-to-balloon and balloon-to ground communication, the infrastructure uses antennas equipped with specialized radio frequency technology. As part of the 2013 Pilot Test in New Zealand, Project Loon used ISM bands (specifically 2.4 and 5.8 GHZ bands) that are available for anyone to use.

The balloons are filled with helium, run by solar power and are about 15 meters in diameter when inflated. Technicians can control the movement of a balloon by shifting them up or down on different air currents. A machine on the balloon allows air in and out, controlling altitude. Each balloon can provide internet on the ground to an area of over 1200 square kilometers. The balloons cannot stay in one place, so in the future the idea would be to have so many balloons in the sky that coverage is constant. The balloons currently have an expected life-span of a few weeks but future technology could see them last for hundreds of days. The balloons are tracked by a GPS system and a transponder so air traffic control know where they are at all times.

Forget the Internet, soon there will be Outernet!

HP, Microsoft and Apple have one very interesting thing in common – they were all started in a garage.

rvard University Scientist **DanileNocera**, develthe **bionic Leaf** to cre- Liquid Fuels using Sunlight"

DIGITAL FOOTPRINT

Footprinting is the first and most convenient way that hackers use to gather information about computer systems and the companies they belong to. The purpose of footprinting is to learn as much as you can about a system, its remote access capabilities, its ports and services, and the aspects of its security. Footprinting is the technique of gathering information about Target of Evaluation (TOE). During footprinting, the attacker may use the free resources available on the Internet to gather information about TOE. Footprinting is a passive way of reconnaissance & efforts are made to ensure that there is no direct contact with TOE.

Benefits of Footprinting are Stealth – Since the process is passive and no direct contact made with the TOE, footprinting provides higher degree of stealth and anonymity.

There are some techniques which can be used for footprinting viz. By crawling Target Company's Website, Whois Database Search, Google Search, Similar Domain Search, Trace route, Social & Business Networking Sites, Negative Websites .

We can gather information about the target by crawling target's website and by collecting information that we have gathered under this step such as email address, company's partners, physical address of offices, centers. Secondly we can gather information about the target is to query the whois database against the company's domain name & check whether their name servers are located and details about their technical staffs for managing websites and domain name along with details or registration. Using Google search (if used properly) a lot of information can be collected about the target such as its policies, employees etc.

Mayank Mishra
CSE (3rd Year)

Publication Updates ..

Paper publications by our faculties:

1. **Book Chapter by ANUPAM MUKHERJEE: "Intelligent Analysis of Multimedia Information"**, ISBN13: 9781522504986|ISBN10: 1522504982|EISBN13: 9781522504993|DOI: 10.4018/978-1-5225-0498-, **Chapter 5: Retrieval of Multimedia Information Using Content Based Image Retrieval (CBIR) Techniques. July, 2016.**
2. **A. Barman and P. Dutta**. "Distance signature based facial expression recognition system using perceptron". Journal of Pattern Recognition Research, 2017.(In press)
3. **Sampa Das, *"Using Network Model Represent Metadata in Data Warehouse"***, January 16 Volume 4 Issue 1 , International Journal on Recent and Innovation Trends in Computing and Communication (IJRITCC), ISSN: 2321-8169, PP: 123 - 125
4. Anindita Sinha, Moushumi Das, **Jayashree Singha,** "Design of a Sun Tracker with Position Display", International Journal of Engineering & Computer Science, Vol.4, Issue 9, Sep 2015, Page No. 14079-14083

Paper publication by our Student:

1. Anupam Mukherjee, **Kumar Gaurav, Abhishek Verma, Harishankar Kumar, Rahul Thakur**," Content Based Image Retrieval using GLCM", International Journal of Innovative Research in Computer and Communication Engineering, Vol. 4, Issue 11, November 2016

Only about 10% of the world's currency is physical money, the rest only exists on computers.

Glimpses of Students' Achievements

Sl No.	Pass out Batch	Name	Achievements	University
1	2016	Aniruddha Das	Gate 2016 AIR 544	Joined in Industry
2	2015	Suthirtha Chakraborty	M.Tech	NIT Silchar
3.	2015	Uttam Nandi	M.Tech	IIT Bombay
4	2015	Sujyestha Kumar	M.Tech	KIIT Bhubaneswar
5	2012	Sumit Adak	M.Tech (GATE - AIR 1024)	IIIEST,Shibpur 2012-14
			Pursuing PhD	IIIEST,Shibpur From 2014
6	2012	Anushree Saha	M.Tech (GATE - AIR 960)	IIIEST,Shibpur 2012-14
			Pursuing PhD	IIIEST,Shibpur From 2014
7	2012	Mona Minakshi	MS	University of South Florida
8	2011	Manjari Pradhan	Pursuing PhD	ISI Kolkata
9	2011	Neha	MBA 2011-13	IIM Bangalore
10	2010	Ritesh Sharma	M.Tech	IIT Bombay
			MS	Oregon State University
11	2010	Avinash Jaiswal	M.Tech Gate 2010 AIR 100	Indian Institute of Science, Bangalore
12	2009	Arijit Mukherjee	Gate 2009 AIR 775 M.TECH	NIT Rourkela

VOLUME 1, ISSUE 1

SMART CITY

SUMAN SHAW, B.TECH, CSE, 4TH YEAR

When we say "smart city", we mean "smart governance", "smart energy", "smart building", "smart mobility", "smart infrastructure", "smart technology", "smart healthcare" and "smart citizens" within the city, transforming life and working environments, embedding Information and Communication Technology (ICT) across all city functions. It ensures robust IT connectivity and digitization along with core infrastructure such as water supply, electricity supply, sanitation, public transport, solid waste management and affordable housing..

It makes more efficient use of physical infrastructure such as roads, built environment and other physical assets and use of artificial intelligence and data analytics to support a strong and healthy economic, social, cultural development. It engages effectively with local people in local governance and decision by use of open innovation processes and e-participation, improving the collective intelligence of the city's institutions through E-Governance, with emphasis placed on citizen participation and co-design.

Introducing the concept of smart cities in India is a great idea but due to increasing poverty rate, lack of infrastructure and basic amenities, the cities might have to face a lot of challenges. A nation with a strong infrastructure would be successful in creating numerous smart cities.

SOMEONE TO WATCH OVER YOU?

SUSHOBHIT BISWAS , (CSE, 4TH YEAR)

We live in a country where we fear the police more than the crook himself! The doctors and their heinous look more than the disease itself! Yet, a country vouching to be a superpower, an epitome of peace, love and hard work. One must ask why we have to live among such complexities? The answers are there. Population. Poverty. Illiteracy. So are the solutions to those. We need to start one demon at a time. But to survive everything, one must first make oneself healthy. Then, perhaps, wise and rich. And that's what we need. Every Indian's health secured. Every Indian's health secured. A centralized system looking after it all. A prompt team always ready to act. A technical setup to back everything. We can start by perhaps the most painstaking process, and that to collect the basic medical data of the citizens. A leviathan task, admitted, but nothing unachievable. It can be integrated with the census programmes conducted periodically. Eventually, as it evolves, it could serve as a ready reference in cases of emergency. A cheap, light and inexpensive Health Band, a wearable gadget, serves the purpose of tracking and maintaining daily respiratory and cardiac functioning history. Any severe abnormalities triggers an SOS message, complete with one's unique ID and GPS location details. This provides a chance of immediate response, if aided by prompt, efficient and able support teams. Scope for a doctor to get assigned and be prepared even before a victim arrives! Eventually, saving a life!

Events Roadmap .....

A Days with Book 2016

Seminar On Network Security

Independence Day

Fresher's Welcome 2015

Art workshop 2016

P.C.: Ishant Sarma (CSE 4th Year)

Teacher's day Celebrations

P.C.: Ishant Sarma (CSE 4th Year)

Seminar Inauguration

Dr. Sarmistha Neogy (JU)

Dr. Sangram Ray (NIT Sikkim)

Faculties of CSE

Message from the desk of Director, SIT

It is a great pleasure for me to know that the Department of Computer Science and Engineering is going to publish its news letter "Infocast".

I do believe that this news letter will reflect the ideas and planning of the Department for fruitful utilization of the knowledge base of the teachers and students as a whole.

The focus will also be given in the innovative practices of the Department to culminate the new thinking amongst the budding engineers for positive contribution in the real life.

I wish a colorful opening of the news letter.

[Dr. J. Jhampati]
Banga Ratna

A team is not a group of people who work together.
A team is a group of people who trust each other.
— ***Simon Sinek***

Message from the desk of Editor

We are delighted to announce the publication of the inaugural edition of our departmental newsletter "*infocast*"- a biannual publication, concerned with providing the latest information and trends in technology across the globe .It publishes technical content that covers all elements of computer science, computer engineering, technology, application and review the content process of development in all sphere of computer field.

"*infocast*" will send a positive signal to the staff and students who are interested in the educational and literary activities, like a mirror which reflects the clear picture of all sorts of activities undertaken by the department and develops writing skills among students in particular and teaching faculty in general. We fervently hope that our teachers & students will keep their unremitting support for the issue to come to enrich the quality of the "*infocast*". Kindly post your valuable suggestions & comments to infocast.sit@gmail.com for the betterment of the newsletter in any time.

Mr. Anupam Mukherjee
Mrs. Aparna Kisku Hansda

SIT SILIGURI INSTITUTE OF TECHNOLOGY

infocast

TECHNO INDIA GROUP

A Quality Newsletter Published by Department of Computer Science & Engineering

VOLUME 1, ISSUE 1

INAUGURAL EDITION , 2016

DEPARTMENT VISION & MISSION

VISION

To be a nationwide recognized department that produces versatile computer engineers, capable of adapting to the changing needs of computer and related industry in the next five years.

MISSION

1. To impart quality technical education with skills, knowledge and attitude to succeed in Computer Science & Engineering careers.
2. To provide knowledge of emerging trends in computer and related industry and foster environment of lifelong learning.
3. To develop graduate engineers who investigate research, design and find workable solutions to complex engineering problems with awareness and concern for society and environment.

Social Network Analysis

In recent years, networks (graphs) have more and more been used to represent various kinds of complex system in the real world. Many net-works show *community structure*: the tendency of vertices to form *communities* (or *modules/group*) such that intra community edges are denser than the edges between communities. Communities often reflect important relationships between individuals (vertices), so the automatic detection of communities has become one of the key tasks in Network Analysis.

Social patterns and connotations are everywhere in present day applications, which have made significant impact on human life. Zone restrict-tion among interacting people has gone into forgetfulness with development of applications that makes it easy for everyone to connect to their friends using internet. Social interaction websites like Facebook, Linkedin, Flickr, Twitter have added a new dimension to the social life of internet aware people.

The social interactions in these social networking or social media website, when interpreted in terms of graphs, gives us an idea of how the inter-actions are oriented but the dynamics behind the formation of such complex networks may not be explicit until one analyzes the data.

Once a target based analysis is done on such social data, the patterns found from it can be used to manipulate the complex social interaction system.

Social networks can be well rep-resented by graph data structure where the social actors are represented by nodes and social relations between the actors are represented by edges between those nodes. Communities are usually denser sub graphs that can be seen as independent modules sparsely connected to each other to build the scale-free social networks.

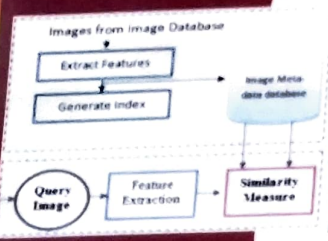
In practice, a person has multiple interests and hence can be part of multiple interest groups. So, trying to divide the network into groups of people, where one person is an exclusive member of only one group, may not always be meaningful. If one person is allowed to be a member of more than one group, those groups may have overlapping components and hence may be termed as over-lapping communities. Formation of disjoint communities in social net- works is more of a special situation where the basis of generating the network does not probably allow individuals to be members of multiple groups whereas formation of overlapping communities is more natural in most of the other situations.

SNA applies to a wide range of business problems, including:

Knowledge Management and Collaboration
Team-building
Human Resources
Sales & Marketing

Mr. Mithun Roy
Assistant Professor
Department of CSE, SIT

Image Retrieval - A non conventional approach.



Architecture of a content based image retrieval system

There is something in this world that no word can convey it. It has to be seen. The facial expressions of an actor while playing Charlie Chaplin. Try to imagine a doctor describing the Angiogram report without seeing them. It is beyond words. Interpretation of what we see is hard to characterize.

In 1992, T. Kato introduced the term *content-based image retrieval* (CBIR), to explain his research work on automatic retrieval of images from a database by color and shape features. Content-based image retrieval (CBIR), a technique which uses visual contents to search images from large scale image databases has been an active research area. Early techniques of image retrieval were based on the manual textual annotation of images.

"Content-based" means that the search will analyze the actual contents of the image rather than theas keywords, tags, and descriptions associated with the image. The term 'content' in this context might refer to colors, shapes, textures, or any other information that can be derived from the image itself. During the retrieval procedure features and the descriptors of the query are compared to those of the image in the database in order to rank of the each index image according to its distance to the query.

Content-based image retrieval (CBIR) is the application of computer vision to the image retrieval problem. Some of the major areas of application are Art collections, Medical diagnosis, Crime prevention, Military, Intellectual property, Architectural and engineering design and Geographical information and Remote sensing systems.

Mr. Anupam Mukherjee
Assistant Professor
Department of CSE, SIT

"Google will build a car without a steering wheel. It doesn't need one because it drives itself."

"Google, Amazon and Wal-Mart join FAA drone task force"
-By Martyn Williams
News Oct 30th 2015

Internet of Things (IoT)

- Subhadip Majumder (CSE, 4th Year)

The **Internet of Things** (IoT) is the network of physical objects or "**things**" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. In simple words it's a smart thing or object. Every day our world is moving towards a smart world, with smart people and their smart thinking, this leads us to the world where smart objects lives. If we think about the little things that we always use in our daily life like a pen or a watch or it can be a television or any other home appliance. So if all things around you can interact with you then I guess it will be the best possible phenomena. Smart watches, phone, home, city and the smart people can make a huge revolution in our lifestyle. But we have to keep it in our mind that those smart things do not take over us or we will be servants of them forever.

green COMPUTING

Green Computing is the environmentally responsible and eco-friendly use of computers and their resources. The primary objective of such a program is to account for the triple bottom line -

- Planet—Environmental benefits
- Prosperity—Economic benefits
- People—Social benefits

Nowadays in order to achieve social awareness and promotion of green technology solutions, main four complementary approaches are employed:

Green Use: Reducing to power consumption of computers, information systems and their peripheral subsystems in environmentally friendly manner.

Green Disposal: Recycling unwanted used computers and other electronicaste by IT vendors using their "take back" policy in order to take responsibility for the full lifecycle of products they produce.

Green Design: In broader aspect connecting companies, government agencies and environmental organizations in order to develop inventive management, business and regulatory processes.

Green Manufacturing: Process of production of computers and associated devices include methods of manufacturing and biodegradable components for minimal.

Green Cloud Computing: Clouds consolidate environment, saving power, cooling, space and money.

Solar Computing: Solar cells combined with VIA processor platforms and system technologies developed complete solar-powered computing solutions that are less polluting, more affordable, more reliable ,more flexible and self-sufficient.

Ms. Sutapa Bhattacharya,
Assistant Professor, CSE Dept.

Departmental Achievements

Paper publications by our faculties:

1. Partha Basuchowdhuri, V K Lakshan Prabhu, **Mithun Roy**, Subhashis Majumder, Sanjoy Kumar Saha, "Unified Scheme for Finding Disjoint and Overlapping Communities in Social Networks Using Strength of Ties." Published in International Journal of Social Network Mining, Inderscience Publishers.
2. **Mithun Roy, Anupam Mukherjee, Alok Basu**, Pratik Kumer Halder, **"SOLVING LINEAR EQUATIONS FROM AN IMAGE USING ANN"**. Published in IJRET Volume: 04 Issue: 02 | Feb-2015, pp: 586,Available @http://www.ijret.org, Impact Factor -2.375, Index Copernicus value - 6.53.
3. Nabanita Das, Arnab Kumar Das, **Debaditya Kundu, "ENHANCEMENT ON 3D PLAYFAIR CIPHER USING 9x4x4 MATRICES"**. Published at National Conference on Computational Technologies-2015 (NCCT' 15).
4. **Sampa Das, "SURVEY OF TECHNIQUES USED FOR ANSWER EVALUATION USING SEMANTIC NETWORK"**,Journal on Recent and Innovation Trends in Computing andISSN: 2321–8169 Volume: 3 Issue: 191 – 95.
5. **Sudeep Basu, "Intrusion Detection in Online Controller of Digital Micrifluidic** " in IEEE- ICCICN 2014 at Kolkata, India during 14th – 16th November, 2014.
6. **Prasanta K. Roy & Asit Barman, "A Cluster – Based Parallel Router for DMFBs"** in International Journal of Engineering Research & Technology (IJRET) in July, 2014.
7. **Moumita Ghosh** and Himadri Nath Moulick," ***Straight Line Detection And Real - Time Line detection Using OpenGL***", International Journal of Scientific & Engineering Research(IJSER), Mar 2014, Vol. 5, Issue 3.

Paper publication by our Student:

1. Prasanta Kr. Roy, **Suman Shaw**, "A High Performance Parallel Router for DMFBs", International Journal of Science and Research (IJSR), Volume 4 Issue 3, March 2015. (http://www.ijsr.net/archive/v4i3/SUB151895.pdf)

Achievements by faculties in professional exams:

1. **Mrs. Aparna Kisku Hansda** and **Mrs. Uma Chaki** successfully cleared the **UGC SET Examination 2013**.

Our Pride ....

"Michigan Micro Mote (M^3) is the world's smallest computer"

In Professional Exam:

1. Indira Mukherjee (CSE 2006 Passout). Successfully cleared the UPSC (Group - A) Exam 2013 and joined IPS.
2. Sushmita Saha of CSE successfully cleared MAT Examination (September 2015), scored 651 out of 800.
3. Sutirtha Chakraborty of CSE (2015 pass out) joined in M.Tech program at NIT Meghalaya.
4. Ankush Goyal, Suman Bar, Shamik Dutta, Amit Kumar Yadav and Srija Kanth of CSE successfully cleared the GATE 2014 examination. Out of them Ankush Goyal made a mentionable AIR of 2420 with a GATE score of 568.

Technical accomplishment by the students:

1. Prashant Dubey of CSE was runner-up in the "ALACRITY Robowar" event held at SIEM in January, 2014.

TCS CODEVITA ACHIEVEMENTS
(A World Wide Coding Competition Organized By Tata Consultancy Services)

1. **Event in Year 2015 (7th & 8th Aug) - First round successfully cleared by 12 students from CSE and IT Dept.**
[Aniruddha Das (Ranked 271), **Siddhartha Chatterjee (271)**, **Suman Shaw (661)**, Raja Sharma (1675), Shashi Patel(1675) , Rosit Roy (2542),Abhishek Bhowmick(2542), Diksha Agarwal (2675), Ishant Sharma (2675), Rangan Roy (2803), Sumana Sural (2803), Priyanka Saha (2803)]

2. **Event in Year 2014 (First Round September and Second Round November) - Both round successfully cleared by 2 students from CSE department.**
[**Suman Shaw** and **Sagar Bhattacharjee (Jointly** Ranked 620)]

Potencia

A Quarterly Newsletter by Department of Business Administration, Siliguri Institute of Technology

Issue 4, Vol. 1 (January-April- 2018)

Message from Chief Editor

International Mother Language Day has been celebrated every year to promote linguistic and cultural diversity and multilingualism. Mother language means a language that is used by the people of a country to express their ideas, thoughts, feelings and emotions.

On the day of 21st February 1952, when students were killed in Dhaka, the capital of Bangladesh, because of Bengali and Urdu language controversy. In 1948 when government announced Urdu as the national language, it sparked the protest among the Bengali speaking majority of Pakistan. The protest got out of control and ended with the death of protestors of the University of Dhaka who were shot by the police. The students' deaths during the fight for their mother language

Potencia

A Quarterly Newsletter by Department of Business Administration, Siliguri Institute of Technology

Issue 5, Vol. 1 : January - April, 2017

Message from the desk of Director

It is a great pleasure for me to know that the Management Department of the Institute launched its News letter "**Potencia**" to explore the activities of the department.

I do hope this will cultivate and inspire all the students and education lovers curious about the activities of the department.

It will also create a platform for curious persons about the different wings of Management.

I wish its colourful propagation all through.

Potencia

A Quarterly Newsletter by Department of Business Administration, Siliguri Institute of Technology

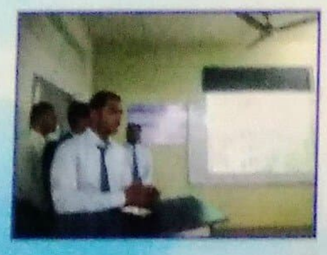
March 2019

Issue 7, Vol. 1

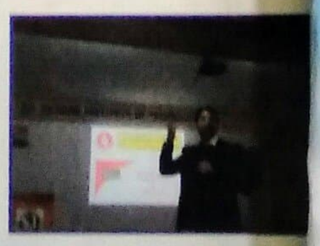
VIGNETTE

Business Plan Competition

Union Budeget Presentation Competition 2019



Expert lecture on Retailing by Mr. Anuj Kwatra, Country Head, Mc Cain,Canada



Expert lecture on IFRS by Prof. S. Das,University of Calcutta on 16.02.

Freshers Party 2018

Potencia

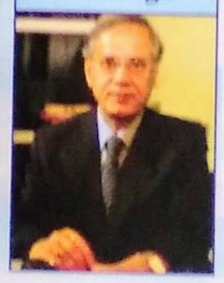
Siliguri Institute of Technology

A Quarterly Newsletter by Department of Business Administration, Siliguri Institute of Technology

February 2020

Issue 8, Vol. 1

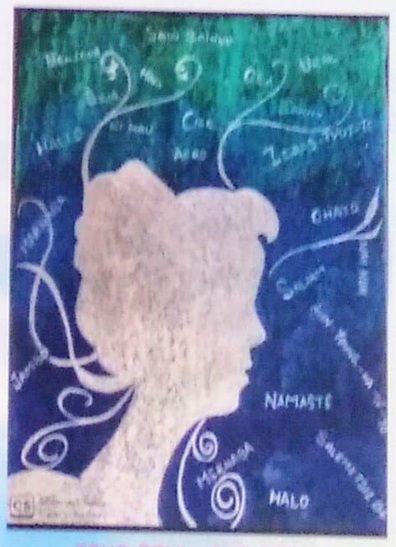
Director's Message



21"February is an era marked as "International Mother Language Day". This year Dept. of Business Administration in SIT has taken up the theme International Mother Day for its newsletter, Potencia. On this day UNESCO and other UN agencies appreciate and encourage people to be knowledgeable about their mother language and culture towards other countries.

I hope their such tribute will be attributed in the psychology of students not only of Management but also of other streams, as they will be inspired to devote their respect not only to their Mother Language but also to their Mother Land and above all to their mother in real life. Wish all success of the students, Teachers and this Magazine of Department of Management.

Prof. (Dr.) P. K. Adhvaryyu



JAYA PAUL, 2ND SEM.

The Importance of Lang

Preet

4th

One's own native language, the language that you and I speak language that everybody speaks when they are with their closest f is referred to as the person's "Mother Tongue."

An interesting reason why that very language, whichever it is, is the Mother tongue and not Father tongue is because it is the from whom the gift of language is passed down to the infant earliest stages after birth. As the child spends the maximum tim the mother, it is her characteristics and also the language tha imbibes, to communicate.

By the age of five, a child can fairly well speak a language th have learnt and listened to while taking instructions. As indepen an individual may be, a child that age can express his mos emotions, thoughts and feelings to another, in the language that been hearing since his birth (or even before. It is said that if you s a foetus in the womb, it perceives and understands what is being

The bonding between a child with another human being at such a young and tender age is the greatest with the mother. This is generally the case with majority of the children all over the world. Thus, the la that is used to express one's inner and most intimate thoughts and ideas in clear, proper words by anyb known as that individual's Mother language.

The role of the mother in passing down a language to her child is immense. This continues for generation community speaking a similar or the same language develops over time. This community builds into a and now we see different nationalities having their own specific language.

On February 21, 1952, four students were killed in Bangladesh whilst in an effort to preserve and prote mother language from being uprooted from their territory. The importance of a language which is intr and learnt from an early age by an individual is so great that nobody can impose another language v foreign or alien to you by force.

Also, commemorating this Day, International Mother Language Day derives its significance fr willingness to accept and identify as well as respect each person, each community and also nationality, own uniqueness and individuality in terms of speaking a language that they use for good communica propagation of humanity and humanitarian values to their future generations. A language, in most res verbal; it may also be non-verbal but the basis for any individual across the globe for using a language is grow in and teach one another the virtues of harmony, love, respect and justice for a better world than that humans lived in, in the past.

Thus, to ensure a healthy growth among children, who, in a matter of time become adults, independent and powerful individuals who make an impact to the world around them, it is necessary to teach them a l of peace, and a language that sustains harmony among other people however different but much like o if we are to live in a world that is encouraging, progressive, fruitful and fulfilling. We must all work building a better society, a united and welcoming community, firstly in a language that we speak gradually in whatever language that we choose to use.