## Message from Chairman

Dr. N. R. ALAMELU

Esteemed Members,

Greetings from the Incoming office bearers of the section for the year 2015, we are happy that the section during the year 2014 has spread its technical activities, outside Chennai as well. I am also happy that number of student branches have conducted extreme competitions and come out successfully. Section would like to encourage the activities in student branches, technical society chapters and affinity groups, to have recognition in terms of award and funding from Region 10.  Such broader participation from all the student branches, will defiantly win laurels from Region 10 as well Head Quarters of IEEE

Wishing you all the Very Best

Dr. N. R. ALAMELU

# Message from the Editor

**Dr. S.ARUMUGAM**
arumugamdote@yahoo.co.in
+919965099900

I am happy to write message for February MAS LINK issue. The AGM was conducted and the new Office bearers assumed the Office for the year 2015. I convey my best wishes to the new team.I request them to send articles for publication in the news letter. I hope that all members might have renwed their membership for the year 2015. New Student Branch Office bearers would have assumed their Office. I request the branch officers to send the list office bearers for publication in the news letter. It will create a link between branches to interact with each other.

# St. XAVIER'S CATHOLIC COLLEGE OF ENGINEERING

## 1.STEP'15

STEP'15 was organized by IEEE SB 62851 in association with IEEE Young Professionals, Madras Section on 03.02.2015. Around 120 students from 13 colleges in and around Kanyakumari district attended the program. Mr. A. Darwin Jose Raju welcomed the gathering. Miss. I Agnes Miriamintroducd the Chief Guest Mr. Prashanth Mohan, SP Robotics,Chennai. Chief Guest shared the impressions he had about the student branch of the College right from his college days. He appreciated the performance of the chapter.College correspondent Rev. Fr. A. Jesu Marian gave the Presidential Address. He gave many tips to the final year students who are about to graduate. He also insisted the students to improve their interpersonal skills, which is very important to face the challenges of the corporate world. IEEE SB Counselor Mr. J. Bright Jose proposed the vote of thanks. , Mr. Prashanth presented about IEEE Awareness. He shared his volunteering experiences in IEEE and the role IEEE had in his growth. He mentioned the benefits of IEEE and the various Awards and Scholarships it offers for its members. Mr. Prashanth introduced the idea of Kanyakumari Hub and motivated the participants to volunteer. After that a "Personality Identification" Quiz was conducted for all the participants..The participants took some time to view the display that contained various IEEE posters and pamphlets and also IEEE and WIE magazines. Mr. Prashanth presented about "Recent trends in Robotics'. His presentation covered the manufacturing of humanoid robots, the type of robots that could assist humans in their works and the future of such type of robots. He made the session interesting by showing various videos. All the participants are grouped into various teams. Each team contained students from different colleges. A 'Logo Quiz' was conducted for them. The winning team was awarded with IEEE and WIE merchandise. IEEE SB Chairman Mr. B. Sharath displayed the activities and achievements of our IEEE SB with a presentation. The participants shared their feedback.



.Reported by:  Agnes Miriam.I, Vice-Chairman

## 2. VILLAGE VISIT

Members of IEEE Women in Engineering Affinity Group of IEEE Student Branch 62851 organized a village (Koturkonam near Kulasekarm) visit on 25$^{th}$ January 2015. The program was completely focused on creating awareness among the villagers about various problems in day to day life and suggesting them the ways in which they could improve their life style.

33 members of our Student Branch along with our Student Branch Counselor and WIE staff coordinator visited the village. The inaugural program was started with welcome address by WIE Staff Coordinator Mrs. Subitha. Rev.Fr. Maria Soosai gave the Presidential address which was followed by felicitations from Rev. Br. Manoj and Parish Council Treasurer, who are residents of that village. A motivational talk was given to the villagers by Ms. I.Agnes Miriam, Vice Chairman. The talk covered the various obstacles that one faces in his life and what he should do to overcome those. Also some motivational presentations and videos were shown to youth and children. She also mentioned what success is and how one can be a successful person by overcoming failures. People there don't have enough knowledge regarding their career.A talk was given by Mr. A.Aswin, Publicity Committee Convener about the various job opportunities that are available for them and the various fields of education that they can pursue. This talk was mainly for students who are at school and college level. It was very interactive and the students showed great interest in knowing the opportunities that are waiting for them. The talk was followed by an entertainment session for children. Various spot events were conducted for children and some gifts and prizes were given to them. This event created an opportunity for the students showcase their talents and get rid of their stage fears. An assessment about the events that were conducted in the morning to know how the events reached the villagers. The village was divided into six regions. Each region consisted of 10 to 15 houses. So the members were splited into 6 groups and each group moved towards each region. The main aim was to collect details from each house regarding their life style, economy, health and hygiene.etc. 80 houses were visited and data were collected from each house which will be useful for future works. Suggestions were given to maintain their surroundings clean and the measures they should follow to prevent spreading of various contagious diseases, ways to improve their economy, life style etc. Valedictory function was condcuted and a talk was given about health and hygiene. Mr. B.Sharath gave the talk along with videos and presentations highlighting the need for personal hygiene, health improvement.etc. Also special attention was given to drug addiction and its impact on the society, since many of the villagers may have that habit. The presentation showed the aftermath effect of using drugs and definitely that had created some thoughts in the minds of the people those who consume them. A mini project using microcontrollers was explained to the villagers. It was very informative as our

Student Branch members demonstrated their project, an automatic vehicle that uses sensors and micro controllers for detecting obstacles and automatically changing its path.  Kits were distributed  to each of the family in the village, containing soaps, toothpastes with medical values so that it will be a starting point for their transformation from current stage to a path of improvement, definitely in the field of hygiene, health and education.

Reported by: Vishnu.P.R., Treasurer

# ST.JOSEPH'S COLLEGE OF ENGINEERING

# IEEE TECHNICAL SOCIETIES INAUGURATION

Three technical societies under Student Branch Chapter such as Industrial Application Society(IAS) , Robotics and Automation Society (RAS), Power Electronics Society(PELS) with one affinity group as Women In Engineering(WIE) were inagurated  on 21$^{st}$,February 2015.
Mrs. Jayarama pradeep, HOD of EEE welcomed the gathering. Mrs.SARANYA JAIKUMAR CHRISTHURAJAN honoured the chief guests.  Mrs.NARMADHA, The HOD-Lab affairs of Department of EEE. Introduced the chief guest Er.S.RAJAVEL. He addressed the  gatherings about the current statistics of the industrial applications.He explained the benefits of renewable energy  generation and the opportunities in the solar projects. He encouraged the young generation to  make  the  sourrounding  to  be  more  comfortable  by  means  of  technology. Dr.P.A.MANOHARAN, another guest explained the students about the current trend in Robotics and Automation  field. He explained  how the work can be done reliably with the help of Robots. He created the awareness  about  the  contribution  of automation  in the forthcoming years in  our day-to-day life. Dr.VADDI SESHAGIRI RAO, The Principal motivated the students to give their full participation to improve the current standard of the country.



 He encouraged the  students  to be more innovative  in implementing the technologies. Dr. SREEDEVI. V. T.,  another guest  explained about the importance of power electronics  in our day-to-day life. She gave an idea of creating a ZERO ENERGY  HOME  with the help of generating the power from the renewable energy resources.  Dr.V.VYDEKI. another guest  shared about the real situation  of the women in the non developed areas. She motivated  the students to perform more activities and to conduct the awareness programme for  making the  women  to be a equal part in all aspects. These can be achieved only by giving the knowledge to them. She explained the student activities of WIE, Congresses, SANGAMAM, STAR project and all the related activities that can enlighten the women. The Office Bearers of the Student Branch Chapter, IAS society, RAS society, PELS society, WIE affinity group were introduced by Mr. R.SREEKANTH, Assistant Professor of Department of EEE. The plan of events for the year 2014-

2015 of various societies was commenced by the respective Chair person of the societies. Vote of thanks was delivered by Mr. R.SREEKANTH.

Report by: JANNATH NISHA H,SECRETARY,

## NATIONAL ENGINEERING COLLEGE

## 1.TECHNICAL QUIZ

IEEE COMPUTER SOCIETY STUDENT BRANCH CHAPTER organized, **"Technical Quiz"** on 12.02.2015 to 13.02.2015**.** Out of 34 batches 6 batches were selected for fnal round. The winners of the event were:

| Sl.NO | Name of the Students | Year & Branch | Prize |
|-------|----------------------|---------------|-------|
| 1. | Mazhar Ghulam & K.Ulaganathan | III Yr EIE | I Prize |
| 2. | R.Rangarajan & Surendhran | III Yr EIE | II Prize |
| 3. | S.Brindha & M.Malarvizhi | III Yr ECE | III Prize |

# SATHYABAMA UNIVERSITY

## SILICON'15

Silicon 15 a two day national level technical symposium was organized on 5$^{th}$ and 6$^{th}$ February 2015. Dr. NKumarappan, Secretary IEEE Madras Section was the Chief guest for the program.



The first event was paper presentation 25 papers were presented. A Technical quiz was conducted and 120 students participated. Gamming event was conducted on both days. A fun event called Connection where the figuring out link between clues are provided.        Exogita proved to be a visual treat for the people .Models designed on various aspects of technology became inspiration for many.         The real innovative part of silicon was seen in the event Android App development where people came up with creative ideas that can be implemented with Android platform.

Reported by: Sundari

## KONGU ENGINEERING COLLEGE

## INVOKE' 15

Invoke' 15 a non-technical function was organized by WIE, affinity group of IEEE Student Branch 14$^{th}$ February 2015



. Mr. J. Manikandan proposed the welcome address. The session started with the event "Cube solving", to solve the Rubik's cube and this event was used for the students to sharpen their minds

and increase their concentration power. The next event "Cricket Mania" that evaluates the knowledge of students about cricket. The next event "Spec Talk" was conducted for updating the prevailing technologies about IEEE spectrum. This was followed by "Treasure Hunt" an event to find and complete the given target within the given period of time. Vote of thanks was given by Mr. K.R.Pradeep.

Reported by: P. Divya, Secretary – WIE.

# JAYARAM COLLEGE OF ENGINEERING AND TECHNOLOGY

## 1.HOW TO TAKE CHARGE OF CAREER

The IEEE Student Branch organized a one day seminar about "How to take charge of career" on 3$^{rd}$ Sep, 2014. The Principal Dr.N.Kannan presided over the function.  Dr. S. A. Sahaya Arul Mary Dean of Academics  addressed the gathering. The welcome address delivered by Student President Mr. J. P. Anish Jobin .  The chief guest was Mr. S. Premanand,  Training and Placement Officer.



The chief guest has presented the over how to take charge of carrier he had detailedlyexplainned how to utiliseview of IEEE usage. He had shared his experiences when he was an IEEE student chairperson in his college. He had given a brief introduction about IEEE and jobs related to IEEE. He advised the students  to make use of IEEE. He spoke on soft skills development by relating simple examples.

Reported by: Bhoopathi Mariappan

### 2. IEEE AWARENESS PROGRAM AND SOFT SKILL DEVELOPMENT

.
The IEEE Student Branch organized a One day seminar on "IEEE awareness program and soft skill development" on 23$^{nd}$Aug, 2014. Dr.N.Kannan, The Principal, presied over the function. by Dr. S. A. Sahaya Arul Mary Dean of Academics addressed the gathering.. The welcome address was delivered  by Student PresidentMr. J. P. Anish Jobin. The chief guest was Mr. S. Arun

Kumar System Engineer-TATA Consultancy Services.



Office bearers were introduced by Prof. M. Bhoopati.  The chief guest presented an  over view of IEEE usage. He had shared his experiences when he was IEEE student chairperson in his college. He had given a brief introduction about IEEE and jobs related to IEEE. He had instructed us to make use of IEEE in a fruitful manner. He discussed  about soft skill developments by relating simple examples.hat this seminar induced more ideas to have their interest over IEEE and involve them in all IEEE activities. .Over 100 UG and 25 PG students, 30 faculty members  participated. Vote thanks was given by  Prof. Preamanandh..

Reported by: Bhoopathi Mariappan

## 3. INDUSTRIAL AUTOMATION

 I-EEE Association  conducted a  workshop on **"**Industrial Automation".on 20.01.2015. The presidential address was given by the Principal Dr.N.Kannanand.  He encouraged and motivated all the budding Engineering minds with a new form of applying the known skills regarding Automation. He appreciated and mended the I-EEE association members to connectively involve themselves in such activities. The gathering was welcomed by the I-EEE Co-coordinator Prof.M.Bhoopathi. The chief guest Mr.K.Amirthaganesh /Trainer TCIL IT. made clear views about the current trends of usage of  automation system. He skilled the brains of the students with technologies like Hardwired,Electronics,PLC,SCADA,DCS. He sorted out easy techniques for many of the industrial processing.  He also gave us a challenge to face new ideas to work out with renewable come automation. He clearly evaluated the logic circuits from simple single-line orders with switches. He was a good negotiator while presenting his workshop and tuning all engineer minds to a new world where plenty of interesting jobs are waiting for the students in various sectors such as theme parks, film industries, café and etc.Finally he demonstrated with a kit involving PLC panel. Mr.Santhanam / Managing director TCIL IT, he created a line view about the DCS technology that it's been used in present industry. Ms.Akshu/Trainer TCIL IT who gave her valuable speech on recent technology regarding industrial automation. She moved many minds of students who were present in the work to join in TCIL for coaching period. She added that this will provide a lifelong guarantee for joining many of core industries.

Towards the end of the program DeanAcademics Dr. Sahaya Arul Mary emphasized the student's community to uptake many such valuable programs. She appreciated the EEE group for starting this kind of value added course at evergreen starting of 2015. I-EEE President Mr.J.P.Anish Jobin gave the vote of thanks.

## 4. SECURITY ASSESMENT AND ENHANCEMENTS

The IEEE Student Branch organized a one day Workshop about "Security Assessment and Enhancements using FACTS devices" on 22nd Feb, 2014. The workshop presided by the Principal Dr.N.Kannan.The chief guest was Dr.S.Sutha HOD/EEE, Anna University, Panruti Campus.



The chief guest gave delightful oration to the participants. Over her research titles they had explained The Neural Schema of Power System. Based on the FACTS devices they explained the power system assessment and power system enhancement techniques andthey gave detailed explanation about wavelet transform of neural networks, PSO optimization. In the afternoon session Algorithms with coding also had been executed in Mat lab by the chief person. And they had provided the basic knowledge to implement the FACTS devices in the transmission system to improve the power quality. The participants had gained the knowledge about optimization techniques of power system security

# SRI MUTHUKUMARAN INSTITUTE OF TECHNOLOGY

## White Talks on 'Nanobots'

IEEE Computer Society Student Chapter-61411A organizedwhite talks on the topic'Nanobots' on 31 January 2015. Mrs. S. Dhanalakshmi, HOD/CSE welcomed the gathering. The white talk's session was handled by Mr. E.Pavithran, 3rd year CSE. The mechanism behind Nanobots and the detailed impact of cancer cells were technically preached by him. Mr. A. Aravindhan, 3rd year CSE gave vote of thanks and the participants who provided valuable feedbacks were awarded and encouraged with IEEE goodies. Also, he announced that the students who are willing to present White talk on one of the emerging technologies are requested to register the Google form which is already circulated among the students.



Reported by: Vignesh Chandran, Volunteer | IEEE CS SMIT – 61411A

# NATIONAL ENGINEERING COLLEGE

## 2.CRITICS EYE

IEEE COMPUTER SOCIETY STUDENT BRANCH CHAPTER organized, "**Critics Eye**"-**Product Review on Android Lollipop** on **21-01-2015.** 15 budding engineers from ECE, EEE, EIE, CSE, IT participated. The event aims to check the student's awareness and to update their knowledge in the area of ANDROID which is being used by all people in their smart phones.



Among 15 students, 3 were bagged the prizes and the winners are listed below.

| SI.NO | Name of the Student | Year& Branch | Prize |
|---|---|---|---|
| 1. | Mazhar Syed Asan Ghulam Mohid | III Yr EIE | I Prize |
| 2. | R.Vijaya Ragavan | III Yr CSE | II Prize |
| 3. | P.Balamurugan | III Yr EEE | III Prize |

Reported by:Dr.B.Paramasivan, Branch Chapter Advisor

## ST.JOSEPH'S COLLEGE OF ENGINEERING

## MIND HUNTERS

The program was conducted on 08.01.2015 and 09.01.2015. 20 teams participated in the first round. A written test was conducted for 40 minutes. 5 teams were selected for finals. Finals comprised of four rounds. First round is called Connections in which ten technical words have tobe gussed within 30 seconds with the help of hints given. The second round is called RIDDLE. Each team will be given a riddle and they have give the logical answer within the time limit. Third round is called RAPID FIRE. Five questions will be asked per team with different topics and to be answered within 30 seconds. Final round is called solve the impossible. One question has to be answered within the time limit. A basic electrical GATE question was given. Based on the correct answers, three teams were selected. The winners are:

First place:  R.KATHIRAVAN (III yr EEE), S.KRISHNA BALAJI (III yr EEE), A.JAYASURIYAN (III yr EEE).

Second place:  R.SOUNDARIYAN (II yr EEE), E.SENTHAMIL SELVAN (II yr EEE), T.SENTHILNATHAN (II yr EEE), V.AMAR GOUTHAM (II yr EEE).

Third place: D.MEGHANA (III yr EEE), S.MOHANA PRIYA (III yr EEE), K.SAHANA (III yr EEE), .SAHITHI (III yr EEE).

Reported by: JANNATH  NISHA H,IEEE-SECRETARY

## Dr. N. G. P. Institute of Technology

## Variable Frequency Drives

The IEEE students' branch (05511) and  students' Association of the Department of Electrical & Electronics Engineering, organized a guest lecture on Variable Frequency Drives on 05th of February, 2015. Secretary Dr. Thavamani D Palaniswami, presided over the function. Dr. V. Kumar Chinnaiyan, Head of the Department, Electrical and Electronics Engineering welcomed the gathering.. The CEO, Dr. O. T. Buvaneswaran and. Dr. K. Porkumaran, the Principal felicitated the gathering   The chief guest  was Mr.S.Radhakrishnan, GM-Operations, Mecton Training and Technical Services Limited, Chennai. He gave an elaborate lecture on the history of development of Variable Frequency Drives, their types and the basic concepts behind their working. With the detailed description of analysis of their performance, he  highlighted their benefits and applications. Dr.M Gopinath, Associate Professor, Department of EEE, delivered the vote of thanks.



Reported  by: Dr. K. Porkumaran (90534204) Sr.MIEEE

## SATHYABAMA UNIVERSITY

Sathyabama IEEE Computer Society organizes technical symposium  on 22nd and 23rd  January 2015.The symposium was inagurated by Mr. H.R.MOHAN,  Chairman, IEEE Computer Society

Mr. Prashant Mohan International IEEE Student Volunteer and IEEE Student Chairman Mr. Sathees Sinnah. Spoke. Programming Contest, Debugging Contest, Photoshop Designing Contest, Computer Quiz Android Workshop, Dumb C, and Gaming events were conducted. ,
Technical Talks were given by:

- Nivas Ravichandran(An inspirational IEEE head)
- Prashant Kumar Pandey(Google Student Ambassador)
- Nishant(a final year student involved in Research project in NASA)
- Achyuth K. P.(Mozilla Rep.)

Reported by: Navdeep Singh,IEEE Computer Society Student Volunteer|

## KNOWLEDGE INSTITUTE OF TECHNOLOGY

### Awareness Program on First Aid

On 12<sup>th</sup> January 2015, program on **"Awareness program on First Aid"** was organized by Department of Electronics and Communication Engineering associated with IEEE Student Branch and women Empowerment Cell.The chief guest of First Aid awareness program was**Mr. S. Radha Krishnan, St. John's Ambulance, Namakkal.** Dr.PSS.Srinivasan, Principal, Dr.K.Visagavel,VicePrincipal,Dr.N.Santhiyakumari,WECCoordinator,HOD/ECE,



Dr. P.M.Shanmugavadivu,HOD/Civil,and Dr.N.Suthanthira Vanitha, HOD/EEEhas felicitated the function. Over 500 girl students from all departments and all lady staff from Knowledge Institute of Technology attended the functions. Mr.S.Radhakrishnan, has saved many valuable lives by his

training classes. He discussed about the types of deaths and how the deaths can be avoided by following the first aid at the correct time. He gave practical training to give first aid for a person when he is unconscious by using CPR, PPR and HFL methods. He gave instructions on first aid for domestic accidents, like fire in Kitchen, cylinder burst, etc. He concluded his speech by advising students to do exercise regularly, have regular diet, drink 3 liters of water daily and always be happy to lead a healthier life.

## Integration of GIS with Information Technology

On 13th January 2015, Guest Lecture on **"Integration of GIS with Information Technology"** was organized by Department of Electronics and Communication Engineering and IEEE Student Branch.The Chief Guest was Dr. G.Balamurugan, Scientist-D, Centre for Earth and Atmospheric Science,SathyabamaUniversity,Chennai.Dr.PSS.Srinivasan,Principal,



Dr.K.Visagavel,Vice Principal,Dr.N.Santhiyakumari,IEEE Counsellor, HOD/ECE,has felicitated the function. The chief guest addressed the students about Geo-Information and Communication Technology (GICT) and its applications. He made the students to be clear about the basic concepts like the difference between Computer science and Information Technology and the definition of remote sensing. He elaborated the satellite count and the applications of some satellites around the earth. He explained about the satellite evolutions and its future advancement.

## IEEE Career and Recognition

The IEEE Student Branch of Knowledge Institute of Technology, Salem organized a guest lecture on **"IEEE CAREER AND RECOGNITION"** on January 14, 2015.Mr. MUTHUKUMAR, Analyst, Sathyam Ventures, was the resource person.



Dr.PSS.Srinivasan, Principal, Dr.K.Visagavel, VicePrincipal, Dr.N.Santhiyakumari, IEEE Counsellor, HOD/ECE, has felicitated the function. Mr. Muthukumar the resource person gave an introduction about IEEE to the new student members and explained about the benefits and awards

offered by IEEE. He also demonstrated how to access IEEE job site and IEEE Xplore Digital library through IEEE website for the new IEEE Student Members. He discussed about the latest technologies that are in the market which would bring drastic changes in employment in the core domain. He also discussed about the professional etiquettes – Self Belief, Dedication, Trustworthiness, Networking Co-Operation, and Team play with inspiring videos. Thenthe resource persongave an idea about how to present oneself in the interview, what are the challenges that a fresher face in the industry and how to overcome it.

## Cancer Awareness Program

On 24th January 2015, Guest Lecture on **"Vizhiunarvum – Vizhippunarvum, Cancer Awareness Program"** was organized by Department of Electronics and Communication Engineering associated with IEEE Student Branch and women Empowerment Cell.



The chief guest of Cancer awareness program was Mr.S.Sukumar &Family.Dr.PSS.Srinivasan,Principal,Dr.K.Visagavel,VicePrincipal,Dr.N.Santhiyakumari,WEC -Coordinator,HOD/ECE,Dr. P.M.Shanmugavadivu,HOD/Civil and Dr.N.Suthanthira Vanitha, HOD/EEE has felicitated the function. Over 500 girl students and all lady staffs attended the function. Mr.S.Sukumar is the director of online solutions,Chennai.A Special dance performance was given in between Mr.S.Sukumar's speech byMs. S. SAHAANA SUKUMAR**,** Bharatanatyam Dancer, Student of GuruYuva Bharathi Archana Narayanamurthy, Chennai. The Chief Guest explained about the formation of cancer in a human body. He said that change in voice, loss of weight and appetite are some of the common symptoms of cancer. He said that the Surgery, Chemotherapy, and Radiation therapy are the most common types of cancer treatments. He said that the lung cancer, colorectal cancer, Breast cancer ,Ovarian Cancer, Cervical Cancer, Prostate cancer, Oesophageal cancer, Stomach cancer Pancreatic cancer, Leukemia cancer are the top 10 cancers .

## Pengalin Urimayum Samudhaya Kadamayum

On 28th January 2015, Department of Electronics and Communication Engineering associated with IEEE Student Branch and women Empowerment Cell organized a program on **"Vizhiunarvum – Vizhippunarvum, Cancer Awareness Program".**

The Chief guest of the program was  Mrs. Ravathi. Dr. P.S.S. Srinivasan, The Principal, Dr.K.Visagavel,VicePrincipal,Dr.N.Santhiyakumari,WEC    Coordinator,    HOD/ECE, Dr.P.M.Shanmugavadivu,HOD/Civil,and Dr.N.Suthanthira Vanitha,  HOD/EEEhas felicitated the function. All  girl students from all departments and all lady faculy from Knowledge Institute of Technology have  attended the functions.Mrs.T.Revathi explained about various rights and law framed for the women's in the society. She gave the helpline number for ladies as 1091 and helpline number for children as 1098 Our students interacted with the chief guest.

Reported  by: Hemalatha.R, IEEE Student member