About Us

A brief history

IEEE Pune Section (R0 01 20) was established on June 26, 2010 with terrestrial boundaries confined to Pune Metropolitan City (Postal Code: 411001 to 411999). The Section falls under the jurisdiction of Asia Pacific Region (R-10) of IEEE. Before 2010, Pune Section was a subsection of the IEEE Bombay Section (June 20th 2003 till June 25th 2013).

It comprises of four society chapters, a Women in Engineering Affinity (WIE) group and nineteen IEEE Student Branches in different Engineering Colleges in and around Pune City.

The Section interfaces with the industries and academia through various technical and humanitarian activities. The Section actively organizes various activities throughout the year, which are helpful to professional members as well as the student's community for their skill set up gradation. The Section and its student branches endeavour to contribute to the advancement of the knowledge of its community through activities that provide professional information exchanges and stimulate technological innovations. Meetings of the Section officers, interactions with the Student Branch Counsellors and representatives are held on regular basis to discuss the ideas and plans for such activities.

For more details: www.ieeepunesection.org

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Newsletter at a glance

From the Editor's Desk

Dear Readers,

One of the popular Chinese proverbs says "Tell me and I'll forget; show me and I may remember; involve me and I'll understand." IEEE's motto 'advancement of technology for humanity' aims at involving professionals in the development of a techno-enabled society.

IEEE initiatives include reducing the digital divide through Green Technology, Smart Grids, Smart cities, Healthcare solutions, Information and Communication Technology (ICT) and other approaches to uplift the weaker sections of the society. IEEE Pune Section follows the same footsteps by organizing its various activities involving its members. **Volume 3 Issue 1** of IEEE Pune Section Newsletter carries reports from various chapters and branches of Pune Section on these initiatives. It also carries the message from our dynamic chairman, Prof. Rajesh Ingle, on the present activities and future plans of IEEE Pune Section. It carries a special article on Defence Electronics by Prof GS Mani. For the benefit of our readers we have added a brief history about IEEE Pune Section at the beginning of the Newsletter.

Most of IEEE Pune Section activities are member-driven, and so is this Newsletter. The credit of presenting a very well compiled and designed newsletter in front of you goes to our student editorial team. It is my privilege to introduce our student editorial team, Ms. Manasi Godse, Ms. Saniya Kaluskar and Mr. Utkarsh Murarka.

We wish them all success and promise to support them in bringing the remaining issues of the Volume 3, for the year 2014.

Dr. Rajeshree Jain
rajashreejain@ieee.org

From the Chairman's Desk

Dear Readers,

I am happy to see the new edition of the IEEE Pune Section newsletter. This year is a very important year for all members of IEEE Pune Section as we are organising IEEE INDICON '14 in Pune during 11th to 13th December 2014.

We are also organising many other conferences and events like, IEEE Workshop on Electrical Safety in India (WESI). INDICON is an annual conference conceptualized by IEEE India Council in the field of Computer Science and Engineering, Electrical Engineering, and Electronics and Communication Engineering in general. This has been a metamorphic version of Annual Convention and Exhibitions (ACE) which was the annual meeting of IEEE India Council, renamed as INDICON.

We had organised the last ACE, ACE '13 at Le Meridian Pune. We are planning to organise more such conferences around Pune. Three institutes: Govt College of Engineering Pune (COEP), SCOE, and PCCOE have already taken an initiative and IEEE Pune section have approved these conferences. Two more society chapters will also be formed this year. Four new student branches are already formed in our section.

I welcome the newly admitted members to this great professional institution and wish them a memorable, meaningful and rewarding tenure as they emerge as world-class engineers, or scientists.

With best wishes,
Dr. Rajesh Ingle
Chairman, IEEE Pune Section

Defence Electronics

What is this thing?

It was nearly 50 years back. Having graduated as an electronic engineer with a good grading, I had just joined the Defence Research and Development Organization(DRDO) as a scientific officer. One day, I was introduced to a senior professor at Indian Institute of Science, to whom I proudly declared that I am into Research in the field of Defence Electronics. Glancing at the pride in my eyes, he wanted to put me in my place and promptly sent a bouncer on me asking 'what is this thing called Defence Electronics?'. The question nearly bowled me over and I was quickly made to realize how little I knew. It was after many years that I came to know that the professor with a receding grey hairline was actually the chairman of the board which selected me for the job. Needless to say the professor showed no interest in whatever answer I blurted out at that time. Nevertheless the question has been in my mind for a long time thereafter.

As any novice can say, Defence Electronics or Military Electronics as many may prefer to call it, does not deal with any specific technique or technology such as micro-electronics or solid-state electronics but with electronic systems which have their primary applications for the Military. Based on my four decades old acquaintance with Defence systems, it can safely be said that most Military Electronic equipment can be put into one of the three categories—those associated with Communications, Radar or Electronic Warfare.

Military Communication systems, whichever category they fall under – one to one, one to many, many to one or many to many-- do not differ much from those used in civil sector as far as the basic system's approach is concerned. Their major difference however lies in the way the message being communicated is hidden. For obvious reasons, Military Communications lay emphasis on ensuring the secrecy of the message being communicated. Many exotic modulation / demodulation techniques have been developed to ensure adequate protection to the message so that it cannot be easily decoded by unwanted elements.

Increasing competiveness in industry and commerce have necessitated adaptation of increasingly secure communication among the business community thus leaving only a marginal difference between the communication systems used for the Military and non-Military applications. In fact, many techniques such as the Spread spectrum technique, which got developed primarily for the Military have now become common method adapted for various Military as well as non-Military systems.

Radar was initially developed during the World War times for detecting intruding enemy aircrafts. With increasing sophistication in warfare, Radars were developed to handle different Military situations such as Search, Surveillance, Acquisition, Tracking, Fire control, Guidance, and many others. In addition some of the specialized applications of Radar for the Military include Combat Aircraft Navigation, Deep penetration, Terrain mapping, Weapon location etc. Incidentally many of the basic techniques used in these Radar systems have found application for predicting weather (Weather Radar), guiding civil aviation aircrafts (Air Traffic Control Radars) and for catching traffic offenders (Police Radars).

However with the warfare becoming more complex than ever before, highly sophisticated phased array and electronic scanning techniques have become part of Radar technology giving the Military capability to handle multiple simultaneous threats. Combined with a Missile battery these techniques probably represent a modern state-of-the-art Electronic Defence system for the Military. As it exists now, there does not seem to be any necessity for adapting these techniques for non-Military applications, making them a distinguishing feature of 'Defence Electronics'.

As far as Electronic Warfare (EW) is concerned, it is almost the privy of the Military Electronic discipline, which is obvious from its very name. As per the web dictionary EW is the "military action involving the use of electromagnetic energy to determine or exploit or reduce or prevent hostile use of the electromagnetic spectrum". In the modern world, where almost all Military operations are executed in increasingly complex electromagnetic environment, significance of EW can never be underestimated. EW can be subdivided into three categories – Electronic Warfare Support (ES), Electronic Attack (EA) and Electronic Protection (EP).

ES refers to electronic operations leading to searching, intercepting and identifying enemy/ likely enemy's intentional and unintentional radiations. It is presumed that these radiations emanate from Radar or Communication equipment used by the enemy and would thus help to launch major offensive operations against these installations. Sometimes ES can help in defending friendly resources by tactfully and timely alteration of the defence strategy.

EA refers to all operations which lead to electronically degrade, or neutralise enemy's combat capability, in particular the Radar or communication capabilities of the enemy. It should be noted that EA does not imply any physical damage to enemy's electronic installations, but simply assists in disengaging their effective functioning mainly during an offensive operation. In common man's vocabulary this may mean some sort of jamming, albeit temporarily for a small duration so that the offensive operation can be successful. Contrary to the common notion that jamming means

pumping large power into the victim's receiver, there are many deception techniques which can be equally effective in practical situations. Generally it is the EA technology along with appropriate EA tactics which can pay rich dividends.

EP refers to techniques employed to protect friendly radar and communication equipment being attacked electronically (like jamming) by enemy forces. All anti-jamming techniques employed by a radar fall under this category.

Needless to say all EW equipment (all types of ES,EA and EP)come under the highest category of security since they provide the key to success in any modern warfare. Any compromise in the information about these equipment (in terms of the technology employed, modes of deployment, tactics planned for their usage etc.) can be detrimental and thus in true terms can be termed as 'Defence Electronics or Military Electronics '. Thinking on this, it took me nearly four decades to understand what was 'that thing called Defence Electronics'.

-Prof. G S Mani

Activity Report

January 2014

On 14th of January 2014, the IEEE Pune Section especially EDS members who are involved in the process of forming the EDS chapter at Pune section, organized a distinguished lecture on Technology Circuit Co-Design by Mr. Rajiv V. Joshi, Fellow IEEE, currently working as a Research Scientist at IBM, T.J. Watson Research Center, NY. Mr. Rajiv V. Joshi has done his D.E.Sc. from Columbia University, New York, M.E. from MIT, Cambridge, M.S from the University of Maine and his B.Tech. from the Indian Institute of Technology, Bombay, India. He is an IEEE fellow and is the Associate Editor for the IEEE Trans on VLSI. Jan 2014 at Fergusson college, Pune India.

The talk was focused on technology and important circuit co-design techniques for nano-scale VLSI circuits. The talk consisted of pros and cons, analysis on technology from power perspective and various techniques to exploit lower power. The talk also reviewed the methodology to capture such effects and described all the power components. All the key areas of low power optimization such as reduction in active power, leakage power, short circuit power and collision power are covered. It was a very interactive session and a total of 90 persons (14 IEEE Members, 24 IEEE Student Members) attended this lecture in presence of Dr. A. D. Shaligarm, organizer/chair EDS chapter)Pune Section and a number of faculty members.

PICT IEEE Student Branch

The activities held since January 2014 under P.I.S.B. are as follows:

1)Unravel :

Date: 8th February 2014

This competition was a technical treasure hunt with 60 participating teams where clues were hidden in the college campus. It was a success with respect to participation, organization and execution.

2)Credenz Tech Dayz :

Date : 12th February to 22nd February

Credenz Tech Dayz '14 showcased guest seminars by reputed industry cognoscenti on trending technologies of today and tomorrow, across a wide horizon of topics. CTD aims to imbibe an attitude of curiosity and learning in students and expand their perspective of the scope in technology. The following seminars were conducted under Credenz Tech Dayz.

1. 12th February: Introduction to GPU computing by Mr Sanjeev Satoor from NVIDIA.

2. 13th February 2014: IT in health care by Mr Mahesh Shinde from Syntel.

3. 17th February 2014: Robotics by Mr Jayesh Jain from Whitespark.

4. 17th February 2014: Information Security by Mr Anshul Abhang from Fluxonix.

5. 18th February 2014: Windows App Development by Mr Nishant Rana from NVIDIA.

6. 20th February 2014: Career Guidance by Mr TG Param from TIME.

7. 22nd February 2014: Search Engine Optimization by Mr Anil Wangi from Maven Systems.

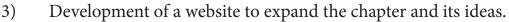8. 22nd February 2014: Drivers by Mr Gopal Krishna Tiwari from Red hat.

3)WIE International Women's Day Activity:

Date: 8th March 2014

We celebrated International Women's Day in PICT college under the Women In Engineering Chapter(W.I.E.) of IEEE. IEEE members from other colleges were invited to the college. Discussion regarding the WIE chapter of IEEE took place and ideas to enhance the chapter were put up.

Some of the ideas discussed were:

1)   Introduction and establishment of WIE chapter in all colleges in Pune.

2)   Initiative for conduction of panel talks and meetings with eminent women engineers.

3)   Development of a website to expand the chapter and its ideas.

4)   Visits to the nearby villages and orphanages where the children would be taught basics of computers by the IEEE members.

4)National Computing Contest (N.C.C.):

Date: 15th May 2014

This year the contest was held online and it went international. Our programming partner was CodeChef. The contest was of 3 hours and it consisted 6 questions. The ranks were decided on the basis of the number of questions solved and the time taken. The event concluded on a very good note leaving behind its success stories. The number of registrations was 655 which included participants from international borders like Russia, Istanbul, Canada, Slovakia, UK, Egypt, South Africa, Belarus, Brazil. The winners were Jakub Safin from Slovakia, A.Surya Kiran from India and Caio Oliveira from Brazil.

JSPM IEEE Student Branch

1)   A Total 11 groups participated for IEEE Student Awareness Contest-2013 under IEEE Pune Section held at International Institute of Information Technology (I²IT) College Pune. A total of two groups were short listed for final contest on 27th September 2013.

2)   The Vice Chairman of JSCOE IEEE Student branch Mr.Akash Jarad attented the All India IEEE Computer Society Student congress 2013 at PESIT, Bangalore on 16th and 17th December 2013. He shared his thoughts among all IEEE students member at our college.

3)   The JSCOE IEEE Student Branch organized a National level Project Competition under the title of "Tech-Manthan 2014" .The event was held on 19th February 2014. For this event two judges from industry Mr .Sachin Vaidya (Honeywell International, Pune) & Mr.Pankaj Chapolikar (Infosis, Pune) were called. A total of forty five projects participated from various colleges from Pune city & outside of Pune city. Few of the colleges were Cummins college, D.Y.Patil college, BSIOTR Wagholi from Pune city. S.B. Patil Polytechnic Indapur, K.K.Wagh Nashik outside Pune city. The list of winners is as follows.

Name of Event	1st Prize	2nd Prize	3rd Prize	Consolation
Project Competition	Ajinkya Ghuman Devang Mishra	Atul Maharnavar Shyamsunder S. Paresh Borkar	Kalyani Upadhye Neha Shah	Atharva Kekare Pranit Huddedar Rohit Bagde
Cash Prize	7000/-	6000/-	3000/-	------------------

Prof. M.B.Tadwalkar, Dr.A.P.Rao, Prof.Tushar Mote, Prof.S.M.Pange coordinated complete event.

4)   The JSCOE IEEE Student Branch organized a National Instrument Lecture Series Webinar on Tuesday, February 25, 2014 for the topic "Do Engineering—Unleashing the Next Generation

of System Designers" time 2.00 PM to 2.45 PM and "Redefining Engineering Student Design: Introducing NI myRIO" 3.00 PM to 3.45 PM. For this webinar the students from TE & BE from Electrical, Computer & E&TC were present. The Branch counselor Prof.T.S.Mote organized & executed this webinar.

5)   All IEEE-R10 Young Engineers' Humanitarian Challenge (AIyeHum) – 2014 Project proposal Submitted.
A number of teaching staff & students have submitted papers for upcoming Indicon-2014 organized by IEEE Pune Section.

BVDUCOE IEEE Student Branch

The list of the events attended during 2013-14:

1) Students Awareness Content 2013-14 was organized by the International Institute of Information Technology, Hinjawadi, Pune. The students of Bharati Vidyapeeth Deemed University College of Engineering from various departments have participated in the above mentioned event which was held in July-August-2013. A total of nine groups participated and each group had a maximum 4 members. Out of these, two best groups were selected by judging them in front of the committee and they had the final round at International Institute of Information Technology, Hinjewadi, Pune.

2) One day Workshop was organized on Saturday, 1st February 2014 on "New Trends in Biomedical Research", organized by Department of Electronics Engineering, VIT, Pune. As the Electronics Engineering, BVDUCOE, Pune, has the B.Tech (Biomedical) Course, students of this course got the opportunity to get updated knowledge about "New Trends in Bio-medical Research" and share their knowledge with the experts in Bio-medical Field.

SIT IEEE Student Branch

The Department of Electronics and Telecommunication Engineering has started an IEEE Student Branch with nearly 20 students and 3 professional members from the academic year 2013-2014. The same was inaugurated on March 14,2014 at SIT in the presence of Dr. Rajesh Ingle, Chair, IEEE Pune section, Dr.T.P.Singh, Director, SIT Pune, Dr. Neela Rayavarapu, HOD, E&TC De-

partment, SIT Pune, Dr.Narayan Pisharoty, Head Research Activities, SIT Pune and Prof.Praveen Naidu V, Branch Counsellor, SIT Pune. The goal of this branch is to provide a platform to students where they can interact with their peer group within the section and also with professionals from around the globe. Several activities that would help students in fostering their core knowledge and at the same time nurture their leadership and managerial skills are being planned as part of this programme. Dr.Rajesh Ingle gave a brief history of IEEE student branches all over the world and motivated students to take full benefits of their IEEE membership. The Director, SIT addressed students saying that E&TC was the first department in SIT to undertake initiative of starting a student branch of internationally acclaimed organization and congratulated HOD, staff and students for the same. He motivated students to come forward and take initiative to make this branch one of the best in Pune section. On this occasion, SIT-IEEE student branch has organized Symbiosis Student Paper Presentation Competition (SSPPC-2014) and prizes were given away to the winners.

SCOE IEEE Student Branch

Following activities were conducted during the year 2013-14.

1) "Brain Twister Quiz Competition" – The Quiz (Technical and Nontechnical) was organized for S. E. students. 28 Teams participated. Entry fees for competition was Rs. 50/-. There were 3 rounds, MCQ round, General question and Logo round and rapid fire round. It was organized on 19th August, 2013.

2) Debate Competition - Debate competition has been organized for S. E. Students. 14 groups had participated. Entry fees for competition is Rs. 50/-. There were 2 rounds, Topics like Democracy vs. Dictatorship, use of mobile in campus were given. It was organized on 26th August, 2013.

3) Paper presentation competition - Technical paper presentation competition organized for T. E. and B. E. Students. Techniques for literature survey, formatting of paper and presentation were evaluated. 10 Groups had participated. Entry fees is Rs. 50/-.Prizes of Rs. 300/- and Rs. 200/- were awarded. It was organized on 11th September, 2013.

4) LED Matrix Workshop - LED Matrix Workshop for S.E. and T. E. students was organized to introduce AVR Microcontroller and based application of LED Matrix. Entry fees were Rs. 1800/- and the students were given Microcontroller kit. It was organized on 18th and 19th January, 2014.

5) C coding competition - C coding competition was organized for S.E. students. Ability to write C code was tested. There were two rounds, MCQ round and writing efficient C coding. 30 students have participated and Prizes of Rs. 300/- and Rs. 200/- were awarded. It was organized on 24th February, 2014.

6) Mini project Competition – To encourage good quality mini project, mini project competition was organized for T.E. students. All T.E. students had participated. Prizes of Rs. 500/-, Rs. 300/- and Rs. 200/- were awarded. It was organized on 24th, to 27th March, 2014.

IEEE-WIE Affinity Group, Pune Section

Women TechMakers Day : IEEE WIE Pune Section and Google, India

IEEE-WIE Affinity group, Pune Section under the leadership of Dr. Rajashree Jain, started the year by joining hands with the Industry to celebrate Women's day. This was in perfect tune with IEEE, Inspire, Engage, Encourage, and Empower, the Women in Engineering of the section. A one

day event of Women-Techmaker's day was celebrated on 16th March 2014 in collaboration with Google India. Symbiosis Institute of Computer Studies and Research (SICSR), Pune- was the venue partner for the occasion.

The event attracted more than 70 audiences from diverse backgrounds including students, some professionals and a few entrepreneurs too.

The morning sessions had one motivational speech and two workshops. The day started sharp at 9 am in the august presence of well known philanthropist of Pune, Padmashree Mrs.Lila Poonawala. She addressed the gathering and shared her experience of her philanthropic work in the area of education of girls/women.

Ms.Shikha Duggal, (GSA, Pune,) then conducted an interactive and informative session on online marketing and shared useful information to some of the would be entrepreneurs.

Ms. Trupti Vilatkar, (Vice Rpesident, Barcaly), enthralled the audience with a thematic workshop " visualization- call of the time".

The afternoon session, after the lunch, started with a group activity of poster making, followed by a session on Smart Gadgets: The World in My Purse by Ms. Aparna Joshi, (IUCAA, Pune). It was followed by Mrs Sukanya Patwardhan, (TMCC, Pune) who highlighted on brand building especially "Me Inc".

 Prof. Rajashree Jain (IEEE WIE Pune) introduced the audience about IEEE and WIE in general and Pune Section in particular. The last event which held the breath of everyone in the auditorium was Ms Kavita Gupta's Aerobics session. Every one took lessons for healthy life style from her, by performing aerobics, zumba and kickboxing on popular Hollywood and Bollywood tunes.