

2011 IEEE Singapore Section Report

PART A - SECTION SUMMARY

A.1 EXECUTIVE SUMMARY

2011 is again a successful year for the Section considering various types of technical and social activities held by the Section and the Chapters. This would not be possible without the hard work of various committee members both at the section and chapter levels.

The number of activities and events organized by the Section and its Chapters and Affinity Groups in 2011 is a marvelous 385. In 2010 there were 440 activities and in 2009 there were 297 activities. Many Chapters have also received awards and commendations from their Societies for various outstanding performances.

Growing the membership base remains a challenge but we are glad to see an increase of almost 2% in members this year compared with last year's number. Our goal this year was to encourage qualified members to be promoted to Senior Member and Fellow grades. Our section helped to organize numerous membership development events this year particularly to introduce IEEE to our graduate student members and these events attracted a large number of participants. We also held a professional development seminar where participants were given ideas to develop their professional careers and the seminar was very well attended. There was an effort by IEEE to start Eta-Kappa-Nu student chapters in NTU and NUS. IEEE Eta-Kappa-Nu will invite brilliant university students to join each year so that they would hopefully be affiliated with IEEE throughout their careers. Our section also intends to be a financial co-sponsor for IEEE Society of Social Implications of Technology annual conference 2012 (IEEE SSIT 2012). We believe that this conference will enable engineers to discuss and analyse implications of modern technology on human lives and the environment.

A.2 FINANCIAL REPORT

Our consolidated financial position continues to remain healthy with the active support of all the chapters under our section. Our assets, mainly cash balances held by the Section/Chapters and loans to conference accounts, totaling about S\$1M, have been fairly stable for the last 7 years. This level of reserve is not excessive as the Section comprises 27 sub-entities (25 Chapters and 2 Affinity Groups), each recognized as a full-fledged IEEE Organizational Unit in terms of its privilege to organize events and to manage its own finance. The Section is registered under the category of Trade Association with the Registry of Societies of Singapore. This status allows the Section/Chapters to generate surplus revenues from organizing their activities such as running conferences and short courses, but requires the Section/Chapters to pay income tax.

The Section also helped to open 10 conference bank accounts with the OCBC Bank for 4 conferences in 2011, 5 conferences in 2012 and 1 conference to be held in 2013. The approved audit report from IEEE HQ for the financial year ending 31 December 2011 was received on 27 July 2011. The Section has paid S\$5,564.95 to the Inland Revenue Authority of Singapore (IRAS) for the income tax for Year of Assessment 2011 for the 2010 accounts. The income tax paid in 2010 for the 2008 accounts was S\$17,069.53.

Our Treasurer Dr. Arokiaswami Alphones has worked tirelessly over the past year to maintain our accounts in an extremely efficient manner, and I would like to take this opportunity to thank him for his invaluable services. Also he was helpful in opening and closing the conference accounts for our chapter organized workshops/conferences. He also came out with the systematic procedures to be followed for organizing IEEE supported conferences starting from preliminary budget until the audit review submission to IEEE HQ.

A.3 LIST OF SECTION OFFICERS AND EXECUTIVE COMMITTEE MEMBERS IEEE Singapore Section Executive Committee Members - 2011

| | |
|-----------------------------|-----------------------|
| Dr Don Mahinda Vilathgamuwa | Section Chairman |
| Dr Rajnish Gupta | Section Vice-Chairman |

Dr Sahoo Sanjib Kumar
Dr Arokiaswami Alphones
Dr Ping Lam So

Dr Shum Ping, Perry
Dr Park Chul Soo
Dr V.J. Kanitkar
Dr Rajnish Gupta
Dr Yu Changyuan
Dr Peter Chong
Dr Lekha Chaisorn

Section Secretary
Section Treasurer
Section Immediate Past Chairman
(also Awards and Recognitions Sub-Committee Chairman)
Membership Development Sub-Committee Chairman
Membership Development Sub-Committee
Membership Development Sub-Committee
Educational Activities Sub-Committee Chairman
Student Activities Sub-Committee Chairman
E-Communication Sub-Committee Chairman
Professional/Career Activities Sub-Committee Chairman

PART B - ORGANIZATIONAL ACTIVITIES

B.1 MEMBERSHIP DEVELOPMENT PROGRAMS

The IEEE promotes the engineering process of creating, developing, integrating, sharing, and applying knowledge about electronics and information technologies and sciences for the benefit of humanity and the profession. 2011 is the year we have substantial increase in senior members and fellows. More than 25% increase in fellows as of Nov 2011.

We continue to encourage qualified members to be promoted to Senior Members and Fellows. The sub-committee also mounted recruitment drives at social and technical events, by working closely with various chapter activities. The Membership Development team has organized a social gathering event in March 2011 and received about 200 participants.

IEEE Singapore Section has made a corporate tie-up with the Singapore Science Centre, National Heritage Board and Night Safari Singapore. Many IEEE members enjoy these benefits.

As of today, the total membership of the IEEE Singapore Section is 2994 and the distribution of the different membership grades is shown below:

| IEEE Grade Description | Number of Active Members |
|-------------------------------|---------------------------------|
| Affiliates | 91 |
| Student Members | 146 |
| Graduate Student Members | 372 |
| Associate Members | 75 |
| Members | 1896 |
| Senior Members | 375 |
| Fellow | 25 |
| Life Members | 10 |
| Life Seniors | 4 |

B.2 PROFESSIONAL AND CONTINUING EDUCATION ACTIVITIES

This year we organized a talk series, "Career Development for Engineers", on 27 July 2011, 10am - 1pm. The event cum networking lunch was held at the Infuse Theater, Fusionopolis. It was organized by the IEEE Singapore Section and the Institute for Infocomm Research, A*STAR; and co-organized by IEEE Singapore Student Branch and IEEE Singapore Women in Engineering (WIE). Dr Rajnish Gupta, IEEE Singapore Section Vice-Chairman, gave an opening speech and a brief introduction of IEEE as well as IEEE Singapore Section. The event featured 4 invited speakers from the industry and academia who shared with the audience about career opportunities for engineers. *Mr. Russell Otter*, the Head of Kelly Engineering Resources, talked

about career options for students in the engineering field. *Mr. Lux Anantharaman* of iTwin shed some light on how to turn research inventions into business. Current engineers who are interested to understand more on what they can do in the government sector was addressed by *Ms. Shwuyi Lee*, the Deputy Director (Office Technology) of the Monetary Authority of Singapore (MAS). The event highlighted a talk on what it takes to be eligible for IEEE fellowship by *Professor Susanto Rhardja*, the Deputy Executive Director (Research) of Institute for Infocomm Research, A*STAR. The event received 90 registrations of which 25 are IEEE members.

Organizing and co-sponsoring conferences has been one of the most important technical activities of the Section and its Chapters. These conferences provide an avenue for bringing technology experts from all over the world to Singapore. In addition, the conferences also generate surplus revenues in most cases, which will in one way or another be redirected as member benefits to our members. The surplus also helps to finance the activities organized by the Section and Chapters. Below is a list of the conferences organized in 2011 and some to be held in the last quarter of 2011 as well as in 2012 and 2013.

1. 8th IEEE Asia Pacific Wireless Communication Symposium 2011 (APWCS 2011), 6 - 22 - 23 August 2011; organized by Vehicular Technology Chapter and by Singapore Section.
2. The 9th IEEE International Conference on Power Electronics and Drive (PEDS 2011), 5 – 8 December 2011; co-organized by Industry Applications/Power Electronics Joint Chapter and Singapore Section.
3. 13th Electronics Packaging Technology Conference (EPTC 2011), 7 - 9 December 2011; co-organized by Reliability/Components Packaging and Manufacturing Technology/Electron Devices Chapter, IEEE CPMT Society and Singapore Section.
4. 2011 IEEE International Conference on Networks (ICON 2011), 14 - 16 December 2011; co-organized by Computer Chapter and Singapore Section.
5. 2012 IEEE International Conference on Management of Innovation and Technology (ICMIT 2012), 6 - 8 June 2012; co-organized by Technology Management Chapter and Singapore Section.
6. 19th International Symposium on the Physical & Failure Analysis of Integrated Circuits (IPFA 2012), 2 - 6 July 2012; co-organized by Reliability/Components Packaging and Manufacturing Technology/Electron Devices Chapter, IEEE CPMT Society and Singapore Section and Singapore Section.
7. The 7th IEEE Conference on Industrial Electronics and Applications (ICIEA 2012), 18 -20 July 2012; co-organized by Industrial Electronics Chapter and Singapore Section.
8. Asia-Pacific Conference on Antennas and Propagation (APCAP 2012), 27 - 29 August 2012; co-organized by Microwave Theory & Techniques / Antennas & Propagation Joint Chapter and Singapore Section.
9. 2012 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM2012), 5 – 8 December 2012; co-organized by Technology Management Chapter and Singapore Section.
10. 2013 IEEE Symposium Series on Computational Intelligence (SSCI 2013), 16 - 19 April 2013; co-organized by Computational Intelligence Society and Computational Intelligence Singapore Chapter.

B.3 STUDENTS ACTIVITIES

The Student Branches organized a meeting and BBQ at Yunnan Corner, NTU with Prof. Shum Ping from the Photonics Chapter, together with the GOLD and WIE Affinity Groups on 27 March 2011.

The 1st ECE-Graduate Student Symposium was held in NUS on 12-13 May 2011. The Section sponsored 20 new IEEE student membership applications.

A student industrial visit to Denselight was organized on 1 April 2011.

Winners of the IEEE Region 10 paper contest 2011:

Undergraduate

1st Place: USD300 & Certificate

Shankar Narayan Mohan (National University of Singapore)

"High Performance Flexible Active Power Control of Three-Phase Generalized Micro-grid connected Inverters"

Postgraduate

2nd Place: USD300 & Certificate

Kan Wu (Nanyang Technological University)

"Reduction of Phase Noise and Timing Jitter of Mode-locked Lasers with External Graphene Layers"

B.4 E-COMMUNICATION, SOCIAL & EDUCATIONAL LINKS

As of Early-November 2011, the Section has sent 17 broadcasts to its members. Broadcasts usually contain information on seminars, talks, conferences, social events and member benefits that are vital for our members. The Section website is also being updated - it contains vital information relevant to the IEEE members in Singapore. We have set up an online booking system for the Night Safari, Science Centre and 8-Museum cards. Members can access the system to book these cards free-of-charge.

Dr Rajnish Gupta attended the E-Scientia Around the World Symposium between 6-8 July 2011 in Montevideo; Uruguay. The objectives of the Symposium were to:

- a. Provide opportunities to high school students to learn about basic engineering principles and their real-world applications
- b. Enable students to learn how electronic devices work through hands-on experimentation
- c. Promote awareness and generate excitement about electrical, electronics, and computer engineering fields

A project namely, E-Scientia was introduced to participants and the objective was to install this project in various parts of the world to promote EEE.

An Educator's Workshop was conducted in collaboration with Singapore Polytechnic on 8 September 2011. The objective was to introduce the applications of EEE to secondary school teachers. Workshops were conducted in the areas of Aerospace, Clean Energy, Basic Electrical & Electronics, Computers and Physics.

IEEE Singapore Section collaborated with Reed Exhibitions to co-organize the Asia Smart Grid 2011 Conference held on 2 - 3 November 2011 at Suntec Singapore. This conference is part of the Singapore International Energy Week (SIEW 2011) organized by the Energy Market Authority of Singapore.

B.5 AWARDS

The Section Awards and Recognition Committee led by Immediate Past Chair So Ping Lam made decisions on two local awards to recognize our volunteers.

The Electromagnetic Compatibility Chapter won the "2011 Best Chapter of Singapore Section Award" after a keen competition from other Chapters. The Outstanding Volunteer Award is given to an outstanding IEEE Volunteer resident in Singapore, and who has not received the award before, and who has contributed significantly to IEEE activities in the Section, its Chapters and/or its Conferences in his/her life. Prof Er Meng Joo won the 2011 Outstanding Volunteer

Award. During the AGM, a certificate and a S\$200 cheque will be presented to the Best Chapter Award winner and Prof Er will receive a certificate.

Our heartiest congratulations to all the winners!

B.6 CHAPTER ACTIVITIES

The IEEE Singapore Section and the Technical Society Chapters organized numerous technical, educational and social activities for the members, which were regularly broadcasted through email and web pages. A total of 3300 activities were reported this year. The list of activities of the IEEE Singapore Section and Society Chapters in 2011 (as at 11 November 2011) is given below.

L31 Submission status based on Web Query System as on 1 Feb 2012

| No. | Section/Chapter/AG | | Tech | Admin | Non-Tech | Total |
|-----|---|---------------------|------|-------|----------|-------|
| 1 | Antennas & Propagation/Microwave Theory & Techniques Joint Chapter | AP03/MTT17 | 49 | 5 | 0 | 54 |
| 2 | Computer Chapter | C16 | 5 | 4 | 1 | 10 |
| 3 | Circuits & Systems Chapter | CAS04 | 10 | 4 | 1 | 15 |
| 4 | Consumer Electronics Chapter | CE08 | 6 | 4 | 0 | 10 |
| 5 | Computational Intelligence Chapter | CIS11 | 7 | 2 | 2 | 11 |
| 6 | Communications Chapter | COM19 | 7 | | | 7 |
| 7 | Control Systems Chapter | CS23 | 12 | 3 | 0 | 15 |
| 8 | Education Chapter | E25 | 4 | 1 | 0 | 5 |
| 9 | Engineering in Medicine & Biology Chapter | EMB18 | 8 | 3 | 1 | 12 |
| 10 | Electromagnetic Compatibility Chapter | EMC27 | 12 | 1 | 3 | 16 |
| 11 | Graduates of the Last Decade Affinity Group | GOLD | 1 | 2 | 1 | 4 |
| 12 | Industry Applications / Power Electronics Joint Chapter | IA34/PEL35 | 11 | 1 | 4 | 16 |
| 13 | Industrial Electronics Chapter | IE13 | 6 | 4 | 3 | 13 |
| 14 | Magnetics Chapter | MAG33 | 14 | 3 | 1 | 18 |
| 15 | Nanotechnology Chapter | NAN042 | 5 | 1 | 1 | 7 |
| 16 | Oceanic Engineering Chapter | OE22 | 4 | 2 | 1 | 7 |
| 17 | Power & Energy Chapter | PE31 | 17 | 4 | 5 | 26 |
| 18 | Photonics Chapter | PHO36 | 20 | 1 | 1 | 22 |
| 19 | Reliability / Components, Packaging & Manufacturing Technology / Electron Devices Joint Chapter | R07/CPMT21/ ED15 | 5 | 2 | 0 | 7 |
| 20 | Robotics & Automation Chapter | RA24 | 17 | 2 | 2 | 21 |
| 21 | Section | Section | 0 | 6 | 1 | 7 |
| 22 | Sen | SEN39 | 0 | 0 | 0 | 0 |
| 23 | Systems, Man & Cybernetics Chapter | SMC28 | 9 | 0 | 3 | 12 |
| 24 | Signal Processing Chapter | SP01 | 8 | 2 | 0 | 10 |
| 25 | Solid State Circuits Chapter | SSC37 | 15 | 3 | 1 | 19 |
| 26 | Engineering Management Chapter | TM14 | 6 | 4 | 0 | 10 |
| 27 | Vehicular Technology Chapter | VT06 | 15 | 3 | 0 | 18 |
| 28 | Women in Engineering | WIE | 4 | 5 | 4 | 13 |
| | Total | | | | | 385 |

PART C - OTHERS

C.1 RELATIONSHIP WITH NATIONAL SOCIETIES

One of the burning issues that many societies and institutions (IES, Polytechnics, Universities, etc) are facing is the decrease in the number of students going into engineering field. IEEE will join force and promote engineering at the national level, thereby making IEEE more visible in the society.

C.1 SPECIAL EVENTS

On 2 November 2010, the IEEE Educational Activities Board gave a presentation and two non-technical tutorials by Douglas Gorham, Managing Director of the Educational Activities Department for IEEE and Steve Welch, Director of Continuing Education. The event was held at the Fusionopolis, Infuse Theatre and attracted more than 50 participants.

PART D - GOALS AND PLANS

D.1 GOALS

1. To retain existing members
2. To increase the visibility of IEEE to students in order to recruit new members
3. To increase higher grade members in Singapore

D.2 IMPLEMENTATION PLANS

1. Membership Continuation

- a. Sending membership renewal reminder
 - Create an attractive membership renewal reminder email with list of benefits of IEEE membership
 - Send monthly email reminder 3 months before membership expire date
 - Send weekly reminder 3 weeks before membership expire date
 - Send final reminder 1 day before membership expire date
- b. Providing rebate for early renewal applicable at the next renewal
 - This will ensure continuation of membership
- c. Creating more membership benefits to attract renewal of membership
 - Forge partnership with educational entertainment organization like the Singapore Discovery Centre, NEWater Visitor Centre, etc.
- d. Encourage Chapters to conduct fun activities so that members renew their membership

2. IEEE Publicity to Students

- a. Approach the other 4 Polytechnics in Singapore for setting up student branches
- b. Conduct more seminars on the benefits of IEEE membership to students
- c. Increase publicity about the student member-get-member incentives
- d. Encourage PhD students at NUS and NTU to get Graduate Student Membership

3. Increasing Higher Grade Members

- a. Formation of Higher Grade Members Elevating Committee to help members to upgrade and recommend Fellow Candidates to IEEE Fellow Committee
- b. Require participation of Chapter Chairs to recommend eligible members