

## PART A - SECTION SUMMARY

### A.1 Executive Summary

[www.ieee.org/bombay](http://www.ieee.org/bombay)

IEEE Bombay Section was formed in 1976 along with Delhi and Bangalore sections from the erstwhile India Section. It is the largest Section in India and has held that position for over 7 years consistently. It has 77 Student branches many of which are among the top ten in the region and among the leading 30 student branches in the world. In fact, Bombay Section has the largest number of student members in the world. It has been commended by Region 10 on several occasions since 1998 and last received the consistent sustained growth award at the 2006 R-10 meet in ChiangMai.

During the year 2006 a high point was the visit of Dr Michael Lightner, IEEE President on April 26/27 and the Conference on Electric and Hybrid Vehicles with several international speakers like Prof C C Chan held in Pune on December 18-20 which rounded off a successful year. The Conference was conducted by PES/IAS Chapter and sponsored by the Section.

In between a number of events were held throughout the calendar year 2006, comprising more than 15 technical talks, workshops, symposia and conferences, across the Bombay Section including the sub-sections of Madhya Pradesh and Pune. Several IEEE Distinguished Lecturers from overseas visited Bombay and Pune, and shared their expertise through expert lectures. (Details on website)

The Prof K Shankar Paper and Project contest for Student Members has been a popular annual feature with the young engineers and has been held without a break for 5 years now.

Dr S C Sahasrabudhe, Past Chair has been recently elevated as IEEE Fellow Prof M M Shah has been nominated as Technical Activities Board (TAB) Chair for Region 10. Mr. Anthony Lobo, Treasurer, was awarded Region 10 - Outstanding volunteer award for year 2005.

Two more IEEE Society Chapters have received recognition during the year, Digital Signal Processing and Instrumentation and Measurement Society. Both have begun technical activities.

While the IEEE VESIT Student Branch has consistently won laurels for international IEEE website design competition, what is commendable is the support of the Life Members Affinity Group to revive as many as five non-functional Student branches.

The Executive Committee of the Bombay Section has held 10 meetings during the year. Last year one meeting was held at Indore, and in November 2006 the meeting was held in Nagpur as an outreach to members.

## A.2 Financial Report

A brief highlight of the income/expense and balance

Major Income and Expense Heads over last 4 years								
	Amount in Rs.				Expenses as % of Rebate			
	2003	2004	2005	2006	2003	2004	2005	2006
<b>Rebate from IEEE HQ</b>	<b>1,691,662</b>	<b>1,568,258</b>	<b>1,388,797</b>	<b>1,615,854</b>				
<b>Total Expenses</b>	<b>1,322,864</b>	<b>1,490,507</b>	<b>1,360,921</b>	<b>1,611,834</b>	<b>78%</b>	<b>95%</b>	<b>98%</b>	<b>99.8%</b>
Student Activities	427,657	555,490	368,536	685,249	25%	35%	27%	42%
Professional Activities	329,489	142,505	124,533	132,256	19%	9%	9%	8%
Conference Expenses	0	337,979	200,000	231,757	0%	22%	14%	14%
Section/Chapter Support	169,905	0	366,943	297,775	10%	0%	26%	18%
Meetings and Social Events	124,656	238,504	137,547	90,111	7%	15%	10%	6%
Others (Travel, IC Bulletin, ECI)	271,158	216,029	163,362	174,686	16%	14%	12%	11%

Section also receives interest on existing bank deposits to supplement resources for Section technical activities

### A.3 List of Section Officer and Executive Committee Members

#### Executive Committee 2007

Chairman Prof U B Desai	SMIEEE	
Imm Past Chair Prof M M Shah	SMIEEE	Student Activities Chair
Vice Chairman Raju R Hira	SMIEEE	
Secretary Anthony Lobo	SMIEEE	
Treasurer Ashok Jagatia	SMIEEE	

#### Members

Dr M V Pitke	LFIEEE
A K Banerjee	LMIEEE
H Kalyanasundaram	LSMIEEE
Prof V Ramgopal Rao	SMIEEE
Prof Ms Poorva Waingankar	MIEEE
Prof MS Prachi Gharpure	MIEEE
Prof R K Shevgaonkar	SMIEEE
Dr Shrikant Parikh	SMIEEE
Dr Ms Preeti S Bajaj	SMIEEE
Prof Rajesh Ingle	MIEEE
Prof Unmesh A Rane	MIEEE

#### Permanent Invitees (Past Chairs)

P R Bapat	LFIEEE	
Quraish Bakir	SMIEEE	
Dr F C Kohli	LFIEEE	
Prof A A Kulkarni	LSMIEEE	
R Muralidharan	SMIEEE	
Dr P V S Rao	SMIEEE	
Prof B R Prabhu	SMIEEE	Membership Development Chair
Dr C G Ravi	LSMIEEE	
Dr S C Sahasrabudhe	FIEEE	
K J Sheth	SMIEEE	
H S Sonawala	LSMIEEE	
K S Sonawala	SMIEEE	
Prof Juzer M Vasi	FIEEE	

#### GOLD Affinity Group :

Chairman Prof Vineet Kotak	MIEEE
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#### Women in Engg Affinity Group :

Chairman Prof (Ms) M B Khambete	MIEEE
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#### Life Members Affinity Group :

Chairman Dr P B Parikh	LSMIEEE
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## Chapter Chairs

Communications Society	Ashok Jagatia	SMIEEE
PES/IAS	Prof Datta J Doke	SMIEEE
AP/EDS	Prof Siddharth Dasgupta	MIEEE
Computer Society	Dr M V Anantakrishnan	SMIEEE
Engineering Management Society	Kirit Sheth	SMIEEE
Instrumentation and Measurement Society	Prof S D Agashe	SMIEEE
Digital Signal Processing Society	Prof A S Tavildar	SMIEEE

### Subsections Chair:

Pune Subsection :Mr Arun Bahulkar	SMIEEE
MP Subsection Prof : Sanjiv Tokekar	SMIEEE

## PART B - ORGANIZATIONAL ACTIVITIES

### B.1 Membership Development Programs

- Effort in Membership Development

Membership from Corporates has dropped as a result of some of their policies and hence a special campaign had been undertaken along with Tata Consultancy Services in May 2006. During the celebration of Technology Week in the organization, IEEE arranged for three technical talks and took up a stall for membership at the Tech Fest. Three experts from the Section, Dr M V Pitke, Prof Uday Desai and Prof S N Merchant gave technical talks at TCS offices during the celebration of Technology week between May 22-26.

We acknowledge the support of Life members to revive five student branches as detailed elsewhere in this report

- Evidence of retention of members

In end 2005 the IEEE Administration statistics for Bombay Section showed a total of 6000 members out of which we had 4031 students

The statistics for end 2006 indicate that the membership has very marginally dropped with a total of 5962 members and 4611 students. The higher grade membership includes 95 Senior Members, 17 Life Senior Members, 5 Life members 4 Life Fellow Members and 6 Fellow Members. This is an indication of the maturity of membership and the longevity of the Section.

However much needs to be done to balance High Grade with Student Membership.

- GOLD, WIE and Infirmity Group Activity

The GOLD group conducted periodic professional talks for members as also the Life Members Affinity group, especially with along with student members.

GOLD members had a seminar on HAM Radio, Seminar on Pattern Recognition and Information on Graduate Studies in Rochester Institute of Technology.

The WIE Group however has also been active during the year with Seminar on MEMS devices, and training to rural students on inductors, capacitors, cabling, ICs and Mechatronics, CNC applications as well as hobby kits. The L-31 reporting details much of their activity.

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Life Members created a special presentation on benefits of IEEE membership and helped to revive several defunct student branches during the year

- a. Atharva College, Borivali, Mumbai
- b. Datta Meghe College at New Mumbai
- c. V J T I, Matunga Mumbai
- d. Somaiya College at Vidya Vihar, Mumbai
- e. Rizvi College at Bandra, Mumbai.

## **B.2 Professional and Continuing Education Activities**

- *Continuing Educational activities including conferences, technical event, training courses should be summarized and reported*

Bombay Section has a depth of technical resources and was able to conduct more than a dozen technical and professional offerings for members. These are detailed on the website and summarized below

16th January, 2006 , 1430 hrs

"Impact of technology on sub 90 nm VLSI circuits"

by Dr. Rajiv V. Joshi, Research staff member at T. J. Watson research center, IBM

10th February, 2006 , 1600 hrs

"Novel Tunneling Devices for Future CMOS Technologies"

by Dr. Krishna K Bhuwalka, Institute of Physics, Universität der Bundeswehr Munich

24-25th March, 2006 "2nd Workshop on Design Verification Methodologies" Venue - Wipro Technologies, Pune, India

12th June, 2006 , 1100 hrs

"Nano and Micro Structures, Processes and Packaging for Advanced Integrated Sstems: Research, Education and Entrepreneurship"

by Ajay P. Malshe, Ph.D., FInstP, Faculty of Electrical Engineering and Microelectronics and Photonics, University of Arkansas

22nd June, 2006, 1000 hrs

"System of Systems" and current developments in Aerospace Technology

By Dr Zafar Taqvi, NASA

18th July, 2006 , 1700 hrs

"Advanced Electronic Systems Engineering"

by Professor Krishna Shenai, FIEEE ,USTAR Professor, Utah State University, Logan, UT, USA

2nd August , 2006 , 1400 hrs

"GaN based optoelectronic materials and devices"

by Dr. Arnab Bhattacharya, Dept. of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai

3rd August , 2006 , 1430 hrs

"Power Semiconductor Device Technology - An Overview"

by Dr. Ritu Sodhi, International Rectifier

8th August , 2006 , 1530 hrs

"Ubiquitous Multimedia Computing and Communication: Challenges and Future Trends"

by Professor C. -C. Jay Kuo, University of Southern California

15th August , 2006 , 1600 hrs

"What can Self-assembled Monolayers (SAMs) do for MEMS/NEMS?"

by Dr. K.P. Vijayamohan, Group Leader, Materials Electrochemistry Group, National Chemical Laboratory (NCL), Pune

23rd August, 2006, 1430 hrs

"Inertial MEMS sensors"

by Prof. S. A. Gangal, University of Pune

10th November, 2006, 1000-1200 hrs

"Advanced SOI Technology: materials, devices, and mechanisms"

by Prof. E. Cristoloveanu, Grenoble, France

10th November, 2006, 1400-1600 hrs

"Modelling decanometer devices: Challenges and Perspectives"

by Prof. E. Sangiorgi, Univ. of Bologna, Italy

**18th-20th December, 2006**

**Conference on Electric & Hybrid Vehicles, Pune, India**

**Jt orgn: Bombay Section PES/IAS Chapter and Pune Subsection of IEEE Bombay.**

**Technical Co-sponsors: PES, IAS and Automotive Research Assn of India**

21st December, 2006, 1130 hrs

An Overview of FLASH-OFDM and other Mobile Broadband Technologies

by Dr. Samir Kapoor, Senior Director, Engineering, QUALCOMM Inc

### **B.3 Students Activities**

- Active Student Branches activity

Bombay Section now has 77 student branches, second in the world only to Madras Section. Bombay's individual student branches on the world top 30 include International Institute of Information Technology, Pune, Maharashtra Academy of Engineering Alandi, SS Gajanan Maharaj College of Engineering Shegaon, Thadomal Shahani Engineering College and others.

Several Student Branches were active through the year, with organisation of Industrial visits and holding of technical events. To foster student participation, Student Counselor meets were organized by our Student Activities Chair in Bombay and other centres. The Section has a liberal grants programme to support their activities. This is dependent on their membership strength and there is a cap on the number of grants per year.

As detailed above five sick student branches were revived during the year with the help of the Life Members Affinity Group

- Recruitment of student members

Students are the lifeblood of the Section and presently comprise more than 75 percent of the membership and have sustained the membership figures for the year for the Section. Considerable spontaneous interest in IEEE membership is found, especially among the newer branches and several of the more mature groups in terms of longevity. The numbers speak for themselves.

2005 student members 4031

2006 student members 4611

- Student paper contest

The Section encourages and supports technical events and paper contests among the Student Branches and internally within their own units.

The Annual IEEE Bombay Section Prof K Shankar Student Paper and Project contest was held in February 2006, where a number of papers & projects of high quality were received.

The Section also coordinates the India Council MV Chauhan Student Paper and Project contest every year.

#### B.4 E-mail and Newsletter Activities, Home Page

- Number of hard print Newsletter N.A. (only electronic)
- Number of electronic Newsletters

Bombay Section Mailer to all high grade members at least 12 issues, presently going out to 1000+ members as well as to those in ARrears, as a membership service. This is run on the IEEE Electronic Mailing List  
[ieee-bombay-section@ieee.org](mailto:ieee-bombay-section@ieee.org)

Bombay Section Student Activities Mailers for Counsellors and Student Chairs  
[bombayieee\\_sac@yahoogroups.com](mailto:bombayieee_sac@yahoogroups.com)

Bombay Section Execom Mailer  
[IEEE\\_Bombay\\_Execom@googlegroups.com](mailto:IEEE_Bombay_Execom@googlegroups.com)

Individual Student branch newsletters.

- Section, Chapters and Student Branches Web Pages

[www.ieee.org/bombay](http://www.ieee.org/bombay) has been running for over 7 years, webmaster Mr Quraish Bakir, Past Chair of IEEE Bombay



Chapter websites of COMSOC, IAS/PES, EMS

Student Branch webpages for almost all branches. VESIT, Thakur Engineering College and Thadomal Shahani Engineering College have been regularly winning international awards. VESIT has won the international IEEE award for student branch website for three years running.

## B.5 Awards

- Award program available and the list of winners

Prof K Shankar Paper Contest for student Members

### K. SHANKAR PAPER CONTEST – Prizes.

Venue: Sardar Patel College of Engineering, New Building, 1<sup>st</sup> Floor, Conference room, Bhavan's College Campus, Andheri (West), Mumbai 400058.

Date: 25<sup>th</sup> February 11.00 a.m.

Sr. No.	Paper Title	Names of Students	College	
1.	AntiLock Braking System for Indian Road	Saurabh S. Shukla	VIT, Pune	FIRST PRIZE ( Rs. 7000/-)
2.	A correlation Coefficient based Loss Differentiation Algorithm	Abhishek Murthy	SIES Mumbai	SECOND PRIZE ( Shared) (Rs. 5000/- shared )
3a	OFDM	Abhishek Devaliya	SSGMCE Shegaon	SECOND PRIZE (Shared) (Rs. 5000/- shared )
3b	Novel Architecture for FPGA Implementation of a Real Time Image Processing System.	Jonathan Joshi Balan Shivaraman	KJSCE Mumbai	THIRD PRIZE ( Rs. 3000/-)

## B.6 Chapter Activities

- Summary of Chapter Activities

### Chapter Activities

Bombay Section comprises 9 chapters, inclusive of two joint chapters, which have conducted various activities in their sphere, with the Instrumentation and Measurement Society Chapter being approved last year and the new Signal Processing Chapter.

While all chapters have been active, in particular, the Communications Society Chapter and the joint Chapter of Antennas and Propagation Society and the Electron Devices Chapter have been very active this year in organizing technical talks and seminars for the Section. The IAS/PES has taken the initiative of rural awareness of technology and organizing seminars to introduce latest trends in technology.

The IEEE Bombay Section co-sponsored the recently concluded Conference on Hybrid and Electric Vehicles organized by the PES/IAS chapter and IEEE Pune Subsection. This event was technically cosponsored by the PES and IAS Societies of IEEE along with Automotive Research Assn of India. The conference was held in Pune between 18-20 December 2006 and had renowned faculty from India and abroad.



**2006 IEEE Conference on Electric & Hybrid Vehicles** December , 18 - 20, 2006 Pune, INDIA



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The Conference Committees wish you happy and prosperous New Year and thank all the

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Keynote Speakers,  
Authors,  
Delegates,  
Committee Members,  
Volunteers

The technical activities presented above are entirely arranged through the various chapters in the Section.

## PART C - GOALS AND PLANS

### C.1 Goals

Bombay Section would like to make itself more relevant to Industry and corporates as well as provide value add to members. There is much to be gained from close interaction with the engineering and IT industry and some enlightened corporates and government bodies are known to encourage professional affiliation.

Similarly, the Section has to offer more to Student members in terms of career planning, concrete avenues for employment as well as equipping them with complementary skills such as the soft skills of facility with written and spoken communication, leadership, resume writing, mastering job interviews and the like. For some of the colleges in the mofussil areas, technical inputs would also be in order, especially when made relevant to the world of work.

### C.2 Implementation Plans

A timebound plan to cater to students by organizing job fairs is underway. Corporates are being sounded about IEEE as a recruitment source of choice. Plans to have a career database, screening mechanism as well as certifying of students as meeting a minimum grade.

With industry as well, the Execom is taking steps to monitor to ascertain details of which organizations are favorable to supporting staff taking up professional membership. We have also reached out to vendors like technical booksellers to offer special discounts to members.

## PART D - OTHERS

### D.1 Relationship with National Societies

The IEEE has a memorandum of understanding with the Institution of Electronics and Telecommunications Engineers, a prestigious National Level Body. Several members of Bombay Section share both affiliations.



Similarly IEEE has also signed a Memorandum of Understanding with the Institution of Engineers (India), a renowned professional body with more than 500,000 members.



*The Institution of Engineers (India)*  
8 Gokhale Road, Kolkata 700 020, India  
ESTABLISHED 1920  
INCORPORATED BY ROYAL CHARTER 1935



The Institution of Engineers (India) is the largest multi-disciplinary engineering professional society, established with a view to promote and advance the science, practice and business of engineering.

**President**  
**Shri D K Gowda**

**Secretary and Director General**  
**Cdr Arvind K Poothia, IN (Retd)**

IEEE India Council has a representation on the Engineering Council of India (ECI) which is following up on issues of equivalence of certification and the Washington Accord as well as being a lobbying body with Government. Till recently, Mr R Muralidharan, Past Chair of Bombay Section and of India Council was the designated member on the ECI.

### D.2 Special Events

The highlight of this year was President Michael Lightner's visit in April 2006 as a back to back visit of W Cleon Anderson's visit to Bombay and India in January 2005.

The International Conference on Electric and Hybrid Vehicles also was a high point for Bombay Section and the IAS/PES Chapter in December 2006.

### D.3 Concern areas and suggestions

The only concern we see is to continually bring more relevance to the industrial and technical domain in India. IEEE should not be only associated with Academia.

IEEE publications need to find the right balance between retaining intellectual ownership as well as dissemination through more economical and web based channels.