FROM PRESIDENT'S DESK

Close on the heels of IT Policy, the long awaited new Telecom Policy has also been declared. With this, Government has given indication of its mind and commitment and now it is for the industry to take the lead and make India move, with world class telecom and IT infrastructure commensurate with the requirement of new millennium.

IETE, as in the past, has also kept with its goal of helping the growth of Electronics, Telecom and Information Technology. IETE Apex Forum deliberated on the issue of the 'Role of IETE and similar organizations in Manpower Development and Consultancy'. This was mainly to highlight the need for high quality, trained manpower capable of dealing with new technologies and developments in Electronics, Telecom and IT. Our members also deliberated on topics like Data Warehousing, Data Mining etc in various seminars in Delhi and Mid-Term Symposium at Pilani and Personal Communications and IT in Cochin and Allahabad.

IT has made the growth of telecom and all other areas rise exponentially. Internet with all its universal dimensions is covering every aspect of our life. IETE has also decided to take advantage of this phenomenal growth of Internet and use the same in achievement of our objective viz., helping our students and members, by harnessing the power of Internet for academic and professional growth of our members. We would soon be starting our Cyber Centres for Distance Education for the benefit of all our students and corporate members.

I would, therefore, once again like to invite all our members to play active role in their own development as well as development of the society through our programmes. I look forward for greater contribution from the members.

Cdr (Dr) H S Sharma, IN (Retd)

NEWS FROM HEADQUARTERS

Report on 30th IETE Mid term Symposium:

The IETE Pilani Centre organised the 30th IETE Mid-Term Symposium on **"Data Warehousing and Data Mining Applications"** at CEERI, Pilani on April 3-4, 1999. The MTS-99 was co-sponsored by CEERI, Pilani, Indo-French Technical Association (IFTA) Pilani Chapter, Semiconductor Society of India (SSI) Pilani Chapter, VSNL, DoE and CSIR, New Delhi.

His Excellency Shri Anshuman Singhji, the Governor of Rajasthan, inaugurated the symposium by lighting the lamp and released the souvenir. Dr S Ahmad, Chairman, IETE centre and Director, CEERI, Pilani gave the welcome address. Cdr (Dr) H S Sharma, President, IETE, delivered the presidential address while Gp Capt H Kaushal, Chairman TPC introduced the symposium. The 26th Vikram Sarabhai Memorial Lecture on "ISRO's programmes with Special Reference to Info-tech in Social- Sector" was delivered by Shri A K S Gopalan, Director SAC(ISRO), Ahmedabad. Shri G K Gautam, Hony. Secretary, IETE Pilani Centre proposed the vote of thanks. The inaugural session was well covered by press.

More than 250 delegates participated in the Symposium deliberations which were spread over five technical sessions followed by panel discussions on "The Recommendations for Future Work in the

Mid-term symposium in progress. Seated L → R: Dr S Ahmad, Cdr (Dr) H S Sharma, Shri A K S Gopalan, Gp Capt H Kaushal

area of Data Warehousing and Data Mining". Panelists were Cdr(Dr) H S Sharma, Dr S Ahmad, Dr N M Parthasarthy, Shri P M Dastidar and Gp Capt H Kaushal. Dr H S Sharma chaired the panel.

The five technical sessions were on:

- Data mining and data Warehousing - Models and Data Access and Security
- Algorithms for Data Mining and Data Warehousing
- Data mart and Database Design and Interfacing
- Case studies (two sessions)

RESULTS

Results of AMIETE (old scheme & new scheme) and DIPIETE (old scheme & new scheme) Dec 1998 examinations have been declared on 31st March 1999. Regional Examination Board results for AMIETE and DIPIETE were also announced. Admissions are open for both the levels for the coming session.

Another Term for Cdr (Dr) H S Sharma

Cdr (Dr) H S Sharma has been re-elected by the Council of the IETE for another term (1999-2000) as the President of IETE.

NEWS FROM THE LOCAL CENTRES

Allahabad

A two day conference on 'Digital Signal Processing & Computer Vision' on 13-14 March 1999 and one day tutorial on 12 March'99 were coordinated by IETE Allahabad Centre & JK Institute of Applied Physics & Technology, Allahabad University. In addition to technical sessions, plenary and invited sessions were also held. Shri Ravindra Gupta, Secretary, DoE, New Delhi graced the occasion as chief guest. The aim of the zonal conference was to improve the IETE visibility by involving various centres in the region in the institution's technical activities.

Members of IETE fraternity of **Varanasi** have planned a lecture series to be delivered at All India Radio, Varanasi. The first lecture was delivered by Prof B R Vishwakarma of IT, BHU on "Microstrip Antenna" on 11 Apr 99.

Bangalore

The following programmes were organised by the Bangalore Centre :

- Technical lecture by Shri Simon Turvey, Gen Manager, Ferro International Services on "Trends in LTCC & Thick Film materials for Wireless Packaging" on 17 Feb'99.

- Third C V Raman Memorial lecture on "Nuclear Power and Techniques in the 21st Century" by Dr P K Iyengar (Former Chairman, Atomic Energy Commission, Mumbai)

Cdr (Dr) H S Sharma felicitating Dr P K Iyengar with a memento after Sir C V Raman Memorial lecture

◆ Inauguration of Summer School Electronics (SUSIE-99) & Summer School in Computers (SUSIC-99) by Shri Y Gopala Rao Exec Dir, BEL and Short Term Courses by Shri T S Kuppuswamy, Gen Manager, Bangalore Telecom District on 4 April'99.

◆ One day workshop on 'DSP Solutions- Current trends' on 18 April'99.

Calcutta

Cdr (Dr) H S Sharma inaugurated the centre's annual symposium 1999 "IT–Challenges and Opportunities" on 20 Mar'99 at Salt Lake Campus, Calcutta. Professor D Datta Majumdar, ISI, Calcutta delivered the keynote address. Prof M Abdus Sobhan, Executive Director, Bangladesh Computer Council was the guest of honour.

Delhi

- The centre organised following lectures /workshop:

- "Speech Recognition in Computer Communication" on 24th Mar 1999, Dr S S Agarwal, Head, CEERI, Delhi spoke on the topic.

- "IT Trends & Directions" on 9th Apr'99 , Lt Col Kewal Kohli was the speaker.

- A two day workshop on "Data Warehousing and Data Mining" at India Habitat Centre on 15-16 Mar'99. Dr Chandrasekhar of FORE, School of Management, Delhi was the resource faculty.

- Under other activities the centre improved the existing conditions of it's computer lab, revived the Internet connection, upgraded the electronic lab and now it is planning to hold REB-1 at IETE(DC) itself from June 1999 onwards.

- IETE Students Forum (ISF) Centre under IETE(DC) has been opened at Institute of Technology and Management, Sector 23 A at Gurgaon.

- Students' library became functional from Feb'99.

Hyderabad

Following lectures/meeting were conducted by the centre:

- 1 Feb'99- A talk/lecture on "How is Multimedia Computing changing Communications?" .Shri D V S Raju, Chairman Hyderabad Centre, presided.

- 13 Feb'99- 3rd U V Warlu Endowment Lecture by Prof. N A Narsimham, Fellow, Indian National Science Academy and Former Head, Spectroscopy Group, BARC on "Cosmic Microwave Radiation Heralds Radio Astronomy."

Prof N A Narasimhan being felicitated during the 3rd U V Warlu Endowment lecture

- 25 Feb'99- 2nd Auto Electronics Endowment Lecture on "Electronic Control Systems for Emission Reduction" by Mrs Madhuri Marathe.

- 27Feb'99- A case study was presented to the participants of UNIX, C, C++ by Shri P Sunder Varada Raj, Director (Operations), Connectus Technologies (I) Pvt. Ltd., Hyderabad and Shri Hari Ramakrishna of Engineering College, Nizamabad.

- 28 Feb'99 - Valedictory function of 8 week short term course in UNIX, C, C++ for corporate, student members and others was organised.

- 6 Mar'99 - Panel discussion on "Telecom Sector-Opportunities, Challenges and Problems"chaired & presided by Shri U V Warlu, Member, IETE Council. It was recommended to give much needed protection to the small industries playing key role in telecom sector with good R & D infrastructure and good market setup.

- 15 Mar'99 - Visit to a workshop " Railway Signaling Telecommunication" by AMIETE students, taken for a tour to IRISET.

Jabalpur

The following seminars are proposed for the year 1999-2000

- A seminar on "Sensors for Industrial Applications" on 23rd May 1999 at Gwalior .

- A two days seminar at Bhopal on "VLSI Hardware Description Language" in Aug'99. Contact person is Dr A K Tiwari, Dept of Electrical & CSE., MACT, Bhopal.

- One day seminar at Indore on" Internet Protocol" for next

generation in Oct 99., Dr P D Vayvahare, Dept of Electronics & Communication Engg., SGSIT & Sc, Indore is the contact person for further details.

❑ Two day seminar at Gwalior on "Intelligent Instrumentation" in Feb 2000. Dr Rajeev Saxena, Dept of Electronics & CSE, MITS Gwalior is the contact person.

Kanpur

A view of the dias during the Seminar on 'Introduction on Mechatronics and its Applications'

A seminar on "Introduction to Mechatronics and Its Application" was organized on 11th April at IETE Kanpur Centre. Prof (Dr) Amitabh Mukherjee, Centre for Mechatronics, Kanpur delivered the inaugural address and chaired the technical session. Prior to this, the welcome address was given by Shri B K Karmakar, Chairman IETE, Kanpur Centre. Shri Krishna Das and Shri Samir Kumar from M/s Asea Brown Boveri Ltd., Bangalore, Shri Deepak Kudtarkar and Shri Ketan Seth from M/s Siemens Ltd, Mumbai were the speakers. Shri R K Sharma, Hony Secretary of the centre gave the vote of thanks. The audience, which included the engineers, academicians, students, executives from industries and industrialists all appreciated the lectures.

NOIDA

"Noida-Intelligent City" a seminar was organised by the centre on 16th April'99 in collaboration with ER&DCI, Noida and with Noida Administration's support. Objective of the seminar was to provide an interactive platform to the participants and prepare the industry to utilize the advantage of Internet and E-business. Smt Sunita Kandpal, IAS Chairperson, Noida Authority inaugurated the seminar. The function was attended

Cdr (Dr) H S Sharma, IN (Retd) addressing the gathering at the inaugural session on Seminar on "NOIDA the Intelligent City". Seated L → R Shri Manoj Singh, IAS, Shri R K Verma and Smt Sunita Kandpal, IAS

by galaxy of dignitaries, Central Govt officials including the District Magistrate of Gautam Budh Nagar and Mrs Chauhan, Dy Executive Officer , Greater Noida. The President and the Secretary-General, IETE also graced the occasion.

After the inauguration two technical sessions were held. The first session was chaired by Brig.SVS Chowdhry, Past President of IETE and CSI. Two technical papers were presented in this session. The Technical Session-II featuring four technical papers, was chaired by Maj Gen Prem Prakash, Council Member.

Visakhapatnam

On 17 April 1999, this sub centre was upgraded to full-fledged local centre. Prof P V Indiresan, Former Director, IIT Madras, Former President IETE was the Chief Guest for the occasion.Dr H S Sharma delivered the presidential address. Chief General Manager, Telecom Circle, AP, Hyderabad; Shri J Ramanujam, was the Guest of Honour. RADM S Mohapatra, Chairman of the centre and Director NSTL presided over the function.

EMERGING TECHNOLOGY

Carbon Nano Electronics - New Prospects

Most of the nano-structures have been investigated, in recent past, in case of semiconductors. Nano-structures, being smaller in dimension, give rise to discrete energy states for electrons. Combining the phenomenal tunneling with discrete energy levels of nano-structures, a number of switching

devices have been realised in variety of ways. Side by side, recent developments in the area of carbon nano-structure has also been emerging with great promises for future. The interesting property of carbon to carbon bonding resulting into 1 and 0 dimensional structures i.e. carbon nano-tubes and fullerene molecules have led the researchers to look into their characteristics in detail for possible uses in future.

Properties of carbon reflected in stable 3 and 1 dimensional form i.e. diamond and semi-metallic graphite, change drastically when 1 and 0 dimensional nano-tubes and fullerene molecules are examined. The structural properties of nano-tubes and fullerene molecules are presently being rigorously studied theoretically and experimentally. Their energy band structures are being calculated and possible properties are being predicated on the basis of that. It has been observed that alkali metal doped fullerene molecules have superconducting properties.

Fullerenes based devices like FET, photovoltaic diodes, fullerene-polymer composite hetero-junction photovoltaic devices, photoresist, silicon wafer bonding and passivation of reactive surfaces are some of the early evidences of the utility of fullerene molecules and related materials. Similarly, carbon nano-tubes, which are realised by a manolayer sheet of carbon atoms bonded together into a seamless tabular structure, which has the two ends, capped by semi-spherical fullerene. Carbon nano-tubes, single and multiple-walled, have very unusual mechanical properties. They have the diameter of few nanometers and length of few hundred microns. Mechanically, carbon nano-tubes are quite strong and can be used as STM tip for mapping atomic structure at the surface. Electron emission properties of such tubes are being vigorously examined for using them as devices for flat panel display and other applications. Of course, for a practical device, such short nano-tubes have to be dispersed in a medium uniformly and the problem of contacting and addressing each tube has to be sorted out suitably. Carbon nano-tubes can behave like a conductor, semiconductor and insulator depending upon the doping of the structure with appropriate impurities.

Carbon nano-tubes and fullerenes are produced in a resonably controlled manner by dc discharge in a suitable inert ambient. Two graphite electrodes, kept at a distance and embedded with some metal catalysts, form carbon nano-tubes under right operating conditions. Energetic processes occurring in high-density plasma region, help to form carbon nano-tubes by promoting preferential placement of carbon atoms around the catalyst atoms. The use of x-ray and STM analyses has been useful to study the structural details of such nano structures. Carbon nano-tubes and fullerene molecules are emerging as building blocks of a number of useful devices yet to be developed. We have good hope to realize a number of exotic devices using such entities

A Data Mining and Data Warehousing: Emerging IT Concepts

In international scenario today, the computing power is increasing very fast. It is doubling every 18 months. The data storage costs are decreasing at a similar rate. Thus, a middle level businessman can now afford to have a powerful computing system with a terabyte of data storage and a Giga flops of processing power. Also, there is no dearth of hardware capabilities. The need of the day is how you exploit the computing power to analyse the data and acquire information and knowledge out of it. At present, computers are not only used for routine EDP needs, online applications, Internet but also deployed for complex decision making processes. The autonomous systems, in vogue, are being aimed at which have similar level of intelligence as a human being.

Recent challenge in technology is in acquiring and building intelligent systems. An intelligent system needs capabilities to acquire, learn, and update its knowledge. The knowledge can originate from the human experts, which can be framed into a static knowledge base in the system. But there is sufficient hidden knowledge in the voluminous data. How do we extract the hidden knowledge of relevance to the problem domain from our data? Data Mining is the answer to this problem. This subject basically explores new techniques in knowledge discovery from database to extract the hidden knowledge.

For such knowledge acquisition, there is need of large amount of data running into tera-bytes and storage of such voluminous data needs efficient methods for acquisition, storage and retrieval. Data Warehousing is the concept, which deals with this theme.

The real world problems being faced in present time are complex. Whatever may be the area the problem belongs to, one wants to optimise the costs so that one can have a lead in the market. The problems have several factors to be considered and several criteria to be satisfied. So a complex decision can not be truly evolved by analytical methods without sufficient knowledge of the domain. The area of Decision Support Systems are now evolving, where the system acquires basic knowledge from the human experts and aids in making decisions through the operator's interaction. In this process of interaction, the system also updates its knowledge. The knowledge is built up through the human interaction and through the implicit knowledge discovery in the raw data, the system becomes more and more effective. Today, most of the international vendors are utilizing such systems to be competitive in the cutting edge market.

Data mining is also a very relevant method to discover the complex relations among several process parameters in an industry. Modeling of complex processes can be done by this technique and generate rules underlying the physical phenomena.

– Dr S Ahmad, Acting Director, CEERI, Pilani

EDITOR'S FORUM

Dear IETE Corporate Members,

The internet today is a veritable treasure house of information, however to extract relevant data calls for a certain amount of expertise. I have particularly developed a liking to some of the Indian websites, viz, digitalht, india-today, times of India, indiatimes, rediff and khoj, all of which provide us information on Indian art, culture, rich heritage, latest news and other topics of general interest. I am impressed by the fact that I can send greetings (card or music) to my friends/relatives through Internet. I can consult a doctor visit a museum or zoo or download music of any choice. I, however, find that getting a dial-up connection is not easy due to busy telephone lines or faulty servers, and even if one gets the connectivity, downloading information is a slow process, compounded by the lines getting frequently disconnected. There are, however, times when the connection is established in the first attempt and that the response times are very fast! That is the day, when one is indeed lucky! One finds that the "last mile" problem of connectivity for the Internet still exists not only in India but even in other countries. We need to address ourselves urgently in improving the Internet service.

I am glad to know that the National Task Force on National Technology and Software Development is aiming to improve IT in India. It has already submitted its report in three parts, 108 recommendations of the IT Action Plan (Part-I)with orientation towards software industry, IT Action Plan (Part -II,

the Policy instruments) with orientation towards hardware and IT Action Plan Part-III giving recommendations for the strategic policies for the IT Industry, Research, Human Resource Development and Citizen-IT Interface.

Citizen-IT Interface is probably the crying need of the times for our country to get out of the bureaucratic/ hostile approach of most of the Government Departments. It will also help to reduce (not eliminate?) corruption! I was told that while computer draw for housing allotment was being undertaken, even computers needed a little lubrication! The citizen-IT interface when implemented will help the nation to achieve rapid economic growth by enabling electronic commerce technology, electronic fund transfer, single point of contact for citizen for delivery of services, maximum transparency in governance and right of citizens to access to information, IT responsive state governments and utilities billing payment. The filling of income-tax returns and renewal of driving licenses, may be done electronically. All the above strategic policies for Citizen-IT Interface are most welcome, but when will they be implemented?

IETE Members are welcome to contribute their views on any aspect of Citizen-IT interface or any informative/educative Internet sites that they would recommend visiting.

Maj Gen Vinod Krishna, AVSM (Retd)
Hony Editor, IETE Newsletter

From Secretary General's Desk

Calling all Senior Members

Dear Senior Members,

A policy decision was taken by the Council during 1996 to honour senior members of IETE. Senior members who meet the criteria, age plus membership period (continuous) more than 85 (provided minimum membership period is 15 years) are eligible.

In the formative years of IETE, there was no record of date of birth of the members and hence it is not possible in all cases to identify the members who are eligible for this honour.

May I therefore, appeal to all members who meet the above criteria to send their names to me with all relevant details, i.e., date of birth, membership number and present address.

Maj Gen K B Jhaldiyal, AVSM (Retd)

CALL FOR PAPERS

42nd Annual Technical Convention of the IETE

IT FOR SOCIO ECONOMIC DEVELOPMENT

25-26 September 1999*
New Delhi

The Convention will cover the following topics:

* Impact of Technology on Society

* Technologies for Socio Economic Development

* Services for Emerging Requirements

* Backbone Network and Spectrum Requirements for Services

* Future Trends in Developed and Developing Countries

* Policy initiative to Promote Services: Current and Future

Technical Papers are invited on the topics mentioned above or related topics. The manuscript should not exceed twelve pages of A4 size, typeset with double spacing (including figures), and should reach the Chairman, Organising Committee with a copy to Secretary General, IETE HQ latest by **15 August '99** on the following address:

Maj Gen K B Jhaldiyal, ASVM (Retd),
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* Exact dates will be announced later.

CALENDAR OF EVENTS

Subject	Date	Venue	Contact
• CommunicAsia99 Exhibition & Conference	22-25 June 1999	Singapore	Singapore Exhibition, Services Pte Ltd, 2 Handy Rd, # 15-09 Cathay Bldg, Singapore - 229233
• Paradigm Shift in Project Management	5-9 July 1999	New Delhi	A P Singh, Exec Dir Project Mgmt Associates A-48, Sec-V, Noida (011)8-526673, Fax: (011)646-4481
• ROVPIA '99 International Conference on Robotics, Vision & Parallel Processing for Automation	16-18 July 1999	Malaysia	Organising Sec, International Conference on ROVPIA '99, School of Electrical & Electronic Engg, University Sains Malaysia (KCP), 31750 TRONOH, Perak, Malaysia Tel: 605-3676901, e-mail: rovpia@eng.usm.my.
• 3rd Intl Conference on Knowledge-Based	31 Aug - 1 Sept 1999	Adelaide, Australia	http://www.unisa.edu.au/ pes/kes.htm
• Smart Cards Expo'99	28 Sept-Oct-1 1999	New Delhi	Shri S Swarn Electronics Today, 4-A,Naaz Bldg, Lamington Rd, Mumbai-4 Ph: 91-22-3860436/3851781, Fax:91-22-3801782/6360436
• Telecom 99 + Interactive 99 Exhibition & Forum	10-17 Oct 1999	Geneva	Mr Jean-Patrick Bare President,Telecom and Chairman, Telecom Board TELECOM, ITU, Place des Nations CH-1211 Geneva 20, Switzerland
• EMC Asia 99 Exhibition with workshops Compatability	2-4 Nov 1999	Singapore	Mesago, Messe & Kongress GMBH, Rotebuehlstrasse 83-on Electromagnetic 85, D- 70178 Stuttgart, Germany
• International Symposium On "Automotive Electronics & Alternative Energy Vehicles"	20-21Nov 1999	Kanpur	Secretariat for International Symposium on Automotive Electronics& Alternate Energy Vehicles, Electrical Engg Deptt., Room No 401, IIT, Kanpur-16 Ph : +91 512 597070, e-mail: isae@iitk.ernet.in
• ISRAMT'99-7th Intl Symposium on Recent Advances in Microwave	13-17 Dec 1999	Spain	Prof Banmali Rawat, Tech Prog Co-Chair Technology Deptt. of EE,/260, Univ of Nevada Reno, NV, 89557-0153, USA
• Radar Symposium India-99	14-17 Dec, 1999	Bangalore	Mr Ananda Babu K V S IRSI'99,Symposium Secretariat LDRE, C V Raman Nagar, Bangalore- 560093
• Componex/electronic India'2000	27-30 Jan, 2000	Bangalore	-do- AND Nikolaus Wollmann, IMAG-Intl Exhibition & Fair Service Ltd., Member of Messe, Muenchen Intl, Am, Messesee 2, D-81829 Muenchen, Germany Ph: ++49-89-94922-119, Fax::++89-94922-350
• 6th National Conf on Communication	29-30 Jan	Delhi	Dr S D Joshi, Dept of EE, Indian Institute of Technology, Delhi 110 016 e-mail : ncc2000@ee.iitd.ernet.in
• Americas Telecom 2000	10-15 Apr 2000	Rio de Janeiro Brazil	Place des Nations, CH-1211 Geneva 20, Switzerland Ph: +41 22 730 6161, Fax: +41 22 730 6444 e-mail : telecominf@itu.int, internet: www.itu.int/telecom

Note: The Institution of Electronics and Telecommunication Engineers assumes no responsibility for the statements and opinion expressed by individual author and speakers.