



IETE Bengaluru Magazine

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From the President's Desk

I congratulate IETE Bengaluru Centre on the successful publication and release of the 13th edition of its Quarterly Magazine. I am glad that the magazine is being released on 28th February 2022, on the occasion of National Science Day. The National Science Day commemorates the invention of the 'Raman Effect' by the great Indian physicist, Sir C V Raman. He invented it on 28th February and was awarded with the Nobel Prize in the Physics in the year 1930. The main objective of National Science Day is to bring awareness to people about the importance of science in our daily life and to encourage people by popularizing the Science and Technology. The national theme for the year 2022 is: "Integrated approach in science and technology for a sustainable future".



I am very glad to note this magazine has not only been covering all the technical programmes organized by the IETE Bengaluru Centre but also provides an opportunity to our ISF, Corporate, Organizational members to share their achievements, activities and new facilities and developments.

IETE Bengaluru is one of the most active centres which has started many ISF centres and has been organizing many technical programmes and training courses for the benefit of corporate members, professionals, faculty and students. I appreciate the efforts of IETE Bengaluru Chapter and wish the centre all the very best in all its future endeavours. I wish the IETE Bengaluru Magazine continued success.

Prof (Wg Cdr) P Prabhakar (Veteran)

President Elect (2021-22)

From the Chairman

Dear IETE Members,

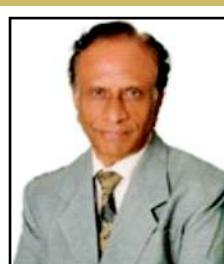
It is with great pride and pleasure that we are presenting this edition of our Magazine on the National Science Day.

The last quarter was dominated by student activities. Many colleges have recently formed Student Forums and I myself participated in their inauguration. ISF students and Faculty joined us in celebrating the IETE Student Day on the 5th of this month making it an exciting event. It was a matter of great satisfaction that the meeting of ISF coordinators held in this connection was attended by them with great enthusiasm. CMR University Bangalore became our Organisational Member at the close of last year and Faculty members of many colleges joined as our Fellows. IETE will constantly strive to fulfil its duty to the Student Community. We are coming out of the Covid imposed restrictions and hope to resume offline training and other activities, but the online mode will continue for most purposes.

I hope the Magazine is serving its members and readers in a way that meets their expectations. Your criticism will always be received with due respect and I invite you to send us your comments freely.

C Satyanandan

Chairman, IETE Bangalore



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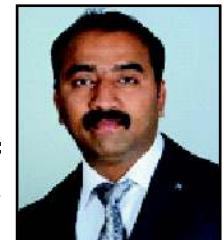
IETE BENGALURU



From Hon. Secretary

It is my immense pleasure that we are back with the Thirteenth issue of the IETE Bangalore magazine. This edition is being released on a special day – “National Science Day Celebrations” on 28th February 2022.

As quoted by John F. Kennedy, **“The future belongs to those who believe in the beauty of their dreams”**. Many new initiatives are being taken to organize various quality technical activities for the stake holders to make the center more vibrant in their execution.



The Magazine has been very instrumental in showcasing all the good work that we have been doing and exhibiting innovative technical articles which can pave the way to new research trends. I would appreciate your sincere feedback and suggestions in all our activities been conducted and making the Bengaluru Centre more proactive and accomplish the vision of the Centre.

Dr. S G Shivaprasad Yadav

Honorary Secretary



Welcome to Thiteenth Issue of *iете Bengaluru Magazine!*



We are releasing this issue of IETEBM on National Science Day during Sir C V Raman Memorial Lecture Program. We are immensely proud and happy to release our 13th Issue of *ieteBM* on this very important day.

Every year 28th February is celebrated as National Science Day (NSD) in India. NSD is celebrated to commemorate discovery of the ‘Raman Effect’, which led to Sir C.V. Raman winning the Nobel Prize. Raman Effect is a phenomenon in spectroscopy discovered by the eminent physicist Sir Chandrasekhara Venkata Raman in 1928. After two years in 1930, he got Nobel Prize for this remarkable discovery and this was the first Nobel Prize for India in the field of Science. while working in the laboratory of the Indian Association for the Cultivation of Science, Kolkata.

A small article on National Science Day is included in this issue of the *ieteBM*. This issue also covers all the major activities organized by IETEB which includes IETE Foundation Day, Republic Day programs, Inaugurations of several ISFs and technical workshops held jointly with them, IETE Students Day program etc. under able stewardship of Chairman Sri Satyanandan and his team. It also technical articles, Tech Trends, Prestigious Institutes etc. A new section “6G Corner” has been started to track the 6G R&D.

We would like to thank IETEB Chairperson Sri Satyanandan, Dr Shiva Prasad, Hon Secretary and the entire IETEB team for their immense support in bringing out this issue of the magazine. Our thanks are always due to Prof Prabhakar, President IETE, for his message, constant support & blessings, Sri Satyanandan for his very interesting and useful article on Softskills and IETE Bengaluru & IETE HQ staff for their support. Thanks to all members of IETEB Magazine Editorial Board for their contributions in bringing out this issue.

Please send your views, suggestions and be part of the magazine by contributing articles, news clips etc. Thanks for your continued support and encouragement.

Thank You

Dr M H Kori

On behalf of *iete Bengaluru Magazine* Editorial Board

IETE Bengaluru Magazine Editorial Board: Dr. MH Kori, Editor-in- Chief, Sri. C Satyanandan - Chairman, Magazine Committee Sri Ranjeet Kumar, Chairman, Finance Committee Dr. S Mohan Kumar, Member	Dr. S G Shivaprasad Yadav, Convener Dr. CV Ravishankar, Member Dr. E Kavitha Ramesh, Member
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Prof (Wg Cdr) P Prabhakar (Veteran)**President's Message****On****National Science Day – 28th Feb 2022**

Nothing in science has any value to society if it is not communicated to the general masses.

The National Science Day commemorates the invention of the 'Raman Effect' by the great Indian physicist, Sir Chandrasekhara Venkata Raman. Sir Raman, on this same date, had invented the Raman Effect in the year 1928. For his contribution in the field of science, Sir Raman was awarded with the Nobel Prize in the Physics in the year 1930. By celebrating this day as National Science Day, we show our dignity and respect to the famous Indian physicist for his contribution in the field of Science.

The main objective of National Science Day is to bring awareness to people about the importance of science in our daily life and to encourage people by popularizing the Science and Technology.

The national theme for the year 2022 is: "Integrated approach in science and technology for a sustainable future". This is one of the best of the times to give a push to this theme because we are going through a pandemic. The planet faced a daunting challenge with the unleashing of the Covid-19 pandemic in early 2020. But it also presented an opportunity for local, national, and international institutions of various kinds to work together to combat a deadly problem, with scientific temperament and innovation.

We live in a society where we get to observe people of two types. A group of people who believe that there are things beyond science and lead a spiritual path. On the other hand, we have people who believe in seeing the phenomenon and processes practically and convert it into products for the betterment of the living beings.

IETE, being a leading professional society dealing with advancements in Electronics, Telecommunications, Computer Science and Information Technology has a great role to play in advancements of modern technology and scientific temperament. Let us all join hands with all the segments of the society and work integrated manner for furtherance of Science for betterment of mankind. Let us push ourselves to the limits for the greater cause through scientific developments. Louis Pasteur rightly said that "Science knows no country because knowledge belongs to humanity and is the torch which illuminates the world."

I wish the entire science enthusiast very best to enhance their scientific zeal!

Prof (Wg Cdr) P Prabhakar (Veteran)

AN EVENTFUL QUARTER

1. **07-11-2021:** IETE Foundation Day was celebrated in the Auditorium of IETE Bangalore. (Report in this Issue)

2. **30-11-2021:**



Dr. Ambedkar Institute of Technology Dept. of Electronics and Communication Engineering conducted a 5 Day National Workshop "Competence to Explore Artificial Intelligence World" from 30-11-2021 to 04-12-2021 in Association with IETE Student forum.

The workshop was headed by the Vice Principal, followed by the Deans of various wings of Dr. AIT, and HOD Dept. of ECE. The highlight of the program was the motivational speech of Mr. Satyanandan C, Chairman, IETE Bangalore Centre. Co-Ordinators were Girija S, Mohan Kumar V, Hemalatha KN, Kavitha Devi CS, Dr. Shilpa KC.

The Inaugural session in blended mode started at 10.00 am on 30th November, 2021, with lighting the lamp and seeking the blessings of Maa Saraswathi with an invocation song.

Topics of the workshop were: Machine learning, Classification Problem Analysis, Clustering Algorithms, Education and human values, Morphological transformation, Natural Language Processing[NLP] etc.



3. **18-12-2021:** IETE Student Forum (ISF) was inaugurated at Ramaiah Institute of Technology Bangalore on Saturday 18 Dec 2021. Mr Satyanandan Chairman IETE Bangalore gave the Inaugural Address. Dr DG Rao EC Member, Scientist at LRDE Bangalore delivered the keynote address on Radar and interacted with the students and Faculty. Dr Shivaprasad Yadav Hon Secretary IETE Bangalore and Prof at MSRIT welcomed the Guests and Dr BK Sujatha HoD, EC presided.



4. **30-12-2021:** Chairman IETE Bangalore inaugurated the Student Forum at The Oxford College of Engineering, Bengaluru on Thursday 30th December 2021. Prof. C Murali Past Vice President IETE made a presentation on 'Intelligent Connectivity- the Fusion of 5G, AI and IoT.' Dr N Kannan, Principal, Dr Manju Devi, HoD ECE and Dr Bhargava Rama Gowd, Coordinator of ISF participated.



5. **05-01-2021:** ISF was inaugurated at Dept. of Electronics & Communications of AMC Engineering College Bengaluru, an Organisational Member of IETE on 5th January, 2022. Chairman IETE Bangalore, the Chief Guest, delivered the Inaugural Address and Prof. C Murali Past Vice President IETE, Guest of Honour, gave a presentation on '5G and towards 6G'. Dr KM Babu, Director & Head, AMC Institutions, Bengaluru presided. Dr C Girish, Principal, Dr T Kavitha, HoD, ECE and Dr Swetha Rani, ISF Coordinator participated. Certificates of ISF Membership were distributed at the function.



6. **10-01-2022:** Dept. of Electronics & Communications of AMC Engineering College conducted a Poster Presentation on 'Public and Private Companies'.

7. **18-01-2022:** Department of Electronics and Communication Engineering & Department of



Electrical and Electronics Engineering, P E S Institute of Technology and Management, Shivamogga inaugurated their ISF on 18th January in the Main Seminar Hall of the College. The function was held in the hybrid mode with IETE members and invitees participating online.

Ms Umadevi S Y, CEO, PESITM Trust, Shivamogga, Chief Guest addressed students in person and expressed her happiness at the PESITM joining IETE family. Mr Satyanandan Chairman, IETE Bangalore, Chief Guest addressed participants virtually and requested the Management to make the College an Organisational Member of IETE. Dr Chaitanya Kumar MV, Principal, Dr Devananda SN, HoD ECE, Dr Om Prakash Yadav, HoD EEE and Dr M Madhavi , Coordinator participated. Prof C Murali, Past Vice President IETE and Guest of Honour gave a technical talk online.

8. 26-01-2022: IETE Bangalore celebrated the Republic Day with Flag hoisting at 10 am. This was followed by a cultural program by children organised by Ms Pratibha in the auditorium.

The celebration was marked by an online program in which many IETE members and guests participated. Dr Shivaprasad Yadav, Hon. Secretary welcomed the assembled guests.

In his Presidential Address Mr Satyanandan, Chairman IETE Bangalore dedicated the celebrations to the Defence Forces. He recalled the affection that the nation had for its soldiers. It was a happy coincidence, he said, that the Chief Guest at this year's Republic Day celebrations was a Colonel who played many other roles as well.

The Republic Day Guest Col. (R) R Asoka IRSE (R) who had been for many years associated with RV Educational Institutions delivered an inspirational speech. Among other things, he talked about the idea of an integrated type of engineering education in which many disciplines could blend. He also suggested coordinated work among professional societies of engineers. Skill development and entrepreneurship were areas in which IETE could contribute, he said.

Senior members of IETE Bangalore gave brief Republic Day messages. Dr MH Kori, Vice President, IETE appreciated the work being done by IETE Bangalore. He concurred with the Chief Guest about the need for integration of disciplines. Mr G Ramesh, Prof C Murali, Mr RL Rao and Prof HS Bhatia also spoke.

The programme ended with a Vote of Thanks by Mr Ranjeet Kumar, Hon. Treasurer



9. 05-02-2022: IETE Student Day was celebrated at the Bangalore Centre on 5th Feb 2022. Dr SA Pandit, Retd. Additional Director, R&D, Atomic Energy Department, Senior Researcher, Divacha Centre for Climate Change, IISc. Bangalore was the Chief Guest. He was introduced by Mr RL Rao, Past Chairman IETE Bangalore. Mr Satyanandan, Chairman presided.

Dr Shivaprasad Yadav Hon. Secretary gave the welcome address and Mr CP Dwivedi Vice Chairman read out the message of President IETE. Dr CV Ravishankar Vice Chairman introduced the program of Student Day celebrations.





Dr SA Pandit spoke on the theme "Matter and Energy" and interacted with the students.

Students of various ISF colleges presented cultural programs. They sang, danced and participated in competitions.



10. 07-02-2022: Bangalore Institute of Technology, Bengaluru inaugurated the IETE Student Forum on 7th February 2022 at 11 am. Mr Satyanandan, Chairman IETE Bangalore was the Chief Guest and Prof C Murali Past Vice President IETE was Guest of Honour and keynote speaker. Dr MU Aswath, Principal BIT, Patron, Dr HN Suresh, Prof & HoD, Electronics & Instrumentation, Convener and Ms Neethashree, Coordinator participated. Dr CV Ravishankar, Vice Chairman IETE Bangalore and Mr KS Ravi, EC Member also addressed the gathering.





IETE Foundation Day 2021- A Report

The **68th IETE Foundation Day** was celebrated by the Bengaluru Centre on 7th November 2021 at 5.30 pm.

The function began with an Invocation by Ms Pratibha. After the 'Lighting of the Lamp' **Dr Shivaprasad Yadav**, Hon. Secretary² welcomed the gathering and the distinguished guests.

Mr Satyanandan, Chairman IETE Bangalore then welcomed the President IETE to join the celebrations online. He read out the profile of Prof (Wg Cmdr) P Prabhakar and requested him to give his message for the Foundation Day.

Prof Prabhakar in his address said that our forefathers had laid a strong foundation for the institution which has now spread across the country and even abroad. He talked about the recent IETE-Industry Innovation Meet and recollected his experiences in skill development in his career. He emphasized the need for skilling in the present day when there is a gap between academic qualification and job skills. There is a big role that IETE can play in this, he said, and we need to have a road map. We should also nurture the young generation which can be done through ISFs.

Dr Ravishankar Vice Chairman then introduced the Guest of Honour Mr Vinod Palakkil, Regional Director, PTC, Bangalore. Mr Palakkil expressed his happiness at being able to participate in the offline mode after a long gap. He gave a brief account of his company and its involvement in skill development from the level of ITIs upwards. He talked about enhancing it with digital transformation.

Mr Palakkil briefly described the four Industrial Revolutions starting with mechanization etc and ending in the present Industry 4.0 dealing with Cyber physical systems, IoT etc. Post Covid, there is a very positive development and increase in FDI, and all this requires a different enhanced skill set. India is viewed as a profit centre by companies and will need a large number of qualified engineers and skilled personnel. A huge number of jobs will remain vacant if we don't act immediately, he said.

Digital Transformation creates a loop between the physical and digital worlds to optimise products, people, processes and places. Five skills are expected to be needed in the fourth industrial revolution. They are Digital Skills, Technology and Computer Skills, Programming Skills for Robots and automation, working with tools and technology providers and

Critical Thinking. A smart engineer will need to understand the present curriculum and also the needs of the industry.

Dr Shivaprasad Yadav then introduced the Chief Guest **Mr Radhakrishna**, Director LRDE Bangalore.

Mr Radhakrishna mentioned his long association with IETE. He said LRDE is engaged in indigenisation of Radars with the help of BEL and private industry. He talked about Anti-drone systems also which involve participation of industry. Radar systems include application of mechanical and other disciplines for which skilled people are required in large numbers. IoT, AI and ML in which IETE is giving courses are also required. He presented the **Prof NV Gadadhar Memorial Award** to the winner **Mr Renukaprasad** for his contribution to the development of vehicle mounted Radar. **Mr Renukaprasad** gave a talk on his work on '**Fire Control Radars**'.

Mr CP Dwivedi, Vice Chairman introduced Guest of Honour **Mr MV Rajasekhar**, Director R&D Bharat Electronics Ltd. **Mr Rajasekhar** said that technology is changing fast and digital transformation has become imperative. There is need for cooperation between organisations working in particular areas. **Mr Rajasekhar** then read out the Citations of IETE IRSI awards and handed them to Main and Young Scientist Awards winners.

Chairman **Mr Satyanandan** then read out the names of the winners of other IETE awards, **Mr Sunil Kumar Vuppala, Dr BK Sujatha and Mr Prikshat Sharma**. The winners present were given the Citations and medals by the Chairman.

Dr YVS Lakshmi, Senior Executive in charge of training at C DoT was then invited to speak online. Dr. Lakshmi announced that an MoU had been signed between C DoT and IETE Bangalore, and this was a significant step that has coincided with the Foundation Day whose theme is Skill Development. The MoU enabled the two organisations to share their intellectual resources and infrastructure to impart training. Chairman IETE Bangalore displayed the MoU and said the day was important for this reason also.

Dr MH Kori, Vice President and Chairman TPPC then addressed the gathering online. He underlined the fact that IETE is recognised as a Scientific and Industrial Research Organisation (SIRO) by the Government of India. He talked about the proposed IETE University

and Skill Development, which had actually been formulated by TPPC. He said that unfortunately the link between formal education system and skill development programmes has been missing. A seamless transition between the two is the theme of the Day and IETE will be talking this up as part of its mission.

Dr Kori who is the Editor in Chief of the IETE Bengaluru Magazine requested the Chief Guest and Guests of Honour to release the 12th edition. The dignitaries on stage and IETE members present displayed the magazine amidst applause.

Dr CV Ravishankar, Vice Chairman introduced the ISF activities of the Centre. He announced the names of colleges which conducted competitions and cultural programs by their respective ISF. He announced the winners of the prizes which were given away by the Chief Guest.

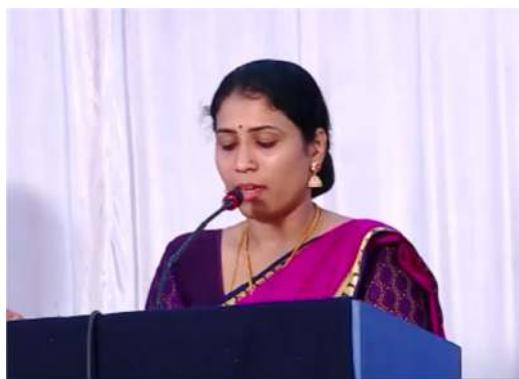
Prof HS Bhatia, Immdt. Past Chairman paid his

respects to the three senior members of IETE Bangalore whom IETE had invited to felicitate. Unfortunately they were unable to be present. IETE Bangalore remembers with gratitude their contributions and wish them long life and happiness.

Mr Satyanandan Chairman in his brief Presidential Remarks said it was a packed day and a satisfying one in spite of some technical glitches in the beginning. He thanked the invitees, President IETE, Chief Guest and Guests of Honour and all those who participated online and physically. He said the focus of IETE Bangalore was training and hoped the tie up with other organisations would yield results soon.

Mr KS Ravi Member Executive Committee proposed the Vote of Thanks. The function ended with **National Anthem**.

Acknowledgement: Mr Dinesh, Organizer; Ms Azmath, Anchor



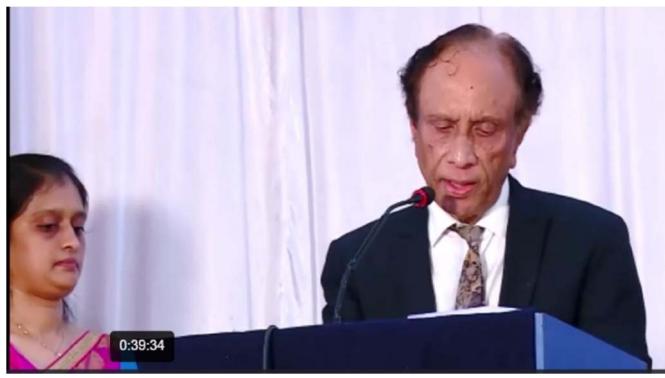
Pratibha



Shivaprasad Yadav



MV Rajasekhar



Chairman



Azmath Dinesh Secretary



P Radhakrishna

Vinod Palekkil



President



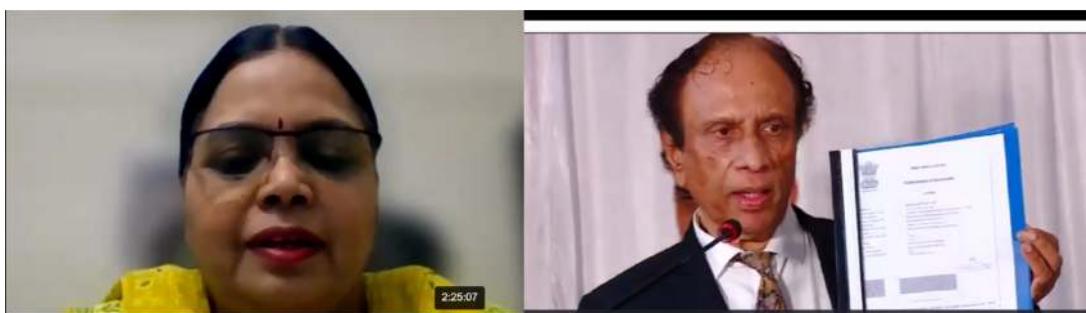
CP Dwivedi



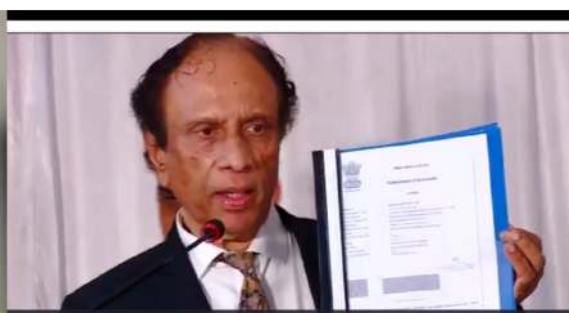
MH Kori



Renuka Prasad



YVS Lakshmi



MoU with C DoT



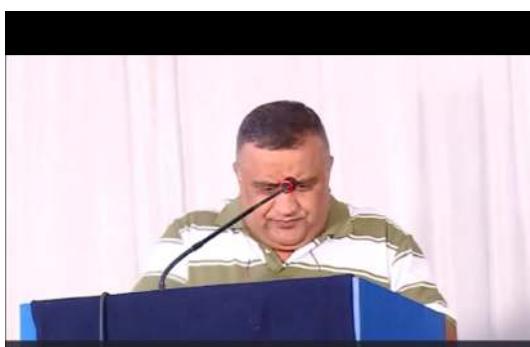
Parikshit Sharma



Magazine Release



Sunil Kumar Vuppala



CV Ravishankar



Bhatia



KS Ravi



ISF Winners

Bangalore Institute of Technology



Message from Principal, BIT on the occasion of the inauguration of ISF on 7th Feb. 2022



Dr. Aswath M U

Principal,
Bangalore Institute of Technology
Bangalore-04

I am very happy to note that Bangalore Institute of Technology has initiated the chapter of the Institution of Electronics and Telecommunication Engineers (IETE), which is India's leading recognised professional society devoted to the advancement of Science and Technology of Electronics, Telecommunication & IT. In the recent years lot of focus is given for the experiential learning. AICTE, VTU and all the colleges are developing teaching learning methods in this direction. It has been my experience from the last 25+ years that the gap between the industry and academia can be reduced to a large extent by a good interaction with the professional bodies like IETE. The role of professional bodies in nurturing the students and faculty for the requirement of the industry is paramount.

We at Bangalore Institute of Technology put enormous efforts to interact with the professional bodies. We have

an exclusive professional body's forum and a faculty coordinator as single point of contact. The present industry and the society demand more from the higher educational institutes and hence we must relook at our thinking, our actions, and our way of education systems and skilling the future engineers. The world today needs new kind of engineering professionals with new skills, new competencies in specific areas and comprehensive proficiency in multidisciplinary subjects to integrate their knowledge in to functional systems.

In the days to come, we have to focus more on **Engineering Education towards Sustainability**. The 17 Sustainable Development Goals (SDGs) of United Nations cover social, economic and environmental dimensions of development. The focus of all these SDG's to end the poverty in all its forms and dimensions. Quality education is very essential and forms the foundation of sustainable development. Quality education also enables self-reliance, boosts economic growth by enhancing skills, and improves people's lives by opening up opportunities for better livelihoods. The 4th SDG is to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." The National Education Policy (NEP), 2020 is introducing several changes in the Indian education system and aims at making "**India a global knowledge superpower**".

It is the responsibility of all of us in the education sector to participate actively in achieving the objectives stated above by the competent authorities. At BIT we are consciously involving ourselves in the process of educating the future engineers to face the challenges. Bangalore Institute of Technology (BIT) established by the Rajya Vokkaligara Sangha and is one of the sought after institute for engineering education in the country. The foundation of Bangalore Institute of Technology was laid in the year 1979 by the great national poet Kuvempu. Kuvempu's well known lines " ಒ ನನ್ನನ ಚೇತನೆ ಅಗು ಸಾರೆ ಅನ್ನಕೇತನ - **O nanna chetana, Aagu nee aniketana**" (**Be unhoused O my soul, only the infinite is your goal**) is embedded in the environment of BIT.

We have well-equipped labs, research centres, workshops, Libraries and excellent faculty. Sports facilities and about 30 student support activity clubs are available for the overall personality development of both students and faculty. The MOU with more than 100 companies facilitates industrial internships and

experiential learning. The training & placement centre has well established industry network with a very good placement record. The training centre provides necessary skill development and organise leadership and entrepreneurship orientation programmes.

B.I.T is affiliated to Visvesvaraya Technological University (VTU), Karnataka and approved by AICTE New Delhi. All 9 UG programs and MCA are accredited by National Board of Accreditation (NBA), New Delhi. BIT is also recognised under section 2 (f) & 12(B) of the UGC Act 1956. As per National Institutional Ranking Framework of Ministry of Human Resource Development, Government of India (NIRF) India Rankings 2020, BIT is in the Rank-band: 201-250 under Engineering. We are also in the accreditation process of NAAC.

Keeping the industry and the future sustainability trends, the students graduating from our institute are trained in diverse knowledge and skills in the areas of their studies and will have a broad understanding of industry and societal needs.

Their character will be nurtured and developed into a social engineer, a responsible citizen and a valued human being. With the support of highly qualified faculty members, supportive staff, sound placement

achievements and excellent infrastructure facilities, BIT is committed to develop a community of learnt scholars for a better tomorrow.

**f rontline dft heDe part ment ,
EIE, BIT**



Dr. H. N. Suresh

Professor and Head
Department of Electronics and Instrumentation
Engineering
BIT, b'llore-04

It gives me an immense pleasure to be associated with IETE Centre, Bangalore region to start IETE ISF at BIT with 70 student members from EIE dept through the involvement of faculty members of the department. The IETE Centre, Bangalore region provided support and coordination in the establishment of the forum.



Mr. Nori Venkateswarlu, (000940F)

attached to Bangalore Centre passed away
on 8th February 2022 at 3.30 pm at age 95.

A Fellow of IETE for many decades, Mr. Venkateswarlu served in Doordarshan and All India Radio and retired as Chief Engineer, Doordarshan Headquarters in 1984. He was taking a keen interest in Bangalore Centre's activities and was a regular reader of our Magazine.

ISF Coordinators Collage



Dr. S G Shivaprtasad Yadav
MSRIT



Prof. ZahiraTabassum
HKBKCE



Dr. Madhavi
PESIT, Shimoga



Dr. Mamatha
Brindavan College



Dr. K Palaniswamy
Dr.TTIT, Kolar



Prof. Vinay Kumar
RLJIT



Dr. R C Biradar
Reva University



Dr. C V Ravishankar
Sambhram IT



Dr. K S Nandini
RNSIT



Dr. Sateesh Kumar
Sapthagiri College



Prof. Venugopal
Sairam Engg. College



Dr. T C Manjunath
Dayananda Sagar College



Dr. Sundarguru
Sri.MVIT



Dr. Surekha Bora
KSIT



Prof. Neethashree N R
BIT



Dr. G Senbagavalli
AMC College



Prof. Prakash G
SVCE



Prof. Prasanna Paga
NMIT



Prof. Megha Narayana
SCEM, Mangaluru



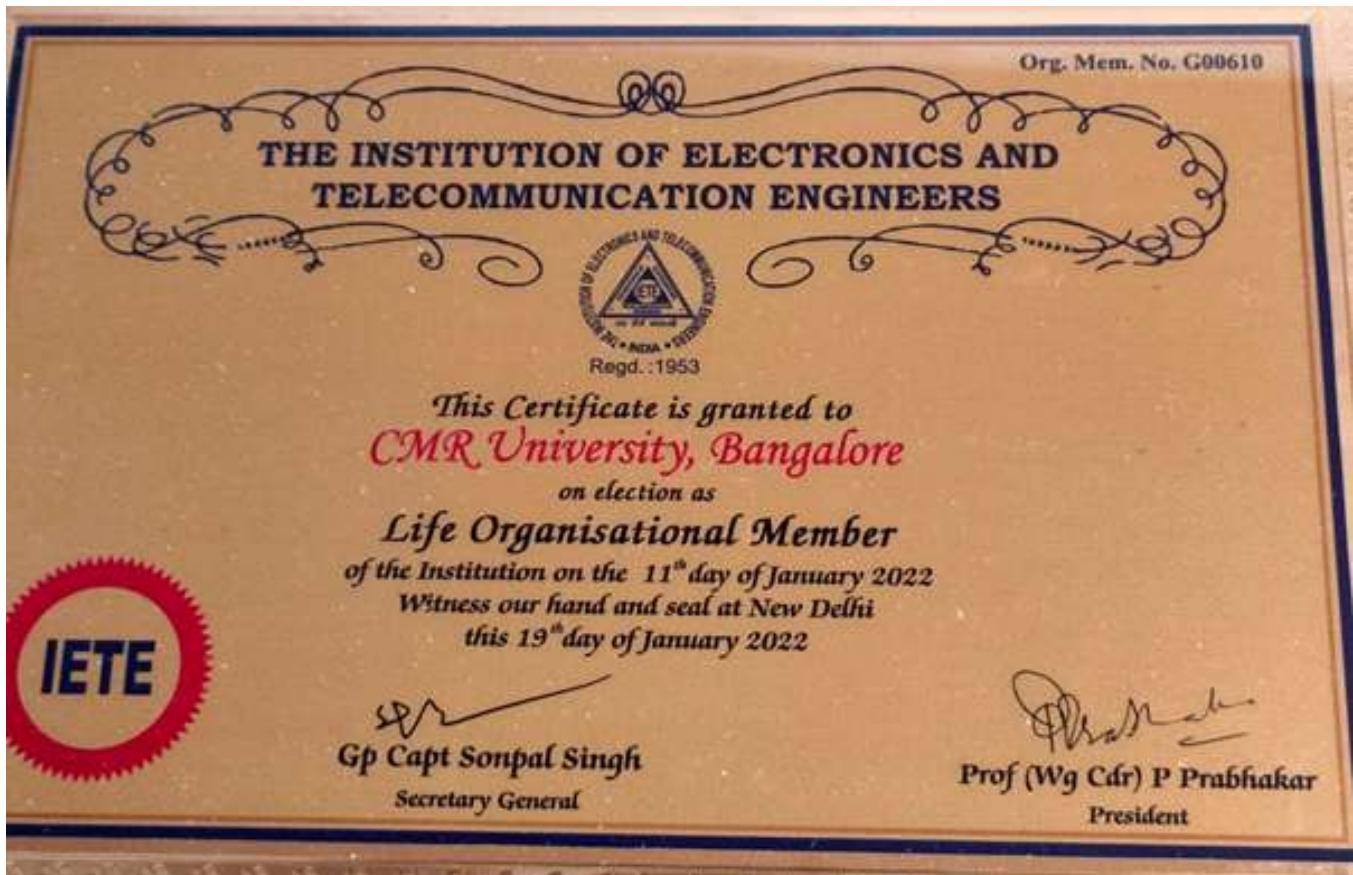
Prof. Arun Kumar R
SKIT



Dr. E Kavitha
Sir. MVIT



Prof. (Dr.) S. Mohan Kumar
Director, CMR University



National Science Day – Feb 28, 2022

In 1928, Sir Chandrasekhara Venkata Raman discovered a phenomenon known as the Raman Effect. For his remarkable discovery, he received the Nobel Prize in 1930, and that was the first Nobel Prize in India in the field of Science, every year National Science Day is observed to celebrate this discovery.

In 1986, the National Council for Science and Technology Communication (NCSTC) requested that February 28 be designated as National Science Day by the Government of India. The occasion is now held in schools, colleges, universities, and other science, engineering, medical, and research organisations throughout India.

Raman Effect is a phenomenon in spectroscopy discovered by the eminent physicist Sir Chandrasekhara Venkata Raman in 1928. After two years in 1930, he got Nobel Prize for this remarkable discovery and this was the first Nobel Prize for India in the field of Science, while working in the laboratory of the Indian Association for the Cultivation of Science, Kolkata.

Raman Effect is a change in the wavelength of light that occurs when a light beam is deflected by molecules.



When a beam of light traverses a dust-free, transparent sample of a chemical compound, a small fraction of the light emerges in directions other than that of the incident (incoming) beam. Most of this scattered light is of unchanged wavelength. A small part, however, has wavelengths different from that of the incident light; its presence is a result of the Raman Effect.

The theme of National Science Day 2022 is 'Integrated Approach in Science and Technology for a Sustainable Future.'

'Soft Skills' for Life and Career

According to the All-India Survey on Higher Education 2019-20, over 8 lakh engineering graduates pass out from technical institutions across the country. An estimated 60% of them remain unemployed or under-employed. Indeed, the employment scene is highly competitive. Nevertheless, 'when the going gets tough, the tough get going'.

Not long ago, the IQ (Intelligent Quotient) component related to hard skills was the only factor considered necessary for career employment, and these skills were generally quantifiable and measurable from educational background and work experience. Success at work seemed to be related solely to the technical ability of completing tasks. However, many studies have revealed that as much as 75% of long-term job success resulted from what are called soft skills, or 'people skills' and only 25% from technical skills. For employers, soft skills are now as important as technical qualifications in hiring a new worker. A recent survey even found that three-quarters of recruiters have a hard time finding graduates with the soft skills their companies need.

A brief summary of some of the soft skills which would help in 'employability' is attempted in this passage. The list is, by no means, exhaustive.

1. Critical thinking: Critical thinking is the analysis of facts to form a judgment. It is the ability to think in an organized and rational manner in order to understand connections between ideas and/or facts. It helps you decide what to believe in. In other words, it's "thinking about thinking"—identifying, analyzing, and then fixing flaws in the way we think.

2 Problem Solving: Good problem-solving skills empower you not only in your personal life but are critical in your professional life. In the current fast-changing global economy, employers often identify everyday problem solving as crucial to the success of their organizations. Generally, the following are the steps:

- a. **Identify the problem or question.** Narrow down the issue and it is easier to find solutions.
- b. **Gather data, opinions, and arguments.** Try to find several sources that present different ideas and points of view.
- c. **Analyse and evaluate the data.**
- d. **Identify assumptions.** Make sure you weren't biased in your search for answers.
- e. **Establish significance.**
- f. **Make a decision/reach a conclusion.**

g. **Present or communicate.** Once you've reached a conclusion, present it to all stakeholders.

3. Public speaking: Public speaking requires excellent communication skills, enthusiasm, and the ability to engage with an audience. Employers Value Public Speaking Skills; it's important in professional presentations, training events, and motivational speaking. Consultants, training managers, clergy, sales representatives, and teachers, all have a reason at times to speak in front of others.

A polished speaker can make a product or proposal seem enticing, and add allure to an otherwise mediocre proposition. Good speaking skill is often necessary to carry out functions like presenting findings, pitching proposals, training staff, and leading meetings.

One will need to practice the skill to make presentations. Generally, the following steps may be adopted:

- a. **Planning:** know your audience, decide the purpose of the presentation, brainstorm what you're actually going to say and then structure this into "digestible" chunks.
- b. **Rehearse against the clock.** Allow extra time in your presentation for questions.
- c. **Memorize your script (as did Winston Churchill)**
- d. **Video-record yourself.**
- e. **Structure the presentation:** There are three parts to your presentation:

The beginning, the middle and the end. The beginning is ideal for an attention grabber or for an ice breaker; the end is great to wrap things up.

f. **Deliver.** Speak clearly. Look at the audience as much as possible and avoid moving about too much. Enjoy yourself. The audience will be on your side and want to hear what you have to say!

4. Professional Writing: Writing is one of the most important skills we can possess and is well worth the effort to take time to develop. The quality of your writing is a critical component that can make or break an employer's opinion of you, both in the hiring process and throughout your time at a company.

Writing is a key element in getting a job in the first place. In our increasingly text-driven world the ability to write well can be critical. Job search often boils down to your resume and cover letter. Often these documents can make all the difference. Writing on social media can also be an important part of the job hunt.

Writing well can also help maintain your reputation within a company once you've started working. It is important to

appreciate the impact that writing can have on any career, and then take the time to develop your writing skills for the long term.

While there are various academic courses for writers including a graduate degree in writing, anyone can acquire and develop the skill by following certain guidelines:

- a. **Brush up on your grammar:** consider investing in the best books, online resources, and tools to check your work and learn how to write correctly.
- b. **Organize your writing flow:** consider online programs to review your work, identify your trouble spots, and make sure your writing doesn't sound weak or dull.
- c. **Specific habits and regular practices** such as writing every day and reading the news regularly can help to improve your writing and are a crucial factor in shaping skills.
- d. **Read critically:** Pay attention to the words that authors use. Copy and practice—the best writing tricks—from them. Take note of what language patterns, grammar constructions, or stylistic devices you can incorporate into your own writings.
- e. Finally, **edit** your works. This helps you to develop a critical eye and focus on trouble spots.

5. Teamwork: Generally, employers value the ability to work amicably with fellow employees in all kinds of situations. Teamwork requires:

- a. **Support Skills:** congratulating others in moments of achievement, or consoling in more trying times. A huge part of support is the ability to respect one another.
- b. **Listening and Feedback Skills:** it's important to listen attentively to understand what other team members mean, and take interest in their problems. Feedback from team members can also be received via email, or in other written forms.
- c. **Conflict Management Skills:** Conflict in the workplace is experienced at some stage. How you deal with conflicts can potentially make or break your career. Try to reach a solution that benefits the team generally.

6. Leadership: If you aspire for managerial or supervisory positions, you'll need to have a number of skills and qualities that allow you to successfully interact with others and handle crucial situations. Some of the top skills include:

- a. **Interpersonal skills:** Mastering all forms of communication, including meetings, one-on-one conversation and written form. You should have the ability to be sensitive to people's situations and give them the time to share their thoughts and problems.
- b. **Proactivity:** constantly thinking of ways to improve and

do better.

c. **Ability to Motivate:** Good managers inspire their employees to do better. So, if you want to encourage them, you need to show them how.

d. **Organisation:** Organisational skills are crucial in management positions; you will need to be able to handle a number of different projects and meet deadlines.

e. **Decision-Making ability:** to make decisions quickly and correctly.

f. **Delegation:** You should know where people's strengths lie, and be able to get the best-qualified person for the job to complete it.

g. **Creativity and Flexibility:** To be able to think outside of the box and be adaptable to unexpected situations and problems is the mark of a good leader.

h. **Honesty and trustworthiness**

i. **Negotiation skills and time management.**

7. Digital Literacy: Digital Literacy Skills are some of the most important and in-demand skills of today. Most students today are tech savvy and digital skills can even fall in the category of hard skills. However, Digital Literacy Skills means that you use these basic skills and your digital competence to turn them into, say, a fully-fledged presentation with facts, data, image, videos etc. They are in fact the ability to use digital skills in conjunction with critical thinking to create and communicate with your audience.

8. Inter-cultural Fluency: The skill includes the ability to value, respect, and learn from diverse cultures, races, ages, genders, sexual orientations, and religions and demonstrate openness, inclusiveness, sensitivity, and the ability to interact respectfully with all people.

Employers seek candidates who are able to engage and communicate with diverse teams and are respectful team members. Going out of your way to meet people from other cultures is one example of how to develop intercultural fluency. Interacting with international students on campus is a way for college students to understand and learn about different cultures. Learning another language is also a good way to explore other cultures and how people in different countries communicate.

Conclusion: Soft Skills come naturally to some, by virtue of nurture or nature, but it is necessary in the competitive world that every aspiring student and professional acquires and develops them. They can either be self-taught or learnt in formal training environments which are now widely available in our country.

(C. Satyanandan)

Prestigious Technical Institutes of Bengaluru & Karnataka

(Compiled by Dr M H Kori)

Bengaluru & Karnataka is home to many reputed and prestigious Technical Institutes. IETE Bengaluru Magazine (IETEBM) is continuing its series of articles covering these Technical Institutes. In the previous issues we had covered the Indian Institute of Science, the best Technical Institute in India, UVCE, BMSCE & NIE. In this issue we are covering UBDTCE Davangere, started in the year 1951.

University BDT College of Engineering, Davangere



University B.D.T. College of Engineering (UBDTCE), Davangere, is located in the central part of Karnataka. Started in 1951, the college was named after Brahmappa Devendrappa Tavanappanavar (BDT), after B.T. Chandranna donated, in rupees, [1.5 lakhs](#) for the construction of the building in memory of his uncle (Brahmappa Tavanappanavar) and father (Devendrappa Tavanappanavar). The then-[maharaja of Mysore](#) Sri Jayachamarajendra Wodeyar Bahadur laid the foundation stone for the building on 7 August 1951 and inaugurated the building on 24 September 1956.

At its start in 1951 it had only one branch, in [civil engineering](#). Subsequently, other branches of engineering were incorporated, such as Mechanical and Electrical & Electronics (in 1957), Electronics & Communication (in 1972), Computer Science and Instrumentation Technology (in 1984) and Industrial & Production (in 1996). The present intake of the college from all these branches is 390 at the undergraduate level. A postgraduate course in Production Engineering Systems Technology was started in the year 1987.

Later on, the college was transferred to [Kuvempu University](#), as a constituent engineering college on 1 June 1992, and hence it became University B.D.T. College of Engineering. In 2003, seven additional postgraduate courses were introduced in different disciplines. Currently the total intake at the postgraduate level is 175. The college has produced about 40 Ph.Ds, and many research scholars are pursuing their doctoral degree in various frontiers of engineering and technology. At present about 2,000 students are studying in this college. As a consequence

of the formation of Davangere, the University U.B.D.T. College of Engineering became a constituent college of [Davangere University](#) on 18 August 2009. Recently, with the intention of the overall development of the college, the government of Karnataka transferred the college to the [Visvesvaraya Technological University \(VTU\)](#), Belgaum, on 24 February 2011, as a constituent engineering college. The VTU intends to start MBA and MCA courses for the academic year in this college.

The college undertakes consultancy works in civil, electrical and electronics, and other fields of engineering.

The college was one among the fourteen institutions in the state of Karnataka to get the [World Bank](#)-aided TEQIP Project Phase-I and utilized a grant of rupees from Nine Crores for improving its infrastructural facilities and enhancing the quality of its academic standards. The institution is also expecting World Bank-aided TEQIP Project Phase-II to further improve its research and development activities and infrastructure. The college is approved by [AICTE](#), and undergraduate courses were accredited by NBA in the year 2001 for five years. Further, the faculty of Computer Science and Engineering, Electronics, and Communication Engineering were all accredited by the NBA in the year 2009 for a period of three years. For the other departments, the NBA accreditation process is still in progress.

The college library is equipped with a fair number of rare collections of old books and was further enriched with the latest volumes during TEQIP phase-I.

Tech Trends

Compiled by M H Kori

Blockchain Innovation Trends

Blockchain, an innovative breed of distributed ledger, enables companies to track a transaction and do business with unverified parties even without the assistance of financial institutions like banks. This new capability significantly lessens business conflicts and throws in other benefits like append-only data structure, transparency, security, immutability, and decentralization, including with the other emerging technologies like IoT.

Although initially starting its application in financial transactions, blockchains are now extensively used in other sectors and industries, including supply chain, manufacturing, healthcare, and public service. This technology has the potential to enhance cash flow, shorten transaction settlement durations, and reduce costs. It has also spurred a wide range of blockchain-driven applications that use a number of the components and advantages of blockchain, including the popular **bitcoins**.

Well-developed blockchains are already providing numerous benefits. In fact, businesses are encouraged to start studying blockchain technology as it is expected to generate significant business opportunities as the global blockchain technology is predicted to grow to more than US\$23.3 billion by 2023. A notable existing blockchain deployment is that of Walmart supply chain database application, which allows the monitoring of individual products directly to their very source, effectively elevating food supply standards. Amazon, on the other hand, is rolling out its blockchain initiatives for 2019, which allow its AWS clients to benefit from distributed ledger solutions in their own businesses.

IoT Connectivity Trends

More and more people are depending on the Internet of Things (IoT) for their everyday living. By 2021, experts predict that the number of connected IoT devices worldwide will be over 10.07; by 2030, it will **surpass 25 billion**. By extending Internet connectivity to devices and ordinary electronic gadgets, IoT offers manifold benefits such as machine-to-machine communication and interaction, automation of daily tasks, control, more information, monitoring, time and money savings, efficiency, and overall better quality of life.

Thanks to IoT's smart, predictive problem solving and recommendations, customers will greatly benefit by

gaining richer experiences from the products and services they buy. Talk about the new era of intelligent and highly efficient commodities—self-driving cars, smart devices (e.g., sensors, speakers, thermostats), robust security systems, and many erstwhile futuristic gadgets that are now a reality.

While consumers are clearly benefiting from the likes of Alexa, Google Home, and Alexa in improving their day-to-day activities, businesses are hands-down the bigger winner due to the massive innovations that IoT technologies bring to the table. Why? A survey on the top IoT benefits to businesses shows how this technology could bring about business efficiencies/higher productivity (25%), faster innovation cycles (19%), cost reductions (13%), increased profitability (11%), and accelerated time to market (9%). In the succeeding survey, respondents say that IoT has allowed them to create new revenue streams, indicating that IoT has ceased from being merely potential to actual income generators.

As the global market continues to be inundated with intelligent, IoT-connected products, businesses stand to be more empowered to elevate value creation to new heights for the modern consumer. From transportation's autonomous vehicles, trailblazing advances in healthcare, to vastly-enhanced consumer products and services, IoT software is touching and changing everything for the better.

Digital Twin Trends

Last but not least is the digital twin, which is one of the most fascinating of all technological trends already transforming a number of business operations today and most likely in the coming years. Having this functional virtual model of a product, service, or business process offers an extensive array of possibilities. With its twinning concept, it is pushing the concepts of augmented and virtual reality to an absolutely new level. By 2022, 70% of manufacturers are predicted to use digital twins in performing scenario evaluations and process simulations. This will be made possible when IoT platform vendors merge simulation capabilities, systems, and platforms to create digital twins.

For instance, you'll be able to create different scenarios or simulate programs for new processes, equipment, or

products so that you can readily make adjustments and fine-tuning measures before you use actual resources in producing or implementing them. Aside from having the unprecedented capability of solving problems before they emerge, a digital twin also provides the robust efficiency of preventing any wasteful use of company resources.

Gone are the days where people can talk to 3d hologram images only in sci-fi films. With digital twin technology, remote employees can be "physically" join and collaborate with colleagues in workplace meetings and business conferences, anytime, anywhere. These are among the main reasons why an increasing number of businesses are already using this technology. In fact, this technology is already deployed in a wide range of industries, from oil fields, car manufacturing plants, hospital operations, wind farms, to name a few.

Robotics Adoption Trends

It's common knowledge among SMBs that they can't afford large, complex robots as these technologies don't fit their limited floor space, require specialized personnel to program and maintain them, and are simply too expensive, with a payback period that is too long to justify the investment. But a new generation of collaborative robots (or "cobots") is changing the game for smaller manufacturers, helping them compete more effectively, offering new opportunities for employees, and even improving worker safety. As of 3Q 2020, **more than 2.7 industrial robots have been operating** in businesses worldwide.

Like other trends in technology, robotics applications are essentially removing long-standing limits of what people can do. A major area of growth is the continuing bold initiatives into factory and innovation automation, which had been producing exciting outcomes for industrial and business deployments. Service providers are among the leaders in robotic task automation, enabling employees to focus more on enhancing the client experience. Hospitality business players are deploying robots to make room deliveries to guests in hotels and resorts and even as far as their own residences.

As robotic technology continues to evolve, robots of any size, form, or function are being made to make living easier and more convenient for the present generation and for upcoming ones. Today, robots of all types are being designed to make up for human limitations, to lessen the workload, and allow managers and staff to

spend more time on key business tasks. With a growing scale and improving functionality, a worldwide robotics technological mass-market will continue to expand and further affect the lives of billions of people.

AI & Cognitive Transformation Trends

The last decade saw a dramatic rise in the volume of business data and computational capabilities, which collectively drove massive AI advancements. Along with this is the global initiative that had spurred the emergence of cognitive systems that can forecast, suggest, think, and learn, similar to how people do. With hundreds of applications and still counting, AI is being hailed by technology leaders as a leading technology disruptor in recent years, today, and for the long term. AI is implanted into smart devices, software, chips, and other products. It is also emerging as a robust catalyst for change in business strategies and even for day-to-day enterprise practices.

Our understanding of what AI is today will likely transform in the next few years as the norm of what intelligence also evolves. As AI further enhances its capabilities and expands its applications, related computer technologies like chatbots are achieving human-like behavior and actions, such as the ability to more quickly and efficiently report to consumer needs, including anticipating what they'll want, in the same manner as or even better than people.

Around **85% of businesses are either evaluating or already using AI** in production. CIOs consider AI as having the potential to transform organizations to make them adaptive, client-driven, and able to create and share business intelligence faster than in the past. Further, AI is expected to impact industrial performance by mining data to help forecast customer behavior, foster machine learning, and identify environmental patterns.

In 2020, AI utilization continued to expand across industries primarily due to the vast advantages it brings to the table. These benefits include process efficiency, better decision-making, and more effective product and service development.

Another study found that enterprises further extend their AI deployment due to the advantages it brings to mission-critical corporate functions such as managing the personalization needs of customers and data analytics. The same study predicts that by 2023, over 20 million new AI jobs will be available.

Augmented Analytics Trends

Another notable area among all digital trends is augmented analytics. Since a few years ago, this robust technology had been efficiently advancing business analytics using robust machine learning and integrating analytical capabilities like data science, process mining, data management, data preparation, business process management, etc. Even our existing knowledge of the **reasons why we use business intelligence** will likely change, too.

As enterprises gain considerable operational improvements through augmented analytics deployment, analytics and data technology providers are upgrading conventional software applications to boost their product and service offerings through a new breed of business intelligence and analytical solutions. Augmented analytics is designed to help employees, especially unskilled ones in data and analytics, automatically gain the needed skills set to expertly identify trends and other key patterns in huge data sets and make the correct recommendations and even predictions. This is why a study found that 74% of businesses worldwide intend to invest in new technologies, especially BI tools like augmented analytics, to enhance their operational productivity and efficiency.

With the rise of augmented analytics, gone are the days of laid-back reporting about the past with the emergence of conducting dynamic live updates and evidence-based predictions on what will happen in the market. As technology continues to evolve, so will self-learning platforms like augmented analytics as more data and information come our way.

Immersive Technology Trends

Immersive technologies like virtual reality, augmented reality, and mixed reality, together with **communications software**, will transform how users interact and see the world, thus resulting in a novel immersive experience. An increasing number of companies are already deploying immersive technologies for their consumer and operational use, including production. Conversational solutions are widely anticipated to integrate enhanced sensory means that will enable emotion detection based on the user's facial expressions, while customer interactions will be more conversational, which adds the needed human touch.

With the help of these technologies, yesterday's science fiction is now a reality. And businesses are already

excited to know of its current and upcoming sets of applications. Initially confined to gaming and entertainment, VR is now helping businesses enhance consumer engagement and boost their sales. And since these technologies are becoming more affordable, many SMBs are now deploying them in their operations. By 2030, a recent survey among US manufacturers predicts that AR and VR have the potential to add \$537 billion to the US economy and \$1.5 trillion to the global economy.

Business use cases abound. For instance, property firms can use VR to allow their clients to virtually inspect the houses they're selling as if your clients are actually there to check them out physically. If you're a retailer, you can allow your clients to examine your product and service offerings using VR. If you're an HR manager, you can use AR for employee training to prepare them for their actual work. With immersive technologies, the possibilities are vast. And by combining AR and VR with other related technologies, the possibilities are further enhanced, much to the benefit of businesses.

API-Driven Productivity Trends

The growth of APIs can be associated with the **development of the SaaS market**. When SaaS applications became the deployment of choice of businesses of all sizes, the APIs market also exploded. A basic element of software development, APIs have become an essential element of business technology. The long practice of tapping third-party API providers had been giving rise to numerous problems.

Thankfully, in recent years, instead of continuing their reliance on other developers, SaaS vendors have been providing their own API, which practically removes the need for a third-party provider. Doing this does not only remove most of the problems resulting from involving another vendor, but it also enables SaaS vendors to offer increased integration capacities in their software solutions. A study found that 83% of businesses view API-based integrations as important aspects of their business strategy, mainly due to their increasing cloud adoption and digital transformation programs.

Especially now that mobile phones and smart devices are widely used, APIs have become an important technology investment for SMBs, particularly for creating mobile apps and even websites. APIs also allow remote workers, including sales and support reps, to readily access relevant business data that are typically placed in highly secured storage.

Smart Space Trends

Another previously future technology, a smart space is now widely used by businesses across industries. By providing a secure and realistic digital environment where people, systems, and apps can seamlessly interact, businesses can take advantage of these intelligent ecosystems to support their operations, boost collaboration among remote workers, and even enhance their marketing and related activities.

Smart spaces are also paving the way to a higher level of collaboration among matured and emerging technologies. With smart spaces, the integration of AI-powered technologies, digital twins, blockchain, and edge computing becomes easier and more efficient in terms of industrial and business applications. Smart spaces, in essence, initially develop as separate technologies, which are then integrated from their individual silos to collaborate as a single unit to generate an environment of interaction and collaboration.

Globally, the smart space market continues to boom as it is projected to become a \$15.3 billion market by 2025, from \$9.4 billion in 2020. This market growth can be ascribed to innovations in home automation and the increasing adoption of smart technologies in both manufacturing facilities and commercial spaces.

This technology is also applicable in the physical world as it allows the incorporation of digital processes into your workplace, which translates to increased efficiency and resource savings. A paperless office not only allows a business to save energy and other limited resources, but it also enhances your brand's CSR and corporate citizenship initiatives, especially among pro-environment consumers.

Customer Support Chatbot Trends

Chatbots had been transforming the business-customer interaction for years. For 2020 and for the coming years, chatbots for customer support are expected to take the center stage as more and more businesses are deploying them in their websites to boost customer engagement. They're not only available 24/7, but they can also seamlessly interact with every website visitor, with definitely zero waiting time whatsoever.

Any of the [best live chat software](#) that's integrated with a chatbot will help you engage prospective and existing customers immediately. For instance, they can receive the information they need, from product inquiries to pricing, to technical guidelines and troubleshooting advice when they're looking at your website. With such a

rich customer experience—without the long-dreaded waiting time for a rep's typically delayed action—these chatbots virtually transformed the customer support process into a far better version.

There are, indeed, quite a number of SMBs that are still anxious about the absence of the human touch, which could lessen user engagement. They might have some valid reasons for [feeling bad about chatbots](#), but that's with the previous generation of chatbots. Today, after undergoing significant advancements, along with significant enhancements from AI and machine learning, the current batch of chatbots are specifically designed to ensure a high level of customer engagement in every conversation. They can now identify and respond appropriately to user emotions, etc., thus ensuring the provision of relevant and meaningful responses.

In industries that manage large volumes of human interaction like health care and banking, 75-90% of queries are expected to be handled by chatbots from 2019 to 2023. In turn, this results in cost savings of up to \$0.70 for every interaction.

Best Live Chat Software

1. [Zendesk](#) provides you with a bot that can help answer customer queries. Advanced features include conversion tracking, group rules and macros and multi-brand support.
2. [Freshchat](#) is designed for support teams of all sizes. It features a bot that helps collect customer information and stand in when your agents are offline.
3. [Salesforce Live Agent](#) natively integrates with Einstein chatbot, which can assist your human live agents in attending to repetitive customer queries. The live chat features agent queue monitoring, multilingual support and IM session metrics.
4. [LiveChat](#) has an integrated chatbot that can aid you in reducing customer support volume. This helps you proactively reach out to engaged customers.
5. [Zoho Sales IQ](#) also has a bot-building module that lets you customize your chatbots. The app sports geolocation tracking, lead generation and actionable insights.

How Technology Trends in Business Affect You

As can be seen above, the business implications of these disruptive, trending technologies are vast and compelling. While each of these technological trends

has its own set of particular applications and benefits, their collective use, if applicable to your own context, is undoubtedly the best approach to deployment. Collectively, IoT, AI, and the rest of these technological trends are already empowering today's businesses.

While large enterprises tend to have the facility to easily adopt new technologies into their operations, the situation of small businesses is different and more challenging, given the realities of limited resources, including time considerations. Likewise, there's the challenge of knowing which of these emerging technological trends are necessary for your operations. This is why it is suggested that SMBs first do their homework of determining the need for a particular technology and then try it first before making an actual purchasing decision and deploying it in your workplace.

If you're a marketing firm, it's good to check out augmented analytics and [artificial intelligence software](#), as integrating them will help you save time and even make better market predictions. If you're a manufacturer, try some entry-level robots that can boost your production capability and efficiency while giving your staff the opportunity to focus on other crucial tasks. If you're an online seller, it is a sound strategy to test if embedding immersive technologies into your online stores would help you boost your customer engagement and ultimately allow you to reach your sales targets.

Because there's no such thing as one-size-fits-all, the key to making a good technology purchase decision is understanding the nature of your business and the current demands of your operations, especially what your employees need. It's also a good practice to regularly hone your knowledge of technology trends, such as [the future of IoT and big data, or how AI technologies are transforming CRM](#) and other business processes.

Whether you want to remain relevant or gain competitive advantage, achieve operational innovations to boost agility or cut costs, or create new approaches to serve and derive value from your clients, these technological trends are likely to achieve certain permanence and increased use in the years to come.

Composable Applications

In the continuously changing business context, demand for business adaptability directs organizations toward technology architecture that supports fast, safe and efficient application change. [Composable application architecture](#) empowers such adaptability, and those

that have adopted a composable approach will outpace competition by 80% in the speed of new feature implementation.

"In turbulent times, composable business principles help organizations master the accelerated change that is essential for business resilience and growth. Without it, modern organizations risk losing their market momentum and customer loyalty," said Groombridge.

Hyperautomation

Hyperautomation enables accelerated growth and business resilience by rapidly identifying, vetting and automating as many processes as possible.

"Gartner research shows that the top-performing hyperautomation teams focus on three key priorities: improving the quality of work, speeding up business processes, and enhancing the agility of decision-making," said Groombridge. "Business technologists supported an average of 4.2 automation initiatives in the past year, too."

Privacy-Enhancing Computation (PEC)

As well as dealing with maturing international privacy and data protection legislation, CIOs must avoid any loss of customer trust resulting from privacy incidents. Therefore, Gartner expects 60% of large organizations to use one or more privacy-enhancing computation techniques by 2025.

PEC techniques – which protect personal and sensitive information at a data, software or hardware level – securely share, pool and analyze data without compromising confidentiality or privacy. Current use cases exist in many verticals as well as with public cloud infrastructures (e.g., trusted execution environments).

Cybersecurity Mesh

"Data is strung throughout many of this year's trends, but it is only useful if enterprises can trust it," said Groombridge. "Today, assets and users can be anywhere, meaning the traditional security perimeter is gone. This requires a cybersecurity mesh architecture (CSMA)."

CSMA helps provide an integrated security structure and posture to secure all assets, regardless of location. By 2024, organizations adopting a CSMA to integrate security tools to work as a cooperative ecosystem will reduce the financial impact of individual security incidents by an average of 90%.

AI Engineering

IT leaders struggle to integrate AI within applications, wasting time and money on AI projects that are never put in production, or struggling to retain value from AI solutions once released. AI engineering is an integrated approach for operationalizing AI models.

"For fusion teams working on AI, the real differentiator for their organizations will lie in their ability to continually enhance value through rapid AI change," said Groombridge. "By 2025, the 10% of enterprises

that establish AI engineering best practices will generate at least three times more value from their AI efforts than the 90% of enterprises that do not."

Cobots

Collaborative robots are becoming a thing in the manufacturing sector. Those are robots that are programmed to collaborate and directly interact with humans. More and more companies are discovering that cobots can help them enhance productivity, support flexible production, and optimize assembly by taking over monotonous tasks.

6G Corner

by Dr M H Kori

Though 6G is still far away and expected to be commercially deployed around 2030, there is lot of interest in the "6G Research" and many countries have extensively funded research projects. We are starting a "6G Corner" to track all the developments in the 6G domain. Look forward to all new developments in 6G in this corner in every issue of IETEBM!

Task Force to Explore Development in 6G Technology in India

India has constituted a Technology Innovation Group (TIG) to prepare R&D, manufacturing and services ecosystem to capitalise on Sixth Generation or 6G opportunity in the telecom sector.

A 6G Technology Innovation Group (TIG) is constituted by DoT with the objective to co-create and participate in the development of 6G technology ecosystem through increased participation in capability description, standards development at international standard-setting bodies.

6G TIG comprises members from the government, academia, industry associations and TSDSI (Telecom Standards Development Society of India).

- o The task force is framed under the Technology Innovation Group (TIG).

- o The members will explore technological innovations and commercial usage of 6G.
- o They will give opportunities for 6G in areas like research, manufacturing, formation of its pre-standardization, and market-ready framework.
- o **The 6 task forces are formed:**
 - o Task Force on Multi-platform for the next-generation network: Bhaskar Ramamurthy, Director of IIT Chennai.
 - o Task Force on Spectrum Policy: Abhay Karandikar, Director of IIT Kanpur.
 - o Task Force on multi-disciplinary innovative solutions and devices: Bharadwaj Amrutkar, Director of IISc Bangalore.
 - o Taskforce on devices: Kiran Kumar Kuchi, Dean R&D of IIT Hyderabad.
 - o Taskforce for financing R&D: Ashok Kumar Tiwari, Technology member of Digital Communication Commission.
 - o Taskforce on international standards: NG Subramanian, Chairman of Telecommunications Standards Development Society of India.
 - o Every member and their respective teams will work to contribute to International Mobile Telecommunications Standard 2030 in the development work of 6G.

IETE & C-DOT

Organizing

IETE INTERNATIONAL CONFERENCE INDIA-2022 (IICI-2022)

on

AI & ML DRIVING 5G-ADVANCED & 6G

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