

The Institution of Engineers (India)

.....ENGINEER'S

VOICE.....

FARIDABAD LOCAL CENTRE

"A Century of Service to the Nation"

Estd. 1920

Issue – January – 2025



Dear Members,

It is with great pride and enthusiasm

that I address you through this quarterly newsletter as the Chairman of the Institution of Engineers (India), Faridabad Local Centre. It is an honour to lead an institution with a legacy of fostering engineering excellence and professional growth. Over the past quarter,

our Centre has undertaken several initiatives aimed at enhancing technical knowledge, professional development, and collaboration among our members. As we move forward, our focus remains on strengthening our engagement with the engineering community, academia, and industry. Let us continue to uphold the values and vision of the Institution of Engineers (India) while working towards a brighter, innovative, and sustainable future.

*With Best Wishes – Er. Inderdeep Singh Oberoi, FIE
Chairman & Council Member*

CHAIRMAN'S MESSAGE

FROM HONORARY SECRETARY'S DESK

Dear Members, Greetings from IEI Faridabad Local Centre, By the time this newsletter reaches you it will already be the New Year 2025, So wishing everyone a brightest new year. Here is the brief account of technical activities conducted in this quarter and planned for next quarter.



Prof. (Dr.) P.K Dimri, FIE
Honorary Secretary

Technical Activities Conducted during the Quarter October to December 2024-25 :-

1. World Habitat Day celebrated on 7th October 2024
2. World Standards Day celebrated on 13th October 2024
3. 15th Annual General Meeting held on 13th October 2024
4. Technical Lecture Meeting held on the topic of "AI in Action: Revolutionizing Industries with Artificial" in association with ACEM Faridabad on 19th November 2024
5. Energy Conservation Day celebrated in association with J.C Bose University of Science & Technology, YMCA Faridabad on 14th December 2024

Technical Activities planned in Quarter January to March 2024-25 :-

1. National Webinar on the topic of "AI-IIoT applications in Industrial Automation" on 25th January 2025.
2. All India National Seminar in association with Electronics Engineering Department J.C Bose University of Science & Technology, Faridabad on 21 & 22 February 2025
3. World Engineering Day on 4th March 2025
4. World Water Day on 22nd March 2025

FLCC Members Birthday Coming Soon

May each day in your life be full of health, wealth & happiness



Dr. Pradeep Mallah
FLCC Member
10th January



Er. J.R. Choudhary
FLCC Member
10th January



Dr. Manu Bindra
FLCC Member
25th January



Er. Sushil Bajaj
Past Hon' Secretary, FLC
1st March



Er. J.P. Malhotra
Past Chairman, FLC
19th March



HAPPY BIRTHDAY TO YOU ALL MEMBERS

Technical News



New method turns e-waste to gold:-

A Cornell University-led research team has developed a method for extracting gold from electronics waste, then using the recovered precious metal as a catalyst for converting carbon dioxide (CO₂), a greenhouse gas, to organic materials. The method could provide a sustainable use for some of the approximately 50 million tons of e-waste discarded each year, only 20% of which is recycled presently. Scientists have synthesized a pair of Vinyl-linked Covalent Organic Frameworks (VCOFs) to remove gold ions and nanoparticles from circuit boards in discarded electronic devices. These VCOFs can capture 99.9% of the gold and very little of other metals, including nickel and copper, from the devices.

Electronics waste is a literal gold mine and it's estimated that a ton of e-waste contains at least 10 times more gold than a ton of the ore from which gold is extracted.

Traditional methods for recovering gold from e-waste involve harsh chemicals, including cyanide, which pose environmental risks. The new research can achieve the goal without hazardous chemicals, using chemical adsorption -- the adhesion of particles to a surface.

Technical Activity Conducted by IE(I) Faridabad Local Centre

World Habitat Day celebrated on 7th October 2024



The poster for World Habitat Day 2024 features the logo of The Institution of Engineers (India) at the top. Below it, the text reads "The Institution of Engineers (India) Faridabad Local Centre Celebrates WORLD HABITAT DAY-2024 on the theme of 'Engaging Youth to Create a Better Urban Future'". The poster lists three individuals: Er. Sandeep Handa, FIE (Immd. Past Chairman, IE(I) FBD L.C.) as the person who welcomed the address; Dr. Manoj Nayak, MIE (Professor & Head/Mech. Engg., MRIHS, Faridabad) as the expert speaker; and Er. I.S. Oberoi, FIE (Honorary Secretary, IE(I) FBD L.C.) as the person who proposed the vote of thanks. The event details are: DATE: 7TH OCTOBER (MONDAY), TIME: 5.00 P.M., VENUE: <https://meet.google.com/fsu-jatc-eex>, Google Meet. Contact information includes Ph. No.: 01292245008; 9810118362 and Website: www.ieifbdic.in.

The Institution of Engineers (India), Faridabad Local Centre celebrated "World Habitat Day" on the topic of "Engaging Youth to Create a Better Urban Future" on 7th October 2024 through digital medium- Google Meet. The event started by lighting the lamp of knowledge digitally and IE(I) Anthem was played.

Immd. Past Chairman, Er. Sandeep Handa, FIE welcomed all FLCC Members and all the participants. He explained the importance of World Habitat Day in our life and made aware the gathering about need of the topic for discussion and highlighted importance of the topic "Engaging Youth to Create a Better Urban Future".

Excerpts of deliberation : Prof. (Dr.) Manoj Nayak :-

The following points were deliberated during the talk along with Q & A session.

- ✓ Why Youth Engagement Matters in Urban Development?
- ✓ Urbanization Challenges
- ✓ Demographic Importance

Deliberation also included challenges faced by a city like Faridabad and its likely solution.

It was also concluded that Institution of Engineers (India), Faridabad Local Centre will take up initiative to drive the challenges faced by Faridabad

Honorary Secretary, Er. I.S Oberoi, FIE proposed vote of thanks and expressed his gratitude to Expert speaker Prof. (Dr.). Manoj Nayak, and all the participants. The event concluded with National Anthem. Attended by 16 participants the event was a success.

World Standards Day celebrated on 13th October 2024



The Institution of Engineers (India), Faridabad Local Centre organized a Technical Activity World Standards Day on the theme of "Shared Vision for a Better World: Spotlight on SDG 9: "Industry, Innovation, and Infrastructure in the Age of AI" on 13TH October 2024 (Sunday) at The Hotel Central View Sector -12 Faridabad. The event started at 10.00 AM. The Expert speaker for the event was Mr. Kannan Govindraj, Scientist D / Joint Director, BIS Faridabad. The event started by lighting of the lamp of knowledge.

Immd. Past Chairman Er. Sandeep Handa, FIE delivered welcome address and made aware the gathering about need of the topic for discussion and highlighted importance of World Standards Day.

Credential in Brief: Mr. Kannan Govindraj:- He joined BIS as Scientist 'B'/Assistant Director on 1st May 2012. Prior to that he was working as an Assistant Professor in PSG College of Technology, Coimbatore. Initially he was posted in Southern Regional Office Lab in BIS, Chennai wherein he was entrusted with tasting of products such as High Strength Deformed Bars, UPVC pipes, LPG cylinder, LPG Gas stove etc.



Excerpts of deliberation: Mr. Kannan Govindraj: SDG 9 is integral to achieving a sustainable and inclusive future. By focusing on resilient infrastructure, sustainable industrial practices, and fostering innovation, this goal can drive economic growth while addressing global challenges such as climate change and inequality.

AI is transforming how businesses operate by enabling them to make better decisions faster while improving overall efficiencies. As more companies adopt AI technology into their operations, it will become increasingly important to stay ahead of industry trends to remain competitive in an ever-evolving digital landscape.

By keeping up with these trends and leveraging AI appropriately, businesses can ensure that they stay at the forefront of innovation for years to come. Honorary Secretary, Er. I.S Oberoi, FIE delivered vote of thanks and expressed his gratitude to Moderator, Dr. Shobha Tyagi, Associate Professor, CSE Deptt. MRIIRS Faridabad, Expert Speaker, Mr. Kannan Govindraj, Scientist D / Joint Director, BIS Faridabad. The event was then punctuated with National Anthem. Attended by 24 participants the event was success & Lunch was served.

15th Annual General Meeting held on 13th October 2024



Newly elected Chairman, Er. Inderdeep Singh Oberoi, FIE and newly elected Honorary Secretary, Prof. (Dr.) Pradeep Kumar Dimri, FIE



15th Annual General Meeting of The Institution of Engineers India, Faridabad Local Centre was held on 13th October 2024 at Hotel Central View Faridabad. The meeting started by lighting of the lamp of knowledge Honorary Secretary made a detailed Power Point presentation of Annual report of IEI Faridabad Local Centre and the achievements for the period 2023-24. This was appreciated by all the members present. The session was quite interactive. As agreed upon in the last Annual General Meeting, it was informed to all the members that besides FLCC Meetings, Sub Committee Meetings were also held in a month.



During the AGM few suggestions were shared for greater involvement of members and increasing the frequency and participation of events. Er. A.K Gupta also emphasised on the attendance of members in all technical activities done by the centre.

Immd. Past Chairman, Er. Sandeep Handa addressed all the members present and thanked them for sparing their valuable time to attend the meeting. He also asked the members to participate in maximum numbers in such an important meeting.



Chairman Er. Inderdeep Singh Oberoi, FIE, welcomed Director, Dr. S.K Jindal, Expert Speaker Ms. Reema Ganotra, Event Coordinator Dr. Alok Aggarwal and all the audience present. He explained the importance of **“AI in Action: Revolutionizing Industries with Artificial Intelligence”** and made aware the gathering about importance of the topic. He also highlighted the growing significance of Artificial Intelligence (AI) across industries and its potential to revolutionize society.

Speaking on the occasion, Prof Dr. S. K. Jindal, Director AECM Faridabad, thanked The Institution of Engineers (India) and the Dr. Alok Aggarwal, HOD Electronics ACEM Faridabad and college staff for jointly organizing this event. “This collaboration reflects our shared commitment to fostering innovation and empowering the next generation of engineers to embrace emerging technologies like AI,” he said.

Ms. Reema Ganotra is a data scientist currently employed with Tech Mahindra Ltd, where she leverages her expertise in practical problem solving specifically in the domains of telecommunications, manufacturing, and healthcare sectors. Her areas of proficiency include computer vision and machine learning models. She has over six years of experience in artificial intelligence spread across industry, research, and academia.



In addition to her industry experience, Ms. Ganotra has authored multiple publications in SCI and Scopus indexed scientific journals and contributed to book chapters as well as presented at various national and international conferences. She has also conducted and coordinated several value-added courses in AI methodologies for students.

Excerpts of deliberation: Ms. Reema Ganotra :

The keynote address was delivered by MS. Reena Ganotra, Data Scientist Tech Mahindra Ltd, a renowned expert in the field of AI, who spoke on recent advancements, applications, and ethical challenges associated with AI technologies. In her lecture, MS. Reena Ganotra elaborated on AI's pivotal role in sectors such as healthcare, education, agriculture, and manufacturing. The session also included practical insights on emerging trends like Machine Learning, Deep Learning, and Generative AI. The meeting provided a platform for an engaging Q&A session where participants explored the nuances of AI implementation, career prospects, and interdisciplinary research opportunities.

Honorary Secretary, Dr. Pradeep Kumar Dimri, FIE delivered vote of thanks and expressed gratitude to Expert Speaker Ms. Reema Ganotra, Data Scientist, Tech Mahindra Ltd., Dr. S.K Jindal, Director, Aravali College of Engineering and Management, Programme Coordinator Dr. Alok Aggarwal and all the participants at the end with FLCC commitment to serve the Engineering fraternity continually and consistently. He appreciated the efforts of all organizers, participants, and the guest speaker for making the lecture a resounding success. This initiative exemplifies the commitment of The Institution of Engineers (India) and AECM Faridabad to promote knowledge sharing and prepare engineers for a technology-driven future. The event was then punctuated with the singing of National Anthem. The Lecture Meeting Attended by 88 participants. The event was a grand success.

Energy Conservation Celebrated on 14th December 2024



The Institution of Engineers (India), Faridabad Local Centre celebrated Energy Conservation Day in association with Electronics Engineering Department J.C. Bose University of Science & Technology, YMCA Faridabad on 14th December 2024 (Saturday). The event started at 5.00 P.M. The Keynote and Expert speaker for the event was Prof. (Dr.) Sushil Kumar Tomar, Vice Chancellor, J.C. Bose University of Science & Technology, YMCA, Faridabad and Dr. Rakesh Jain, CEO Best Plant & Ex. General Manager, Indian Oil Corporation Ltd. Faridabad respectively.

The program started with the welcome address by program coordinator Dr. Neetu Gupta, MIE. The event commenced by seeking the blessings of Ma Saraswati and lighting the lamp. Thereafter Er. IS Oberoi, Chairman IEI, FLC and Prof Pradeep Dimri, Honorary secretary IEI FLC gave a floral welcome to the guests and speakers.

Er. Inderdeep Singh Oberoi, FIE, Chairman IEI Faridabad Local Centre extended a warm welcome to experts, academicians, Industry professionals and students who were present on the occasion. He reminded that the mission of IEI has always been to foster innovation and collaboration to address engineering and societal challenges. He also emphasised the importance of Energy Conservation and exhorted Engineers to work for sustainable solutions.



Credential in Brief: Prof. (Dr.) Sushil Kumar Tomar is a distinguished academician, researcher and educational administrator. He is currently the Vice-Chancellor of JC Bose University of Science and Technology, YMCA, Faridabad.

Excerpts of deliberation: Prof (Dr.) Sushil Kumar Tomar in his address underscored that energy conservation is not just a necessity but a responsibility. He told the audience that we all share the challenges of climate change, energy security and sustainability. He highlighted that energy conservation day reminds us that every small effort when multiplied by millions of individuals can lead to a transformative impact.



Credential in Brief: Dr. Rakesh Jain is CEO, Best Plant & Ex. General Manager Indian Oil Corporation Ltd. Faridabd. He is also faculty member of J.C Bose University of Science & Technology, YMCA Faridabad. He is an Electrical engineer, MBA (HR), Ph.D. in Feedback Management Skills for Decision Making in industrial organizations.

Excerpts of deliberation: Dr. Rakesh Jain, expert speaker of the evening, delivered his lecture. In his deliberation, Dr. Jain emphasized on the importance of judicious energy use and sustainable practices for a better tomorrow. He shared the experiences of his work in the form of many case studies where he discussed the types of big and small issues that came across -

while performing their duties as energy auditors in various industries and how those issues were resolved. The session was highly captivating and practical.

Honorary Secretary, Dr. Pradeep Kumar Dimri, FIE presented the vote of thanks. He extended his gratitude to the distinguished speakers and guests who had joined to share their expertise. Prof Dimri also acknowledged the efforts of the organizing committee and members of IEI FLC for putting together this meaningful event. The event concluded with national anthem followed by high tea. The event was Attended by 40 participants. The event was a grand success.

PARTICIPATION IN INDUSTECH EXPO - 2024



INDUS-Tech Machine Tools & Automation Expo Faridabad was held on 20-21-22-23 December, 2024. The venue was Sec-12 Ground, Faridabad, Haryana. There were 850+ Exhibitors, 125,000+ Expected Visitors, 3,50,000 sq. feet of Exhibition Area, 25000+ Products & Technology Display, B2B Meetings, Live Demo of Machineries, Connecting Opportunities. There was Media coverage also.

INDUS-Tech Machine Tools & Automation Expo Faridabad is a one stop destination to display industrial Technologies and -

innovations focusing on manufacturing sector. This Expo is a perfect platform to demonstrate the latest and new technologies introduced. INDUS-Tech Machine Tools & Automation Expo Faridabad is purely a business to business exhibition that would have the presence of delegations of Industries representing various industrial sectors like Automobiles, auto components, aerospace, general engineering, capital goods and many more...



There were many stall in INDUS-Tech Machine Tools & Automation Expo Faridabad. The Institution of Engineers (India) Faridabad Local Centre also participated in the Expo. IEI stall number E26 was one of them. Many IEI Members and visitors visit our stall and appreciated us for our participation in Expo and efforts taken for IEI growth. The Committee Members also visited our stall. We get good response of our stall.



Er. J.P Malhotra, Past Chairman IEI FBDLC & President, DLF Industries Association, Faridabad visited our stall and appreciated the FLCC team.

FLCC Members, Er. J.R Chaudhary, and Er. Pankaj Trehan also visited our stall.

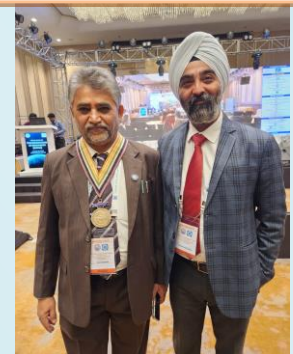
Participation in 39th Indian Engineering Congress at Kolkata



Interaction With
Secretary & Director General, IEI
Major. Gen. Syali



Felicitating new President, IEI,
Er. V. B. Singh



Interaction with
President IEI,
G. Ranganath

Er. I.S Oberoi, FIE, Chairman of IEI Faridabad Local Centre attended 39th Indian Engineering Congress Kolkata. He had expensive discussion with office bearers of IEI. He also chaired a technical session during the congress.

Veer Bal Diwas on 26th December 2024



J.C. Bose University of Science and Technology, YMCA, Faridabad, observed 'Veer Bal Diwas' in a befitting manner and paid tribute to the indomitable spirit and supreme sacrifice of Sahibzada Zorawar Singh and Sahibzada Fateh Singh, the young sons of Guru Gobind Singh Ji, the tenth Sikh Guru.

The event was organized by the office of Dean Student Welfare and was held with great reverence and dignity. The distinguished speakers for the occasion were Prof. Gurpal Singh, Coordinator of Bhartiya Bhasha Samvardhan Samiti at Panjab University, Chandigarh, and Shri D.P. Bhardwaj, State Head of Vidya Bharati, Haryana.



The session was presided over by Prof. Sushil Kumar Tomar, Vice-Chancellor of the University. Er. Inderdeep Singh Oberoi, FIE, Chairman & Council Member of IEI Faridabad Local Centre attended the program.

Prof. Pradeep Kumar Dimri, Dean Student Welfare and Honorary Secretary also deliberated on the subject and proposed the vote of thanks, expressing gratitude to all participants and attendees for their contributions to the success of the event.

IE(I) FLCC Achievement



Heartiest Congratulations to Er. Inderdeep Singh Oeroi, FIE Chairman & Council Member, of IEI Faridabad Local Centre for being nominated by President, IEI, as:

1. Member, Civil Engineering Division board, CVDB, IE(I)
2. Member, All India Technicians' committee (AITC), IE(I)
3. Member, Centres Coordination Committee (CCC), IE(I)



Heartiest Congratulations to Prof. (Dr.) Pradeep Kumar Dimri, Honorary Secretary for being appointed as Dean Student Welfare J. C. Bose University of Science and Technology, YMCA, Faridabad. May you soar high in all your endeavours.

Prof (Dr.) Pradeep Kumar Dimri published a research paper "Channel Estimation and Signal Detection for Massive MIMO under 5G Communication" in Computer Networks and Communications in this article the space – time transmit technique (STTT) is examined in a massive MIMO environment and Rayleigh fading computer networks. Computer Networks and Communications is an international peer reviewed open access journal published from Singapore.

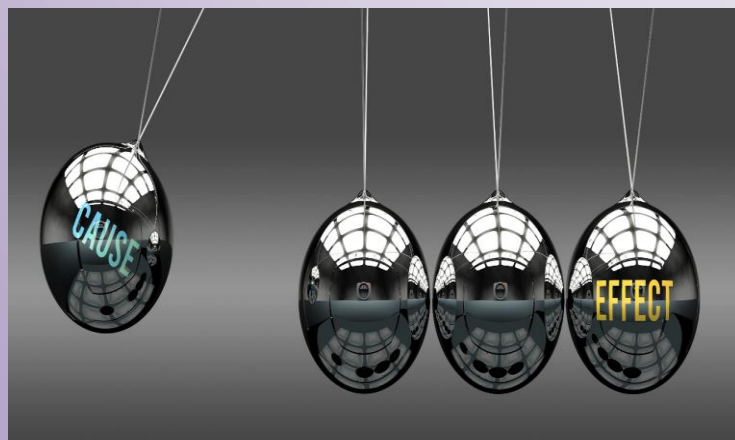
Technical News

New nanocrystal materials for more energy-efficient computing

Chemistry researchers have taken a key step toward next-generation optical computing and memory with the discovery of luminescent nanocrystals that can be quickly toggled from light to dark and back again. Nanomaterials are tiny bits of matter measuring between one-billionth and one-hundred-billionths of a meter, and avalanching nanoparticles feature extreme non-linearity in their light-emission properties -- they emit light whose intensity can increase massively with a small increase in the intensity of the laser that's exciting them.



The researchers have studied nanocrystals composed of potassium, chlorine and lead and doped with neodymium. The potassium lead chloride nanocrystals do not interact with light however, they enable their neodymium guest ions to handle light signals more efficiently. This make them useful for optoelectronics, laser technology and other optical applications. Normally, luminescent materials give off light when they are excited by a laser and remain dark when they are not. Nanocrystals show a peculiar behavior as they can be either bright or dark under exactly the same laser excitation wavelength and power. That behavior is referred to as intrinsic optical bistability.



Using mathematics to better understand cause and effect :-

We understand Cause and effect concept from an early age. Naturally, things get much more complicated as a system grows, as the number of variables increases, and as noise enters the picture. Eventually, it can become almost impossible to tell whether a variable is causing an effect or is simply correlated or associated with it.

The new mathematical tool can tease out the contributions that each variable in a system makes to a measured effect -- both separately and, more importantly, in combination. This new method is called Synergistic Unique Redundant Decomposition of causality (SURD). Model can be used in any situation in which scientists are trying to determine the true cause or causes of a measured effect. That could be anything from what triggered the downturn of the stock market in 2008, to the contribution of various risk factors in heart failure, to which oceanic variables affect the population of certain fish species, to what mechanical properties are responsible for the failure of a material.



Fueling greener aviation with hydrogen:-

Despite ongoing efforts to curb CO₂ emissions with electric and hybrid vehicles, other forms of transportation remain significant contributors of greenhouse gases. To address this issue, old technologies are being revamped to make them greener, such as the reintroduction of sailing vessels in shipping and new uses for hydrogen in aviation. Researchers have used computer modeling to study the feasibility and challenges of hydrogen-

powered aviation. The aviation industry's energy-related CO₂ emissions have grown faster than those of rail, road and shipping in recent decades. To reduce the potential climate impacts of this growth, scientists are improving aircraft design and operation, and developing low-emission fuels such as hydrogen, which is used for direct combustion or to power electric fuel cells. Hydrogen's appeal as a fuel source is that its use produces no CO₂ and provides more energy per pound than jet fuel. To understand the potential impact of switching from traditional jet fuel to hydrogen fuel in aviation. The extra bulk of a hydrogen fuel tank and fuel cells retrofitted to an existing plane would need to be offset by weight reductions elsewhere, such as reducing the aircraft's payload (cargo or passengers). This could mean that more flights would be needed to deliver the same payload. The improvements in fuel cell power and the fuel system's gravimetric index (the weight of the fuel in relation to the weight of the full fuel tank) could eliminate the need to reduce payload, thus eliminating the environmental impact of additional flights. At the same time, they noted that shifting to hydrogen-powered flight may reduce the aviation industry's CO₂ emissions by up to 90%.

Article



Concept of Computer Integrated Manufacturing Systems

Prof. Dr. VASDEV MALHOTRA

J C Bose University of Science and Technology, YMCA, Faridabad

Email: dr.vasudevmalhotra@gmail.com

CIM uses a common database wherever feasible and communication technologies to integrate design, manufacturing and associated business functions that combine the automated segments of a factory or a manufacturing facility. CIM reduces the human component of manufacturing and thereby relieves the process of its slow, expensive and error-prone component. CIM stands for a holistic and methodological approach to the activities of the manufacturing enterprise in order to achieve vast improvement in its performance. This methodological approach is applied to all activities from the design of the product to customer support in an integrated way, using various methods, means and techniques in order to achieve production improvement, cost reduction, fulfillment of scheduled delivery dates, quality improvement and total flexibility in the manufacturing system. CIM requires all those associated with a company to involve totally in the process of product development and manufacture.

It is the manufacturing approach of using computers to control entire production processes. This integration allows individual processes to exchange information with each other and initiate actions. The data required for various functions are passed from one application software to another in a seamless manner.

Appeal for help in acquiring office Space

Dear Members,

As you are aware The Institution of Engineers (India) Faridabad Local Centre is operating from a small room in J.C Bose University of Science & Technology, YMCA, Faridabad and we often find the space inadequate for efficient functioning. In the last AGM as well as in various meetings it was felt that local centre should strive for its own building/space.

Therefore all the members are requested to send their input/suggestions and render any help in acquiring the space.

Join IEI Membership

Come to mainstream with your fellow professionals to be a part of National Engineering Excellence, Engineers of all disciplines are requested to take Membership of The Institution of Engineers (India).

Corporate Members are requested for their Contribution towards the Institution of Engineers (India) by way of Articles, Advertisements and Donation etc.

Bank Details:-

A/c Holder Name : The Institution of Engineers (India), Faridabad Local Centre
SB A/c No. : 146601000016741
Branch : Indian Overseas Bank, Sector-6 Faridabad,
IFSC Code : IOBA001466

For Details/ Clarification/ Contact, please explore/visit:-

IE(I) Faridabad Local Centre

Email ID : faridabadlc@ieindia.org

Website : www.ieifbdlc.in.

Contacts Nos. : Ph. 01292245008; Mob. +919810118362; +919968433183; +918053266743

Youtube : <https://www.youtube.com/watch?v=Oa9XBysb9eY>

Facebook : <https://www.facebook.com/search/top?q=faridabad%20local%20centre%20-%20iei%22>

Address : 2ND Floor, Bank Building, J. C. Bose University of Science & Technology, YMCA Sector-6, Faridabad-121006, Haryana