

Information Brochure

The Institution of Engineers (India)

"A Century of Service to the Nation"

All India Seminar

on

"Error-Resilient Quantum Communication for Healthcare Data Security"

Date: 20-21 August 2026

Organized by



The Institution of Engineers (India)

Coimbatore Local Centre

under the aegis of

Electronics & Telecommunication Engineering Division Board, IEI

in association with



Department of Electronics and Communication Engineering

Coimbatore Institute of Technology

Coimbatore

Venue: LBCH

Coimbatore Institute of Technology

Coimbatore - 641014

About The Institution of Engineers (India)

The Institution of Engineers (India) or IEI is the largest multidisciplinary professional body that encompasses 15 engineering disciplines and gives engineers a global platform for sharing professional interest. IEI has membership strength of above 2.6 lakhs. Established in 1920, with its headquarter at Kolkata, IEI has served the engineering fraternity close to a century. During this period of time, IEI has been inextricably linked with the history of modern-day engineering. In 1935, IEI was incorporated by Royal Charter and remains the only professional body in India which has been accorded this honour. Today, its quest for professional excellence has given it a place of pride in almost every prestigious and relevant organization across the globe. It provides a vast array of technical, professional and supporting services to the Government, Industries, Academia and the Engineering fraternity, operating through its 124 Centres located across the country and 6 overseas chapters. Besides, IEI has bilateral agreements with about 31 international bodies and membership of another 8 international bodies of the developed nations across the globe. Being recognized as a Scientific and Research Organisation (SIRO) by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, IEI promotes the cause of research and development by providing Grant-in-Aid support to undergraduate, post graduate students and Ph.D. research scholars of Engineering Institutions and Universities. IEI holds the International Professional Engineers (IntPE) Register for India under the global International Professional Engineers Alliance (IntPEA). The Institution also awards the Professional Engineers (PE) Certification and confers the Chartered Engineer (CEng) certification. IEI, in collaboration with Springer, regularly publishes peer-reviewed international journals in five series, namely Series A, Series B, Series C, Series D, and Series E, covering fifteen engineering disciplines.

About Coimbatore Local Centre

IE(I) Coimbatore Local Centre, operating from the PSG College of Technology campus, has been actively serving the engineering fraternity for nearly 60 years. The IE(I), Coimbatore Local Centre has been one of the active centres of The Institution of Engineers (India) which is engaged in successfully translating the objectives and ethics of IE(I) into practice. The Centre was founded in the year of 1965, under the Chairmanship of Dr G R Damodaran, an educationist, the former Vice - Chancellor of Madras University, a philanthropist and also the architect of PSG College of Technology, Coimbatore, who lived for the technology development of the nation. Presently, IE(I), Coimbatore Local Centre has a strength of more than 3,000 corporate members, more than 6,000 student members, and 22 institutional members. It regularly organizes technical and special lectures in various fields of engineering. Industrial visits are also arranged to promote good technical interaction among the members and industries. It also observes the international / national events like World Water Day, World Telecommunication and Information Society Day, World Environment Day and Engineers Day and other IE(I) statutory days in a fitting manner by organizing technical talks on the selected themes with experts in field. One Day Seminar / Workshop, All India Seminar / Workshop funded by the IE(I), Headquarters, Kolkata are also being organized under different engineering divisions in association with various institutions. A few National Conventions of IE(I) are also organized by the Centre. The Centre served as an important examination centre in the region for many years conducting AMIE section A & B examinations during summer and winter sessions.

The Centre has many students' chapters which are active under different engineering divisions in various institutions in and around Coimbatore. Every year, outstanding engineers and young achievers are honored by the Coimbatore Local Centre. Student scholarships are also distributed from various endowment contributions. The Centre houses a library with about 1900 text and reference books for the benefit of members. Guidance classes are also being conducted to support associate and student members. Golden jubilee of the IE(I), Coimbatore Local Centre was celebrated in the year 2015 - 2016 with the inauguration of Centre's own building, "PSG - GRD Bhavan". Rotary eClub of Coimbatore Changemakers honored IE(I), Coimbatore Local Centre with **"Changemaker of Coimbatore Award for the year 2022-2023"**. Recently, the Institution of Engineers (India), Coimbatore Local Centre, has been adjudged the **"Best Local Centre" for its all-round performance during the year 2024-2025**. This recognition was also received earlier for the years 2019-2020, 2022- 2023 and 2023-2024.

About the College

The V. Rangasamy Naidu Educational Trust devoted to the cause of promoting technical and scientific literacy, established Coimbatore Institute of Technology (CIT) in Coimbatore, Tamil Nadu, South India in 1956. CIT is one of the most reputed and prestigious educational institutions in India. The Institute backed by World Class research and development over the years attained autonomous status in 1987.

About the Department

The Department of Electronics and Communication Engineering was started in the year 1968. Currently the department offers undergraduate - B.E Electronics and Communication Engineering (Full time), and research (Full Time and Part Time) programmes. The UG programme has sanctioned strength of 120 students with under both government aided and self-supporting streams. The department has dynamic and vibrant faculty specialized in various fields of Electronics and Communication Engineering with proven research experience in niche areas. The department has produced 29 doctorates in the area of Signal processing, Wireless Communication, Networking, Wireless sensor Networks, Image processing, VLSI Design and Embedded systems. The faculty members of the department have undertaken innovative projects from leading agencies such as AICTE, UGC, DST.

About the Theme

The healthcare sector increasingly relies on digital platforms for storing and transmitting sensitive information such as electronic health records, diagnostic images, telemedicine data, and real-time patient monitoring signals. Ensuring the confidentiality, integrity, and reliability of such data is a major challenge in the presence of cyber threats, channel noise, and system vulnerabilities. Error-resilient quantum communication emerges as a powerful solution by combining the inherent security of quantum mechanics with robust error-correction techniques. This programme aims to provide a comprehensive understanding of quantum communication technologies tailored for healthcare data security, with a strong emphasis on error resilience and fault tolerance. The sessions begin with the fundamentals of quantum information science, including qubits, entanglement, quantum channels, and Quantum Key Distribution (QKD), which form the backbone of secure quantum communication. The programme then addresses practical challenges such as decoherence, photon loss, and noise in quantum channels that affect reliable data transmission. A key focus of the programme is on quantum error-correcting codes and fault-tolerant communication techniques, which enable secure and reliable transfer of sensitive medical data over imperfect quantum networks. Real-world healthcare applications including secure transmission of electronic health records, medical imaging, telemedicine communications, and medical IoT networks are discussed to bridge theory with practice. The programme features expert lectures delivered by eminent resource persons from IITs, IBM, C-DAC, and Qiskit Advocates, offering participants exposure to both academic research and industry-driven quantum solutions. Designed for IEI members, faculty members, researchers, students and industry professionals, this programme equips participants with the knowledge required to engage in research, development, and innovation in quantum-secure healthcare communication systems.

Sub-Themes

- ✓ Healthcare Data Security Challenges and Requirements
- ✓ Quantum Communication Frameworks for Healthcare Systems
- ✓ Quantum Channel Noise and Error Sources
- ✓ Quantum Error-Correcting Codes for Error Resilience
- ✓ Error-Resilient Quantum Key Distribution (QKD)
- ✓ Fault-Tolerant Quantum Communication Architectures
- ✓ Secure Transmission of Healthcare Data (EHR, Telemedicine, Medical IoT)
- ✓ Implementation Challenges and Future Directions in Quantum-Secure Healthcare Systems

Call for Papers

Prospective authors are invited to submit manuscripts reporting original unpublished research and recent developments in the topics related to the theme of the All India Seminar but not limited to subthemes listed above.

Authors should send an abstract up to 300 words to **coimbatorelc@ieindia.org & bbhuvaneswari@cit.edu.in**. The final paper should be in the format available on the website (https://repos.ieindia.org/technical/publication/document/Paper_Template.docx). All presented papers will be included in the proceedings of the All India Seminar.

Resource Persons

Expert members from various leading academic institutions, research institutions and Industries.

Eligibility

IEI Members, Faculty Members, Practicing Engineers, Research Scholars, Diploma, UG and PG Students.

How to Apply

Registration for the seminar can be made by sending the duly filled application through email or using the registration link on or before **14.08.2026**.

Registration Link: <https://forms.gle/43wvhizwly6qymzk8>

Registration Fee (including GST)

	₹
IEI Corporate Members	472.00
UG / PG / Research Scholar	472.00
Faculty Members	708.00
Participants from Industry	944.00

Payment (Online Transfer Only)

Name	:	The Institution of Engineers (India) Coimbatore Local Centre
Bank	:	State Bank of India
Branch	:	Peelamedu Branch, Coimbatore
Account No.	:	10141435551
IFSC Code	:	SBIN0007231
GST No.	:	33AAATT3439Q6ZW

Note

- ❖ **Pre-registration is mandatory**
- ❖ **Spot registration is strictly not permitted (No cash payment)**
- ❖ **Limited participants only**
- ❖ **No TA / DA will be paid**
- ❖ **Kindly bring your College / industry identity card**
- ❖ **Registration through email and registration link is compulsory**
- ❖ **Registration fee includes: refreshments, lunch & participation certificate**

Importance Dates

Last date for abstract submission : **07.08.2026**
Paper acceptance intimation : **10.08.2026**
Last date for full paper submission: : **12.08.2026**
Last date of registration : **14.08.2026**

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Contact

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on
**“Error-Resilient Quantum Communication for
Healthcare Data Security”**

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Registration Form

Name: (in Block Letters) :

Designation: :

Organization / Institution :

IEI Membership No & Division :

Address for Communication :

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Mobile Number :

Email ID :

Registration Fee Paid (Rs.) :

Transaction Details :

UPI ID No / NEFT UTR No. :

Transaction Date & Time :

Dated:

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Signature