

# Proposal to Organize International Conference

Department of Electronics Technology, Guru Nanak Dev University Amritsar

## Key Information

1. **Conference Title:** International Conference on Digital Innovation in Electronics, Communication and AI (DIECAI-2025) *(Details in Annexure A)*
2. **Tentative Dates:** 13 November, 2025 (Thursday) to 15 November, 2025 (Saturday)
3. **Speakers:** Attached in Annexure B
4. **Expected Participants:** 150

## Annexure A: Program Schedule & Theme

### Detailed 3-Day Program

Time Slot	13/11/2025 (Thu)	14/11/2025 (Fri)	15/11/2025 (Sat)
09.00 am - 09.30 am	Registration	<b>Keynote-3:</b> 6G and Beyond: Enabling Ultra-Connected Societies through Intelligent Networks	<b>Keynote-6:</b> The Future of Next-Gen Computing: From Edge-Fog to Quantum and Blockchain Ecosystems
09.30 am - 11.00 am	<b>Inauguration and Registration</b> Inauguration speech, Keynote address by Chief Guest  <b>Keynote:</b> Technology with Compassion: Lessons from Guru Tegh Bahadur Ji for Ethical Innovation and Sustainable Development <i>or</i> Guru Teg Bahadur Ji's universal message of justice with the need for responsible AI and equitable access to emerging technologies.	<b>Track 3:</b> Next-Generation Wireless Connectivity <i>(Venue A, Venue B)</i>	<b>Track 6:</b> Next-Generation Computing & Emerging Trends in Computer Science <i>(Venue A, Venue B)</i>
11.00 am - 11.30 am	Tea Break	Tea Break	Tea Break
11.30 am - 01.00 pm	<b>Keynote-1:</b> The Future of Intelligent IoT: From Edge Devices to Sustainable Smart Cities	<b>Keynote-4:</b> Optical and Satellite Networks for a Digitally Inclusive and Climate-Resilient World	<b>Keynote-7:</b> Responsible AI and Data Science for Global Challenges: From Food Security to Climate Action

Time Slot	13/11/2025 (Thu)	14/11/2025 (Fri)	15/11/2025 (Sat)
	<b>Track 1:</b> Smart Embedded Systems & Intelligent IoT (Venue A, B)	<b>Track 4:</b> Optical Networks & Space Communication (Venue A, Venue B)	<b>Track 7:</b> AI, Data Science & Emerging Applications Technical Session 7 (Venue A, Venue B)
01.00 pm - 02.00 pm	Lunch Break	Lunch Break	Lunch Break
02.00 pm - 04.00 pm	<b>Keynote-2:</b> Revolutionizing Electronics with 2D Materials and Nano-Devices for a Sustainable Future <b>Track 2:</b> Advanced Materials for Future Electronics (Venue A, Venue B)	<b>Keynote-5:</b> AI-Driven Electronics: Transforming Communication, Healthcare, and Smart Industries <b>Track 5:</b> AI-Powered Electronics & Communication Systems (Venue A) + Poster Presentation	Valedictory Session
04.00 pm -	Local Sight Seeing, Dinner	Dinner	-

Conference Dedication & Theme Statement

“This conference is humbly dedicated to the supreme sacrifice of Guru Tegh Bahadur Ji, whose martyrdom stands as an eternal symbol of freedom, justice, and protection of human dignity. As the world advances in electronics, communication, and AI, we draw inspiration from his teachings to ensure that innovation serves humanity, preserves equity, and supports the Sustainable Development Goals (SDGs).”

Conference Outcome/Declaration:

“Inspired by the martyrdom of Guru Tegh Bahadur Ji, ICETECAL-2025 commits to fostering innovation that upholds human dignity, reduces inequalities, and advances the SDGs in the spirit of universal compassion and justice.”

Aligning Guru Tegh Bahadur Ji’s Teachings with SDGs



Human Dignity & Freedom

SDG 16 – Peace, Justice & Strong Institutions

Guru Ji gave his life to protect the right of others to practice their faith, echoing values of justice, equality, and institutional trust. Link this to \*AI ethics, \*\*cybersecurity, and \*\*responsible technology\* (Tracks 5 & 6).



Equality & Compassion

SDG 10 – Reduced Inequalities, SDG 3 – Good Health & Well-being

Guru Ji emphasized care for all, irrespective of caste, creed, or religion. Connect this to \*IoT for healthcare, \*\*AI in medical diagnostics, and \*\*global digital inclusion\* (Tracks 1 & 3).



Environmental Harmony

SDG 13 – Climate Action, SDG 12 – Responsible Consumption & Production

Guru Ji taught detachment from materialism and harmony with nature. Relating this to \*sustainable electronics, \*\*energy-efficient devices, and \*\*climate modeling\* (Tracks 2, 4 & 6) would strengthen the link.



Community & Sacrifice

SDG 17 – Partnerships for the Goals, SDG 11 – Sustainable Cities & Communities

Guru Ji embodied selfless service (seva). This aligns with \*smart cities, \*\*IoT for agriculture/healthcare, and \*\*global collaborations in research\* (Tracks 1 & 4).

## Conference Tracks and Specific SDG Alignment

The conference is structured around 7 critical tracks, each addressing key areas of Digital Innovation and directly aligning with specific Sustainable Development Goals (SDGs).

### Track 1: Smart Embedded Systems & Intelligent IoT

Plenary Talk: *The Future of Intelligent IoT: From Edge Devices to Sustainable Smart Cities*

Key Topics:

- Embedded Hardware & Software Co-Design
  - IoT Architectures, Standards & Protocols
  - Edge/Fog Computing & Cloud Integration
  - Cyber-Physical Systems & Digital Twins
- IoT for Smart Cities, Healthcare & Agriculture
  - Security & Privacy in IoT Devices

SDG Alignment:

This track supports SDG 9 (Industry, Innovation & Infrastructure) and SDG 11 (Sustainable Cities & Communities) by advancing IoT-driven smart infrastructure and urban solutions. It also contributes to SDG 3 (Good Health & Well-being) through health monitoring devices and SDG 12 (Responsible Consumption & Production) via resource-efficient embedded systems.

### Track 2: Advanced Materials for Future Electronics

Plenary Talk: *Revolutionizing Electronics with 2D Materials and Nano-Devices for a Sustainable Future*

Key Topics:

- Nanoelectronics & Nanomaterials
  - 2D Materials (Graphene, MoS<sub>2</sub>, etc.)
- Semiconductor Devices & Fabrication Technologies
  - Flexible, Wearable & Printed Electronics
- Energy Storage Materials (Batteries, Supercapacitors)
  - Sustainable & Eco-Friendly Electronic Materials

SDG Alignment:

Aligned with SDG 7 (Affordable & Clean Energy) and SDG 9 (Industry, Innovation & Infrastructure), this track explores sustainable semiconductors, nanoelectronics, and energy storage materials. It also contributes to SDG 12 (Responsible Consumption & Production) and SDG 13 (Climate Action) through eco-friendly and recyclable material innovations.

### Track 3: Next-Generation Wireless Connectivity

Plenary Talk: *6G and Beyond: Enabling Ultra-Connected Societies through Intelligent Networks*

Key Topics:

- 5G/6G Technologies & Beyond
  - Terahertz & mmWave Communications
- Massive MIMO, Beamforming & Antenna Design
- Wireless Sensor Networks & Low-Power Communication
  - Intelligent Networking & Spectrum Management

- Applications: Autonomous Vehicles, Remote Healthcare, Industry 4.0

**SDG Alignment:**

This track advances SDG 9 (Industry, Innovation & Infrastructure) by driving breakthroughs in 6G, terahertz, and intelligent wireless systems. It also enables SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities) by improving global access to education and connectivity, while supporting SDG 3 (Good Health & Well-being) through telemedicine applications.

**Track 4: Optical Networks & Space Communication**

Plenary Talk: *Optical and Satellite Networks for a Digitally Inclusive and Climate-Resilient World*

**Key Topics:**

- Photonics & Optical Signal Processing
- Fiber Optic Communication Systems
- Free-Space Optical Communication (FSO)
- Satellite Communication & Deep-Space Networks
  - Optical Interconnects & Data Centers
  - Quantum Communication & Security

**SDG Alignment:**

Supporting SDG 9 (Industry, Innovation & Infrastructure) and SDG 17 (Partnerships for the Goals), this track emphasizes high-speed optical systems and satellite technologies for global connectivity. It also contributes to SDG 13 (Climate Action) through Earth observation and disaster monitoring, and to SDG 11 (Sustainable Cities & Communities) by enabling digital urban ecosystems.

**Track 5: AI-Powered Electronics & Communication Systems**

Plenary Talk: *AI-Driven Electronics: Transforming Communication, Healthcare, and Smart Industries*

**Key Topics:**

- AI for Wireless Communication & Network Optimization
  - AI in Signal/Image Processing
  - Intelligent Circuit & Chip Design
  - AI in IoT & Embedded Platforms
- Cognitive Radio & Smart Spectrum Allocation
- AI in Robotics, Drones & Autonomous Systems

**SDG Alignment:**

This track strengthens SDG 9 (Industry, Innovation & Infrastructure) by embedding AI in circuit design, smart manufacturing, and communication systems. It promotes SDG 3 (Good Health & Well-being) via AI-driven medical technologies, SDG 11 (Sustainable Cities & Communities) through intelligent energy and mobility solutions, and SDG 16 (Peace, Justice & Strong Institutions) with AI for secure and trustworthy networks.

**Track 6: Next-Generation Computing & Emerging Trends in Computer Science**

Plenary Talk: *The Future of Next-Gen Computing: From Edge-Fog to Quantum and Blockchain Ecosystems*

**Key Topics:**

- Fog & Edge Computing for Low-Latency Applications
- Quantum Computing Algorithms & Architectures
  - Blockchain for Secure & Transparent Systems
  - Federated Learning & Distributed AI Models
- High-Performance & Green Computing Architectures
- Emerging Paradigms: Metaverse, Web3 & Digital Twin Ecosystems

**SDG Alignment:**

This track directly supports SDG 9 (Industry, Innovation & Infrastructure) by driving breakthroughs in next-generation computing, while SDG 16 (Peace, Justice & Strong Institutions) is addressed through blockchain-based transparency and secure digital ecosystems. It contributes to SDG 12 (Responsible Consumption & Production) and SDG 13 (Climate Action) by encouraging green and energy-efficient computing practices. Additionally, it aligns with SDG 10 (Reduced Inequalities) by democratizing access to decentralized and distributed technologies.

Track 7: AI, Data Science & Emerging Applications

Plenary Talk: *Responsible AI and Data Science for Global Challenges: From Food Security to Climate Action*

Key Topics:

- Machine Learning & Deep Learning Models
- Natural Language Processing & Speech Technologies
  - Big Data Analytics & Cloud Computing
  - AI for Healthcare, Education & Finance
- AI for Climate Modeling & Sustainable Development
- Ethical AI, Trustworthy AI & Policy Frameworks

SDG Alignment:

Aligned with SDG 2 (Zero Hunger) and SDG 8 (Decent Work & Economic Growth), this track highlights AI applications in agriculture and digital economies. It further supports SDG 13 (Climate Action) through climate modeling, SDG 12 (Responsible Consumption & Production) via supply chain optimization, and SDG 16 (Peace, Justice & Strong Institutions) by fostering ethical and responsible AI use.

Annexure B: Tentative List of Speakers/Experts

Sr.	Status	Name of Expert	Institution
1	International	Dr. Elammaran Jayamani	Swinburne University of Technology Sarawak Campus in Malaysia
2	International	Dr. M. Murugappan	Kuwait College of Science and Technology, Kuwait
3	National	Dr. N C Sivaprakash	Indian Institute of Science · Bangalore
4	National	Dr. C. C. Reddy	IIT Ropar
5	National	Dr. Harpreet Singh	IIT Ropar
6	National	Dr. Satwinder Singh	Central University, Bathinda
7	National	Dr. Abir De Sarkar	IISER-Mohali
8	National	Dr. Aditya Trivedi	BV-IIIITM, Gwalior
9	National	Dr. Jyothish Malhotra	National Institute of Technology Delhi
10	National	Dr. Sandeep Singh Gill	NITTTR Chandigarh
11	National	Dr. R. N Yadav	MANIT Bhopal
12	National	Dr. Arun Khosla	NIT Jalandhar

Sr.	Status	Name of Expert	Institution
13	National	Dr. Habib M Pathan	Savitribai Phule Pune University, Pune
14	National	Dr. Dilbag Singh	NIT Jalandhar
15	National	Dr. Sanjay Marwaha	SLIET Longowal
16	National	Dr. Manoj Saxsena	Deen Dyal Upadhya University of Delhi
17	National	Dr. Sandeep Kumar Arya	Guru Jambheshwar University of Science and Technology, Hisar
18	National	Dr. Sandeep Singh Sandha	Punjab AI Excellence, Punjab, India