

Conference Title: 2027 Twelfth Indian Control Conference**Dates:** 3 Days during January 11-13, 2027**Mode:** Physical**Venue:** IIT Kharagpur**Objective & Outcome:** (Brief description)

Control Systems are omnipresent in science, engineering, and technology. The Indian Control Conference (ICC) is a flagship event of the Indian Systems and Control research community. Organized annually by the Control Society, ICC is a vibrant gathering of researchers, both from Academia and Industry, where current and exciting research areas are discussed. In addition to theoretical advancements, ICC focuses on cutting-edge research areas, e.g., networked systems, robotics, and machine learning. The IEEE Control Systems Society (CSS) provides technical co-sponsorship for ICC, which ensures the inclusion of the conference Proceedings in IEEE Xplore.

The inaugural ICC took place at IIT Madras in 2015, with subsequent editions held at Mahindra Ecole Centrale-IIT Hyderabad, IIT Guwahati, IIT Kanpur, IIT Delhi, IIT Hyderabad, IIT Bombay (virtual), IIT Madras, GITAM University Visakhapatnam, IISER Bhopal, and IISc Bangalore. We propose to host the twelfth edition of the ICC (hereinafter, ICC-12) at IIT Kharagpur during January 11-13, 2027, as part of the institute's Platinum Jubilee celebration.

Outcomes:

ICC-12 is expected to attract 200-250 participants from Academia (students, young researchers, faculty members) and Industry. The conference will serve as a platform for participants to learn and network. In addition, ICC-12 is envisioned to be a launchpad for new and sustained academia/industry collaborations for faculty members of IIT Kharagpur. ICC-12 is expected to receive 200-250 paper submissions, and each paper will be handled by program committee members who solicit 3-4 reviews. Based on the reviews, acceptance and rejection decisions are made. The acceptance rate is typically around 50%. The papers are divided into various tracks based on their thematic areas. Some of the technical tracks that have been recurrent in past ICCs are as follows.

- Reinforcement Learning
- Multi-Agent Systems
- Estimation and Identification
- Guidance and Control
- Optimization and Optimal Control
- Robust Control
- Nonlinear Control
- Robotics
- Control of Safety-Critical Systems
- Model Predictive Control
- Linear Systems
- Networked Control Systems
- Control Applications
- Sliding Mode Control
- Control in Power Electronics

- Optimization in Power Engineering

In addition to the above tracks, ICC features invited talks, industry sessions, and experimental abstract sessions. Based on the reviews and presentation, three papers are selected to be finalists for the best student paper award, and one paper is selected to be the winner. The first day of ICC is reserved exclusively for tutorials on various thematic areas delivered by leading experts in the field. ICC also features three to four plenary lectures by globally renowned experts. The total number of attendees is expected to be around 250.

Components: Invited Talks; Oral presentation; Poster presentation; Tentative day-wise distribution

Day-1: (Tentative)

- Tutorial by Adithya Devraj (Amazon) and M. Vidyasagar (IIT Hyderabad) on "Reinforcement Learning and Post-Training of LLMs."
- Tutorial by Praneeth Netrapalli (Google Research) on "Large Scale Optimization."
- Some more invited tutorial sessions are expected on the emerging topics

Day-2: (Tentative)

- Morning: Plenary talk by Prof. John Lygeros of ETH Zurich, Switzerland
- Afternoon: Plenary talk by Prof. Shalabh Bhatnagar, IISc, Bangalore, India
- Regular technical tracks – both lecture sessions and poster sessions
- Exhibition stalls and sessions from industries, DRDO/ISRO labs

Day-3: (Tentative)

- Morning: Plenary talk by Prof. Sonia Martinez, UC San Diego
- One or more semi-plenary or industry sessions by leading experts from industries or research organizations
- Regular technical tracks – both lecture sessions and poster sessions
- Exhibition stalls and sessions from industries, DRDO/ISRO labs

Industry Speakers: Some renowned industry speakers are expected to attend the conference in person.

Name of the General Chairs and Co-chairs: Prof. M. Vidyasagar (IIT Hyderabad) and Prof. Santanu Kapat (IIT Kharagpur)