



# The Institution of Engineers (India)

In service of the Nation since 1920

*98 Years of Relentless Journey towards  
Engineering Advancement for Nation Building*

**International Conference  
on  
“Emerging Technologies for Sustainable and  
Intelligent H V A C & R Systems”**

**27-28 July 2018**

---

**Organised by**

**Mechanical Engineering Division, Electrical Engineering Division &  
Architectural Engineering Division, The Institution of Engineers (India)  
West Bengal State Centre**

---

**Under the aegis of Interdisciplinary Co-ordination Committee,  
The Institution of Engineers (India)**

---

**Co – Sponsored by**



**International Institute of Refrigeration (IIR). Paris, France**

---

**In Collaboration with**



**INDOOR AIR QUALITY ASSOCIATION, U S A  
&  
INSTITUTE OF MECHANICAL ENGINEERS, LONDON**

---

**In Association with**



**M C K V INSTITUTION OF ENGINEERING, HOWRAH, INDIA,**

**&**



**Indian Society of Heating, Refrigerating, Airconditioning Engineers,  
Kolkata Chapter, India**

---

**CALL FOR PAPERS**

## 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 0.8 million. Established in 1920, with its headquarters at 8 Gokhale Road, Kolkata – 700 020, 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 120 Centres located across the country and 5 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 PhD Research Scholars of Engineering Institutions and Universities.

IEI conducts Section A & B Examinations in various engineering disciplines (popularly known as AMIE examination), the successful completion of which is recognized as equivalent to Degree in appropriate field of Engineering of recognized Universities of India by the Ministry of Human Resources Development, Government of India. Every year as many as 90000 candidates appear for these exams.

IEI in collaboration with Springer regularly publishes peer-reviewed international journal in five series, namely, Series A, Series B, SeriesC, Series D and Series E covering fifteen engineering disciplines.

For details, please visit : [www.ieindia.org](http://www.ieindia.org)

## About The West Bengal State Centre, IIE

The erstwhile Bengal Centre was established in 1921 at Calcutta in order to cater to the needs of the members of the entire eastern region of India. The Bengal Centre in due course was divided to Bihar Centre at Patna in 1947, Assam Centre at Shillong in 1958, Orissa Centre at Cuttack in 1959. At present, the erstwhile Bengal Centre is known as West Bengal State Centre situated alongside the IEI Headquarters located at 8 Gokhale Road, Kolkata 700 020. There are four Local Centres under the jurisdiction of West Bengal State Centre, located at Asansol, Durgapur, Kharagpur and North Bengal. Pursuant with its objective of propagating the cause of engineering science and technology, it organizes various seminar/ symposium / conferences/ Short-Term Courses on the contemporary engineering and technological issues.

## Conference Theme

# “Emerging Technologies for Sustainable and Intelligent H V A C & R System”

## Sub-themes

<b>Development of HVAC&amp;R Equipment - particularly Compressors and Heat Exchangers</b> Sub Themes a) The way forward - Energy Efficient and Smart Equipment in HVAC&R b) Significance of Star Rating c) Application based sustainable Aircon Design d) Heat Exchanger Design e) Transport Phenomenon f) Cooling Tower g) Desalination	<b>Transition of Refrigerants</b> Sub Themes a) Development of new synthetic and natural Refrigerants b) Role of new Refrigerants in mitigating GWP
<b>Possibilities of retrofitting existing HVAC&amp;R systems in the context of new environment protection codes</b> Sub Themes a) New environment protection norms and their impact on current HVAC&R systems b) Retrofitment options c) Retrofitting or replacement - the way forward	<b>Evolution of Building Management Systems and Smart Buildings in the context of energy saving</b> Sub Themes a) Architecture of Green Buildings and LEED Standards b) The role of Ventilation systems in optimising HVAC&R performance c) Use of Renewable Energy in Green Buildings d) Smart Buildings - Role of Control Systems and Instrumentation e) Use of IBMS & Energy optimisation
<b>Cold chain development and application in the context of "food for all"</b> Sub Themes a) Food Quality and Safety b) Storage, transportation and logistics c) Carbon footprint of a Cold Chain	<b>Super-markets - marketing under one roof</b> Sub Themes a) Temperature control and Optimisation in large formats b) Humidity control for preservation - desiccant type dehumidifiers vs refrigeration type dehumidifiers c) The role of Ventilation d) Scope for energy efficiency and smart systems e) Control Systems and Instrumentation
<b>Indoor Air Quality Controls and standards</b>	<b>Air conditioning in Mobility - Automotive, Public Transportation and Food Transportation</b> Sub Themes a) Design features for mobile HVAC&R systems b) Control Systems
<b>New age education in HVAC&amp;R in the era of digital learning</b> Sub Themes a) Training and Skill development in the context of Skill India Mission b) User Awareness	<b>History of Refrigeration and Airconditioning</b> Sub Themes a) Evolution of technology and applications b) Future trends
<b>Role of regulatory bodies in energy conservation</b>	<b>Renewable Energy Systems and Applications in H V A C &amp; R Systems</b> Sub Theme Adsorption Refrigeration

## Technical Committee

**Chairman :** **Prof. (Dr.) Samir Kr. Saha**  
Former Professor Mech. Engg. Deptt.  
Jadavpur University , Dean of Academics,  
MCKV Institution of Engineering

**Convener:** **Er. Ranjan Banerjee**  
Advisor, Paharpur Cooling Towers Ltd.

**Member :** **Prof. (Dr.) N R Bandyopadhyay**  
Professor, School of Materials Science  
& Engineering  
Indian Institute of Engineering, Science  
& Technology, Shibpore

**Prof. (Dr.) Parasar Bandyopadhyay**  
Director, M C K V Institute of Engineering

**Dr. Chiranjib Bhattacharjee,**  
Dean of Faculty of Engg. and  
Technology,  
Jadavpur University

**Er. Manoj Chakraborty**  
Former National President of ISHRAE  
& Present President,  
EMERITUS Kolkata Chapter,  
Principal Consultant,  
Engineering Consultancy Services

**Prof. (Dr.) Himadri Chattopadhyay**  
Professor, Mechanical Engg. Deptt.,  
Jadavpur University

**Prof. (Dr.) Bijan Kr. Mondal**  
Dept. of Mech. Engg., IEST, Shibpur

**Er. Rabi Chowdhury**  
Managing Director, Haldia Energy  
Limited

**Prof. Prasenjit Chatterjee,**  
HOD, Mech. Engg.,  
MCKV Institution of Engineering

**Dr. Himadri Guha**  
Consultant , Smart Building

**Prof. P K Das**  
Professor, Mechanical Engineering  
Department, IIT, Kharagpur

**Prof. Swarnendu Sen**  
Professor, Mechanical Engineering  
Department , IIT, Kharagpur

**Prof. P K Roy**  
Professor, Production Engineering  
Department, IIT, Kharagpur

## Submission of Abstracts / Full Text

The authors are requested to submit the Abstracts (in A4 size paper) and full text (post-acceptance of Abstract) through e-mail to [CON2018HVACR@gmail.com](mailto:CON2018HVACR@gmail.com)

## Nodal Dates

Submission of Abstracts	November 31, 2017
Intimation of acceptance of Abstracts	January 31, 2018
Submission of full-text	March 31, 2018
Intimation to authors regarding session details/ acceptance of Paper	April 30, 2018

## Guidelines for Authors

Authors intending to submit a paper for the International Conference are advised to adhere to the guidelines as mentioned below. The papers not conforming to these guidelines may not be considered for review / publication. The accepted papers will be published in the Conference Proceedings with ( ISBN no. ).

Abstract of Paper (in A4 size) within 500 words with maximum five key words have to be submitted first and after acceptance of the same, full text of the Paper has to be submitted.

Abstracts will be reviewed by domain experts and the decision will be communicated to those authors whose Abstracts are accepted

The original Abstract will also be uploaded in the IIRfridoc database.

The selected papers will be published in Springer linked Journals of the Institute of Engineers (India).

## Registration

Corresponding / Presenting Author(s) have to register themselves for the International Conference, without which the paper will not be considered for presentation. For Registration Fee and other details, please visit .....

## Contact

**Er. Ranjan Banerjee**  
Convener, Technical Committee  
The Institution of Engineers (India),  
West Bengal State Centre  
8, Gokhale Road, Kolkata – 700 020.

Ph : 9831006405 ( M )  
E-mail : [ranjanbanerji53@yahoo.co.in](mailto:ranjanbanerji53@yahoo.co.in)

**Er. Ranjan Dutta**  
Organising Secretary of the Conference  
The Institution of Engineers (India)  
West Bengal State Centre

<p><b>Er. Shantanu Sengupta</b> Former Managing Director Westinghouse-SAXBY Limited</p> <p><b>Dr. Swarup Kr. Mitra</b> Associate Professor ECE Dept., MCKV Institute of Engineering</p> <p><b>Er. Tarun Kumar Ray Chowdhury</b> Convener, Organising Committee</p>	<p>8, Gokhale Road, Kolkata – 700 020.</p> <p>Ph :9051411316 ( M ) E-mail : <a href="mailto:ranjandutta1958@gmail.com">ranjandutta1958@gmail.com</a></p>
--	--

## ABOUT THE CITY OF KOLKATA

Kolkata is one of the metropolitan cities of India, situated close to the Gangetic delta in the eastern part of the country.

It is a centre of culture, with traditions in drama, art, theatre, film and literature.

The city is surrounded by industrial centres that specialize in steel and mining, chemicals, automobile and engineering products.

A vibrant city, Kolkata has been the home of several internationally renowned personalities and Nobel laureates such as Rabindranath Tagore, Mother Teresa, Amartya Sen and Satyajit Ray.

The city is an interesting mix of old and new, traditional and modern, that makes it unique and intriguing.

Kolkata has a new International Airport that is linked to the City Centre by a highway. It has several Hotels of high standards serviced by well known hospitality brands like Marriott, Swissotel, Novotel, Taj and ITC. There are innumerable restaurants serving a variety of cuisines from all over the world.

Kolkata is surrounded by a number of places of tourist attraction. It is close to the sea, and Sundarbans, covered by mangrove forests and home to the Royal Bengal Tiger, is not too far away. The Himalayan range of mountains are also close by. Besides, there are several spots within the city and surroundings such as the River front, Victoria Memorial Hall, the Zoo, National Museum and Art Galleries, that are attractive to tourists.

Above all, Kolkata is a safe and friendly city, inhabited by people who are always ready to help.



**VIDYASAGAR SETU**



**VICTORIA MEMORIAL HALL**



**HOWRAH BRIDGE**



**DAKSHINESHWAR TEMPLE**



**BELUR MATH**



**RIVER FRONT**