#### **Chief Patron** Dr. Achyuta Samanta

Founder, KIIT and KISS Bhubaneswar

### Patrons

Mr. Ashok Parija, Chancellor, KIIT Dr. S. K. Acharya, Pro-Chancellor, KIIT

### **Co-Patrons**

Dr. Saranjit Singh, Vice Chancellor, KIIT Dr. J.R. Mohanty, Registrar, KIIT Dr. A. K. Sahoo, Director R&D, SOT, KIIT

#### Chairman

Dr. B. C. Routara, Dean, SME, KIIT Co- Chairman Dr. P. C. Mishra, Dean-Research, SME, KIIT

#### Conveners

Dr. Debjyoti Sahu, Asst. Prof., SME, KIIT Dr. Spandan Guha, Asst. Prof., SME, KIIT

#### Secretary

Dr. Gyan Sagar Sinha, Asst. Prof., SME, KIIT

### **Coordinators**

Dr. Nitin Sharma, KIIT Bhubaneswar

Dr. Ramanuj Kumar, KIIT Bhubaneswar Dr. Amlana Panda, KIIT Bhubaneswar

## Editorial Board

Prof. (Dr.) Shripad Revankar, Purdue University, USA

**Prof. (Dr.) Swarnendu Sen,** Jadavpur University

Dr. Gyan Sagar Sinha, KIIT, Bhubaneswar

Dr. Debjyoti Sahu, KIIT, Bhubaneswar

**Dr. Kamalakanta Muduli**, PNGUT, Papua New Guinea

## International Advisory Committee

**Dr. Shripad Revankar,** Purdue University, USA

Dr. Sukanta Roy, Curtin University, Malayasia
Dr. Shivaprasad KV, Durham University, UK
Dr. M. M. Awad, Mansoura University, Egypt
Dr. Kamalakanta Muduli, PNGUT

# Submission of Papers

Reg The

Authors of contributory papers are requested to submit full manuscript only limited to a maximum of 9 pages (Heading: Timer New Roman 14, Text: Times New Roman 12, Justified, Single Spacing, References: APA format).

Paper Submission mail id <u>secretary.kiitictms@kiit.ac.in.</u> Paper template will be shared at appropriate time.

Important Dates	
Full paper submission ends (in template)	15-01-2024
Notification of acceptance/ registration starts	25-01-2024
Registration ends	01-02-2024
No spot registration allowed.	
tration Details	
egistration fee details are as follows:	
Category	Fee
Indian delegates (Including 18% GST)	₹ 9,880/-
International delegates	\$ 200
Industry Sponsor (includes 4 free registration)	₹ 1,18,000/-
Food and accommodation for extra person	₹ 2,800/-

Payment towards registration fees should be made through on-line transfer. Beneficiary's Name: KIIT SCHOOL OF MECHANICAL ENGINEERING Beneficiary's Account No.: **1849010225359** IFSC code: **PUNB0184920** Punjab National Bank SWIFT code: PUNBINBBBBN

Dr. Divakar Shetty, Univ. of Technology and	
Applied Sciences, Sultanate of Oman	
Dr. Nisith B. Desai, Technical University of	
Denmark	
Dr. Bale Reddy, OntarioTech. Engineering & Applied	
Sciences, Canada	
Dr. Nikhil Kumar, University of Warwick, UK	
National Advisory Committee	
Prof. Indranil Manna, BIT Mesra	
Prof. (Dr.) Avijit Ghosh, Honorary Secretary,	
IICHE Dr. R. K. Mishra, RCMA, DRDO	
Prof. (Dr.) P. G. Tewari, BVBCET Hubli	
Dr. S. Mukherjee, Kazi Nazrul University, W.B.	
Dr. S. P. Mohanty, CIPET Bhubaneswar	
Dr. Hakeem Niyas, RGIPT, Rae Bariely	
Dr. Anand M. Shivapuji, IISC Bengaluru	
Prof. (Dr.) B. B. Sahoo, VIT, Vellore, India	
Dr. S. Ganesh, Satyabhama Institute, Chennai	
Dr. Pradeep Jakkareddy, Amrita Vishwa	
Vidyapeetham, Bengaluru	
Dr. Contouch: Dogy HSC Domostum	

Dr. Saptarshi Basu, IISC Bengaluru

Dr. Jyotsna Dutta Majumdar, IIT Khargapur

Dr. Ravi Kant, IIT Ropar Dr. D. B. Jani, GEC Dahod, Gujarat Dr. Pankaj Kalita, IIT Guwahati Prof. (Dr.) Sanjib Barma, Calcutta University Dr. Sudhansu Sekhar Sahoo, OUTR, Odisha Prof. Vinod Kotebavi, AVV, Bengaluru Prof. S. Das, Kalyani Govt. Engg. College Dr. A. R. Paul. MNIT Allahabad Dr. Saurav Datta, NIT Rourkella Prof. (Dr.) T. Mohanty, KIIT, Bhubaneswar Dr. M. Jena, KIIT, Bhubaneswar Dr. R. K. Sarangi, KIIT Bhubaneswar Dr. A.B. Harichandan, KIIT, BBSR Prof. (Dr.) K. B. Sahoo, KIIT, Bhubaneswar Prof. (Dr.) B.K. Nanda, KIIT, Bhubaneswar Dr. S. P. Kar, KIIT, Bhubaneswar Dr. Swarup Nayak, KIIT, Bhubaneswar Dr. Vijay Mishra, KIIT, Bhubaneswar Dr. A.K. Rout, KIIT Bhubaneswar Dr. Gopal Pradhan, KIIT, Bhubaneswar **Dr. P. Ghose,** KIIT, Bhubaneswar

Dr. S. K. Hotta, KIIT, Bhubaneswar

Prof. (Dr.) S. Tripathy, KIIT, Bhubaneswar



International Conference on Thermofluids and Manufacturing Science- 2024

7<sup>th</sup>-8<sup>th</sup> March, 2024



Organized by: School of Mechanical Engineering, KIIT Deemed University Bhubaneswar-24, Odisha, India In collaboration with



Indian Institute of Chemical Engineers, Kolkata

Contact Us: Dr. Debjyoti Sahu, +91-8970863768 Dr. Spandan Guha, +91-8970863768 Dr. Gyan Sagar Sinha, +91-9954918657 E-mail: convener.kiitictms@kiit.ac.in secretary.kiitictms@kiit.ac.in Visit us: http://event.kiit.ac.in/ictms2022/

# Aim & Scope

Pioneering research is being carried out by the researchers, scientists and engineers working in the area of Thermofluids. Thermofluids is the holistic study of heat transfer, fluid dynamics, thermodynamics and combustion. This area aims to achieve a carbon neutral world by generation of energy from sustainable resource and spending of energy in most efficient way possible.

Advancement of manufacturing technology have enabled us to scale up the production and transportation of equipment by less  $CO_2$  emission. In future we need divergent ideas of sustainable growth to meet and make the world a better place to live. KIIT ICTMS 2024 will be a platform to showcase theoretical and experimental research.

KIIT ICTMS 2024 also offers excellent opportunities for the participants to forge research relations alongside finding partners for future collaborations. The conference has invited eminent speakers from industry and academia for said purpose. Given the challenges pertaining to Thermofluids and Manufacturing science that the industry is currently faced with, a combined effort involving and transcending thermal and manufacturing science is essential. Papers are invited on the following topics to be addressed (but not limited to) in accordance with the theme of the conference:

- Fluid Dynamics; Fluid Structure Interaction
- Phase change; Multiphase Flow
- Boundary Layer and Free Surface Flows
- Flow Control and Diagnostics
- High-Speed Flows; Shock waves
- Pumps, Blowers and Fans; Supercharger and Turbocharger
- Refrigeration and Air-conditioning
- Sustainable Energy
- Propulsion and Emissions
- Power Plants and Power Generation
- Energy, Exergy and Second Law
- Electronic Cooling
- Combustion & Automotive Engineering
- Heat management in electric vehicle
- Tribology and Lubricants
- Radiator and engine cooling
- Gasification and liquefaction
- Inverse heat convection
- Interaction of radiation and convection
- Conjugate heat transfer in spacecraft and energy applications.
- Nano-Fluid synthesis and characterization
- Semi solids; Molten metal and molten glass
- Process Control
- Lean Manufacturing
- Non-traditional Machining
- Additive Manufacturing
- Supply chain management

All submitted papers will be evaluated by the conference reviewer committee in terms of quality, originality of approach and relevance to the theme of the conference. After acceptance paper can be forwarded for publication to Journal of Physics: Conference Series, IOP Science.

## **Policy on PLAGIARISM**

Authors are requested to strictly avoid plagiarism in any form. Authors should submit their original and unpublished research work not under consideration for publication elsewhere. Manuscript found to be plagiarized during any stage of review shall be rejected. As per copyright transfer agreement, authors are deemed to be individually or collectively responsible for the content of manuscript published by them.



### <u>About KIIT</u>

Kalinga Institute of Industrial Technology (KIIT) is a deemed to be university located at Bhubaneswar, Odisha, India. KIIT is unique among its peer institutions in having nineteen schools co-located on one contiguous campus offering more than 100 programs including UG/PG studies in the disciplines including engineering, management, medicine and law. KIIT has been awarded Tier-1 status by NBA (AICTE), accredited with Grade 'A' by NAAC (UGC), it is an **Institute of Eminence** and has been accredited by IET, U.K.

We also take pride in being home to the largest and first tribal university of the world Kalinga Institute of Social Sciences (KISS), a protégé of KIIT which is a noble initiative of our honourable founder (KIIT/KISS) Prof. (Dr.) Achyuta Samanta. Detailed information about KIIT and KISS University can be obtained from: http://www.kiit.ac.in, http://www.kiss.ac.in/

# Select proceedings of KIIT ICTMS 2022 are already published by Springer, IJECE (Begell House) and indexed in SCOPUS

Delegates can request for virtual presentation only if paper is accepted for oral presentation.

### **About School of Mechanical Engineering, KIIT**

The School of Mechanical Engineering, KIIT possesses highly qualified and experienced faculty members from various IITs, NITs and other reputed institutions. The current consultancy and research & development areas of the school include jet and spray impingement heat transfer, droplet and spray combustion, computational fluid dynamics, mechanical systems design & optimization, biomass and biofuels (synthesis, analysis and optimization), vibration and machine condition monitoring, meta machining, metal matrix/polymer matrix composites (fabrication and characterization), metal forming. We have to our credit a good number of publications in reputed SCI/Scopus indexed journals, patents and projects funded by bodies like AICTE, DST, DRDO, Institution of Engineers (IE), Govt. of India.

## **Bhubaneswar "Temple City of India"**

With the architectural legacy of the Kalinga dynasty, Bhubaneswar boasts up with hundreds of temples including Lingaraj, Mukteswar, Raja Rani, Brahmeswar, Vital, etc. dating from 6<sup>th</sup>-13<sup>th</sup> century AD. Apart from remarkably sculptured temples, the Jain caves of Khandagiri and Udayagiri, Nandankanan zoological park, the peace pagoda 'Dhauli' on the bank of the river Daya attract visitors from all over the world. Besides, Puri, Konark along with capital city of Bhubaneswar form the three vertices of Golden Triangle of Orissa tourism circuit



### How to reach us



Campus-8, School of Mechanical Engineering, KIIT, Bhubaneswar, Odisha. PIN: 751024

# Nearest railway station and Airport

Bhubaneswar railway station: 12.5 km from KIIT.

Biju Patnaik International Airport, Bhubaneswar: 12.9 km from KIIT.

City bus service popularly known as 'Mo Bus' and App based cabs are frequently available from Airport & Railway Station.