



**MANIPAL**  
ACADEMY of HIGHER EDUCATION  
(Institution of Eminence Deemed to be University)



**UPM**  
UNIVERSITI PUTRA MALAYSIA  
BANGI, SEREMBANG



**Kyutech**  
Kyushu Institute of Technology



INTERNATIONAL CONFERENCE ON  
**COMPUTATIONAL METHODS  
IN ENGINEERING AND  
HEALTH SCIENCES**

**ICCMEH - 2024**

DECEMBER 16 - 17, 2024



**VENUE**

**Manipal Institute of Technology, Manipal**

*Organised by:*

**Department of Aeronautical & Automobile Engineering**

Manipal Institute of Technology

Manipal Academy of Higher Education (MAHE), Manipal 576 104, Karnataka, India

*in association with*

**Universiti Putra Malaysia, Malaysia**

**Kyushu Insitute of Technology, Japan**

**Cranfield University, UK**

**Universiti Malaya, Malaysia**

## OVERVIEW OF THE CONFERENCE

In the present era of remarkable technological achievements in the computational domain new techniques have been applied in the engineering and health sciences domain. There is increased necessity to solve complex problems in computational domains and obtain better results from the simulations that will be helpful to clinicians. The proposed two day International Conference on Computational Methods in Engineering and Health Sciences (ICCMEH-2024) serves the purpose of bringing together the computational scientists and engineers and medical fraternity from various interdisciplinary domains under a common forum. The latest technological advances shall be shared through a series of keynote lectures and parallel presentations. This is done to foster various types of academic collaborations. The theme of this conference will be broad (but not limited to) covering several analytical and numerical techniques, and novel applications of computational techniques to solve problems in engineering, health sciences, and other computational disciplines.

## SUSTAINABLE DEVELOPMENT GOALS

The conference aims to foster the United Nation's Sustainable Development Goals (SDGs), a shared blueprint for peace, and prosperity for the people and the planet, now and into the future



## ABOUT THE UNIVERSITY

### Manipal Academy of Higher Education (MAHE)

Manipal Academy of Higher Education (MAHE), an Institution of Eminence Deemed to be University, is a self-financing higher educational institution that started its operations in 1953 by establishing the first self-financing medical college as Public Private collaboration model. Over the years various institutions have been added and finally, in June 1993, this group of institutions have been declared as a Deemed to be University by the Govt. of India. Its excellent track record in academics, infrastructure, and research contributions and its standing in the national and international rankings, culminated in it being declared as an Institution of Eminence Deemed to be University (IoE) by the Ministry of Education, Govt. of India, in October 2020.

MAHE is synonymous with excellence in higher education. Over 35,000 students from 60+ nations live, learn, and play in the sprawling University town, nestled on a plateau in Karnataka's Udupi district. It also has nearly 3000+ faculty and almost 10000+ other support and service staff, who cater to the various professional institutions in Health

Sciences, Engineering, Information Technology & Management, Communication, Humanities, Liberal Arts, and Social Sciences, etc. which dot the Wi-Fi-enabled campus.

The MAHE has off-campus in Mangaluru, Bengaluru, and Jamshedpur and an off-shore campus in Dubai (UAE). The Mangaluru campus offers Medical and Dental programmes. The Bengaluru campus offers programmes in Regenerative Medicine, Engineering, Art & Design, Humanities, Liberal Arts, Social Sciences, Law, and Management. The Dubai campus offers programmes in Engineering, Management, Architecture, Information Sciences, Media Communication, etc.

Every institute has world-class facilities and pedagogy, which are constantly reviewed and upgraded to reflect the latest trends and developments in higher education. Presently MAHE offers about 300+ programmes in 31+ streams which include undergraduate, postgraduate, and postdoctoral levels at its campuses in India and overseas.

MAHE is an ISO 9001:2015, 14001:2015, and 50001:2018 certified Deemed University and has won the prestigious IMC Ramkrishna Bajaj National Quality Award and the International Asia Pacific Quality Award in 2007- 2008.

The Manipal Group, a pioneer in higher education services with more than six decades of experience in excellence, also owns and operates campuses in Sikkim, Jaipur in India, and Malaysia, and Antigua, in the Caribbean.

For more information, visit: <http://www.manipal.edu>

### Universiti Putra Malaysia (UPM)

Universiti Putra Malaysia (UPM) is a leading research university in Malaysia, which also well known as a world-renowned centre of learning and research. It also known as as a strategic gesture to portray the status of UPM as a centre of higher education capable of providing various fields of studies, including medicine and health science, economics and management, engineering, food science and technology, educational studies, design and architecture, computer science and information technology etc. Up-to-date, a total of 11 research cluster, 91 research programme and 241 research group across various disciplines has been established in UPM. These programmes also offered outbound scholars to postgraduate students to expose research experiences at other reputable universities overseas for building professional networks. On top of that, UPM is highly committed to the discovery of knowledge, which facilitates national development in the new millennium.

For more information, visit: [www.upm.edu.my](http://www.upm.edu.my)

## Kyushu Institute of Technology (Kyutech)

Kyushu Institute of Technology (Kyutech) was originally founded as a private institution called the Meiji College of Technology (MCT) became a national university and was renamed the Kyushu Institute of Technology in 1949. The new Faculty of Computer Science and Systems Engineering (1986) and Graduate School of Life Science and Systems Engineering (2000) were founded in addition to the already established Faculty of Engineering. Research in Master Programme in Kyutech offers advanced specialization of various engineering field included information science center, instrumental analysis, spacecraft environment interaction engineering, biomedical informatics, power electronic, socio-robotic syntheses, eco-fitting technology and etc. Kyutech also offers variety of opportunities for international collaborations and attachments for enhanced competitiveness in education and research capabilities. For more than 100 years, KIT has produced world-leading professional engineers and contributed to industrial development in Japan and abroad through research and development for creating new technologies.

For more information, visit: [www.lsse.kyutech.ac.jp](http://www.lsse.kyutech.ac.jp)

## Cranfield University (UK)

A specialist postgraduate university, with distinctive expertise in science, technology, engineering and management and in investigating how these work together to benefit the world. It has delivered applied research and innovative education by partnering with businesses, academia, government and other organisations.

The learners from over 177 countries are offered a truly global student experience with one of the best teaching ratios for any UK university - one member of academic staff to every five students.

The courses offered are renowned for their relevance to business and industry. The research and consultancy done for industry, government and business gives students a real-world learning environment using unparalleled facilities, allowing them to develop as professionals and transfer their knowledge to the global economy. 88% of our research is classed as world-leading or internationally excellent.

The School of Aerospace, Transport Systems and Manufacturing and Materials, Cranfield School of Management and the School of Water, Energy and Sustainability and Environment and Agrifood are located on the vibrant Cranfield campus.

Cranfield School of Management is a world leader in management education and research and one of an elite group of business schools worldwide to hold the triple accreditation of AACSB International, AMBA and EQUIS.

Cranfield University at Shrivenham is home to Cranfield Defence and Security. It is a secure, military site in partnership with the Defence Academy of the United Kingdom and Ministry of Defence. The staff and secure facilities are at the forefront of their fields across defence and security science, forensics, engineering and technology.

For more information, visit: <https://www.cranfield.ac.uk/>



## Universiti Malaya (UM)

is the premier university in Malaysia, first established in 1957. Its 750-acres campus lies within the heart of Kuala Lumpur city and this strategic location is truly an advantage for international academic staff and visitors. UM is a comprehensive, intensive research university with more than 34,000 students and 2,000 academic staff (both local and international) across 17 faculties, from arts and humanities to science, engineering, and medicine. As with any reputable university, UM collaborates with the other universities and industries locally and abroad to share and capitalise on leading-edge research carried out by its researchers. Over 200 programmes are offered in UM, covering the whole spectrum of learning from Arts, Sciences, and Humanities. UM has achieved top 150 in 5 broad subject areas. Universiti Malaya leads all the universities in Malaysia with 32 listed subjects. UM is also granted the self-accredited educational institutions by the Malaysian Qualifications Agency (MQA) since 2009. Our academic programmes are recognized world-wide including a number of courses that are accredited by international accreditation bodies such as Washington Accord (Engineering), and The Association of MBA (AMBA). Since 2002, the University of Malaya has maintained the MS ISO 9001:2000 certification, being the first Malaysian public higher education institution to receive a comprehensive certification for all its academic processes. With more than 500 international collaborative partners UM offered prestigious opportunities for its students whether through Student Mobility Programmes, Dual Degree, or Joint Research.

For more information, visit: <https://um.edu.my/>



## CHIEF PATRONS

**Dr. Ramdas M Pai**, Chancellor, Manipal Academy of Higher Education, Manipal

**Dr. Ranjan Pai**, Chairman, Manipal Education and Medical Group, Bengaluru

**Dr. H S Ballal**, Pro Chancellor, Manipal Academy of Higher Education, Manipal

**Lt. Gen. (Dr.) M. D. Venkatesh**, Vice Chancellor, Manipal Academy of Higher Education, Manipal

**Dato Professor. Ahmad Farhan Mohd Sadullah**, Vice Chancellor, Universiti Putra Malaysia (UPM), Malaysia.

**Prof. Dr. Yasunori Mitani**, President of Kyushu Institute of Technology, Japan

**Professor Dame Karen Holford**, Chief Executive & Vice-Chancellor, Cranfield University, Cranfield, Bedfordshire, United Kingdom.

## PATRONS

**Dr. Narayana Sabbahit**, Pro-Vice Chancellor (Technology & Science), Manipal Academy of Higher Education, Manipal

**Dr. P Giridhar Kini**, Registrar, Manipal Academy of Higher Education, Manipal

**Cdr. (Dr.) Anil Rana**, Director, Manipal Institute of Technology, Manipal

**Dr. Somashekara Bhat**, Joint Director, Manipal Institute of Technology, Manipal

**Dr. Dayananda Pai K**, Head, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

## ADVISORY BOARD

**Lt. Gen. (Dr.) M. D. Venkatesh**, Vice Chancellor, Manipal Academy of Higher Education, Manipal, India.

**Prof. Dr. Zamberi Sekawi**, Deputy Vice Chancellor (Research and Innovation), Universiti Putra Malaysia (UPM), Malaysia.

**Prof. Dr. Raghuvir Pai**, Manipal Academy of Higher Education, Manipal, India.

**Prof. Ir. Dr. Mohd Zulkifly Abdullah**, School of Mechanical Engineering, Engineering Campus, Universiti Sains Malaysia, Penang

**Assoc. Prof. Dr. Eddy Ng Yin Kwee**, School of Mechanical & Aerospace Engineering (Thermal-Fluids & Marine Engg. Cluster), Nanyang Technological University, Singapore.

**Prof. Dr. John T Solomon**, Department of Mechanical Engineering, Tuskegee University, USA

**Dr. Sarada Prasad Dakua**, Senior Research Scientist, Artificial Intelligence Unit, Surgery Department, Hamad General Hospital, Hamad Medical Corporation, Doha, Qatar.

**Dr. Prashant Waghmare**, Associate Professor and Associate Dean, Department of Mechanical and Aerospace Engineering, Carleton University, Canada.

**Prof. Narendra Deore**, Professor and Dean - Research and Development and Department of Mechanical Engineering, Pimpri Chinchwad College of Engineering, Pune, Maharashtra, India

**Dr. Anoop V Rao**, Department of Pediatrics - Neonatology, Stanford University, Palo Alto, CA, United States

**Prof. Dr. Jorge L. Alvarado**, Professor, Department of Engineering Technology and Industrial Distribution, Texas A&M University, TAMU, United States

**Prof. Dr. Suresh Sampath**, School of Aerospace, Transport & Manufacturing (SATM), Cranfield University, Bedfordshire, United Kingdom.

## CONFERENCE CHAIRS

**Prof. Ir. Dr. Haji Kamarul Arifin Bin Ahmad**, Director, Putra Science Park, Universiti Putra Malaysia (UPM), Malaysia.

**Prof. Dr. Tamagawa Masaaki**, Department of Biological Functions Engineering, Kyushu Institute of Technology, Japan

**Dr. Ramesh T Subramaniam**, Profesor Kanan, Senior Professor, Department of Physics, Faculty of Science, Universiti Malaya, Kuala Lumpur, Malaysia.

**Prof. Dr. Suresh Sampath**, School of Aerospace, Transport & Manufacturing (SATM), Cranfield University, Bedfordshire, United Kingdom.

**Prof. Dr. Satish Shenoy B**, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

## CONVENERS

**Prof. Mohammad Zuber**, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

**Assoc. Prof. Dr. Anand Pai**, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

**Assoc. Prof. Dr. Norkhairunnisa Mazlan**, Institute of Nanoscience and Nanotechnology (ION2) and Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia

**Assoc. Prof. Dr. Noorfaizal Bin Dato' Yidris** Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia

## CO-CONVENERS

**Assoc. Prof. Dr. Chethan K.N**, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

**Assoc. Prof. Dr. Laxmikanth G Keni**, Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology, Manipal

**Dr. Mohd Na'im Abdullah**, Senior Lecturer, Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia

**Dr. Adi Azriff Basri**, Senior Lecturer, Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia



## INTERNATIONAL TECHNICAL COMMITTEE

**Dr. Marcos Rodríguez Millán**, Associate Professor, Department of Mechanical Engineering, UC3M, Universidad Carlos III de Madrid, Madrid, Spain.

**Dr. Pravin K. Verekar**, Associate Professor and Head, Department of Mechanical Engineering, Don Bosco College of Engineering, Goa.

**Dr. José Antonio Loya Lorenzo**, Professor, Department of Continuum Mechanics and Structural Analysis, UC3M, Universidad Carlos III de Madrid, Madrid, Spain.

**Dr. Marta María Moure Cuadrado**, Aerospace Systems and Transport Research Group, Rey Juan Carlos University, Fuenlabrada, Madrid, Spain.

**Dr. Way Lee Cheng**, Assistant Professor, Department of Mechanical and Electromechanical Engineering, National Sun Yat-Sen University, Taiwan.

**Dr. Kumaran Kannaiyan**, Associate Professor, Mechanical Engineering, Guangdong Technion - Israel Institute of Technology (GTIT), Shantou, Guangdong Province, China.

**Dr. Chandrasekhar Sewatkar**, Associate Professor, Department of Mechanical Engineering, Govt. College of Engineering and Research, Avasari (Kh), Taluka: Ambegaon, District: Pune, Maharashtra, India.

**Mr. Vivek Patil**, Manager - Application Engineering, ANSYS Software Ltd., Pune, Maharashtra, India.

**Dr. Harris Rabbani**, Engineering Assistant Professor, Department of Petroleum Engineering Texas A&M University, Doha, Qatar

**Prof. Ir. Dr. Mohd Khairul Anuar bin Mohd Ariffin**, Department of Mechanical and Manufacturing Engineering, Faculty of Engineering Universiti Putra Malaysia (UPM), Malaysia

**Prof. Ir. Ts. Dr. Mohamed Thariq Bin Haji Hameed Sultan**, Director UPM Press and Professor, Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia

**Prof. Ir. Dr. Faizal Mustapha**, Department of Aerospace Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM), Malaysia

**Dr. Borja Valverde Marcos**, Department of Mechanical Engineering, UC3M, Universidad Carlos III de Madrid, Madrid, Spain

**Dr. Selim Gürgen**, Associate Professor, Department of Aeronautical Engineering, Eskişehir Osmangazi University, Türkiye



## COMMITTEE MEMBERS

(Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology)

Dr. Chandrakant R Kini  
Dr. Mahesha G T  
Dr. Pramod B Salunkhe  
Dr. Sriharsha Hegde  
Dr. Chandrakantha Bekal  
Dr. Anoop Kanjirakat Baby

Dr. Padmaraj N H  
Dr. Srinivas G  
Dr. Ravindra Malliya  
Asst. Prof. Jayakrishnan R  
Dr. Thara Reshma I V  
Dr. Manish Varun Yadav

Asst. Prof. Divya D Shetty  
Dr. Navya Hegde  
Dr. Manjunath Shetty  
Dr. Pallavi M

## DOCTORAL STUDENT MEMBERS

(Department of Aeronautical and Automobile Engineering, Manipal Institute of Technology)

Mr. Mirza Faizaan  
Mr. Keerthan Krishna  
Mr. Gautham A Amin  
Mr. Prathmesh Pravin Verekar  
Mr. Abhijit Kudva

Mr. Prashantha  
Mr. Deepak D Adiga  
Ms. Priyanka J C  
Mrs. G Shruthi  
Mr. Rohit N Shenoy

Mr. Nishant Vithalrao Nikam  
Mr. Sudheer  
Mr. Kenny Vishal

## CALL FOR PAPERS

Authors are required to upload a softcopy of the original full paper and unpublished research work through easy chair submission on or before 15th August 2024. The authors should mention their affiliation with corresponding addresses, email, telephone, and fax numbers. Submission of the full paper will be accepted only through easy chair submission.

The final acceptance of the paper for oral presentation will be based on peer review. Efforts are on to tie up with quality scopus indexed journals/conference proceedings.



Scan here for paper submission



Scan here for paper format

**Paper Submission Link:**

<https://easychair.org/conferences/?conf=iccmeh2024>

**Paper Format Link:**

<https://conference.manipal.edu/ICCMHEH2024/Docs/ICCMHEH-Full%20Paper%20Format.docx>

## TOPICS OF INTEREST

- Advanced Finite Element Difference/Volume Methods
- Advanced Numerical Algorithms
- Artificial Neural Networks
- Aerodynamics
- Artificial Neural Networks
- Automotive Design
- Biomimetic
- Boundary Element Methods
- Comparative Genomics
- Computational Biology and Medicine
- Computational Fluid Dynamics
- Computational Grids
- Computational Heat Transfer
- Computational Mathematics
- Computational Mechanics for Solids and Structures
- Computational Meso/ Micro/ Nano Mechanics
- Computational Rheology
- Computational Techniques for Applications in Engineering Science and other disciplines
- Computational Uncertainties
- Computer Aided Drug Design
- Computational Fluid Dynamics in Agro-environment
- Computation methods in Nanomaterials
- Data Intensive Computing Techniques
- Development of Software for Numerical Simulation
- Dental Implants and Tooth Fracture Analysis
- Dental and Medical Imaging
- Fuzzy Logic
- Health Monitoring
- High Performance Computing Techniques
- Inverse Problem Meshless/ Meshfree/ Particle Methods
- Information Systems and Hospital Management
- Medical Implants and Stent Design
- Meshless/ Meshfree/ Particle Methods
- Modelling and Simulation of Complex Systems
- Modelling of Biological Flows
- Molecular and Quantum Methods
- Multi-scale Methods
- Multiphysics
- Nano Materials and Nano Fluids
- Optimization and Statistical Analysis Tools
- Parallel and Distributed Computing
- Protein Modelling
- Sequence/Structure Pattern Recognition
- Structural Health Monitoring
- Thermal Sciences
- Uncertainty Analysis
- Validation and Verification
- Vibration and Acoustics

## REGISTRATION DETAILS (inclusive of GST)\*\*

		Early Bird (on or before 15/10/2024)	Regular (16/10/2024 to 15/11/2024)
1.	Academicians		
	Indian	INR 9,440	INR 11,800
	Foreign	USD 354 <sup>#</sup>	USD 472
2.	R & D Institutes/Industries		
	Indian	INR 11,800	INR 14,160
	Foreign	USD 472 <sup>#</sup>	USD 590
3.	Research Scholars & Students		
	Indian	INR 3,540	INR 4,720
	Foreign	USD 177 <sup>#</sup>	USD 236
4.	Spot Registration		
	Indian	INR 14,750 (Academicians)	
		INR 17,700 (R & D Institutes/Industries)	
		INR 5,900 (Research Scholars & Students)	
	Foreign	USD 572 (Academicians)	
		USD 690 (R & D Institutes/Industries)	
		USD 336 (Research Scholars & Students)	

\* Bank charges are to be borne by the payee.

# Foreign participants should register by 15th October 2024 to facilitate the visa approval process by the Government of India.

+ GST charges are not applicable for MAHE Faculty & Students.

### REGISTRATION GUIDELINES

1. Registration fee is non-refundable.
2. Registration is mandatory for all presenters.
3. Registration fee covers for a single paper presentation only.
4. Registration fee includes conference kit, presenting/participating in the conference, lunch and gala dinner.
5. Certificates will be given only to presenting authors.
6. For Co-authors certificate – extra charges will be applicable.

## IMPORTANT DATES

Full paper submission	➤ 15 <sup>th</sup> August 2024
Notification of acceptance	➤ 30 <sup>th</sup> September 2024
Early bird Registration	➤ 15 <sup>th</sup> October 2024
Last Date for Registration	➤ 15 <sup>th</sup> November 2024
Conference dates	➤ 16 <sup>th</sup> and 17 <sup>th</sup> December 2024

## ADDRESS FOR COMMUNICATION

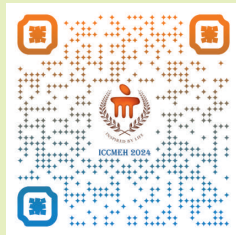
### **International Conference on Computational Methods in Engineering & Health Sciences (ICCMEH-2024)**

Department of Aeronautical and Automobile Engineering  
Manipal Institute of Technology, Manipal Academy of Higher Education  
Manipal - 576 104, Karnataka, India.

Mob: +91 9482422150 Fax: +91-820-2571071

Email: [iccmeh2024.mit@manipal.edu](mailto:iccmeh2024.mit@manipal.edu)

Website: <https://conference.manipal.edu/ICCMEH2024/>



Scan here for website

### **Venue:**

Manipal Institute of Technology,  
Manipal-Karkala Road, Eshwar Nagar,  
Manipal - 576 104, Karnataka, India



Scan here for location





## SPONSORSHIP DETAILS

Category	Indian Sponsors	Privileges
Platinum	INR 1,00,000	Logo in website and souvenir. Colour advertisement in the back page of souvenir. One exhibition stall 3m x 3m. Free registration for 3 delegates + Business meet
Gold	INR 75,000	Colour advertisement in the inside front page of souvenir. One exhibition stall 3m x 3m. Free registration for 3 delegates + Business meet
Silver	INR 50,000	Colour advertisement in the souvenir. One exhibition stall 3m x 3m. Free registration for 2 delegates + Business meet
Bronze	INR 20,000	Half page colour advertisement in the souvenir.

