ISHRAE

ANNUAL REPORT 2024-25

CONTENTS

1. Introduction

ISHRAE TKMCE: "Student Leaders in HVAC&R"

The Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE), was founded in 1981 at New Delhi by a group of eminent HVAC&R professionals. Since its inception in 1981, ISHRAE has served as a pivotal platform for professionals, engineers, and stakeholders to converge, exchange insights, and champion exemplary standards in the domain.

Through a multifaceted approach encompassing seminars, conferences, publications, and educational initiatives, ISHRAE fosters an environment conducive to innovation and sustainable practices within the HVAC&R sector. This, in turn, contributes significantly to the holistic development of India's built environment.

Parallel to this, the ISHRAE TKMCE chapter emerges as a dynamic student-led organization affiliated with ISHRAE. Tailored to the specific context of TKM College of Engineering (TKMCE), this chapter serves as a conduit for students keenly interested in the intricacies of HVAC&R technology.

By orchestrating a plethora of workshops, seminars, industrial excursions, and technical competitions, ISHRAE TKMCE meticulously cultivates the knowledge and expertise of aspiring professionals in heating, ventilation, air conditioning, and refrigeration. These activities are strategically designed to bridge the academia-industry gap, empowering students with the practical acumen and innovative mindset indispensable for successful careers in the HVAC&R domain.

In doing so, ISHRAE TKMCE not only nurtures the future workforce but also fosters a culture of ingenuity and sustainability within the field, thereby leaving an indelible mark on India's HVAC&R landscape.

2. Executive Committee Members 2024-2025

President: Aswin Sasidharan

President Elect: Satvik G

Secretary: Faheem Ameen P O

Joint Secretary: Abishek S

Treasurer: Akshay Ashok

Documentation Head: Gautham Sen

Program Head: Farhan Dileep

Technical Head: Devadath RS

Media Head: Redwan Abdul Rahim

Design Head: Stervin G Solomon

Publicity Head: Abaan Pallikkadan

Membership Head: P S Souparnika

Alumni Coordinator: Deepak Anilkumar

Program Team: Gopika V Nair, Revathy M D

Technical Team: John Joy

Media Team: Mohamed Aqeel CV, Sidharth Krishna

Documentation Team: Sherin Thomas, Angel Eby

Design Team: Raahul Samjath, Aravind Suresh, Akshay Aneesh

3. Report on ACREX India 2025 – ISHRAE TKMCE

Our team had the remarkable opportunity to attend ACREX India 2025, South Asia's largest HVAC & Refrigeration Exhibition, held from February 20-22 at the Bangalore International Exhibition Centre (BIEC). This prestigious event served as a platform to explore groundbreaking innovations in HVAC, refrigeration, and sustainable building technologies, while also providing invaluable networking opportunities with industry leaders and experts.

Key Takeaways from the Event

The exhibition showcased cutting-edge advancements in energy-efficient HVAC systems, smart automation, and sustainable cooling solutions. From AI-integrated climate control to next-generation refrigerants, we explored various technologies shaping the future of the industry. Engaging with exhibitors and attending technical discussions broadened our understanding of global trends, innovative solutions, and the importance of sustainability in HVAC applications.

ISHRAE TKMCE's Representation

Our visit was made even more impactful by the dedicated involvement of our ISHRAE TKMCE EXECOM members—Satvik G, Gopika V Nair, Angel Eby, Akshay Aneesh, and Sidharth Krishna. Their enthusiasm and leadership played a vital role in facilitating meaningful discussions with industry professionals, enhancing our learning experience, and strengthening our connections within the HVAC community.

A Transformative Learning Experience

Witnessing live demonstrations, interacting with professionals, and gaining firsthand exposure to emerging technologies were some of the most enriching aspects of our visit. This experience has not only deepened our technical knowledge but has also fueled our passion for innovation and sustainability in HVAC and refrigeration.


STUDENTS @ ISHRAE
TKMCE STUDENTS CHAPTER
At ACREX India 2025
Hall
ACREX India 2025
BIEC, Bengaluru
Our ISHRAE Execom members had the incredible opportunity to visit ACREX India 2025, South Asia's largest HVAC & Refrigeration Exhibition, held from February 20-22 at Bangalore International Exhibition Centre.
ishrae_tkmce


ISHRAE
informa markets
ACREX India 2025
20 - 22 February
HALL 4 & 5
UNLEASHING INDIA'S
POTENTIAL FOR A RESPONSIBLE
BUILT ENVIRONMENT
South Asia's Largest Exhibition On
Air Conditioning, Heating,
Ventilation And Intelligent Buildings

Conclusion

Attending ACREX India 2025 was a transformative experience for our team, equipping us with insights that will contribute to both our academic and professional growth. The knowledge gained will undoubtedly inspire us to explore innovative solutions in the field of HVAC and beyond.

4. Ignite Your Future Talk session

The event "Ignite Your Future: Opportunities in HVAC Engineering", held on July 3, 2024, was a remarkable success, drawing participants from diverse academic backgrounds eager to explore the dynamic field of HVAC Engineering. The session featured an engaging discourse by Noushad Hussain M, who shared his extensive industry expertise, providing valuable insights into emerging trends, technological advancements, and career prospects in the field.

The event commenced with a warm welcome from the organizers, followed by an introduction to the distinguished speaker. Noushad Hussain M delivered a comprehensive presentation, covering key topics such as:

- Sustainable HVAC practices and their growing importance in modern infrastructure.
- Energy-efficient systems and technological innovations shaping the industry.
- Diverse career opportunities available in the HVAC sector.

The session was highly interactive, featuring an engaging Q&A segment where students actively participated in discussions, seeking guidance on various aspects of HVAC Engineering. The speaker’s enthusiasm and expertise were evident throughout the presentation, leaving a lasting impact on attendees and inspiring many to consider a career in this rapidly evolving industry.

Outcome:

The session successfully achieved its objective of enlightening participants about the vast career prospects and technological advancements in HVAC Engineering. Attendees gained industry-oriented knowledge, while the session provided a valuable platform for networking, mentorship, and professional growth.

Conclusion:

The event concluded with a heartfelt vote of thanks from the organizing team, acknowledging the contributions of the speaker, faculty coordinators, and student coordinators (Akshay and Angel). Participants expressed their appreciation for the insightful career guidance and looked forward to future initiatives that strengthen the link between academia and industry. With this successful

initiative, ISHRAE TKMCE, Kollam reaffirmed its dedication to enhancing student knowledge and professional readiness in the ever-expanding HVAC field. Looking ahead, the organization remains committed to hosting more enlightening sessions, fostering a culture of continuous learning and technical excellence among students.

5. HVAC Horizon: Engineering Excellence

The ISHRAE Students Chapter at TKM College of Engineering successfully organized the HVAC HorizonQuiz Competition as part of its initiative to enhance students' knowledge in the field of Heating, Ventilation, and Air Conditioning (HVAC). The event was designed to test participants' technical understanding and awareness of recent trends in the HVAC industry.

The primary aim of the HVAC Horizon Quiz Competition was to encourage students to explore and deepen their knowledge of HVAC systems while providing a competitive platform for learning. The quiz covered a comprehensive range of topics, including fundamental HVAC principles, system design, energy efficiency, refrigeration cycles, emerging technologies, and industry advancements. By participating in this event, students had the opportunity to apply their theoretical knowledge, enhance their analytical skills, and stay updated on the latest developments in the field.

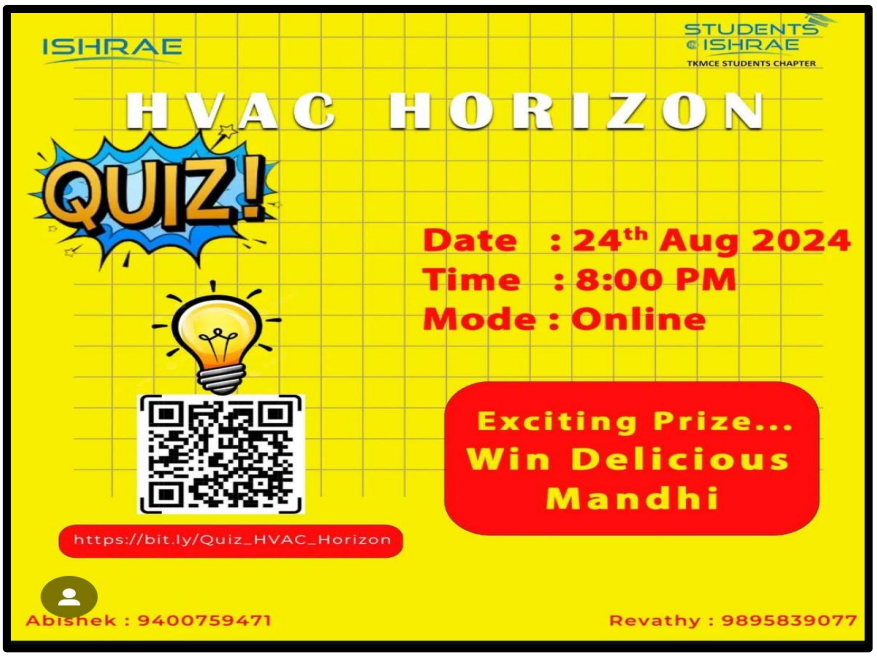
A total of 20 students from various departments took part in the competition, making it a highly interactive and knowledge-driven event. The quiz was conducted in multiple rounds, each designed to evaluate different aspects of HVAC concepts and applications. The participants displayed a strong understanding of the subject and actively engaged in the competition, answering challenging questions that tested their depth of knowledge.

The winner

After an intense and competitive set of rounds, Mr. S. Govind emerged as the winner of the HVAC Horizon Quiz Competition. His ability to answer complex questions with accuracy and confidence demonstrated his strong grasp of HVAC principles and technical concepts. As a recognition of his outstanding performance, he was awarded a certificate of achievement.

Conclusion

The success of the HVAC Horizon Quiz Competition reflects the commitment of the ISHRAE Students Chapter at TKM College of Engineering to promoting technicaleducation and industry-oriented learning. Events like these encourage students to think critically, stay informed about advancements in HVAC systems, and develop problem-solving skills applicable to real-world engineering challenges. The ISHRAE chapter looks forward to organizing more such initiatives in the future to continue nurturing curiosity and technical expertise among students


ISHRAE
STUDENTS @ ISHRAE
TKMCE STUDENTS CHAPTER
HVAC HORIZON
QUIZ!
Date : 24th Aug 2024
Time : 8:00 PM
Mode : Online
Exciting Prize...
Win Delicious
Mandhi
https://bit.ly/Quiz_HVAC_Horizon
Abishek : 9400759471
Revathy : 9895839077


Congratulations
STUDENTS @ ISHRAE
TKMCE STUDENTS CHAPTER
HVAC HORIZON QUIZ
Your outstanding achievement is commendable. Wishing you continued success
1ST
S. GOVIND
M7C
WINNER

6. Webinar on Indoor Air Quality and Health

Summary

On August 26, the ISHRAE Students Chapter at TKM College of Engineering organized an engaging webinar on Indoor Air Quality and Health. The session featured Mr. Akshay MV, Senior Engineer at Blue Star Limited, who shared valuable insights on the crucial link between indoor air quality (IAQ) and overall well-being.The primary objective of the webinar was to raise awareness about the impact of air quality on human health and the role of Electro-Mechanical Projects in creating healthier indoor environments. Mr. Akshay's presentation covered various aspects of IAQ, including its significance in different spaces, health effects of poor air quality, and advanced solutions like HEPA filters, air purifiers, and HVAC systems to improve IAQ.The session also featured an interactive Q&A session, where attendees discussed air quality monitoring tools, IAQ's importance in post-COVID times, and preventive measures for better indoor environments.

Outcome

The webinar witnessed an excellent turnout, with active participation from engineering students and professionals across various disciplines. Attendees gained a deeper understanding of the role of IAQ in promoting health and were introduced to modern technologies that help maintain air quality.

Additionally, the event reinforced the ISHRAE Student Chapter's commitment to spreading awareness about critical issues in the HVAC&R industry.

Conclusion

The webinar successfully highlighted the importance of Indoor Air Quality (IAQ) and its impact on health, providing attendees with valuable knowledge and practical solutions for improving air quality in different environments.

The session concluded with a vote of thanks from the ISHRAE team, expressing gratitude to Mr. Akshay MV for his insightful presentation and to the participants for their active engagement. The event added significant value to the ongoing efforts of ISHRAE in promoting awareness about air quality, environmental sustainability, and advancements in the HVAC&R industry.


DEPARTMENT OF
MECHANICAL ENGINEERING
STUDENTS ISHRAE
TKMCE STUDENTS CHAPTER
BLUE STAR
TALK
SESSION
ON
INDOOR AIR
QUALITY &
HEALTH
26th AUGUST 2024
7:00 PM
REGISTER AT
https://bit.ly/Indoor_Air_Quality_and_Health
AKSHAY MV
SENIOR ENGINEER
MECHANICAL ENGINEERING
ELECTRO MECHANICAL PROJECTS
BLUE STAR LIMITED
Satvik: 9207747787
Gopika: 8848233298

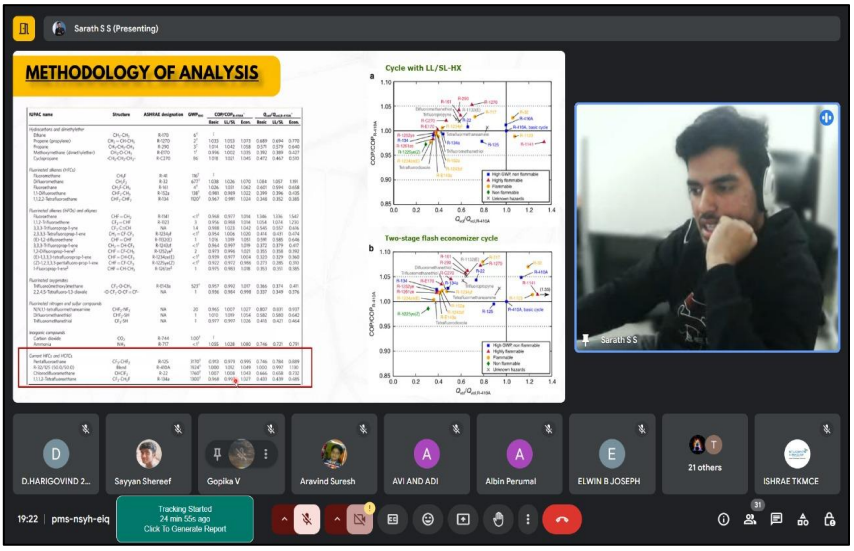
7. CREATING A GREEN REVOLUTION: UNDERSTANDING LOW GWP REFRIGERANTS

The ISHRAE TKMCE Students Chapter, in association with the Department of Mechanical Engineering at TKM College of Engineering, Kollam, successfully organized an insightful online talk session on *"Insight to Low GWP Refrigerants."* The session was held on 28th December from 7:00 PM to 8:00 PM and featured Sarath S S, a distinguished alumnus of TKMCE and a Combined MS/PhD Student & Researcher at the Smart Refrigeration and Control Lab, Kookmin University, Seoul, South Korea.

The session primarily focused on the significance of Low Global Warming Potential (GWP) refrigerants in the field of refrigeration and air conditioning. Sarath S S provided an in-depth understanding of the need to transition towards environmentally sustainable refrigerants and discussed the latest advancements in refrigeration technology. His presentation highlighted the impact of conventional refrigerants on climate change and the importance of adopting low-GWP alternatives to mitigate environmental damage. The event witnessed active participation from students, faculty members, and aspiring researchers who were keen to learn about the future of refrigeration and sustainable cooling solutions. The session offered a unique opportunity for attendees to gain insights into cutting-edge developments in refrigeration technology and their global implications. The engaging discussion encouraged students to explore innovative solutions that align with international sustainability goals.

The session concluded with a Q&A segment, where participants interacted with the speaker, asking insightful questions about the industry's future, research opportunities, and challenges in implementing low-GWP refrigerants. The talk session proved to be an enriching experience, providing valuable knowledge and inspiration to those interested in the field of HVAC and refrigeration. ISHRAE TKMCE Students Chapter extends its sincere gratitude to Sarath S S for sharing his expertise and to all participants for their enthusiastic engagement. This event marked another successful initiative towards promoting awareness of sustainable cooling solutions and advancing knowledge in the field of refrigeration engineering.


DEPARTMENT OF MECHANICAL ENGINEERING
TKM COLLEGE OF ENGINEERING, KOLLAM
STUDENTS ISHRAE
TKMCE STUDENTS CHAPTER
Talk Session on
Insight to Low GWP Refrigerants
SARATH S S
Combined MS PHD Student / Researcher,
Smart Refrigeration and Control Lab , Kookmin University,
Seoul, South Korea
Date : 28th December
Time : 7:00pm
Mode : Online
Satvik: 9207747787
Abishek: 9400759471


Sarath S S (Presenting)
METHODOLOGY OF ANALYSIS
Cycle with LL/SL-HX
Two-stage flash economizer cycle
Sarath S S
D.HARIGOVIND 2...
Sayyan Shereef
Gopika V
Aravind Suresh
AVI AND ADI
Albin Perumal
ELWIN B JOSEPH
21 others
ISHRAE TKMCE
19:22 | pms-nsyh-eiq
Tracking Started
24 min 55s ago
Click To Generate Report

8. Unlock the Power of HVAC – Talk Session on Exploring Career Opportunities!

On February 1st, 2025, an enlightening and informative online session titled "Unlock the Power of HVAC – Explore Career Opportunities!" captivated the audience, offering invaluable insights into the dynamic field of Heating, Ventilation, and Air Conditioning (HVAC).

The event was conducted online, allowing students from various disciplines to participate and gain industry-oriented knowledge from the comfort of their homes.

The session was graced by the esteemed presence of Mohammed Imran, Senior Manager - Sales, York Chillers, Johnson Controls India Pvt Ltd, Hyderabad, India. His extensive expertise and profound knowledge illuminated the diverse career prospects within the HVAC industry. Imran's engaging discourse not only shed light on the current landscape of HVAC but also navigated through the intricate pathways that aspiring professionals could explore to carve a successful career trajectory in this rapidly evolving sector.

Furthermore, the session was enriched by the faculty coordinators, Dr. Rijo Jacob Thomas and Prof. Rizwan Rasheed. Their academic expertise provided a strong technical foundation, complementing the industry-oriented insights shared by the speaker.

Throughout the session, attendees were provided with a comprehensive overview of the multifaceted realm of HVAC, encompassing:

The significance of HVAC in various industries.

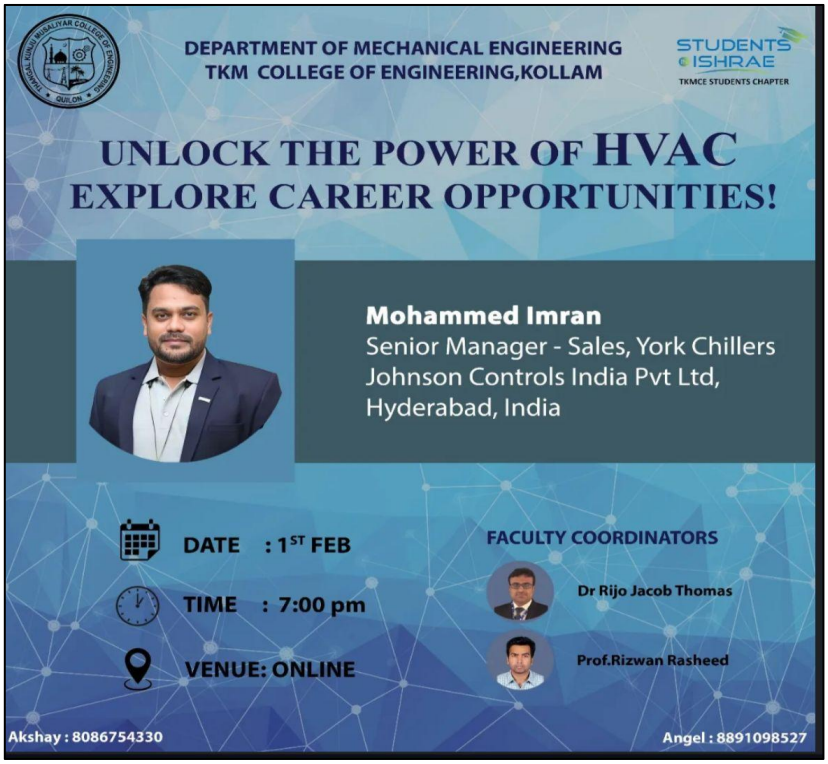
- The evolving technological landscape in HVAC.
- The myriad career avenues available in the sector.
- Essential skills and qualifications required to excel in the field.
- The future scope of HVAC, including advancements in sustainable technologies and energy-efficient systems.

From exploring the intricacies of thermal comfort to unravel the complexities of air quality management, each facet of HVAC was meticulously dissected. The session also included an

interactive Q&A segment, where students engaged in discussions on industry trends and professional growth strategies.

The event concluded with a vote of thanks from the organizing team, acknowledging the contributions of the speaker, faculty coordinators, and student coordinators (Akshay and Angel). Participants expressed their appreciation for the valuable career guidance provided and looked forward to future sessions aimed at bridging the gap between academia and industry.

With this insightful online session, ISHRAE TKMCE reaffirmed its commitment to enhancing student knowledge and professional readiness in the ever-expanding field of HVAC.



9. CFD ONLINE ADD ON COURSE – ANSYS FLUENT

On 8TH March, 2025, another informative session on “Ansys fluent” was conducted. The session was the latest among the series held as an online add on course in CFD. The session provided valuable insights as well as a deeper understanding of the various facets of Ansys fluent, with this session in particular focusing on the various models of fluent such as the K-Omega model, epsilon model, which are to be used based on the requirements of the simulation.

As with previous sessions, this session to was conducted online, allowing a large crowd of enthusiastic students to take part in it and gain further insights and build on their understanding of Fluent. The session started at 2:00 pm and continued on for the next three hours until 5pm. The session was hosted by our esteemed host Mr. Sreejan M.

He started the session by simulating a practical fluid flow problem, utilizing the resources provided by Ansys fluent with a flair and experience to back it up, all the while explaining the various aspects of solving the problem in detail and answering queries. Once he had explained and completed the simulation of the problem, he moved on to the main topic of the day, which was the introduction of various “modules and tools” of Ansys fluent which are to be used depending on the problem at hand. He started of with introducing the concept of modules and answering queries and then moved on to their practical applications. Mr Sreejan explained that the key to effectively using Ansys fluent was the ability to identify which module is to be used when and where. The various models discussed included the K-Omega and Epsilon models. He then ended the session with a brief summary of what all was taught during the session. To summarise the topics covered:

a. An introduction to Ansys
b. Simulation of a fluid flow problem
c. Introduction of Modules and tools
d. Explaining practical applications and advantages of using Modules in Fluent simulations

This session like previous sessions built up a deeper understanding and practical exposure of Ansys fluent among the participants, who actively interacted with the host throughout the session enthusiastically. The final minutes of the session was allotted for queries and doubt clearance,

during which the students asked relevant questions regarding the subject matter. The event concluded on time, with the host replying that he will intimate the timings of the next sessions soon. With another successful online session being completed, ISHRAE TKMCE reaffirmed its commitment to further enhance the student knowledge and professional readiness in the ever - expanding field of CFD

10.ADD ON COURSE CFD USING ANSYS FLUENT

On 21 January, 2025, another informative session on “Ansys fluent” was conducted. The session was the latest among the series held as an offline add on course in CFD. The session provided valuable insights as well as a deeper understanding of the various facets of Ansys fluent, with this session in particular focusing on the various models of fluent such as the K-Omega model, epsilon model, which are to be used based on the requirements of the simulation.

As with previous sessions, this session to was conducted offline, allowing a large crowd of enthusiastic students to take part in it and gain further insights and build on their understanding of Fluent. The session started at 4:10 pm and continued on until 5:30pm. The session was hosted by our esteemed host Mr. Reby Roy, and held in the CFD lab.

Mr. Reby Roy started the session by simulating a practical fluid flow problem, utilizing the resources provided by Ansys fluent with a flair and experience to back it up, all the while explaining the various aspects of solving the problem in detail and answering queries. Once he had explained and completed the simulation of the problem, he moved on to the main topic of the day, which was the introduction of various “modules and tools” of Ansys fluent which are to be used depending on the problem at hand.

He started of with introducing the concept of modules and answering queries and then moved on to their practical applications. Mr Roy explained that the key to effectively using Ansys fluent was the ability to identify which module is to be used when and where. The various models discussed included the K-Omega and Epsilon models. He then ended the session with a brief summary of what all was taught during the session. To summarise the topics covered:

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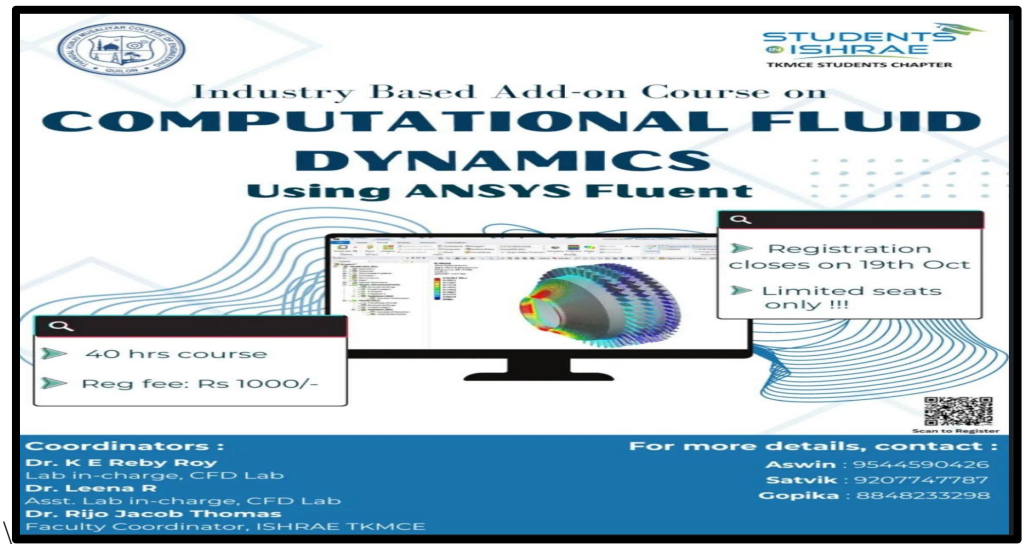
STUDENTS ISHRAE
TKMCE STUDENTS CHAPTER
Industry Based Add-on Course on
COMPUTATIONAL FLUID DYNAMICS
Using ANSYS Fluent
Registration closes on 19th Oct
Limited seats only !!!
40 hrs course
Reg fee: Rs 1000/-
Scan to Register
Coordinators :
Dr. K E Reby Roy
Lab in-charge, CFD Lab
Dr. Leena R
Asst. Lab in-charge, CFD Lab
Dr. Rijo Jacob Thomas
Faculty Coordinator, ISHRAE TKMCE
For more details, contact :
Aswin : 9544590426
Satvik : 9207747787
Gopika : 8848233298


GPS Map Camera
Kollam, Kerala, India
Wj6j+xjc, Karicode, Peroor, Kerala 691005, India
Lat 8.91322° Long 76.631657°
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Google

ISHRAE TKMCE 2024-25 FAREWELL

ISHRAE TKMCE conducted a warm and memorable farewell ceremony to thank and appreciate the efforts of our outgoing EXECOM members. It was a special evening to celebrate their dedication, hard work, and the achievements they made during their time with us.

The program began with a welcome speech by our current Secretary, Mr. Abishek, who shared a few kind words about the outgoing team and their journey amd then followed by president Satvik G shared insights on chapters success and future endeavors.Following this, farewell messages were delivered by Dr. Rijo Sir and Rizwan Sir, who appreciated the outgoing members for their valuable contributions and encouraged them to continue doing great things in the future.

From the side of the final-year EXECOM team, Mr. Aswin (President) and Mr. Faheem (Secretary) shared their experiences, memories, and heartfelt thanks to all who supported them throughout their journey. As a token of appreciation, the outgoing members were felicitated. The event ended with a cake-cutting ceremony and a photo session, capturing the joyful moments of the evening.

We thank our seniors for their amazing support and wish them all the best for the future.

12. Conclusion

The active involvement of ISHRAE TKMCE has played a pivotal role in enhancing students' knowledge and understanding of HVAC (Heating, Ventilation, and Air Conditioning) technologies. By bridging the gap between theoretical concepts and practical applications, the organization has significantly contributed to students' academic growth and industry readiness.

Building upon this success, ISHRAE TKMCE remains steadfast in its mission to provide students with continued opportunities for learning and professional development. Plans are already in place to host a series of technical workshops, expert lectures, hands-on training sessions, and industrial visits in the coming year. These initiatives aim to expose students to the latest advancements in HVAC systems, energy-efficient technologies, and sustainable practices, ensuring they stay updated with industry trends.

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Through these efforts, ISHRAE TKMCE continues to foster a culture of innovation, technical excellence, and lifelong learning, empowering students with the skills and insights necessary to thrive in the ever-evolving HVAC industry. By offering a platform for knowledge-sharing, networking, and mentorship, the organization is committed to shaping the next generation of skilled HVAC professionals, equipping them with both technical expertise and industry-relevant competencies.