



ANNUAL REPORT 2023-24

Submitted by:
ISHRAE
TKMCE CHAPTER

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1.ISHRAE TKMCE: "Uniting Students for HVAC&R Excellence"

ISHRAE, or the Indian Society of Heating, Refrigerating, and Air Conditioning Engineers, stands as a cornerstone professional society committed to propelling the HVAC&R industry within India forward. 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 diligently nurtures an environment conducive to innovation and sustainable practices within the HVAC&R sector, thereby contributing 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.

More than mere academic pursuits, 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.ISHRAE TKMCE Chapter Reinstallation and Orientation Ceremony

The ISHRAE Chapter convened for its Reinstallation and Orientation Ceremony on October 4, 2023, marking a pivotal moment in its ongoing journey. This event saw the induction of fresh faces into the Executive Committee (Execom), who solemnly pledged their commitment to their roles. Mr. Godwin Francis was inaugurated as the President of the Student Chapter, assuming leadership alongside other newly appointed Execom members.

The ceremony kicked off with a gracious Welcome Speech delivered by Prof. Rizwan Rasheed, the Coordinator of the ISHRAE Student Chapter at TKMCE. Er. Shafi R, Assistant Manager at L&T Infrastructure, then officially inaugurated the Reinstallation of the Student Chapter, setting the tone for the proceedings.

Throughout the event, various activities unfolded, including an insightful presentation of the activity report by Godwin Francis, offering a glimpse into the chapter's recent endeavors. Mohammed Sajin led a Technical Talk Session, providing attendees with valuable insights into the field. Shahudheen, President of the Kollam Sub-chapter, also contributed by sharing his perspectives.

Throughout the event, a diverse array of activities enriched the experience of participants. Godwin Francis's presentation of the activity report served as a testament to the hard work and dedication of the outgoing committee, while also laying a foundation for future endeavors. Mohammed Sajin's Technical Talk Session provided attendees with invaluable insights and expertise, enriching their understanding of the HVAC&R field.

The perspectives shared by Shahudheen, President of the Kollam Sub-chapter, added depth and diversity to the discourse, highlighting the interconnectedness of ISHRAE's global community. Dr. Rijo Jacob Thomas's felicitation speech echoed the sentiments of gratitude and pride, acknowledging the collective effort behind the success of the chapter.

Dr. Rijo Jacob Thomas, the Coordinator of the ISHRAE Student Chapter at TKMCE, delivered a heartfelt felicitation speech, underscoring the significance of the occasion in advancing the mission of the organization. Gokul GS, Program Head of the ISHRAE Student Chapter at TKMCE, then addressed the gathering, elucidating the chapter's objectives and aspirations for the future.

The Vote of Thanks was graciously extended by Faheem Ameen, Secretary of the ISHRAE Student Chapter at TKMCE, expressing sincere gratitude to all participants for their invaluable contributions and unwavering support.

This ceremony not only celebrated past achievements but also set a promising trajectory for the continued dedication of ISHRAE TKMCE towards fostering knowledge and opportunities in the HVAC&R field.



3.Executive Committee Members 2023-24

President: Godwin Francis

President Elect: Aswin Sasidharan

Secretary: Faheem Ameen PO

Treasurer: Ayush Jayaraj

Documentation Heads: Sarath S S, Gautham Sen

Program Heads: Gokul G, Hemanth PM, Farhan Dileep

Technical Heads: Aravind R, Subin Suresh, Devadath RS

Media Heads: Thomas M Kolethu, Akshay Ashok

Design Heads: Stervin G Solomon, Rahul Samjith



4.REFCOLD INDIA 2023 Exhibition

The representatives from ISHRAE TKMCE, Faheem Ameen and Farhan Dileep, both in their third year of Mechanical Engineering, showcased commendable enthusiasm and dedication as they participated in the prestigious REFCOLD INDIA 2023 exhibition, which took place in Chennai on October 12th and 13th. This event wasn't merely a gathering; it stood as a beacon of knowledge exchange, igniting the flames of creativity, and fostering collaborations within the industry's vibrant landscape.

With a thirst for learning and a drive for excellence, Faheem and Farhan embraced the opportunity to immerse themselves in the rich tapestry of discussions and engagements that unfolded at the exhibition. As they navigated through the bustling corridors and vibrant booths, they found themselves at the epicenter of innovation and progress in the HVAC&R sector.

The REFCOLD INDIA 2023 exhibition was more than just a showcase of products and services; it was a melting pot of ideas, insights, and expertise. Faheem and Farhan seized every moment to interact with industry experts, exchanging perspectives, and delving deep into the nuances of the field. These interactions weren't merely superficial; they were profound engagements that enriched their understanding and broadened their horizons.

One of the most remarkable aspects of their participation was their proactive approach to seek out potential collaborators. With a keen eye for synergy and a knack for forging meaningful connections, Faheem and Farhan engaged with representatives from various sectors, exploring avenues for future collaborations. These discussions weren't confined to the exhibition floor; they extended beyond, laying the groundwork for enduring partnerships that could potentially reshape the landscape of the industry.

Through their active participation and unwavering dedication, Faheem and Farhan exemplified ISHRAE TKMCE's steadfast commitment to remaining at the forefront of industry trends and innovations. By immersing themselves in such platforms, they not only enriched their own professional insights but also contributed to the collective growth and advancement of the HVAC&R sector.

The significance of their participation transcended mere networking; it was a testament to their passion for excellence and their relentless pursuit of knowledge. As they exchanged ideas, absorbed insights, and forged connections, Faheem and Farhan emerged as ambassadors of innovation, carrying forth the torch of progress that illuminates the path ahead for ISHRAE TKMCE and its members.

Beyond the tangible outcomes of their participation, Faheem and Farhan's journey at the REFCOLD INDIA 2023 exhibition was a testament to the transformative power of experiential learning. Through their interactions and engagements, they didn't just acquire knowledge; they internalized it, allowing it to shape their perspectives and guide their future endeavors.

In essence, their participation in the exhibition was a microcosm of ISHRAE TKMCE's overarching mission - to empower its members with the tools, insights, and connections needed to thrive in a dynamic and ever-evolving industry landscape. As they return from the exhibition, enriched with experiences and inspired by insights, Faheem and Farhan carry with them not just memories but a renewed sense of purpose and a commitment to driving positive change in the HVAC&R sector.



5. 'Venture into Ventilation' Talk Session

On November 23rd, 2023, an enlightening and informative talk session titled "Venture into Ventilation" captivated the audience, offering invaluable insights into the dynamic field of Heating, Ventilation, and Air Conditioning (HVAC).

The event was graced by the esteemed presence of Mohammad Sajin, President of the ISHRAE Kollam Chapter, whose extensive expertise and profound knowledge illuminated the diverse career prospects within the HVAC industry. Sajin'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 burgeoning sector.

Furthermore, the session was enriched by the erudition of Dr. Rijo Jacob Thomas, an esteemed Assistant Professor in the Mechanical Engineering Department. Dr. Thomas, with his scholarly acumen and passion for the subject matter, delved into the fundamental concepts underpinning HVAC systems.

His elucidation on the core principles, mechanisms, and technological advancements within HVAC not only deepened the audience's understanding but also ignited a fervent curiosity to delve further into this multifaceted domain.

Throughout the session, attendees were provided with a comprehensive overview of the multifaceted realm of HVAC, encompassing its significance in various industries, its evolving technological landscape, and the myriad career avenues it presents.

From exploring the intricacies of thermal comfort to unravelling the complexities of air quality management, each facet of HVAC was meticulously dissected, offering attendees a panoramic view of the field's vast potential and opportunities.

6.Industrial Visit to Trivandrum International Airport HVAC System

Introduction:

The Industrial Visit to Trivandrum International Airport was organized by ISHRAE TKMCE for the students to gain exposure to HVAC (Heating, Ventilation, and Air Conditioning) systems implemented at the airport. The visit aimed to provide practical insights into the functioning, maintenance, and challenges faced in managing HVAC systems in a large-scale facility such as an international airport. The visit aimed to bridge the gap between classroom learning and practical industry applications, focusing specifically on the challenges and innovations within HVAC systems at a bustling international airport.

Participants:

The visit saw enthusiastic participation from 47 students pursuing BTech in Mechanical Engineering from TKM College of Engineering, Kollam, accompanied by following faculty members

(1) Dr Rijo Jacob Thomas (ISHRAE-TKMCE Faculty Coordinator)

(2) Prof Resmi S L

(3) Prof Ajimshad A

and representatives from ISHRAE TKMCE.



Activities and Observations:

Comprehensive Airport Infrastructure visit: The visit commenced with an extensive visit of the airport's terminal buildings, where students were exposed to various HVAC installations such as air handling units, chillers, ductwork, and sophisticated control systems.

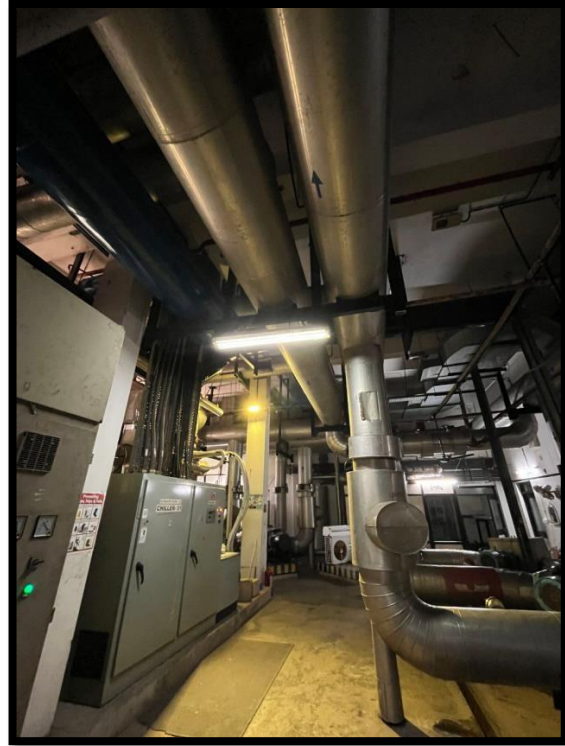
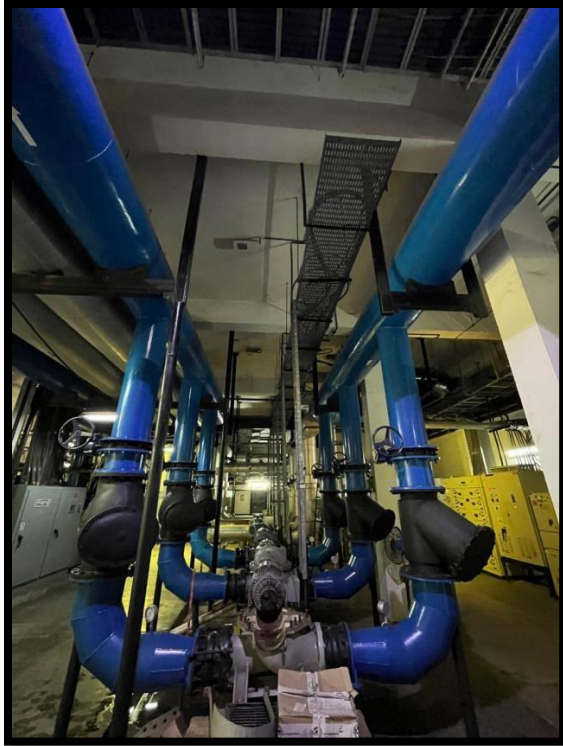
The guided visit emphasized the critical role of HVAC systems in maintaining a comfortable and healthy indoor environment for passengers, staff, and visitors amidst varying external conditions.

Technical Sessions and Interactive Discussions: Engaging technical sessions were conducted by industry experts and airport maintenance personnel, shedding light on the design principles, operational nuances, maintenance protocols, and troubleshooting strategies associated with HVAC systems at the airport.

Interactive discussions allowed students to delve into topics such as energy management practices, indoor air quality monitoring, HVAC automation, and compliance with environmental regulations.

Case Studies and Best Practices Showcase: The visit also included presentations showcasing successful HVAC projects, energy-saving initiatives, and sustainable practices implemented at the airport.

Real-life case studies provided insights into innovative HVAC designs, retrofits for energy efficiency, and smart technologies adopted for effective system management, aligning with global sustainability goals.



Technical Sessions:

Our visit to the airport's HVAC system provided a fascinating glimpse into the intricate network that ensures passenger comfort and safety. A robust power supply is paramount, achieved through a synchronized network of four generators controlled by a centralized PLC system. This ensures uninterrupted operation even in the event of an individual generator malfunction.

For the equally critical function of supplying clean drinking water, a hydro-pneumatic pump system, also managed by a PLC, maintains consistent pressure throughout the airport. Safety measures are meticulously integrated throughout the system. Air Circuit Breakers (ACBs) act as sophisticated, electronically controlled fuses, automatically isolating faults and preventing

damage. Additionally, Y strainers, rubber bellows, and dedicated inlet and outlet valves ensure proper filtration and precise flow control, safeguarding the integrity of the water supply.

The core of the cooling system lies in a highly efficient shell and tube heat exchanger arrangement. This design features an insulated evaporator, maximizing cooling effectiveness, while the non-insulated condenser allows for optimal heat dissipation.

Beyond environmental control, this visit shed light on the airport's fire safety measures. The jockey pump plays a vital role, maintaining constant pressure in the sprinkler system for immediate response in case of a fire. For enhanced reliability, a diesel-generated pump provides a backup source of water to the sprinkler system, ensuring it remains operational even during a power outage. Pot strainers and vice strainers further enhance safety by preventing debris accumulation within the sprinkler system pipes, which could otherwise hinder water flow during a fire emergency.

Finally, the efficient operation of the cooling tower, a separate unit that rejects heat to the atmosphere, functions through natural convection. This visit served as a valuable learning experience, showcasing the sophisticated and well-coordinated systems that contribute to a comfortable and safe environment for countless airport passengers every day.



7. ISHRAE PREMIER LEAGUE (IPL)

The ISHRAE Premier League (IPL) 2024 Cricket Championship took place with much anticipation and excitement on the 27th of April at the prestigious The Oval Turf, nestled in the serene locale of Kazhakkootam, Thiruvananthapuram. This event served as a vibrant platform for cricket enthusiasts from various backgrounds to come together and showcase their skills, camaraderie, and sportsmanship.

Among the teams that actively participated in this exhilarating championship was the ISHRAE TKMCE chapter, whose spirited performance propelled them to the semifinals, marking a significant achievement in their journey through the tournament. Their impressive display on the field not only reflected their dedication and passion for the sport but also earned them recognition and applause from fellow participants and spectators alike.

The experience garnered by the members of the ISHRAE TKMCE chapter during their participation in the IPL 2024 Cricket Championship was invaluable. Beyond the thrill of competitive cricket, this event provided them with a unique opportunity to network and forge connections with peers and professionals from other ISHRAE Chapters. Such interactions fostered a sense of camaraderie and collaboration, enriching their overall experience and expanding their horizons within the ISHRAE community.



8.ISHRAE TKMCE 2023-24 Farewell Photos



CONCLUSION

The engagement of ISHRAE TKMCE has undeniably enriched the understanding of students in HVAC (Heating, Ventilation, and Air Conditioning) related topics, contributing significantly to their academic and practical knowledge. Building on this success, the commitment to further nurture students' learning continues unabated, with plans for the organization to host a series of events in the upcoming year. Through these endeavors, ISHRAE TKMCE remains dedicated to fostering a culture of continuous learning and professional development among students, ensuring they are well-equipped to excel in the field of HVAC engineering.