ISHRAE TKMCE STUDENTS CHAPTER
REPORT 2022-2023

ISHRAE TKMCE STUDENTS CHAPTER

ISHRAE

Indian Society of Heating, Refrigerating and Air Conditioning Engineers

ISHRAE TKMCE STUDENTS CHAPTER

ISHRAE TKMCE Students Chapter was installed on14th July 2022, with total membership of 82 students under the ISHRAE Trivandrum Chapter. The purpose of ISHRAE TKMCE Student chapter is to get students interested, concerned, and involved in pursuing a career in the field of heating, ventilating, air conditioning and refrigeration. ISHRAE TKMCE Student chapter activities are administered by students as elected members.

OBJECTIVES:

- Make students interested in the HVAC & R field.
- Provide a platform for professional development and continuous training & retraining on both fundamentals and latest products & technologies available worldwide.
- Provide networking opportunities for students to interact with other Professionals, Industry Leaders and key decisions makers in the Profession and Industry.

OUR FACULTY COORDINATORS:

Dr.RIJO JACOB THOMAS, Asst Professor Mechanical Engineering
Prof.RIZWAN RASHEED, Asst Professor Mechanical Engineering

OUR EXECOM MEMBERS:

President :	**ABHIJITH A**
Secretary :	**SHYAM KUMAR K**
Elect-President:	**CHAITHANYAN K S**
Treasurer :	**GODWIN FRANCIS**

CWC MEMBERS

1. VAISHNAV ANOOP
2. AKHIL M
3. MAHESH MOHAN
4. MILAN MOHAN : Program Head
5. AROMAL VISWAN V L : Documentation Head
6. SABARI V S : Media & Publicity
7. DIJIN DIVAKAR C : Design Head
8. ABHIMANYU J S : Membership Drive
9. C S AKSHAY : PG Representative

THE ISHRAE TKMCE CHAPTER INSTALLATION CEREMONY

The chapter installation was done by Mr.Prasnnalal on 14th July 2022, president of ISHRAE Trivandrum chapter on behalf of faculty coordinators and chapter members of ISHRAE TKMCE.

Mr.Prasanna Lal & Mr.Noushad Hussain, presidential members of ISHRAE Trivandrum chapter,
Dr.Rijo Jacob Thomas & Mr.Rizwan Rasheed, faculty coordinators of ISHRAE TKMCE and the elected student representatives.

PROGRAMS ATTENDED:

- ECBC & ENS Awareness powered by Energy Management Center Kerala.
- Sustainable architecture and HVAC conducted by YOUTH ISHRAE and ISHRAE TRIVANDRUM CHAPTER
- Enhancing competencies of HVAC & R service professionals powered by ACRESERVE 2022-2023
- Technical webinar on " Optimized hybrid air conditioning systems for high-rise and large scale buildings powered LG Air Conditioning division.

ISHRAE TKMCE CHAPTER MEMBERS

SL.NO.	MEMBERSHIP ID	NAME
1	S00103200	Mr. SHYAM KUMAR K
2	S00103201	Mr. Aromal Viswan V L
3	S00103203	Mr. Abhimanyu J S
4	S00103204	Mr. Rohan George
5	S00103205	Mr. ALAN SAMUEL KOSHY
6	S00103210	Mr. MILAN MOHAN
7	S00103235	Mr. Antson Sunny
8	S00103245	Mr. AKSHAY VS
9	S00103246	Mr. S Unni Sankar
10	S00103248	Ms. LEKSHMI S
11	S00103250	Mr. Adithya S Sajeev
12	S00103321	Mr. SALMAN SHEREEF
13	S00103343	Mr. ABHIJITH A
14	S00103346	Mr. CHAITHANYAN K S
15	S00103357	Mr. SYAMLAL S
16	S00103365	Mr. AHAMMED THANZIL S
17	S00103366	Mr. Amaan Ashraf
18	S00103379	Ms. Krishna Priya
19	S00103384	Mr. Akhil Salini Gopan
20	S00103387	Mr. Shihabudheen VC
21	S00103388	Mr. Mohammed Azad P P
22	S00103389	Mr. C S AKSHAY
23	S00103407	Mr. HARIKRISHNAN S

24	S00103408	Mr. ABIRAJ R
25	S00103415	Mr. NIKHIL RAJ V.B
26	S00103449	Mr. JITHIN J SASI
27	S00103451	Mr. JIBIN J SASI
28	S00103463	Mr. Akhil M
29	S00103464	Mr. Aswin H
30	S00103465	Mr. Vaishnav Anoop
31	S00103468	Mr. GOKUL S
32	S00103469	Mr. Muhammed Siyad A
33	S00103470	Mr. Fahin Ali U K
34	S00103475	Mr. Astin G
35	S00103496	Mr. Mohammed Rehan Raji
36	S00103501	Mr. DIJIN DIVAKAR C M
37	S00103502	Mr. Bilal Abdulla
38	S00103538	Mr. Ahammed Easa A
39	S00103539	Mr. Brinson Benadict
40	S00103541	Mr. G ANANDHU KRISHNA
41	S00103551	Mr. SAMEER RIYAS
42	S00103557	Mr. Amal Jo Ignatius
43	S00103581	Mr. Rahul Raj
44	S00103587	Mr. Sreehari V A
45	S00103609	Mr. Ananthu Krishnan P
46	S00103612	Ms. Sandra S
47	S00103615	Mr. ABHAY DAS
48	S00103619	Mr. NANDU B
49	S00103622	Mr. Gokul S Kumar
50	S00103624	Mr. NIDHIN RAJ R

51	S00103625	Mr. SALMAN FARIS K
52	S00103632	Mr. Aravind R
53	S00103633	Mr. ARJUN A
54	S00103655	Mr. Sreekamal Krishnan
55	S22103207	Mr. Harisankar R
56	S22103223	Mr. Jyothis Krishnan R D
57	S22103268	Ms. Sreelakshmi V S
58	S22103277	Mr. Aakash Anil
59	S22103280	Mr. Sabari V S
60	S22103330	Mr. Aswin S Kumar
61	S22103347	Mr. NAVEEN RAJ
62	S22103351	Mr. Godwin Francis
63	S22103356	Mr. ANANTHAKRISHNAN K S
64	S22103370	Mr. MAHESH MOHAN
65	S22103385	Mr. Rajat Hariprasad Nair
66	S22103410	Mr. Adarsh R
67	S22103427	Mr. Aboobacker Siddique
68	S22103460	Mr. ALTHAF HASHIM
69	S22103461	Mr. Neeraj R Babu
70	S22103473	Mr. Navaneeth A S
71	S22103480	Mr. AKSHAY M
72	S22103497	Mr. SHREERAG P M
73	S22103503	Mr. ELVIN JACOB JOHN
74	S22103511	Mr. ASWIN SASIDHARAN
75	S22103537	Mr. Abhiram S Nair
76	S22103540	Mr. Vaishnav S
77	S22103554	Mr. Akshay T R

78	S22103555	Mr. Galzan Vinith Salim
79	S22103556	Mr. SIVAPRASAD K P
80	S22103558	Mr. Anirudh M D
81	S22103594	Mr. Akhil S
82	S22103608	Mr. GOKUL G S

ISHRAE – ADD ON COURSE ON REFRIGERATION AND AIR CONDITIONING

ISHRAE add-on course on Refrigeration and air conditioning started on 23rd November 2022. It was proposed to enable students to understand the applications, fundamentals and important practical aspects of refrigeration air conditioning.

The below listed are the course outcomes:

- Upon completion of the course, the students will be able to apply the concepts of refrigeration and air conditioning for simple applications.
- Conceptualise and design low temperature systems considering socio-economic and environmental factors.
- Create,select and judiciously apply tools, techniques and resources in handling various problems in Refrigeration and Air Conditioning

The course includes both theory and practical sessions. Theory classes are planned to be conducted on weekdays and practical sessions on weekends with a total of 40 hours.

Fee details:

- For ISHRAE members : ₹750
- For Non ISHRAE members : ₹400

Classes started on 23rd November 2022 by Rizwan Sir. It was conducted as an introductory session. Topics covered include the history of RAC and introduction to the basics of RAC.

FEE DETAILS OF ISHRAE TKMCE ADD-ON COURSE ON REFRIGERATION AND AIR CONDITIONING

Sl. No.	NAME	AMOUNT
1	ALAN SAMUEL KOSHY	400
2	ARAVIND SURESH	750
3	GODWIN FRANCIS	400
4	GOKUL KRISHNAN M	750
5	GOKUL S KUMAR	400
6	MELVIN SHAJI	750
7	MEVIN SHAJI	750
8	MOHAMMED AMEEN A	750
9	MOHAMMED FARDIN KM	750
10	NAVANEETH A S	400
11	PRAJUNE K JAYAPAL	750
12	SARATH S S	750
13	SHAMIL C	0*
14	SHEHZAD BIN MUNEER	750
15	VINAYAK HAREESH	750
	TOTAL	**₹9100**

For ISHRAE members : ₹750

For Non ISHRAE members : ₹400

*Eligible for fee concession

TKM COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

ISHRAE – ADD ON COURSE ON REFRIGERATION AND AIR CONDITIONING

Preamble: To enable students to understand the applications, fundamentals and important practical aspects of refrigeration air conditioning.

Prerequisite: Basics of Thermodynamics

Course Outcome: Upon completion of the course, the students will be able to apply the concepts of refrigeration and air conditioning for simple applications. Conceptualise and design low temperature systems considering socio-economic and environmental factors. Create, select and judiciously apply tools, techniques and resources in handling various problems in Refrigeration and Air Conditioning

SYLLABUS:

Theory: Introduction – Brief history and applications of refrigeration. Laws of Thermodynamics, Different types of refrigeration cycles, Vapour compression refrigeration cycle, Representing vapour compression cycle in pressure-enthalpy diagram and temperature-entropy diagram. Explanation of terminologies like superheat, subcooling, desuperheating, etc.,

Components of a refrigeration system in details, Accessories in a refrigeration system, Behavior of refrigerants and their properties, selection of refrigerants for different applications

Introduction – Brief history and applications of air conditioning. Psychrometric chart. Comfort air conditioning, Heat Load Calculation. Unitary, split and centralized air conditioning systems, Winter, Summer and Year-round air- conditioning systems. Industrial Air conditioning.

Practical: Study of Refrigeration and air conditioning tools, Study on Refrigeration system components, Study of Different Air Conditioning Systems, Heat load calculation.

COURSE CONTENTS AND SCHEDULE

HOURS: 40

Sl No:	COURSE CONTENT	T-P	Pedagogy
1	**Theory:** Introduction Brief history Applications of refrigeration. ***Practical:*** *Study of different tools in Refrigeration & Air Conditioning practice.*	2-2	Lecture using slides & Hands on Training
2	**Theory:** Review of fundamentals of thermodynamics	2-0	Lecture using slides
3	**Theory:** Introduction to Vapour Compression Refrigeration System Vapour compression refrigeration cycle , Representing vapour compression cycle in pressure-enthalpy diagram & temperature-entropy diagram. Introduction to Absorption Refrigeration system ***Practical:*** *Experiment on Vapour Compression Test Rig* *Experiment on Vapour Absorption Test Rig*	2-2	Lecture using slides & Hands on Training
4	**Theory:** Components of refrigeration system Accessories in a refrigeration system ***Practical:*** *Study of Refrigeration system components- Compressor, condenser, expansion device, evaporator.*	2-2	Lecture using slides & Hands on Training
5	**Theory:** Behaviour of refrigerants and their properties, Selection of refrigerants for different applications ***Practical:*** *Nomenclature of refrigerants* *Charging of refrigerant*	2-2	Self-Study & Hands on Training

6	**Theory:** Introduction to Air Conditioning & Brief history Applications of Air Conditioning. Psychrometric Chart. ***Practical:*** *Experiment on Air Conditioning Test Rig*	2-2	Lecture using slides & Hands on Training
7	**Theory:** Comfort air conditioning Heat Load Calculation. Unitary, split and centralized air conditioning systems ***Practical:*** *Study on different air conditioning systems – Unitary, Split , Packaged & Window Air Conditioning* *Experiment on Heat load calculation of a given room.*	2-2	Lecture using slides & Hands on Training
8	Current scenario and developments in the refrigeration industry.	0-0	Interaction with Industry Professional
9	**Class Assignment/Tutorial :** Refrigeration cycle problems . Estimation of cooling load .	0-0	
10	**Software:** Plandroid HVAC Design Software Coolselector - Refrigeration Design Software Acquire knowledge in using modern software tools in analyzing refrigeration & Air conditioning problems.	0-4	Hands on Training
11	**Mini Project:** Students are required to do a mini project at the end of the course related to Refrigeration & Air Conditioning.	0-6	
TOTAL HOURS		40	

* T-theory , P-Practical

Assessment Methods

1. Short answer Question (5 Marks)
2. Quiz – 10 MCQ (10 Marks)

References Books:

1. ASHRAE Handbook
2. Dossat. R. J, Principles of Refrigeration, Pearson Education India, 2002
3. Arora S. C. and Domkundwar, Refrigeration and Air-Conditioning, Dhanpat Rai,
4. Ananthanarayan P N, Basic Refrigeration and Air Conditioning**,**Tata Mc Graw Hill 2013
5. Ameen Ahmadul- Refrigeration and Air conditioning, Prentice Hall of India (2010)

ATTENDANCE SHEET

SL. NO.	NAME	Batch	23/11/2022	28/11/2022	30/11/2022	13/12/2022
1	ALAN SAMUEL KOSHY	M5C	✔	✔	✔	✔
2	ARAVIND SURESH	M5C	✖	✖	✖	✖
3	GODWIN FRANCIS	M5C	✔	✔	✔	✔
4	GOKUL KRISHNAN M	M1C	✖	✖	✖	✖
5	GOKUL S KUMAR	M5C	✔	✔	✔	✖
6	MELVIN SHAJI	M5C	✔	✔	✔	✔
7	MEVIN SHAJI	M5C	✔	✔	✔	✔
8	MOHAMMED AMEEN A	M1B	✖	✔	✔	✔
9	MOHAMMED FARDIN KM	M1A	✔	✔	✔	✔
10	NAVANEETH A S	M5C	✔	✔	✔	✔
11	PRAJUNE K JAYAPAL	M1B	✔	✔	✔	✔
12	SARATH S S	M5C	✔	✔	✔	✖
13	SHAMIL C	M5B	✖	✔	✔	✖
14	SHEHZAD BIN MUNEER	M1A	✔	✔	✔	✔
15	VINAYAK HAREESH	M1A	✔	✖	✔	✖

PROJECTS, COMPETITIONS & GRANTS

1. STUDENT RESEARCH PROJECT GRANT UG 2022-23

1) ISHRAE Student project grant (ISPG) is a grant of funds to a full-time graduate student of ISHRAE student chapters in HVAC&R related technologies.
2) It is awarded once in each year for use in academic year projects.
3) Multiple awards (typically 10 to 12) are made each year in the amount of Rs 50,000/- award for UG students and Rs 1, 00,000/- for PG Students.
4) The goal of the Grant-in aid program is to encourage outstanding graduates to become involved in HVAC&R research and establish careers that include active engagement within and continued contributions to society.
5) Project grants will be provided for innovative ideas in HVAC&R systems, IAQ, Process cooling, Refrigerants, Cold storage etc.

SL. NO.	TITLE OF PROJECT	PROJECT GUIDE	TEAM MEMBERS
1	Solar based cold storage	Dr.Rijo Jacob Thomas	SHREERAG P M
			AMAL JOSE
			DIJIN DIVAKAR
			NEERAJ R BABU
2	Realization of a Wi-Fi connected intelligent home automation Hub for a solar powered 1 BHK residential building	Dr. Reby Roy K E	S UNNI SHANKAR
			ROHAN GEORGE
			AKSHAY V S
			ABHIMANYU J S

ISHRAE TRIVANDRUM CRICKET TOURNAMENT 2022

Team members:

1. ABHIJITH (C)
2. BILAL (WK & VC)
3. SHIVAPRASAD H
4. ASWIN
5. ROSHAN
6. ANANDU S
7. ANANDHU G
8. ZAMEER
9. CHAITHANYAN
10. SABARI
11. MAHESH
12. THANZIL
13. SALMAN
14. ESA
15. ADWAITH

Our team had won the first match against MBCET by 40 runs and had **qualified to the semi finals** and lost in the semi finals.