

# National Student Design Competition (2021-2022)



## SHOW YOUR METTLE IN HVAC&R DESIGN

Design of Air Conditioning and Ventilation System for a Multi-specialty Hospital building that pertains to Comfort Cooling, Ventilation and Indoor Air Quality



### THE TASK

**Design Theme:** Design of Air Conditioning and Ventilation System for a Multi-specialty Hospital building that pertains to Comfort Cooling, Ventilation and Indoor Air Quality.

The Multi-specialty Hospital building consists of 2 Floors with Terrace.

**In ground floor:**  
Reception, Doctor Consulting Room, Emergency Room, Testing Rooms, Admin Rooms such as Billing, Accounts and MD Room, General Wards, Physiotherapy Room, Scan Room, House Keeping Room, Staff Rest Room, Nurse Station, Pharmacy, Canteen and Toilets are available.

**In first floor:**  
Individual wards, Urology, ENT and Intestine Medicare rooms, visitor's room, conference room, Operation Theatres, Isolation Room, Doctor's room, staff room and toilets are available.

For more information/details, refer the drawing.

### AWARD

Competition Open for ISHRAE Student Members

**1<sup>st</sup> PRIZE UNDER ₹ 30,000**      **2<sup>nd</sup> PRIZE UNDER ₹ 20,000**

**Motivational Prize: Under ₹ 10,000**  
(Cash prize includes ISHRAE Publications)

Participation Certificates will be given to all the participant.

### JURY MEMBERS

Panel of Top Notch Industry Experts from across the country.

### IMPORTANT DATES

Activity/ Phase (Flow of Competition)	Last Date
Release of NSDC Flyer & White Paper, Detail documents with Problem statement, Drawings etc.	21.07.2021 (Wednesday)
Phase 1- Registration: This registration sheet will consist of registration form, Team members and Mentor details.	31.08.2021 (Tuesday)
Phase 2: Submission of design: The report should include assumptions, design calculations and other energy efficiency measures, duly approved by mentors.	31.12.2021 (Friday)
Phase 3: Design presentation at Zone level: (Online Presentation; Shortlisted Teams)	29.01.2022 (Saturday)
Phase 4: Design Presentation at National level: (Online Presentation; Participants: Top 2 teams from each zone)	05.02.2022 (Saturday)

### CRITERIA FOR EVALUATION

Evaluation of the project will be based on

- Heat Load Calculation
- Equipment selection
- Duct design
- Originality
- Innovation..... Any New technology adopted
- Practicality
- Special IAQ features (Health safety features and standards followed)
- Design qualifying Load Fluctuations
- Energy calculations and life-cycle cost analysis
- Affordability (Comparison between VRF and Chilled water systems)

### SUBMISSION

The duly filed registration form and the project report shall be submitted electronically to: v.thakur@ishraehq.in

### RULES /GUIDELINES

Undergraduate student members of ISHRAE student chapters are eligible to participate.

Maximum number of students in team: 4

It is mandatory to register to the competition. Only registered teams will be considered.

It is mandatory to identify a mentor while registering. A mentor may be the faculty advisor or an active ISHRAE member.

Students are free to assume the necessary data required for design calculation but need to mention it in the report.

Design shall be based on Indian standards.

Submit the project report in PDF format.

Presentation should be crisp and to the point. Teams may use slides to make the presentation.

The decision of jury members will be final.

### PROJECT REPORT MAY INCLUDE FOLLOWING

Proposed system details of Multi-specialty Hospital building with design & necessary drawings.

Design Basis Report including assumptions, Energy Calculations, Duct designs etc. Specific assumptions to be listed.

HVAC & IEC (International Electrotechnical Commission) system selection based on energy efficiencies and other features.

Air flow design & distribution.

Part Load efficiencies & Life Cycle cost analysis.

Any Comparison between VRF and Chilled water systems.

Health safety features and standards followed.

Energy Balance Sheet with loss/savings.

Detail drawings with all systems and sub systems in place.

[www.ishrae.in](http://www.ishrae.in)

ISHRAE student activities launches National Student Design Competition (NSDC) for 2021-22 for ISHRAE student members.

Design Theme: Design of Air Conditioning and ventilation system for a multi specialty hospital building that pertains to comfort cooling, ventilation, and indoor air quality. The Multi-specialty hospital building consists of 2 floors with terrace.

In ground floor: Reception, Doctor consulting room, emergency room, testing rooms, admin rooms such as billing, accounts and MD room, general wards, physiotherapy room, scan room, housekeeping room, staff rest room, nurse station, pharmacy, canteen, and toilet are available. In First floor: Individual ward, urology, ENT and intestine Medicare rooms, visitor's room, conference room, operation theaters, isolation room, doctor's room, staff room and toilets are available.

It is basically Design of Air Conditioning System for an IT company for better indoor air quality. The Awards was as follow, 1<sup>st</sup> Prize was Rs.30000, 2<sup>nd</sup> Prize was Rs 20000 followed by Motivational Prize of Rs.10000. Participation certificate was given to all the participants. Important dates for the events were as followed, Registration date was 31/08/2021, Date for submission of design was 31/12/2021, Design presentation at zonal level was conducted at 29/01/2022. followed by design presentation for nation level at 05/02/2022.

The eligibility criteria were the undergraduate student member of ISHRAE were allowed with maximum number of students in team was 4, It was mandatory for all participants to resister for this event only register participants were allowed to enter for event. The proposed system details of multi-specialty hospital building with design and necessary drawings. Design basis report including assumptions, Energy calculations, duct design etc. Specific assumptions to be listed. HVAC & IEC (International Electrotechnical Commission) system selection based on energy efficiencies and other features. Air flow design and distribution. Part load efficiencies and Life cycle cost analysis. Any comparison between VRF and Chilled water systems. Health safety features and standards followed. Energy balance sheet with loss/ savings. Details drawings with all systems and sub systems in place.

The following two teams participate in NSDC 2021-22.

We have received 2 Nos. team details for NSDC 2021-22 registrations from your student Chapter Vidyavardhini College Engineering and Technology.

The list is mentioned below with the mentor's details against every team:

Sr.No	Institute	Team Name	Team Members	Mem No.	Mentor
1	Vidyavardhini COE	Team 1	Mr. Shridhar Kashalkar	S00097957	Mr. Dinesh Sunder Shetty Membership No: 13625 Mobile No: 9624096319 <a href="mailto:dineshshetty@voltas.com">dineshshetty@voltas.com</a>
			Mr. Varad Santosh Takke	S00098019	
			Ms. Riya Rohidas Patil	S00097673	
			Mr.Suyash Mahesh Hoskote	S00098119	
2	Vidyavardhini COE	Team 2	Mr. Saleel Churi	S2109704	Mr. Vivek Ramchandra Marde Membership No: 33930 Mobile No: 9820159998 <a href="mailto:vivek@spacehvac.net">vivek@spacehvac.net</a>
			Mr. Girish Rokade	S21095350	
			Mr. Chintan Patel	S00097650	
			Mr. Yash Shikhare	S00097692	

# ISHRAE HVAC & R HACKATHON (2021-2022)





## ISHRAE HVAC & R HACKATHON



Hackathon will help to establish networks among students, experts, and professionals. This event can be used for job/recruitment fairs and allow the students to assess their abilities and find ways to accomplish the tasks and how they work in a team. A novel method to enhance the image of ISHRAE and get into the innovative, tech-savvy, technology-minded people in this area.

**KEY FEATURES -**

- Problem Statements / Major Area define for this competition
- Low-Cost cooling solutions for Vegetable vendors.
- Natural Cooling - Hot and humid climates
- Advanced Cold chain techniques/ Refrigerants Innovation.

**EVENT GUIDELINES -**

- Only for ISHRAE Student Members.
- No registration fee for ISHRAE members and Team
- (Max Team size will be 5 to 4 Members permitted)

**PROCESS OF SCREENING/ SELECTION**

- Online submission of ideas.
- **First level screening:** 3 teams / chapter
- **Second level Screening:** Regional / Zonal Level Round
- **Zone wise:** 3 Winners from each Zone (25 Nos)
- **Zonal Winners:** ₹ 5,500/team and Certificate (Cash Price + Publications)
- **Final National Event -** During last week of Feb 2022
- Top 21 teams has to present the work in front of juries (Academic + Industries) in final event.

**TENTATIVE SCHEDULE FOR HACKATHON**

Activity	Deadline for Submission
Launching Of Events & Event Information Webinar	21 <sup>st</sup> July 2021
Primary Concept & Abstract Submission/Presentation at Chapter level	Up to 31 <sup>st</sup> August 2021
Scrutiny & Short listing of Maximum Three entries at Chapter level	Up to 15 <sup>th</sup> September 2021
Detail Project Document and Actual Work Report Submission/Presentation at Zonal level	Up to 15 <sup>th</sup> November 2021
Scrutiny & Short listing of Maximum Three entries at Zonal level	Up to 15 <sup>th</sup> December 2021
Final Submission Of Work & Presentation	11 <sup>th</sup> February 22 last Week

**Prize Money for Final Event:**

	<b>Winner : ₹ 1 Lakh</b> (Cash Price + Publications)
	<b>1st Runner up : ₹ 75000</b> (Cash Price + Publications)
	<b>2nd Runner up: ₹ 50000</b> (Cash Price + Publications)

Submit your entries on [v.thakur@ishraehq.in](mailto:v.thakur@ishraehq.in)

The following team members from ISHRAE VCET Students Chapter participate in ISHRAE HVAC & R HACKATHON.:

## **ISHRAE HVAC & R HACKATHON 2021-22**

### **TEAM DETAILS:**

<b>S. No.</b>	<b>Student Name</b>	<b>ISHRAE Membership No.</b>	<b>Email ID</b>	<b>Mobile No.</b>
<b>1</b>	<b>Mr. Girish Rokade</b>	<b>S21095350</b>	<b>girish.rokade20@gmail.com</b>	<b>9665264288</b>
<b>2</b>	<b>Mr. Harsh Sambare</b>	<b>S20087734</b>	<b>harshsambare210@gmail.com</b>	<b>7875299937</b>
<b>3</b>	<b>Mr. Chintan Patel</b>	<b>S00097650</b>	<b>chintan.190852101@vcet.edu.in</b>	<b>9112355745</b>
<b>4</b>	<b>Mr. Yash Shikhare</b>	<b>S00097692</b>	<b>yash.190982102@vcet.edu.in</b>	<b>8308185987</b>

### **INSTITUTE DETAILS:**

<b>S. No.</b>	<b>Particulars</b>	<b>Details</b>
<b>1</b>	<b>College Name with Address</b>	<b>Vidyavardhini's College of Engineering and Technology K.T. Marg, Vasai (W), Dist: Palghar, Pin: 401201, Maharashtra</b>
<b>2</b>	<b>Name of the Guide (Mobile No. &amp; email ID )</b>	<b>Vinay D. Patel (Mobile No: 9890811839 &amp; Email ID: <a href="mailto:vinay.patel@vcet.edu.in">vinay.patel@vcet.edu.in</a> )</b>
<b>3</b>	<b>ISHRAE Student Chapter in the Institution (Yes or No)?</b>	<b>Yes</b>

### **Local ISHRAE Chapter:**

<b>S. No.</b>	<b>Particulars</b>	<b>Name of the Chapter / Sub Chapter</b>
<b>1</b>	<b>Local ISHRAE Chapter</b>	<b>ISHRAE VCET Students Chapter</b>

1) Committee details

- Staff details

Staff Name	Department	Contact no (College extension no)
Vinay D. Patel	Mechanical Engineering	9890811839

- Student details (Only core committee)

Sr. No.	Name of Students	Designation
<b>Core Members</b>		
1	Mr. Shridhar Kashalkar	President
2	Mr. Saleel Jayant Churi	Secretary
3	Mr. Harsh Rajendra Sambare	Treasurer
4	Mr. Chintan Vinay Patel	Vice President
5	Mr. Yash Dilip Shikhare	Deputy Secretary
6	Mr. Mahesh Vijay Pachpande	Deputy Treasurer
7	Mr. Girish Anilraj Rokade	Technical Team Head (TTH)
8	Mr. Hrushikesh Saraf	Publicity Head (PH)
9	Mr. Shubham Koli	Report Writing Head (RWH)
<b>Members</b>		
10	Ms. Riya Rohidas Patil	Member TTH
11	Mr. Shreya Narshim Pai	Member TTH
12	Mr. Varad Santosh Takke	Member RWH
13	Mr. Suyash Mahesh Hoskote	Member PH
14	Mr. Jitesh Yeshwant Bhagudia	Member
15	Mr. Aditya Dnyaneshwar Patane	Member
16	Mr. Prasant Simanchal Sahu	Member
17	Mr. Tejash Umesh Surti	Member
18	Ms. Vaibhavi Deepak Murkar	Member
19	Mr. Rahul Sunil Patil	Member
20	Ms. Ashitha Ashok Poojari	Member
21	Mr. Pratik Ashok Maknikar	Member
22	Mr. Shivam Sanjay Jadhav	Member
23	Mr. Pritesh Rakesh Jaiswal	Member
24	Mr. Vira Jayesh Jatin	Member

25	Mr.Karan Narendra Thakker	Member
26	Mr.Rhishikesh Shridhar Jadhav	Member
27	Mr.Shubham Dilip Pimple	Member
28	Mr.Harsh Dinesh Dhuru	Member
29	Mr.Dheeraj Vijay Patil	Member
30	Mr.Manal Ajit Vartak	Member
31	Mr.Mayuresh Subhash Wankhede	Member
32	Mr.Sagar Vijay Kadam	Member

**A Report  
on  
ISHRAE-VCET Student Chapter Installation  
(2021-2022)**

The ISHRAE Mumbai Chapter (IMC) had scheduled the ISHRAE VCET Student Chapter installation ceremony on Friday, 21 January 2022 at 11:30 am to 12:30pm (online mode). The installation ceremony was arranged to mark the official establishment of VCET's ISHRAE VCET student chapter for year 2021-22. With the guidance and efforts of student faculty Mr. Vinay Patel, Faculty In charge of ISHRAE-VCET Student Chapter, the guests from IMC office bearers Mr. Amod Dixit, President -IMC, Mr. Mukesh Suthar- Program Chair-IMC, Mr. Sanjay Varma, Zonal Chair, SA-West, Mr. Vivek Marde, Student Activity Chair, IMC, were invited for the event. Also, the faculty members from the Mechanical Engineering Department were attended the installation ceremony.

The event began with welcoming the esteemed guests which was followed by sincere prayers to Goddess Sarasvati by reciting the Sarasvati Vandana. The guests were Welcomed by the faculty in charge, Mr. Vinay Patel followed by his brief presentation on various activities the college ISHRAE-VCET Students Chapter committee has been conducting for the past years. The students were then addressed by IMC president, Mr. Amod Dixit. In his speech briefed the students about the various opportunities and facilities ISHRAE has for the students. The speech also emphasized various programs ISHRAE plans throughout the year for ISHRAE students' members. This was followed by Mr. Vivek Marde, Mr. Mukesh Suthar and Mr. Sanjay Varma brief speeches which presented the ISHRAE facilities in a nutshell but well picturized. Further, the students were addressed by DR. U. V. Asolekar, HOD, Mechanical Engineering Department. He thanked the IMC members for their guidance and words of wisdom and encouragement for the students. Mr. Vinay Patel then requested Mr. Vivek Marde to initiate the oath taking ceremony for the ISHRAE STUDENT CHAPTER office members for year 2021-22.

Mr. Vivek Marde, recited the whole oath and students were supposed to raise their right hand and say the words 'I do'. The first to take the oath was the President followed by the Secretary and the Treasurer. All the office members rose their hand together and collectively took their oaths. All office members promised to follow their duties with dedication and integrity, focusing on achieving goals with proper coordination and understanding. The oaths were succeeded by the Vote of thanks. The students fill up the feedback link and submitted the same. During the events total 66 participants (including IMC guest members, faculties of Mech.Engg. Dept.) were present and 39 students were fill up and submitted the feedback forms. The students were enlightened by the encouraging words of all the IMC Chair members and wave of encouragement and dedication went through all.

ISHRAE student chapter members of VCET received the right motivation and direction to fulfil their responsibilities with probity and wholeness. The photocopy of the above event is attached herewith.



Vidyavardhini's College of Engineering and Technology  
Invites you for Installation Ceremony of

### ISHRAE VCET STUDENT CHAPTER



**Mr. Amod Dixit**  
President - IMC



**Mr. Sanjay Verma**  
Zonal Chair, SA - West



**Mr. Vivek Marde**  
Student Activity Chair, IMC



**Mukesh Suthar**  
Program Chair - IMC

**Date: 21/01/2022**

**Time: 11:30 am**

**Link to join : <https://meet.google.com/hsf-muic-zth>**

**Mr. Vinay Patel**  
Faculty Coordinator, VCET

**Dr. Uday Aswalekar**  
HOD, Mechanical Engineering  
Department

**Dr Harish Vankudre**  
Principal



