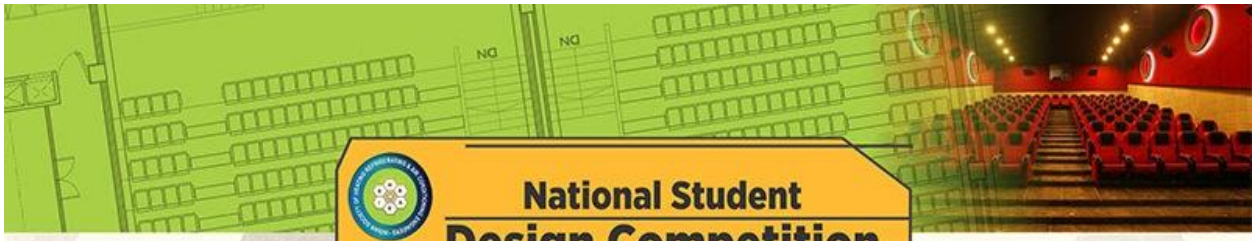
National Student Design Competition 2017-18

A national level HVAC design competition is being organized by ISHRAE HQ, New Delhi. All the students of mechanical engineering who have ISHRAE membership are eligible for participating in this competition. Design guidelines are given below and the drawings can be downloaded from the link given below. Maximum number of students in a team will be limited to 3 and last date of registration is 30th September, 2017. Last date of submitting complete design report in pdf form is 30th November, 2017. First prize will be INR 30,000/- second prize INR 20,000/- and third prize INR 10,000/- in cash. Presentation will be held in February 2018 in Bangalore and travel fare and accommodation will be sponsored by ISHRAE.

Mr. Mohammad Faisal Khan, Assistant Professor and faculty coordinator ISHRAE student chapter, department of Mechanical Engineering, Integral University, will guide all the teams, participating in this competition.



National Student Design Competition 2017-18

ISHRAE

SYNOPSIS

Optimising air-conditioning design of multi-screen theatres is a challenging task. Algebraic addition of the individual areas like designing other commercial spaces cannot be applied to multi-screen theatres. Adding peak cooling load of each theatre, lobby, projection room, ticketing area, offices and concession areas would lead to disproportionately high installed capacity. This would prove to be operationally uneconomical and difficult to maintain. Applying diversity factors to peak cooling load of the facility may lead to under designed systems during peak occupancies typically observed on week-ends. An under-designed system may necessitate compromising IAQ by throttling outdoor air (fresh air)

The National Student Design Competition (NSDC) for the year 2017-18 is, Designing Air Conditioning System for a 3 Screen Multiplex for Better Indoor Air Quality & Energy Efficiencies.

- 3 Screen Multiplex having total seating capacity of 300, 300 & 200 Each
- Standard Luxury Push Back Chairs having Back & Lumber Support
- Lobby having Ticketing area, Concession area, Toilets, Catering
- Moulded PU Foam with Fabric & standard Trims & finishes
- Rockwool-Dacron Acoustics Finally covered with Fabric Curtains on walls
- Suitable LED Lightings
- Carpeted Flooring & Acoustically Designed False Ceilings as per NC Criteria

The HVAC System Selection and Design for the Theatre shall address the following major design goals:

- Designing Complete energy efficient HVAC Systems with all important sub systems
- Assuring better IAQ measures undertaken to address risks of Diseases
- & optimising fresh air loads & energy efficiencies

(Student should assume suitable parameters with justifications)

IMPORTANT DATES

Due date for Registration : 30 –09 – 2017

Final Report submission : 30 – 11 – 2017

Presentation & Award Ceremony during ACREX Bangalore on 23th Feb 2018 at BIEC Bangalore

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

GUIDELINES

- Undergraduate Student Members of ISHRAE Student Chapters are eligible to Participate
- Maximum Number of Students per Team: 3
- Design shall be based on Indian Standards
- Submit the project report in PDF format
- Presentation should consist of Maximum 50 slides
- All the Submission & Designs shall be the property of ISHRAE

Project Report Shall Include following :

1. Proposed System details of Multiplex design with plan & section of worked out design & drawings
2. Design Basis Report including Heat load Calculations, Duct designs etc
3. Uncertainties in Design due to large daily/ weekly variations in lean and peak cooling loads
4. HVAC & IEC system selection based on energy efficiencies and other features
5. Air Flow Design and Distribution
6. Part Load Efficiencies & Life cycle cost analysis
7. Health Safety Features and Standards followed
8. Energy Balance Sheet with Loss/Savings
9. Detail Drawings with all systems & sub systems in place

Note : Evaluation of the project will be based on originality, innovation, practicality, special IAQ Features, Design qualifying Load Fluctuations, low resource depletion, affordability and most importantly undertaking Measures for Audience catching up Diseases caught due to poor Indoor Air Quality at a time when they are enjoying with their loved ones

Thanks & Regards

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