MANJARA CHARITABLE TRUST
RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI
(UG Program – NBA Accredited; P(Permanently Affiliated to University of Mumbai) DEPARTMENT OF MECHANICAL ENGINEERING

ISHRAE
RGIT STUDENT CHAPTER

Report of
ISHRAE-RGIT Student Body
ACADEMIC YEAR JULY 2021- DECEMBER 2021

Convener
Dr. Rajesh V Kale

Co-Convener
Prof. Parmeshwar Paul

Program Outcomes (PO) Engineering Graduates will be able to:

PO1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledgeto assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics:** Apply ethical principles and commit to professional ethics andresponsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a memberor leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication:** Communicate effectively on complex engineering activities withthe engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effectivepresentations, and give and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding ofthe engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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Department of Mechanical Engineering

Vision

To create competent technical professionals in Mechanical Engineering with ethical behaviour and environment consciousness.

Mission

1. To provide contemporary and cutting-edge technical education in MechanicalEngineering.
2. To provide an ambience which nurtures research ideas in futuristic domains ofMechanical Engineering.
3. To initiate project based learning and practical exposures in the area of MechanicalEngineering.
4. To direct faculties in research and consultancy / advisory roles.
5. To establish strong linkages with well-known national and international technicalinstitutes.
6. To promote the culture of imbibing environmental care and eco-friendly designs.
7. To become a department of aspiration & choice.

Program Educational Objectives (PEOs)

PEO1: To prepare the stakeholder to exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.
PEO2: To make ready the stakeholder to pursue higher education for professionaldevelopment.
PEO3: To help the stakeholder to acquire the analytical and technical skills, knowledge,analytical ability attitude and behavior through the program.
PEO4: To prepare the stakeholders with a sound foundation in the mathematical, scientific and engineering fundamentals.
PEO5: To motivate the learner in the art of self-learning and to use modern tools for solving real life problems and also inculcate a professional and ethical attitude and goodleadership qualities.
PEO6: To prepare the stake holder to able to Design solutions for complex engineering problems and design system components or processes that meet the specified needs withappropriate consideration for the public health and safety, and the cultural, societal, andenvironmental considerations.

Program Specific Outcomes (PSOs)

PSO1:Successful Career and Entrepreneurship: Graduates will be able to understandthe social-awareness and environmental wisdom along with ethical responsibility to havea successful career and to sustain passion and zeal for real-world applications using optimal resources as an entrepreneur.

PSO2: Hobbies and Career: Graduates have nurtured their hobbies which are useful intheir specific chosen career.

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SR NO.	EVENTS	DATE
1.	National Student Design Competition	December 2021
2.	Know Your Department	8th December 2021
3.	Know Your Department	20th September 2021
4.	Evaluation of Student bodies	15th September 2021
5	Quiz Competition	5th February 2022

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ISHRAE
RGIT STUDENT CHAPTER

National Student design competition

Year: December 2021

Indian Society of Heating Refrigeration and Air-Conditioning Engineers (ISHRAE), a national level committee with more than 28,000 active ISHRAE members all over the world, contributing in the field of refrigeration and air conditioning organizes national and international level events & competitions.

National Student Design Competition (NSDC) is organized globally, where students were to design the Heating Ventilation and Air-conditioning (HVAC) for a two-floor hospital.

Four of our ISHRAE members participated and attempted their best to complete the task

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Know Your Department

Date: 8th December 2021
Time: 5:00 am to 6:00 am

On the 8th of December MCT's Rajiv Gandhi Institute of Technology (Mechanical Department) organized a Know Your Committee (KYC) event for the direct second-year students, the motive behind this event was to introduce the newcomers to the mechanical department as well as the several student body committees.
Our president gave a presentation and a brief introduction about ISHRAE and its benefit's then our Hod sir concluded the event.

Know Your Department

Date: 20th September 2021
Time: 5:00 am to 6:00 am

On the 20th of September MCT's Rajiv Gandhi Institute of Technology (Mechanical Department) organized a Know Your Committee (KYC) event for the direct second-year students, the motive behind this event was to introduce the newcomers to the mechanical department as well as the several student body committees.
Our president gave a presentation and a brief introduction about ISHRAE and its benefit's then our Hod sir concluded the event.

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ISHRAE
RGIT STUDENT CHAPTER

Evaluation of Student bodies

Date: 13th September 2021
Time: 9:00 am to 1:00 am

On the 13th of September 2021, MCT's Rajiv Gandhi Institute of Technology conducted an interview for several student bodies of the college in which ISHRAE-RGIT actively participated. ISHRAE-RGIT which was initially established in 2017 but couldn't continue the committee due to the Covid-19, now has been re-established, competed, and also received an award on 15th September 2021 for Excellence Students Chapter.

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ISHRAE
RGIT STUDENT CHAPTER

Report of
ISHRAE-RGIT Student Body for Quiz Competition

Prof. Parmeshwar Paul
-Convenor-ISHRAE RGIT

Dr. Rajesh V. Kale
nvenor-ISHRAE RGIT

ISHRAE
RGIT STUDENT CHAPTER

ISHRAE RGIT has recently re-established, the quiz Competition was organised by ISHRAE RGIT to give the Second year, Third year, and final year students an idea of ISHRAE RGIT. The Quiz Competition was of 2 rounds, totally based on basics of **"Thermodynamics and Heat Transfer"**.
For the Quiz Competition total of 21 students registered, first round was on 5th of February 2022.

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The 12 participants participated in the first round are:

Sr. no.	Name of Participant	Class
1.	Varad Bandiwadekar	T.E.
2.	Vijay Chikkannavar	B.E.
3.	Shubham Gholap	B.E.
4.	Patel Hardik	B.E.
5.	Tarun Lakhavatri	S.E.
6.	Siddhesh Mahadik	B.E.
7.	Meet Samant	T.E.
8.	Anuksha Shinde	B.E.
9.	Shraddha Sondkar	B.E.
10.	Arman Shaikh	B.E.
11.	Shubhamkumar Singh	F.E.
12.	Siddhi Samant	S.E.

Questions asked in the first round:

Sr. no.	Questions	Option 1	Option 2	Option 3	Option 4
1.	Unit of Thermal Diffusivity	m2/hr	m/hr	m/hr ^oC	m2/hr ^oC
2.	Fin efficiency deals with	Economical material requirement	Thermal performance	Cost of manufacturing	All of these
3.	Specific heat is the amount of heat required to raise the temperature	of a unit mass by 10	By unit degree of a unit mass	By unit degree of a substance	none of the above
4.	For which of the following situations, zeroth law of thermodynamics is not valid	10cc of water at 20 ^oC is mixed with 10cc of sulphuric acid at 20 ^oC	500cc of milk at 15 ^oC are mixed with 100cc of water at 15 ^oC	5 kg of wet steam at 100 ^oC is mixed with 50kg of dry and saturated steam at 100 ^oC	50cc of water at 25 ^oC are mixed with 150cc of water at 25 ^oC
5.	In liquids and gases, heat transmission is primarily caused by	Radiation	Convection	Conduction as well as Convection	Conduction
6.	Radiation exchange occurs most efficiently in	Vacuum	Solid	Gas	Liquid
7.	For a given heat flow and for the same thickness, the temperature drop across the material will be maximum for	Refractory brick	Steel	Copper	Glass Wool
8.	Which of the temperature measuring device will have the least accuracy	Alcohol filled thermometer	Optical pyrometers	Nitrogen filled thermometer	Clinical Thermometers
9.	Three states of matter are distinguished with the respect to molecules by the	Orientation	Atoms in molecules	Number	Character of motion
10.	Heat transfer takes place according to which law?	Newton's second law of motion	Newton's law of cooling	The second law of thermodynamics	First law of thermodynamics

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11.	Triple point	none of the above	occurs in a mixture of two or more gases	is the point, where three phases exist together	occurs in sublimation
12.	In Carnot cycle, heat is rejected at constant	Volume	Entropy	Pressure	Temperature
13.	Isentropic flow is	none of the above	reversible adiabatic flow	irreversible adiabatic flow	frictionless fluid flow
14.	Non-quasi-static process is	rapid compression of a gas in a cylinder	Free expansion of gas	gradual compression of a gas in a cylinder	expansion of a gas in a cylinder under constant pressure
15.	Control volume refers to a	the fixed region in the space	none of the above	closed system	specified mass
16.	The ideal efficiency of a simple gas turbine cycle depends upon	Pressure ratio	Cut off ratio	None of the above	Pressure ratio & Cut off ratio
17.	The humidity ratio is also called	none of these	relativity humidity	specific humidity	absolute humidity
18.	Radiation emitted by a black body is known as	full radiation	black radiation	total radiation	all of these
19.	With a decrease in the cut-off, the efficiency of the diesel cycle	none of these	decreases	remains constant	increases
20.	Air standard efficiency of an I.C. engine depends on	Speed	All of these	Fuel	Compression ratio

10 out of 12 students qualified for the 2nd round with minimum score of 50%, the second round was organised on 12th of February 2022.

Sr. no.	Name of Participant	Class
1.	Varad Bandiwadekar	T.E.
2.	Vijay Chikkannavar	B.E.
3.	Shubham Gholap	B.E.
4.	Patel Hardik	B.E.
5.	Tarun Lakhavatri	S.E.
6.	Siddhesh Mahadik	B.E.
7.	Meet Samant	T.E.
8.	Anuksha Shinde	B.E.
9.	Shraddha Sondkar	B.E.
10.	Siddhi Samant	S.E.

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Questions asked in the second round:

Sr. no.	Question	Option 1	Option 2	Option 3	Option 4
1.	The gas in the cooling chamber of a closed cycle gas turbine is cooled at	None of these	Constant Pressure	Constant Temperature	Constant Volume
2.	Superheated vapour behaves	as ordinary vapour	approximately as a gas	exactly as gas	as steam
3.	Addition of heat at constant pressure to a gas result in	Raising its temperature and doing external work	Raising its volume	Raising its volume	Raising its volume
4.	Which of the following is not a path function? Which of the following is not a path function?	Thermal conductivity	Kinetic energy	Heat	Work
5.	Latent heat is taken at	none of the mentioned	constant pressure	constant temperature	both of the mentioned
6.	Air-conditioning means	all of the above	removal of air impurities	dehumidifying	cooling and heating
7.	Dehumidification of air is normally done by	heating	cooling	superheating	injecting water
8.	In the refrigeration cycle, the moisture is to be removed before it enters the	condenser	compressor	the cold side of the system	evaporator
9.	Otto cycle is a theoretical cycle, on which	petrol and gas engine runs	only diesel engines run	only gas engine run	only petrol engine run
10.	A gas, which obeys kinetic theory perfectly is	real gas	all of these	perfect gas	pure gas
11.	Rankine cycle efficiency for a power plant is 29%. The Carnot cycle efficiency will be	More	Less	Equal	none of the above
12.	In a refrigeration cycle, the heat is absorbed by a refrigerant in a	expansion valve	compressor	condenser	evaporated
13.	The basic law of heat conduction is	Newton's law	Fourier's law	The first law of thermodynamics	Stefan's law
14.	Free convection flow depends on all of the following except	density	velocity	gravitational force	coefficient of viscosity
15.	The liquid metal having the highest thermal conductivity is	Sodium	Potassium	Mercury	Lead
16.	Heat transferred from an electric bulb by	Radiation	Convection	Conduction	All of these
17.	A radiation shield should have	Low reflectivity	High reflectivity	none of these	zero reflectivity
18.	The wavelength of the radiation emitted by a body depends upon	all the above factors	the nature of its surface	the temperature of its surface	the area of its surface
19.	The ratio of energy	Peclet number	Nusselt number	Stanton number	Biot

	transferred by convection to that by conduction is called				number
20.	Which of the following process can be made reversible with the help of a regenerator?	Constant Pressure process	Constant Volume process	All of these	None of these

First three students with the highest score & all other participated students were awarded with winners and participation certificates on the same day (12th February 2022).

Winner's list:

Sr. no.	**Name**	**Class**	**Rank**
1.	Varad Bandiwadekar	T. E.	1st
2.	Vijay Chikkannavar	B. E.	2nd
3.	Shubham Gholap	B. E.	3rd

Sample Certificate:

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