2022-23

MECHAZINE

ENGINE

The engine consists of a fixed cylinder and a moving piston. The expanding combustion gases push the piston, which in turn rotates the crankshaft. Ultimately, through a system of gears in the powertrain, this motion drives the vehicle's wheels

MCT
MANJARA CHARITABLE TRUST
RAJIV GANDHI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF

MECHANICAL ENGINEERING

VISION

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

MISSION

- To provide contemporary and cutting-edge technical education in Mechanical Engineering.
- To provide an ambience which nurtures research ideas in futuristic domains of Mechanical Engineering.
- To initiate project based learning and practical exposures in the area of Mechanical Engineering.
- To direct faculties in research and consultancy / advisory roles.
- To establish strong linkages with well-known national and
- international technical institutes.
- To promote the culture of imbibing environmental care and ecofriendly designs.
- To become a department of aspiration & choice.

DEPARTMENT OF

MECHANICAL ENGINEERING

PROGRAM OUTCOMES

- **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 professional development. **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 good leadership 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 with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PRINCIPAL'S MESSAGE

PRINCIPAL

WELCOME!

We at MCT's RGIT Mumbai provide a transformative educational experience and believe that "Education is the manifestation of the perfection already in a man." Since inception, the institute is committed to provide quality learning environment and experience to the students and faculty. Over the years, our work ethics and policies have evolved from the vision of our inspiration Late Shree Vilasraoji Dagdojiraoji Deshmukh and various notable educational and social philosophies. Although, I firmly believe Science and Technology as extraordinary resources of the world, yet I feel availability of good leadership is necessary in development of nation. We have outstanding record of taking specific efforts in developing academic excellence, Character and Personality of our students. The Academics, Co-curricular and Extra- Curricular activities of our institute are designed for enabling students to be versatile technocrats and leaders of enormous potential. Our major strengths are our worldwide network of Alumni, our linkages with apex educational and research institutions, our human resource and our infrastructure. The worldwide research in studying role of technocrats in socio-economic development of the nation has proved that technological innovations are the base of economic development of a nation. Moreover, the economic growth of USA in the last fifty years is attributed to science and technology. As a technological institution, this motivates us to shoulder the huge responsibility of contributing to technological world for overall development of our nation. The institute has aligned its mission for developing the young minds into the human capital as an engineering workforce of the nation. We aim to enhance linkages with apex educational and national research institution and develop systems for leading the institute towards academic autonomy and set foundation for institute to be a Centre of Excellence in next five years.I assure you that your stay as student at RGIT will be a memorable experience in the context of learning a value based education. Will enable you to be successful in career and life.

Dr. Sanjay U. Bokade
Ph.D.(Tech), M.E.(Mfg. Tech),
B.E.(Production)

HOD'S MESSAGE

It is my pleasure to present this issue of the Newsletter, an initiative of the Department of Mechanical Engineering. always, this magazine truly strives hard to compile all extensive content that the today's Mechanical Engineer should be aware of. I appreciate the rigorous efforts that have gone in to making this magazine. With number of conquering new heights each year, acquiring numerous prestigious awards and seeing my pupils progress and move ahead and thrive strengthens my belief in our prosperity. With all my wishes, I look forward to the success of this newsletter.

Dr. Rajesh V. Kale
PhD. (Mech) , M.E (Thermal)
B.E. (Mech)

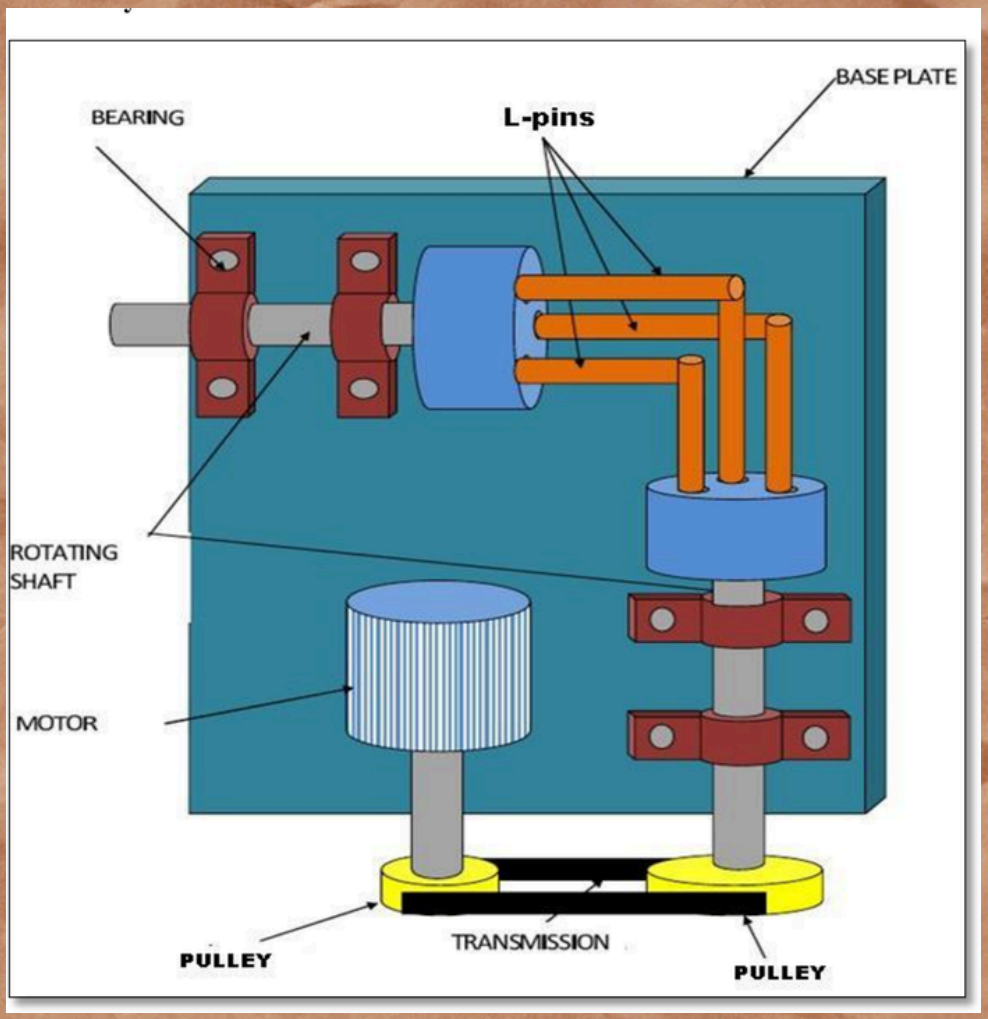
CONTENTS

Classic

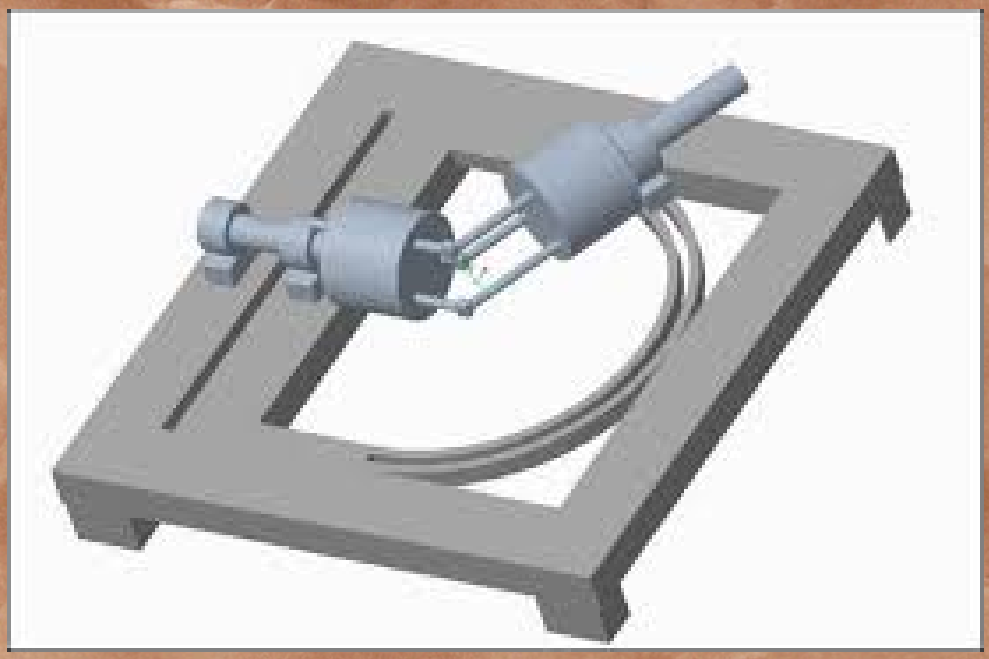
INNOVATIONS

GEARLESS POWER TRANSMISSION SYSTEM

Today's world requires speed on each and every field. In current scenario, Industries are in need to eliminate the gear transmission which requires high level of maintenance and cost, so in order to overcome these liabilities, effective gearless power transmission arrangement is used for skew shafts to transmit power. In Gearless transmission system power is transmitted to odd numbers of pin or links which are used to represent the shaft diameter in centers of any two lines. Increase in number of links and pins will give a smooth motion but it will not be cost effective and also it will not advisable due to strength of shaft. In Shaft both ends are drilled according to the size of Pins or links that are to be fixed may be permanent or temporary in which motion is to be transferred. The dimensions and angle of the pins or links are drilled accurately and precisely. In our experimental setup skew shafts are used in order to change the angle between shafts during the rotary motion or intermittent motion with own axis in rotational motion. In our experiment the result of gearless transmission is very effective and smooth arrangement with minimum power loss.



The Gearless transmission or El-bow mechanism is a device for transmitting Motions at any fixed angle between the driving and driven shaft. The structure would reveal that it comprises of a no. of links would be between 3 to 8 the more the links the smooth the operation. These links slide into hollow cylinders thus formatting a sliding pair. Our structure has 3 such sliding pairs. These cylinders are placed on a shaft and are fastened at 120* to each other. This whole process is seated on brackets wooden table. Power is supplied by handle. The working of the structure is understood by the diagram. Transmits the power between two shafts whose axes are at 90 degree over angled links. 3 links slide relatively allow to the motion given to input shaft. Due to this, the rotational motion of input shaft is changed into sliding motion of links which is then changed to rotation motion of the output shaft.



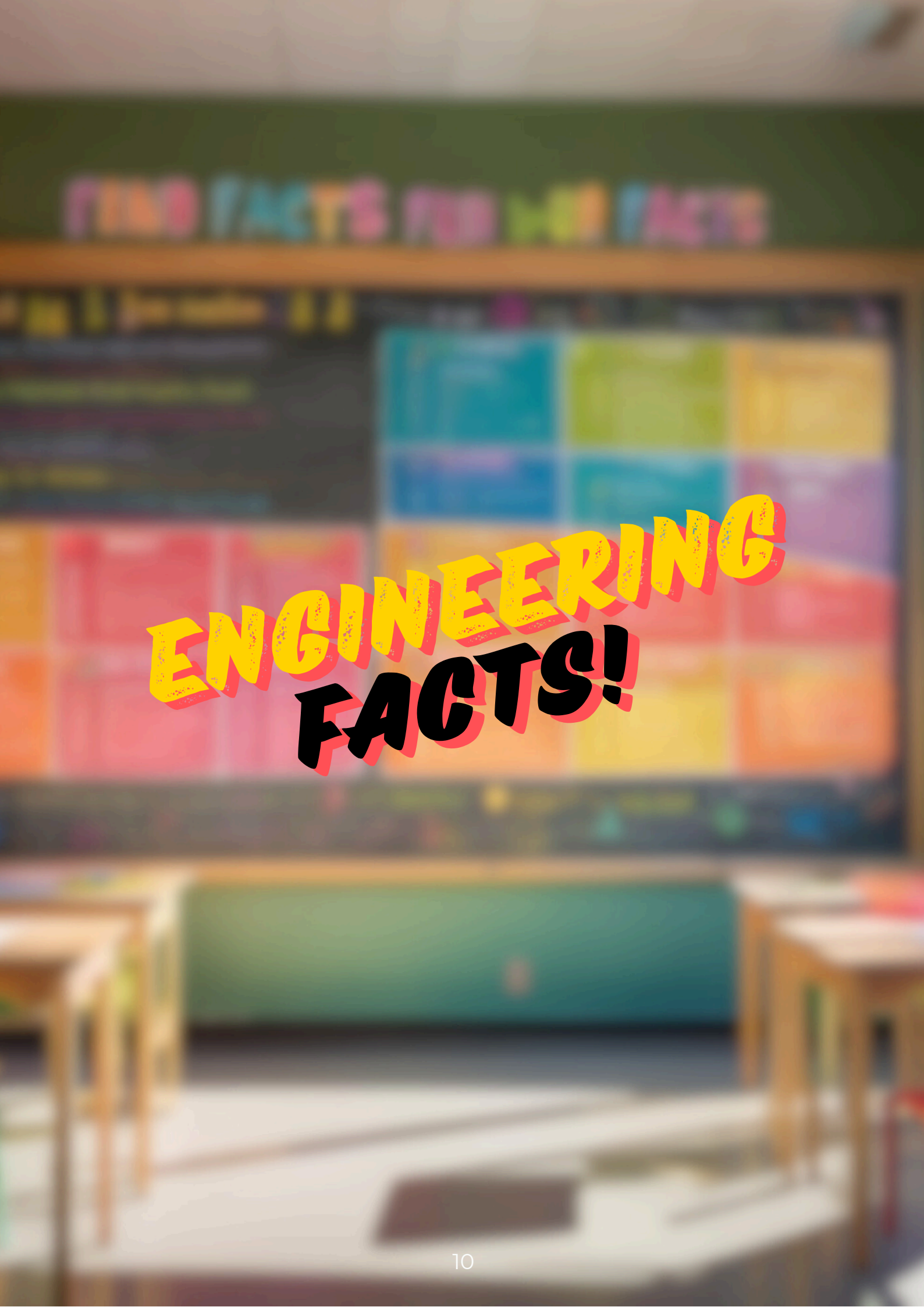
REGENERATIVE BRAKING SYSTEM

A regenerative braking system is a technology used primarily in electric and hybrid vehicles to recover energy that would otherwise be lost during braking. Instead of relying solely on traditional friction brakes, regenerative braking converts kinetic energy from the vehicle's motion back into electrical energy.

Here's how it works:

1. **Deceleration: When the driver applies the brakes, the electric motor that usually drives the vehicle acts as a generator instead.**
2. **Energy Conversion: The kinetic energy from the wheels is converted into electrical energy, which is then sent back to the battery for storage.**
3. **Reduced Wear: This system reduces wear on traditional brake components and improves overall energy efficiency, extending the driving range of electric vehicles.**

Overall, regenerative braking enhances vehicle performance and sustainability by making better use of energy.


ENGINEERING
FACTS!

The Longest Bridge In the World Is In China

Civil engineers are the ones who design bridges, like the Danyang-Kashang Grand Bridge in China, the longest bridge in the world. It's over 100 miles long - long enough to go all the way across Lake Michigan!

The Oldest Computer Is 2000-Years-Old

The Antikythera Mechanism is sometimes called the world's first computer, though it couldn't do much that a modern computer could do. It was a hand-powered device that was used to predict the positions of stars and planets in Ancient Greece.

The first engineer

The founder of engineering dates to ancient Egypt. The first civil engineer is Imhotep. He is believed to have planned and played a key role in the development of the Pyramid of Djoser (a Step Pyramid) at Saqqara in Egypt around 2630-2611 BC.

In 1924, a lab in Japan created a sensitive and directional antenna, which was effective in higher-frequency uses. These antennae became important for everything from television to radar and radio

The first Ferris wheel was invented by George Ferris in 1893. The Pittsburgh engineer created two 140-foot towers that were connected by a 45-foot axle. It was the single largest piece of forged steel to be created at the time.

A civil engineer once created a pumping system that used just the right amount of water to make a water slide slippery. Engineers were also involved in the creation of water slides because they have to factor in how much people weigh, water flow and other factors.

COMMITTEE MESSAGE

We are a dedicated student racing team with a passion for Formula Student cars, focusing on electric vehicles for their environmental benefits. Each year, we design, manufacture, and race an improved version of our racecar, using insights from previous models to enhance performance and integrate cutting-edge technologies. At the prestigious Formula Student competition, our vehicle is rigorously evaluated by industry experts and competes on challenging tracks, testing speed, agility, and teamwork.

Since our establishment in 2010, we have competed in renowned competitions like Formula Italy, SAE Supra, and Formula Bharat. Our journey is marked by continuous innovation and a commitment to sustainability, incorporating sustainable practices and advanced engineering solutions. We prioritize eco-friendly practices, such as using sustainable materials and implementing energy recovery systems, and conduct lifecycle assessments to minimize our environmental footprint. Our efforts have garnered strong feedback from industry professionals, motivating us to strive for excellence and set new standards in electric vehicle design.

Our vision centers on innovation, collaboration, and excellence. We integrate the latest advancements in electric vehicle design and manufacturing, with a team of students from various disciplines working together to achieve a common goal. This interdisciplinary approach fosters creativity and innovation, allowing us to tackle complex challenges and develop groundbreaking solutions. By embracing these principles, we aim to set a benchmark in the Formula Student community, showcasing the potential of electric vehicles and inspiring future generations of engineers.

COMMITTEE MESSAGE

MESA, established in 1997, aims to develop students' skills through internships and industrial exposure. We organize seminars, webinars, and visits to enhance knowledge and career interests. Past events include workshops on self-balancing robots, stock market investing, and financial management. Recent workshops covered Matlab, Simulink, and mental health awareness. Collaborations include IIT Bombay and industrial visits to HPCL and Mahindra Gears.

RGIT'S MESA

The ASME RGIT, established in 2015, aims to foster technical growth and professional development for engineering students. The community organizes various technical workshops, seminars, and industrial visits, along with competitions like eLYC and IAM3D. Past events include workshops on 3D Printing, NX CAD, IoT, and seminars on Higher Education and Industrial Automation. With upcoming events like autonomous robotics and IoT workshops, ASME RGIT continues to push the boundaries of engineering innovation. Stay tuned for more opportunities to learn and grow with ASME!

ASME®
SETTING THE STANDARD
MCT'S RGIT Student Chapter

Dear RGIT Student Members : As part of the ISHRAE RGIT Student Chapter, you are at the forefront of advancing knowledge in HVAC&R. Our committee is dedicated to empowering students like you by offering opportunities for professional growth, technical learning, and industry exposure. Through Workshops, Guest lectures, Industry Visits, and Internships; we aim to bridge the gap between academics and real-world applications.

To achieve excellence in the HVAC&R industry, we look forward to your active participation and ideas to make this chapter a thriving. A platform for learning and collaboration.

ISHRAE
RGIT CHAPTER

COMMITTEE MESSAGE

Dear members and readers,

The leading Institution of Industrial Engineering committee focuses on promoting industrial engineering through collaboration among professionals, continuous learning and research in the field. We encourage our members to actively participate in our upcoming seminars, workshops and events to boost soft skills and enhance innovation.

These focus on current industry trends and techniques to gain practical experience.

Talks by experts in the field to provide insights about current industrial scenarios.

Certification courses to boost soft skills in specialized areas.

The RGIT's Robotics Club (RRC) of Rajiv Gandhi Institute of Technology is a dynamic platform where innovation meets technology. The club provides students with hands-on experience in designing, building, and programming robots and encourages exploration of cutting-edge technologies like AI, IoT, and automation. Open to all enthusiasts, RRC offers opportunities for learning, growth, and innovation.

"A drone can scout the skies, but only a team can conquer the galaxy" The Aero Committee aims to advance aerospace knowledge and skills, offering technical workshops and software exploration. Our mission is to provide a platform for students to explore aerospace through technical workshops and software. Members gain expertise in aerodynamics, CFD, structural analysis, XFLR, AUTOCAD, and SOLIDWORKS. The committee also organizes industrial visits and facilitates participation in competitions like SAE Aero Design and UAV Challenges, helping our members stay at the forefront of aerospace innovation.

PLACEMENT

PLACEMENT

Worley Total student's placed-**07**

Spiders Total student's placed-**07**

TCS TATA CONSULTANCY SERVICES Total student's placed- **16**

Reliance RETAIL Total student's placed-**12**

BURNS MCDONNELL Total student's placed-**06**

SAHAS SOFTECH LLP Total student's placed-**05**

Total student's placed-**10**

Infosys Total student's placed-**06**

Maire Tecnimont Total student's placed-**06**

toothsi be the spark Total student's placed-08

SAHAS SOFTECH LLP
TCS TATA CONSULTANCY SERVICES
AXIS
Bectochem
DELL
Worley
BOSCH
wipro
Hindustan Unilever Limited
HP
IntelliPaat
Reliance RETAIL
Infosys
LEARNING ROUTES
LogIQids
Spiders
TATA CONSULTANCY SERVICES
BURNS MCDONNELL
cognizant
BLUE STAR NOBODY COOLS BETTER
newgen
accenture
Maire Tecnimont
Tech Mahindra
बैंक ऑफ महाराष्ट्र Bank of Maharashtra
Mahindra
INFOTECH
VIOMA

AND MANY MORE..,

ACHIEVEMENT

TEAM RGIT RACING
Formula Bharat, Coimbatore Tamil Nadu

TEAM AERO RGIT
SAE DDC 2023 REGULAR Class:-
TEAM GAGAN YODDHAS
9th Rank All over India
T.C: Prathamesh Parab
SAE DDC2023 MICRO Class:-
TEAM_VAMAN
9th Rank All over India
Fastest Assembly Record within 41 seconds
T.C: Shubham Dixit

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