

# ***MECH VISTA***

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## **Department of Mechanical Engineering**



**Gandhi Institute of Advanced Computer and Research**

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**Editor-in-Cheif**

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It is a privilege to present the current issue of the Bi-Annual Newsletter of the Department of Mechanical Engineering. This publication highlights the key academic, technical, and co-curricular activities undertaken during the past six months.

The newsletter captures departmental events such as workshops, seminars, expert lectures, industrial visits, student projects, faculty achievements, and outreach activities. These initiatives reflect our commitment to providing quality technical education and practical exposure to our students. Such contributions not only enhance communication skills but also foster confidence, creativity, and professional growth.

I sincerely thank all students, faculty members, and the editorial team for their valuable contributions and continuous support in bringing out this issue successfully. Their dedication and teamwork strengthen the academic culture of the department.

Let this newsletter inspire us to pursue excellence, innovation, and responsibility in shaping the built environment for a better tomorrow.

**Published by**

**Department of Mechanical Engineering**

**Gandhi Institute of Advanced Computer and Research, Rayagada**

## Message from the Principal



It is truly heartening to witness the Mechanical Engineering Department of our college publish its annual newsletter “GIACR MechVista” —a compelling testament to its vibrant academic culture, technological foresight, and unwavering commitment to excellence. This publication encapsulates the department’s dynamic engagement with both foundational engineering principles and cutting-edge innovations.

Mechanical Engineering, long regarded as the backbone of industrial progress, continues to evolve and expand its influence across emerging domains such as autonomous mechanical systems, renewable energy technologies, smart manufacturing, and sustainable infrastructure development. These areas not only redefine traditional engineering paradigms but also position mechanical engineers at the forefront of global problem-solving.

In response to the rapidly shifting landscape of science and technology, the department has proactively introduced a suite of initiatives—ranging from interdisciplinary curriculum enhancements and industry-aligned training modules to research-driven student projects and innovation labs. These efforts are strategically designed to cultivate technical proficiency, systems thinking, and a future-ready mindset among students.

This annual newsletter serves as a reflection of the department’s holistic approach to education and innovation. It showcases key academic activities, research achievements, collaborative ventures, and outreach initiatives that collectively foster intellectual growth, technological advancement, and meaningful societal impact.

## Message from the Head



### Greetings!

I am truly delighted to witness the launch of the Department of Mechanical Engineering's annual newsletter "GIACR MechVista" —a vibrant and insightful platform that fosters meaningful connection among students, faculty, alumni, and stakeholders. This publication serves not only as a chronicle of the department's dynamic activities but also as a celebration of its enduring commitment to engineering excellence.

This edition proudly showcases hallmark initiatives such as the *Project Expo*, where student ingenuity meets real-world application, and the department's ongoing *Research and Development* efforts that push the boundaries of innovation in areas like thermal systems, robotics, materials science, and sustainable design. These features reflect the academic rigor, technical depth, and forward-thinking spirit that define our department.

Equally commendable are the contributions of our dedicated faculty members, whose mentorship and scholarly pursuits continue to elevate the standards of Mechanical Engineering education. The newsletter also highlights best practices in pedagogy, industry collaboration, and experiential learning—reinforcing our mission to produce engineers who are not only technically proficient but also socially responsible.

I extend my heartfelt congratulations to all the students and faculty of the Mechanical Engineering Department for their collaborative effort and unwavering dedication in bringing out this publication. May it continue to inspire innovation, foster excellence, and strengthen the bonds within our academic community.

## **Vision and Mission of the Institution**

### **Vision**

To become a globally recognized, value-driven educational institution committed to excellence in delivering quality education, nurturing students' inherent talents, and developing innovative professionals in technical and managerial fields, thereby equipping them to meet the future challenges of the global economy.

### **Mission**

**M1:** To deliver quality education through effective teaching–learning processes that foster academic excellence in technical and managerial disciplines.

**M2:** To nurture students' inherent talents by encouraging creativity, critical thinking, innovation, and lifelong learning.

**M3:** To develop competent and ethical professionals with strong values, leadership skills, and social responsibility.

**M4:** To promote industry-oriented learning and research through collaboration, practical exposure, and adoption of emerging technologies.

**M5:** To prepare globally competitive graduates capable of adapting to evolving challenges and contributing effectively to the global economy.

## **Vision & Mission of Department of Mechanical Engineering**

### **VISION**

To be a premier knowledge hub in mechanical engineering education, entrepreneurship, and industry engagement, producing skilled engineers ready to address industrial challenges.

### **MISSION**

**M1.** To impart strong fundamental and advanced knowledge in mechanical engineering through effective teaching–learning practices and modern pedagogical methods.

**M2.** To promote innovation and entrepreneurship by encouraging creative thinking, problem-solving, and startup-oriented initiatives among students.

**M3.** To strengthen industry engagement through internships, industrial training, consultancy, and collaborative projects to enhance practical skills.

**M4.** To develop technically competent and ethical engineers with leadership qualities, professional integrity, and social responsibility.

**M5.** To equip graduates with industry-relevant skills and adaptability to effectively address real-world engineering challenges.

## **Program Outcomes (POs)**

- 1. Basic and Discipline specific knowledge:** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
- 2. Problem analysis:** Identify and analyses well-defined engineering problems using codified standard methods.
- 3. Design/ development of solutions:** Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
- 4. Engineering Tools, Experimentation and Testing:** Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.
- 5. Engineering practices for society, sustainability and environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.
- 6. Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
- 7. Life-long learning:** Ability to analyse individual needs and engage in updating in the context of technological changes.

## **Program Educational Objectives**

**PEO1:** To impart science-based engineering education to develop professional skills that will prepare the students for immediate employment in relevant branch of mechanical engineering in industry.

**PEO2:** To develop human potential to its fullest extent so that intellectually capable and creatively gifted leaders can emerge in range of professions.

**PEO3:** To develop among students the awareness of and the competence to be savvy users of information technology.

**PEO4:** To Develop among students the ability to work with others, in professional and social settings.

**PEO5:** To develop a global view among students so that they can appreciate diversity in the world and in intellectual pursuits and the desire and ability to keep learning throughout life.

## **Programme Specific Outcome**

**PSO 1:** Apply the acquired knowledge in design, thermal, manufacturing and interdisciplinary areas for solving industry and socially relevant problems.

**PSO 2:** To enhance the abilities of students by imparting knowledge in emerging technologies to make them confident mechanical Engineers.

**PSO 3:** Provide socially responsible, eco –friendly broad base solution to mechanical Engineering related problems adopting professional ethics.

## Celebration of Independence Day at GIACR Rayagada

The Independence Day was celebrated 15<sup>th</sup> August, 2023 with great patriotism and enthusiasm at GIACR, Rayagada, reflecting the institute's commitment to national pride and unity. The campus was beautifully decorated with tricolour flags, banners, and floral arrangements, creating an atmosphere of celebration and reverence. Students, faculty members, non-teaching staff, and invited guests gathered early in the morning to participate in the programme, making the event vibrant and meaningful.



The ceremony began with the unfurling of the National Flag by the Principal, followed by the singing of the National Anthem, which filled everyone with pride. In his address, the Principal highlighted the significance of Independence Day and reminded everyone of the sacrifices made by the freedom fighters who fought valiantly for India's liberation. He also motivated the students to uphold the values of responsibility, discipline, and integrity, which are essential for the progress of the nation.

The cultural programme organised by the students added colour and liveliness to the celebration. Patriotic songs, dances, speeches, and skits showcasing India's struggle for

freedom received great appreciation from the audience. Faculty members also encouraged students to imbibe the spirit of patriotism and contribute to society through innovation, hard work, and social responsibility.

A plantation drive was also conducted on the campus to promote environmental awareness and sustainability, symbolising growth and new beginnings. The event concluded with the distribution of sweets and a vote of thanks to all participants for their active involvement.

Overall, the Independence Day celebration at GIACR Rayagada was a memorable occasion that instilled patriotism, unity, and a sense of responsibility among the students and staff.



## Celebration of Orientation Day



The Orientation Day was celebrated with great enthusiasm at the Mechanical Engineering Department of GIACR on 21<sup>st</sup> August, 2023 marking an important beginning for the newly admitted students. The programme was designed to familiarise the fresh batch with the academic environment, departmental culture, and the diverse opportunities that await them in the field of mechanical engineering. The orientation meet was presided over by the Principal, the Head of the Department (HoD), and all teaching and laboratory staff members, whose presence added prestige and inspiration to the occasion.

The event commenced with a warm welcome address, where the Principal highlighted the institute's vision, commitment to quality education, and the importance of discipline and dedication in shaping a successful engineering career. The Principal also encouraged students to actively participate in academic, technical, and co-curricular activities to become industry-ready professionals. Following this, the HoD of Mechanical Engineering introduced the department's legacy, its academic strengths, laboratory facilities, ongoing research initiatives, and the career prospects in various domains such as design, manufacturing, thermal engineering, robotics, and automation.

Faculty members from different specialisations interacted with the students, outlining the curriculum structure, elective opportunities, evaluation system, and expectations for academic performance. The lab technicians and supporting staff briefed students about safety protocols, laboratory usage guidelines, and hands-on learning opportunities, ensuring that the newcomers understood the importance of practical exposure in engineering education.

The orientation also included an interactive session where students were encouraged to share their aspirations and clarify their doubts regarding academic pathways, campus life, and future career goals. The session fostered a positive and comfortable atmosphere that helped students feel connected and motivated.

Overall, the Orientation Day at the Mechanical Department of GIACR served as a meaningful platform to welcome new students, guide them towards a successful academic journey, and instil confidence as they embark on their professional growth. The collective efforts of the Principal, HoD, faculty, and staff made the event informative, engaging, and memorable.



## Avoid Polythene Awareness Programme



The Department of Mechanical Engineering organized an Avoid Polythene Awareness Programme on 7th September 2023 at Halua Panchayat, Rayagada. The programme was conducted with the objective of spreading awareness about the harmful effects of polythene on the environment and public health.

Students and faculty members actively participated in the campaign and interacted with local residents, shopkeepers, and vendors. They explained how excessive use of plastic bags leads to soil pollution, water blockage, and harm to animals. The team encouraged the community to adopt eco-friendly alternatives such as cloth and jute bags for daily use. Awareness messages and pamphlets were distributed to reinforce the importance of reducing plastic consumption.

The villagers responded positively and appreciated the efforts taken by the department. The programme not only created environmental awareness among the local community but also instilled a sense of social responsibility among students. The initiative was a meaningful step towards promoting a cleaner and greener environment.

## Participation in OdishaStartup Express



Students of the Mechanical Engineering Department actively participated in the Odisha Startup Express on 27th September 2023. The programme provided a dynamic platform for young innovators to showcase their entrepreneurial talent and creative thinking.

The students presented their innovative business ideas before an expert jury panel. Their proposals focused on practical solutions, technological advancements, and sustainable development. The participants confidently explained their concepts, business models, and potential market impact, demonstrating strong problem-solving skills and entrepreneurial mindset.

The jury members appreciated the originality and feasibility of several ideas. Selected proposals received special recognition and encouragement for further development. The event not only boosted the confidence of the participating students but also motivated them to explore startup opportunities and innovation-driven careers.

Participation in the Odisha Startup Express helped students gain valuable exposure to the startup ecosystem and understand the importance of entrepreneurship in today's competitive world. The programme served as an inspiring experience, encouraging students to transform their ideas into successful ventures in the future.

## Workshop on Accreditation Process of NAAC



A workshop on the Accreditation Process of NAAC was conducted on 14th November 2023 for all faculty members of GIACR Rayagada. The session was delivered by Dr. Gouri Sankar Mohapatra, Professor of Mechanical Engineering at GATE Engineering College. The workshop aimed to provide comprehensive insight into the guidelines, criteria, and documentation procedures required for NAAC accreditation.

Dr. Mohapatra elaborated on the seven criteria of NAAC assessment, key indicators, preparation of SSR, data validation and verification (DVV) process, and the importance of quality benchmarks in higher education institutions. He emphasized outcome-based education, documentation practices, institutional best practices, and continuous quality improvement measures. The interactive session enabled faculty members to clarify their doubts regarding criterion-wise evidence preparation and AQAR submission.

The workshop proved highly informative and beneficial, equipping the faculty with a clear understanding of accreditation requirements and strengthening the institutional preparedness for NAAC assessment.

## Technical Seminar at UGMIT, Rayagada



UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY  
RAYAGADA

Skilled in ODISHA

**Technical Seminar on**  
**“Exploring the Dynamics and Advancements in Internal Combustion Engines”**

By : Deptt. of Mechanical Engg.

**PRESENTED BY : SRI MANAS RANJAN SAHU**

Asst. Professor, G.I.A.C.R. Engineering College  
Barijholra, Rayagada



Date : 08.12.2023, Time : 02.30 PM - 05.00 PM

Venue : Conference Hall, U.G.M.I.T., Rayagada



A technical seminar was held at UGMIT, Rayagada, on 08/12/2023. The session was delivered by **Manas Kumar Sahu**, Assistant Professor of Mechanical Engineering, GIACR. He presented an insightful talk on the topic *“Exploring the Dynamics and Advancements in Internal Combustion Engine.”* The seminar was attended by faculty members and students of UGMIT, who actively participated in the interactive session.

During his presentation, Mr. Sahu discussed the fundamental working principles of internal combustion engines, types of engines, and thermodynamic cycles. He further elaborated on recent technological advancements such as fuel injection systems, turbocharging, hybrid integration, emission control techniques, and the transition toward greener and more fuel-efficient engines. Emphasis was also given to sustainable engineering practices and the challenges faced by the automobile industry in meeting environmental norms.

The seminar proved to be highly informative and inspiring for the participants. It enhanced their understanding of modern engine technologies and motivated students to explore research and innovation in the field of mechanical engineering.

### **Annual Sports Meet**

The Sports Meet for Diploma Engineering students was held on 23rd December 2023 with great enthusiasm and energetic participation from students across all departments. The event aimed to encourage physical fitness, team spirit, and healthy competition among the students, reflecting the institute's commitment to holistic development.



Barijholā, Odisha, India  
59MX+M5W, Barijholā, Odisha 765002, India  
Lat 19.184808°  
Long 83.397906°  
22/12/23 10:47 AM GMT +05:30



Barijholā, Odisha, India  
59MX+4P, Barijholā, Odisha 765002, India  
Lat 19.182511°  
Long 83.399992°  
23/12/23 11:58 AM GMT +05:30

A variety of outdoor games were organised as part of the sports meet. Students took part in events such as cricket, volleyball, badminton, relay races, long jump, and tug-of-war. Each event witnessed active involvement and vibrant cheering from participants and supporters, creating a lively and spirited atmosphere throughout the day. Faculty members and sports coordinators supervised the events, ensuring fair play and smooth conduct of the competitions.

The sports meet provided an excellent platform for students to showcase their athletic abilities and develop qualities such as discipline, teamwork, leadership, and perseverance. Winners were applauded for their performance, while all participants were appreciated for their enthusiasm and sportsmanship.

The event concluded with a brief felicitation ceremony where outstanding performers were recognized. Overall, the Sports Meet of 23/12/2023 was a memorable and successful event, fostering unity, physical fitness, and a sense of togetherness among the student community.