R.V.R. & J.C.
COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

LEARN | INNOVATE | BUILD | SUSTAIN

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THE MECHANICAL ENGINEERING MAGAZINE

IDEAS TODAY | SMARTER TOMORROW

Engineering for a Better Tomorrow

THEME OF THIS EDITION

Engineering for a GREENER TOMORROW: Industry Perspectives on Sustainability

SUSTAINABLE IDEAS.
STRONGER INDUSTRIES.
BRIGHTER TOMORROWS.





PEOPLE | IDEAS | TECHNOLOGY | SUSTAINABILITY | IMPACT

R.V.R. & J.C. COLLEGE OF ENGINEERING | DEPARTMENT OF MECHANICAL ENGINEERING

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ENGINEERING FOR A GREENER TOMORROW: INDUSTRY PERSPECTIVES ON SUSTAINABILITY



-Rahul Sai

Sustainability is rapidly becoming a core part of modern engineering. Industries today are moving beyond traditional goals of productivity and profit to focus on energy efficiency, resource conservation, waste reduction, and environmental responsibility.

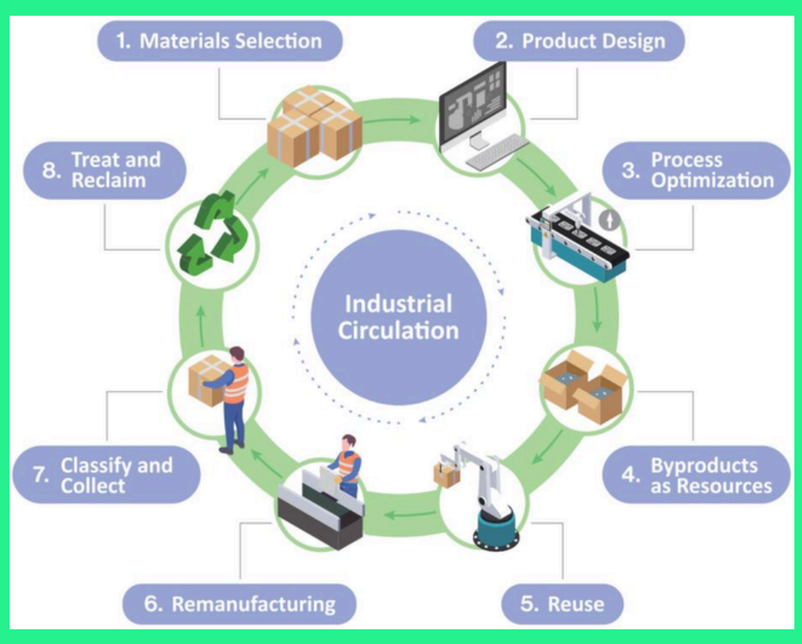
Engineers are at the forefront of this transformation. From renewable energy and electric mobility to green buildings and sustainable manufacturing, engineering innovations are helping industries reduce their environmental impact. Technologies such as Artificial Intelligence, automation, smart sensors, and digital systems are also enabling companies to optimise resources, reduce waste, and improve energy efficiency.

The shift toward a circular economy is another important development. Industries are increasingly designing products and processes that encourage reuse, recycling, and recovery of materials rather than the conventional “take–make–dispose” approach.

For India, areas such as solar energy, green hydrogen, electric transportation, sustainable infrastructure, and cleaner manufacturing offer significant opportunities for engineers and industries alike.

The engineer of tomorrow must therefore think beyond technical performance. Every design decision should consider its impact on people, resources, and the environment.





The Engineer of Tomorrow

Sustainability will increasingly influence not only what engineers design, but how they think. Future engineers will need to consider the complete lifecycle of a product or system—from raw-material extraction and manufacturing to operation, reuse, and end-of-life management.

This creates an exciting opportunity for the engineering community. Alumni, industry professionals, educators, and students can work together to bridge the gap between academic knowledge and real-world sustainability challenges. Collaboration between industry and educational institutions can help develop engineers who combine technical expertise with environmental awareness and responsible decision-making.



Engineering for a greener tomorrow is ultimately about designing progress that lasts. The challenge before today’s engineers is not simply to build more, but to build smarter, cleaner, and more responsibly. As technology continues to evolve, the engineering decisions we make today will help shape the quality of life and environment inherited by generations to come.

FACULTY ARTICLE

GREEN MECHANICAL TECHNOLOGIES: THE PATH TOWARDS SUSTAINABLE ENGINEERING



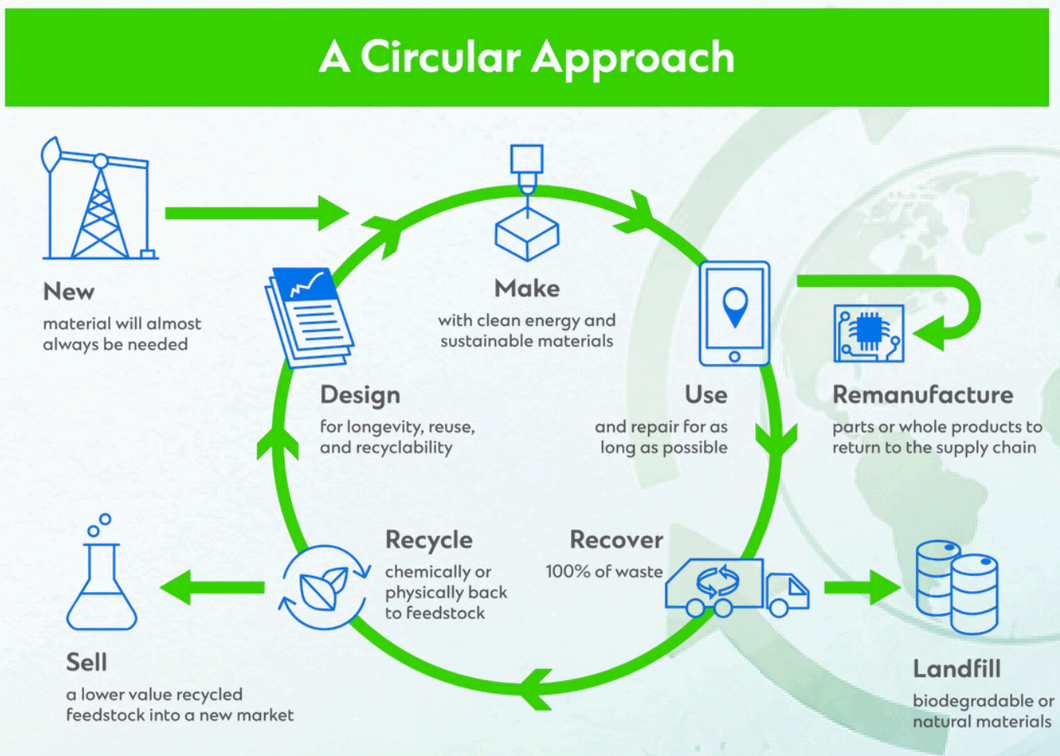
-Dr. K. Praveen Kumar
Associate Professor

In today's world, increasing pollution, climate change, energy consumption, and depletion of natural resources have created a need for sustainable engineering. Mechanical engineering plays an important role in addressing these challenges by developing energy-efficient machines, eco-friendly materials, and cleaner manufacturing processes.

Green mechanical technologies focus on reducing energy consumption, minimizing waste, conserving natural resources, and reducing harmful emissions. Engineers can contribute to sustainability by designing efficient motors, pumps, compressors, turbines, and heating and cooling systems. Energy-efficient HVAC systems, for example, can provide effective temperature control while consuming less energy.

The use of eco-friendly and recyclable materials is another important aspect of sustainable engineering. Lightweight materials used in automobiles can reduce vehicle weight, fuel consumption, and emissions. Similarly, using recyclable and durable materials can reduce waste and conserve natural resources.





Source: BloombergNEF

Green manufacturing also focuses on reducing material wastage, recycling components, and using cleaner production methods. Renewable-energy technologies such as wind turbines and solar-powered mechanical systems can further reduce dependence on fossil fuels and help lower greenhouse-gas emissions.

Green mechanical technologies provide both environmental and economic benefits. They help industries save energy, reduce operating costs, minimize pollution, and use resources more efficiently. Therefore, sustainable engineering is an important direction for the future of mechanical engineering.

In conclusion, green mechanical technologies combine engineering innovation with environmental responsibility. By adopting energy-efficient systems, renewable energy, recyclable materials, and cleaner manufacturing methods, engineers can contribute to technological development while protecting the environment for future generations.

STUDENT ARTICLE



- K. SAI TEJA
L23ME134

ELECTRIC MOBILITY: DRIVING TOWARDS A SUSTAINABLE FUTURE

Electric mobility is transforming the way we travel and is becoming an important part of the transition towards cleaner transportation. Electric vehicles (EVs), powered by batteries or other electric systems, produce zero tailpipe emissions, helping reduce air pollution in cities. The International Energy Agency reports that global electric-car sales reached 21 million in 2025, meaning roughly one in four cars sold was electric.

Unlike conventional vehicles that depend on petrol or diesel, EVs use electricity and are generally more energy-efficient. Their environmental benefits become greater when the electricity used for charging comes from renewable sources such as solar and wind. Over their lifetime, battery-electric cars can produce substantially fewer greenhouse-gas emissions than comparable petrol or diesel cars.

However, electric mobility also faces challenges such as charging infrastructure, battery manufacturing, recycling, and the need for cleaner electricity generation. Addressing these challenges requires innovation, investment, and responsible use of resources.

The future of mobility is likely to involve not just electric vehicles, but smarter and more connected transportation systems. Technologies such as fast charging, improved batteries, vehicle-to-grid systems, and intelligent traffic management could make electric mobility even more practical and efficient.

Electric mobility is therefore more than simply replacing a petrol engine with an electric motor. It represents a broader shift towards cleaner energy, smarter transportation, and responsible use of resources. With continued innovation, supportive policies, better infrastructure, and greater public awareness, electric mobility can help create cleaner cities and contribute to a more sustainable future.

The journey towards sustainable transportation has already begun—and every electric vehicle on the road is a step towards a cleaner tomorrow.

ZOOM AT EVENT

R. Jaswanth Sai (Roll No: L24ME141) from the Department of Mechanical Engineering, R.V.R. & J.C. College of Engineering, participated in ROBO X 2K25, a National-Level 24-Hour Hackathon organized by the Velagapudi Ramakrishna Siddhartha School of Engineering under the Siddhartha Academy of Higher Education, Vijayawada. The event was held on the 18th and 19th of September 2025, bringing together innovative minds from various institutions to design, develop, and showcase cutting-edge robotic and technological solutions.



మేధో వికాసం.. రోబోల విన్యాసం!

కానూరు, తాడిగడప, యనమలకుదురు, న్యూస్‌టుడే

సాంకేతిక విద్యలో రోబో టెక్నాలజీ ప్రాధాన్యం పెరిగింది. మనుషులు చేసే పనులతో పాటు వారు వెళ్లలేని ప్రాంతాలకు సైతం రోబోలు వెళ్లి పనులు చక్కబెడుతున్నాయి. సాంకేతికత పెరుగుతున్న నేపథ్యంలో అధునాతన రోబోలు అందుబాటులోకి వస్తున్నాయి. వాటితో విద్యార్థులు విన్యాసాలు చేయిస్తున్నారు. కానూరు సిద్ధార్థ డీమ్డ్ విశ్వవిద్యాలయంలో రోబో ఎక్స్-2025 జాతీయ స్థాయి ప్రదర్శనలో వివిధ కళాశాలల విద్యార్థులు రోబోలను ప్రదర్శించారు. వాటి ప్రత్యేకతలపై కథనం.

ప్రజలకు సాయం అందించేందుకు

తుపానులు, అగ్ని ప్రమాదాలు జరిగిన సమయంలో ప్రజలకు సాయం అందించే రోబోను రూపొందించారు గుంటూరు ఆర్వీఆర్ జేసీ ఇంజినీరింగ్ కళాశాల విద్యార్థులు **ఆర్.జశ్వంత్‌సాయి, రావూరి పుష్ప.** మెషీన్ సాయంతో పనిచేసే ఈ రోబో నీటిలో పడవలా వెళ్లగలదు. అలాగే గాలిలో కూడా ఎగురుతుంది. ఆపదలో ఉన్న వారికి ఆహారం, మందులు, ఇతర వస్తువులను అందించేందుకు ఉపయోగపడుతుందని విద్యార్థులు తెలిపారు.

ఎక్కడికైనా వెళ్లగలిగేలా..

ఎటువంటి మార్గంలోనైనా మానవ రహితంగా వెళ్లగలిగే రోబోను రూపొందించారు.. నూజివీడు ఐఐఐటీ విద్యార్థులు **రూప్‌చంద్, ఫణీంద్ర, రంజిత్.** రోబోలో అల్ట్రాసోనిక్ సెన్సార్లు, మైక్రో కంట్రోలర్, ఎంఎల్ అల్గారిథమ్‌ను వినియోగించారు. తద్వారా అది వెళ్లే దారిలో ఏదైనా అడ్డు వస్తే.. ముందుగానే గుర్తించి, ప్రత్యామ్నాయ మార్గం గుండా ప్రయాణిస్తుంది. శత్రుదేశాల రహస్యాలు, నిఘా విషయాలను వీటి ద్వారా తెలుసుకోవచ్చని చెప్పారు.

FUNCTION OF THE PROJECT PROTOTYPE:-

The prototype is a hybrid AI-powered drone that works in both air and water modes to deliver emergency supplies in disaster-affected areas. In air mode, it flies quickly to the location, and in water mode, its rover wheels help it move on rough terrain. It uses AI for obstacle detection, safe navigation, and path planning. A mobile app allows tracking, sending requests, and confirming deliveries.

“It delivers medical and emergency supplies in disaster areas using a drone that can fly and also move on water, with AI for navigation and a mobile app for tracking.”

ENGINEER’S DAY EVENT

The RVR & JC College of Engineering celebrated Engineers’ Day on 15 September to honour the birth anniversary of Sir Mokshagundam Visvesvaraya, one of India’s greatest engineers. The program began with an inaugural session where faculty highlighted the role of engineers in shaping modern society. The speakers also emphasized the importance of creativity, ethics, and responsibility in engineering practice. The session created a sense of pride and motivation among the audience, encouraging them to follow the footsteps of great engineers. The event set a positive tone for the celebrations that continued throughout the day, bringing together students from various departments with a shared passion for technology and innovation.

A key attraction of the event was the Technical Project Exhibition, featuring working models, prototypes, posters, and research ideas presented by students from various departments. Projects covered areas such as automation, renewable energy, IoT, and advanced manufacturing. Faculty members interacted with the participants, appreciating their creativity and providing valuable feedback.
The celebration created a dynamic, collaborative atmosphere on campus, especially engaging first-year students and giving them exposure to practical engineering concepts.

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The automation models showcased intelligent systems designed to simplify industrial processes ranging from automated sorting units and conveyor-based inspection mechanisms to robotic arms capable of performing precision movements.
Mechanical and production engineering students presented CNC mimicking mechanisms, where manually designed setups replicated the motions and tool paths of CNC machines, helping visitors understand how machining automation works at a fundamental level.

Overall, the celebration created a lively and inspiring atmosphere on campus, allowing students to experience hands on engineering and exhibit their problem solving skills. The Engineers' Day exhibition highlighted the college's strong emphasis on innovation and real-world application, motivating future engineers to think creatively and build technologies that address everyday challenges.

INDUSTRIAL TOUR'S

Sangam Dairy & Kumar Pumps

As part of the experiential learning, second-year B.Tech A SECTION students visited Sangam Dairy, Guntur, and Kumar Pumps & Motors on September 8 2025 gaining valuable exposure to real-world industrial operations. The visit helped students understand how classroom concepts in manufacturing, materials, and mechanical systems are applied in industry.

SANGAM DAIRY, GUNTUR:

Inside a Modern Dairy Processing Plant
Sangam Dairy is one of the region's largest and most successful dairy cooperatives. During the visit, students observed how milk collected from thousands of village societies is processed with strict quality and hygiene standards. The plant's automated systems including , chilling, , pasteurization and packaging demonstrated how the dairy ensures product safety using technologies like CIP (Clean-In-Place).



Students also explored the quality control lab, where every batch of milk is tested for fat, SNF, acidity, and adulteration. Equipment like bulk milk coolers, homogenizers, and separators ensures freshness and consistency, while cold storage and insulated tankers maintain quality during distribution. The visit also highlighted Sangam Dairy's cooperative model that supports thousands of farmers. Overall, the tour offered valuable insights into modern dairy technology, operational efficiency, and hygiene practices in the industry.

KUMAR PUMPS & MOTORS:

The visit to Kumar Pumps exposed students to the complete manufacturing journey of pumps and electric motors. The company's modern foundry, equipped with advanced molding machines and induction furnaces, showcased how raw metal is melted, cast, and transformed into high quality components.



Students saw the use of CNC, VMC, and grinding machines, which ensure precision and accuracy during machining. The plant also houses an in-house metallurgical lab, where materials are tested for strength and composition demonstrating the importance of quality control in mechanical engineering.

The visit gave students a clear view of how engineering theory becomes real-world practice. The exposure to automated systems and testing labs enhanced their understanding of modern manufacturing. It also highlighted the teamwork and skill needed to maintain quality. Overall, the experience inspired students to explore core engineering careers and helped bridge the gap between classroom learning and industry.

FUN ZONE

		1	7			5	6	
3	6			2				9
	1	8		7	3			5
		2						
						9	1	
9		3	5					6
				6				8
2				3	7			

KNOW A FACT

- The Sun's energy reaches Earth as electromagnetic radiation. Solar panels convert part of this energy into electricity.
- Regenerative braking can recover energy. In many electric vehicles, the motor acts as a generator during deceleration.
- A wind turbine converts kinetic energy into electrical energy. Moving air turns the blades, which drive a generator.

FIND

Four gears are connected in a straight line:

- **Gear A has 20 teeth.**
- **Gear B has 40 teeth.**
- **Gear C has 20 teeth.**
- **Gear D has 60 teeth.**

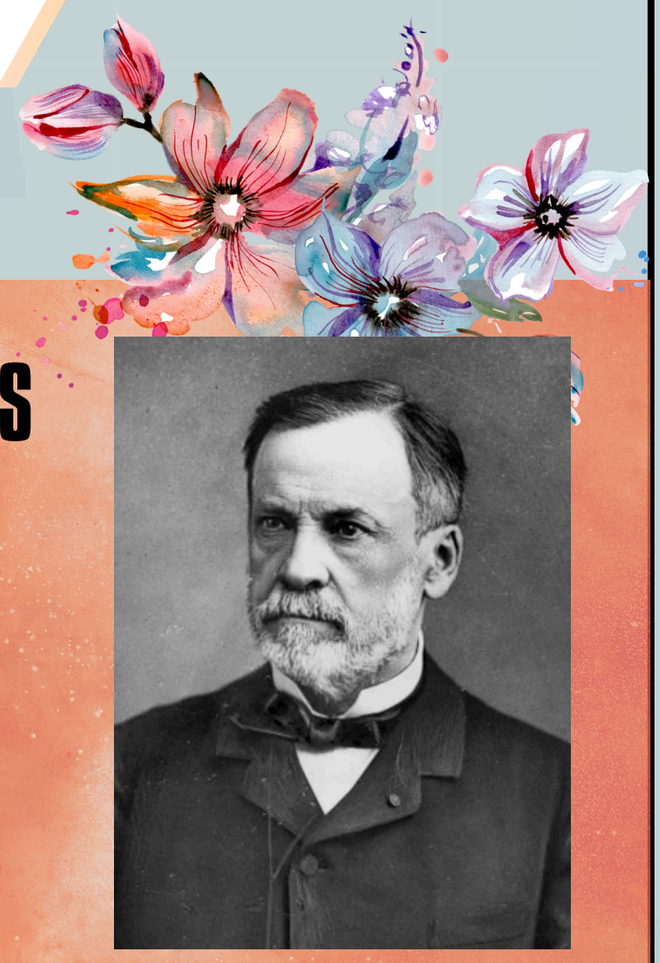


Gear A rotates clockwise at 120 RPM.

Find:

1. **In which direction does Gear D rotate?**
2. **What is the speed of Gear D in RPM?**
3. **Which gear rotates the fastest?**

Assume ideal external gears with no slipping.



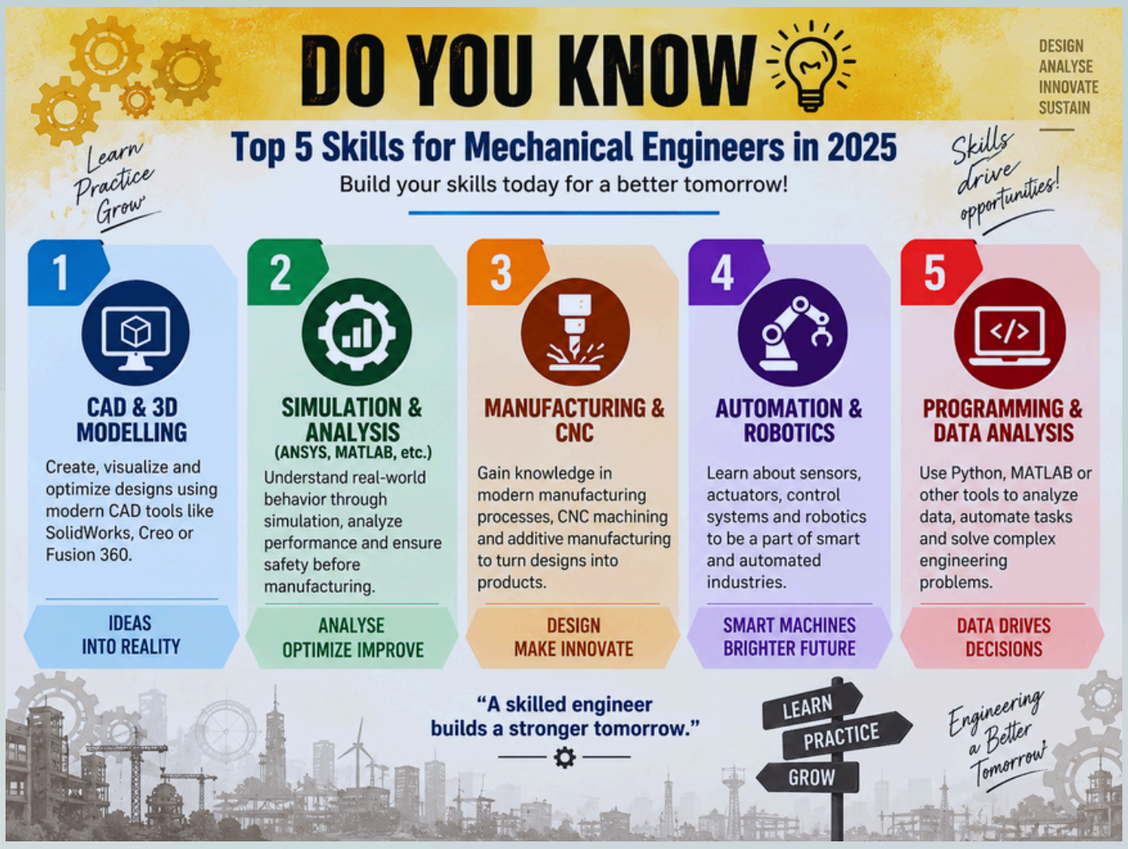
“SCIENCE KNOWS NO COUNTRY, BECAUSE KNOWLEDGE BELONGS TO HUMANITY”

-Louis Pasteur

KNOW A GADGET



- Detects and displays surface temperature patterns
- Useful for identifying overheating components
- Helps inspect electrical panels and mechanical equipment
- Supports preventive maintenance and troubleshooting
- Useful for thermal engineering and energy-efficiency studies











వివత్తుల్లో రోబోల పాత్రను ప్రదర్శించాం

వివత్తుల సమయంలో రోబోల పాత్ర ఎలా ఉంటుందో మా టీమ్‌తో ప్రదర్శించాం. ఆపదలో ఉన్నప్పుడు రోబో సాయంతో ఎలా బయటపడవచ్చో తెలిపాం. బాధితులకి అవసరమైన వాటిని రోబో ద్వారా ఎలా చేర్చవచ్చో చెప్పాం.

ఆర్ జశ్వంత్ సాయి, విద్యార్థి,
ఆర్‌వీఆర్ అండ్ జేసీ కళాశాల, చౌడవరం

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