



**LLOYD INSTITUTE
OF ENGINEERING
& TECHNOLOGY**



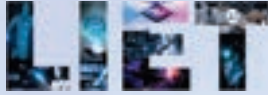
Departmental Technical Magazine
MECHNOVA

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Department of Mechanical Engineering

Session- 2023-24

About



LLET, Lloyd Institute of Engineering & Technology has become a place where dreams are indeed transformed into reality. The institute is affiliated to Dr. A.P.J. Abdul Kalam Technical University (Formerly UPTU) and recognized by the A. I. C. T. E. (Min of HRD), New Delhi, and

Affiliated to



Lucknow

Approved by



New Delhi



VISION

"To emerge as an Institute of academic excellence by empowering young minds through



MISSION

M1: To equip the students with state-of-the-art technological advancement and skills.

M2: To create a conducive environment for teaching and learning through continuous engagement with industry for corporate understanding and Professionalism.

M3: To focus on holistic development of students through enhanced learning along with moral and ethical value system.



About Department

Established in 2002, the Mechanical Engineering Department focuses on quality education, research, and technological innovation. The department equips students with strong fundamentals in mechanics, energy, and materials, preparing them to design, operate, and maintain modern engineering systems. Through industry-oriented learning and problem-solving approaches, students are trained to adapt, innovate, and lead in diverse engineering and industrial careers. The four-year program is AICTE approved and affiliated with Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh.



The Mechanical Engineering Department of Lloyd Institute of Engineering and Technology, will mold their students into technically sound as well as ethically perfect professionals with innovative leadership qualities and a confident attitude for serving the society with global attention.



To impart a thorough knowledge of various core engineering subjects to our entire undergraduate and postgraduate students for ascertaining their fundamental strength in Mechanical engineering.

To expose our students to a curriculum consisting of modern laboratories, interdisciplinary subjects and industrial training in such a way that they get international exposure in world class industries.

To train our students with modern drafting & analysis software for developing their computational capabilities as well as promoting higher studies and research works.





Program Educational Objectives (PEOs)

1. Preparation: To prepare learner with sound foundation in the mathematical, scientific and engineering fundamentals.
2. Core Competence: To prepare Learner to use modern tools effectively in order to solve real life problems.
3. Breadth: To prepare learner for a successful career in Indian and Multinational Organisations and to excel in their postgraduate studies

Program Specific Outcomes (PSOs)

1. Identify, Formulate and Analyze complex Engineering problems in Thermal Engineering, Design Engineering, Manufacturing Engineering and automobile Engineering, and Energy
2. An ability to find out, articulate the local industrial problems and solve with the use of mechanical engineering tools for realistic outcomes.
3. An ability of collaborative learning to find out cost-effective, optimal solution for social problems.

President

Mr. Manohar Thairani



It gives me immense pride and satisfaction to witness the remarkable growth and achievements of the CSE & Allied Branches at LIET. In an age where technology drives progress and innovation shapes the future, Computer Science stands at the core of global transformation.

At LIET, we believe that education must evolve alongside technology. Our vision is to create a dynamic academic ecosystem that nurtures innovation, leadership, ethical values, and a spirit of entrepreneurship. The CSE & Allied Branches are playing a pivotal role in realizing this vision by producing future-ready professionals equipped with technical excellence and strong moral foundations.

This magazine is a reflection of the intellectual energy, creativity, research excellence, and innovative mindset of our students and faculty members. It highlights their accomplishments and reinforces our commitment to academic distinction and continuous improvement.

This magazine is a reflection of the intellectual energy, creativity, research excellence, and innovative mindset of our students and faculty members. It highlights their accomplishments and reinforces our commitment to academic distinction and continuous improvement.

I extend my heartfelt congratulations to the entire CSE & Allied Branches team for their dedication and commendable efforts in bringing out this publication. I encourage all students to think big, stay curious, and lead the technological revolution with confidence and integrity.

Together, let us build a future driven by knowledge, innovation, and excellence.

Senior Director

Prof. (Dr.) Rajeev Agrawal



In the era of exponential technological evolution, I extend a warm welcome to all students, faculty members, and readers of the CSE Magazine at LIET. Today, technology is not merely advancing — it is transforming the way we live, learn, and innovate. At LIET, we recognize the importance of staying ahead in this ever-evolving digital landscape.

Our commitment goes beyond conventional education. We strive to nurture future-ready engineers equipped with cutting-edge technical expertise, innovative thinking, and the adaptability required to excel in a fast-paced global environment. The Department of Computer Science & Engineering plays a pivotal role in driving this vision by fostering creativity, research, and industry-oriented learning.

This magazine reflects the intellectual vibrancy, technical achievements, research initiatives, and creative pursuits of our CSE students and faculty. It stands as a testament to their dedication and the institution's progressive academic environment.

I encourage all students to embrace innovation, think beyond boundaries, and continuously upgrade their skills. The future belongs to those who are prepared to evolve with technology and lead with vision.

Embrace the evolution. Shape your future.

Dean (R & D)– LIET

Dr. S.P. Dwivedi



At Lloyd Institute of Engineering and Technology, the Department of Computer Science & Engineering is emerging as a dynamic center of technological excellence and research-driven innovation. As Dean (R&D), I am proud of the enthusiasm and dedication shown by our CSE students and faculty in rapidly evolving fields such as Artificial Intelligence, Machine Learning, Data Science, Cyber Security, Cloud Computing, and the Internet of Things. Our focus is not only on academic achievement but also on nurturing analytical thinking, creativity, and a strong problem-solving mindset that prepares students to lead in the digital era.

The Research & Development ecosystem within the CSE branch is designed to encourage curiosity, experimentation, and collaboration. Through funded research projects, industry-driven problem statements, hackathons, coding competitions, and interdisciplinary innovation initiatives, students are provided with hands-on exposure that bridges the gap between academic learning and industry expectations. We actively promote research publications, patent filing, startup incubation, and participation in national and international technical competitions to strengthen our students' global outlook.

Collaboration remains the cornerstone of our growth. We continuously seek partnerships with technology companies, research organizations, and academic institutions to provide our students with advanced laboratories, expert mentorship, internships, and real-time project opportunities. Our aim is to build a dynamic research culture where innovation thrives and ideas transform into impactful technological solutions.

I firmly believe that the future belongs to those who innovate. Through strong academic foundations, ethical values, and a spirit of continuous learning, the CSE branch at LIET is committed to shaping future-ready professionals who will contribute significantly to society, industry, and the nation. Together, let us continue to explore, innovate, and excel in the ever-evolving world of computing and technology.



CELEBRATING CRAFTSMANSHIP : VISHWAKARMA PUJA AT ITS BEST

Vishwakarma Puja was celebrated with devotion and enthusiasm, honoring Lord Vishwakarma, the divine architect. Machines and tools were cleaned, decorated, and worshipped for safety and success. The event highlighted engineering, craftsmanship, and innovation, with active participation from students and staff.



EXPLORING THE SKIES: SEMINAR ON DRONE DESIGN & AERODYNAMICS

A seminar on Basics of Drone Design & Aerodynamics was organized to provide students with fundamental knowledge of unmanned aerial vehicles and their working principles. The session covered important topics such as drone components, flight mechanisms, lift and drag forces, propeller design, and stability control. The speaker also discussed real-world applications of drones in agriculture, surveillance, mapping, and delivery systems. The seminar helped students understand the principles of aerodynamics and drone structure design. It was an informative and interactive session that enhanced students' technical knowledge and interest in drone technology and aerospace engineering fields.



INDUSTRIAL INSIGHTS: A LEARNING EXPERIENCE AT HAIER

An industrial visit to Haier was organized for Mechanical Engineering students to provide practical exposure to manufacturing processes. Students observed production lines, quality control, and advanced technologies used in appliances. The visit enhanced their understanding of industrial operations, bridging the gap between theoretical knowledge and real-world applications.



ELECTRATHON : ELECTRIC MOBILITY CHAMPIONSHIP

Electrathon is an exciting event that brings together innovation, engineering, and sustainability through electric vehicle design and development. It encourages students to showcase their technical skills, creativity, and teamwork. Participants build energy-efficient vehicles, promoting green mobility solutions. Electrathon inspires young minds to explore future transportation technologies and contribute towards a cleaner, smarter, and sustainable world.





LLOYD SKILLS CENTRE

Empowering Through Skills



TRAINING MODULE

I - DRONE TECHNOLOGY

This lab focuses on the design, building and customization of Unmanned Aerial Vehicles (UAVs) or drones for various applications. Catering to diverse needs such as agricultural survey, mapping, reconnaissance and surveillance this incubation centre will create new dimension for students



II-ELECTRIC VEHICLES



III - BATTERY LAB



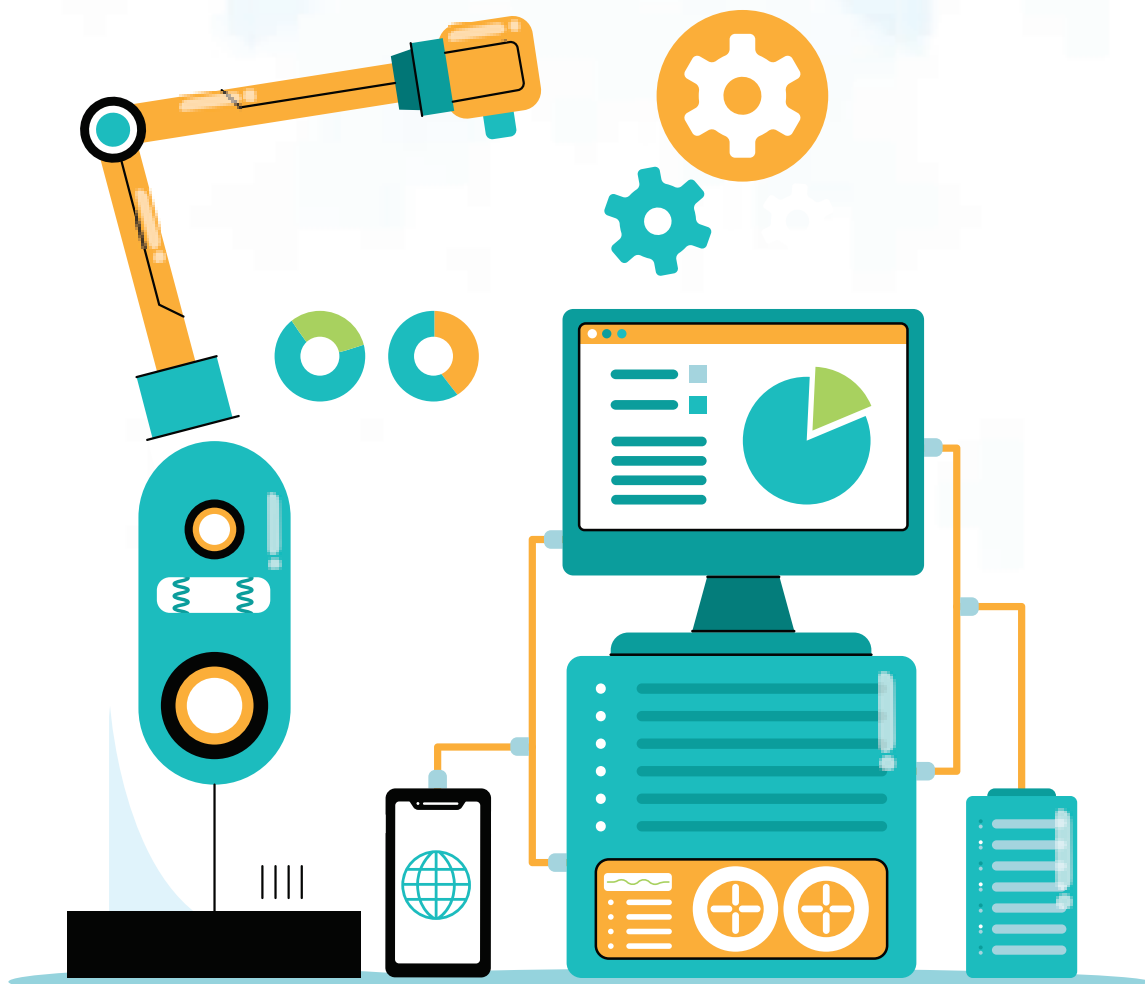
Industry 4.0 and Smart Manufacturing

Industry 4.0 represents the fourth industrial revolution, where traditional manufacturing is integrated with digital technologies such as the Internet of Things (IoT), Artificial Intelligence, and cloud computing. In smart factories, machines are interconnected and can communicate with each other to make real-time decisions. This leads to improved efficiency, reduced downtime, and better product quality. Mechanical engineers play a crucial role in designing and maintaining these advanced systems. Industry 4.0 is transforming manufacturing into a highly intelligent and automated process, making it faster, flexible, and more reliable.

Moreover, technologies such as digital twins, big data analytics, and cloud-based monitoring systems allow industries to simulate, analyze, and optimize production processes. This reduces errors and improves overall performance. Industry 4.0 also supports mass customization, where products can be tailored according to customer needs without affecting production speed. As industries continue to adopt smart technologies, engineers must upgrade their skills to keep pace with this digital transformation.

AYUSH KUNWAR

B.Tech CSE 3rd Year



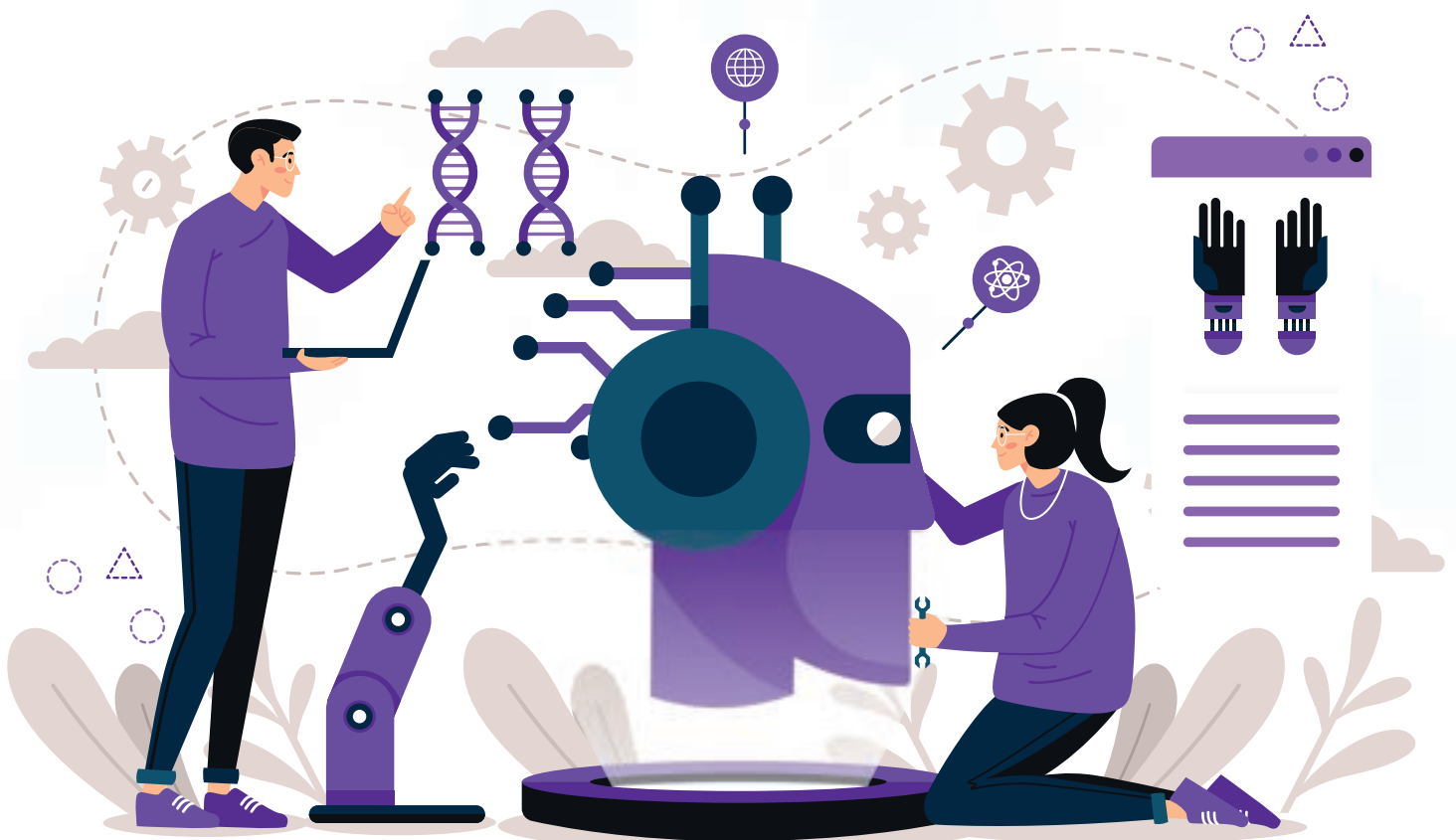
Nanotechnology in Mechanical Engineering

Nanotechnology involves working with materials at a very small scale, typically at the atomic or molecular level. In mechanical engineering, it is used to develop materials that are stronger, lighter, and more durable. Nanocoatings can improve resistance to wear, corrosion, and heat. This technology is widely used in aerospace, automotive, and biomedical applications. By enhancing material properties, nanotechnology helps engineers design more efficient and long-lasting products.

Furthermore, nanotechnology contributes to improved energy efficiency by reducing friction and enhancing thermal properties of materials. It also enables the development of smart materials that can respond to changes in temperature, pressure, or environment. With continuous research and innovation, nanotechnology is opening new possibilities in advanced manufacturing and product design. As a result, it is becoming an important area for future mechanical engineers to explore and innovate.

DIVYA PRAKASH

B.Tech CSE 3rd Year



CNC Machines and Modern Manufacturing

CNC (Computer Numerical Control) machines are widely used in modern manufacturing for precise and automated machining operations. These machines operate based on computer programs, allowing high accuracy and consistency in production. CNC machines are used for cutting, drilling, milling, and shaping materials such as metal and plastic. They reduce human effort and improve productivity. Mechanical engineers must understand CNC programming and operation to work effectively in today's advanced manufacturing industries.

In addition, CNC machines enable the production of complex and intricate components that are difficult to achieve through manual machining. They ensure uniform quality in mass production and reduce material wastage. Modern CNC systems are integrated with CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing) software, making the design-to-production process faster and more efficient. With the rise of automation and Industry 4.0, CNC technology continues to evolve, offering higher precision, flexibility, and reliability.

AJEET YADAV

B.Tech ME 2nd Year



Mechatronics: Integration of Mechanics and Electronics

Mechatronics is an interdisciplinary field that combines mechanical engineering, electronics, computer science, and control engineering. It focuses on designing smart systems that can sense, process, and respond to real-world conditions. Examples include automated machines, robotic arms, and smart home devices. In mechanical engineering, mechatronics helps in improving system performance, accuracy, and efficiency. Engineers use sensors to collect data, controllers to process information, and actuators to perform actions. This integration results in intelligent systems capable of performing complex tasks with minimal human intervention. As industries move toward automation, mechatronics is becoming a key area for innovation and career growth.

Furthermore, mechatronics plays a vital role in modern industries such as automotive, robotics, healthcare, and manufacturing. Technologies like automated braking systems in cars, industrial robots, and medical devices are all based on mechatronic principles. It also supports the development of smart and adaptive systems that can learn and improve over time. With the rise of Industry 4.0, the demand for skilled mechatronics engineers is increasing rapidly. Therefore, understanding this field opens up numerous opportunities for students and professionals in the future.

VIPIN PRATAP

B.Tech ME 2nd Year



CAD and CAM in Modern Engineering

Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) are essential tools in modern engineering. CAD software is used to create detailed 2D and 3D models of components, while CAM software converts these designs into instructions for machines. Together, they streamline the design and manufacturing process. Mechanical engineers use CAD/CAM to improve accuracy, reduce errors, and speed up production. These technologies are widely used in industries such as automotive, aerospace, and product design. They play a key role in modern digital manufacturing.

In addition, CAD allows engineers to easily modify designs, test different concepts, and visualize products before actual production. CAM ensures precise machining by generating automated toolpaths for CNC machines. This integration reduces material wastage and enhances productivity. Modern CAD/CAM systems are also linked with simulation tools, enabling engineers to analyze performance and detect issues early. As technology advances, CAD and CAM continue to evolve, making engineering design and manufacturing more efficient, flexible, and innovative.

BADAL PRATAP SINGH

B.Tech ME 2nd Year



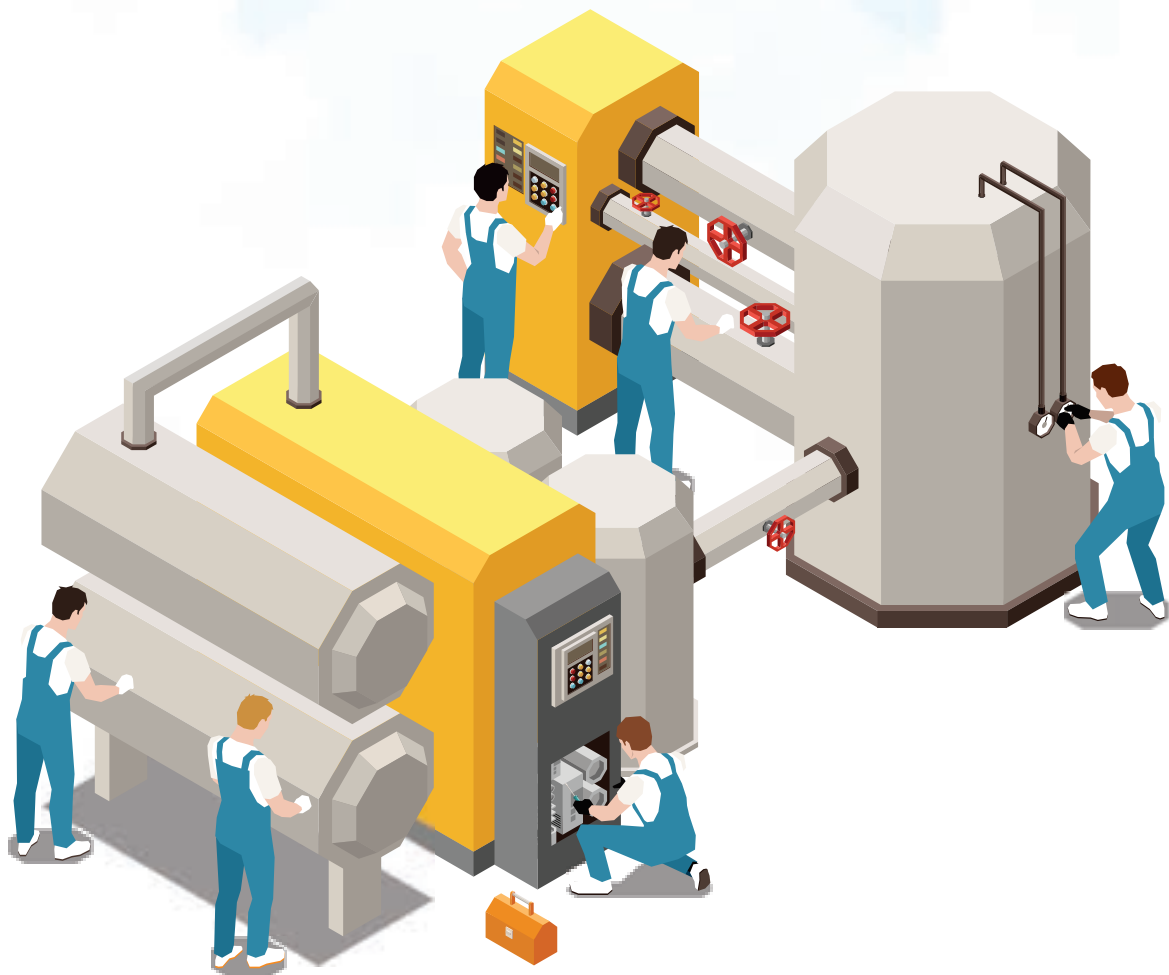
Fluid Mechanics and Its Industrial Applications

Fluid mechanics is the study of how liquids and gases behave under different conditions. It plays an important role in many engineering applications such as pipelines, turbines, pumps, and aircraft design. Mechanical engineers use fluid mechanics principles to design systems that involve fluid flow and pressure. For example, aerodynamics helps in designing efficient vehicles and aircraft, while hydraulics is used in heavy machinery. Understanding fluid behavior improves system performance and reduces energy losses. This field is essential for industries such as energy, transportation, and manufacturing.

In addition, fluid mechanics is widely used in designing efficient cooling and heating systems, such as air conditioners, refrigerators, and heat exchangers. It also plays a key role in power generation systems like hydroelectric and thermal power plants. Engineers use computational tools like CFD (Computational Fluid Dynamics) to simulate fluid flow and optimize designs before implementation. With continuous advancements, fluid mechanics contributes to developing energy-efficient and environmentally friendly systems, making it a crucial area in modern engineering.

RISHU GAUR

B.Tech ME 2nd Year



3D Printing in Mechanical Design & Production

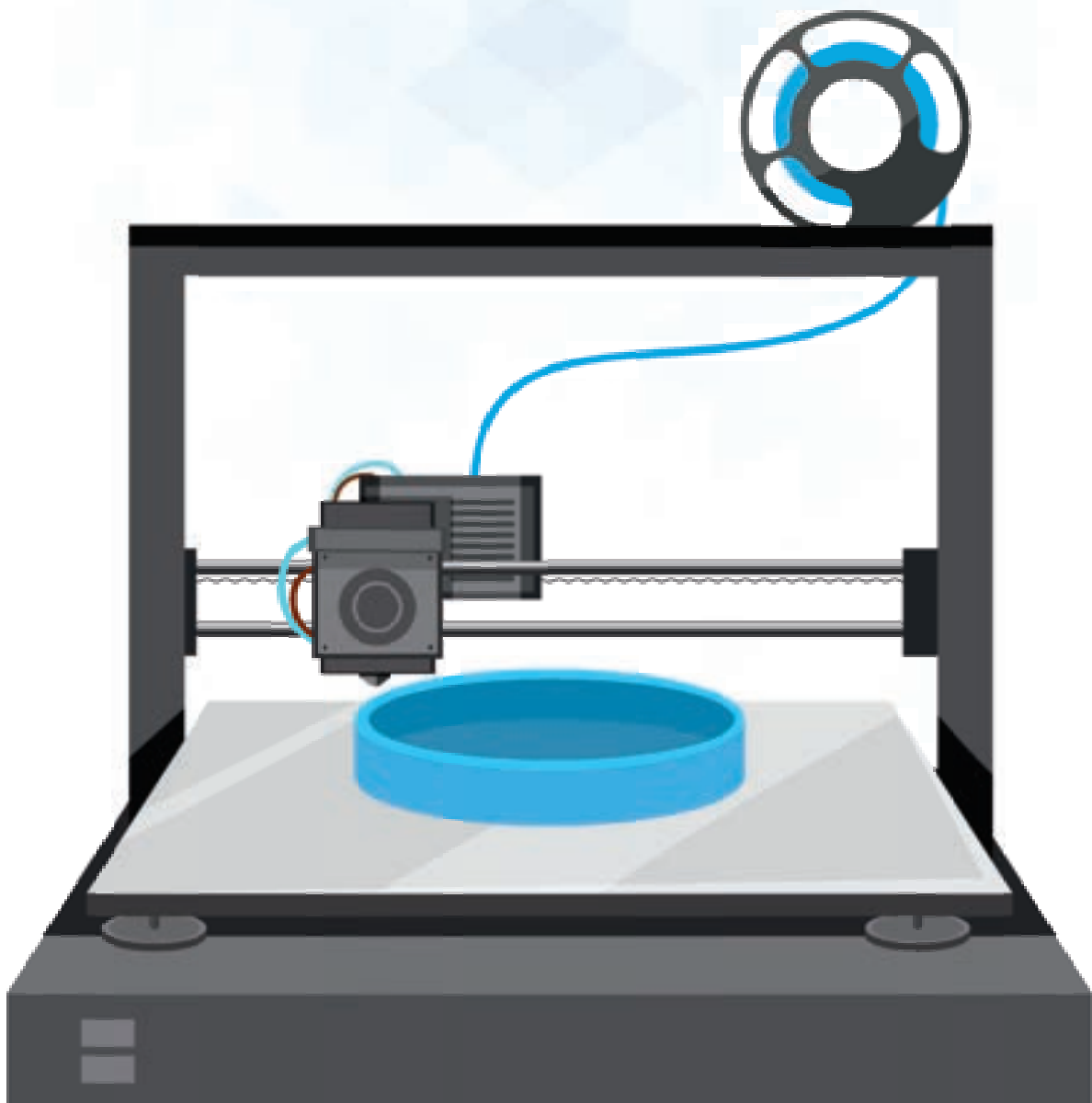
3D printing, or additive manufacturing, is transforming mechanical engineering by enabling faster and more flexible design processes. It allows engineers to create complex shapes by building objects layer by layer from digital models, which is difficult with traditional manufacturing methods.

In design, it supports rapid prototyping, helping students and engineers quickly test and improve their ideas. In production, 3D printing reduces material waste, lowers costs, and enables the creation of lightweight and customized components.

Overall, this technology is enhancing innovation, efficiency, and sustainability, making it an important part of modern mechanical design and manufacturing.

MAYANK KUMAR

B.Tech ME 2nd Year



3D Printing (Additive Manufacturing): Revolution in Design

3D printing, also known as additive manufacturing, is a modern technology that creates objects by adding material layer by layer. Unlike traditional manufacturing methods, which remove material through cutting or drilling, 3D printing builds components directly from digital designs. This allows engineers to create complex shapes that were previously difficult or impossible to manufacture. It is widely used for rapid prototyping, product development, and even in industries such as aerospace, healthcare, and automotive. The technology reduces material waste, saves time, and lowers production costs for small-scale manufacturing. As a result, 3D printing is revolutionizing the way engineers design and produce components.

VIPIN PRATAP

B.Tech ME 2nd Year



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