

# M.I.T Insight



# **NEWS LETTER**

**VOL-5 || ISSUE 5 || DEC 2024** 



Dr. Saquib Shakil
Principal
Millia Institute of Technology

Welcome to Millia Institute of Technology (MIT) Rambagh Purnea, the first institution in the Seemanchal region, established in 2002. We are proud to be one of the oldest engineering colleges in the state of Bihar, with alumni who hold prestigious positions all around the world. I am pleased to inform you that our institution is accredited by NAAC. We aim to provide you with the highest quality education. In fact, the potential for education lies within each student; we are here to encourage you to explore and enjoy the learning process. As the diversity of needs and globalization continue to grow, the demand for competitive skills has increased. The main purpose of MIT is to provide a platform where these needs can be met. We motivate students to develop leadership skills and encourage you to trust in yourselves as you reach for great heights. I want to remind you that each one of you has the power to shape your future. Embrace your uniqueness, pursue your passions, and never shy away from challenges. Remember, growth often comes from stepping outside your comfort zone. Each of you holds incredible potential. Every day is an opportunity to learn, grow, and make a difference—not just in your own lives, but in the lives of those around you.

# **BLOOD DONATION CAMP**



On November 19th, 2024, MIT hosted a one-day blood donation camp in collaboration with HDFC Bank. The event witnessed a remarkable turnout, with active participation from both faculty and students, who generously donated blood. This initiative not only emphasized the importance of blood donation but also showcased MIT's commitment to social causes. The camp contributed significantly to saving lives, fostering a sense of community and responsibility among all participants.

# **☆ INDUSTRIAL VISIT ☆**

On 4th dec, 2024, all the 3rd and 4th year students along with H.O.Ds visited TATA Motors and the General Manager of Tata Motors Er. Pawan Kumar Rai demonstrated experimental knowledge with students that was totally based on Automobile Engine like how 2 Stroke and 4 Stroke Engine works and the function of some automobile components.





# **OUR TEACHERS MESSAGE**

## Saving the Future with Carbon Negative Materials (Lime Hemp Concrete)

Saving the Future with Carbon-Negative Materials: Lime Hemp Concrete Modern construction is highly carbon-intensive, contributing significantly to global emissions and climate change. Sustainable building designs, which promote healthy indoor and outdoor environments, are challenging to achieve with conventional methods and materials. India's carbon emissions have risen by 7.8% since 2013, emphasizing the urgent need for alternatives.

Lime Hemp Concrete (LHC) is an innovative, eco-friendly material that combines hemp with a lime-based binder. Classified as cellulose aggregate concrete, LHC is carbon-negative, offering a lower ecological footprint than Portland cement-based materials. Its porous structure provides excellent thermal insulation and moisture regulation, making it ideal for energy-efficient construction.

While not suitable as a load-bearing material in its current form, LHC is used with timber frames in Europe, demonstrating its potential for sustainable building. Its unique properties—thermal insulation, moisture regulation, and environmental benefits—make LHC a promising solution for reducing construction-related carbon emissions and combating climate change.

Mr. Aamir Rahi

**HOD, Department of Civil Engineering** 

### **GRAPHENE IN CIVIL ENGINEERING**

A Breakthrough Graphene, a single layer of carbon atoms, is 200 times stronger than steel yet lightweight, making it ideal for reinforcing concrete and extending the lifespan of structures. Its conductivity enables smart buildings, with graphene-enhanced concrete monitoring structural health in real-time to prevent failures. Flexible and durable, graphene can help structures withstand environmental stresses like earthquakes.

Though large-scale production remains a challenge, advancements are making graphene more affordable and scalable. Its integration reduces reliance on resource-intensive materials, promoting sustainable construction and lowering carbon footprints. Graphene's potential for lighter, stronger materials paves the way for eco-friendly building solutions

Mirza Shahab Husain

**Assistant Professor** 

**Department of Civil Engineering** 

### MICROELECTROMECHANICAL SENSORS

Microelectromechanical sensor systems are a latest technology that combines mechanical and electrical components at the micro scale, typically ranging from 1 to 100 micrometers. MEMS sensors and resonators have proceeded as vital components across various applications, ranging from telecommunication to sensing systems and beyond. Their minute size, low power consumption, and high sensitivity make them ideal candidates for a wide array of applications, revolutionizing industries and enabling novel technological solution. The future of MEMS technology holds promise with ongoing research in areas like advanced manufacturing technologies, functional materials, and integration with emerging fields such as the Internet of Things and biomedical devices. As MEMS technology continues to evolve, it will enable even more innovative applications and further miniaturization in the field of sensing and telecommunication

**MD OBAIDUR RAHMAN** 

HOD, Department of Mechanical Engineering

## The Role of Mechanical Engineers in Electric Vehicle (EV) Development

Electric vehicles (EVs) are rapidly becoming a dominant force in the automotive industry, driven by a global push for sustainability and reduced carbon emissions. Mechanical engineers play a critical role in shaping the design, development, and performance of electric vehicles, contributing their expertise across a wide range of systems within EVs. From propulsion systems to thermal management and structural integrity, mechanical engineers are essential in creating efficient, safe, and reliable electric vehicles. Mechanical engineers are at the forefront of electric vehicle development, working across multiple domains to ensure that EVs are efficient, safe, reliable, and sustainable. From designing and optimizing battery systems and thermal management solutions to improving the electric motor and vehicle chassis, their contributions are essential to the advancement of this exciting industry.

Ravindra Kr. Yadav

**Assistant Professor,** 

**Department of Mechanical Engineering** 

### **INDUSTRY 5.0**

Industry 5.0 builds on Industry 4.0 by emphasizing human-machine collaboration to enhance productivity, personalization, and customer satisfaction. While Industry 4.0 focused on smart factories and technology, Industry 5.0 prioritizes synergy between humans and machines for competitive advantages and economic growth.

Key technologies driving this revolution include big data analytics, IoT, collaborative robots, blockchain, digital twins, and emerging 6G systems. Applications span healthcare, supply chains, cloud manufacturing, and production. Despite its potential, challenges like human-robot interaction in assembly lines remain critical for future research. Industry 5.0 promises a transformative shift in industrial processes and innovation.

Rajiv kumar

**Assistant Professor,** 

**Department of Mechanical Engineering** 

#### GRAPHENE SUPERCAPACITORS

Graphene supercapacitors, using graphene electrodes, offer superior energy storage, fast charging, and high power density. They store nearly as much energy as lithium-ion batteries and deliver large energy bursts. Their exceptional conductivity makes them ideal for high-frequency applications, and their scalability enables integration into advanced technologies like CPUs. Combining efficiency and adaptability, graphene supercapacitors represent a cutting-edge solution for modern energy storage needs

The future of graphene supercapacitors appears bright for a variety of uses, such as:

**Mobile devices:** 

Graphene supercapacitors are a suitable option for smartphones and other mobile devices since they can charge more quickly and last longer than lithium-ion batteries.

Power backup: Both homes and businesses can employ graphene supercapacitors as power backup sources.

AI data centers: AI data centers can be powered by supercapacitors based on graphene.

Electrical grids: Supercapacitors based on graphene have the ability to stabilize electrical grids.

Electric Cars when braking, graphene capacitors can store energy, which can then be used to power the car when it accelerates.

Md Ajaz Alam

(HOD, Department of Electrical Engineering)

#### USE OF MACHINE LEARNING

Machine learning (ML) has become a cornerstone of modern technology, revolutionizing industries and reshaping the way we interact with the world. As a subset of artificial intelligence (AI), ML enables systems to learn and improve from experience without being explicitly programmed. Its importance spans various domains, from healthcare to finance, and from retail to transportation. In this article, we'll explore why ML is important, highlighting its transformative potential and the numerous benefits it offers. Machine learning algorithms analyze vast amounts of data, identifying patterns and trends that would be impossible for humans to discern. By leveraging these insights, businesses can make more informed decisions, leading to increased efficiency and better outcomes.

**MD MUNTASHIR ALAM** 

**Asst. Professor** 

**Department of Computer Science and Engineering** 

#### **ARTIFICIAL INTELLIGENCE AND CORPUS LINGUISTICS RESEARCH ON QURANIC ARABIC**

We evaluate a number of synthetic Intelligence and Corpus Linguistics studies at Leeds college on Arabic and the Quran, which has produced a range of software program and corpus datasets for research on modern-day widespread Arabic and more recently Quranic Arabic .Our work on Quranic Arabic corpus linguistics has attracted considerable hobby, not handiest from Arabic linguists however additionally from Quranic college students, and the general public. We see a brilliant ability effect of artificial Intelligence modeling of the Quran. This leads us to provide a suggestion for further studies: the Quranic understanding Map. advent The natural Language Processing studies institution, part of the Institute for synthetic Intelligence and biological systems (I-AIBS) at Leeds university, has been concerned in research on Arabic natural language processing and corpus linguistics for over a decade. Our early paintings focused on tools and corpus resources for evaluation and modeling of cutting-edge preferred Arabic. greater recently, we've got worked with Quranic Arabic. We view the Quran as a wealthy records-set for synthetic Intelligence and gadget studying research. The Quran is held by way of Muslims to be a single-authored textual content, the direct phrases of God (Allah), conveyed through the angel Gabriel to Mohammed 1355-1378 years in the past, and later transcribed verbatim for use as the only authoritative supply of expertise, knowledge and regulation. A mission for synthetic Intelligence researchers is to represent this understanding, understanding and law in pc structures: to build shrewd systems which can answer any question with know-how from the Quran, and can help society, both Muslim and non-Muslim, to recognize and respect the Quran.

Priyanshu Shekhar

**HOD** 

**Department of Electronics & Communication Engineering** 

#### **USE OF LINEAR OPERATOR IN ENGINEERING MECHANICS**

Linear operators are essential tools in engineering mechanics, simplifying complex problems and modeling systems. These operators transform vectors or functions linearly, preserving additivity L(f+g)=L(f)+L(g)L(f+g)=L(f)+L(g)L(f+g)=L(f)+L(g) and homogeneity  $L(\alpha f)=\alpha L(f)L(\alpha f)=\alpha L(f)L(\alpha f)=\alpha L(f)$ .

Key applications include stress-strain analysis, vibration theory, fluid mechanics, finite element analysis (FEA), and computational techniques. Linear operators are crucial for solving differential equations, offering a systematic approach to analyze and solve structural and mechanical challenges effectively. They play an indispensable role in understanding and optimizing engineering systems.

#### **G M NOOR QUTUB**

Asst. Professor, Department of Mathematics

#### AI IN MANAGEMENT

Artificial Intelligence (AI) is revolutionizing modern management by enabling data-driven decision-making and process optimization. Managers now leverage AI to analyze vast amounts of data, identify trends, and predict outcomes, ensuring strategic and informed decisions. Al-powered tools streamline routine tasks like report generation, inventory management, and scheduling, allowing leaders to focus on higher-level planning. Additionally, predictive analytics and real-time monitoring enhance risk management, helping organizations adapt to changes quickly and mitigate potential challenges effectively .In customer relationship management (CRM), AI personalizes interactions by analyzing customer behavior and preferences. Chatbots, recommendation systems, and sentiment analysis tools improve engagement, leading to increased customer satisfaction and loyalty. Work force management has also been transformed, with Al assisting in hiring decisions, performance evaluations, and predictive scheduling. By integrating Al into their strategies, managers can foster innovation, enhance efficiency, and drive sustainable growth in a competitive landscape.

Miss Somaiya Sabri

Assistant professor, Department of MBA

### DIGITAL TWIN

Imagine a technology that can create real-time digital replicas of physical objects and systems. Intriguing and exciting, isn't it? Welcome to the world of Digital Twins—a cutting-edge technological trend capable of simulating systems, processes, and objects in real-time. This technology bridges two fundamental components: the physical and digital worlds. By leveraging IoT devices, sensors, and other data sources, Digital Twins generate virtual representations of real-world entities. Industries like healthcare, manufacturing, and smart cities utilize this innovation to simulate, monitor, and analyze assets and operations in a digital environment.

Organizations are adopting Digital Twin technology to improve decision-making, streamline operations, and foster sustainability.

**Career Opportunities in Digital Twins** 

- 1. IoT Specialist
- 2. Digital Twin Engineer
- 3. Data Scientist
- 4. Data Analyst
- 5. Cybersecurity Specialist
- 6. Simulation Engineer

#### <u>Chandragupt</u>

sistant Professor, Department of Applied Science

#### **OUR MEDIA PARTNERS**

- <u>Hindustan</u>
- **Dainik Jagran**
- **Prabhat Khabar**
- **Inquelab**
- **Dainik Bhaskar**





ملياس شيث تف يكنالوي مين يوم التذه كم موقع يرتقر يب كالنعقاد اساتذه كاعز کے اصل معمار ہیں جوطلها کی زندگی میں علم

इंजीनियर्स डे • एमआईटी में धूमधाम से मनाया गया इंजीनियर्स डे , छात्रों ने लगाई मॉडलों की प्रदर्शनी

# इनोवेटिव मॉडल से बढ़ता है तकनीकी ज्ञान, चुनौतियों के समाधान के लिए भी होते हैं प्रेरित : डॉ. असद इमाम

सीमांचल का पहला टेक कॉलेज एमआईटी को नैक से मान्यता





# **Upcoming Events:-**

- **Quiz Contest**
- **Academic Achievement Award**
- Cultural Activities & Many More



