



M.I.T INSIGHTS

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Welcome to Millia Institute of Technology (MIT) Rambagh, Purnea the first institution in the Seemanchal region, established in 2002. I feel proud enough, as MIT is one of the oldest colleges in the state of Bihar, with alumni who hold prestigious positions around the world. I am pleased to inform you that our institution is accredited by NAAC. We aim to provide our students with the quality education. In fact, the potential for education lies within each students we are here to encourage them to explore and enjoy the learning process. As the diversity of needs and globalization continue to grow, the demand for competitive skills is increasing day by day. 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 them to trust in themselves as they reach to great heights. I wish to remind you that each one of you has the power to shape your future. Embrace your uniqueness, pursue your passions, and never run 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 life, but in the lives of those around you.

AI-ML Surge and Mathematical Sub Fields

21st century engineering world; where AI-ML 'Artificial Intelligence and Machine Learning' are experiencing a surge in popularity within engineering education, driven by the increasing demand for these skills across various industries. This translates to a growing number of engineering students specializing in AI & ML and a greater integration of these technologies into engineering curricula. Universities worldwide are responding by offering specialized B.Tech/M.Tech programs in AI & ML, and also integrating AI & ML concepts into existing engineering disciplines; which helps in finding numerous job opportunities in various sectors, including healthcare, finance, and technology, with competitive salaries. So as the new age students are learning about data analysis, computer vision, natural language processing, and deep learning, among other areas, to prepare for these technological roles for various industries.



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Emphasizing in many groundbreaking aspects of AI-ML fellowship; its better to explore this subject with the intriguedness of Mathematical 'sub fields. AI-ML and Data Science rely heavily on mathematics, particularly statistics and probability, to build intelligent systems and analyze data.

These mathematical fields are not just foundational but are actively rejuvenated by their application in AI/ML, leading to new methodologies and insights. Vigorously the two mathematical sub fields- Statistics and Probability are intertwined with AI-ML in Data Analysis, Decision Making and understanding Uncertainty Quantification through rejuvenation of Mathematical fields.

Statistics provides the tools to collect, organize, analyze, and interpret data, which is crucial for understanding patterns, trends, and relationships within datasets. Probability helps in quantifying uncertainty and making predictions about future events, which is essential for building models that can generalize from limited data. It is even heavily used to define the likelihood of different outcomes in machine learning models, especially in probabilistic models like Bayesian networks.

Statistical measures like mean, median, variance, and standard deviation, along with probability distributions like normal, binomial, and Poisson distributions, are fundamental in ML. Even; Algorithms like gradient descent, used in training neural networks, rely on calculus and optimization techniques derived from mathematical principles. As such the close relationship between AI/ML and mathematics has fostered interdisciplinary rejuvenation in research, where insights from one field can inform the other through which mathematicians and statisticians, leading to the development of new theories and techniques. The study of Bayesian networks, which are graphical models that represent probabilistic relationships between variables, is an area where both probability and AI/ML have made significant contributions along with Natural Language Processing (NLP), Computer Vision and Recommendation Systems. In conclusion, AI-ML and Data Science are not just applications of mathematics, but also drivers of its evolution, particularly in the areas of statistics and probability. The need to analyze vast amounts of data, make predictions under uncertainty, and build robust and reliable systems has led to a vibrant interplay between these fields, pushing the boundaries of both mathematics and artificial intelligence.

Ultra-High-Performance Concrete (UHPC): Material of the Future for Sustainable and Resilient Infrastructure

Ultra-High-Performance Concrete (UHPC) has emerged as a revolutionary class of cementitious material that transcends the limitations of conventional and even high-performance concrete. Defined by its ultra-high compressive strength (often exceeding 150 MPa), high tensile strength (up to 15 MPa), enhanced ductility, and superior durability, UHPC offers unprecedented structural performance and long-term serviceability. Its meticulously engineered composition—comprising fine quartz sand, silica fume, quartz powder, steel or synthetic fibres, superplasticizers, and a very low water-to-binder ratio—yields a dense, homogeneous, and self-compacting matrix with near-zero porosity. The mechanical and durability properties of UHPC are notably superior. It demonstrates outstanding resistance to shrinkage, chloride penetration, chemical attacks, freeze-thaw cycles, and abrasion—ensuring minimal degradation over time. These properties contribute to extended structural lifespans, reduced maintenance, and lower life-cycle costs. Applications of UHPC have expanded rapidly and now include bridge decks, precast structural components, protective military and blast-resistant , structures, seismic retrofitting, high-rise building façades, and infrastructure rehabilitation. Its aesthetic and architectural potential also enables sleek, thin, and artistic designs that remain structurally robust. Recent developments in UHPC technology focus on sustainability and digital integration. Green UHPC variants using alternative binders or recycled materials are being researched to reduce carbon footprints. Integration with 3D printing, self-healing materials, and embedded sensor systems positions UHPC as a smart construction material for intelligent infrastructure. These innovations are further supported by ongoing global efforts in standardization and scalability, making UHPC increasingly viable for widespread civil engineering applications.



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IMPACT OF UNITED STATE HIGH TARIFF ON MECHANICAL AND AUTOMOBILE INDUSTRIES GLOBALLY AND ITS FUTURE DESTRUCTION

The United States implementation of high tariffs on mechanical and automotive imports has considerably affected the global economy especially in relation to decline in production and rising inflation. As tariffs increase the cost associated with imported raw materials. such as steel, aluminium, and automobile parts, manufacturers face higher production costs. Due to this reason many companies, both domestic and foreign, to either scale back production or shift operations to avoid losses. As a result, global supply chains are facing interruptions, leading to delays in manufacturing and reduced output. At the same time, the increase in production costs is transferred to consumers in the form of higher prices for the vehicle, contributing directly to inflation, which will reduce overall demand in the market. In the long run, this inflationary pressure can lead to a decrease in consumer spending and investment which will affect economic growth.

Furthermore, Industries that depend on mechanical equipment for operations also face increased costs, widening the impact. Thus, US-imposed tariffs not only harm global production levels but also create inflationary trends that ripple across economies worldwide.



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If the US holds high tariff for machinery and automobile imports, it could cause serious future destruction in these sectors of the world. Prolonged tariffs will drive sustained increases in production costs, forcing companies to downsize or relocate, disrupting global supply chains permanently. Consumer prices will continue rising, reducing demand and deepening economic slowdowns. Ultimately, these pressures can destroy not only Industrial capacity but also damage to trade relations and create long-lasting economic instability across nations reliant to the mechanical and automobile sectors globally. As per the current scenario CITI's model suggested that in the upcoming days it could lead to a 0.6-0.8 percent drop in India's annual growth but the real impact could be much more than this. This will affect both current size and capital flows and may put pressure on the Rupee.

Report on Ambedkar Jayanti Celebrated in Our College

Ambedkar Jayanti was celebrated in our college on 14th April to honor the birth anniversary of Dr. B.R. Ambedkar. The event began with floral tributes to his portrait, followed by speeches highlighting his contributions to the Constitution and social justice. Students participated in essay and speech competitions on his life and ideals. The program inspired everyone to uphold equality, justice, and education.



Report on Labour's Day Celebrated in Our College

Labour's Day was celebrated in our college on 1st May to honor the hard work and dedication of workers. A special program was organized where students presented speeches and skits highlighting the importance of labor in nation-building. Support staff of the college were appreciated with tokens of gratitude. The event promoted respect and dignity for all forms of work.



Report on National Technology Day Celebrated in Our College

National Technology Day was celebrated in our college on 11th May to recognize the importance of technological innovation and development. Students showcased their creative projects and models in a tech exhibition organized on campus. Guest lectures and presentations were held to inspire young minds towards research and innovation. The event highlighted India's achievements in science and technology and motivated students to contribute to future advancements.



Report on Mother's Day Celebrated in Our College (9th May)

Mother's Day was celebrated in our college on 9th May, a day before the official occasion, with great love and enthusiasm. Students expressed their feelings through songs, poems, and heartfelt speeches dedicated to mothers. A touching video presentation added emotional depth to the celebration. The event honored the selfless love and sacrifices of mothers, leaving everyone moved and inspired.



Report on World Environment Day Celebrated in Our College

World Environment Day was celebrated in our college on 5th June to promote awareness about environmental protection. Students participated in tree plantation drives, poster-making, and slogan-writing competitions. A seminar was also organized highlighting the importance of sustainability and conservation. The event encouraged everyone to take small steps toward a greener and cleaner planet.



Quantum computing

Quantum computing is an emerging technology that performs calculations based on the principles of quantum theory. Unlike classical computers, which are binary and use bits that can only exist in one of two states — on or off (0 or 1) — quantum computers will use qubits (quantum bits), which do not have to be just a zero or just a one. They can solve complex problems much quicker than classical computers due to this property.



Benefits of quantum computing:

- Better Drug Finds: Quantum technology can act out how bits of stuff work. It can speed up the make of new drugs & health fixes.
- Top Web Safety: Quantum-safe tricks are made to guard from risks that come with quantum tech. They keep our data safe in a web world.

NAME-MEHAR ANJUM

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

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3-D PAINTING

Cool print techniques are used in 3D painted constructions. They create visually striking homes with exquisite artwork. Research in this area examines the positive aspects, increases power efficiency, and examines the construction style of these new pieces. Their usage in novel building methods is demonstrated. Hard designs may be printed directly onto walls thanks to 3D printing technology. It creates fascinating looks that are impossible with traditional paint methods. 3D printing may be used to join many items. Stone, imitation materials, and coatings that adhere well to all surfaces are included in this list. The ability to create delicate and unique shapes enhances a spaces aesthetic appeal. It makes them stand out in urban areas. Experiments reveal that 3D printing allows us to prepare for more efficient use of heat.

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