



# **INSPIRE ZONE**

**Ambalika Institute Of Management And Technology**

**DEPARTMENT OF APPLIED SCIENCES**

**DEPARTMENTAL MAGAZINE - (JAN 2026)**



# *INSPIRE ZONE*

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## From B.Tech 1<sup>st</sup> Year Head's Pen



**Avneesh Kumar Singh**  
Head, Applied Science Department  
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**It gives me immense pleasure to know that the B.Tech. 1<sup>st</sup> Year students are bringing out a Technical Magazine that reflects their creativity, curiosity, and technical enthusiasm. Such initiatives play a vital role in nurturing innovative thinking and encouraging students to explore beyond the classroom curriculum.**

**Engineering education is not only about acquiring technical knowledge but also about developing problem-solving skills, teamwork, and the confidence to express ideas. A technical magazine provides an excellent platform for young minds to share their thoughts, research ideas, technical articles, and innovative solutions to real-world problems.**

**I appreciate the sincere efforts of the editorial team and all contributing students who have worked hard to make this magazine a reality. I encourage all students to actively participate in such academic and co-curricular activities, as they help in overall personality development and prepare you to face future challenges with confidence.**

**I wish the magazine great success and hope it continues to inspire creativity, innovation, and technical excellence among students.**

**With best wishes,**



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## Inside This Issue

With great excitement and pride, we present this edition of the Technical Magazine. This magazine is not just a collection of articles; it is a reflection of the curiosity, creativity, and fresh ideas of our first-year students as they begin their engineering journey.

For many of us, this is the opportunity to express our technical thoughts beyond classrooms and textbooks. Through this magazine, students have shared their ideas on technology, innovation, and emerging trends, along with their unique perspectives and creativity. Each contribution represents learning, teamwork, and the confidence to try something new.

I would like to sincerely thank our respected Head of the Department and faculty members for their constant support and encouragement. I am also grateful to the editorial team and all contributors who worked with dedication, often balancing academics with deadlines, to make this magazine possible.

We hope this magazine inspires readers to think differently, stay curious, and believe in their own potential. Your feedback and suggestions will help us improve and make future editions even better.

Happy reading and happy learning!

Warm regards,

*BY*

***Dr. Sudhaker Dixit***

*Assistant Professor*

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## Artificial Intelligence in Everyday Life

Artificial Intelligence (AI) is no longer limited to science fiction movies or research laboratories. In today's world, AI has become an important part of our everyday life, especially in India, where technology is rapidly growing and reaching people from cities to villages. Many of us use AI daily without even realizing it.

One of the most common examples of AI in India is the smartphone. Voice assistants such as Google Assistant help users in multiple Indian languages, making technology accessible to a wider population. Social media platforms like Instagram, YouTube, and Facebook use AI algorithms to recommend videos, reels, and posts based on user interests. E-commerce platforms such as Amazon and Flipkart use AI to suggest products, track orders, and manage logistics efficiently, improving the overall shopping experience.

AI plays a major role in transportation and navigation across Indian cities. Applications like Google Maps use AI to analyze traffic conditions in busy areas of cities like Delhi, Mumbai, and Bengaluru, helping commuters save time and fuel. Ride-hailing services such as Ola and Uber use AI to match drivers with passengers, calculate fares, and optimize routes. Indian Railways has also started using AI for predictive maintenance and crowd management at major stations.

In healthcare, AI is helping improve medical services in India. AI-based tools assist doctors in analyzing X-rays, CT scans, and detecting diseases like cancer and tuberculosis at an early stage. During the COVID-19 pandemic, AI was used for contact tracing, data analysis, and vaccine distribution planning. Telemedicine platforms such as Practo and government initiatives like eSanjeevani use AI to support remote healthcare services, especially in rural areas.

Education in India has also benefited from AI. Online learning platforms like BYJU'S, Unacademy, and Vedantu use AI to provide personalized learning paths, performance analysis, and doubt-solving support for students. AI chatbots help students learn at their own pace, making education more accessible and flexible.

Smart city initiatives under the "Smart Cities Mission" use AI for traffic control, waste management, and surveillance. AI-powered systems also support digital payment platforms like UPI by detecting fraud and ensuring secure transactions.

While AI offers many benefits, ethical use, data privacy, and employment concerns must be carefully addressed. When used responsibly, Artificial Intelligence has the potential to transform India into a smarter, more inclusive, and technologically empowered nation.

*BY*

*Aman Vishwakarma*

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## *Introduction to Machine Learning for Beginners*

As a college student, learning about Machine Learning has been one of the most interesting and useful experiences of my academic journey. Machine Learning is a branch of Artificial Intelligence that enables computers to learn from data and make decisions without being explicitly programmed for every task. At first, the term sounded very complex and difficult, but as I started learning the basics, I realized that Machine Learning is not only powerful but also very practical and relevant to real life.

In the beginning, I learned that Machine Learning works on the idea that data can teach a machine how to perform tasks. Instead of writing long and complicated programs, we provide data to the system and let it find patterns on its own. For example, if we want a computer to recognize whether an email is spam or not, we do not need to write rules for every spam email. We just train the system using many examples of spam and non-spam emails. Over time, the machine learns the differences and becomes better at making predictions.

One of the first concepts I learned was the different types of Machine Learning. There are mainly three types: supervised learning, unsupervised learning, and reinforcement learning. In supervised learning, the machine is trained using labeled data, meaning that the correct answers are already known. For example, predicting house prices based on past data or classifying students' results based on marks. In unsupervised learning, the data does not have labels, and the machine tries to discover patterns or groupings on its own. An example is customer segmentation in marketing. Reinforcement learning is based on learning through rewards and penalties, where the machine improves its performance by interacting with the environment, such as in games or robotics.

During my learning, I also understood the importance of data in Machine Learning. Data is the backbone of any Machine Learning model. If the data is poor or incorrect, the results will also be inaccurate. We learned about data collection, data cleaning, and data preprocessing. These steps are very important because real-world data is often incomplete, noisy, and unstructured. Cleaning the data helps improve the accuracy and reliability of the model. This taught me that Machine Learning is not just about algorithms but also about handling data carefully.

Another important topic I learned was algorithms. Some common algorithms that we studied include linear regression, logistic regression, decision trees, k-nearest neighbors, and basic neural networks. At first, algorithms seemed very mathematical, but when they were explained with examples and simple coding exercises, they became easier to understand. For instance, linear regression helps in finding a relationship between two variables, such as predicting marks based on study hours. Decision trees are easy to visualize and help in making decisions by splitting data into branches based on conditions.

Learning programming was also an essential part of understanding Machine Learning. Most of our practice was done using Python because it is simple and has many useful libraries like NumPy, Pandas, Matplotlib, and Scikit-learn. These tools make it easier to work with data, visualize results, and build models. Writing small programs and running models gave me confidence and helped me understand how theory is applied in practice. Even students without a strong coding background can learn Machine Learning if they practice regularly.



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One of the most interesting aspects of Machine Learning is its real-life applications. I learned how Machine Learning is used in recommendation systems like those of Netflix and YouTube, facial recognition systems, voice assistants, self-driving cars, medical diagnosis, weather forecasting, and fraud detection. These examples helped me realize how deeply Machine Learning is integrated into our daily lives. It is not just a theoretical subject but a technology that is shaping the future.

From a career point of view, learning Machine Learning is extremely beneficial. Almost every industry today is becoming data-driven, and companies are looking for people who can analyze data and build intelligent systems. Machine Learning skills open opportunities in fields like data science, artificial intelligence, software development, finance, healthcare, education, and research. Even if someone does not want to become a Machine Learning engineer, having basic knowledge of Machine Learning is an added advantage in many jobs.

For me, Machine Learning has improved my problem-solving and analytical thinking skills. It has taught me how to break a problem into smaller parts, analyze data logically, and test different solutions. These skills are useful not only in technical careers but also in management and research fields. Machine Learning also encourages continuous learning, as the field is constantly evolving with new techniques and tools.

In addition, learning Machine Learning has motivated me to work on projects. Small projects like predicting exam results, analyzing customer reviews, or classifying images help in building practical skills and improving confidence. These projects can be included in a resume and can impress recruiters during interviews. Employers often prefer candidates who have hands-on experience rather than only theoretical knowledge.

In conclusion, my introduction to Machine Learning as a college student has been both challenging and rewarding. It has helped me understand how machines can learn from data and make intelligent decisions. Machine Learning has expanded my technical knowledge, improved my logical thinking, and opened new career possibilities for me. In the future, I believe that Machine Learning will play an even bigger role in shaping industries and society. By learning it at the beginner level, I feel more prepared for future challenges and confident about building a successful career in the modern, technology-driven world.

*BY*

*Gaurav Patel*

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## *Electric Vehicles: Technology Behind the Wheels*

When I first heard about electric vehicles (EVs), I thought they were just cars that run on batteries instead of petrol or diesel. But as I started learning more about them in college, I realized that electric vehicles are much more than that. They represent a major shift in technology, energy usage, and the way we think about transportation.

Another key component of electric vehicles is the battery pack. The battery is like the fuel tank of an EV, but it is far more advanced. Most modern electric vehicles use lithium-ion batteries because they are lightweight, have high energy density, and can be recharged many times. While studying this, I learned how battery capacity, measured in kilowatt-hours (kWh), determines how far an electric vehicle can travel on a single charge. Battery technology is constantly improving, and researchers are working on solid-state batteries that promise higher safety and longer range.

Electric vehicles are also closely linked to environmental concerns. As a student, learning about climate change and pollution made me more aware of the need for sustainable solutions. EVs produce zero tailpipe emissions, which helps reduce air pollution in cities. Although electricity generation may still involve fossil fuels, the overall carbon footprint of electric vehicles is lower, especially when renewable energy sources are used. This connection between technology and environmental responsibility has deeply influenced my thinking.

From a career perspective, studying electric vehicle technology has opened my eyes to many opportunities. The EV industry requires engineers, researchers, software developers, battery specialists, and energy managers. Even fields like policy-making, urban planning, and business management are involved in the transition to electric mobility. Learning about EVs has helped me understand how multidisciplinary knowledge is becoming essential in modern careers.

Studying electric vehicles has also improved my practical understanding of subjects like physics and electronics. Concepts such as electromagnetic induction, energy conversion, power electronics, and thermal management became clearer when I saw their real-life applications in EVs. This made my academic learning more meaningful and interesting.

By

*Yashi Singh*

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## *Drones: Applications and Challenges*

A few decades ago, the idea of a flying machine without a pilot sounded like science fiction. Today, drones quietly hover above farms, disaster zones, construction sites, and even city neighborhoods, reshaping how humans observe, analyze, and act. These compact flying devices have moved far beyond military experiments and are now woven into everyday problem-solving. Yet, with their growing presence in the sky comes an equally growing set of concerns on the ground.

Drones are powerful because they change perspective. From above, patterns become visible—flood paths, traffic congestion, crop stress, structural cracks—details that are often invisible from the ground. This ability has made drones essential tools in modern agriculture, where farmers rely on aerial data to detect plant diseases early, optimize irrigation, and reduce waste. In cities, engineers use drones to inspect bridges and tall buildings without scaffolding or road closures, saving time, money, and human risk.

In emergencies, drones act as silent first responders. When roads are blocked by earthquakes or floods, drones are often the first to reach affected areas, transmitting live visuals and locating survivors. In healthcare logistics, especially in remote regions, drones have become lifelines, delivering medicines, vaccines, and blood samples where traditional transport fails. Commercial creativity has also embraced drones. Filmmakers capture breathtaking shots once possible only with helicopters. Environmental scientists track wildlife without disturbing habitats. Even meteorologists and climate researchers use drones to collect data from dangerous or unreachable locations.

Safety is another concern. A malfunctioning drone falling from the air is not just a technical failure—it can be a public hazard. As drone numbers increase, managing crowded airspace becomes a serious challenge, requiring sophisticated regulation and coordination with traditional aircraft systems. Add to this the risks of hacking, signal interference, and misuse for illegal activities, and the picture becomes more complex. Ultimately, drones are neither heroes nor villains. They are tools—remarkably capable ones—whose impact depends on how wisely they are used. With thoughtful regulations, ethical awareness, and continuous innovation, drones can remain instruments of progress rather than sources of conflict.

The sky may be open, but responsibility must keep pace with technology.

*BY*

*Mahendra*

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## *Data Privacy in the Age of Social Media*

Social media platforms like Facebook, Instagram, TikTok, and X (formerly Twitter) have woven themselves into the fabric of daily life. With over 5 billion users worldwide as of 2025, these apps connect us, entertain us, and even shape our news feeds. Yet beneath the likes, shares, and viral trends lies a hidden cost: our personal data. Every post, photo, location tag, and even the time spent scrolling feeds powerful algorithms that track, analyze, and monetize our behaviors. In this age of constant connectivity, data privacy has become a pressing battleground, where convenience clashes with control.

The scale of data collection is staggering. Platforms harvest not just what we share publicly but also inferred details from our interactions—whom we follow, what we click, and how long we linger on a video. Cambridge Analytica's 2018 scandal exposed how Facebook data from 87 million users influenced elections, revealing how seemingly innocuous quizzes could fuel manipulation. Fast-forward to today, and issues persist: TikTok faces bans in several countries over ties to Chinese data practices, while Meta's repeated fines—totaling over €2 billion from the EU alone—stem from violations like the 2023 WhatsApp data-sharing debacle. These aren't isolated incidents; they're symptoms of a business model where free access trades user privacy for ad revenue, projected to hit \$200 billion globally in 2026.

### **The Privacy Paradox and Real Risks**

Users often embrace this trade-off willingly, a phenomenon psychologists call the "privacy paradox." We crave connection and personalized content, yet surveys like Pew Research's 2025 report show 81% of Americans feel they have little control over their data. The risks extend beyond targeted ads. Identity theft surges with leaked credentials—Equifax's 2017 breach affected 147 million people, many via social media-linked info. Stalking and doxxing thrive on over sharing: a 2024 study by the Cyber Civil Rights Initiative found 1 in 10 social media users experienced online harassment tied to personal data exposure.

Governments are responding, but unevenly. The EU's General Data Protection Regulation (GDPR), enacted in 2018, mandates consent and hefty fines, forcing platforms to add "data download" tools and opt-out features. California's Consumer Privacy Act (CCPA) followed suit, empowering users to delete data. Yet enforcement lags in regions like Asia and Africa, where platforms exploit lax rules. Emerging tech amplifies threats: AI-driven deepfakes use scraped images for scams, and biometric data from facial recognition in apps like Snapchat raises surveillance fears.

### **Navigating Privacy: Tools and Strategies**

Individuals aren't powerless. Start with basics: tweak privacy settings to limit who sees posts—Facebook's "Friends Only" or Instagram's "Close Friends" lists help. Use tools like Signal for encrypted messaging over WhatsApp, and enable two-factor authentication everywhere. Browser extensions such as Privacy Badger block trackers, while apps like Jumbo automate privacy audits across platforms.

For deeper protection, demand transparency. Support laws like the U.S. American Data Privacy and Protection Act, stalled in Congress but gaining bipartisan traction in 2026. Platforms must innovate too:



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Apple's App Tracking Transparency feature slashed iOS ad tracking by 80% post-2021 rollout. Decentralized alternatives like Mastodon offer user-controlled servers, sidestepping Big Tech monopolies.

## **Toward a Balanced Digital Future**

Data privacy in the social media age demands a cultural shift—from passive scrolling to active guardianship. Educate yourself via resources like the Electronic Frontier Foundation's guides. Advocate for "privacy by design," where apps prioritize security from the start. As AI and the metaverse evolve, expect new frontiers: imagine virtual worlds where your avatar's data mirrors real-life habits.

Ultimately, privacy isn't about isolation; it's about informed choice. Social media enriched our world, but unchecked data hunger erodes trust. By reclaiming control—one setting, one law, one mindful post at a time—we can enjoy connection without surrender.

*BY*

*Dr. Sudhaker Dixit*

*Assistant Professor*

*Department of Applied Science*

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## **Vision & Mission of Institute**

### **Vision of Institute**

To nourish the students, blossom them into tomorrow's world class professionals and good human beings by inculcating the qualities of sincerity, integrity and social ethics.

### **Mission of Institute**

1. To provide the finest infra structure and excellent environment for the academic growth of the students to bridge the gap between academia and the demand of industry.
2. To expose students in various co- curricular activities to convert them into skilled professionals.
3. To grind very enthusiastic engineering and management student to transform him into hard working, committed, having a zeal to excel, keeping the values of devotion, concern and honesty.
4. To involve the students in extracurricular activities to make them responsible citizens



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## **Vision & Mission**

### **Department of Applied Sciences**

#### **Vision - Department of Applied Sciences**

To educate undergraduate students in the field of technology, service, applied sciences, preparing sincere and socially responsible students to thrive and contribute to an ever-changing global society.

#### **Mission - Department of Applied Sciences**

- 1.** To provide strong foundation to the students through basic courses and value added teaching in areas of technical fields, innovation, personality development and competitive abilities and guide for their respective discipline.
- 2.** To renders proactive and adaptive services systems those provide students with a flexible yet solid learning infrastructure.
- 3.** To create and propagates knowledge and tools at the interface between areas of engineering, emerging trends industries and other core areas of Applied Science and Humanities.



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## Program Outcome

- 1.** Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2.** Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3.** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4.** Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5.** Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6.** The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7.** Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8.** Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9.** Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10.** Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11.** Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12.** Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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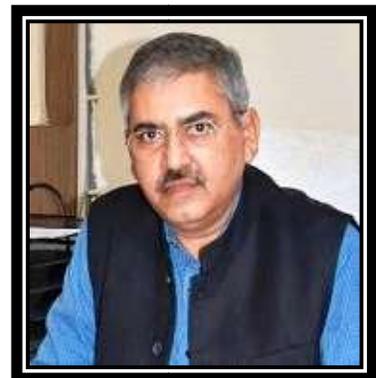
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