GL BAJAJ
Institute of Technology & Management
FIND YOUR SPARK
Approved by AICTE & Affiliated to AKTU

Mr. Avinash Kumar
360 Degree Cloud Technologies Pvt Ltd., Noida
Alumni MCA
(Batch 2016-18)

Mr. Pankaj K Akhouri
Director IT, Evangelist Technology Pvt Ltd., Noida
Alumni MCA
(Batch 2016-18)

Ms. Meeta Nayyar
Digital Marketing Manager at Cadence Design Systems, Noida
Alumni MCA
(Batch 2007-10)

Mr. Shiv Sharma
Technology Advocate & Innovator with CSharp
(Industry Expert)

Mr. Krishna Kumar
Senior SOC Analyst Niveshan Technogy Pvt Ltd
Alumni MCA
(Batch 2020-22)


# Bits & Bytes

## MCA NewsLetter

**September 2025**

# Content

# Message from Patrons

## Chairman's Message

Firm belief in values is the main source of our abilities which gives us strength, courage, conviction, and commitment on a continuous basis.

Dr. R.K. Agarwal
The Founder of the

## Vice Chairman's Message

We firmly believe that support, guidance and assistance play a phenomenal role in transforming students into professionals with sheer excellence and sharp focus.

Pankaj Agarwal

## Director Message

Our expertise coupled with rock solid principles, excellent infrastructure, competent faculty members, robust teaching methodology and industrial relations place us well above the rest.

Dr. Preeti Bajaj

## HOD Message

The Department seeks to combine excellence in education with service to the industry. Our vision is to be recognized as innovative and leading MCA Department. Our goal is to provide students with a balance of intellectual and practical experiences that enable them to serve a variety of societal needs. In our department students are nurtured to become best software professionals as Project Managers, System Analysts or Team leaders in Industry or become Entrepreneursin their own innovative way.

Dr. Madhu S. Gaur

# About the Department

The Department of Master of Computer Applications at GL Bajaj Institute of Technology & Management started in the year 2006 with a vision "To become a center of repute and developing computer professionals who can respond to social and global challenges". The Department focuses on the attainment of professional excellence by providing acquaintance with new IT tools and technologies. The branch of Master of Computer Applications focuses on the scientific research, scientific programming, Application programming, software testing and software engineering. The Department has well-furnished laboratories with contemporary hardware and software resources, lecture halls, seminar halls, tutorial rooms and faculty sections.

## Vision & Mission

"To become a center of repute and developing computer professionals who can respond to social and global challenges."


## Mission

- To impart quality education with sound practical knowledge for societal and global recognition.
- To provide exposure and awareness about Industry needs and challenges through mutual association.
- To provide environment for innovation, incubation and entrepreneurship.
- To develop moral values and ethics in our graduates.

# Departmental Activities

## Orientation Program (*Deeksharambh- 2025*) :Welcomes MCA Batch 2025–26

The Department of MCA at **G.L. Bajaj Institute of Technology & Management, Greater Noida**, organized a two-day **Orientation Program** on **22nd–23rd September 2025** to welcome the first-year MCA students of the 2025–26 batch. The program, held at **SBG Hall**, aimed to introduce the new entrants to the academic environment, institutional culture, and professional opportunities awaiting them.

**Poster of the Event:**

## Day 1:

The inaugural session on **Day 1** began with a **Welcome Address by the Anchors**, followed by the **traditional lamp lighting and Saraswati Vandana**, symbolizing the pursuit of knowledge.



The program was graced by esteemed dignitaries, including the **Hon'ble Director Madam**, **Registrar**, **Director (Training & Placement)**, **Dean (Strategy)**, **Dean (Student Welfare)**, **Dean (CDC) & HOD (ME)**, **HOD (EE) & Chief Proctor**, **Head ICC (WGC)**, **Chief Warden (Hostels)**, **Head IIC/GLBCRI**, **Head Exam Cell**, and the **Head of Department (MCA)**. Each of them extended a warm welcome and inspired the students with their vision and guidance.

Post lunch, **Dr. Sanjeev Kumar, Addl. Head of Department of MCA,** addressed the gathering, followed by enriching **sessions from industry experts — Mr. Harsh Raghuvanshi** and **Mr. Madhup Rai** — who shared insights into industry practices, career readiness, and future opportunities.

The day concluded with a **felicitation ceremony**, an **interaction with team members**, and a heartfelt **vote of thanks**.

The Orientation Program set the tone for the students' academic journey, blending inspiration with guidance. It successfully created a platform where students could connect with faculty, mentors, and industry leaders, instilling confidence and enthusiasm for the years ahead.

# LaunchPad 2025: Fueling Futures with Industry Experts & Alumni

The **Department of Master of Computer Applications, GL Bajaj Institute of Technology & Management**, organised an enriching event titled **"LaunchPad 2025: Fueling Futures with Industry Experts & Alumni"** on **23rd September 2025** at the **SBG Hall, Academic Block–2**. The program commenced at **10:00 AM onwards** and brought together distinguished industry experts and alumni of the MCA department to inspire and guide current students.

**Guest Speakers and Alumni**

The event featured insightful sessions by eminent speakers and successful alumni, who shared their professional journeys, industry knowledge, and future opportunities in the field of computer applications.
Mr. Shiv Sharma, *Technology Advocate & Innovator with CSharp* (Industry Expert), Ms. Meeta Nayyar, *Digital Marketing Manager at Cadence Design Systems, Noida, ( Batch 2007–10),*Mr. Krishna Kumar, *Senior SOC Analyst, Niveshan Technology Pvt. Ltd., (Batch 2020–22),* Mr. Avnish Kumar, *Associate Technical Lead, 360 Degree Cloud Technologies Pvt Ltd. Noida.* Mr. Pankaj K Akhouri, *Director IT, Evangelist Technology Pvt. Ltd., Noida, (Batch 2016–18)*

***Poster of the Event:***


***Event Highlights:***

- The speakers addressed students on **emerging technologies, digital innovation, cybersecurity, and leadership in IT**.
- Alumni shared **personal career stories and professional growth experiences**, motivating the students to leverage opportunities in both technical and managerial roles.
- The sessions emphasized **bridging the gap between academics and industry expectations**, preparing MCA students for future challenges.
- An interactive Q&A session allowed students to connect directly with experts and alumni, gaining valuable advice on **career planning and skill enhancement**.

The **LaunchPad 2025** event successfully provided a platform where students could engage with industry experts and alumni, gaining insights that will help them **fuel their futures** in the rapidly evolving IT sector. The Department of MCA at GL Bajaj continues its commitment to nurturing talent by connecting academics with real-world industry practices.


# Guest Lecture (*Java for Beginners: Shaping Skills for Corporate Projects)*

The Department of Master of Computer Applications organized a guest lecture on ***"Java for Beginners: Shaping Skills for Corporate Projects"*** on **Saturday, 27th September 2025**, at 9:30 AM in the MCA Block. The session was conducted by **Mr. Chinmay Rajput, AEM Developer (System Analyst)**, who shared his expertise and practical insights into Java programming and its applications in the corporate environment.

The lecture began with an introduction to the fundamentals of Java, emphasizing the importance of object-oriented programming concepts and their role in solving real-world problems. He elaborated on how Java is applied in corporate projects, highlighting best practices for writing efficient, reusable, and maintainable code. He also guided students on career opportunities in Java development and discussed the expectations of the IT industry from fresh graduates, thereby bridging the gap between academic learning and professional skills.

The session was highly interactive, with active participation from students of the MCA department. Approx 100 students attended the session. Students raised queries related to project implementation, debugging techniques, and career growth in software development, which were addressed by the speaker with practical examples.

Overall, the lecture proved to be extremely insightful and beneficial. It not only enhanced students' technical understanding of Java but also motivated them to adopt industry-oriented coding practices and focus on hands-on learning. The institute expressed its gratitude to Mr. Chinmay Rajput for delivering such an engaging and knowledge-enriching session and looks forward to organizing more such events in the future.


## *Student's Visit at HackIndia 2025, Hackathon*

The students of the **Department of MCA, GL Bajaj Institute of Technology and Management**, had the privilege of attending **HackIndia 2025**, a premier national-level hackathon organized by **C# Corner** at **The Leela Ambience Convention Hotel, Noida**.

The event brought together talented developers, innovators, and aspiring technologists from across the country to collaborate and create solutions for real-world challenges. **HackIndia 2025** provided an excellent platform for participants to explore emerging technologies such as **Artificial Intelligence, Machine Learning, Cloud Computing, and Automation**, while engaging in intensive coding and problem-solving sessions.

The visit proved to be highly enriching, fostering technical competence, teamwork, and innovative thinking among the students. It also motivated them to pursue excellence in technology and contribute meaningfully to the digital future.

The Department of MCA congratulates the participating students for their enthusiasm and active involvement, and extends gratitude to **C# Corner** for organizing such an inspiring and impactful event.


# *Faculty Achievements September 2025*

## Research Publication (Paper/Book/Book Chapter/Patent)

### *Edge Computing Based Emulator Design for Low-Latency IoT Health Monitoring System*

**Dr. Bishwajeet Pandey** continues to make impactful advancements in the fields of **IoT, Smart Grid Security, Artificial Intelligence, and Programming Education**. His research and publications in reputed international platforms reflect the department's commitment to innovation and knowledge dissemination.

His recent journal article titled ***"Edge Computing Based Emulator Design for Low-Latency IoT Health Monitoring System"*** was published on **11th September 2025** in **Springer**. The work emphasizes the importance of edge computing in ensuring real-time data processing and reducing latency in IoT-enabled health monitoring systems, which is crucial for patient safety and timely medical interventions.

International Journal of Information Technology
https://doi.org/10.1007/s41870-025-02724-5

ORIGINAL RESEARCH

**Edge computing based emulator design for low-latency IoT health monitoring system**

Biky Chouhan[1] · Rakesh Pal[3] · Bishwajeet Pandey[2]

Received: 30 May 2025 / Accepted: 31 August 2025
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**Abstract**
The proliferation of Internet of Things (IoT) technologies has revolutionized Healthcare by facilitating real-time remote patient monitoring. The Healthcare models, which depend on intermittent clinical assessments, often miss acute health deteriorations due to delayed detection. IoT-enabled health monitoring systems address this limitation by offering continuous, real-time monitoring of vital parameters such as heart rate and blood oxygen level ($SpO_2$). This paper proposes an emulator as a cost-effective and portable IoT-based health monitoring system that utilizes edge computing to process vital data in real time. The Emulator utilizes the MAX30100 sensor for $SpO_2$ and heart rate detection, an ESP8266 microcontroller for on-device processing, and an LCD for providing instantaneous feedback. We also simulate our proposed design by running a Python code that generates sensor readings on the Termux application in Android phones.

**Keywords** IoT · Health monitoring · Edge computing · ESP8266 · MAX30100 · $SpO_2$ · Heart rate · Emulator real-time processing · Termux · Simulation

**1 Introduction**

The digital transformation of Healthcare through Internet of Things (IoT) technologies represents one of the most significant advancements in modern medicine. The existing Healthcare systems are transitioning from hospital-centric models to patient-centred paradigms that involve continuous vital monitoring. This shift addresses fundamental limitations in traditional Healthcare delivery, where periodic clinical visits often fail to handle critical health deterioration between appointments. Our Emulator features an edge node in the form of the MAX30100 sensor, which monitors blood oxygen levels and heart rate. Second, an efficient processing architecture in the form of an ESP8266 board for real-time signal processing. Third, we simulate the operation of the Emulator using the Python programming language. The simulation is performed using the Termux application on an Android mobile phone. This research makes four primary contributions to the field of medical IoT, including real-time heart rate recording from an emulator, real-time oxygen level reading from an emulator, and random heart rate reading from a simulator, as well as random oxygen level reading from a simulator.

A normal resting heart rate for adults is in the range of 60 to 100 beats per minute (bpm). The normal blood oxygen level should be between 95% and 100%. These values are

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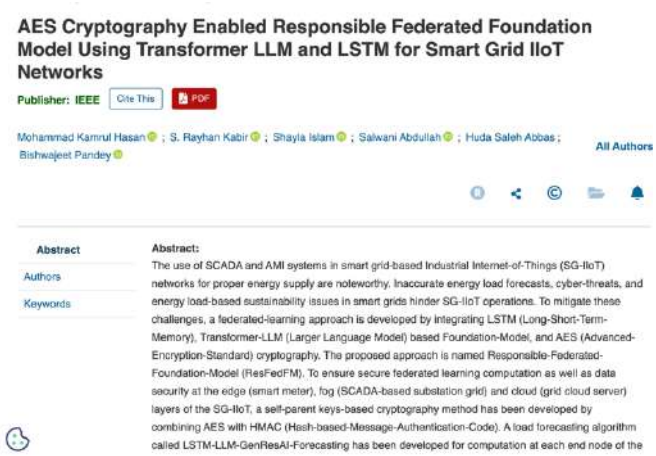
### *AES Cryptography Enabled Responsible Federated Foundation Model Using Transformer LLM and LSTM for Smart Grid IoT*



**AES Cryptography Enabled Responsible Federated Foundation Model Using Transformer LLM and LSTM for Smart Grid IIoT Networks**

Publisher: IEEE Cite This PDF

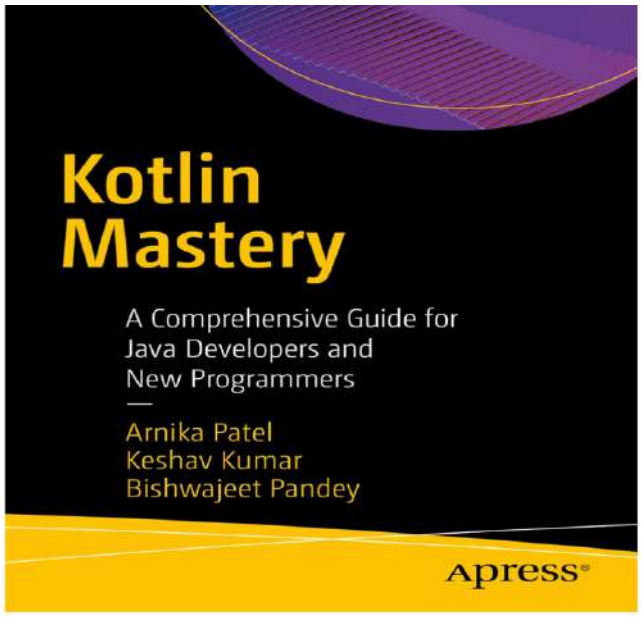
Mohammad Kamrul Hasan ; S. Rayhan Kabir ; Shayla Islam ; Salwani Abdullah ; Huda Saleh Abbas ; Bishwajeet Pandey All Authors

Abstract
Authors
Keywords

**Abstract:**
The use of SCADA and AMI systems in smart grid-based Industrial Internet-of-Things (SG-IIoT) networks for proper energy supply are noteworthy. Inaccurate energy load forecasts, cyber-threats, and energy load-based sustainability issues in smart grids hinder SG-IIoT operations. To mitigate these challenges, a federated-learning approach is developed by integrating LSTM (Long-Short-Term-Memory), Transformer-LLM (Larger Language Model) based Foundation-Model, and AES (Advanced-Encryption-Standard) cryptography. The proposed approach is named Responsible-Federated-Foundation-Model (ResFedFM). To ensure secure federated learning computation as well as data security at the edge (smart meter), fog (SCADA-based substation grid) and cloud (grid cloud server) layers of the SG-IIoT, a self-parent keys-based cryptography method has been developed by combining AES with HMAC (Hash-based-Message-Authentication-Code). A load forecasting algorithm called LSTM-LLM-GenResAI-Forecasting has been developed for computation at each end node of the

Another remarkable contribution, **Dr. Bishwajeet Pandey** has published a research paper in **IEEE** on **29th September 2025**, titled ***"AES Cryptography Enabled Responsible Federated Foundation Model Using Transformer LLM and LSTM for Smart Grid IoT Networks."*** This paper explores the integration of advanced cryptography with federated learning models, leveraging Transformer LLM and LSTM for enhancing the security and efficiency of Industrial IoT networks in smart grids. The study bridges cutting-edge AI models with secure computing for future-ready smart infrastructures.

Expanding beyond research papers, Dr. Bishwajeet Pandey has also authored a book titled ***"A Comprehensive Guide for Java Developers and New Programmers"***, published by **Apress Springer Nature** on **29th September 2025**. The book serves as a practical resource for beginners and experienced developers alike, providing in-depth guidance on Java programming concepts and their applications in real-world projects. It is designed to bridge the gap between theoretical knowledge and hands-on coding skills, making it valuable for students, educators, and software professionals.



## Modern Approaches to Software Analysis and Design
## Concepts, Principles, and Frameworks for the Future of Software

We are delighted to share that **Dr. Lalan Kumar** has authored a comprehensive book titled *"Modern Approaches to Software Analysis and Design: Concepts, Principles, and Frameworks for the Future of Software."*

This book explores the **evolving paradigms of software development**, bridging traditional practices with cutting-edge methodologies. It emphasizes how **Agile, DevOps, cloud-native frameworks, and AI-driven solutions** are shaping the future of software engineering.