NEW HORIZON
COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

POST EVENT REPORT

Faculty Development Programme (FDP)
"**Mathematical Foundations for AI-Driven Engineering Applications**"
29th June 2026–03rd July 2026

1. Basic Details

Title of the Programme: Five-Day Faculty Development Programme on "**Mathematical Foundations for AI-Driven Engineering Applications**"

Date(s): 29thJune2026–03rdJuly2026

Venue: Falconry Seminar Hall, Library Video Conference Room, New Horizon College of Engineering

Organizing Departments: Electrical and Electronics Engineering Department in association with Applied Sciences Department & Skill Development Centre.

Coordinators:

1). Dr.Madhumohana Raju A B

2). Dr.Baskar P

3). Dr.Mohan Das R

4). Dr. Lipsa Dash

Target Audience: PG Students, Research Scholars, Faculty Members and Industry Professionals.

Number of Participants Attended:
Total participants (PG Students, Research Scholars, Faculty Members and Industry Professionals): 50

2. Objective of the Programme:

The Five-Day Faculty Development Programme (FDP) aims to strengthen the mathematical foundations required for understanding and developing Artificial Intelligence (AI) techniques in engineering disciplines. The specific objectives are:

- To provide a strong foundation in the mathematical concepts that underpin Artificial Intelligence, Machine Learning, Deep Learning, and Data Science.
- To bridge the gap between mathematical theory and engineering applications by demonstrating the practical relevance of linear algebra, calculus, probability, statistics, optimization, differential equations, and numerical methods in AI-driven solutions.
- To familiarize faculty members with modern AI algorithms and computational techniques, emphasizing the mathematical principles governing their design, convergence, and performance.
- To explore AI applications across diverse engineering domains such as Electrical, Electronics, Mechanical, Civil, Computer Science, and allied disciplines through real-world case studies.
- To introduce emerging technologies including Generative AI, Digital Twins, Explainable AI, Reinforcement Learning, and Intelligent Control Systems from a mathematical perspective.

3. Resource Persons Details:

Name	Designation	Organization
Dr. Mohan Krishna S	Manager – Research	Supply Chain Management Centre, Indian Institute of Management, Bangalore
Dr. Nagendra J	Associate Professor	Dayananda Sagar College of Engineering, Bangalore
Dr. Chandra Sekhar Nalamati	Associate Architect	EV Practice Department, L&T Technology Services, Bangalore
Er. Jeykishan Kumar	Engineering Officer Grade 2	Central Power Research Institute (CPRI), Bangalore
Dr. Bharath	Associate Professor	Department of AI & ML, Dr. Ambedkar Institute of Technology, Bangalore
Dr. Ajay Prakash B. V.	Professor and Head	Department of AI & ML, Dr. Ambedkar Institute of Technology, Bangalore
Dr. Mallikarjuna B	Assistant Professor	Department of Mathematics, BMS College of Engineering, Bangalore
Dr. Umesha V	Assistant Professor	Department of Mathematics, BMS College of Engineering, Bangalore
Dr. Chakravarthula S. K. Raju	Associate Professor	Department of Mathematics, S R University, Warangal

4. Programme Summary:

The Departments of **Applied Sciences** and **Electrical & Electronics Engineering**, in association with the **Skill Development Centre**, organized a **Five-Day Faculty Development Programme** on **"Mathematical Foundations for AI-Driven Engineering Applications"** to provide a platform for PG students, researchers, academicians, and industry professionals to discuss recent developments in science and technology.

The programme brought together eminent scientists from **IIM**, **LTTS**, and **CSIR**, experienced academicians from reputed institutions, and industry experts. Through a series of expert lectures and technical discussions, participants gained insights into building a strong foundation in the mathematical concepts underpinning Artificial Intelligence. The sessions also focused on bridging the gap between mathematical theory and engineering applications, familiarizing faculty members with modern AI algorithms and computational techniques, and exploring AI applications across diverse engineering domains.

The programme successfully fostered interdisciplinary thinking and encouraged participants to explore collaborative research opportunities and develop innovative solutions to real-world challenges.

Summary of Sessions Conducted

Day 1: 29-06-2026

FN Session 1 – Inaugural Session and Keynote Address

Speaker: Dr. Mohan Krishna S

Topic: AI for Sustainable Supply Chains – From Measurement to Action

Highlights:

- AI-Driven Sustainable Supply Chains.
- From Measurement to Action.
- Real-World Applications and Case Studies.
- Emerging Trends in AI and Sustainability.
- Interactive Learning and Knowledge Sharing.

AN Session 2

Speaker: Dr. Nagendra J

Topic: Pattern Recognition and Machine Learning in Robotics

Highlights:

- Fundamentals of Pattern Recognition and Machine Learning.
- Recent Advancements in Intelligent Systems.
- Applications of AI in Robotics.
- Practical Insights with Real-World Examples.
- Interactive Discussions and Future Perspectives.

Day 2: 30-06-2026

FN Session 3

Speaker: Dr. Chandra Sekhar Nalamati

Topic: AI, Data Science and Optimization Techniques for Sustainable Engineering

Highlights:

- Integration of AI, Data Science, and Optimization.
- Sustainable Engineering Solutions.
- Contemporary Methodologies and Techniques.
- Real-World Engineering Applications.
- Innovation and Future Perspectives.

AN Session 4

Speaker: Er. Jeykishan Kumar

Topic: Mathematics for Generative AI and Digital Twins

Highlights:

- Mathematical Foundations of Generative AI and Digital Twins.
- Computational Models and Intelligent Systems.
- Practical Applications in Engineering.
- Bridging Theory with Real-World Practice.
- Emerging Trends and Future Opportunities.

Day 3: 01-07-2026

FN Session 5

Speaker: Dr. Bharath

Topic: Artificial Intelligence and Machine Learning for Modern Engineering Applications

Highlights:

- Fundamentals of Artificial Intelligence and Machine Learning.
- Emerging AI Technologies and Engineering Applications.
- Real-World Case Studies and Practical Insights.
- Future Trends and Research Opportunities.
- Interactive Discussions and Academic Integration.

AN Session 6

Speaker: Dr. Ajay Prakash B. V.

Topic: Hands-on AI Training Tools for Academicians

Highlights:

- Hands-on Exposure to AI Tools and Platforms.
- AI Integration in Teaching, Research, and Administration.
- Interactive Demonstrations and Real-World Applications.
- Simplifying Complex AI Concepts.
- Promoting Innovation in Higher Education.

Day 4: 02-07-2026

FN Session 7

Speaker: Dr. Mallikarjuna B

Topic: Deep Learning Techniques for Solving Boundary Value Problems

Highlights:

- Deep Learning for Boundary Value Problems.
- Integration of Mathematics and Artificial Intelligence.
- Applications in Scientific Computing and Numerical Analysis.
- Practical Examples and Emerging Computational Approaches.
- Interdisciplinary Research Opportunities.

AN Session 8

Speaker: Dr. Umesha V

Topic: Stability and Convergence of AI Learning Algorithms: A Lyapunov-LMI Perspective

Highlights:

- Theoretical Foundations of AI Learning Algorithms.
- Application of Lyapunov Theory and Linear Matrix Inequalities (LMIs).
- Mathematics for Reliable and Robust Intelligent Systems.
- Bridging Applied Mathematics, Control Theory, and AI.
- Interdisciplinary Research and Future Directions.

Day 5: 03-07-2026

FN Session 9

Speaker: Dr. Chakravarthula S. K. Raju

Topic: Engineering Intelligence: The Mathematics Behind AI

Highlights:

- Mathematical Foundations of Artificial Intelligence.
- Connecting Mathematics with AI Applications.
- Engineering Applications of Mathematical Models.

- Bridging Theory and Practice.
- Inspiring Innovation and Interdisciplinary Learning.

5. Participants' Feedback Summary

The Five-Day Faculty Development Programme on "Mathematical Foundations for AI-Driven Engineering Applications" received an overwhelmingly positive response from the participants. Faculty members appreciated the well-structured programme, the relevance of the topics, and the expertise of the distinguished resource persons. The sessions successfully bridged the gap between fundamental mathematical concepts and their practical applications in Artificial Intelligence, Machine Learning, and modern engineering disciplines. Participants unanimously agreed that the Faculty Development Programme was highly informative, academically enriching, and professionally rewarding. The programme successfully strengthened participants' knowledge of the mathematical principles underpinning Artificial Intelligence and demonstrated their practical significance across diverse engineering applications. Faculty members expressed confidence in applying the knowledge gained to enhance their teaching practices, pursue interdisciplinary research, and develop innovative AI-driven engineering solutions.

6. Outcomes of the Programme

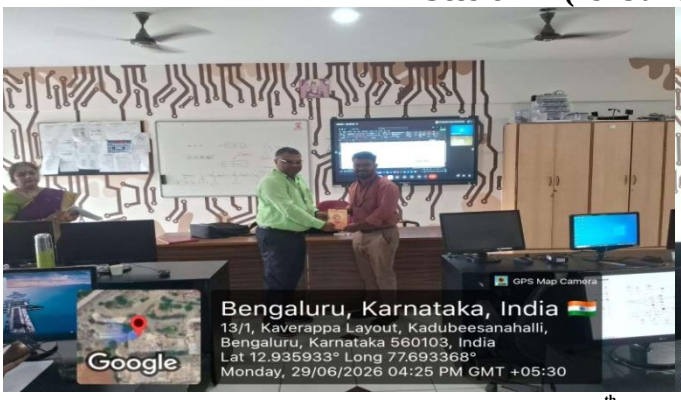
The Faculty Development Programme (FDP) successfully achieved its objectives by strengthening participants' understanding of the mathematical principles that underpin Artificial Intelligence (AI) and their applications across various engineering disciplines. The programme enabled faculty members to acquire theoretical knowledge, practical insights, and interdisciplinary perspectives essential for AI-driven engineering education and research. Some of the important outcomes are listed below:

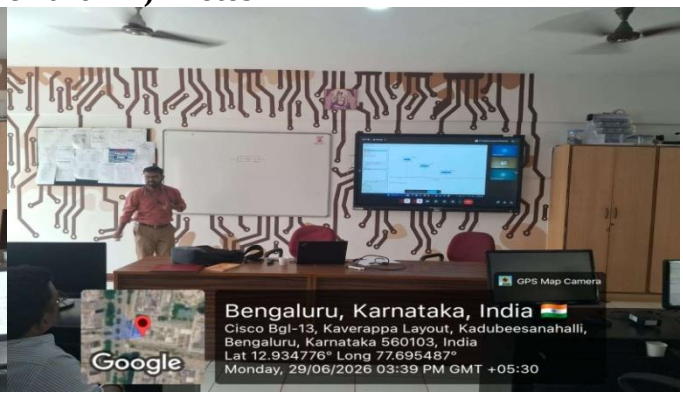
- Strengthened Mathematical Foundations for AI.
- Enhanced Knowledge of AI and Machine Learning.
- Integration of Mathematics with Engineering Applications.
- Exposure to Emerging Technologies.
- Application of Advanced Mathematical Techniques.
- Improved Research Competency.
- Hands-on Experience with AI Tools.
- Innovation in Teaching and Curriculum Development.
- Promotion of Sustainable Engineering Solutions.
- Enhanced Interdisciplinary Collaboration.

Photographs (Geo–Tagged Photographs):

Inauguration Photos

Session–1 (29th June 2026 FN) Photos

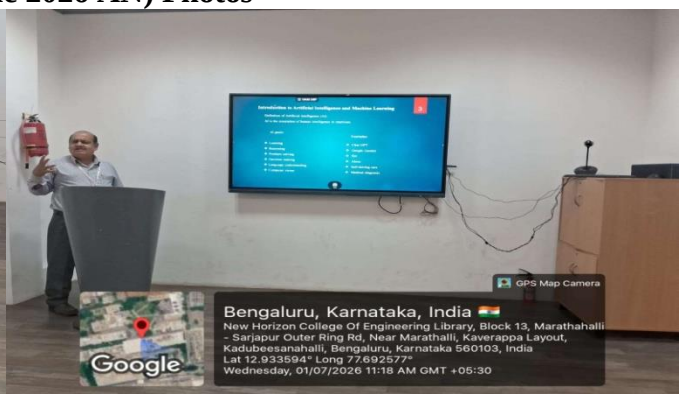




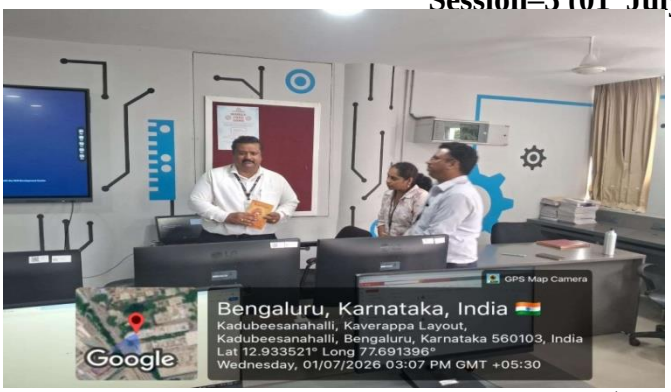
Session–2 (29th June 2026 AN) Photos

Session–3 (30th June2026 FN) Photos

Session–4 (30th June 2026 AN) Photos

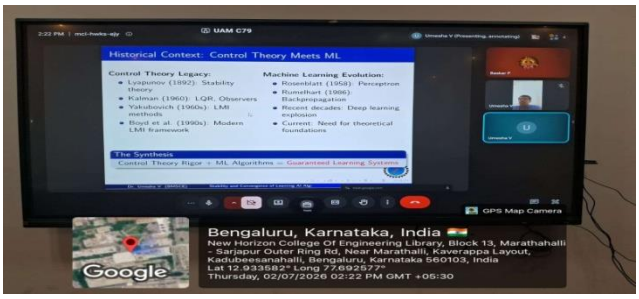


Session–5 (01st July 2026 FN) Photos



Session–6 (01st July 2026 AN) Photos

Session–7(02nd July 2026 FN) Photos



Session–8 (02nd July 2026 AN) Photos

Session–9 (03rd July 2026 FN) Photos

Feedback from External Participant

Valedictory Session Photos

Valedictory Session Photos

Report Submitted by:

Name of the Coordinators:

Dr. Madhu mohana Raju A B	**Dr. Baskar P**	**Dr. Mohan Das R**	**Dr. Lipsa Dash**
Associate Professor	Associate Professor	Associate Professor	Sr. Assistant Professor
AS– Department	AS– Department	EEE–Department	SDC– Coordinator

Dr.SujithaS
HOD–EEE

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