



Kammavari Sangham (R) 1952
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K. S. SCHOOL OF ENGINEERING AND MANAGEMENT

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<u>Event name</u>	: 5-Day Faculty Development Program on Advanced Machine Learning Using Python
<u>Date of Event</u>	: 10-06-2025 to 14-06-2025
<u>Venue</u>	: AD Seminar Hall
<u>Number of participants</u>	: 60
<u>Targeted Audience</u>	: Research Scholars and Faculty members from the Department of Artificial Intelligence and Data Science (AI & DS) and allied branches Participated from various reputed institutions including Jain University, Global Academy of Technology, Dayananda Sagar Institutions, AMC Engineering College and City Engineering College etc.
<u>Objective</u>	: To equip participants with in-depth knowledge of Machine Learning Deep Learning, Computer Vision, and Generative AI using Python and industry-relevant tools.



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE
Presents
5-DAY FDP ON
“ADVANCED MACHINE LEARNING USING PYTHON”



Why Attend?

- Bridge the Gap between Academia and Industry
- Hands-on Training with Python and Machine Learning tools
- Explore Neural Networks, Computer Vision & Generative AI
- Develop Real-time AI Applications with Data Analytics
- Learn cutting-edge models like SVM, PCA, CNN & LLMs

Key Topics:

- Day 1: Data Analytics with Python, Sustainability, Green Skills
- Day 2: Machine Learning Algorithms – Linear, Non-linear, PCA, DBSCAN, Ensemble
- Day 3: Deep Learning – Neural Networks, CNN, Backpropagation
- Day 4: Computer Vision with OpenCV & Keras
- Day 5: Generative AI and LLMs (GPT-3/4)

Dates: 10 – 14 Jun, 2025 **Time:** 9:00 AM to 4:00 PM
Venue: AD Seminar Hall, KSSEM Campus

FREE ENTRY

Who Can Attend?
Faculty from AI, CSE, ISE, ECE, MCA & Allied Domains
Basic Knowledge of Python, NumPy, Pandas, scikit-learn
E-Certificate will be provided to all registered participants

Registration Link: <https://forms.gle/wa7BK8cuJRcQ7w6>
Contact: 9739303491 & 9448587157
Email: tanushreem@kssem.edu.in & geetha@kssem.edu.in

FACULTY COORDINATORS :
TANUSHREE MOHAPATRA, P.S GEETHA

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The Department of **Artificial Intelligence & Data Science (AI&DS)** at KSSEM successfully organized a 5-Day Faculty Development Program (FDP) on '**Advanced Machine Learning Using Python**' from **10th to 14th June 2025**. The FDP aimed at enhancing the teaching and practical capabilities of faculty in areas like supervised learning, unsupervised learning, deep learning, computer vision, and generative AI. The sessions provided a mix of theoretical insights and hands-on exposure using Python libraries such as scikit-learn, TensorFlow, Keras, and OpenCV.

Day 1 – Foundations & Sustainability in AI

The program began by laying the groundwork for understanding Artificial Intelligence in the context of environmental responsibility. The session highlighted the importance of sustainability in AI through topics such as green skilling, eco-friendly computing, and energy-efficient algorithm design. Participants learned how AI and machine learning can contribute to achieving Sustainable Development Goals (SDGs) and how to integrate green entrepreneurship into tech ventures. The hands-on segment focused on data analytics using Python, with tools like NumPy and Pandas. Participants practiced data preprocessing, including handling null or missing values, type conversions, and file operations (CSV/Excel import/export), forming the essential skills for real-world data preparation.

Day 2 – Machine Learning Algorithms

This day introduced the core concepts of machine learning, distinguishing between supervised and unsupervised learning with real-world use cases. Detailed discussions were held on algorithms like linear regression, polynomial regression, and Support Vector Machines (SVM). The session emphasized key model evaluation metrics such as Mean Squared Error (MSE), Accuracy, Precision, Recall, and F1-score, helping participants understand model performance. A practical workshop using scikit-learn followed, where attendees built and evaluated classification (e.g., using SVM, Logistic Regression) and regression (e.g., Linear Regression) models, enhancing their understanding of model training and testing cycles.

Day 3 – Dimensionality Reduction & Deep Learning Introduction

The day started with dimensionality reduction techniques, particularly Principal Component Analysis (PCA), which is useful in simplifying datasets while preserving critical information. Clustering techniques like K-Means and DBSCAN were covered to explore pattern discovery in unlabeled data. The session then transitioned into deep learning basics, explaining neural network architecture, activation functions, and feedforward networks. Participants also learned about ensemble learning methods such as Random Forest, including how combining multiple models can improve prediction accuracy. Live demos illustrated how to implement these models for both classification and clustering tasks.



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Day 4 – Deep Learning & Computer Vision

This session provided an in-depth understanding of Deep Neural Networks (DNNs) and Convolutional Neural Networks (CNNs), with explanations of backpropagation, gradient descent, and optimization techniques. Participants practiced using TensorFlow and Keras to build simple neural networks for image classification tasks. The latter part of the day focused on computer vision using OpenCV. Attendees explored edge detection using Canny filters, object detection using Haar Cascades, and real-time applications like face detection, full-body detection, and number plate recognition. Live coding exercises helped solidify concepts and demonstrated how to integrate ML models with computer vision for practical AI applications.

Day 5 – Generative AI & Valedictory

The final day of the FDP focused on the transformative field of Generative AI, exploring its theoretical foundations and practical applications. The session began with an introduction to Large Language Models (LLMs) such as GPT-3 and GPT-4, explaining their architecture, training methods, and capabilities in natural language generation, summarization, translation, and conversational AI. Participants also learned about Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs) — two powerful generative models used for creating realistic images, data augmentation, and synthetic data generation.

The FDP concluded with a knowledge assessment to evaluate participants' understanding of the topics covered throughout the week. This was followed by a feedback session, where participants shared their learning experiences and provided suggestions for future programs. The event ended with a valedictory ceremony, acknowledging the contributions of the resource persons, coordinators, and enthusiastic participation of all attendees.

Feedback:

The FDP sessions were very well-received by all participating faculty members. Attendees appreciated the seamless organization, warm hospitality, and well-structured schedule throughout the program. The sessions were highly informative, with a strong emphasis on practical implementation through hands-on activities, which enabled participants to gain deeper insights into core AI and ML concepts.



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Glimpses of FDP





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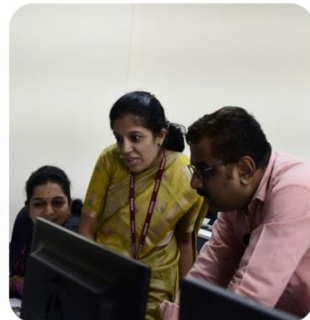
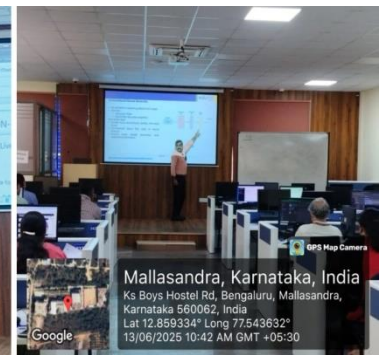
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