J.B. INSTITUTE OF ENGINEERING AND TECHNOLOGY (UGC AUTONOMOUS)

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Yenkapally (Vi), Moinabad (M). P.O. Himayat Nagar, RR District, Hyderabad 500075

Department of Electronics and Computer Engineering

Value-Added Course on Computer Vision

Report

Module Number: 10

Key Topics Covered: Image Classification with CNN using Keras/Tensorflow for basic models

Resource Person(s): Mrs. Anusha Manda and Mr. Bheemana Bhuvan

Date and Time of Session: 24.11.2025 and 10.00am to 01.00pm Duration: 3 hours
Mode of Delivery: Face to Face Lecture Delivery

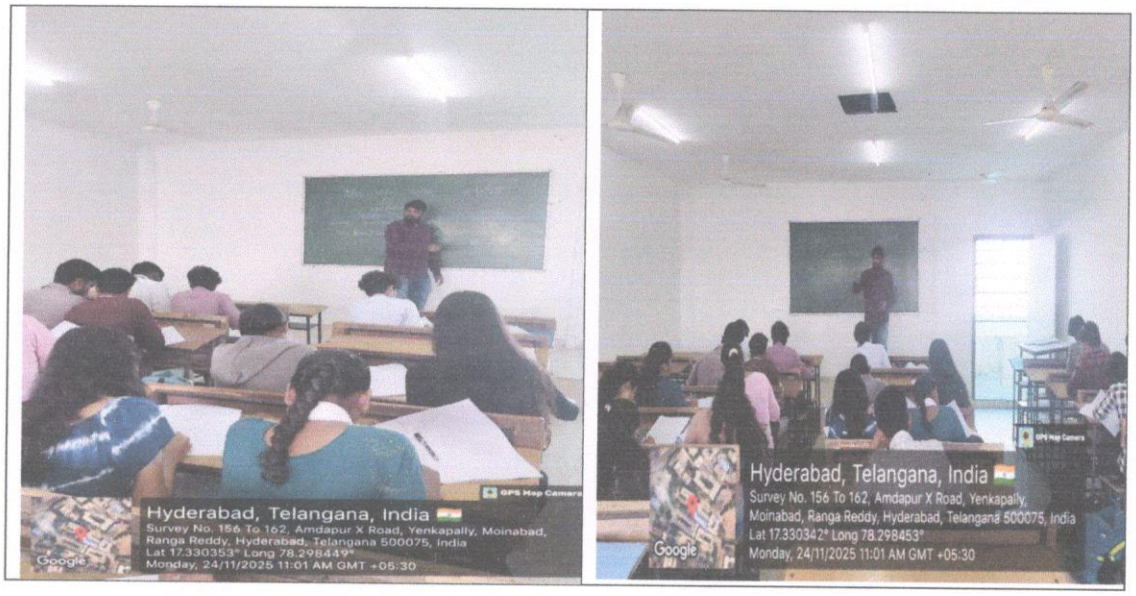
Target Audience: 2nd, 3rd and 4th year students

Number of Participants: 35

Venue: A403 Classroom

Objectives of the Course Module:

- Introducing the concept of image classification and how neural networks learn visual patterns.
- Explaining the structure of Convolutional Neural Networks (CNNs) and why they work well for image tasks.
- Teaching how to build a basic CNN model using TensorFlow/Keras.
- Demonstrating how to preprocess and normalize image datasets.
- Showing how to evaluate model performance using metrics like accuracy, loss curves, and predictions.
- Providing hands-on experience implementing CNNs on real datasets (e.g., CIFAR-10).



Session conducted on a Value-Added Course on Computer Vision for 2nd, 3rd and 4th year students of ECM on 24.11.2025

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Expected Learning Outcomes of the Module: 10

By the end of the module, students could:

1. **Explain what a CNN is**, including concepts like convolution, filters, activation functions, pooling, flattening, and dense layers.
2. **Understand how CNNs learn features** (edges, textures, shapes) from images.
3. **Describe the workflow of image classification** (data loading → preprocessing → model building → training → evaluation).
4. **Load and preprocess image data** using TensorFlow/Keras (normalization, resizing).
5. **Build a basic CNN model** using Sequential API in Keras.
6. **Compile a model** with appropriate loss functions, optimizers, and metrics.
7. **Train a CNN** and monitor performance using accuracy/loss curves.
8. **Evaluate the trained model** on test data and interpret results.
9. **Make predictions** and visualize model outputs.

Summary:

Students appreciated the practical, project-based learning approach, clear explanations with industry relevance and real-time demonstrations and coding practice

24/11/2025

Signature of the HoD-ECM

Head of the Department
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