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: 07

Key Topics Covered: DIP (Digital Image Processing)

Resource Person(s): Dr. Venkata Krishna Dean CS

Date and Time of Session: 15.11.2025 and 01.00pm to 4.00pm

Duration: 3 hours

Mode of Delivery: Face to Face and Video Lecture Presentation

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

Number of Participants: 54

Venue: A-406 Classroom

Objectives of the Course

- Introducing fundamental concepts of digital images, including image formation, sampling, and quantization.
- Understanding image enhancement techniques in spatial and frequency domains to improve image quality and image restoration methods for removing noise and correcting distortions.
- Learning image compression principles and techniques to reduce storage and transmission requirements and introduce morphological operations for shape-based processing and object extraction.
- Providing knowledge of image segmentation techniques for partitioning images into meaningful regions and exploiting feature extraction and representation for pattern recognition and machine vision tasks.
- Real-world applications of DIP in fields such as medical imaging, remote sensing, biometrics, and computer vision enable practical problem-solving using DIP algorithms and image-processing tools/software (e.g., MATLAB, Python with OpenCV).

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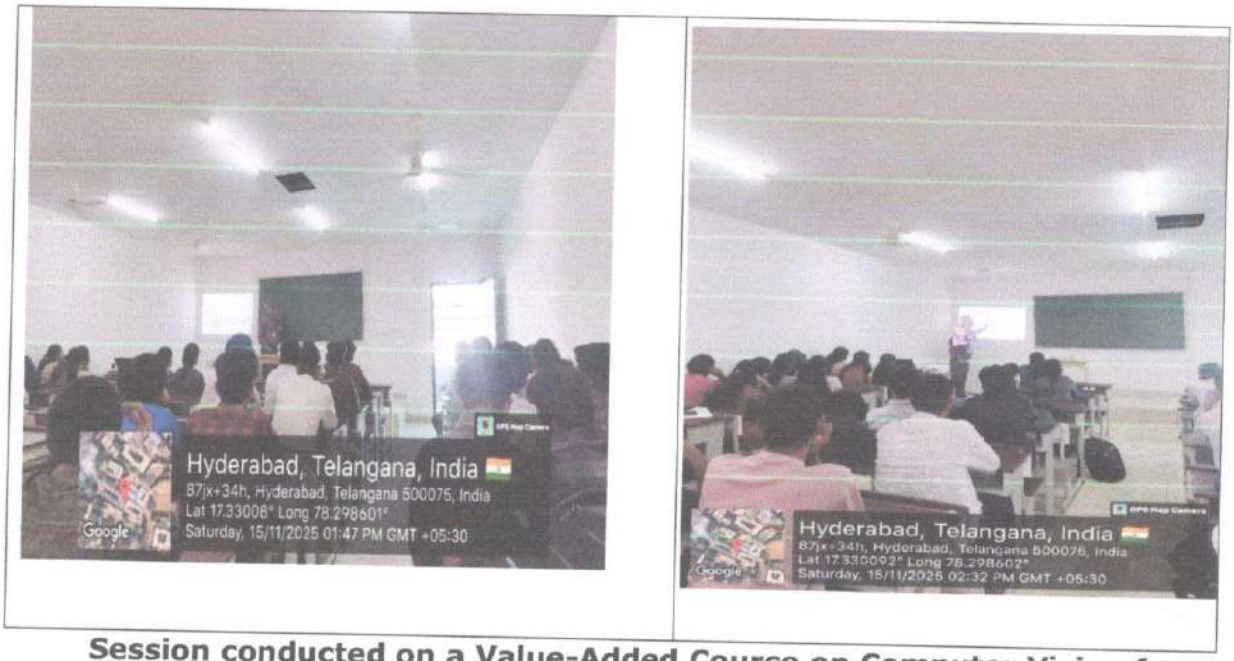

Session conducted on a Value-Added Course on Computer Vision for 2nd, 3rd and 4th year students of ECM on 15.11.2025

Expected Learning Outcomes of the Module: 7

By the end of the module, students could:

- Explain the basic principles of digital image formation and representation
- Describe and compare various image enhancement, restoration, and compression techniques
- Analyze image processing problems and select appropriate algorithms to solve them
- Perform frequency-domain analysis using Fourier Transform concepts
- Evaluate the performance and limitations of DIP techniques on different types of images
- Implement image processing algorithms using tools such as MATLAB, Python, or OpenCV.
- Apply segmentation and feature extraction methods for object detection and classification.
- Design small DIP-based applications and experiments to process real-world images.
- Interpret processed image results and present findings effectively.
- Work individually or in teams to solve practical image processing tasks and document outcomes

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Summary:

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

16/11/2024

Signature of the HOD-ECM

Head of the Department
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