

School of Computer Science Engineering and Technology

Course- BTech

Course Code- CSET340

Type- Specialization Elective

Course Name- Advanced
Computer Vision and Video
Analytics

Year- 2026

Date- 12-16-Jan-2026

Semester- EVEN

Batch- 2023-2027 (VI Sem)

Lab Assignment No. 1

Exp. No.	Name	CO-1	CO-2	CO-3
1.	To perform Basic Image Manipulations on different types of images and Videos	✓		

Objective: How can you implement the basic operations on images in Python using OpenCV library? Perform the provided task as follows.

Data Set: Download the Zip_Folder containing “Test_Images_lab 1” images with some colored, gray scaled and black and white images.

1. Read RGB image, extract RGB channels and plot it and show the shape and size. **1 Mark**
(Lena_Image.png)
2. Convert RGB to Grey Scale image and binary image. **(Lena_image.png)**  **1 Mark**
3. Extract Desired ROI and Perform Arithmetic and Logical operations.
3.1 Extract desired ROI. **(lena_Image.png)**
3.2 Perform Image Addition to enhance the brightness. **(lena_Image.png)**
3.3 Perform Image subtraction:
Motion Detection. **(filled_living_room.jpg), (Empty_living_room.jpg)**
Defect Detection. **(fine_plywood.jpg), (defected_plywood.jpg)**
3.4 Image Multiplication:
Masking **(lena_Image.png)**
Enhance the brightness and contrast. **(lena_Image.png)**
3.5 Analyze the difference between image subtraction and division. **(lena_Image.png)**
3.6 Logical operation XOR: check the similarity between two images. **(Lena_Image.png)**
3.7 Analyze the difference between subtraction and XOR. **(Lena_Image.png)**
4. Extract Frames or perform sampling of a video with different frame rates. **1 Mark**
(Sample_Video.MP4)

Note:- Suggested Platform: Python: Jupyter Notebook/Visual Studio Code/Google Colab.

Mode of Delivery: Face-to-face: Instructor-led discussion and live coding demonstration.

Hands-on Practice via Google Colab/VS code/Notebook.

Submission: On LMS within the prescribed time frame.

