5MCAECP21: DIGITAL IMAGE PROCESSING LAB

Total No. of Hours: 72 **Hours/Week: 06**

Part – A	
1	Image Manipulation. Read, write, and view images and conversion between different image formats. [imread(), imwrite(), imshow(), gray2ind(), ind2gray(), ind2rgb(), mat2gray(), rgb2gray(), rgb2ind()]
2	Spatial Transformations. Convolution and Correlation.[imfilter(), conv2(), filter2()]
3	Perform algebraic operations. [Image addition, subtraction, multiplication, division]
4	Explore Image histogram. Histogram equalization and Histogram matching operations.
5	Perform Geometric transformations. [Image negative, logarithmic, gamma and contrast stretching transformations].
6	Perform frequency Transformations. Fourier transforms. [fft2(), ifft2(), fftshift()]
7	Implement Low Pass Filter , High Pass Filter
8	Noise identification and filtering techniques to remove it. [imnoise(), medfilt2(), ordfilt2(), wiener2()].
9	Morphological Transformations. Dilatation and erosion as fundamental morphological operations.[imdilate(), imerode(), imclose(), imopen(), bwmorph()]
10	Discontinuity based Segmentation : Edge Detection, Detection of boundaries between two regions using different gradient approximations
11	Similarity based Segmentation: Thresholding, Divide the image in regions depending on the gray level.
12	Demonstrate various models for representing the color and methods of processing the color plane
Part - B	
	Mini project: Implement a simple GUI based application that will appropriately apply various image operations specific to the chosen problem.

Scheme of Evaluation

Section	Criteria	Marks
Part A	Writing ONE program	10
	Execution of ONE program	20
	Viva	10
Part B	Project Demo	20
	Viva	10
Total		70