

DIGITAL IMAGE PROCESSING LABORATORY WITH MINI PROJECT (Effective from the academic year 2018 -2019) SEMESTER – VI			
Subject Code	18AIL67	CIE Marks	40
Number of Contact Hours/Week	0:2:2	SEE Marks	60
Total Number of Lab Contact Hours		Exam Hours	03
CREDITS – 2			
Course Learning Objectives: This course will enable students to:			
<ul style="list-style-type: none"><li>• Demonstrate the basic skills of image process</li><li>• Demonstrate the application development skills</li><li>• Design and develop the applications of images</li></ul>			
Descriptions (if any): --			
<ul style="list-style-type: none"><li>• Programming tools preferred: SCILAB, Python, Java or any other relevant platform.</li><li>• For Part A: Students must exhibit the results and its print copy to be attached to Lab record.</li><li>• For Part B: Real Time Images can be used to demonstrate the work.</li></ul> <p><b>During the practical exam: the students should demonstrate and answer Viva-Voce</b></p>			
Programs List:PART A			
1	Write a Program to read a digital image. Split and display image into 4 quadrants, up, down, right and left		
2	Write a program to showrotation, scaling, and translation of an image.		
3	Read an image, first apply erosion to the image and then subtract the result from the original. Demonstrate the differencein the edge image if you use dilation instead of erosion.		
4	Read an image and extract and display low-level features such as edges, textures usingfiltering techniques		
5	Demonstrate enhancing and segmenting low contrast 2D images.		
PART B :MINI PROJECT			

Student should develop a mini project and it should be demonstrated in the laboratory examination, Some of the projects are listed and it is not limited to:

- Recognition of License Plate through Image Processing
- Recognition of Face Emotion in Real-Time
- Detection of Drowsy Driver in Real-Time
- Recognition of Handwriting by Image Processing
- Detection of Kidney Stone
- Verification of Signature
- Compression of Color Image
- Classification of Image Category
- Detection of Skin Cancer
- Marking System of Attendance using Image Processing
- Detection of Liver Tumor
- IRIS Segmentation
- Detection of Skin Disease and / or Plant Disease
- Biometric Sensing System
- Mobile Phone Camera-based Light Communications
- Modeling of Perspective Distortion within Face Images & Library for Object Tracking ➤
- Controlling of Intelligent Traffic Light & Image Processing

- Controlling of Pests in Agriculture Field with Image Processing

**(During the practical exam: the students should demonstrate and answer Viva-Voce)**

**Laboratory Outcomes:** The student should be able to illustrate the following operations:

- Image Segmentation algorithm development □ Image filtering in spatial and frequency domain.
- Morphological operations in analyzing image structures

**Conduct of Practical Examination:**

- Experiment distribution
  - For laboratories having only one part: Students are allowed to pick one experiment from the lot with equal opportunity.
  - For laboratories having PART A: Students are allowed to pick one experiment from PART A, with equal opportunity. The mini project from PART B to be run & exhibit the results also a report on the work is produced.
- Change of experiment is allowed only once and marks allotted for procedure to be made zero of the changed part only.
- Marks Distribution (*Subjected to change in accordance with university regulations*)
  - o) For laboratories having only one part – Procedure + Execution + Viva-Voce:  $15+70+15 = 100$  Marks
  - p) For laboratories having PART A and PART B
    - i. Part A – Procedure + Execution + Viva =  $6 + 28 + 6 = 40$  Marks
    - ii. Part B – Procedure + Execution + Viva =  $9 + 42 + 9 = 60$  Marks