



# Techno College of Engineering Agartala

An Engineering College Approved by AICTE, MHRD, Govt. of India

Affiliated to Tripura University (A Central University),

Department of Computer Science and Engineering



## List of Laboratory Experiments

Digital Image Processing Lab													
Course Code	Hours / Week				Maximum Marks								
PC CS 607	L	T	P	C	CIA	SEE	Total						
	0	0	4	1	40	60	100						
<b>Number of classes: 24 Hours</b>		<b>Prerequisites: Theoretical knowledge of Digital Image Processing</b>											
<b>Branch: CSE</b>		<b>Semester: VI</b>											
<b>Course overview:</b> This course introduces the fundamental concepts and techniques in digital image processing, equipping students with both the theoretical understanding and practical skills to analyze, enhance, segment, and restore digital images. Beginning with an orientation to the working environment and tools, the course covers essential principles from image acquisition and representation to complex analytical methods including discrete transforms, noise reduction, binary image operations, and advanced segmentation. Students will gain hands-on experience with modern software tools, algorithms for image enhancement, denoising, restoration, and morphological processing, ensuring readiness for research and industry applications in image processing fields.													
<b>Course objectives:</b> <ol style="list-style-type: none"> <li>Acquire proficiency in digital image processing tools and environments, performing essential image and signal processing operations in practical scenarios.</li> <li>Understand and apply core discrete image transforms—such as Fourier, DCT, and wavelet transforms—to analyze, process, and interpret basic image structures.</li> <li>Implement denoising, restoration, and enhancement techniques in both spatial and frequency domains to improve image quality, using methods like filtering, contrast adjustment, and histogram equalization.</li> <li>Execute binary and morphological operations (e.g., erosion, dilation, segmentation), as well as advanced image segmentation using thresholding and edge detection, to extract and analyze significant image features.</li> </ol>													
<b>Course outcomes:</b>													
CO Number	CO Description						K-level						
CO-1	Illustrate and execute basic commands in working environment/tool.						K-3						
CO-2	Explain discrete transform works including concepts of basic images.						K-2						
CO-3	Apply de-noising and restoration techniques						K-3						
CO-4	Apply binary image processing operations						K-3						
Sl. No.	<b>EXPERIMENT NAME</b>						<b>CO</b>						
1.	Familiarize the working environment/tool.						CO-1						
2.	Digital Signal Processing Basics						CO-2						
3.	Image Enhancement						CO-2						
4.	Image Segmentation						CO-4						
5.	Image Restoration and Denoising						CO-3						
6.	Binary Image Processing						CO-4						