Lesson Plan of Mrinal Kanti Bhowmik

Name of the Subject: Image Processing
Subject Code: CSE 903C TH

Topics	Contact Hours	Contact Occurred On	Remarks
Introduction to Image Processing and Image Transform: Image Definition and its Representation, Neighbourhood. Orthogonal Transformations Like DFT, DCT, Wavelet.	4		
Image Enhancement and Restoration: Contrast Enhancement, Smoothing and Sharpening, Filtering and Restoration	6		
Image Segmentation-I: Pixel Classification, Global/Local Gray Level Thresholding, Region Growing, Split/Merge Techniques, Edge Detection Operators	6		
Image Segmentation-II and Feature Extraction: Hough transform, Watershed Transform, Active Contour Image feature/primitive extraction, component labelling.	6		
Skeletonization and Shape Properties: Medial Axis Transform, Skeletonization /Thinning, Shape Properties	2		
Textural Features & Fourier Descriptor: Moments, Gray Level Co-Occurrence Matrix, Structural Features, Fourier Descriptor, Polygonal Approximation.	4		
Image Compression: Coding, Quantization, Spatial and Transform Domain Based Compression	4		
Colour Image Processing: Colour Formation, Human Perception of Colour, Colour Model, Enhancement and Segmentation.	4		
Mathematical Morphology: Basic Concepts, Erosion, Dilation, Opening, Closing. Advanced Applications like Biomedical Image Processing, Digital Watermarking, etc.	4		
Grand Total	40		

Consulted/ Prescribed Books:
1. Digital Image Processing: R.C. Gonzalez and R.E. Woods (Addison-Welsley Publishing Company)
2. Digital Image Processing: S. Sridhar (Oxford University Press)
3. Fundamentals of Digital Image Processing: A.K. Jain (Prentice Hall Information and System Science Series)
4. Digital Image Processing: S. Sharma (S.K. Kataria & Sons, New Delhi)
5. Digital Image Processing: S. Jayaraman, S. Esakkiranjan and T. Veerakumar (McGraw Hill Education (India) Private Limited, New Delhi)
6. Electronic materials from internet.