

Paper Code: BCADSE 6.5

Paper title: Elective-IV: b. Image Processing

Teaching Hours – BCADSE 6.4

Total Teaching Hours: 60 Hrs.

Marks: Th-80+IA-20

Credits: 4

UNIT –I:

Digital Image Processing -Motivation, Why is Computer vision difficult?, Image representation and image Analysis, Image representation concepts, image digitization, Digital Image properties, Color images **12 Hrs**

UNIT-II:

Image Enhancement: Contrast Intensification, Smoothing, Image Averaging, Mean Filter, Ordered Statistic Filter, Edge Preserving Smoothing Low Pass Filtering. Image Sharpening, High Pass Filtering **12 Hrs**

UNIT-III:

Segmentation: Thresholding, Edge based segmentation, Region based segmentation, Active contour models **12 Hrs**

UNIT-IV:

Image compression: Image data Properties, Discrete image transforms in image data compression, Predictive compression methods, Vector quantization, Hierarchical and progressive compression methods, Coding, JPEG and MPEG image compression **12 Hrs**

UNIT-V:

Object Recognition: Knowledge Representation, Statistical pattern recognition, neural Nets, Syntactic pattern recognition **12 Hrs**

References:

1. Milan Sonka, "Image Processing Analysis and Machine Vision", PWS Pub.2nd Ed. ISBN-81-315-0300-3
2. B. Chand and D. DuttaMajumder ,Digital Image Processing and analysis, PHI(2001),ISBN-81-203-1618-5
3. Adrian Low, Computer vision and Image Processing, McGraw Hill (1991)
4. Kenneth R. Castle man, Digital Image Processing ,PHI