

Bhoj Reddy Engineering College for Women: Hyderabad
 Department of Electronics and Communication Engineering
 Lesson plan of faculty member for the academic year 2018–19

Class: III B Tech

Branch-Section: ECE-B

Semester: II

Subject: Digital Image Processing (EC612PE) (Professional Elective- I)

Lectures per week: 3

Lecture Number	Topics to be covered	Date(s)
Unit-1: Digital Image fundamentals & Image Transforms:		
1.	Digital Image fundamentals	24 December 2018
2.	Image Sampling	28 December 2018
	Image quantization	
3.	Relationship between pixels	29 December 2018
	Operations on pixels	
4.	Image Transforms: 2-D FFT	31 December 2018
5.	Properties of Fourier transform	04 January 2019
	Properties of Fourier transform(continued)	
6.	Discrete cosine Transform	05 January 2019
	Walsh transform and Hadamard Transform	
7.	Haar transform	07 January 2019
8.	Slant transform	11 January 2019
	Hotelling transform	
9.	Properties of transforms	12 January 2019
	Properties of transforms(continued)	
Unit-2 :Image Enhancement (Spatial Domain):		
10.	Introduction to Image Enhancement	18 January 2019
	Image Enhancement in spatial domain	
11.	Enhancement through point operation,	19 January 2019
	Types of Point Operation	
12.	Enhancement through point processing	21 January 2019
13.	Histogram Manipulation	25 January 2019
	Histogram Equalization	
14.	Histogram specification	28 January 2019
15.	Gray level transformation	01 February 2019
	Linear & Non - linear gray level transformation	
16.	Gray level transformation	02 February 2019
	Local or neighborhood operation	
17.	Median filter and Spatial domain high pass filtering	04 February 2019
Image Enhancement (Frequency Domain):		
18.	Filtering in frequency domain	08 February 2019
	Obtaining frequency domain filters	
19.	Low pass (smoothing) filters in frequency domain	09 February 2019
	High pass (sharpening) filters in frequency domain	
Unit-3: Image Restoration:		
20.	Degradation model	11 February 2019
21.	Algebraic approach to restoration	15 February 2019
	Inverse filtering	
22.	Revision	16 February 2019
	Revision	

23.	Least mean square filters	22 February 2019
	Constrained Least Squares Restoration	
24.	Interactive Restoration	23 February 2019
	Revision	
Unit-4: Image segmentation:		
25.	Detection of discontinuities	25 February 2019
26.	Edge linking	01 March 2019
	Boundary detection	
27.	Boundary detection	02 March 2019
	Edge linking using graph theoretic method	
28.	Thresholding	08 March 2019
	Problems on Thresholding	
29.	Region oriented segmentation	09 March 2019
	Region oriented segmentation	
Morphological Image Processing		
30.	Dilation and Erosion	11 March 2019
31.	Structuring Element Decomposition	15 March 2019
	Erosion	
32.	Opening and Closing	16 March 2019
	Dilation and Erosion	
33.	The Strel function	18 March 2019
34.	Combining Dilation and Erosion	22 March 2019
	Problems	
35.	Hit or miss transformation	23 March 2019
	Revision	
Unit-5: Image Compression:		
36.	Lossy compression	25 March 2019
37.	Redundancies and their removal methods	29 March 2019
	Problems	
38.	Fidelity criteria	30 March 2019
	Image compression models	
39.	compression models	01 April 2019
40.	Huffman coding	08 April 2019
41.	Arithmetic coding	12 April 2019
	Error free compression	
42.	Lossy and lossless Predictive coding	13 April 2019
	JPEG 2000 standards	
43.	Transform based compression	15 April 2019
44.	Revision	20 April 2019
	Revision	

Text books:

1. Digital Image Processing – Rafael C. Gonzalez, Richard E. Woods, 3rd edition, Pearson, 2008.
2. Digital Image Processing – S Jayaraman, S Esakkirajan, T Veerakumar, TMH, 2010.

References:

1. Fundamentals of Digital Image Processing– A.K.Jain,PHI,1989.

Name and signature of the faculty: Ms G Srilakshmi, ECE ----

Name and signature of Head of the Department: Ms N Shribala ----