

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-A

Semester: II

Subject: Digital Image Processing (ELECTIVE)

Lectures per week: 03

Lecture Number	Topics to be covered	Date(s)
Unit-1: Digital Image fundamentals & Image Transforms:		
1.	Digital Image fundamentals, Sampling and quantization	28 December 2018
2.	Relationship between pixels, Operations on pixels	31 December 2018
3.	Image Transforms: 2-D FFT, Properties of Fourier transform	2 January 2019
4.	Walsh transform, Discrete cosine Transform, Haar transform	4 January 2019
5.	Slant transform, and Hotelling transform	7 January 2019
Unit-2 :Image Enhancement (Spatial Domain):		
6.	Introduction, Image Enhancement in spatial domain	9 January 2019
7.	Enhancement and Types of Point Operation	11 January 2019
8.	Enhancement through point processing	16 January 2019
9.	Histogram Processing and Manipulation	18 January 2019
10.	Histogram Equalization, Histogram specification	21 January 2019
11.	Gray level transformation	23 January 2019
12.	Linear & Non - linear gray level transformation	25 January 2019
13.	Local or neighborhood operation, Median filter	28 January 2019
14.	Spatial domain high pass filtering	30 January 2019
Image Enhancement (Frequency Domain):		
15.	Filtering in frequency domain	1 February 2019
16.	Generating filters directly in the frequency domain	4 February 2019
17.	Low pass (smoothing) filters, High pass (sharpening) filters	6 February 2019
Unit-3: Image Restoration:		
18.	Degradation model	8 February 2019
19.	Algebraic approach to restoration	11 February 2019
20.	Inverse filtering	13 February 2019
21.	Assignment Test I	15 February 2019
22.	Least mean square filters	22 February 2019
23.	Constrained Least Squares Restoration	25 February 2019
24.	Interactive Restoration	27 February 2019
Unit-4: Image segmentation:		
25.	Detection of discontinuities	1 March 2019
26.	Edge linking	6 March 2019
27.	Boundary detection	8 March 2019
28.	Thresholding	11 March 2019
29.	Region oriented segmentation	13 March 2019
Morphological Image Processing:		
30.	Dilation and Erosion	15 March 2019
31.	Structuring Element Decomposition	18 March 2019
32.	Opening and Closing	20 March 2019
33.	Combining Dilation and Erosion	22 March 2019
34.	Hit or miss transformation	25 March 2019

Unit-5: Image Compression:		
35.	Redundancies and their removal methods, Fidelity criteria	27 March 2019
36.	Image compression models, Huffman and Arithmetic coding	29 March 2019
37.	Error free compression, Lossy compression	1 April 2019
38.	Lossy and lossless Predictive coding	3 April 2019
39.	Transform based compression, JPEG 2000 standards	8 April 2019
40.	Previous Question Paper Discussion	10 April 2019
41.	Assignment Test - II	12 April 2019
42.	Revision	15 April 2019
43.	Revision	17 April 2019

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 K Amtul Salam, ECE ----

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