Course Name: Digital Image Processing (EC703)

Course Outcomes:

At the end of the course the student should be able to:

CO1 To understand the basics Digital Image Processing.

CO2 Define the basics of Gray Level, Histogram, Filtering.

CO3 To Study about noise model different filtering processing.

CO4Demonstrate an understanding of Segmentation

CO5 Analyze video coding, classification and standards

Model Question Paper

Q.No.	Questions	Marks	CO	BL	
1a	What are the different types of waves in Electromagnetic spectrum,that can be used to generate Image?	6	CO1	L1	
1b	Discuss the various component of Digital Image Processing?	8	CO2	L1	
1c	Explain the meaning of Hue, Saturation and Intensity in the HSF model? Give the expression for converting an image from RGB to HIS model?	6	CO2	L2	
2a	How Histogram equalization of an image is done? How are they different from Histogram Specification?	10	CO2	L2	
2b	List and explain the different noise models known to you. Describe how would restore an image in the presence of noise alone?	10	CO1	L3	
3a	What is Sampling and quantization in the context of an image? How sampling and Quantization defines the quality of digital Images?	8	CO2	L2	
3b	How would you estimate the degradation in images? Explain the degradation model?	6	CO2	L3	
3c	What are the different Edge and Boundary detection techniques?	6	CO2	L3	
4a	What is image segmentation? Why is it needed? How would you detect discontinuities in images?	10	CO3	L4	
4b	What do you understand by Compression? What are its different kinds? Discuss JPEG compression in detail?	10	CO4	L5	
5a	What is distance measure? Explain the different distance measure?	8	CO4	L2	
5b	Differentiate between Restoration and Enhancement?	6	CO3	L3	
5c	Discuss Perspective transform Why is it needed?	6	CO3	L4	
6a	Differentiate between image enhancement in spatial and frequency domain? List the applications in which these are preferred?	10	CO3	L4	
6b	Explain the JPEG compression standard in detail? How it remove the Psycho-visual redundancy from the image?	10	CO4	L5	

7a	Assume six code input Wi, i=1,2……6 with probabilities 0.1,0.4,0.06,0.1,0.04 and 0.3 respectively. A. Calculate Huffman code and obtain the average word length. B. Compute their Entropy	10	CO4	L3	
7b	What is image Subtraction?Give an example to discuss its use?	4	CO3	L4	
7c	Discuss the translation and Scaling transformation of an image ?	6	CO5	L3	
8a	Write short notes on the following? i. Median Filter ii. JPEG iii. Edge detection iv. Grey level Slicing	12	CO5	L2	
8b	What is inverse filtering? Explain the Wiener filtering in detail?	8	CO5	L3	