

Digital Image Processing
Course code: ECEM-109 (Image Processing)

Topics	Lecture Numbers.
	https://www.youtube.com/playlist?list=PL1F076D1A98071E24
Introduction: imaging and imaging devices. Image sampling and quantization, relationship between pixels and imaging geometry.	Lectures 1 to 11
Image enhancement techniques: Frequency domain, spatial domain, and fuzzy logic based.	Lectures 17 to 21
Image Segmentation: using edge detection and edge linking techniques, Image threshold and region oriented segmentations.	Lectures 29 to 32
Image representation schemes: Chain codes, polygonal approximation, and signatures. Shape descriptors: Fourier descriptors. Descriptor using moments. Descriptor using AR and CAR modeling. Texture: Introduction to texture, different techniques of texture analysis and their comparison	Lectures 37 to 40

For a better understanding of the subject the students are advised to go through the entire lecture series by Prof. Biswas.

Books Recommended

1. Digital Image Processing, R. C. Gonzalez and R. E. Woods

Online Resources:

1. Lecture Series on Digital Image Processing by Prof. P.K. Biswas, Department of Electronics & Electrical Communication Engineering, I.I.T, Kharagpur.

Link: <https://www.youtube.com/playlist?list=PL1F076D1A98071E24>

Course code: ECEM-110 Laboratory II (Image Processing)

1 Image acquisition, digitization and display

2 Application of edge detection techniques on Images

3 Enhancement of images using histogram equalization, histogram modification, and fuzzy Logic

4 Segmentation of images using thresholding and region growing.

Online Resources: Image Processing Using Matlab

Link: <https://www.youtube.com/watch?v=-cSVGwAwZZ4&list=PLEo-jHOqGNyUWoCSD3l3V-FjX9PnHvx5n>