

**PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY, KANURU, VIJAYAWADA
(AUTONOMOUS)**

INFORMATION TECHNOLOGY

IMAGE PROCESSING

Course Code	19IT4601C	Year	III	Semester	II
Course Category	PC	Branch	IT	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	
Continuous Internal Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		Blooms Taxonomy Level
Upon successful completion of the course, the student will be able to		
CO1	Analyze different types of images and color models	L4
CO2	Analyze the quality of images using Spatial and frequency domain filtering.	L4
CO3	Apply the restoration techniques to improve the fidelity of images.	L3
CO4	Apply the techniques for image compression, image Segmentation for various applications and color image processing.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2		2		2	2							1	1
CO2	2		2		2	2							1	1
CO3	2		2		2	2							1	1
CO4	2		2		2	2							1	1

Syllabus		
Unit No	Contents	Mapped CO
I	Digital Image fundamentals Digital Image Representation, Fundamental steps in image processing, Concept of gray levels, Gray level to binary image conversion, Sampling and quantization, Resolution, types of images, Relationship between pixels.	CO1
II	Image Enhancement in Spatial Domain Histogram processing, Image smoothing & Image sharpening. Image Enhancement in frequency Domain: Steps involved in frequency domain filtering, Image smoothing & Image sharpening.	CO2
III	Image compression Redundancies and their removal methods, Fidelity criteria, Image compression models, lossy and lossless compression.	CO3
IV	Image segmentation Detection of discontinuities, edge linking and boundary detection, thresholding, region – oriented segmentation.	CO4
V	Colour image processing Colour fundamentals, Colour models, Pseudo colour image processing, full colour image processing.	CO4

Learning Resources
Text book
Digital Image processing – R.C. Gonzalez & R.E. Woods, Addison Wesley/ Pearson education, Fourth Edition, 2018.
References
1.Fundamentals of Digital Image processing – A.K.Jain, PHI. 1989 2. 2.Digital Image processing- S Jayaraman, S Esakkirajan and T. Veerakumar.TMH 3 rd Edition,2010. 3. Digital Image Processing – William K. Pratt, John Wiley, 3 rd Edition, 2004. 4. The Essential Guide to Image Processing-Alan c. Bovik, Academic Press, 2009.
e-Resources and other Digital Material
1. http://nptel.iitm.ac.in/courses/Webcoursecontents/IITKANPUR/Digi_Img_Pro/ui/TOC.htm 2. http://nptel.iitm.ac.in/video.php?subjectId=117105079 3. http://en.wikipedia.org/wiki/Digital_image_processing . 4. http://www.filestube.com/d/digital+image+processing+gonzalez+solution .