

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE**

1.	Title of the Course	Image and Video Processing
2.	Course Number	EE5101
3.	Status of the Course	Elective Course
4.	Structure of Credits	3-0-0-3
5.	Offered to	PG
6.	New Course/ Modification to	New course
7.	To be offered by	Dr. R K Gorthi and Dr. S Gorthi
8.	To take effect from	Jan 2018
9.	Prerequisite	CoT
10.	Whether approved by the Program	Yes
11.	<p>Course Objective: (Max 70 words)</p> <p>Student will understand the concepts, theory and computational algorithms needed for several image processing and analysis tasks from given image(s). Aid them in understanding how machine can analyse and process the scene images and extract relevant information from images. Can simulate and develop exciting examples in generating descriptions and inferences from images in several domains ranging from medical, economical, engineering to state of the art industrial needs.</p>	
12.	<p>Course Content: (Max 100 words)</p> <p>The digitized image and its properties; Image Pre-processing; Histogram Equalization and Image enhancement, Denoising, Deblurring, Spatial domain Restoration, Linear Discrete Image Transforms; Image Restoration in Frequency domain; Image Data Compression; Mathematical Morphology; Segmentation; Shape Representation and Description; Video representation; Optical Flow / Motion estimation; Few Image and Video descriptors; Few applications such as Object Tracking.</p>	
13.	<p>Text Book:</p> <ol style="list-style-type: none"> 1. Gonzalez R C and Woods R E, <i>Digital Image Processing</i>, Pearson Education, 2001. 2. Sonka M, Hlavac V, and Boyle R, <i>Image Processing, Analysis, and Machine Vision</i>. Third Edition. 	
14.	<p>References:</p> <ol style="list-style-type: none"> 1. Jain A K, <i>Fundamentals of Digital Image processing</i>, Pearson Education, 1989. 2. Gonzalez R C, Woods R E, and Eddins S L, <i>Digital Image Processing using MATLAB</i>, Pearson Education, 2004. 3. Schalkoff R J, <i>Digital Image Processing and Computer Vision</i>, John Wiley, 1989. 	