Code:PEC-IT601 D

Contact: 3L
Name of the Course:
Image Processing
Course Code: PEC-IT601D Semester: VI
Duration:6 months Maximum Marks:100
Teaching Scheme Examination Scheme
Theory:3 hrs./week Mid Semester exam: 15
Tutorial: NIL Assignment and Quiz: 10 marks
Attendance: 5 marks
Practical: NIL End Semester Exam:70 Marks
Credit Points: 3
Unit Content Hrs/Unit Marks/Unit

1. Representation, Fundamental steps in Image Processing, Elements of Digital Image Processing - Image Acquisition, Storage, Processing, Communication, Display. 9

2. Digital Image Formation- Basic Transformation (Translation, Scaling, Rotation), Perspective Projection, Sampling & Quantization - Uniform & Non uniform. 4

3. Mathematical Preliminaries[9L] Neighbour of pixels, Connectivity, Relations, Equivalence & Transitive Closure; Distance Measures, Arithmetic/Logic Operations, Fourier Transformation, Properties of The Two Dimensinal Fourier Transform, Discrete Fourier Transform, Discrete Cosine & SineTransform. 9
4. Image Enhancement [8L] Spatial Domain Method, Frequency Domain Method, Contrast Enhancement -Linear & Nonlinear Stretching, Histogram Processing; Smoothing - Image Averaging, Mean Filter, Low-pass Filtering; Image Sharpening. Highpass Filtering, High- boost Filtering, Derivative Filtering, Homomorphic Filtering; Enhancement in the frequency domain – Low pass filtering, High pass filtering. 8

5. ImDaeggera Rdaetsitoonr aMtioond e[l7, LD] iscrete Formulation, Algebraic Approach to Restoration - Unconstrained & Constrained; ConstrainedLeast Square Restoration, Restoration by Homomorphic Filtering, GeometricTransformation - Spatial Transformation, Gray Level Interpolation. 7

6. Image Point SDeegtemcetinotna, tioLnin: Detection, Edge detection, Combined detection, Edge Linking & Boundary Detection – Local Processing, Global Processing via The Hough Transform; Thresholding - Foundation, Simple Global Thresholding, Optimal Thresholding; Region Oriented Segmentation - Basic Formulation, Region Growing by Pixel Aggregation, Region Splitting & Merging. 7