7th Semester	REC7D001	Digital Image Processing	L-T-P 3-0-0	3 Credits

[3] A. K. Maini, Analog Circuits, Khanna Publishing House, Delhi.
[4] Jacob Millman and Arvin Grabel, "Microelectronics", 2nd Edition, Tata McGraw Hill.
[5] BehzadRazavi, "Fundamentals of Microelectronics", 2nd Edition, Wiley.

Module-I

Fundamentals – Steps in digital image processing, sampling and quantization, relationship between pixels, imaging geometry Image Transforms – Fourier Transform, Discrete Fourier Transform, Fast Fourier Transform, Discrete Cosine Transform, Walsh Transform, Hadamard Transform, Hotelling Transform.

Module-II

Image Enhancement – Point processing, spatial filtering (smoothing and sharpening filters), enhancement in frequency domain. Filtering in the Frequency Domain: preliminary concepts, 2D DFT and its properties,basic filtering in the frequency domain, image smoothing and sharpening.

Module-III

Image Restoration and Reconstruction: Image restoration/degradation model, noisemodels, restoration in the presence of noise only, estimating the degradation function. Color Image Processing: Color models, Color transformation.

Module-IV

Wavelets and Multi-resolution Processing: multiresolution expansions, wavelettransforms in one and two dimensions. Image Compression: Fundamentals, Some basic compression methods (Chapter 8 of Book 1)

Books

1. Digital Image Processing, R.C. Gonzalez, R.E. Woods, Pearson Education , 3rd Edition, 2007
2. Digital Image Processing, S. Sridhar, Oxford University Press,2011
3. Digital Image Processing And Analysis, B. Chanda, Dutta D. Majumder ,PHI
4. Digital Image Processing using MATLAB, Rafael C. Gonzalez, Richard E. Woods Pearson Education, Inc., Seventh Edition, 2004.
5. Digital Image Processing, S. Sridhar, Oxford University Press,2011 3. Digital Image Processing, William K. Pratt, John Wiley, New York, 2002