

Syllabus for M.S.(R) & Ph.D. Written test/ Interview – January 2026 semester

Department of Electrical Engineering - Computer Vision, Deep Learning And Medical Imaging

Linear Algebra, Probability & Random Variables: Matrix algebra, systems of linear equations, Eigenvalues and Eigenvectors, random variables, discrete and continuous distributions, normal and binomial distributions, correlation and independence, transformation of random variables, expectation and variance of random variables, conditional probability and distributions, random processes.

Signals and Systems: Continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, Laplace transform, z-transform, DFT, sampling theorem, Linear Time-Invariant (LTI) Systems, causality, stability, impulse response, convolution, poles and zeros, frequency response.

Reference Books:

- [1] Gilbert Strang, Linear Algebra and Its Applications, Cengage Learning India; 4th edition.
- [2] R. Sheldon, A first course in probability. Pearson Education India, 2002.
- [3] A. V. Oppenheim and A. S. Willsky, Signals and Systems, Pearson Education, 2013.
- [4] A. V. Oppenheim, R. W. Schaffer, and J. R. Buck, Discrete Signal Processing, Prentice-Hall Inc., 2009.