

\* In today's session we have learnt about the Fourier series and Gibbs Phenomena using Python, Fourier transform and its derivative and Fourier transform and convolution. Intuition of Fourier Transform & Laplace Transform, Laplace Transform of first order. Implementation of Laplace Transform using Matlab Application of Z-transform. Find the Z-transform of sequence using Matlab.

\* Given the Fourier transform of a general function, find the Fourier transform of its derivative. Use this result to find the Fourier transform of window function out of the Fourier transform of an Antisymmetric pair of delta function.

\* The eqn for the delta function is:

$$(t) e^{i\omega t} dt = -i\omega F(\omega)$$

\* Each of these sinusoidal terms has a Magnitude (scale factor) & a Phase (shift). Note that in a computer, we can represent a function as an array of numbers giving the values of that function at equally spaced points. Fourier and Laplace transforms are very much related, to each other & both of them help you to solve differential eqns, but the intuitive difference is that. The Fourier transforms are more useful in understanding the steady state response of the S/m.

\* Z-transforms are used to convert discrete time domain signal into discrete frequency domain signal. It has a wide range of Applications in Mathematics and digital signal processing. It is mainly used to analyze the process digital data.