

Appendix C introduced the Fourier Transform. In C.1, we are explained what is the Fourier Transform, which decomposes a signal into a sum of sin or cos functions and each have their own amplitude and frequency. So, it represents a function  $y(x)$  as a sum of complex exponentials:  $y(t) = \int_{-\infty}^{\infty} Y(f)e^{2\pi ift} df$ . C.2 stated the discrete Fourier Transform (DFT), where DFT is used for computing the Fourier Transform of discrete signals. The DFT evaluates a signal at discrete frequency components. Key concerns include the Nyquist frequency and the effect of the number of points on frequency resolution. C.3 stated the Fast Fourier Transform, which uses recursive decomposition to split the DFT into smaller parts to reduce the complexity of DFT. In C.4, sample interval determines the maximum frequency, while the number of data points affects frequency resolution. The example figure illustrates how change in sampling rate of the number of samples affects the appearance and resolution of the FFT. C.5, Aliasing occurs when the sampling rate is too low and capture high frequency components. The frequency above the Nyquist limits folds back and appear as lower frequencies in the FFT. C.6, power spectrum describes how the power of a signal is distributed across difference frequencies and calculated as the Fourier transform of the signal's autocorrelation function.