Experiment -1: Sampling and Reconstruction

Study on Sampling and reconstruction of bandlimited signals. Observe various possibility of sampling like over sampling, under sampling etc by choosing different sampling frequencies.

- Generate a band limited signal x(t) of your choice with frequency fm.
- Choose sampling frequency fs (more than Nyquist rate) and sample the signal x(t). Let xs (n) is the sampled signal.
- Determine the DFT X s (K) of the sampled signal xs (n).
- Pass the sampled signal through a low pass filter of cut-off frequency fs/2.
- Plot all the signals and spectrums with proper labelling
- Vary the sampling frequency to observe under sampling.

Repeat the experiment for a passband signal. You can choose either AM or FM signal for this as a passband signal.