EE5806: DSP Lab

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Assignment 4: Pseudo Code for BER Analysis of OFDM system in AWGN channel

```
for Eb/N0 = 0:10 dB
SNR_lin=Es/N0 =1
sd=sqrt(Es/(2*SNR_lin)
N=1000
for iter = 1: N
     1.   bit generation with uniform distribution
     2.   digital modulation, mapping to symbol (BPSK/QPSK)
     %OFDM Transmitter
     3.   Reshape modulated symbols, Serial to Parallel Conversion
     4.   Take N-IDFT (256 points) of BPSK/QPSK sequence to
          generate OFDM
     5.   Reshape for Parallel to Serial Conversion
     6.   Insert cyclic prefix of length L (=32) (Take 32 samples
          from      the end of OFDM sequence and append it to the
          beginning of   sequence) to  avoid Inter-symbol
          Interference.
     %Transmit OFDM symbols through AWGN channel
     7.   Add AWGN
     %OFDM Receiver
     8.   Remove cyclic prefix
     9.   Reshape for Serial to Parallel Conversion
     10.  Take N-DFT (256 points)
     11.  Reshape for Parallel to Serial Conversion
     %Received symbols
     12.  ML detector
     13.  estimate bits using ML criteria.
     14.  find no. of symbols in error.
     15.  find no. of bits in error
end
BER(Eb/N0) = no. of bits in error/total no. of bits
end
Plot BER vs SNR(Eb/N0)
```