

*Lecture 25 -- Communication Architectures*

Why do we use high frequency communication signals anyway?

What is modulation?

Write a mathematical expression that captures amplitude and phase modulation. Write another that expresses the same modulations in terms of IQ modulation.

How is frequency modulation related to phase modulation?

What is the difference between shift keying and modulation?

Draw the spectrum of an amplitude modulated signal and a frequency modulated signal. What is the approximate bandwidth of a frequency modulated signal?

What circuits are used to perform amplitude, frequency, phase and IQ modulation?

Draw a synchronous demodulator/downconverter

Draw an envelope detector. What signals can this be used to downconvert?

What is undersampling and how does it work in the time and frequency domains?

Draw an example of the following types of receivers: direct sampling, undersampling, direct conversion and superheterodyne.