AV314 - Communication Systems I Lecture 8 13/08/2019 Review assignments on Signals and Systems - RA 1,2,3 - not required to be submitted - but review before midterm. Assignment 1 - general questions about spectrum and modelling - not required to be submitted. Programming assignment 1 - submission on August 20th 2019 - google link will be put up. Review
$ \begin{array}{c c} & m_{(E)} \\ \hline & \text{Fransmitta} \\ \hline & \text{f(i)} \end{array} $ $ \begin{array}{c c} & \text{Thansmitta} \\ \hline & \text{f(i)} \end{array} $ $ \begin{array}{c c} & \text{Channel} \\ \hline & \text{Fereiver} \\ \hline & \text{Sink} \end{array} $ $ \begin{array}{c c} & \text{Design} & \text{f(i)} & \text{and g(i)} \end{array} $ $ \begin{array}{c c} & \text{Such that} & \text{e(m(t), h(t))} \leq \varepsilon. \end{array} $
given b() modelled as a LTI filter (h(b)) Usually wised channels are modelled as low poss filters. In order to study how t() and s() are designed - what do we do? I H(b) - linear phase response f of f m(t) H(b) H(b) H(b) The property of the property of the property of the phase response to the
Bandwidth for m(E). earlier M(B) this is a plot of tive freq. H(B) as m(E) e j2 m Ft. dt, b e (-0, 0) two sided B/W one sided B/W
Definition of bandwidth: energy containment bandwidth: WM [M(b)] for a real world signal B)W - If M(E)'s BW Z Channels Bw then E(-), 9(-) = identity A slightly more complicated design problem.
1 H(6) 2 sided B/W how to transmit m(E) here?
m(e) H(6) H(6) X Equalizer design
Channel BPF $\hat{m}(t)$ BPF $\hat{m}(t)$
BPF GA have hand channels
- Bandwidths of signal M(t) and channel h(t) - Equalizer design. H/W. 3dB beg 1kHz. Cracuit realization? (1 kHz, 2kHz)
Recall > basehand panband - models for wireless communication. Panband channel model.
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The dealized models.
One sided B/W = 2 MHz One sided B/W = 2 MHz One sided B/W = 2 MHz Approximation of the sided B/W = 2 MHz Approximation of
i) m(E) \$ I, not compatible with the channel's input set I.