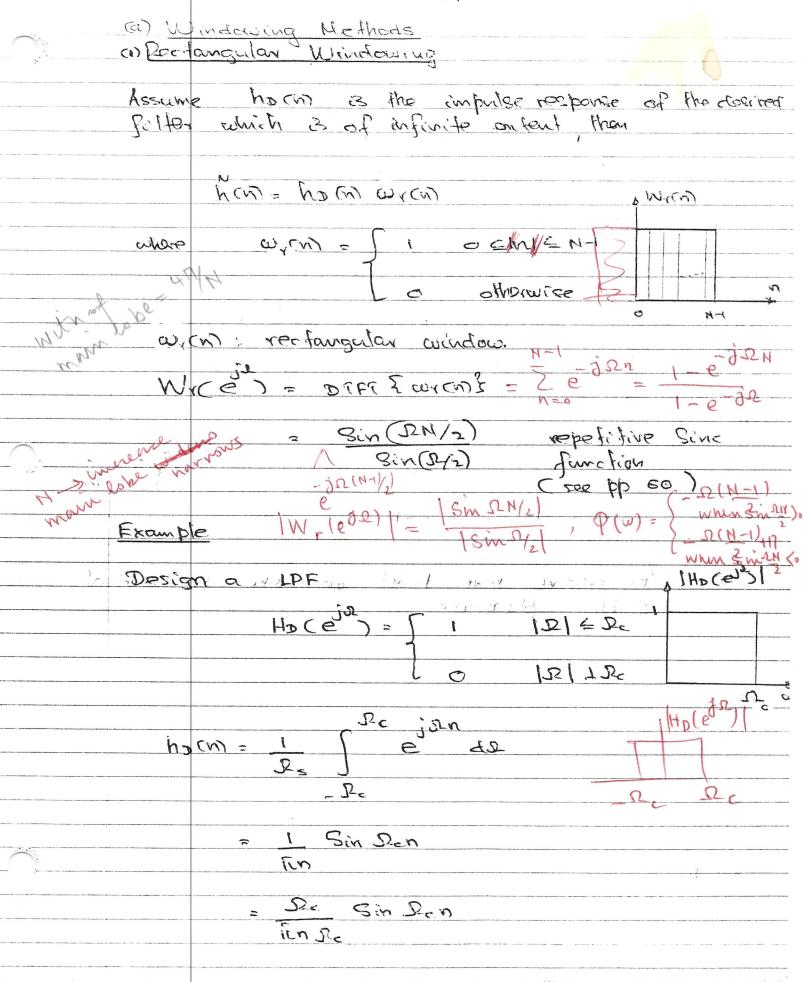
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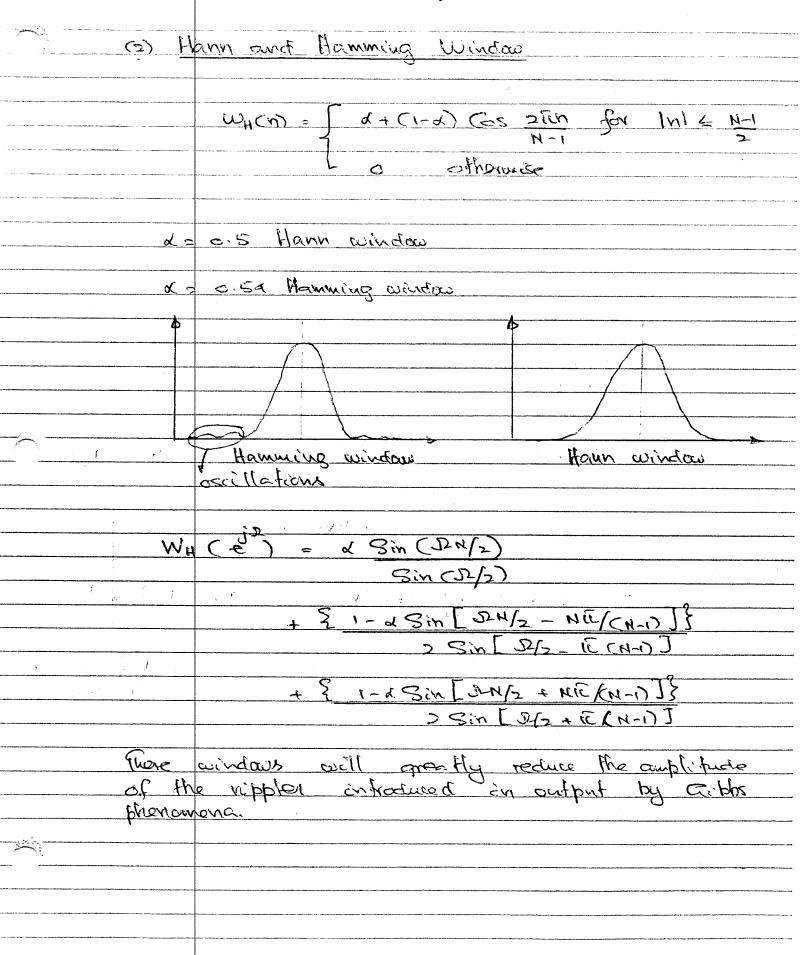
Let 2-e H(eds) = H(eds2+2ne) H(e) = \(\frac{12n}{2}\)
H(e) = \(\frac{1}{2}\)
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h(m)? 12 = 2 [k HCED = Z howe N We can use IDFT to get the result. (FIR filter). Tollowing - cases are considered was Case 1: Symmetric h(n) = h (H-1-n) a) N: odd $H(e) = e^{-j\Omega(N-1)(\frac{\pi}{2})}$ $H(e) = e^{-j\Omega(N-1)(\frac{\pi}{2})}$ $H(e) = e^{-j\Omega(N-1)(\frac{\pi}{2})}$ $H(e) = e^{-j\Omega(N-1)(\frac{\pi}{2})}$ $\alpha(n) = 3n \left(\frac{3}{n-1}\right) - n \qquad n=13 - \frac{n-1}{2}$ where 2(0) = h(1-1) This has know phase characteristics. $\phi(\mathfrak{I}) = -\mathfrak{I}(\underline{\mathsf{N}}-1)$ grap dday $Tg = -\frac{d\phi(3)}{d\Omega} = (\frac{N-1}{2})$. = integer.

	- 37
(b) N-	H(e) = e = = = = = = = = = = = = = = = = =
	P(e) = >h(y-n), γ1=13, 11 H(e) = 0 ie. HPF commôt he approximated >: Anti symmetric
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(b) Design of FIR Fillers
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Indivect method
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(b) Frequency Sampling method
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(Remez Exchange Algorithm)
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$h_{3}(n) = \frac{1}{2} + \frac{3}{2} + 3$
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		$h(n) = h_D(n) \cdot \omega_Y(n)$	4
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	3) BI-b
	3) Blackman Window
	WB (W)
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	Kaiser Window
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	WE(N) = IO B 1-(3N/. >>
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	To(): modified zeroth order Bessel Hunction
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	B: paramaton 1:1
	B: parameter which apterminen made effs between
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	$\widehat{I}_{G}(x) = 1 + \sum_{m = 2}^{\infty} (2\sqrt{2})^{m}$
	M=1 M1
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Desi	an Procedure For Kaiser Window
	1H(e)
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	Ds-sampling
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	7
Find	
(1) Th	e normalized transition BW
	DR = Da - Da
	Σ-5
<u>ර</u> ා ද	stopband attenuation
4	A = -20 log 5
	5 = min (81,82)
- - - - - - - - - -	
<u> </u>	Some that Si N Sz
(3) (i	re order is given by
	N 2 A-7-85
	14.36 AD
(4) 5	hape parameter B is
	B= 0.1102 (A-8.7) A 150
	0.5842 (A-21) + 0.07886 (A-21) for
	>1 < A < 50
	Le for A < 21

9	examp	nie:	
	Design	n a LPF using Kaiser window to satisfy	***************************************
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	A	= 50 dB	~~~~
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	N K	riser window gives the best recult of all	
		how evendous.	

(b) N: Even $H(e^{j\Omega}) = e^{-\frac{1}{2}\Omega(H-1)}\frac{\partial \Pi}{\partial \Omega} \sum_{e} \Theta(n) Sm[\Omega(n-\frac{1}{2})]$ Where 2 h (H -n) -, n ∈ [1, N] at 2=0, H(e32)=0 Design methods i- Windowny 2 - Frequency Sampling method 3_ Computer Aided Design methods. Frequency Sampling Method Idea: Given the frequency response of the desired filter, H(ed2), sample it to obtain H(k) and then take IDFT of {HCK)} to get {hkn)} Note that {h(n)} and {H(K)} are assumed to be finite extent seguences. Let the transfer function of the FIR filter be

 $H(K) = H(z) \Big|_{z=\frac{3}{2}} \frac{2\pi K}{K}$

we know that

 $H(2) = \sum_{n=0}^{\infty} h(n) = \sum_{n=0}^{\infty} h(n)$

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	er a linear phase FIR Filter with N=odd
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:		[E(e)] = Max W(e) H(e)-HD(e)	L
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	V(e ^{js2}) = XxxX REBP
	L 1 SEB
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Namt	er of Extrema
For funct	on optimal linear phase FIR filter the error ion has at least (M+1) extrema
t di a la	M = (N-1)
1	M 19
	$H(e^{j2})$ $=$ $\int \chi'(m)(COSD)$
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Pame 2	Exchange Algorithm for optimal FIR filler Design
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E Si han c tho al	rise 1 M+13 and the error at these points oraginalizate of S. Then at the eth step of gorithm,
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