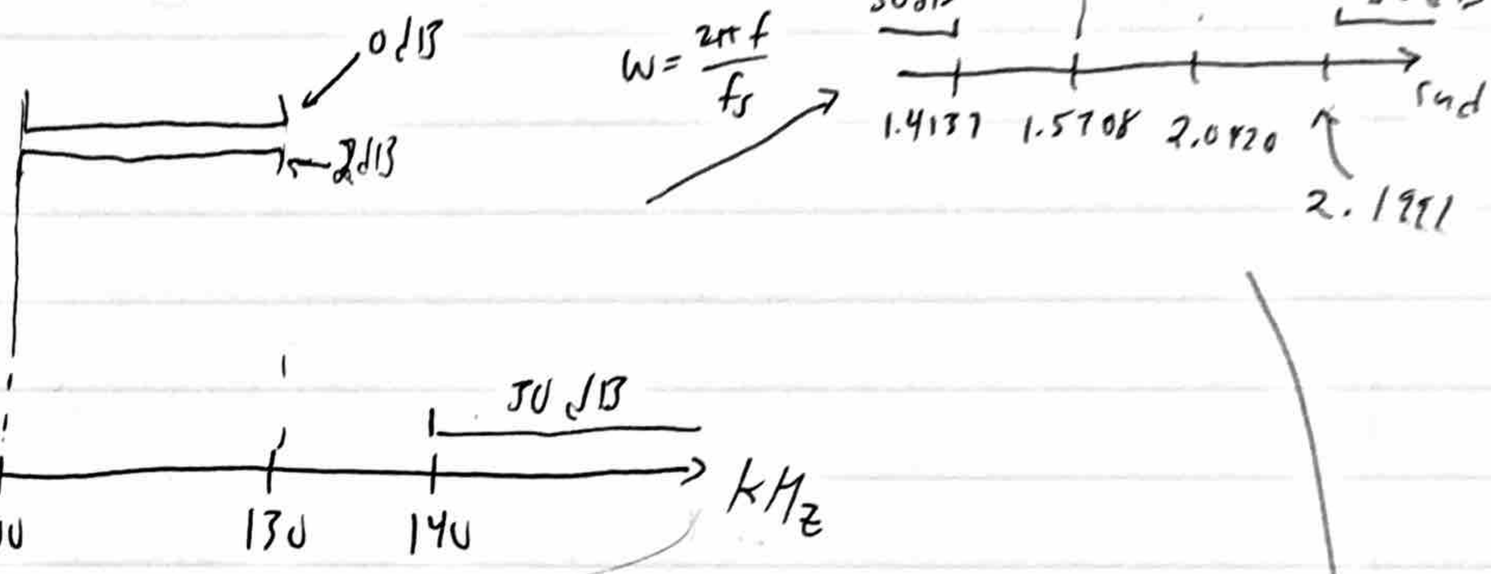
Michael Lending PSET#3

• SEE MATLAB FOR OTHER PARTS ⚠ (including time constants at the end)

Specifications of original digital filter:



$\omega = \frac{2\pi f}{f_s}$

See MATLAB for calculations for specifications of the analog bandpass filter obtained via prewarp

$\Omega_1 = \tan\left(\frac{1}{2}\left(\frac{90\,kHz \cdot 2\pi}{400\,kHz}\right)\right) = 0.8541$

$\Omega_2 = \tan\left(\frac{1}{2}\left(\frac{100\,kHz \cdot 2\pi}{400\,kHz}\right)\right) = 1.0000$

$\Omega_3 = \tan\left(\frac{1}{2}\left(\frac{130\,kHz \cdot 2\pi}{400\,kHz}\right)\right) = 1.6319$

$\Omega_4 = \tan\left(\frac{1}{2}\left(\frac{140\,kHz \cdot 2\pi}{400\,kHz}\right)\right) = 1.9626$

↳ Specifications of analog bandpass filter obtained via prewarp: