What it is

When (context)

Requirements

Labelled axes

Ruled lines

Explain what we are doing

**BMG Signal Filter**

21st Sept 16

Specifications:

- Cutoff frequency: 180Hz  \(\Rightarrow\) HPF
- > 40dB rejection at 60Hz
- < 1dB passband ripple

Design:

\[ \begin{align*}
    \text{Relative amplitude} & \quad \text{dB} \\
    0 & \quad 60 \\
    120 & \quad 180 \\
    240 & \quad 300 \\
\end{align*} \]

Using tables provided:

- Chebyshev 2.0dB does not satisfy ripple spec.
  - must use Chebyshev 0.5dB
- Real-world passband edge \( f_p = 1800 \text{Hz} \)
  - stopband \( f_s = 60 \text{Hz} \)

\[ \Rightarrow \quad F_s (40dB) = \frac{f_p}{f_s} = 30 \]

From the tables, the minimum order filter satisfying the requirements is \( N = 4 \) (see over)
**ACID TEST**: would another Biomedical Engineer (or *future you*) be able to understand, modify, build and test the circuit based on your notes?
What is this?

Where does this come from?

Units?

Freehand, missing labels

Has ALL the “answers” but is far from engineering quality