EE 508
Final Project

Design, in the technology you are most comfortable with and have access to, a 6th order lowpass Butterworth leapfrog filter with a 3dB band edge of 40 MHz. The filter should have a 3dB band edge that is programmable with either a single dc voltage source or a single dc current source by +/- 10% around the nominal band edge of 40MHz. A layout of the filter should also be included and post layout simulations that support the band edge of your design. The output should be able to drive a 10pF load capacitance with at most an additional +/- 5% deviation in the filter band edge when the load capacitance varies from 5pF to 10pF.

Because of the limited time, there are no restrictions on signal swing, spectral performance, random variation of components, input impedance, power dissipation, or output impedance beyond the ability to drive the 10pF load. You may assume any loading associated with an output bonding pad and external instrumentation is included in the 10pF load requirement.

Though there are no restrictions on signal swing, spectral performance, and power dissipation, please report on what output signal swing your design will provide as well as the spectral performance. Verify that the transfer characteristics of your design do meet the 6th order Butterworth requirement.