Tutorial Assignments: Analog Signal Processing (EE60032),

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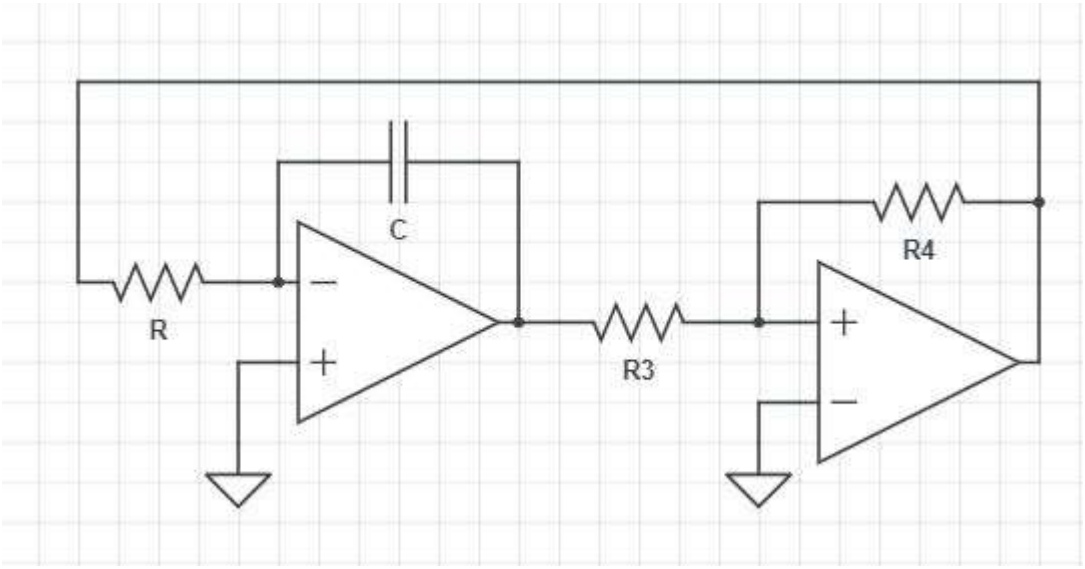
Faculty: Ashis Maity Session: Autumn 2018

1. Consider the circuit in the below figure which generates triangular and square waveforms. If the op-amp has a saturation voltage of ±10V and if a capacitor C=0.01μF is used. Find out the value of R, $R_3$ and $R_4$ such that the frequency of oscillation is 1 kHz and the triangular waveform has 10V peak to peak amplitude. [Ans: R=50kΩ, $R_3$=10kΩ, $R_4$=20kΩ]




2. In type-1 PLL, determine the change in dc control voltage $V_{control}$ during lock, if the input signal frequency $f_{in}$=20kHz, the free running frequency is 21kHz and the gain of the VCO $K_{VCO}$= 4 kHz/V. [Ans: 0.25V]