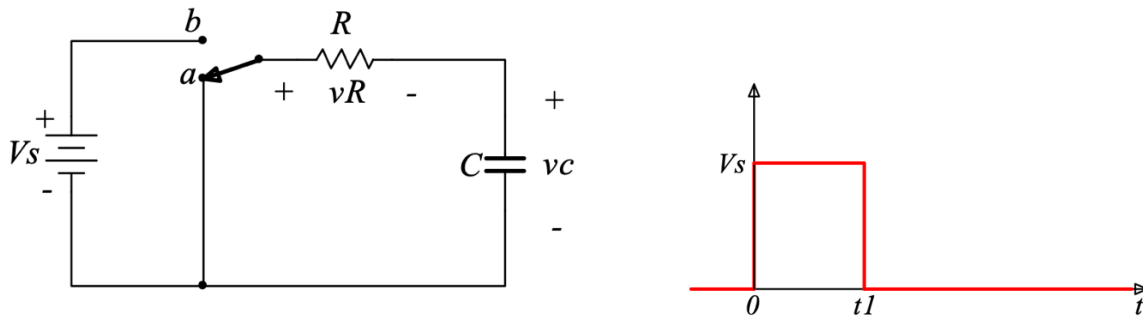# ENME 351: First Order Differential Equations

SP1 – Modeling & Analysis

Consider the RC circuit shown below. The switch has been at position a for a long time and thus there is no voltage across the capacitor plates at time $t=0$. At time $t=0$ the switch is moved from position a to position b where it stays for time $t1$ and subsequently returned to position a. This switch action corresponds to the rectangular pulse shown.

Let $RC = \tau = 10$ sec and Vs=10 volts.

Consider two cases: $t1=2\tau$ and $t1=4\tau$

Determine the response vc (voltage across the capacitor)
Plot the response vc vs t/τ
Discuss the results obtained.

Submit the work of your team (with computer generated plots) on BB.

Experiment on SIMSCAPE