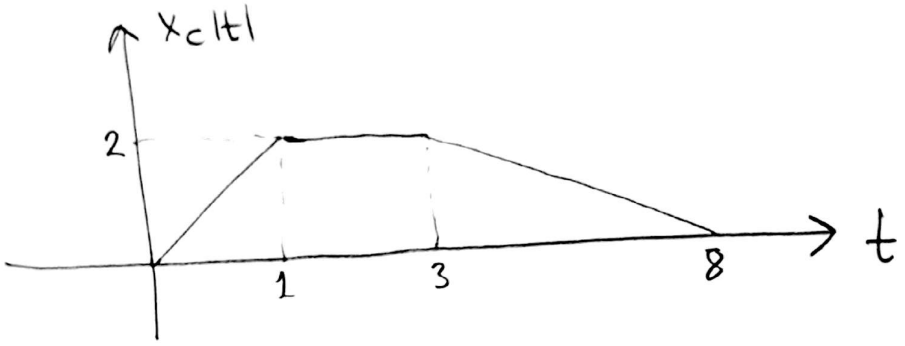
Due 10 March 2017
Friday

ECE 310 HW #1

(1)



The above signal is sampled by sampling period T_s

i.e, $x[n] = x_c(nT_s)$, Find $x[n]$

a) If $T_s = 0.5$

b) If $T_s = 1$

(2) $x[n] = [0 \;\; 0.5 \;\; 1 \;\; 3 \;\; 6 \;\; 4 \;\; 2 \;\; -2 \;\; -5]$

The above signal is obtained from a continuous time signal via sampling operation $x[n] = x_c(nT_s)$

If $T_s = 0.5$ Roughly draw $x_c(t)$

If $T_s = 1$ Roughly draw $x_c(t)$

(3) $s(t) = \sum \delta(t - nT_s)$ Draw $s(t)$

Find the Fourier series representation of $s(t)$

Find and draw the Fourier transform of $s(t)$

(4) If sampling frequency $F_s = 1\,mHz$, how many samples per second are taken from $x_c(t)$