KECE313 Signals and Systems (Computer Project)

School of Electrical Engineering, KOREA UNIVERSITY

Objective: Convolution of signals

Motivation: Convolution is an important technique and is used in various fields, so we can see how convolution works by directly designing and implementation code.

Problem

Implement your own Matlab or Python code. Libraries related to convolution should not be used and must be implemented based on formulas.

$$x(t) = rect\left(\frac{t}{2}\right), h(t) = u(t-1)$$

$$y_1(t) = x(t) * h(t)$$

$$y_2(t) = h(t) * x(t)$$

1. Plot(sketch) x(t) and h(t) along the t axis (horizontal axis).

2. Compose the code to implement and plot $y_1(t)$ and $y_2(t)$ along the t axis (horizontal axis).

3. Determine whether $y_1(t)$ and $y_2(t)$ are identical and explain why they are the same or different.

Code