

The Hilbert Transform

Much of the information about the Hilbert Transform seems to be outside of the focus of ECE 301. In general, it is used as a concrete method of realizing the conjugate of a function.

In ECE 301, the Hilbert Transform was defined as

$$H(\omega) = \begin{cases} -j, & \omega > 0 \\ j, & \omega \leq 0 \end{cases}$$

and was used in Single-Sideband Amplitude Modulation to realize the complex conjugate of an information signal $x(t)$ before it is put on a carrier signal and recombined with $x(t)$, also on a carrier signal of the same frequency.

Useful links:

<http://en.wikipedia.org/wiki/Hilbert_transform>

<http://en.wikipedia.org/wiki/Single-sideband_modulation>