

## ME 120 Experimental Methods

### Homework #9: Dynamic Signal Analysis

1. (10 pts) Find the Window Comparison.vi file from the NI Example Finder window. (You can access this from the Help menu under 'Find Examples'. Type 'window' in the keyword box and search via 'Description'. You'll find it among the list of search results.). Set the following parameters:
  - Sine Wave 1 amplitude = 0.001
  - Sine Wave 2 amplitude = 1.00
  - Frequency of Sine Wave 1 = 30.5 Hz
  - Frequency of Sine Wave 2 = 58.06 Hz
    - Which window function reduces the amplitude of the spectral leakage the *most* outside the frequency range of 12 to 100 Hz?
    - Which window function reduces the amplitude of the spectral leakage the *least* over the full frequency range?
    - What is the numeric function ( $y=f(x)$ ) that is used with the Hamming window?

Try out the various windows with different frequency and amplitude combinations and see what happens.