

Homework to be done prior to attending Exp-1

1. Draw 2 periods of a sinusoidal extending from $-\infty$ to $+\infty$ on a graph with axis, marking axis labels and important generic points/values. Write down the mathematical representation of this signal like $x(t) = \dots$ (in terms of t, T, V_p etc.).
2. Write down the formulation to calculate average (time-average) value (V_{avg}), rms value (V_{rms}), peak-to-peak value (V_{pp}), frequency (f_0) of this sinusoidal signal.
3. Redraw the graph after adding a constant value c (dc) to x and rewrite $x(t)$
4. Write down the formulation to calculate average (time-average) value (V_{avg}), rms value (V_{rms}), peak-to-peak value (V_{pp}), frequency (f_0) of new signal. Draw frequency spectrum ($|X(f)|$ vs f), marking important points on it.
5. Write down the math representation of $y(t)$ as the summation of the signal at (3) and another sinusoidal with twice the frequency and peak value given in (1).
6. Draw the frequency spectrum of $y(t)$.

Complete these tasks on an A4 paper with your own handwriting, adding your name and number on top of the sheet. Hand in your homework sheets when you are entering the first lab session.