February 2018

Exercise N^o 1 - A function with cases

Create in the folder DOE_course a batch file that you will called Exercise1.m. This batch will compute the values of the cosinus and the sinus function

$$x = cos(\omega t)$$
$$y = sin(\omega t)$$

The batch file must include a function *compute* with four optional input and two output as below

$$[t, y] = compute(w, [t_o, t_e, dt])$$

The options of the function must be organized as follows

1. When only one input is informed in the call, it is the pulsation ω,
2. When two inputs are informed, they are the pulsation ω and the time vector t,
3. When three inputs are informed they correspond to the pulsation ω, the start time and the end time,
4. When four inputs are informed they correspond to the pulsation ω, the start- and end-time, and the time interval dt.

In each case, the non-informed variables have to be defined by default by the function.

The batch in itself must be organized in cells with names for each case. A figure must be created, with a plot with a blue line and red dots at the data points.

Help comments must be introduced in each critical line.

The cases are the following

- $[t, y] = compute(2\pi)$
- $[t, y] = compute(4\pi, [0 : 16]/16)$
- $[t, y] = compute(2\pi, 0, 0.5)$
- $[t, y] = compute(2\pi, 0, 1, 1/32)$

Here is a list of useful MATLAB functions and keywords: *switch, plot, figure, nargin*