Objectives: Find better (more realistic) for "System Parameters (theta1 - theta6)".

1. Items done this session:

Methods:

- Run real system
- Collect / measure variables X = [q1;q1dot;q2;q2dot], V = [v1;v2=0]
- Analyze data to find best fit for “System Parameters”

- Hamiltanian (Total mechanical energy (instantaneous) ) => H = K + V
- Rearrange H to isolate Theta => H(q, dot)
- Calculate input energy
- Calculate H_bar
- Calculate F_bar
- Calculate d = [ Total_Energy_at_t ]|dx1 vector, t=1~n
- Calculate A = [ H_bar(t_1, t_0), F_bar(t_1, t_0); H_bar(t_2, t_0), F_bar(t_2, t_0); …; H_bar(t_n, t_0), F_bar(t_n, t_0) ]|nx6 matrix
- d = A*[theta1;theta2;…;theta6] => d = A*Thetas => Thetas = pinv(A) * d

Import simulation from previous Lab assignment and record more than 10,000 data points into workspace.

2. Items for next session:

To implement calculation process above into a MATLAB function, which taking X and V as input arguments from workspace that record today.

3. Problems / Concerns:

Not sure about exactly how to calculate H_bar and F_bar