

MECHANICAL VIBRATION PROJECT LESSON (TO CODE WITH MATLAB):

A) write down the equation of motion for the represented system in following figure (coefficient of static friction is  $\mu_s$  and coefficient of kinetic friction is  $\mu_k$  )

B) BY determining the energy dissipation in each cycle, replace the coulomb damper by equivalent viscous damper and determine the domain and phase angle.

C) Code a program with Matlab for the questions A and B that represent the answer diagram by putting the equivalent volumes ( Mass(M), K, DAMPING COEFFICIENT(C) , INITIAL CONDITION and .....)

\*(if the numerical analysis needed, follow the fourth order RUNGE-KUTTA method)

D) Compare the answers in question A and B

