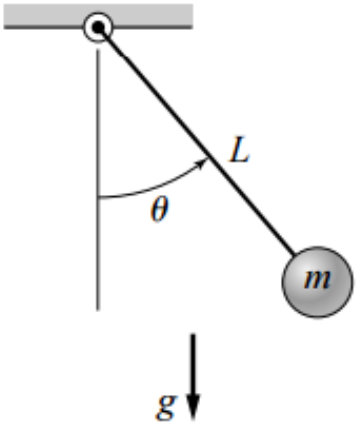
Yıldız Technical University, Department of Mechatronics Engineering
Numerical Methods MKT3841, Homework-3 , Due Dec 3, 2018

Pendulum.



$\ddot{\theta} + \frac{g}{L}\sin\theta = 0 \quad , \quad L = 50\,cm \quad , \quad g = 9.81\,m/s^2 \quad , \quad \dot{\theta}(0) = 0$

Do the simulations for the following initial conditions by using Runge Kutta method:

(a) $\theta(0) = \pi/3\,rad$ and

(b) $\theta(0) = \pi/4\ rad$

For 5 seconds with 0.01 interval. Show simulations by graphs (data vs time).

Use C++ or C#.

Attention: Apply the Runge-Kutta formulation. Do not use ready ODE functions. Also, be careful about units.

Due: Beginning of the class (December 3th)