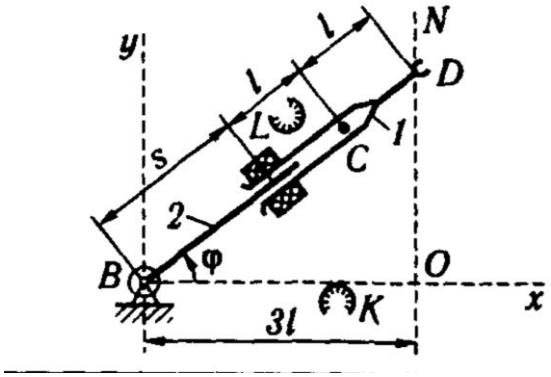
Homework 5

Robot:



m1 = 2 kg (C – center mass)
m2 = 2 kg (B – center mass)
I1 = 1 kg*m^2
I2 = 2 kg*m^2
L = 0,2 m

Tasks:

1. Solve direct dynamic problem using Lagrange-Euler method. Suppose that robot located in a vertical plane, it means that we have gravity force with $g = 9.81\frac{m}{c^2}$.
2. Get the dynamic equation in matrix form:

$$M(q) * \ddot{q} + C(q, \dot{q}) * \dot{q} + G(q) = \tau(t)$$

   Where q is a vector of yours generalize coordinates.
3. Apply any force and torque functions $f(t)$ and $\tau(t)$ for the dynamic model. As result you will get new $q(t), \dot{q}(t), \ddot{q}(t)$ function.

Requirements:

1. Matlab / Python code [1] [2]
2. Report:
   - Lagrange solution
   - Force and torque plots
   - Joints position, velocity, and acceleration plots
   - Link to the project on github.com

Submit only report to moodle.
[1] No allowed to use robotics libraries and toolboxes

[2] Cheat penalty: 0 for Homework.