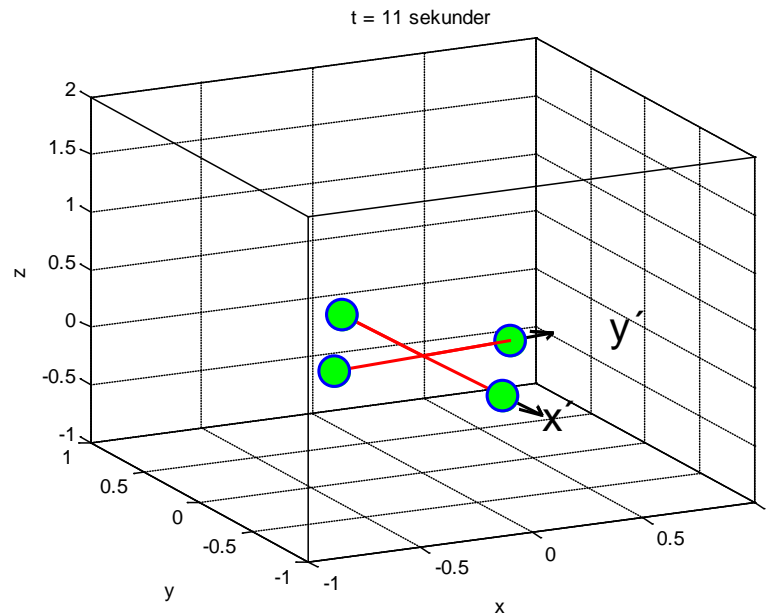


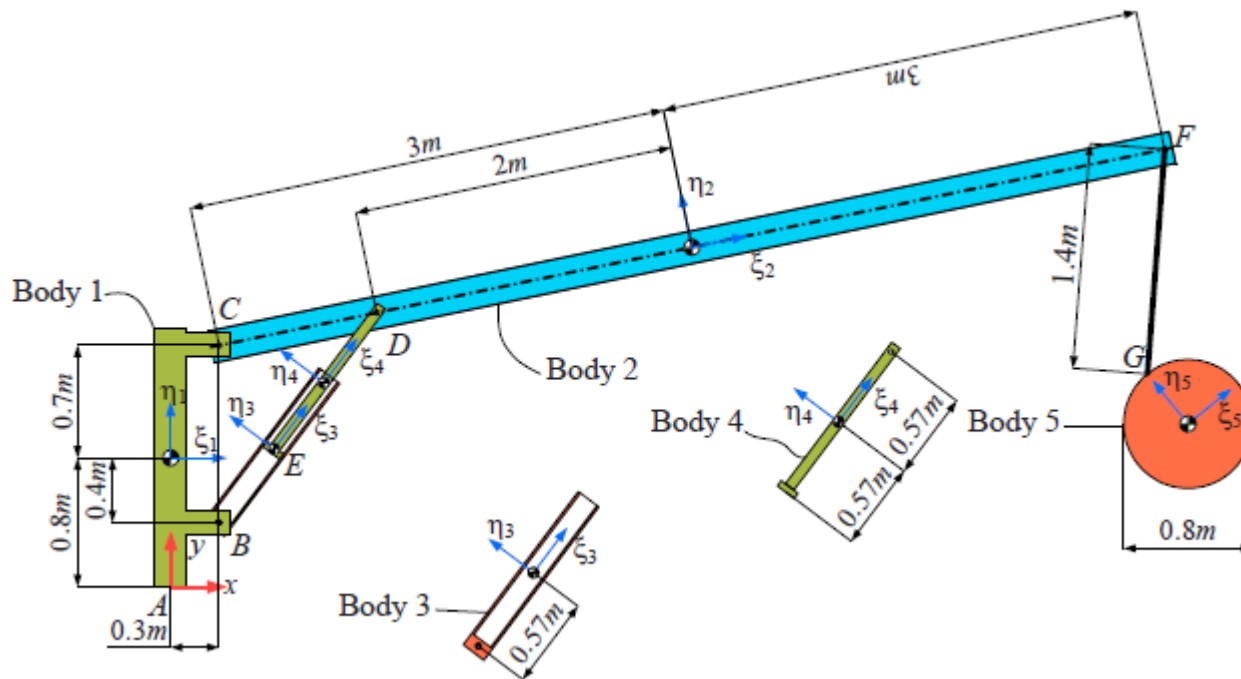
Exercise 1

- Formulat the equation of motion for the falling-cross. Compare your solution with the Matlab colution on the course website.



Exercise 2

- The geometry of a crane is given in the figure below. The mass properties of all link can be found in matlabcode (DynExerciseSolution – basic.*)



Exerciese (Con'd)

1. Formulate the dynamic equation in terms of Lagrange multipliers; compare your formulation with the matlab solution
2. Run simulation. Plot the motion of the payload, including displacement, velocity and accelerations; Plot the time history of the numerical error in constraint equations
3. Reformulate the dynamic equation the Baumgarte Stabilization method. Modify the matlab code and run simulation again. Try different values of $\alpha(\beta)$ and compare their influence on the numerical error.
4. Document your solution.