Modelling and Simulation (TNG022 2024HT PO)

Lab1 Preparation.

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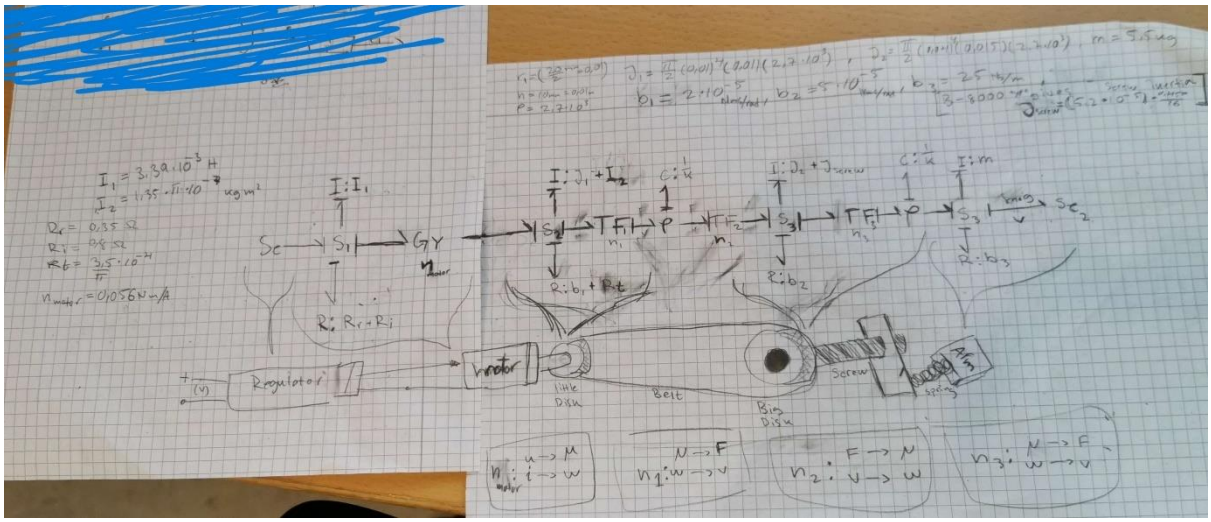
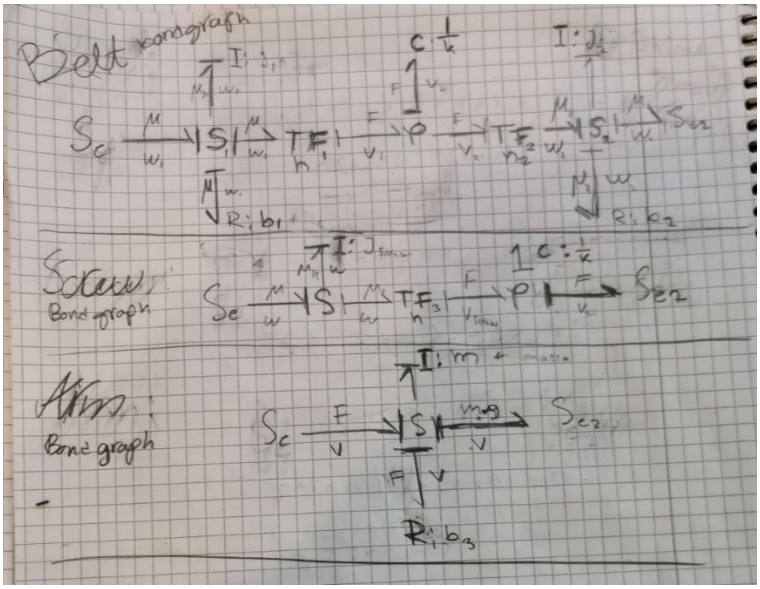
Version: (2)

Preparation 2.1 Expand the model of the motor stepwise until you get a complete model of the robot. The expansion of the model should be carried out according to the hints given in Chapter 3. Draw the bond graph for the whole system. The model must be divided into submodels. It must be possible to simulate each submodel separately. The current regulator is modelled as a submodel block.

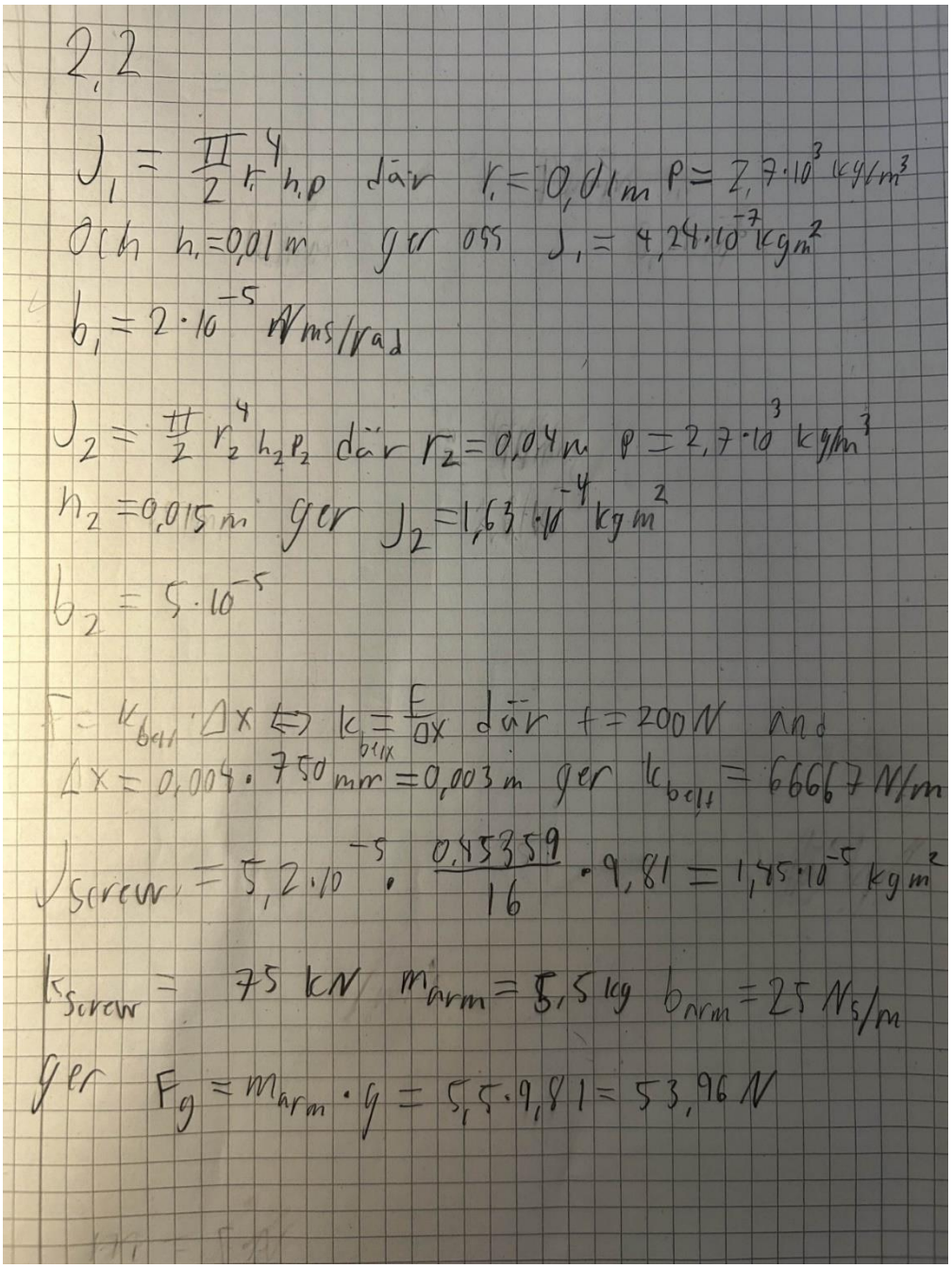
Bond graph for the whole system, except for the regulator:

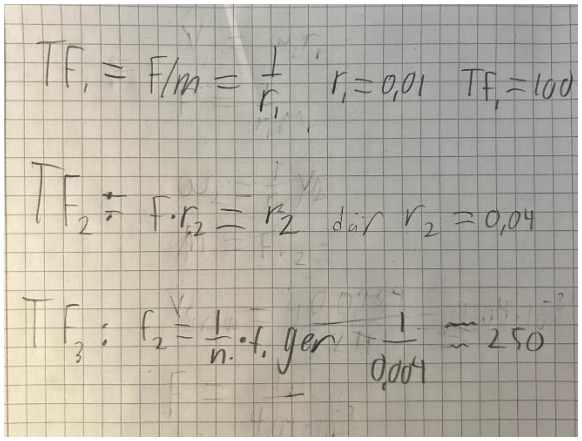


Bond graph for each submodell:



Preparation 2.2 Determine the numerical constants for the model of the robot.





Preparation 2.3 Choose which simulation environment you are going to use during the laboratory session. Plan all submodels with components and draw the corresponding scheme. If you have chosen to work with OpenModelica draw on the paper the submodels with components and connectors; if you have chosen to work with Simulink, draw the block scheme for the whole robot on paper.

OPENMODELICA (OMedit):