Modelling and Simulation (TNG022 2024HT PO)

Lab1 Preparation.

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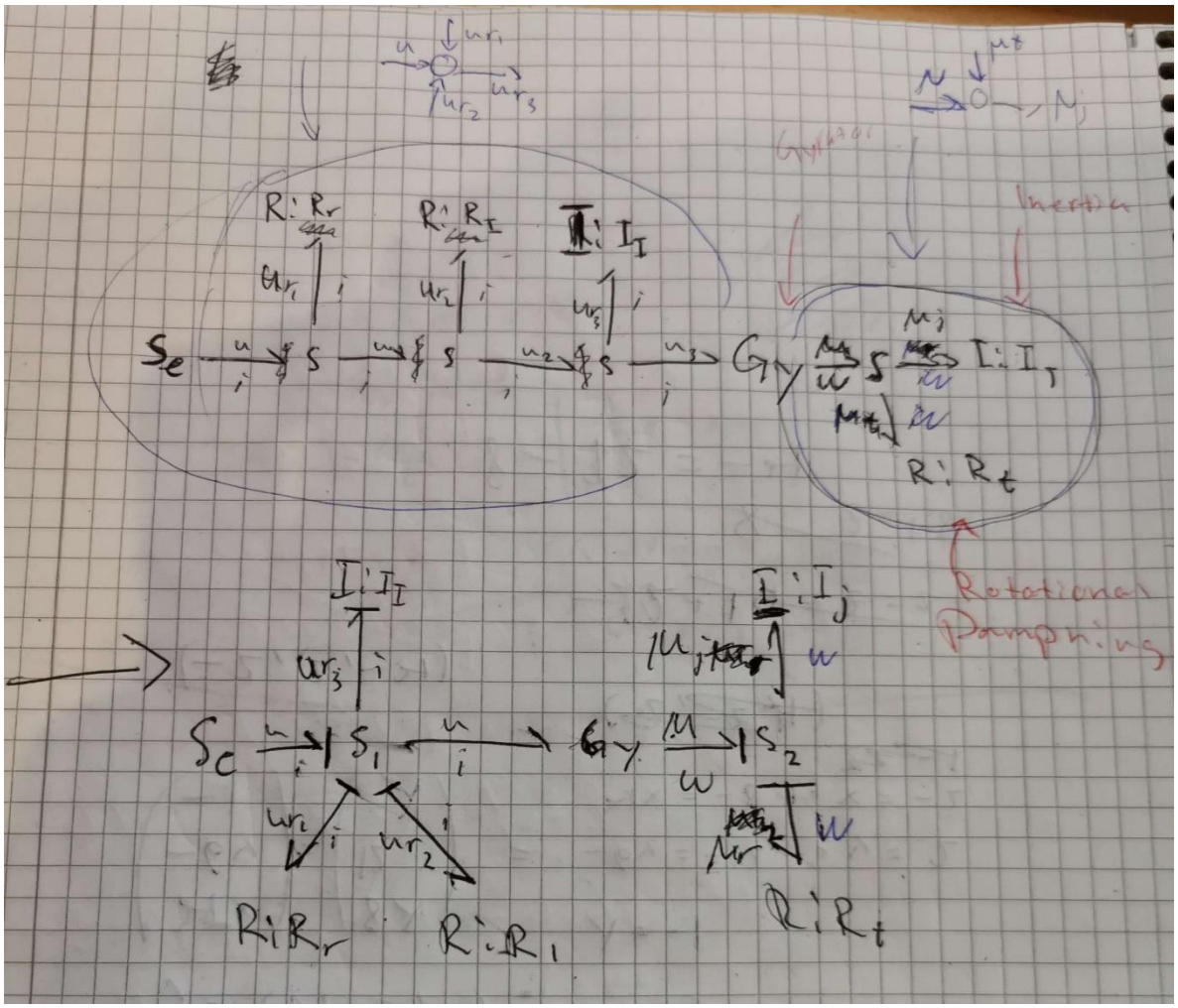
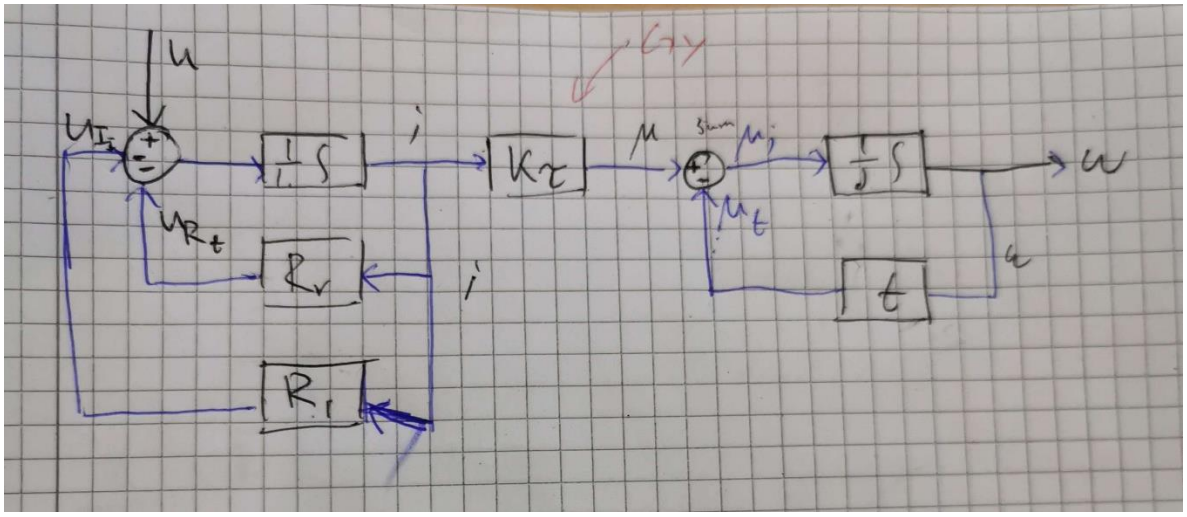
<u>Preparation 1.1</u> Prepare the model of the motor in block scheme. Use the Simulink blocks: Integrator,Gain, Sum.

Start by drawing the bond graph for the system and derive the block diagram from the bond Graph:

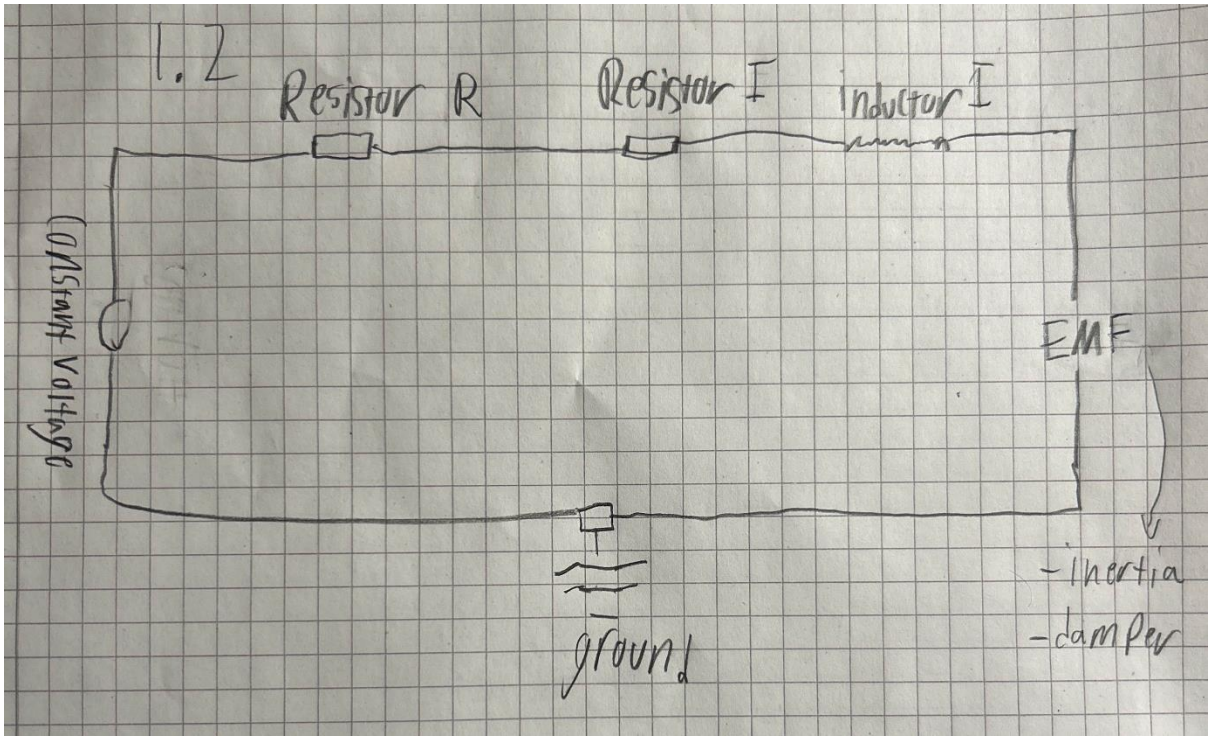


This gives this block diagram below:



<u>Preparation 1.2</u> Think through how an object-oriented model should look like in OpenModelica and which standard blocks you need. Draw a sketch of the OpenModelica

model. Use tips given in Appendix B



<u>Preparation 1.3</u> Determine the numerical values for all the constants in your model.

The mechanical friction of the motor can be obtained from the diagram in Figure 8 in Appendix A by the slope of the straight line.

Be careful with the units! Note that 60 RPM = 1 Hz = 2π rad/s.