

Control System Laboratory Report

Name and ID no. of the Student:

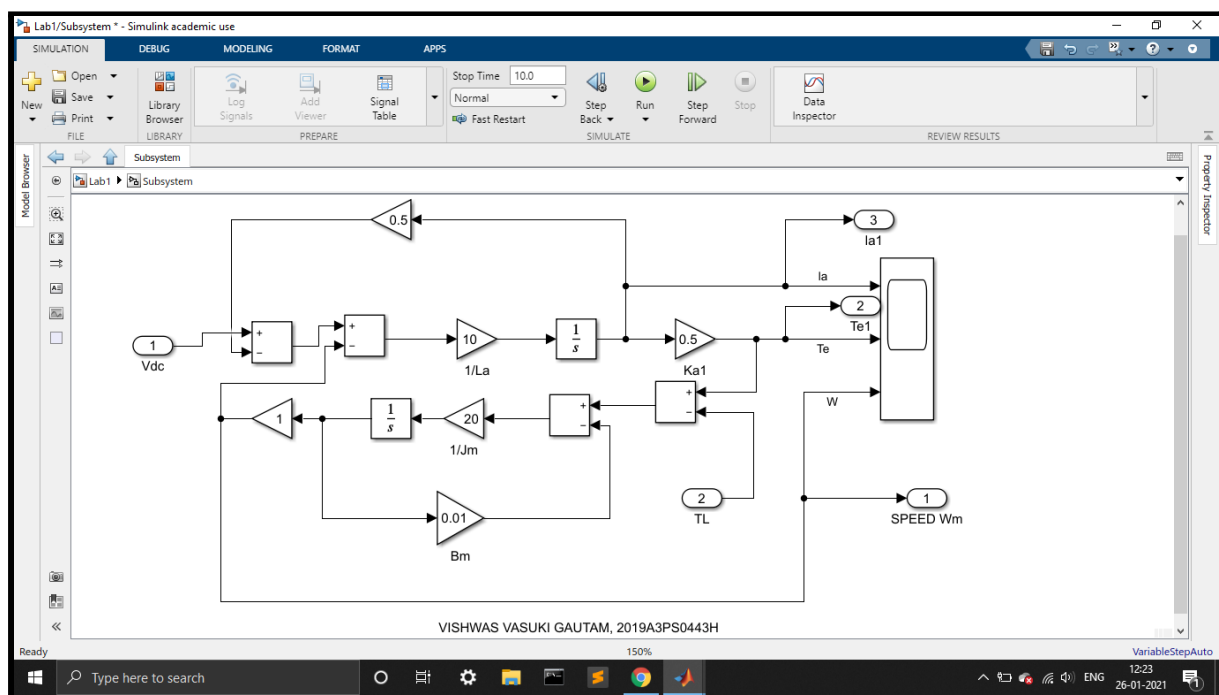
VISHWAS VASUKI GAUTAM, 2019A3PS0443H

Title of the Experiment:

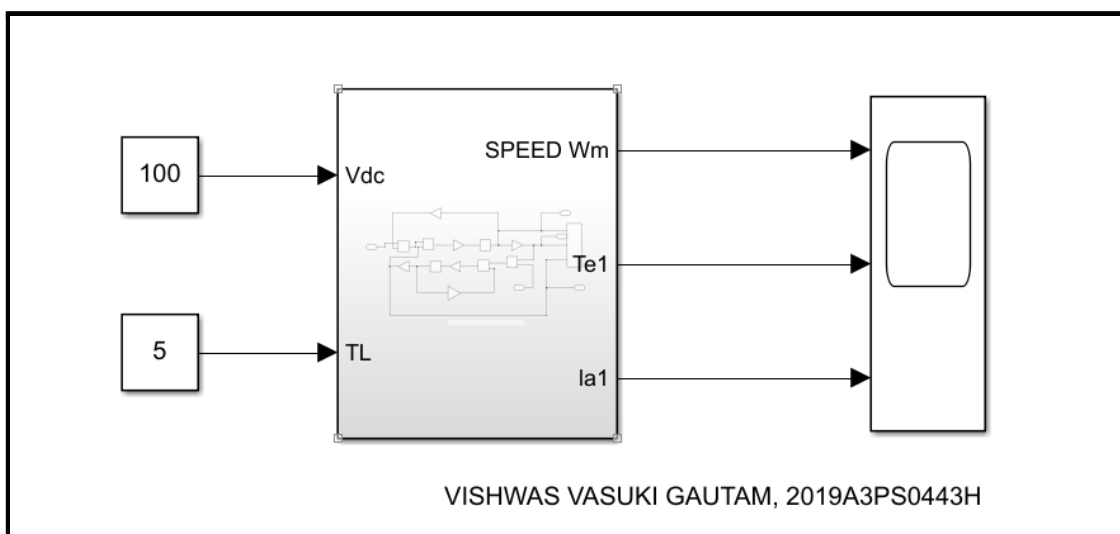
Mathematical Modelling of Physical Systems (Modelling of DC motor in Simulink)

Model/Simulation:

The image below shows the simulink model for the DC motor that was built.

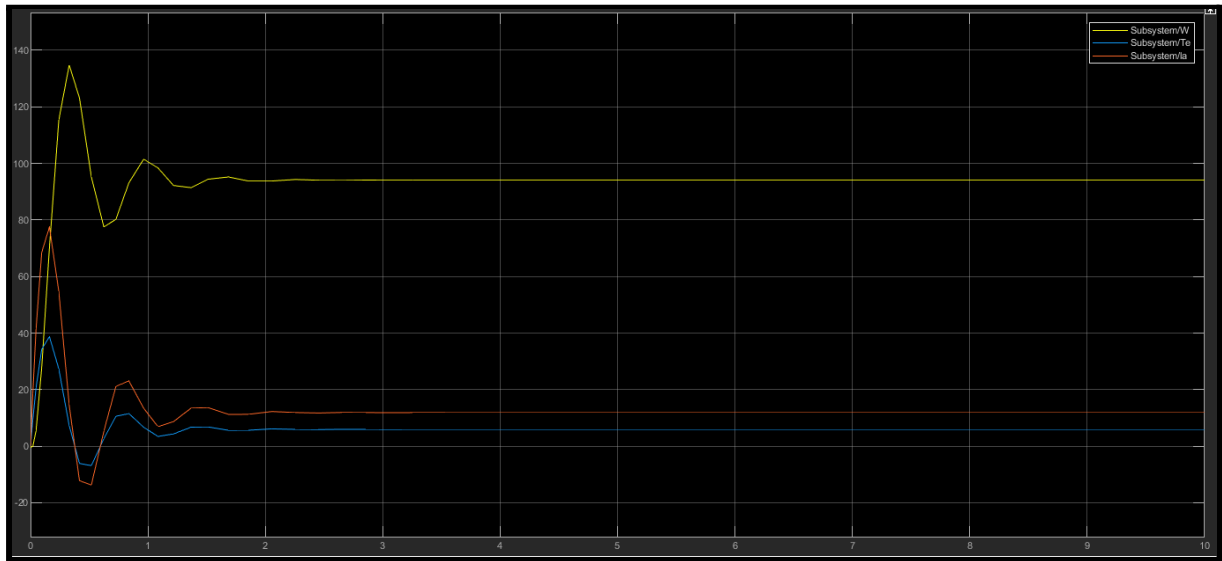


The image below shows the creation of the subsystem along with the inputs and the scope



Results:

The below is the plot obtained when the above models with the given inputs are run.



Conclusive remarks:

In the model of the DC motor, we observe the changes in the effective torque(T_e), the armature current(I_a), and the speed of the motor(W_m) when we vary the DC voltage source and the load torque(T_L).

The steady state speed of the DC motor as seen in the graph is 93rpm which is well within the rated speed of the DC motor 188rpm.

Initially a simulink model is created based on the mathematical models using various blocks. Later, a subsystem is formed from these blocks, the input ports are replaced by the input parameters and the output ports are replaced with the scope and the model is run.

It is interesting to see that at a constant load torque of 5N-m, the motor speed exceeds the prescribed speed at around 200V Vdc.