ENGR 315 **CALVIN COLLEGE** **Engineering Department**

MATLAB / SIMULINK - Laboratory # 2 - Mathematical Models of Systems

Objectives:
In this lab we consider some of the issues surrounding the modeling of physical systems.

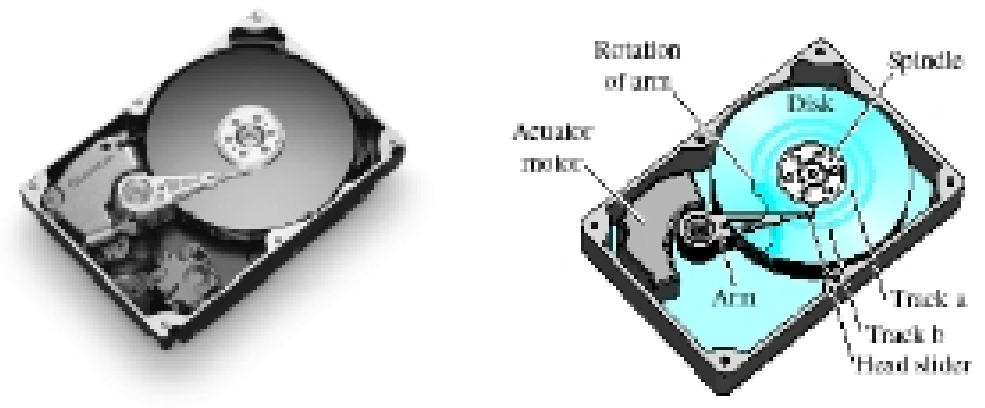
Equipment:
Computer Lab PC

Resources:
1 - Modern Control Systems, Dorf and Bishop
2 - Class Notes

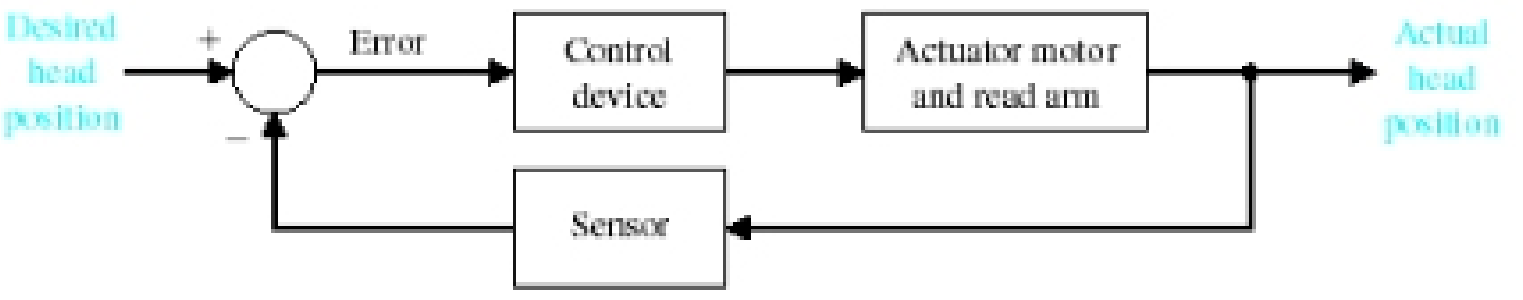
Experiments:

1 – Read and implement functions of Section 2.10 (to gain further familiarity with MATLAB). You may skip this part if you have already used of these functions.

2 – Study, implement simulation and discuss results for example of section 2.11.

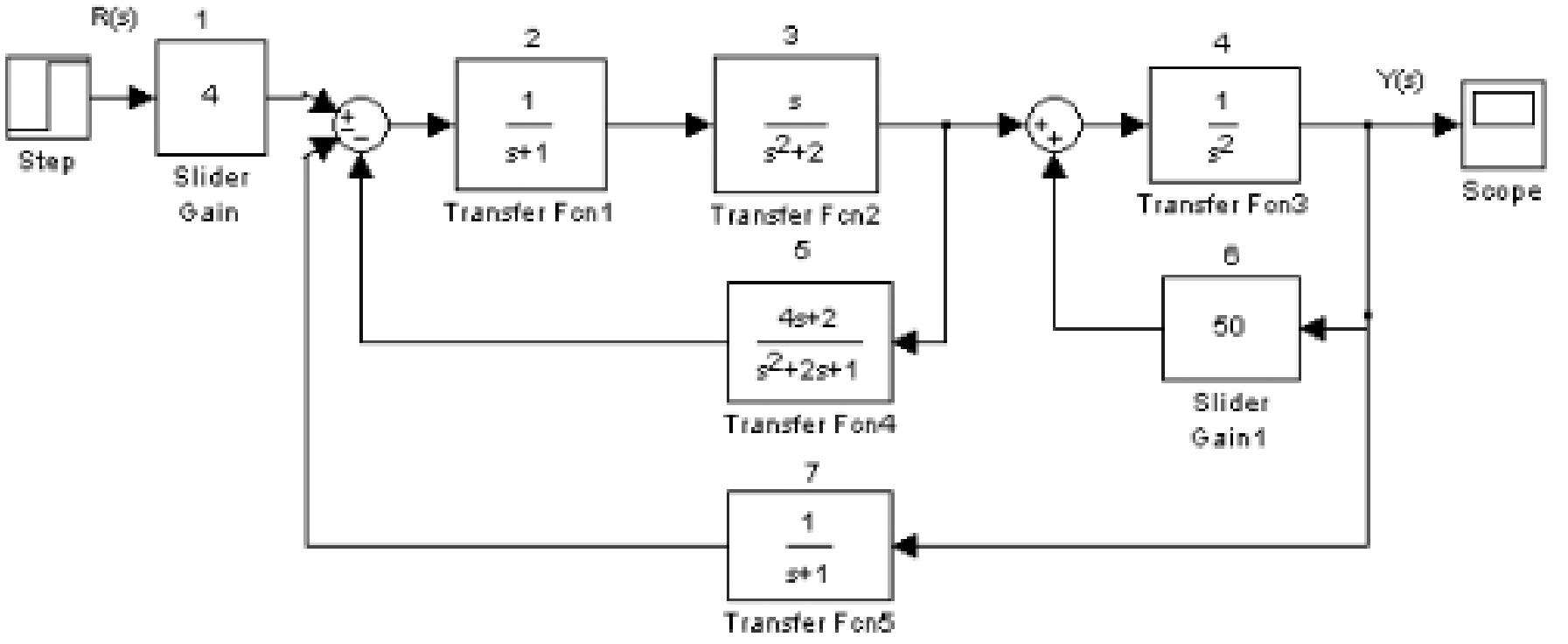


(a) (b)



3 – Use MATLAB to reduce the block diagram of the system illustrated below and compute the closed-loop transfer function. Generate a pole-zero map of the closed-loop TF.

Implement the Simulink solution for a step input to verify the response of the system. Vary gains / constants and discuss the responses.



Report

Summarize your observations and attach relevant MATLAB scripts, diagrams and plots. Report due two weeks from today.