ECE 388

Automatic Control

LAB 9

Nyquist Plot

**Objectives:** The Nyquist plot is a very useful tool for determining the stability of a system. It has advantages over the root locus and Routh-Horwitz because it easily handles time delays . it also gives us insight on how to improve the stability of a system. The objective of this exercise is to study Nyquist method in the determination of stability of systems in control engineering practice.

**List of Equipment/Software**

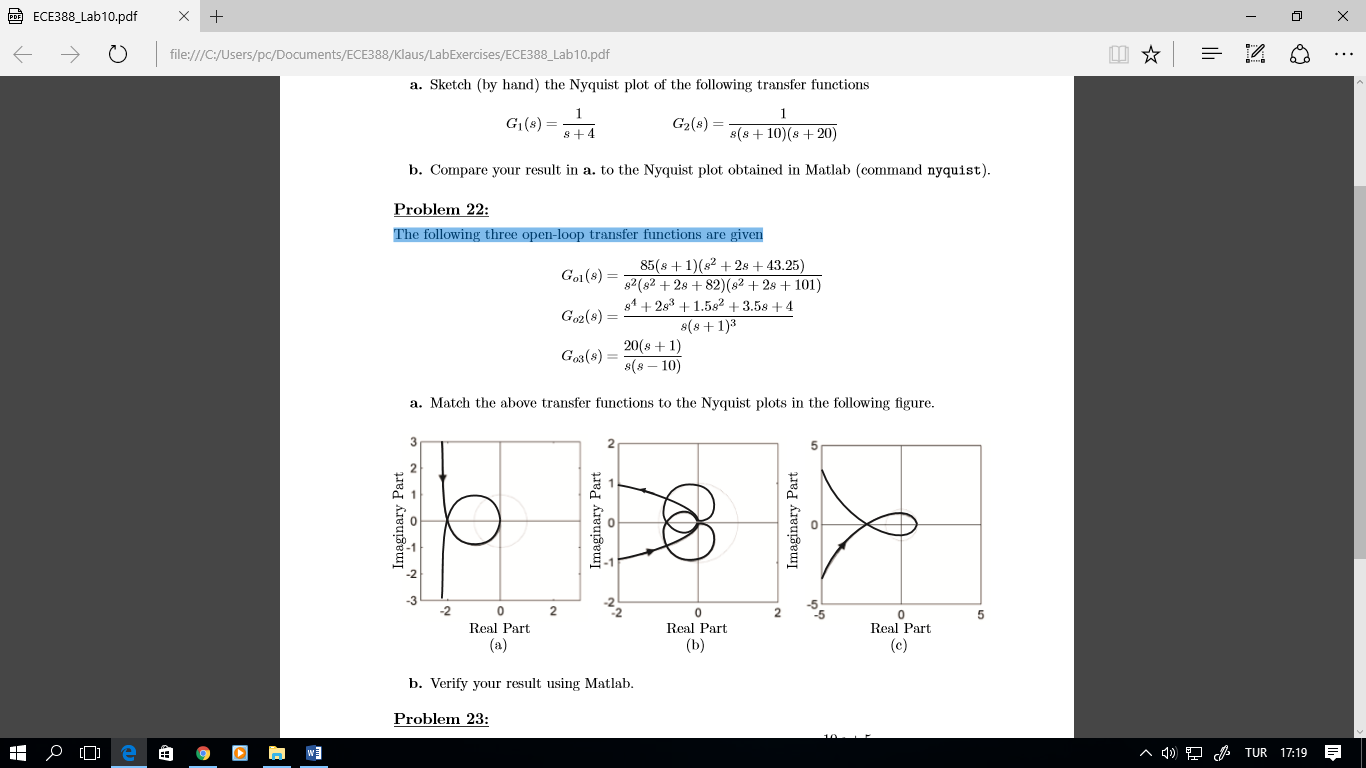
MATLAB, Simulink

**TASKS:**

* 1. Sketch (by hand) the Nyquist plot of the following transfer functions
  2. Compare your result in **a** to the Nyquist plot obtained in Matlab (command **nyquist**).

1. The following three open-loop transfer functions are given

**a**.Match the above 3 functions to the following Nyquist plots.



**b.** Verify your result by using Matlab.