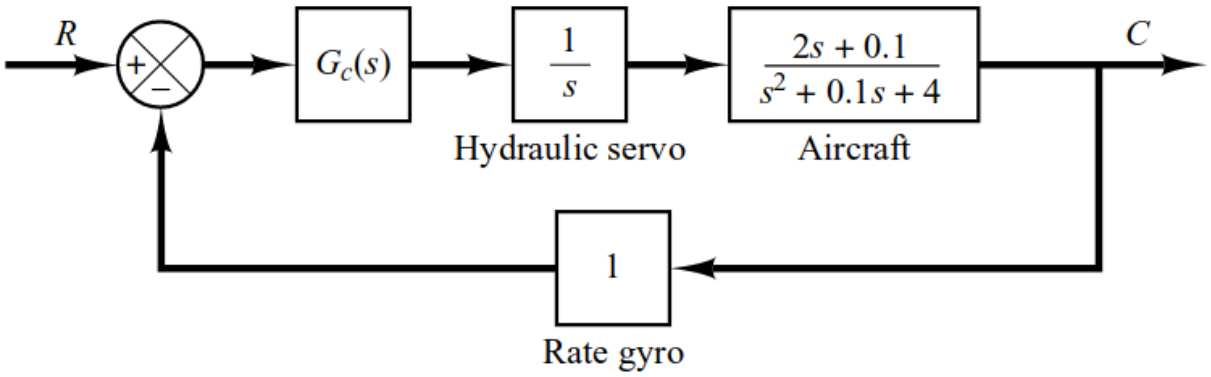
Tutorial 3
High Frequency

Objective of this tutorial is to train you to develop controllers using frequency domain techniques

Perform all the programming steps in a single file named **<roll_number>_T3.m** and submit that. Submit a PDF for written components showing your calc.

1. Consider the unity feedback system with a compensator $G_C(s)$ and the plant as shown below:



1. It is desired to design a controller/compensator such that the static velocity error constant is 4 sec–1, phase margin is 50°, and gain margin is 8 dB or more. Plot the unit-step and unit ramp response curves of the compensated system using Simulink and MATLAB.
2. Introduce Band-limited white noise before the hydraulic servo and evaluate the efficacy of the controller in responding to the noise signal.
3. Design a lead-lag controller to achieve the desired results and compare its efficacy with the added noise.