Assignment: Speed Control of a Servo Motor Gearbox

You are currently employed as a controls engineer at a small engineering consulting firm. Your company has received a request to evaluate a set of equipment for a client. The client has some engineering technical background but has been working as a project manager for over 20 years with focus on business and management rather than engineering specifics.

You received the following email from your supervisor:

> Dear valued employee,
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> We have received a gearbox system which you can find in the testing laboratory that needs to be evaluated for a customer. Specifically, you need to run some tests and compare a proportional-integral (PI) controller and a lead compensator to regulate the speed of the shaft according to the specifications provided by the customer. Determine which of these controllers is better suited to this task, and create a draft email including a summary of your findings to send to the client. Be sure to include evidence in your report to support your claim.
>
> Sincerely,
>
> Mr. Berks

Overview

The objective of this experiment is to develop feedback systems to control the speed of the rotary servo load shaft. A proportional-integral (PI) controller and a lead compensator are designed to regulate the speed of the shaft according to a set of specifications.

Deliverables

Each team of students is expected to submit a Word or PDF document containing the text of an email response to the client. Note that the email response should just contain simple text and formatting (no figures/tables/equations/etc.). Be sure to consider the audience appropriately. A rough draft of the document is due one week after the completion of the experiment and the final document is due two weeks after the completion of the experiment. Submissions are made online through the campus learning management system and are due by midnight on the corresponding day of class.