Lab Report #2:

Modeling and Simulation of Cyber Physical Systems

**Authors:** Midshipman 3/C **First Last Name**   
**Course:** SY202 Cyber Systems Engineering

**Enclosures: (**a) Deliverable #4 (MATLAB script and Simulink model)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Metric** | **Weight** | **Quality** | | | | | **Max**  **Score** | **Midn**  **Score** |
| **0** | **1** | **2** | **3** | **4** |
| Use of Lab Template | 1 | No |  | Partially |  | Yes | 4 |  |
| Introduction | 1 | Problem, purpose, and objectives are unclear |  | Problem stated but purpose/objectives unclear |  | Well discussed | 4 |  |
| Procedure | 1 | Missing several steps and no mention of used tools |  | Miss some steps and tools |  | Comprehensive yet concise | 4 |  |
| Presentation of Results | 2 | Results are not presented, difficult to understand, or incorrect. |  | Results are partially presented or some are incorrect |  | Results are well presented, easy to follow, and correct; quantities include units (when known) | 8 |  |
| Discussion of Results | 2 | Results are not discussed or poorly discussed |  | Result are discussed, but some important details are missed |  | Results are well discussed, short but cohesive | 8 |  |
| Figures | 2 | Figures are not correctly labeled and hard to read |  | Figures are missing some important features |  | Figures include a descriptive caption, are well identified, and are easy to read | 8 |  |
| Enclosures | 1 | None included |  | Some included |  | All included and correct | 4 |  |
| Grammar, organization, and Professionalism | 1 | Poor grammar and use of slang |  |  |  | Professional writing | 4 |  |
| **Total Points** | | | | | | | **44** |  |
| **Normalized Report Score = (Total Point / 44) x 50** | | | | | | **Letter Grade:** | **50** |  |

# Instructions: ERASE the instructions that are given in red.

# Introduction

In brief, describe the purpose and objective of the lab. This section should not be more than 2 paragraphs.

# Procedures

Summarize the procedures. This section should not be more than 2 paragraphs.

# Results

## Modeling with Transfer Functions

Include the figures (2 figures in total) from deliverable #1 and #2 using the plot command and discuss/compare the figures (like final value and transient behavior). Discuss any changes you observed while changing “K”. Towards the middle of the semester you will learn more about P controller and other controllers. Refer to the general lab report guidelines for instructions related to figures.

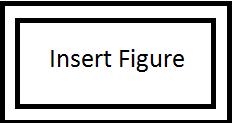


Figure . Include a descriptive Caption.

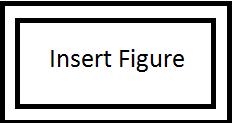


Figure 2. Include a descriptive Caption.

## Modeling with Equations of Motion

Include the figure from deliverable #3 and discuss the results. Compare the three responses. Discuss (briefly) any changes you observed on the output when you changed the system parameters (mass, forces, etc.). You do not have to be very detailed and I do not expect you to conclude any trend. We will study the effect of changing the system parameters more in detail in the next few weeks.

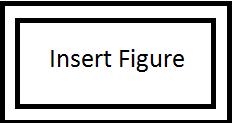


Figure 3. Include a descriptive Caption.

# Comments

Include what did you learn and how the lab can be improved.