

Format for Laboratory #2

The laboratory report for Laboratory #2 will be used to assess “Graduate Attributes” associated with Engineering Professional Accreditation. When writing the laboratory report you must use the section headings listed below. These graduate attributes will be graded separately from the overall grade for the laboratory. The graduate attributes will be graded on a scale from 1 – 4, where 1, represent poor and 4 represents excellent. The grades assigned to the graduate attributes will not have an effect on your course grade.

1.0) Introduction (GA2.1 Problem Definition)

This laboratory examines the dynamics of a position controller (servo system) for a motor. The problem is to design a controller and test the resulting dynamics...

2.0) Controller Design (GA4.4 Design Solution)

To achieve an acceptable position controller several different feedback gains will be implemented ...

2.1) Block Diagram of Controller (GA 5.1 Diagrams and engineering sketches)

Figure ... illustrates the block diagram of the controller. One can see the rate and position feedback signals ...

3.) Results

3.1) Matlab/Simulink implementation (GA 5.3 Tools for design, experimentation, simulation, visualization, and analysis)

Figure ... illustrates the simulink diagram used to simulate the position control. ... Figures 1 and 2 .. are matlab plots that show the output signals...

3.2) Results (GA 3.5 interpretation of data)

From figure ... one can see that the system is underdamped given the feedback gains of ...)

4.0 Discussion (GA 7.2 Professional documents: writing, design notes, drawings, attributions, and references)

This lab demonstrated how one can change the dynamics of a position controller by adjusting the feedback gains...

Assessment tool example for GA2.1

GA#	Performance level	Level 1	Level 2	Level 3	Level 4
Graduate Attribute	Level descriptor	Beginning	Developing	Accomplished	Exemplary
2	Problem 2.1 Problem analysis definition	Does not present a clear and concise restatement of the problem, presents a confused restatement or misidentifies the problem.	Presents a rudimentary, basic understanding of the problem without recognizing any nuances to the problem or additional issues or information required for the solution.	Interprets the problem in relatively clear and concise engineering terms, identifying some additional issues and information that may be required; shows a general understanding of the scope of the problem.	Clearly restates the problem in clear and concise engineering terms; is able to synthesize additional issues; recognizes related problems and other information that may be used.