

**09365061 Principle of Automatic Control (2) (Spring Semester 2014-2015)**

**Practical Report and Group Presentation Assessment Sheet**

Students should work in groups and accomplish the following tasks:

- (1) Solve the practical problem by using Matlab and Simulink.
- (2) Prepare a practical report with the detail of your experiment procedure such as the Matlab code, Simulink block diagram design and parameter setting. Provide your experimental results and analyze the result theoretically.
- (3) Give a group presentation in English. In the presentation, you should demonstrate your program, present and analyze your experimental result. And you will also be asked some questions. **Student who absent from the group presentation will be given ZERO mark for the group presentation session.**

Group No.	Student ID	Name	Contribution %	Signature	Final Mark	
					Report	Oral

<b>Practical Report Criteria/Grade</b>	<b>0 - 3</b>	<b>4 - 6</b>	<b>7</b>
<i>Group member should solve the practical problem together. Give a practical report with the detail of your experiment procedure such as the Matlab code, Simulink block diagram design and parameter setting. Provide the experimental results and analyze the result theoretically.</i>	More than 50% of work incorrect. And not so neat work.	More than 75% of the work correct. Generally neat work	More than 90% of the work correct. Very neat and systematic work.

<b>Group Presentation Criteria/Grade</b>	<b>0 - 3</b>	<b>4 - 6</b>	<b>7</b>
<i>Give a group presentation in English. The presentation can be divided into a couple of individual parts. And each member can make a presentation for one part. In the presentation, you should demonstrate your program, present and analyze your experimental result. And you will also be asked some questions.</i>	Fail in demonstrating 50%+ programs. Give incorrect answers to 50%+ questions. The oral presentation is NOT given in English or the spoken English can be hardly understood.	Successfully demonstrate 75%+ programs. Give correct answer to 75%+ questions. And the oral presentation is given in English and easy to understand in most cases.	Successfully demonstrate 90%+ programs. Give correct answer to 90%+ questions. And the oral presentation is given in English and easy to understand.

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Group No.	Student ID	Name	Signature

Write a MATLAB program that can be used to find the range of sampling time,  $T$ , for stability. The program will be used for systems of the type represented in the following figure and should meet the following requirements:

- MATLAB will convert  $G_1(s)$  cascaded with a sample-and-hold to  $G(z)$ .
- The program will calculate the z-plane roots of the closed-loop system for a range of  $T$  and determine the value of  $T$ , if any, below which the system will be stable. MATLAB will display this value of  $T$  along with the z-plane poles of the closed-loop transfer function.

c. Test the program on  $G_1(s) = \frac{10(s+7)}{(s+1)(s+3)(s+4)(s+5)}$

