

School of Professional Education and Executive Development

SEHS4653 Control System Analysis Semester 1, 2024/2025

ASSESSMENT GUIDE

1. SCHEME / PROGRAMME INTENDED LEARNING OUTCOMES

Please refer to the Teaching Plan of the subject.

2. SUBJECT INTENDED LEARNING OUTCOMES

Please refer to the Teaching Plan of the subject.

3. ASSESSMENT

3.1. Methods

Teaching and Learning activities	Specific assessment methods / tasks	Assessment weighting (%)	Due Dates	Subject Intended Learning Outcomes to be assessed			
				a	b	c	d
Continuous Assessment	• Individual Assignment	10	Week 7	✓	✓	✓	
	• Group Project	10	Week 12	✓	✓		✓
	• Test	20	Week 10	✓	✓	✓	
Examination		60		✓	✓	✓	
Total		100					

Notes

1. **Students must obtain Grade D or above in both Continuous Assessment and Examination in order to pass this subject.**
2. NO re-assessment will be granted in all circumstances.
3. Absence from the final examination will automatically result in a “Fail” grade for this subject. Students with very special grounds for absence from examination may apply for late assessment. Permission is subject to the approval of the Subject Assessment Review Panel (SARP). Engagement in work, interview, overseas duty/travel and other related conflicts will normally NOT be considered as grounds for granting late assessment.

3.2. Rationale

The take-home individual assignment, test and examinations contains short/long questions to assess students’ knowledge on using block diagram and signal flow graph for system stability and total response analysis, prepare for the subsequent controller design. Technical writing and findings presentation are evaluated by the group project (laboratory report). Hence, the assessment methods are appropriate for assessing the subject intended learning outcomes.

3.3. Grading

Subject Grade	Grade Point	Short Description	Elaboration on subject grading description
A+	4.3	Excellent	Demonstrates excellent achievement of intended subject learning outcomes by being able to skillfully use concepts and solve complex problems. Shows evidence of innovative and critical thinking in unfamiliar situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.
A	4.0		
A-	3.7		
B+	3.3	Good	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts and solve problems. Shows the ability to analyse issues critically and make well-grounded judgements in familiar or standard situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.
B	3.0		
B-	2.7		
C+	2.3	Satisfactory	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple problems. Shows some capacity for analysis and making judgements in a variety of familiar and standard situations, and is able to express the synthesis or application of ideas in a manner that is generally logical but fragmented.
C	2.0		
C-	1.7		
D+	1.3	Pass	Demonstrates marginal achievement of intended subject learning outcomes by being able to solve relatively simple problems. Can make basic comparisons, connections and judgements and express the ideas learnt in the subject, though there are frequent breakdowns in logic and clarity.
D	1.0		
F	0.0	Fail	Demonstrates inadequate achievement of intended subject learning outcomes through a lack of knowledge and/or understanding of the subject matter. Evidence of analysis is often irrelevant or incomplete.

Indicative descriptors for modifier grades:

Main Grade (solid)	The student generally performed at this level, indicating mastery of the subject intended learning outcomes at this level.
+(exemplary)	The student consistently performed at this level and exceeded the expectations of this level in some regards, but not enough to claim mastery at the next level.
-(marginal)	The student basically performed at this level, but the performance was inconsistent or fell slightly short in some regards.

Note: The above indicative descriptors for modifier grades are not applicable to the passing grades D and D+

'F' is a subject failure grade, whilst all others ('D' to 'A+') are subject passing grades. No credit will be earned if a subject is failed.

INDIVIDUAL ASSIGNMENT (10% of total marks)

The Task

Short/long questions will be used to assess students' knowledge on using block diagram and signal flow graph and their subsequent system stability and total response analysis. Method for designing a controller will be included as well.

Assessment Rubrics

Subject Intended Learning Outcomes	Assessment Criteria	Excellent (Grade: A- to A+)	Good (Grade: B- to B+)	Satisfactory (Grade: C- to C+)	Pass (Grade: D to D+)	Fail (Grade: F)
a. Analyse the stability, transient response and steady-state response of continuous time systems. b. Design compensators and controllers for control systems with suitable parameters. c. Create control system models by using block diagram and signal flow graph.	Ability in understanding and applying concepts learned for solving control problems	Demonstrates excellent achievement of intended subject learning outcomes by being able to skilfully use concepts and solve complex control problems. Shows a superior understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts and solve control problems. Shows a good understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple control problems. Shows an adequate understanding of the subject matter, and is able to express ideas generally logical but fragmented.	Demonstrates marginal achievement of intended learning outcomes by being able to solve relatively simple control problems. Shows partial familiarity with the subject matter, and is able to express ideas, though there are frequent breakdowns in logic and clarity.	Demonstrates inadequate achievement of intended learning outcomes through a lack of knowledge and/or understanding of the subject matter. Unable to solve simple control problems.

TEST (20% of total marks)

The Task

Short/long questions will be used to assess students' understanding of the subject contents from Week 1 to 7. There will be no multiple choice questions and the duration of test will be 1 to 1.5 hours. If feasible, the test will be arranged during lecture class.

Assessment Rubrics

Subject Intended Learning Outcomes	Assessment Criteria	Excellent (Grade: A- to A+)	Good (Grade: B- to B+)	Satisfactory (Grade: C- to C+)	Pass (Grade: D to D+)	Fail (Grade: F)
a. Analyse the stability, transient response and steady-state response of continuous time systems. b. Design compensators and controllers for control systems with suitable parameters. c. Create control system models by using block diagram and signal flow graph.	Ability in understanding and applying concepts learned for solving control problems	Demonstrates excellent achievement of intended subject learning outcomes by being able to skilfully use concepts and solve complex control problems. Shows a superior understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts and solve control problems. Shows a good understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple control problems. Shows an adequate understanding of the subject matter, and is able to express ideas generally logical but fragmented.	Demonstrates marginal achievement of intended learning outcomes by being able to solve relatively simple control problems. Shows partial familiarity with the subject matter, and is able to express ideas, though there are frequent breakdowns in logic and clarity.	Demonstrates inadequate achievement of intended learning outcomes through a lack of knowledge and/or understanding of the subject matter. Unable to solve simple control problems.

GROUP PROJECT (10% of total marks)

The Task

Students are required to form groups of 5 to 6 classmates for completing 2 experiments in laboratory sessions during Week 7 and 9. Students then required to write a laboratory report.

Assessment Rubrics

Subject Intended Learning Outcomes	Assessment Criteria	Excellent (Grade: A- to A+)	Good (Grade: B- to B+)	Satisfactory (Grade: C- to C+)	Pass to Fail (Grade: D to D+)	Fall (Grade: F)
a. Analyse the stability, transient response and steady-state response of continuous time systems. b. Design compensators and controllers for control systems with suitable parameters. d. Interpret experimental findings through written report.	Controller Design (30%)	Able to identify and list out the design needs and realistic constraints of a control system. Develop an excellent control strategy to meet design specifications.	Able to identify and list out the design needs and realistic constraints of a control system. Develop a good control strategy to meet design specifications.	Able to identify and list out the design needs and realistic constraints of a control system. Develop a satisfactory control strategy to meet design specifications.	Able to identify and list out the design needs and realistic constraints of a control system. Unable to develop a satisfactory control strategy to meet design specifications.	Unable to identify and list out the design needs and realistic constraints of a control system. Unable to develop a satisfactory control strategy to meet design specifications.
	Analysing Experimental Data (30%)	Very complete and accurate interpretation and comparison of data, indicating a thorough understanding of results.	Almost all of the results are correctly interpreted and discussed, indicating a good understanding of results.	Most of the results are correctly interpreted and discussed, indicating a satisfactory understanding of results.	Very incomplete interpretation and comparison of data, indicating a partial understanding of results.	Incorrect or missing interpretation and comparison of data, indicating a lack of understanding of results.
	Limitations on the Experiment (20%)	Able to explain clearly limitations on the experiment.	Able to explain most limitations on the experiment.	Able to explain some limitations on the experiment.	Able to explain a few limitations on the experiment.	Unable to explain limitations on the experiment.
	Overall Presentation (e.g. introduction, data presentation and analysis, conclusion, etc) (20%)	Report is very well-organized, comprehensive & consistent with the requirements. Almost free from grammatical & spelling errors.	Report is quite well-organized, comprehensive & consistent with the requirements. Few grammatical & spelling errors.	Report is somewhat organized & mostly consistent with the requirements. Some grammatical & spelling errors.	Report is not well-organized, & sometimes inconsistent with the requirements. Quite a lot of grammatical & spelling errors.	Report is not organized & inconsistent. Lots of grammatical & spelling errors.

EXAMINATION (60% of total marks)

The Task

Students are required to answer 5 questions within 3 hours or 4-5 questions within 2 hours. The questions will cover the subject intended learning outcomes 1, 2 and 3. The examination will normally be arranged in May.

Assessment Rubrics

Subject Intended Learning Outcomes	Assessment Criteria	Excellent (Grade: A- to A+)	Good (Grade: B- to B+)	Satisfactory (Grade: C- to C+)	Pass (Grade: D to D+)	Fail (Grade: F)
a. Analyse the stability, transient response and steady-state response of continuous time systems. b. Design compensators and controllers for control systems with suitable parameters. c. Create control system models by using block diagram and signal flow graph.	Ability in understanding and applying concepts learned for solving control problems	Demonstrates excellent achievement of intended subject learning outcomes by being able to skilfully use concepts and solve complex control problems. Shows a superior understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts and solve control problems. Shows a good understanding of the subject matter, and is able to express ideas logically and comprehensively.	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple control problems. Shows an adequate understanding of the subject matter, and is able to express ideas generally logical but fragmented.	Demonstrates marginal achievement of intended learning outcomes by being able to solve relatively simple control problems. Shows partial familiarity with the subject matter, and is able to express ideas, though there are frequent breakdowns in logic and clarity.	Demonstrates inadequate achievement of intended learning outcomes through a lack of knowledge and/or understanding of the subject matter. Unable to solve simple control problems.

4. PLAGIARISM

Please refer to the Teaching Plan for detailed information.