

AAE 364L – Experiment #1 Grading Sheet
One Dimensional Cart on a Track

Name _____

Possible Points

Cover Page - 1

| | | |
|------------------------------------|----------|--|
| Title, Name, Course, Date, TA etc. | 1 | |
| Subtotal | 1 | |

Introduction - 4

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|---------------------------|----------|--|
| Objectives/Goals/Purposes | 2 | |
| Intended Methods | 2 | |
| Subtotal | 4 | |

Procedure - 10

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|---------------------------------------------------|----------------------|-------------|
| Definition of Variables | 2 | |
| Schematic and Description of Apparatus | 3 | |
| Procedure of Experiments | 5 | |
| Subtotal | 10 | |

Results - 15 8

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|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|
| Part (i) $m, \gamma, P_{cm}, P_{eq}$ and a | 2 | |
| Part (ii) New estimate of B_{eq} | 1 | |
| Part (iii) f_0, upper bound of $e(\infty)$, $e(\infty)$ from both simulation and experiment | 3 | |
| Part (iv) Largest value of k_f such that the system is stable | 1 | |
| Part (v) Initial k_p, k_i, k_d designed using Simulink and the corresponding rise time, percent overshoot, settling time, and steady state error. | 4 | |
| Part (v) Final k_p, k_i, k_d chosen, after running the experiment and the actual rise time, percent overshoot, settling time, and steady state error. | 4 | |
| Subtotal | 15 8 | |

Analysis and Discussion – 35 15

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|-------------------------------------------------------------------------------------------|--------------|-------------|
| Part (i) | 5 | |
| Part (ii) | 5 | |
| Part (iii) | 5 | |
| Part (iv) | 5 | |
| Part (v) | 5 | |
| Discussion of the effects of k_p, k_i, k_d on the closed loop response | 5 | |
| ALL Simulink models in the Appendix. Make blocks large enough to show what are in them | 5 | |
| Subtotal | 35 15 | |

Conclusion and Recommendation – 10

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|----------------------------------------------------------|-----------|--|
| Main Points | 5 | |
| Theoretical/Experimental Limitations | 3 | |
| Personal Lessons Learned and Suggestions for Improvement | 2 | |
| Subtotal | 10 | |

Style, Participation, and Prelab – 25

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|-----------------|-----------|--|
| Organization | 4 | |
| Grammar | 3 | |
| Neatness | 3 | |
| Participation | 5 | |
| Prelab | 10 | |
| Subtotal | 25 | |

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|--------------|---------------|--|
| Total | 100 63 | |
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