

AME30358 – Score Sheet

M12 – Ball-and-Beam

Name(s): _____

For more details on any of the items below, please refer to the lab handout.

The following items will be demonstrated to the lab instructor during the allotted lab time. Credit will not be given for portions completed outside of lab.

Item and Description	Points Awarded	Possible Points
Subsystem A: Mechanical Structure The inclined plane 4-bar mechanism is correctly assembled, has adequate range with no singularities.		5
Subsystem B: Servo Motor • The servo smoothly adjusts the inclined plane angle. • The servo signal that levels the inclined plane to the quiescent state at $\theta = 0$ has been identified.		6
Subsystem C: Optical Distance Sensor The sensor is securely mounted and measuring accurate distances to the ball with resolution better than 1 cm.		5
Design Challenge 1 – Proportional Feedback The Inclined plane oscillates under the impetus of proportional feedback.		6
Design Challenge 2 – Proportional-Derivative Feedback A well-tuned controller has been implemented. The mechanism returns the ball to its home position after a few oscillations.		6
Clean-up The students returned the lab bench to its initial state.		2
TOTAL		30