

AME 30358 – Score Sheet

M6 – Robot Leg Part I (a.k.a., DC Motor Control)

Name(s): _____

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
Part 0: Getting Started The LED blinks at a rate different from the template.		2
Part 1: Motor Encoder The motor shaft angle and speed are correctly printed in the serial monitor.		2
Part 2: Motor Driver and Analog Current Sensor The motor spins in a direction that corresponds to the applied voltage.		3
Part 3: Current Sensor Calibration The calibration constants look correct. The current printed in the serial monitor is within 10% of the DMM reading.		4
Part 2: Electrical Model and Current Control Motor resistance properly identified.		4
Part 4: Measuring the Motor Parameters The motor winding resistance and back EMF constant look correct.		4
Design Challenge 1 – Simple Position Control The servo horn returns to within 5 degrees of its home position after being displaced.		4
Design Challenge 2 – Current Control A 5kHz feedback loop can set the stall current to any value between -4 and 4 amps.		5
Design Challenge 3 – Servo with Current Control Control of stiffness and damping demonstrated.		4
Clean-up The students returned the lab bench to its initial state.		2
TOTAL		34