

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: DC Motor Setup & Position Control The motor angle is correctly reported in MATLAB in a test when the motor power is off.		2
The motor current is correctly reported in MATLAB in a test when the motor power is on.		3
The motor reaches 1 radian in under 150 ms with an overshoot <0.05 rad via PID control.		4
Part 2: Electrical Model and Current Control Motor resistance properly identified.		4
Motor back EMF properly identified.		4
The current controller successfully tracks the desired current when the motor angle is fixed vs. free.		4
Part 3: System Identification and Characterization Motor viscous friction and inertia properly identified.		5
Part 4: Impedance Control Control of stiffness and damping demonstrated.		4
Clean-up The students returned the lab bench to its initial state.		2
TOTAL		34