MT 105 Performance Based Learner Outcomes Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Identify the various classes of robots: score \_\_\_\_\_\_\_\_/ 20
   1. Create a PowerPoint that shows each of the following six classes of industrial robots. On the Title Page include your name and ‘Industrial Robot Classes’
   2. On the remaining slides include a picture and description for the following classes of robots.
   3. Cartesian, SCARA, Cylindrical, Delta, Polar and vertically articulated.
2. Demonstrate proper safety precautions near robots Score \_\_\_\_\_ / 20
   1. Create a safety poster promoting safety: Research online to find proper safety procedures for the following: \_\_\_ / 15
      1. Operating a Vertical Band Saw
      2. Operating Drill Press
      3. Operating Hand Drill
      4. Operating a Hack saw
      5. Bending elements in the vice
      6. Operating a Laser Cutter
      7. Operating a horizontal Band Saw
      8. Operating a milling machine
      9. Operating a hand held grinder
   2. Score 100% on a lab safety quiz. Quiz can be retaken to get to a proficient level.\_\_\_ / 5
3. Describe the importance of a team when developing robotic systems. Score \_\_\_\_ / 20
   1. Write a paper addressing the following
      1. Describe the roles on a Scrum Team. Product Owner, Scrum Master, Team member
      2. Describe three or more roles for a successful robotics team. (Designer, programmer, …)
      3. Describe the importance of a team when developing robotic systems
      4. How a dream robotics team will function.
4. Design a working robotic system used for specific task Score \_\_\_\_\_ / 20
   1. Soccer Robot
5. Describe basic robotics kinematic structure Score \_\_\_\_ / 20
   1. Create an original presentation analyzing one of the following structures. In the presentation define the pros and cons of the structure, best construction practices and with examples.
   2. Four-bar linkage, six bar linkage, eight bar linkage, double reverse four bar linkage, scissor lift, claw, linear slide extension, Mecanum drive, x-drive, … You may use your project from the second six weeks for this activity.
   3. You can use the structure researched previously
6. Demonstrate basic robotics hardware control Score \_\_\_\_ / 20
   1. Programming: Using either the Virtual World or Physical Robot the following challenges or their equivalent. Demonstrate to Smith to get signed off.
      1. \_\_\_\_ Labyrinth Challenge using timing
      2. \_\_\_\_ Labyrinth Challenge using Shaft Encoders
      3. \_\_\_\_ Robot Slalom I using Remote Control
      4. \_\_\_\_ Complete Turn Buttons Challenge