Problem Solving Lab – Part A
ENGR 1181
Today's Learning Objectives

- After today's class, students will be able to:
  - Understand how the Arduino/MATLAB interface works, as well as the necessary commands used when programming their train.
Problem Solving Lab Overview

- Students should have read the Problem Solving Lab Description Document prior to lab.
  - This defined the problem and also set the specifications and requirements for the project.

- Today, we will start developing the design by focusing on creating design concepts.

- In total, we have 3 weeks (8A / 8B / 8C) to completely develop the design, as shown on the following slide.
Problem Solving Process

1. **INITIAL CONCEPTS**
   (Brainstorming)

2. **Train Project Objective**
   (Problem Definition)

3. **EXPERIMENTAL RESEARCH**

4. **ANALYZE**

5. **COMPARE**

6. **RESEARCH**

7. **DESIGN DECISION**

8. **FINAL DESIGN**
Train System Components

Here are the parts you will use:

- Approach Sensor
- Train / Track
- Arduino
- Lights (2 LEDs)
- Gate (servo motor)
- Departure Sensor
Helpful Hints

- Work as a team.
- Syntax is very important
- Follow all instructions carefully and check off each step.
- Use the provided excel worksheet to track answers.
- Remember the importance of folders and files being in the proper path for MATLAB to access.
- If you feel that your setup is incorrect or something is not working properly, please notify your instructional staff.
Lab 8B- Problem Solving Lab

- Due next week in Lab 8B:
  - Tasks 1 through 7 from today
  - Your revised pseudocode (team assignment)

- Today is the first of a 3 lab series. A combined project notebook will be due at the end.

- We will continue working on developing scenarios and coding for your train next week.