

**Homework 1 Due: Wednesday 9/15 in Class (turn just page two)**

- 1) Read all of the EdX modules Chapters 3 and 4,**  
<http://users.ece.utexas.edu/~valvano/Volume1/E-Book/>
- 2) Read the textbook sections 1.1, 1.2, 1.3, 3.1, 3.2 and 3.3**
- 3) Review Lec1.ppt and Lec2.ppt**

The purpose of this homework is to review some high school physics and to get started with some assembly language I/O. Basically homework is directed reading with some questions to see if you understand the material.

You are allowed to work in groups of 2 on homework. Each student must turn in their own solution. If you will miss class you are allowed to turn in homework to your professor before class. To get credit for homework you must complete all questions, but the official score will be completion. i.e., we will not check the answers. However, the professors have answers to the homework, so if you are uncertain about your answers go to their office hours to check your answers against the solution key. We will NOT post the answers.

When writing assembly code you can use the following directives

<b>GPIO_PORTB_DATA_R</b>	<b>EQU</b>	<b>0x400053FC</b>
<b>GPIO_PORTB_DIR_R</b>	<b>EQU</b>	<b>0x40005400</b>
<b>GPIO_PORTB_AFSEL_R</b>	<b>EQU</b>	<b>0x40005420</b>
<b>GPIO_PORTB_DEN_R</b>	<b>EQU</b>	<b>0x4000551C</b>
<b>SYSCTL_RCGC2_R</b>	<b>EQU</b>	<b>0x400FE108</b>

**Assignment 1.1** . What is Ohm's Law?

**Assignment 1.2:** Fill in this table with the equivalent resistance (all values are in ohms)

R1	R2	R1 in series with R2	R1 in parallel with R2
1000	2000		
2000	10000		
1000		4000	
2000			1600

**Assignment 1.3.** What is the range of voltages that represent logic low?

**Assignment 1.4.** What is the range of voltages that represent logic high?

**Assignment 1.5.** Write assembly code to set the Port B direction register so PB7-PB4 are output and PB3-0 are inputs.

**Assignment 1.6.** Assume Port B is initialized and PB5 is an output pin. Write assembly code to set PB5 high. It will take three steps 1) read the data register; 2) perform a logical operation to set bit 5; and then 3) write the new value back to the data register. Hint: this is similar to Example 3.1.