ECE 425 Introductions to Microprocessors
Laboratory Work 2

Objective:

1) Debugging assembly codes and determining errors.
2) Be aware of case sensitive labels. Use of __CONFIG command.
3) Ability to program PORTS as input or output.

Preparation:

Answer all of the following questions, and write a preparation report which includes answers to the preparation questions.

1) Open a project using MPLAB, copy and paste the following program segment and compile it. Determine errors in the program segment.

```
LIST P=16F84A
INCLUDE "P16f84A.INC"

__config _cp_off&_wdt_off&_xt_osc

clrf    portb;
end
```

2) Open a project using MPLAB, copy and paste the following program segment and compile it. Determine errors in the program segment.

```
LIST P=16F84A
INCLUDE "P16f84A.INC"

__config _CP_OFF&_WDT_OFF&_XT_OSC

clrf    PORT;
bsf     STATUS, RPO;
clrf    TRISB;

end
```

3) Read the following program segment, and write an explanation sentence after each line. What happens after the execution of each line? The first one was done for you

```
LIST P=16F84A
INCLUDE "P16f84A.INC"

__config _CP_OFF&_WDT_OFF&_XT_OSC;

clrf        PORTB;………………PORTB is CLEARED
bsf         STATUS, RP0;
clrf        TRISB;
bcf         STATUS, RP0;

movlw       0xFF;
movwf       0x0C;

movlw       .64;
movwf       0x0D;

movlw       11110000b;
movwf       PORTB;

end
```

Laboratory Work:

1) Open a project in MPLAB, write the program segment in preparation part-3 (do not copy and paste) and compile it. Assume the chart below shows the program memory. How the program memory is filled when the HEX file obtained after compilation is loaded into the program memory. Fill the chart below.

Address	Content
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

2) Trace your program using F7 button. Inspect content of special purpose registers and RAM locations under concern using MPLAB studio.

3) Write an assembly program for the following tasks.

-PORTA is set as input port
-PORTB is set as output port
-The content of PORTA is transferred to PORTB

a) Compile and trace your program using MPLAB.
b) Change the content of PORTA manually in MPLAB and be sure that it is transmitted to PORTB. Use F7 to trace and verify your goal.

During your LAB work show every step that you complete to the LAB assistant. Get a copy of assembly files you write during the LAB hour via a flash disk for future reference.