



**CLASS: T.E. E &TC**

**SUBJECT: MC**

**ROLL NUMBER-32440**

**EXPT 9 :ON-CHIP ADC Programming**

**CODE :**

```
#include<p18f4550.h>
```

```
#include"vector_relocate.h"
```

```
#define LCD_DATA   PORTD           //LCD data port           //LCD signal port
```

```
#define en         PORTEbits.RE2   // enable signal
```

```
#define rw         PORTEbits.RE1   // read/write signal
```

```
#define rs         PORTEbits.RE0   // register select signal
```

```
void LCD_cmd(unsigned char cmd);
```

```
void myMsDelay (unsigned int time)
```

```
{  
    unsigned int i, j;  
    for (i = 0; i < time; i++)  
        for (j = 0; j < 665; j++);  
}
```

```
void init_LCD(void)
```

```
{  
    LCD_cmd(0x38);    // initialization of 16X2 LCD in 8bit mode  
    myMsDelay(15);
```

```
    LCD_cmd(0x01);    // clear LCD  
    myMsDelay(15);
```

```
    LCD_cmd(0x0E);    // cursor off  
    myMsDelay(15);
```

```
    LCD_cmd(0x80);    // ---8 go to first line and --0 is for 0th position  
    myMsDelay(15);
```



```
// ---8 go to first line and --0 is for 0th position

}

//Function to pass command to the LCD
void LCD_cmd(unsigned char cmd)
{
    LCD_DATA = cmd;
    rs = 0;
    rw = 0;
    en = 1;
    myMsDelay(15);
    en = 0;
    myMsDelay(15);
}

//Function to write data to the LCD
void LCD_write(unsigned char data)
{
    LCD_DATA = data;
    rs = 1;
    rw = 0;
    en = 1;
    myMsDelay(15);
    en = 0;
    myMsDelay(15);
}

void main(void)
{
    unsigned int val[4],ADC_Result=0,var;
```



```
unsigned char i,str[]="Result:";
```

```
TRISD = 0x00;    //Configuring PORTD as output
```

```
TRISE=0;
```

```
TRISA=0xFF;
```

```
init_LCD();
```

```
// ADC Initialization
```

```
ADCON1=0x0A;    // Reference as VDD & VSS, AN0 set as analog pins
```

```
ADCON2=0b10010110; // Result is right Justified
```

```
                //Acquisition Time 4TAD
```

```
                //ADC Clk FOSC/64
```

```
ADCON0=0X09; //Turn ON ADC module
```

```
LCD_cmd(0x80);
```

```
for(i=0;str[i]!='\0';i++)
```

```
{
```

```
LCD_write(str[i]);
```

```
myMsDelay(200);
```

```
}
```

```
while(1)
```

```
{
```

```
ADCON0bits.GO=1;
```

```
while(ADCON0bits.GO==1);
```

```
var=((unsigned int)ADRESH) << 8;
```

```
ADC_Result=var+ADRESL;
```

```
for(i=0;i<4;i++)
```

```
{
```

```
val[i]=ADC_Result%0x0A;
```

```
val[i]=val[i]+0x30;
```



```
ADC_Result=ADC_Result/0x0A;  
}
```

```
LCD_cmd(0x87);  
LCD_write(val[3]);  
LCD_write(val[2]);  
LCD_write(val[1]);  
LCD_write(val[0]);
```

```
//myMsDelay(500);  
}  
}
```