



# SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING



## 19EC404 – Microcontroller Programming and Interfacing

### Unit -1

## PIC Microcontrollers: History, Features& Architecture WREG Register in PIC

bit #	7	6	5	4	3	2	1	0
	X	X	X	N	OV	Z	DC	C

C -- Carry flag

DC -- Digital Carry flag

Z -- Zero flag

OV -- Overflow flag

N -- Negative flag





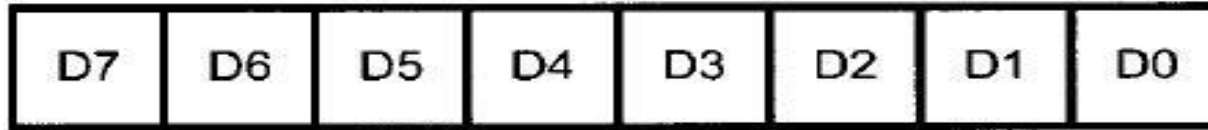
# WREG Register in the PIC micro-controller

- CPUs use many registers to store data temporarily. PIC micro-controllers have many registers for arithmetic and logic operations.



# WREG Register

- In the CPU, registers are used to store information temporarily.
- That information could be a byte of data to be processed, or an address pointing to the data to be fetched.
- The vast majority of PIC registers are 8-bit registers. In the PIC there is only one data type: 8-bit as shown below.
- These range from the MSB (most significant bit) D7 to the LSB (least significant bit) D0. With an 8-bit data type, any data larger than 8 bits must be broken into 8-bit chunks before it is processed.



- The 8 bit WREG register is the most widely used register in the PIC micro-controllers.
- WREG stands for working register, as there is only one.
- The WREG register is the same as the accumulator in other microprocessors.
- The WREG register is used for all arithmetic and logic instructions.



To understand the use of WREG register, we will show it in the context of two simple instructions: MOVE and ADD in the next sections.

The MOVLW instruction moves 8 bit data into the WREG register. It has following format.

**MOVLW k;move literal value K into WREG**



- K is an 8 bit value that can range from 0-255 in decimal, or
- 00-FF in hex. The 'L' stands for literal, a number must be used. In other words, if we see the word literal in any instruction, we are dealing with an actual value that must be provided right there with the instruction.
- This is similar to the immediate value we see in other microprocessors. In MOVLW, the letter L (literal) comes first and then the letter W (WREG), which means "move a literal value to WREG" the destination.



The following instruction loads the WREG register with a literal value of 25H i.e, 25 in hex.

**MOVLW 25H;move value 25H unto WREG (WREG = 25H)**

The following instruction loads the WREG register with value 87H (87 in hex)

**MOVLW 87H;load 87H into WREG (WREG = 87H )**

The following instruction loads the WREG register with value 15H (15 in hex and 21 in decimal)

**MOVLW 15H;load 15H into WREG (WREG = 15H)**



Thank  
you

