

Lab 1

EL 114 Digital Logic Design

Notes:

- In your lab-book, remember to write your steps/methods, and the observations/results
- Get TA's signature after completing each question.

In this Lab you need to familiarize yourself with the Matlab tool to solve the problems on number systems:

- Learn how to write a program in M file.
 - Learn how to write a function in M file.
 - Learn about the following useful functions:
input, length, disp, num2str, fliplr, fix, rem, mod
1. Write Matlab programs to convert a positive integer number between different number systems (binary, decimal, octal and hexadecimal). Then complete the following table.

Binary	Decimal	Octal	Hexadecimal
0100011			
	642		
		574	
			F5

2. Write a Matlab function to get the 2's complement of the following binary numbers.

Binary	2's complement
011001	
0011100	
10101010	
000000	

3. Using the above Matlab function, write a Matlab program to add/subtract following decimal numbers in binary number system considering 2's complement for negative numbers.
 - a) $(11)_{10} + (7)_{10}$
 - b) $(2)_{10} - (12)_{10}$
 - c) $(10)_{10} - (8)_{10}$
 - d) $(14)_{10} + (17)_{10}$

Note: An appropriate number of bits should be considered for each decimal number in order to avoid any overflow resulted in the addition/subtraction process.