

## LAB II

### Combinational circuit design

#### Objectives:

To design simple combinational logic circuits using Verilog and implement using DE1 SOC/DE10 standard board.

#### Exercise

1. In this exercise we will use the switches as input and display the output using the 7 segment LED.  
Seven segment LED decoder – Model a BCD to seven segment decoder, download the code on to the board and test its functionality.

*Read section on 7 segment LEDs in the board user manual first. Note that to turn ON a segment you need to put logic 0.*

2. Using the **adder4** module designed in the last class model a BCD adder that can add two BCD numbers. Provide inputs using the switches **SW0-8**.
  - Display the output using **HEX1** and **HEX2** and on LED0-4.
  - Display the inputs using **HEX4** and **HEX6**.