**Digital Systems Lab: Lab Experiments**

1. Write Matlab programs for the verification of truth tables of basic logic gates and their realization using universal logic gates.

2. Write Matlab programs for half adder, half subtractor, full adder, and full subtractor.

3. Write Matlab programs for the design of 2-to-4 decoder and 3-to-8 decoder.

4. Write Matlab programs for the design of 2-to-1, 4-to-1, and 8-to-1 multiplexers.

5. Write Matlab program to study the sampling and reconstruction process.

6. Write Matlab program to study the quantization process of sinusoid signals.

7. Write Matlab programs to study the binary phase shift keying and frequency shift keying modulation process.

8. Write Matlab programs for the generation of elementary continuous time signals and discrete time signals.

9. Write Matlab programs to compute Discrete Fourier Transform (DFT) and Inverse Discrete Fourier Transform (IDFT) for the spectral analysis of signals.

10. Write Matlab programs to design finite impulse response (FIR) and infinite impulse response (IIR) low pass filters.

11. Design and Simulation of Decoders, Encoders, Multiplexer and Demultiplexer**.**

12. Analysis and Synthesis of Logic Functions using Multiplexers