

**Jaypee Institute of Information Technology, Noida**

**Department of Electronics and communication Engineering**

**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.[CO1]**

**2. Write Matlab programs for half adder, half subtractor, full adder, and full subtractor. [CO1]**

**3. Write Matlab programs for the design of 2-to-4 decoder and 3-to-8 decoder. [CO1]**

**4. Write Matlab programs for the design of 2-to-1, 4-to-1, and 8-to-1multiplexers. [CO1]**

**5. Realization of SR Latch using MATLAB-Simulink. [CO2]**

**6. Realization of D Flip-Flop using MATLAB-Simulink. [CO2]**

**7. Realization of JK Flip-Flop using MATLAB-Simulink. [CO2]**

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

**discrete time signals.[CO3]**

**9. Write Matlab program to study the sampling and reconstruction process. [CO3]**

**10. Write Matlab program to study the quantization process of sinusoid signals. [CO3]**

**11. Write Matlab programs to study the binary phase shift keying and frequency shift**

**keying modulation process.[CO4]**

**12. Write Matlab programs to compute Discrete Fourier Transform (DFT) and Inverse**

**Discrete Fourier Transform (IDFT) for the spectral analysis of signals. [CO3]**

**13. Write Matlab code for 8:3 encoder and priority encoder. [CO1]**

**14. Write Matlab code for Binary to Gray and Gray to Binary Code Converter. [CO1]**

**Virtual Lab Experiments:-**

1. **Design and simulation of Decoders, Encoders, Multiplexer and Demultiplexer.[CO1]**

**Link:**  <http://cse15-iiith.vlabs.ac.in/exp2/Experiment.html?domain=Computer%20Science&lab=DLD%20Lab>

[http://vlabs.iitkgp.ernet.in/dec/exp5/index.html#](http://vlabs.iitkgp.ernet.in/dec/exp5/index.html)

1. **Analysis and synthesis of logic functions using Multiplexers.[CO1]**

**Link:** [http://vlabs.iitkgp.ernet.in/dec/exp4/index.html#](http://vlabs.iitkgp.ernet.in/dec/exp4/index.html)