

**FINOLEX ACDAEMY OF MANAGEMENT & TECHNOLOGY, RATNAGIRI.**

**DEPT. OF ELECTRONICS ENGG.**

**Name of the laboratory:- Analog & Digital Ic.**

**LIST OF EXPERIMENTS.**

	<b>Digital Design :-</b>
1	Study of basic Logic Gates, verification of truth tables and measurement of voltage levels.
2	Implementing logic functions using Universal gates.
3	SOP & POS implementation of functions using AND-OR AND OR-AND.
4	Minimization of functions using K-map, implementation and verification.
5	Implementation of logic functions using only NAND and NOR gates.
6	Multiple output function minimization and implementation.
7	Study of multiplexer a) Constructing Mux tree.
8	b) Implementing functions using Mux.
9	Study of Decoder Ic 74138 a) Constructing decoder tree.
10	b) Implementing functions using decoder.
11	Study of priority encoder and switch encoding.
12	Study of adder a) Full adder. b) 4-bit full adder. c) Constructing 8-bit adder. d) Constructing subtractor using adder. e) Controlled adder / subtractor implementation. f) BCD adder / subtractor.
13	Multipliers. a) Implementation of 2-bit multiplier. b) Implementation of 4-bit multiplier using adders.

14	Design and implementation of code converter. a) Binary to Gray code. b) Gray to Binary code. c) BCD to Excess-3 code. d) BCD to 7-seg. Code.
15	Study of Flip-Flops a) Design and implementation of different Flip-flops. b) Conversion of one Flip flop into another type.
16	Design and implementation of Asynchronous counter. a) Regular. b) Mod-n (Truncated).
17	Design and implementation of Synchronous counter. a) Using JK Flip Flop. b) Using D flip-flop, T flip-flop. c) Regular counter. d) Mod-n counter.
18	Study of counter MSI lcs. 7490, 7492, 7493, 74160, 74162, 74163, 74190, 74192, 74193.
19	Design and implementation of sequence generator.
20	Design and implementation of sequence detector.
21	Design and implementation of state machine.
	<b>Experiments Using CAD Tools :- (Tools – XILINX &amp; ALTERA)</b>
22	Schematic entry , VHDL entry, Simulation , Synthesis.
23	Implementation in CPLD & FPGA.

All above experiments listed performed using CAD tools.

	<b>Analog Design:-</b>
24	Study of Op-amp (lc. 741) parameters.
25	Design, Implementation and verification of
26	Inverting amplifier, Non-inverting amplifier.
27	Differential amplifier and Voltage follower.
28	Adder , Subtractor , Averaging, Scaling amplifiers.
29	Voltage to Current, Current to Voltage converter.

30	Integrator and Differentiator.
31	Clipper and Clamper Circuits.
32	Log and Anti-log amplifiers.
33	Precision Rectifiers.
34	Oscillator – 1) R-C Phase Shift. 2) Wein Bridge.
35	Comparator and Zero crossing Detector.
36	Schmitt Trigger and Multi-vibrators.
37	Waveform generators – 1) Square 2) Triangular 3) Ramp.
38	Filters – Low pass and High pass, first and second order.
	<b>Special purpose Ic.</b>
39	Timer Ic.555 as 1) Mono-stable 2) Astable 3) Square wave Generator etc..
40	VCO Ic. 566. as Frequency Modulator.
41	PLL Ic. 565.
42	Waveform generator Ic 8038.
43	Voltage Regulator Ic. 78XX, 79XX, 723.
44	ADC 0809 with Microprocessor.
45	DAC 0800 with Microprocessor.