

COURSE CODE	COURSE NAME	L-T-P-C	YEAR OF INTRODUCTION
EC230	LOGIC CIRCUIT DESIGN LAB	0-0-3-1	2016
Prerequisite: EC207 Logic circuit design			
Course objectives: <ul style="list-style-type: none"> To study the working of standard digital ICs and basic building blocks To design and implement combinational circuits To design and implement sequential circuits 			
List of Experiments: -(Minimum 12 experiments are to be done) <ol style="list-style-type: none"> Realization of functions using basic and universal gates (SOP and POS forms). Design and Realization of half /full adder and subtractor using basic gates and universal gates. 4 bit adder/subtractor and BCD adder using 7483. 2/3 bit binary comparator. Binary to Gray and Gray to Binary converters. Study of Flip Flops: S-R, D, T, JK and Master Slave JK FF using NAND gates Asynchronous Counter: Realization of 4-bit counter Asynchronous Counter: Realization of Mod-N counters. Asynchronous Counter: 3 bit up/down counter Synchronous Counter: Realization of 4-bit up/down counter. Synchronous Counter: Realization of Mod-N counters. Synchronous Counter: 3 bit up/down counter Shift Register: Study of shift right, SIPO, SISO, PIPO, PISO (using FF & 7495) Ring counter and Johnson Counter. (using FF & 7495) Realization of counters using IC's (7490, 7492, 7493). Multiplexers and De-multiplexers using gates and ICs. (74150, 74154), Realization of combinational circuits using MUX & DEMUX. Random sequence generator. LED Display: Use of BCD to 7 Segment decoder / driver chip to drive LED display Static and Dynamic Characteristic of NAND gate (MOS/TTL) 			
Expected outcome:			
The student should be able to:			
<ol style="list-style-type: none"> Design and demonstrate functioning of various combination circuits Design and demonstrate functioning of various sequential circuits Function effectively as an individual and in a team to accomplish the given task 			