

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"> 1. Realization of functions using basic and universal gates (SOP and POS forms). 2. Design and Realization of half /full adder and subtractor using basic gates and universal gates. 3. 4 bit adder/subtractor and BCD adder using 7483. 4. 2/3 bit binary comparator. 5. Binary to Gray and Gray to Binary converters. 6. Study of Flip Flops: S-R, D, T, JK and Master Slave JK FF using NAND gates 7. Asynchronous Counter: Realization of 4-bit counter 8. Asynchronous Counter: Realization of Mod-N counters. 9. Asynchronous Counter:3 bit up/down counter 10. Synchronous Counter: Realization of 4-bit up/down counter. 11. Synchronous Counter: Realization of Mod-N counters. 12. Synchronous Counter:3 bit up/down counter 13. Shift Register: Study of shift right, SIPO, SISO, PIPO, PISO (using FF & 7495) 14. Ring counter and Johnson Counter. (using FF & 7495) 15. Realization of counters using IC's (7490, 7492, 7493). 16. Multiplexers and De-multiplexers using gates and ICs. (74150, 74154), 17. Realization of combinational circuits using MUX & DEMUX. 18. Random sequence generator. 19. LED Display: Use of BCD to 7 Segment decoder / driver chip to drive LED display 20. Static and Dynamic Characteristic of NAND gate (MOS/TTL) 			
Expected outcome:			
The student should able to:			
<ol style="list-style-type: none"> 1. Design and demonstrate functioning of various combination circuits 2. Design and demonstrate functioning of various sequential circuits 3. Function effectively as an individual and in a team to accomplish the given task 			