

Course No.	Course Name	L-T-P-Credits	Year of Introduction
IC233	LOGIC CIRCUITS LAB	0-0-3-1	2016
Prerequisite : Registered for IC207 DESIGN OF LOGIC CIRCUITS			
Course Objectives To provide experience on design, testing, and analysis of digital electronic circuits.			
<p align="center">List of Exercises/ Experiments (Minimum of 12 mandatory)</p> <ol style="list-style-type: none"> 1. Realization of logic gates using diodes and transistors. 2. Characteristics of TTL Gates 3. Study of basic logic gates and realization of logic gates using universal gates. 4. Half and full adders and subtractors using basic gates 5. Half and full adders and subtractors using universal gates. 6. Study of adder IC and implementation of binary adders, adder cum subtractors & BCD adder using adder IC. 7. Design and implementation of code converters. 8. Design and implementation of comparator circuits. 9. Seven segment display 10. Realization of simple Mux, Demux, Decoder and Encoder using basic gates and study of their ICs. 11. Combinational logic design using Multiplexers and Decoders. 12. Flip-Flop Circuits (SR, JK, T, D and Master Slave JK) using basic gates. 13. Study of flip flop ICs. 14. Asynchronous Counters 15. Johnson and Ring Counters. 16. Synchronous counters. 17. Study of counter ICs. 18. A sequence generator circuit. 19. A sequence detector Circuit. 20. Shift registers using flip flops <p>Equipments needed Logic Trainer Kits, Combinational, Sequential Circuit ICs, Basic Gates ICs, Seven segment Display, Multimeters etc.</p>			
Expected Outcome After the completion of the course, students should be able to <ul style="list-style-type: none"> • Design and implement combinational circuits • Design and implement sequential circuits • Get familiarized with the TTL logic family. 			
Text Books: <ol style="list-style-type: none"> 1. Charles H. Roth, Jr. Fundamentals of Logic Design, 5th edition, Thomson Books/Cole. 2. A. Anand Kumar, Fundamentals of Digital Circuits, PHI learning, 2/e, 2010, ISBN: 978-81-203-3679-7. 			