CLUSTER UNIVERSITY SRINAGAR
(SYLLABUS)

Course Code	***BCA-CR3103***
Course Title	***Digital Electronics***
Semester	***BCA 3rd Semester***
Course Type & Credits	***Core Paper - 04 Credits (L) + 02 Credits (P) = 06 Credits***

UNIT I

Minimization Techniques: Boolean postulates and laws – De-Morgan"s Theorem - Principle of Duality - Boolean expression - Minimization of Boolean expressions — Minterm – Maxterm - Sum of Products (SOP) – Product of Sums (POS) – Karnaugh map Minimization – Don"t care conditions – Logic Gates: AND, OR, NOT, NAND, NOR, Exclusive–OR and Exclusive–NOR Implementations of Logic Functions using gates, NAND–NOR implementations

UNIT II

Design procedure – Half adder – Full Adder – Half subtractor – Full subtractor – Parallel binary adder, parallel binary Subtractor – Fast Adder - Carry Look Ahead adder – Serial Adder/ Subtractor - BCD adder – Binary Multiplier – Binary Divider - Multiplexer/ Demultiplexer – decoder - encoder – parity checker – parity generators

UNIT III

Flip-flops - SR, JK, D, T, and Master-Slave – Characteristic table and equation –Application table – Edge triggering – Level Triggering – Realization of one flip flop using other flip flops – serial adder/subtractor- Modulo–n counter, Registers – shift registers - Universal shift registers – Shift register counters – Ring counter – Shift counters.

UNIT IV

Classification of memories – ROM - ROM organization - PROM – EPROM – EEPROM –EAPROM,RAM – RAM organization – Write operation – Read operation – Memory cycle –Implementation of combinational logic circuits using ROM,

Suggested Readings:

1. Digital Logic & State Machine Design By David J Comer, Third Indian Edition, Oxford University Press 2 Digital Logic and Computer Design By M Morris Mano, Fourth Edition, Prentice Hall Publication
2. Digital Principles and Applications By Malvino & Leach, Seventh Edition, McGraw-Hill Education
3. Modern Digital Electronics By RPJain, Fourth Edition, Tata McGraw-Hill Education
4. Digital Electronics: Principles and Integrated Circuits By AK Maini, Wiley India Publications