COURSE CODE: IGIT– 305-SEC1
COURSE TITLE: DIGITAL ELECTRONICS
CREDITS 4

Unit I
Boolean algebra
Boolean Algebra: Laws and Identities of Boolean Algebra, DE Morgan's Theorem, Use of Boolean Algebra for Simplification of Logic Expression, K-Map for 2, 3, 4 Variables, Simplification of SOP and POS, Logic Expression Using K-Map.

Unit II
Combinational Circuits
Combinational Circuits: Half Adder, Full Adder, Parallel Adder, Half Subtractor, Full Subtractor, 4-Bit Binary Adder / Subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Parity Detector

Unit III
Sequential Circuits and Counters
Sequential Circuits: Flip-Flops Construction and Working of RS, JK, D, T,
Counters: Construction and Working of Asynchronous, Synchronous, Up-Down Counter, Shift Registers and Their Types, Ring Counter, Johnson Counter with Their Time Diagram.

Unit IV
Semiconductor Memories:
Memory organization and Operation: Classification and Characterization of Memory Memory Device Characteristics, 2D & 3D Memories, Memory Hierarchy, Semiconductor Memories: RAM, ROM, DRAM, Flash Memory; High Speed Memories: Cache Memory, Associative Memory, Memory Interleaving.

Recommended Books:

1. Modern Digital Electronics, RP Jain, Tata Mcgraw Hill
2. Digital Fundamentals, Thomas L Floyd, Pearson Education
3. Digital Logic and Computer Design, M Morris Mano ,Pearson Education