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| Hours / Week | : | 4 | |  | Sessional Marks | : | 40 |
| Credits | : | 4 | |  | End Examination Marks | : | 60 |

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| **UNIT – I** |
| **Binary Systems**: Digital Systems, Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes, Binary Storage and Registers, Binary logic.  **Boolean Algebra And Logic Gates**: Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and properties of Boolean algebra, Boolean functions canonical and standard forms, other logic operations, Digital logic gates, integrated circuits. |
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| **UNIT – II** |
| **Gate – Level Minimization**: The map method, Four-variable map, Five-Variable map, product of sums simplification Don’t-care conditions, NAND and NOR implementation other Two-level implementations, Exclusive – Or function, Hardware Description language (HDL).  **Combinational Logic**: Combinational Circuits, Analysis procedure Design procedure, Binary Adder-Subtractor, Decimal Adder, Binary multiplier, magnitude comparator, Decoders, Encoders, Multiplexers, HDL for combinational circuits. |
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| **UNIT – III** |
| **Synchronous Sequential Logic**: Sequential circuits, latches, Flip-Flops Analysis of clocked sequential circuits, HDL for sequential circuits, State Reduction and Assignment, Design Procedure. Registers, shift Registers, Ripple counters synchronous counters, other counters, HDL for Registers and counters. |
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| **UNIT – IV** |
| Introduction, Random-Access Memory, Memory Decoding, Error Detection and correction Read-only memory, Programmable logic Array programmable Array logic, Sequential Programmable Devices. |
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| **UNIT – V** |
| **Asynchronous Sequential Logic**: Introduction, Analysis Procedure, Circuits with Latches, Design Procedure, Reduction of state and Flow Tables, Race-Free state Assignment Hazards, Design Example. |
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| TEXT BOOKS |
| 1. DIGITAL DESIGN – Third Edition, M.Morris Mano, Pearson Education/PHI. 2. FUNDAMENTALS OF LOGIC DESIGN, Roth, 5th Edition, Thomson. |
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| REFERENCE BOOKS |
| 1. Switching and Finite Automata Theory by Zvi. Kohavi, Tata McGraw Hill. 2. Switching and Logic Design, C.V.S. Rao, Pearson Education. 3. Digital Principles and Design – Donald D.Givone, Tata McGraw Hill, Edition. 4. Fundamentals of Digital Logic & Micro Computer Design , 5TH Edition, M. Rafiquzzaman John Wiley |