|  |  |  |  |
| --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
| 13CS2102 | - | DIGITAL LOGIC DESIGN |

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

|  |
| --- |
| **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. |
|  |
| **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. |
|  |
| **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. |
|  |
| **UNIT – IV** |
| Introduction, Random-Access Memory, Memory Decoding, Error Detection and correction Read-only memory, Programmable logic Array programmable Array logic, Sequential Programmable Devices. |
|  |
| **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. |
|  |
|  |
| TEXT BOOKS |
| 1. DIGITAL DESIGN – Third Edition, M.Morris Mano, Pearson Education/PHI.
2. FUNDAMENTALS OF LOGIC DESIGN, Roth, 5th Edition, Thomson.
 |
|  |
| 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
 |