

EC 254:Digital Circuits and Systems

CREDITS =6 (L=4,T=0,P=2)

1 Introduction: Review of Number Systems, Binary Numbers, One's complement, two's complement and r's complement, signed number representations, BCD, Excess 3 codes and Gray codes, Sequential and self complementary codes and code conversion

04

2. Logic Gates: Introduction to Boolean algebra, Reduction of Boolean expressions, Logic Gates, Circuits and Truth tables. Logic Gates specifications, AOI and OAI representation (SOP and POS), k-map and tabular methods for minimization of gates and circuits.

06

3 Combinational Logic: Basic combinational logic circuits, Adders, Subtractors, parallel adders, carry look ahead adders, BCD additions, comparators, decoders, encoders, code converters, Multiplexers and Demultiplexers, Parity generators and checkers, PLAs and ROMs.

08

4 Sequential Circuit and machines: Flip-Flops, Edge and Level triggering,, Master Slave configurations, Registers and various configurations, Counters, Synchronous counters and asynchronous counters, ripple counters, finite state Model, state diagrams and state tables, transition and output table, excitation table, memory element, synthesis of synchronous sequential circuits, serial binary adder.

14

5 Processor Logic Design: Processor organization, Arithmetic unit, Logic unit, Design of ALU, Status Register, Design of shifter and accumulator.

06

REFERENCE BOOKS

Title: Digital Design

Author: Morris Mano

Publisher: Pearson Education

Title: Fundamentals of Digital Circuits

Author: Anandkumar

Publisher: Prentice Hall of India

Title: Digital Fundamentals

Author: Floyd

Publisher:

Title:

Author:

Publisher:

Pearson Education Asia

Digital Logic Circuits

Lee

Prentice Hall of India, New Delhi, India