

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
New Scheme Based On AICTE Flexible Curricula
Computer Science and Engineering, III-Semester

CS 303 Digital Systems

Unit 1: Review of number systems and number base conversions. Binary codes, Boolean algebra, Boolean functions, Logic gates. Simplification of Boolean functions, Karnaugh map methods, SOP-POS simplification, NAND-NOR implementation.

Unit 2: Combinational Logic: Half adder, Half subtractor, Full adder, Full subtractor, look-ahead carry generator, BCD adder, Series and parallel addition, Multiplexer – demultiplexer, encoder- decoder, arithmetic circuits, ALU

Unit 3 : Sequential logic: flip flops, D,T, S-R, J-K Master- Slave, racing condition, Edge & Level triggered circuits, Shift registers, Asynchronous and synchronous counters, their types and state diagrams. Semiconductor memories, Introduction to digital ICs 2716, 2732 etc. & their address decoding. Modern trends in semiconductor memories such as DRAM, FLASH RAM etc. Designing with ROM and PLA.

Unit 4 : Introduction to A/D & D/A convertors & their types, sample and hold circuits, Voltage to Frequency & Frequency to Voltage conversion. Multivibrators :Bistable, Monostable, Astable, Schmitt trigger, IC 555 & Its applications. TTL, PMOS, CMOS and NMOS logic. Interfacing between TTL to MOS.

Unit 5 : Introduction to Digital Communication: Nyquist sampling theorem, time division multiplexing, PCM, quantization error, introduction to BPSK & BFSK modulation schemes. Shannon's theorem for channel capacity.

References:

1. Morris Mano, Digital Circuits & Logic Design, PHI
2. Gothman, Digital Electronics, PHI
3. Tocci, Digital Electronics, PHI
4. Mavino& Leach, Digital Principles & Applications, PHI
5. Taub and schilling, Digital Integrated electronics.
6. Simon Haykin, Introductionto Analog& Digital Communication, Wiley.
7. Lathi B.P., Modern analog& digital communication , Oxford University.