Digital Circuits & Fundamental of Microprocessor

Unit I:

Motivation for digital systems: Logic and Boolean algebra, Number Systems. Logic Gates & Truth Tables, Demorgan's law, Minimization of combinational circuits using Karnaugh maps upto five variable.

Unit II:

Design procedure: Multiplexers, Demultiplexer , Encoders ,Decoders ,Code Converters, Adders ,Subtractor (Half ,Full),BCD Adder/ Subtractor , ripple and carry look-ahead adder design and their advantages & drawbacks.

Unit III:

Storage elements, Flip-flops and latches: D, T, J/K, S/R flip-flops. Master Slave FF's Sequential circuit Analysis & Design, Input equations, state table, analysis with J-K Flip flops. Design procedure, designing with D & J-K Flip flop.

Unit IV:

Applications of Flip Flops: Registers & Shift registers. Counters, asynchronous and synchronous design using state and excitation tables. Conversion of one of type of F/F to another

Unit V:

Programmable logic Devices: Read only Memory ROM , PLA,PAL, Architecture of 8085 MP and its instruction set.

Unit VI:

Programming of 8085 and interrupt structure and timing diagrams of 8085 and overview of some advanced processors.

Text Books:

1. Digital Logic Design: *2nd edition by M. Mano*
2. Fundamental of Digital Electronics: *A. Anand Kumar*
3. Modern Digital Electronic: *4th edition by R.P.Jain*
4. 8 bit microprocessor & controller: *fifth edition – V.J.Vibhute*

Reference books:

1. Fundamental of Digital Electronics: *A. Anand Kumar*
2. Digital circuit & design: *A.P.Godse*
3. 8 bit Microprocessor: *Ramesh Gaonkar*