EE-402: Digital Electronics

Credit	L	T	P
3	**2**	**1**	**-**

UNIT-I
Introduction to Logic Gates, Boolean Algebra and Minimization Techniques for BooleanExpressions, Introduction to codes: ASCII, Excess-3, Gray, Hamming codes.

UNIT-II
Binary Half-Adder, Full-Adder, Subtractor, Parity Checker/Generator, Multiplexer/Demultiplexer, Encoder, Decoder, Digital to Analog Converter, Weighed Register: R-2R Ladder Network: Analog to Digital Conversion, Successive Approximation Type, Dual Slope Type.

UNIT-III
Introduction to Asynchronous Systems, Flip-Flop: RS, T, D, JK, Master-Salve JK, RippleCounters-Shortened modulus. Up and down counter designs, Applications of Ripple counter.

UNIT-IV
Parallel Counters, Type T Counter Design, Non-Sequential Counting (Skipping States), Type D Counter Design, Shift Registers, Ring Counters, Type JK Counter Design, Asynchronous Sequential Circuits Design.

UNIT-V
Diode Transistor Logic (DTL), Transistor Transistor Logic (TTL), Typical TTL NAND Gate,Function of the Input Transistor, Volt-Ampere Characteristics, Fan-In and Fan-Out Calculations, Output Stages: Totem Pole and Modified Totem Pole, Introduction to Emitter Coupled Logic (ECL), Integrated Injection Logic (IIL) and MOS-logic, Comparison of Various Logic Families.

Additional topics:

1. Generation of Control signals using Flip-Flop
2. Simulation using PSIM

TEXT/REFERENCE BOOKS.

1. Morris Manno, “Digital Circuits and Logic Design”, Prentice Hall of India Pvt. Ltd., New Delhi.
2. Reference book names + websites
3. Herbert Taub and Donald Schilling, “Digital Integrated Electronics”, McGraw Hill Book Co.
4. William H.Gothman, “Digital Electronics-An Introduction to Theory and Practice”, Prentice Hall of India Pvt. Ltd., New Delhi.

Websites

1. www.nptel.ac.in
2. www.electricalcircuits.com