Digital Logic Design 3 Credit Hours

Objective

The primary objective of the course is to develop in students a thorough understanding of digital logic design principles. The following topics will be covered in the course: Number Systems, Codes (Parallel/Serial), Logic Gates, Boolean Algebra, Boolean Algebra, Positive/Negative Logic, Boolean Algebra (Dual/De-Morgan), Algebraic simplification, Combinational Logic, Truth Tables, Min/Max terms, Combinational Logic, K-Maps, Don't Cares, Multiple outputs, Combinational Logic, 5-6 K-Maps, Combinational Logic Design Practices, Negative numbers, Addition, multiplication, parity, decoders, Encoder, Multiplexor /Demux, Hazards, Tristate, Latches & Flip Flops, *Counters / Registers, Synchronous Counters,* Sequential Logic Design Principles (Wakerly), Mealy / Moore Design—Sequential Circuits—(Wakerly), *ROMS, SRAMS, DRAMS, Memory Organization,* ADC / DAC Interf Analog World, Digital Electronics, Characteristics, Parameters, *Digital Electronics, Logic Families, TTL, CMOS, BiCMOS, ECL, Low-Voltage Logic, Open/Tristate Wired Logic, Bus Tnterface Logic, Mixing CMOS/TTL*

Prerequisites
None

Text Book
M. Morris Mano, *Digital Design*, 3rd Edition, Pearson Education, 2004

Reference Books
T. L. Floyd, *Digital Fundamentals*, Prentice Hall, 8th Edition, 2002

Digital Logic Design Lab **1 Credit Hours**

Objective
The primary objective of the course is to give students practice in designing, implementing, and testing simple digital circuits by using simulation tools and actual integrated circuits (ICs). Experiments must cover the use of following digital circuit elements: logic gates (AND, OR, NOT, NAND, NOR), half-adders, full-adders, multiplexers, demultiplexers, decoders, encoders, flip-flops, shift registers, counters, and RAM.

Prerequisites
None

Text Book
Laboratory Manual prepared by the institution.

Reference Books
None
