Number systems, arithmetic operations and Boolean algebra, DeMorgan's theorem, Karnough map, simplification and manipulation, concept of minterms and maxterms, combinational logic design, design and analysis procedure for decoders, encoders, multiplexers, binary adders/subtractors: half, full and ripple carry adders, sequential logic circuits; design and analysis procedures for latches, flip-flops, registers and counters, diodes and transistors as switches and types of amplifiers, logic family gates as TTL, DTL, RTL, and ECL, analogue-to-digital and digital-to-analogue circuits