1. **Boolean algebra**
   1. Boolean variables, operators, properties
   2. Logic gates
   3. SOP, POS
   4. Derived operators (NAND, NOR, XOR, XNOR)
   5. Simplification of Boolean expression
   6. Functions using Boolean algebra
   7. Minimum number of universal logic gates
2. **Number system**
   1. Radix based number system
   2. (r-1)'s & r's compliment
   3. Signed binary number representation
3. **K-Map**
   1. Implicants, prime implicants and essential prime implicants, don't care, minimal SOP & POS expression
4. **Combinational circuit**
   1. Arithmetic circuits (ADD, SUB)
      1. ADDER (half & full)
      2. SUBTRACTOR
      3. COMPARATOR
   2. Code converters
   3. Multiplexers, decoders, demultiplexers, encoders
   4. Sequential circuits (binary Latch, Flip-Flops, Flip-Flop conversion, registers, counters)