I. Logic families and their characteristics
   A. Evaluation of IC families
   B. TTL
   C. Characteristics of TTL gates

II. Basic TTL gate
   A. Open and unused inputs
   B. Wire-ANDing and open collector gates
   C. Three-state devices
   D. Strobed gates, expandable gates, and expanders
   E. A AND-OR-INVERT gates
   F. The EXCLUSIVE-OR / NOR gate

III. Parity checking
   A. Comparison circuits
   B. Parity checking and generation
   C. More sophisticated error-correcting routines

IV. Multiplexers and demultiplexers
   A. Multiplexers
   B. Demultiplexers
   C. Practical applications

V. Flip flops
   A. The basic flip-flop
   B. NOR gate flip-flops
   C. NAND gate flip-flops
   D. D-type flip-flops
   E. Bistable latches
   F. J-K master-slave flip-flops
   G. Edge-triggered flip-flops
   H. Timing charts
   I. Direct SETS and direct CLEARS
   J. Race conditions
   K. Flip-flops parameters
   L. Uses of flip-flops
   M. Synchronizing flip-flops
   N. Glitches

VI. Counters
   A. Divide by N-counters
   B. Ripple counters
   C. Synchronous counters
   D. IrreSpT1.8 0 6flop4unted erunter sequenc
   E. launters

F. UP-DOWN counters
G. Divide by N-circuits using counters

VII. Shift registers
A. Basic shift register
B. Serial inputs and parallel output shift registers
C. Parallel input and serial output shift registers
D. Parallel input and parallel output shift registers
E. Serial input and serial output shift registers
F. Universal shift registers
G. Applications

VIII. Computer Aid Design tools for the digital circuits
A. VHSIC Hardware Description Language
B. Design circuits with Programmable Logic Devices

REQUIRED TEXTBOOKS AND MATERIALS:

Floyd, Thomas. Digital Fundamentals. 8th ed.

Dueck, Robert. Digital Design with CPLD Application and VHDL.

STATEMENT FOR STUDENTS WITH DISABILITIES: