

Lakehead University
Faculty of Engineering
Department of Electrical Engineering

ENGINEERING 4054 – VLSI Circuit Design
3 hours lectures, 1.5 hours laboratory per week

Instructor: Dr. D. Alexandrov **Office:** AT5007 **Phone:** 343-8311
Text: S. Brown, Z. Vranesic, "Fundamentals of Digital Logic with VHDL Design", McGraw-Hill, 2000

Week #	Topics Discussed
1	Implementation technology.
2	System specifications using VHDL.
3, 4	Memories.
5	Logic and arithmetic circuits. Test # 1
6, 7	Programmable logic.
8	Combinational circuits.
9	Flip-flops, registers, counters and simple processor.
10, 11	Design of sequential circuits. Test # 2
12	Digital system design.

Laboratories: Lab schedules will be posted in the lab area. Check them immediately. Lab instruction books are available in the bookstore. Each student is required to prepare and submit a lab report for each lab experiment. Lab reports must be written on standard 8½ x 11 size paper with a cover page. All pages must be fastened with staples. Reports will be word processed. Completed lab reports must be submitted in the lab collection box located on the 4th floor of ATAC Building for marking within the time allocated by the instructor. Late labs will be penalized according to the lab rules and regulations. These lab rules and regulations are attached to the Lab Manuals and are also posted in laboratory areas. Because of scheduling problems lab experiments must be completed during the assigned lab period. Attendance in the labs will be taken. Most of the jobs involve three hours of actual lab work. The student should come to the lab prepared, and should read and thoroughly understand the lab instructions and associated theory. All lab experiments must be completed and reports submitted by the due date assigned by the lab instructor (note: each lab exercise consists of both the lab experiment and the written report). Failure to complete all assigned labs, a student will receive a grade of F in the course (i.e. a student will fail the course).

Midterm tests: Two midterm tests will be held. Closed book. Time and place will be announced.

Final exam: 3 hours, closed book. Time and place will be announced by the registrar's office.

Assignments: Selected assignments will be discussed in class / tutorial.

Marks: Midterm Test #1	15%
Midterm Test #2	15%
Lab	10%
Final Exam	<u>60%</u>
Total	= 100%