CS 4/55111 **Project #2** **VLSI Design**

Due to Prof. Walker by 5pm on Wednesday 13 October 2004
this project counts as 10% of your course grade

1. Do **Lab Exercise 4 on page 61** of *Rapid Prototyping of Digital Systems, Second Edition*, using the FLEX chip on the UP1 board. Turn in:
   a) a document that describes your design and any design decisions that you made in your implementation (10 points)
   b) a readable (not microscopic) printout of the schematic (5 points)
   c) a printout of the test inputs and simulation output that shows that the circuit works as expected, annotated to explain the operation of the circuit (15 points)
   d) a signature on the statement below by Prof. Walker, by the TA (Hong Wang), by one of Prof. Walker's research students listed on the door of the lab, or by ***two*** other students in the class (20 points):

      I certify that _____ has successfully downloaded this design to a UP1 board and the design works correctly.

      _____ Name _____ Date

      _____ Name _____ Date

2. Review the design of the 3-bit counter using D flip-flops in the attached handout. Implement this counter using the FLEX chip on the UP1 board, with the output of the counter displayed on a 7-segment LED at a speed such that the count can be easily read. Turn in:
   a) items (a) through (c) similar to those in problem 1 above (30 points)
   b) a signature on the statement below by Prof. Walker, by the TA (Hong Wang), by one of Prof. Walker's research students listed on the door of the lab, or by ***two*** other students in the class (20 points):

      I certify that _____ has successfully downloaded this design to a UP1 board and the design works correctly.

      _____ Name _____ Date

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