

# CSCE 5730/4730: Digital CMOS VLSI Design

Assignment # 2, Total Marks =  $(4 \times 25) = 100$ .

Assigned Date: 2<sup>nd</sup> Mar 2009 (Mon), Due Date: 9<sup>th</sup> Mar 2009 (Mon)

Instructor: Dr. Saraju P. Mohanty

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1. Using LTSpice perform the transistor level static CMOS realization of basic logic gates (Inverter/NAND/NOR/AND/OR). Perform their simulation to verify the truth tables.
2. Synthesize the Boolean function  $Y = (A*B + C*D)$ . Show all the steps. Verify the circuit functionality using LTSpice.
3. Derive transistor level realization of a XOR gate. Show all the steps. Verify the circuit functionality using LTSpice.
4. Synthesize the Boolean function  $Y = ((A*B)' + C*D + E)$ . Show all the steps. Verify the circuit functionality using LTSpice.