King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering
Department of Computer Engineering

COE 202 – Fundamentals of Computer Engineering (T102)

CAD Assignment # 02 (*due date & time: Monday 30/05/2011 during class period*)

*** Show all your work. No credit will be given if work is not shown! ***

Using the "*LogicWorks*" tool, build the following 4-bit register:
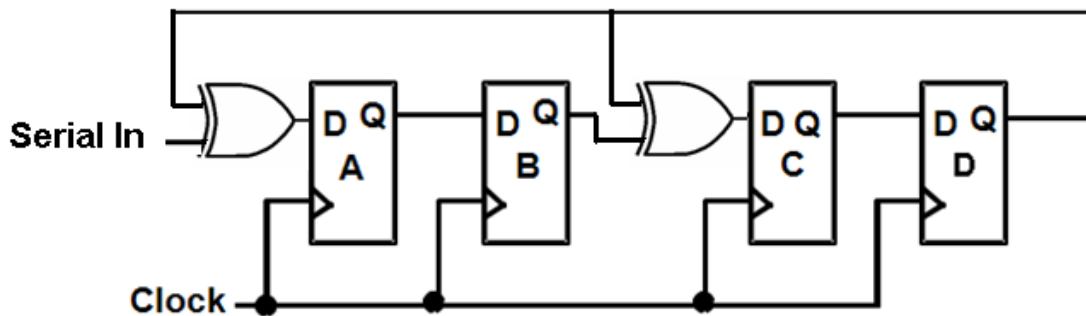
Serially load the register initially with the contents ABCD = 0110 (requires 4 clock pulses to load 0110 into the register). For the next 8 clock pulses, serially load the BCD equivalent of the least significant 2 decimal digits of **your student ID** feeding in the least significant bit on the first clock pulse (e.g., if your student ID is 200912345, then the BCD equivalent of the least significant 2 decimal digits is 0100 0101, and on the first clock pulse a 1 is loaded in, then 0, then 1, then 0, …). In the timing window of LogicWorks, show the register contents following the arrival of each of the 12 clock pulses (i.e., 4 pulses to initially load 0110, and 8 pulses to load the BCD equivalent of the least significant 2 decimal digits of your student ID).

You can use the "D Flip Flop wo/RSQ/" rising-edge triggered D flip flop under the "Simulation Logic" library, and the "Clock" device under the "Simulation IO" library for the circuit implementation.

Set the "Delay.Dev" under the clock attributes to "50,50". Also, set the "Triggers" to "Every 25 time units, Reference Line" (see tutorial on the website). Make sure to use the "Single step" mode when applying the clock to the circuit.

Save your circuit and name the file "*CAD02_yourStudentID.cct*".

Deliverables:
1. Send a soft copy of your circuit file to both myself (marwan@kfupm.edu.sa) and the grader (s200993870@kfupm.edu.sa) with the "subject" line being "*COE202-CAD02-yourStudentID*".
2. Submit a printout of the circuit window. Make sure that the entire circuit appears in the printout.
3. Submit a printout of the timing window showing the contents of the register after each clock pulse. Make sure that the entire timing appears in the printout.