ECE485/585 Programmable Logic Controllers
Homework Assignment #1

The grading rubric found on the course website applies to all ladder logic exercises in this and all homework/project assignments. The course instructor reserves the right to grade any or all problems (i.e. not all problems may be counted in the grade reported in the course gradesheet).

1. Complete the LogixPro Relay Logic Introductory Lab exercise located at http://www.thelearningpit.com/lp/doc/nrl/intro-rl.html. Only the last part of this exercise (Controlling One Light from two Locations) must be turned in for this assignment.

2. Using the examine-if-closed (-| |-) and examine-if-open (-|/|-) ladder logic elements in parallel and series combinations, many logical functions of inputs can be easily realized. Write one PLC program that uses inputs I:1/0 and I:1/1 to drive outputs O:2/0, O:2/1, O:2/2, and O:2/3. The following conditions should be satisfied:
   - Output O:2/0 should be on when both I:1/0 and I:1/1 are on.
   - Output O:2/1 should be on when either (or both) I:1/0 or I:1/1 are on.
   - Output O:2/2 should be on when I:1/0 is on and I:1/1 is off.
   - Output O:2/3 should be on when either I:1/0 or I:1/1 is on, but not when they are both on.

   Simulate your PLC program using LogixPro and the I/O Simulation to verify that it works correctly.

3. Complete the LogixPro Door Simulation Lab Utilizing Relay Logic exercise located at http://www.thelearningpit.com/lp/doc/dl/dl-rl.html. You should complete the entire set of exercises. However, only the PLC program for Student Programming Exercise 4 must be turned in.