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**ENEE 244 Problem Set 3**  
(Due: Class 7, Wed., Sept.24, 2014)

1. Given that  $x \oplus y = \bar{x} \cdot y + x \cdot \bar{y} = x'y + xy'$ , prove the following algebraically:
  - (a)  $x \oplus 0 = 0 \oplus x = x$
  - (b)  $x \oplus 1 = 1 \oplus x = \bar{x}$
  - (c)  $x \oplus x = 0$
  - (d)  $\overline{x \oplus y} = \bar{x} \oplus y = x \oplus \bar{y} = x'y' + xy$

Read Supplementary Notes #'s 2 and 3 by C. Silio, and read Chapter 3, Sections 3.6.4 through 3.10.4 of Givone, *Digital Principles and Design*; then work the following problems from Givone, Chapt. 3:

2. Prob. 3-6.
3. Prob. 3-7.
4. Prob. 3-8.
5. Prob. 3-9.
6. Prob. 3-14.
7. Prob. 3-15.
8. Prob. 3-17.
9. Prob. 3-18.
10. Prob. 3-19.
11. Prob. 3-21.
12. Prob. 3-23.
13. Prob. 3-25.
14. Prob. 3-26.
15. Prob. 3-29.