Homework Assignment #1 – due in class Wednesday, Sept. 11, 2013

*Instructions, notes, and hints***:**

You may make reasonable assumptions and approximations in order to compensate for missing information, if any. Provide the details of all solutions, including important intermediate steps. You will not receive credit if you do not show your work.

Probs. 3.17, 3.20: You must apply nodal analysis to solve these problems.

Prob. 3.19c: The value of V_0 is not specified, so consider solving the nodal equations while leaving it as a variable. There are other valid approaches you could apply as well.

*Assignment***:**

Probs. 3.17, 3.19c, 3.20, and 3.22 in the textbook, plus the following additional task. For the textbook problems, cast the nodal analysis equations into standard form (terms with unknown quantities on the left-hand side, known quantities on the right-hand side), and solve the resulting systems of equations using either Matlab or your calculator. If you use Matlab, include a print-out of the Matlab command window that shows the steps you used to find the solution. Add comments as needed to help the grader understand the solution process you used.

1. Answer the following questions regarding your academic preparation in matrix arithmetic. Most of the questions require only short answers.

    a. As far as you can remember, how many weeks did you spend in high school studying matrix math?
    b. Which Bucknell math course have you most recently completed? (MATH 201, 202, 211, 212, or other)
    c. As far as you can remember, how many weeks did you spend at Bucknell studying matrix math?
    d. Have you ever had Cramer's Rule explained to you?
    e. Have you ever had Gaussian Elimination explained to you?
    f. Have you ever applied Cramer's Rule or Gaussian Elimination to solve a system of equations?
    g. Have you ever solved a system of equations on your calculator?
    h. Have you ever calculated the inverse of a matrix by hand (i.e., on paper)?
    i. Have you ever multiplied one matrix by another by hand?
    j. Have you ever calculated the determinant of a matrix by hand?