Homework #12 - due Thursday, 17 May 2007, noon, in Dept. office

1. Problem 8.5 in chapter 8 of Muller & Kamins, p.422 in 3rd edition. (Hint: see Berglund, IEEE TED, v. ED13, p. 701, 1966. Start with \( Q_s = -C_{ox}(V_G - V_{FB} - \psi_s) \) and then \( C_G = -\frac{dQ_s}{dV_G} \). Note that \( V_{FB} \) is a constant with \( V_G \), but that \( \phi_s \) is not. Recall that \( \psi \) and \( \phi \) differ by a constant. Hint 2: careful with book's notation: sometimes they use \( \phi_s \) with the meaning as in our lectures, and sometimes they use \( \phi_s \) to mean our \( \psi_s \), as in Fig. 8.8 and on page 393.

2. Problem 9.1 for nMOS and \( N_A = 1E15 \) and \( 1E16 \) cm\(^{-3} \) only, in chapter 9, Muller & Kamins, p.477 in 3rd edition.


4. Problem 9.4 (a) only, in chapter 9, Muller & Kamins, p.477 in 3rd edition.

Homework assignments will appear on the web at:
http://www.ece.udel.edu/~kolodzey/courses/eleg646s07.html
Note: On each homework and report submission, please give your name, the due date, assignment number and the course number. For full credit - include units/dimensions for all numerical quantities