ELEG 646; ELEG 446 - Nanoelectronic Device Principles – Spring 2009

Homework #5 - due Thursday, 19 March 2009, in class


2. Problem 4.2, (a) and (d) only in chapter 4, Muller & Kamins, p. 222 in 3rd edition. (Hint, use the expression for phi for one side heavy doping on page 188.)

3. Problem 4.4 in chapter 4, Muller & Kamins, p. 222 in 3rd edition. (Hint, the example referred to is in Section 4.1 on page 180, not section 4.2.)

4. Problem 4.6 (a) only in chapter 4, Muller & Kamins, p. 222 in 3rd edition. Hint: find n and p at the depletion edges i.e. ±x_d/2 and thus determine the two values of E_i – E_F. Find \( \phi \) from these.

5. Problem 5.6 in chapter 5, Muller & Kamins, p. 275 in 3rd edition. (Hint: start with Eqn. 5.3.10, and for short base diode, recombination in the bulk can be neglected.)

Homework assignments will appear on the web at:
http://www.ece.udel.edu/~kolodzey/courses/eleg646s09.html

Note: On each homework and report submission, please give your name, the due date, assignment number and the course number.