ECE G205 Fundamentals of Computer Engineering
Fall 2003

Homework 6: Due by Wednesday November 5 2003

- This test contains 2 problems. They allow you to earn 100 points.

- Show your work, as partial credit can be given. You will be graded not only on the correctness of your answer, but also on the clarity with which you express it. **Be neat**.

- **No late submissions will be accepted.**

- Only homework returned in a 9in × 12in envelope will be accepted. (If you cannot find such envelope, ask the Instructor.) Please, write your name and the class name (ECE G205) on the envelope (write clearly, please).

- For the second problems an e-mail to the TA should be sent that contains the code and the executable of a (single) program that implements the solutions to the problems as functions.

Write your name here: _____

- **Problem # 1 [50 points]**. Describe (pseudo-code or C++) a Boolean algorithm that given as input an undirected graph $G = (V, E)$ preprocesses its input in $O(V + E)$ time and in $O(1)$ time returns whether the graph is connected or not, i.e., whether there is a path between any two nodes in G.

- **Problem # 2 [50 points]**. Implement BFS and DFS in C++ using the C++ Standard Template Library containers `vector` and `deque`.