ECE G205 Fundamentals of Computer Engineering
Fall 2003

Homework 7: Due by Wednesday November 19 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 $\times$ 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]**. Given a weighted, directed graph $G = (V, E)$ with no negative-weight cycles, let m be the maximum over all pairs of vertices u, $v \in V$ of the minimum number of edges in a shortest path from u to v. Suggest (and describe via pseudo-code) a modification of the Bellman-Ford algorithm that allows it to terminate in $m + 1$ passes.

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