CS577/EE537
COURSE PROJECT
Updated January 17, 2005

Note: This semester my current thought is to have no more than three project groups and to actively get involved with the groups to motivate real performance studies.

This document is intended to give general suggestions for the course project. Students have the freedom to submit any reasonable proposal. Students are encouraged to select projects that they find interesting and that they are qualified to undertake. The following is a list of suggested project types:

1. An in-depth research paper/term paper on some aspect of computer networks **not** covered in the course. This is the least technical choice in that no programming or building of hardware is required. The paper could be of a survey nature with an extensive literature search or it can be an in-depth probe into a specific issue in computer networks.

2. A mathematical treatment of a specific problem in computer networks. This could be a continuation of an algorithm or an analysis of a network performance problem discussed in the literature. For this type of project to be acceptable the final report must demonstrate that the students have a very thorough understanding of a specific research problem and have not simply extracted the results from a paper.

3. To build and exercise a computer program which simulates some aspect of computer networks. <u>Prior knowledge of simulation techniques is required</u> for this type of project. Building a special simulator only makes sense when no currently available simulators are adequate to characterize the network of interest.

4. To utilize an available simulation tool to do an extensive analysis of some aspect of computer networks. The **ns-2 simulator** has been used extensively by the WPI CC Research group.

5. The design, implementation and testing of a computer network benchmark program. However, this requires a good understanding of how to build benchmark programs and some sense of available network performance tools.

6. An empirical network performance study. This project emphasizes using existing tools to measure and evaluate some aspect of network performance on a LAN or on the Internet.

Other types of network project proposals may be submitted but all proposals must be approved.

Project Due Dates:

Proposal   **Due: February 15, 2003**

Each project group must submit a typed project proposal. The proposal includes: an explanation of the project including expected outcomes, a description of the work to be carried out, resources needed to do the project, and a discussion of the value of the project relative to the research focus area and to the objectives of this course.

Progress Report or Design Report   **Due: March 15, 2003**

This report should clearly state the current status of the project. If the project involves building something (e.g. software, hardware or conducting experimental data collection), the progress report becomes a ***complete*** design report. If the project involves algorithm analysis or an in-depth investigation of some aspect of computer networks, this report must include a clear discussion of the problem, include the current state of your analysis or investigation. Progress reports must include complete bibliographies, must be typed, and less than 20 pages (not counting pages with figures).

This report will receive a letter grade based on all the standard criteria of a professional technical report (i.e., grammar, writing style, typos/misspellings and content will **ALL** be considered). For design reports pseudo-code is <u>unacceptable</u>. Professional technical prose is expected.

Note: This report can easily be the basis for the final report. The key is to demonstrate that a sufficient amount of work has been done at this point.

Final Project and Report   **Due: April 26, 2003**

The final report should be a well-presented technical report discussing your project. If your project is primarily a programming effort, you should explain how the program works, give specific sample runs and analyze the results. You must turn a hard copy of your program which must conform to standard commenting expectations. The analysis is an important component of the final report.

The final report may include parts of your progress report. The written report should be ten to thirty pages in length. You **must** turn in your graded progress report with your final report.