CPE/EE 522 SP2004, Graduate Design Project

(Graduate 90 points)

The purpose of this laboratory project is to give each graduate student the opportunity to develop a more open ended design which will augment in some way what the student has learned in his/her previous design experiences.

The student will be expected to formulate a design, implement it, and demonstrate it to the laboratory instructor on the Altera UP 1. Students will be expected to turn in a hard copy of the documented design that will include a short summary of how the design experience realized the design objectives associated with the design category that was selected. One category focuses upon design reuse -- utilizing modules of previous designs as building blocks for the current design. The other category focuses on utilizing other design techniques to create equivalent designs. Example projects include:

Category I: Design Reuse:

1) *Keypad Display:* Combining the designs from Laboratory Assignments 2 and 3 to create a design that will display the characters that are entered on the keypad on the EGA monitor. (Could also combine Assignments 2 and 4 in the similar manner.)
2) *PS-2 Mouse Display:* Utilizing Assignments 2 in a manner that allows a rectangular dot to be moved around on the screen in response to the movement of a PS-2 mouse that is connected to the same port that the PS-2 keyboard was connected to in Assignment 1.

Students who decide to pursue designs that fall into this category must describe in this design how previous portions of their designs were re-used in their hard copy material.

Category II: Networks for Arithmetic Operations

Develop a VHDL description of a network for arithmetic operations (e.g., Floating-point Adder, Integer or Floating Point Divider, Integer or Floating Point Multiplier).

Students who decide to pursue designs that fall into this category should discuss details with lab instructor before start.

Project Due Date: **4/27/04**, Project Report Date: **4/28/04**