March 27, 2000
R. Frey

Physics 433/533
Note for Week of March 27

Unfortunately, I have to be away from UO this first week. I will be back next Monday. Professor Strom will meet with you for the first class. I will be reachable by email after Wednesday if you have any special concerns
(`rayfrey@cosmic.uoregon.edu`). As indicated in the printout of the initial course web page (`http://zebu.uoregon.edu/~rayfrey/433/433W00_info.html`), we will cover two major topics this term. For the first topic we will build a 68008-based microcomputer using the material from the Student Manual for the Art of Electronics by Hayes and Horowitz ("Hayes"). This book is *required* this term, as it will be our primary reference for the first part of the course.

In the second part of the course we will do register-based programming of PCs to control external instrumentation via A/D, D/A, digital control channels, and counters/timers. Your project will be controlled by a PC in this way. More about this later.

In the meantime, here are some assignments to get you started:

- Labs. The lab sections begin next week. We will do Lab 15 of Hayes: Sections 15-1 through 15-6. We will go over this lab in class on Tuesday April 4 before you begin. The circuit you build will be part of your microcomputer. So build the circuit on one of the small (unpowered) prototype boards to be set aside and saved for use the next several weeks. We will use the commercial keypad circuits mentioned by Hayes. These will have to be shared. But that is easy, since they have convenient connectors which are readily plugged/unplugged from your prototype boards.

- Reading.

  ◦ Read Hayes Class 15 through Lab 16 (pages 342-402). (The material starting with Class 16 can be put off until next week.) This is review material. But the context leading toward the microprocessor labs is useful. The reading should go quickly.

  ◦ Horowitz and Hill, Sections 8.25 and 8.29.

- Homework. Due Thursday April 6. This should not be new material. Three problems:

  1. Using D-type flip-flops, design a synchronous decade counter which counts from 0 to 9 in binary.

  2. Horowitz and Hill, 8.35

  3. Horowitz and Hill, 8.36. Be sure to include a timing diagram to analyze this.