CE1: Hands-On Computer Engineering
Research Problems 1

This is the first set of research problems for Hands-One Computer Engineering. In doing these problems, try to find information from multiple sources, and synthesize it into your answer.

Engineering is a discipline of collaboration and prior art. We work in teams, using tools, techniques, and things already created, as we apply our own ingenuity to design under constraint or solve a research problem. Because of the strong emphasis on building upon the works of others, you should get into the habit early of crediting all sources and all individuals who help you solve a problem. Be lavish with your praise; it will be seen as a credit to you that you're able to pull together so many different resources in finding a solution to a problem.

Because of the importance of always giving credit, the School of Engineering and UCSC also have strong policies when these standards are violated. Within Engineering, you may fail a class and be disqualified from your major for just a single violation of academic integrity standards. Similarly, your College will bar your enrollment at this or any other UC campus if you have a second academic integrity violation. Most importantly, however, academic dishonesty is a disservice to yourself (by not learning the material, doing poorly or failing the following classes, and becoming a mediocre engineer) and to your classmates (whose job prospects depend on the quality of all graduates from UCSC). If you're having trouble with any of your courses, please immediately talked to the instructor, TA, tutors, undergraduate advising office, or Tracy and Richard about the situation. The SOE and UCSC have a prodigious number of resources to help you, and we can help you find the right ones.

It is fine to use diagrams that you might find, as long as you include a citation to the author and work where you found it, and when you downloaded it (if from the web). Any text copied from another source must include quotation marks and a reference to the author and work. Any text slightly modified from another work is not redeemable, because you can neither use quotation marks (since it is not a quotation) nor call it your own.

Please type your answers, and include your name, date, problem set number, and class. If multiple pages, be sure to use staples. You can apply these rules to all your classes.

1. The definition of computer engineering we gave in our introduction is a somewhat formal, catalog-style definition. Describe in a couple of paragraphs what you think it is and particularly where your own personal interests might fit in.

2. Select a Computer Engineering or other SOE faculty member (besides me!) and find out more about what the faculty member teaches and researches. Summarize this, and also comment on why it is interesting.

3. The department has been working on the Computer Engineering web site, http://www.ce.ucsc.edu . How are they doing & how can it be better? Our most important audiences are prospective students.

4. Find an explanation about how an LED works. You don't need to follow the entire discussion, but try to summarize (in your own words) the content. As with questions 1 and 2, be sure to cite your sources, indicate any quotations.

5. Bring a lab notebook to next week’s class.