Course Description

The organization of a computer is the way its architecture (register set, assembly language instruction set, etc.) is implemented. A given architecture might be implemented by several different organizations, leading to different models with different performance and cost characteristics, but which all share a common pool of software (a computer family). This course is therefore a sequel to CS 2700 Assembly Language and Computer Architecture, in that we will build upon and expand the understanding of low-level computer operation which you began to acquire there, focusing this time on the operation of the hardware. We will examine aspects of several critical hardware components, including the CPU, input/output mechanisms, and memory. We will concentrate upon the tradeoffs and various design decisions that might be made in these designs, and the effect those decisions might have on hardware performance and cost.

The textbook covers much more material than can be presented in a single semester. We will cover Appendix A and chapters 4-8, skipping individual topics as necessary to achieve this breadth.

Grading

Final grades will be based upon the following activities, and at the end of the term will be rounded to the nearest full letter grade (A, B, C, D or F) without pluses or minuses.

Homework: Homework will be mostly of a written nature, with few, if any, assignments on a computer. In the aggregate, the assignments will be weighted the same as an exam in your final grade. Each student will be expected to hand in only his or her own work; representing someone else’s work as your own is a gravely serious offense and may result in penalties including automatic failure of the course and University disciplinary action. Homework will be graded based upon the methods you use to solve the problem and your ability to describe what you have done clearly in concise, clearly-organized standard English prose, as well as promptness and of course the accuracy of your results.

Exams: There will be two midterm exams and a final exam. All three will be weighted equally. The exams will occur in approximately the fifth and tenth weeks of the term. The exact dates will be announced in class at least one week in advance. The final will be comprehensive over the entire semester, and will be given during the scheduled final exam period for this class.