

CSE321 Computer Architecture I
Fall, 2004

Class: 356 Fitzpatrick Hall
Mon. Wed. 1:55pm - 2:45pm

Lab: 177 Fitzpatrick Hall

Instructor: Dr. X. Sharon Hu
326D Cushing Hall, 631-6015, shu@cse.nd.edu
Office Hours: Tues. 11:00am - 12:30pm
Fri. 12:00pm-1:30pm

TA: Tim Dysart
222 Cushing, 631-8854, tdysart@cse.nd.edu
Office Hours: Mon. 3:00pm - 5:00pm
Walkins are also welcome

Chris Middendorff
355S Fitzpatrick, 631-8380, cmidden1@cse.nd.edu
Office Hours: Tues. 2:00pm - 4:00pm

Required Texts:

1. David A. Patterson and John L. Hennessy, *Computer Organization and Design: the Hardware/Software Interface, 2ed*, Morgan Kaufmann Publishers, 1998.
2. Peter J. Ashenden, *The Student's Guide to VHDL, 2ed*, Morgan Kaufmann Publishers, 1998.

Recommended Reference Texts:

- Peter J. Ashenden, *The Designer's Guide to VHDL, 2ed*, Morgan Kaufmann Publishers, 2001.

Course Objectives

This course will provide the student with a fundamental understanding of the basic topic in modern computer architecture, including:

1. the organization of modern computer systems, the functionality of their components, instruction sets and their underlying execution;
2. the comparison of differing architectures and application of relevant performance metrics;
3. experience with a set of design projects, requiring the use of top-down design methodology and modern CAD tools, including VHDL;
4. and a clear understanding of team design efforts.

All of this has the ultimate goal of preparing the student for their next challenge (CSE322, and ultimately industry or research careers). Over the course of the year, homework and projects will also help to refine non-engineering skills, such as the preparation and giving of presentations,

written communication (both technical, and non-technical), and team design environments (as are common both in industry and academia).

Further information can be found on the course web page:

<http://www.cse.nd.edu/courses/cse321/www/>.

Course Policies and Procedures:

1. Lecture related:

- Lecture notes will be published on-line at least one day before the class. You are recommended to print out the notes and bring them to class.
- Attendance of lectures is required. Students are expected to do their reading assignments and participate in class discussions.
- Each student will be asked to give presentations (particularly for the final project) as well as evaluate others' presentations. Such participations will affect the final grades.

2. Exam related:

- There will be one midterm test and the final exam. The midterm test date is temporarily set to October 11 and the exact time will be announced when it becomes available. The test will be 75 minute long.
- Only under unusual circumstances (medical excuse or prior instructor approval) may make-up tests be considered. Otherwise, a zero point will be counted towards your grade.

3. Homework related:

- To prepare you better for the real world working environment which you will soon enter, most of the assignments in this class will be accomplished by teams unless otherwise instructed. For each assignment, only one solution needs to be handed in by each team.
- On each assignment, each team should designate a **coordinator** to make sure everyone understands who is supposed to be doing what¹, a **recorder** to prepare the final solution set, and a **checker** to check the final solution for correctness. *These roles should rotate on every assignment.* On each assignment, put the names and roles of the *participating* team members and the assignment number on a cover sheet.

If a student's name appears on a solution set, it certifies that he/she has participated in solving the problems. Students whose names do not appear on a solution will receive zero point.

- Assignments should be turned in prior to the start of the class on the due date. Assignments will be accepted up to five days after the due date. Late assignments will receive a deduction of 10% of the maximum grade for each additional day. *However*, if a team abuses this privilege by routinely handing in assignment late, the privilege will be withdrawn. Assignment solutions will not be posted. The burden is on you to make sure you find out how to solve the problems before or after they are due.
- For each assignment, complete an "Individual Effort Rating for Team Members". (The form is available on the web and a copy is attached.) Note that the ratings should reflect each individual's level of participation and effort and sense of responsibility, not his or her academic ability. These results may be used to adjust assignment grade for individual effort.

¹Suggestion: Have each team member set up each problem individually, then get together to work on the details.

- Teams having problems working together should make every effort to resolve them by themselves. If that doesn't work, see the course instructor for help. Students who consistently fail to pull their weight can as a last resort be fired by unanimous decision of the rest of their team, and the students repeated carrying the load for their teammates can as a last resort quit. **Students who either are fired or quit must find another team with three members willing to take them on – no individual assignment will be accepted.**

4. Lab related:

- The lab assignments may be performed in groups of 2 to 3 students and are generally due in the next lab session. The lab groups must consist of members attending a given lab session, and it is expected that all group members participate.
- Reports are integral parts of labs. For each lab, a formal report is required unless otherwise specified. On a separate page of each report, include a statement of who is responsible for which part of the project and any specific problems encountered. Again, each student should complete an "Individual Effort Rating for Team Members" and submit it with the report.

5. Grading Guidelines:

- Inquiries about graded assignments and the test will be accepted only if made **within one week** after they are handed back. Such inquiries should be made in writing, which clearly explains the complaints. Only after reviewing the written complaints, can the instructor make any grade adjustments.
- Grade components:

Homework	15%
Labs	25%
Final Project	10%
Midterm	20%
Final	25%
Quizzes	5%

- The assignment of letter grades will use the following scale: A: ≥ 90 , A-: ≥ 85 , B+: ≥ 80 , B: ≥ 75 , B-: ≥ 70 , C+: ≥ 65 , C: ≥ 60 , C-: ≥ 55 , D: ≥ 50 and F: < 50 . Minor adjustments to the above scale might be made if deemed necessary by the instructor after considering some unforeseen circumstances.