CISP 317 (AVR) Syllabus

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1 Instructor Information

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2 Class background (generic to all classes)

2.1 In the classroom

The following describes the basic in-class behavior policy.

- Raise your hand before asking a question, let me finish my sentence first.
- Questions related to the class are always welcome.
- Disruptions are not tolerated. People who disrupt with intent must leave the classroom. Warning may be given at the discretion of the professor.
- Talking with other students is not tolerated (see disruptions). If you have a topic related to the class, tell me about it. If the topic does not relate to the class, talk about it outside of the classroom.
- Eating and drinking is not allowed in the classroom.
- Cell phones and pagers must be set to quiet, silent or vibration modes. Talk on your phone outside of the classroom. The professor reserves the right to ask repeat offenders (talking on the phone or have the phone ring in the class) leave the class.

2.2 In the lab

- Ask questions! Consider the lab session as my office hours.
- If I am helping someone else, let me know that you need help and I'll help you as soon as possible.
- I keep a queue when multiple people need help at the same time. Be sure to let me know as soon as possible that you need help.
- To avoid "hogging", I only spend up to 5 minutes per student each time when there are others waiting. After 5 minutes is up, sign up again for another 5 minutes.
- Consider the use of a USB flash drive or web-based email for transferring files. Floppy disks and ZIP disks are both very unreliable. For those with a home server, ftp/ssh also works.
- Observe all rules in the pink form. If any of my rules conflict with the pink form, the pink form overrules.

- No food nor drink in the lab. This include candies, chewing gum and etc.
- Same cell phone/page policy as in the classroom, see above.
- Same disrupting policy as in the classroom, see above.
- Only use the computers for class related activities. Email to the extent that is required by the class. Do not browse unrelated material on the web. The professor reserves the right to ask anyone who do not follow the lab rules leave the lab. The professor also reserves the right to reset computers used for any activities not related to the class without prior warning.

2.3 Online notes

I normally upload most (if not all) of my classnotes to my website at www.drtak.org/teaches/ARC. You are welcome to check and view my classnotes. However, all the classnotes are copyrighted, which means you cannot redistribute the materials in any form unless you have my consent.

I understand most people do not have 24-hour internet access. You are allowed to download the HTML and PDF files on your computer *for your own use only*. You can even print these files out for easier off-line viewing. However, please do not print the classnotes at the printers in room 152. The first reason is that I change my classnotes frequently, what you have printed may be obsolete already. Secondly, printing classnotes can overwhelm the technicians.

You are strongly recommended to print the classnotes using your own printer or at a lab where there is pay-per-print. I understand this is inconvenient and possibly costly. If you think this situation (not being able to print classnotes at room 152) is unacceptable, please contact my dean (boss), Barbara Blanchard at the CIT Area Office. I am more than happy to look into and implement solutions, but I need administrative support first.

2.4 Cheating

Cheating is not fair to other students and eventually is not benefitial to the cheater. All observed and reported cheating in the class will be investigated. All confirmed cheaters will be penalized. The penality of cheating is *at least* not counting the involved assignment or examinations. The professor reserves the rights for more punitive actions.

What constitutes cheating? In the context of a class, a student cheats if the student does not personally and independently complete submitted assignments or answer questions in a submitted examination. Working on questions in an examination using resources (time, notes, textbook, calculators and etc.) other than the ones allowed is also considered cheating. If an assignment is collaborative, a student can still cheat if the student does not contribute sufficiently to the submitted assignment. Furthermore, any student who helps another student submit work without personal and independent effort is also considered an accomplice in cheating. Any accomplice is penalized exactly the same as a cheater.

The professor reserves the right to authenticate submitted work. This includes, but not limited to, the questioning of how a submitted program work and the questioning of why wrong answers can be ruled out in a multiple choice exam. Submitted works that are not authenticated satisfactorily can be discarded at the discretion of the professor.

If a student suspects others are cheating, incidents can be reported anonymously. In other words, I will not disclose the informer without permission.

2.5 Grading

The final grade is determined by the following factors:

- 20% from all homework assignment. Yes, this is a very small percentage for seemingly a lot of work. This is because it is difficult to verify that everyone works on homework assignments independently. However, the time you spend doing homework assignments is not wasted. It will help prepare for the exams.
- 20% from the first test. This test is scheduled at about 1/3 of the semester.
- 20% from the second test. This test is scheduled at about 2/3 of the semester, and it is not *intentionally* comprehensive. For some classes, it is difficult to avoid earlier topics when asking questions about newer concepts.

- 40% from the final exam. This exam is scheduled at the end of semester, and it is intentionally comprehensive.

Homework assignments have the following adjustment policy. For each day an assignment is submitted early, 2% is rewarded. For each day an assignment is submitted late, 10% is deducted. This means for an assignment that is worth 80 points, but is turned in 2 days early, 1.6 points is rewarded, yielding a total of 81.6 points. Points from assignments can exceed 20% of the final grade if properly completed homework assignments are turned in consistently early.

For homework assignments, the break points (100% means full score for all homework assignments) of letter grades are 12.5% for a D, 37.5% for a C, 62.5% for a B and 87.5% for an A.

The tests and the final exam also have extra credit questions. Most questions (if not all) are multiple choice type with 5 choices. Each test/exam has a *base* number of questions and a *total* number of questions. The total is always larger than or equal to the base. Let r be the score from correct answers, b be the base number of questions and t be the total number of questions. The break points of letter grades are as follows:

- F if $\frac{r}{b} < \frac{0.1\times b+0.2\times t}{b}$
- D if $\frac{r}{b} < \frac{0.3\times b+0.2\times t}{b}$
- C if $\frac{r}{b} < \frac{0.5\times b+0.2\times t}{b}$
- B if $\frac{r}{b} < \frac{0.7\times b+0.2\times t}{b}$
- A if $\frac{r}{b} \geq \frac{0.7\times b+0.2\times t}{b}$

The break points for the letter final grade are weighted averages of the components from the homework assignment component and the exam components.

I reserve the rights to change the grading scheme throughout the semester. I will make the changes public to the entire class whenever changes are made.

In order to receive your grade, you should sign up for a ZIP account if you have not done so already. You *must* sign up at on-campus, although you can access your account via the internet once you have an account. Visit http://zip.arc.losrios.edu to sign up for an account. Your midterm grade and final grade are both sent to this account. I will also send emails to your ZIP accounts regarding course materials and homework assignments.

3 Catalog Description

This course is an introduction to the internal organization of a computer. Topics include learning to program in assembly language, implementing high level logic such as loops and subroutines, and performing low level hardware access.

4 Schedule

The following is a tentative schedule of the semester (organized in weeks). Note that I may speed up or slow down depending on the progress (or there lack of) of the class.

1. Computer organization, embedded computers
2. CPU organization and memory access
3. the AVR microcontroller unit and tools for the AVR MCU
4. I/O read/write and I/O bit changing instructions
5. Memory allocation and data moving instructions
6. Midterm 1 and binary numbers and other bases
7. Binary arithematic
8. Arithematic instructions

9. Decision making and branching
10. if-then-else control structure
11. Loop control structure
12. Midterm 2 and formalized control structure translation
13. Compound conditions
14. Overall program organization
15. Stack and subroutines
16. Registers and subroutines: saving/restoring, parameters
17. Introduction to interrupts
18. Final Examination