Simon Fraser University
School of Engineering Science
ENSC894: Advanced Computing Technology: Programming and System Design
Spring 2011
Facts Sheet

Instructor:
Dr. Lesley Shannon E-mail: lshannon@ensc.sfu.ca Office: ASB 8819
Office Hours: Tuesdays 2:30pm-3:30pm and Wednesdays 2:30-3:30pm

Class:
Lecture: Wednesday 5:30-8:30pm, BLU 10031

The Course:
This course presents key topics in the hierarchy of computing design and programming from programming languages and models to technology issues such as Synthesis/Compilation, Operating Systems, Profiling/Debugging, Architecture, Security Reliability and Fault Tolerance. The objective is to gain an overview of the complete picture of computing systems, and to understand how the different pieces interact. We will focus on the challenges for cutting edge and future technologies and how this should affect application design.

Course Web Page:
The course web page is at http://www.ensc.sfu.ca/~lshannon/courses/ensc894/. Handouts will be posted. I will try to post lecture notes before each lecture so that you can print them out before class. However, this is a seminar course, so the focus will be on doing preparatory readings and in-class discussion. We will be using WebCT, but only for the bulletin board postings. All other material can be found from the course web page.

Course Bulletin Board:
Course based discussions should be posted to the bulletin board so that all students can see the ideas and participate in the discussions. Students should regularly check the bulletin board as I will also post announcements and potential questions to guide paper readings and discussions there. Postings are set to be anonymous, but you should feel free to tag your name on there (there are ***no*** dumb questions =). I have also created class mailing lists so that last minute announcements can be sent when necessary.

Suggested References:
Course readings:
This is a seminar based course. There will be numerous papers to read, but no course text book. For individuals specifically interested in reconfigurable computing, I would recommend: Reconfigurable Computing, editted by Scott Hauck and Andre DeHon from Morgan Kaufmann publishing.

Project:
There is no project specifically for this course. However, students may choose to propose a project in lieu of certain components of the course (see below). The requirement for the course project is that advance students understanding of one or more computing platforms/technologies or mapping from application descriptions to the platform.

Reading Group Participation:
Each week, 1-3 papers will be assigned for reading. Students should be prepared to come to class each week and participate in paper review based discussions, etc. Please refer to the course website for a list of the papers to be reviewed for each week.

Paper Critiques:
Over the course of the semester, you will be required to do 3 paper critiques (with a maximum of one per week). You are allowed to select any of the papers on the reading list. For more information on the paper critiques, please see its separate handout. ***NOTE: You cannot do a paper critique during the week of your Seminar Presentation (all your critiques must be in different topic areas).***

Seminar Presentation:
Students will be required to select one topic area from the lecture sets on which to do a seminar presentation. Their presentation should cover the general area to be covered that lecture and use the suggested readings to highlight promising research. Additional work and research in the area (other than the readings) should also be indicated to demonstrate a proper review of the area. *Although not required, it is highly recommended that students schedule a meeting with the instructor to go over there presentation content before the class.*

Research Review:
To accompany their seminar presentation, students will put together a research review in the same topic area as their research review. It should be no more than 12 pages with 1.5 spacing and 11pt font. Everyone's review will be due on the final day of lecture (April 6th). See the separate handout for more details.

Application Analysis:
The final component to the course is an application analysis. Students will be required to pick an application (that must be approved by the instructor) for implementation analysis. The idea will be to have students analyze their application in terms of the different aspects of the computing hierarchy discussed in class. Students should breakdown how to best implement their application, in terms of these different levels of hierarchy to optimize their application's performance/area/power with respect to its requirements and customer usage. It should be no more than 10 pages with 1.5 spacing and 11pt font. Everyone's review will be due on the final day of lecture (April 6th). See the separate handout for more details.

Mark Breakdown:

- Reading Group Participation 10%
- Paper Critiques* 15%
- Seminar Presentation 25%
- Research Review* 25 %
- Application Analysis* 25%

*Although this course has no course project, at the instructor's discretion, students can choose to do a project in lieu of one or more components of the course work. Minimally, the project will be weighted at 25% (in lieu of the application analysis). However, depending on the level of difficulty, it may be weighted up to 50% with a reweighting of the paper critiques at 5-10% and the research review at 10-5%. Potential projects may also be done in groups, but this will affect how the weighting of the project is viewed in terms of the overall mark. ***Also, note the final project will require a final project report (in lieu of the application analysis), which will be detailed in a separate handout.***

Class Participation:
This is a seminar class. Class participation is mandatory and accounts for 10% of your course mark. You will be evaluated on your in-class participation as well as your postings to the course bulletin board.

*****Important Notes***: While I promote team work and helping each other, code copying and plagiarism will ***NOT*** be tolerated. Any individual found copying code from other class members or the web will receive an automatic ***0*** in the course (a Failure for academic dishonesty). Similarly, anyone found copying any text or presentation slides without correct citations will be given a mark of failure for academic dishonesty.