SFWR ENG 4G06 - Software Design IV - Capstone Design Project

COURSE WEBSITE:

`http://www.cas.mcmaster.ca/~lawford/4G06/`

INSTRUCTOR:

Dr. Mark Lawford
Office: ITB/160
E-mail: lawford@mcmaster.ca
Office Hours: Friday 14:30-16:00

Teaching Assistant:

Mark Pavlidis
Email: pavlidmh@mcmaster.ca
Office: ITB/205

LECTURES:

Location: ABB/164 Time: Mon 9:30-10:20 & TBA Thurs 14:30-16:20[1]

DESCRIPTION:

Student teams prepare the requirements, design, documentation and implementation of a software system taking economic, health, safety, legal and marketing factors into account. Students must demonstrate a working system and convincing test results. Software project management.

MISSION:

The mission of this courses is to provide Software Engineering students with an opportunity to integrate what they have learned in earlier courses, deepen their understanding of that material, extend their area of knowledge and to apply their knowledge and skills in a realistic simulation of professional experience. The emphasis of this course is on design and the design process.

[1] Thursday lecture slot and location still to be finalized due to scheduling conflict

GRADING:

Participation	10%
Individual Presentations	5%
Individual Performance Reviews (2)	20%
Team Audit	5%
Product Rev. 0 (slice)	10%
Product Rev. 1 (relatively complete)	15%
Product Rev. 2 (complete system)	20%
Testing Demonstration	5%
Final Demonstration of System	10%

Participation involves attendance and involvement at required guest lectures as announce on the course website. Students receive 1% for each required lecture that they attend up to a maximum of 10% of their final mark.

Individual Presentations will be made by students covering background literature, methods research, and experiments.

Performance Reviews will be conducted in the final week of each week term. Each student will submit a written summary of their contributions to the project and brief comments on the contributions of other team members. Based upon student log books, version control information, and written comments

Team Audit will consist of a review of your teams practices and provide you with feedback on how you can work more effectively. It will consist of a team interview and evaluation.

Product Rev. i, i=0,1,2 will consist of the following documents:

1. HAR - Hazards Analysis Report
2. SRS - Software Requirements Specification
3. SDD - Software Design Description (includes Module Guide, MIS - Module Interface Specification and MID - Module Internal Design information)
4. Code, build files, and binaries
5. DVR & DRR - Design Verification/Review Report
6. CVR & CRR - Code Verification/Review Report
7. TR - Testing Reports (Unit tests, Integration Tests, Validation Tests)
8. UG - User's Guide

Submission of these documents will be done via hardcopy and providing the Instructor and the TA access to your team's revision control system.

TENTATIVE SCHEDULE FOR DELIVERABLES:

Note that this is the first time this course is being in this format by this instructor. Therefore the instructor reserves the right to modify the schedule and dates of deliverables depending up availability of equipment & progress of the class. *Please be sure to check the course website regularly for updates.*

Week Num	Week Begins	Deliverables
2	Sep 10	Pick topic for presentation
3	Sep 17	Presentations (Teams formed!)
4	Sep 24	Presentations
10	Nov 5	Product Rev. 0
12	Nov 19	Team Audit
13	Nov 26	Performance Review 1
14	Dec 3	Performance Review 1
21	Feb 24	Product Rev. 1
22	Mar 3	System Testing
24	Mar 17	Final Demonstration of System
25	Mar 24	Product Rev. 2
26	Mar 31	Performance Review 2

KEEPING A LOG BOOK:

Keeping a log is an essential part of Professional Engineering. In developing a project, you may need to consult documentation, programs, textbooks and other people. Since you may be held responsible for any errors in your product, it is important to keep a record of where you got your information. You must be able to provide evidence that you based your statements on sources that could be presumed to be reliable. Each team member should have their own log book. The format of this book is up to the individual. Periodically the TA will ask to see your log book and initial the content and have you sign the book.

Do not confuse the citations in your log with the references in a document that you prepare or references that you give to an audience after a talk. The references are for the use of your audience; they should be documents or other sources that your audience can use to gain information that you did not provide. Your log will include the sources that you use; many of these (e.g. the source code for a product) will not be suitable for, or even available to, your audience.

In this class, the log will play another role. You are required to do your own work and should never represent the work of others as your own. If work is joint work, that must be clearly stated on each copy. Everything that you hand in should include a complete acknowledgment of all help that you received. All consultations with other students that are not recorded in the log, and all unlabeled instances of shared work, will be treated as academic dishonesty. Your log can also be used to check how well you followed your proposed and actual schedules.

FORMAT:

- The class meets two times per week. The 2 hour lecture slot will generally be used for guest lectures, presentations, general project management, documentation and other related issues. The 1 hour lecture slot will generally be dedicated to project specific details.
- Discussion groups, links to resources, grading, lecture slides, handouts and other course related material should be available through WebCT once it is setup. Until that time the course website will be used.
- Project Groups will consist of 4-6 students to be determined by the Instructor within 1 week of the final day for adding or dropping classes.

REQUIRED COURSE MATERIALS:

Although there is no textbook for this course, each team is required to purchase a system specific hardware platform. Cost should not exceed $100/student. Each group may also be required to purchase a microcontrollter development kit to program the system specific hardware. Cost should not exceed $100/group.

ADDITIONAL REFERENCES:

- Daniel M. Hoffman and David M. Weiss (Editors), *Software Fundamentals: Collected Papers by David L. Parnas*, Addison-Wesley Professional, 1st edition, 2001.
  ISBN-10: 0201703696, ISBN-13: 978-0201703696

- S. Serge Barold, Roland X. Stroobandt, and Alfons F. Sinnaeve, *Cardiac Pacemakers Step by Step, An Illustrated Guide*, Blackwell Futura, 2004.
  ISBN 10: 1 4051 1647 1, ISBN 13: 978 1 4051 1647 3

NOTES:

Announcements & Updates:

Announcements, updates and other important information will be done in class and via the course website. You may be informed of announcements via your McMaster email account. You are expected to attend classes, tutorials and labs where these announcements will be made. If you miss a class, lecture or lab, *it is your responsibility to check these resources and stay informed!*

Academic Dishonesty:

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at `http://www.mcmaster.ca/academicintegrity` The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not ones own or for which other credit has been obtained.

2. Improper collaboration in group work.

3. Copying or using unauthorized aids in tests and examinations.

In case of discrepancy between the online and handout version of the course outline, the handout version shall be taken as correct.