Software Engineering 2AA4

Software Design I — Software Component Design

Winter 2007

Course Outline

Revised: 4 January 2007

Note: This course outline contains important information that may affect your grade. You should retain it throughout the semester as you will be assumed to be familiar with the rules specified in this document.

Instructor

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Teaching Assistants

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Course Web Site

http://www.cas.mcmaster.ca/~wmfarmer/SE-2AA4-07/

Schedule

Lectures:	MWR	17:30–18:20	TSH B105
Tutorials:	W	8:30–9:20	TSH 118
	F	10:30–11:20	TSH 118

Calendar Description

"Development of small software units. Precise specifications expressed using logic and discrete mathematics. Design methods and design patterns. Implementation and testing."

Mission

The mission of this course is to introduce students to the profession of software engineering and the software development process. Students will study the basic principles of software design, focusing on software modularization and software units that are small, sequential, and terminating. They will learn how to use precise specifications to design, implement, and verify software units in the programming languages C and Java. Later courses will teach how to write specifications and design large software systems that may be concurrent and nonterminating.

Required Text

C. Ghezzi, M. Jazayeri, and D. Mandrioli, *Fundamentals of Software Engineering, Second Edition*, Prentice Hall, 2002. ISBN: 0133056996.

Work Plan

There will be lectures, tutorials, weekly quizzes, five software design exercises, a midterm test, and a final exam. The lectures will be given by the instructor during regular class sessions. The tutorials will usually be given by the teaching assistants. A quiz will be given during each Friday tutorial. There will a software design exercise due approximately every two weeks. Details concerning the exercises will be provided later. The midterm test will be held on Monday, March 5, 2007 at 17:30–18:20. The final exam will take place on the date scheduled by the University. It will be 3 hours long.

Log Book

Each student is expected to keep a detailed, up-to-date log book that records all the steps performed on the software design exercises. Sources of information, consultations with the instructor, teaching assistants, and fellow students, successful and failed experiments, discovered errors, and lessons learned should be recorded. The entries in the log book should be listed chronologically with dates and times. The log book may be either a physical book (such as a lab or composition book) or an electronic document (such as a text file). *A copy of the student's log book must be included with the report for each software design exercise.*

Academic Dishonesty

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and 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 kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at

`http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf`

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g., the submission of work that is not one's 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.

Your work must be your own. Plagiarism and copying will not be tolerated! If it is discovered that you plagiarized or copied, or that you have consulted with people not mentioned in your log book, it will be considered as academic dishonesty.

Students may be asked to defend their written work orally.

Other Policy Statements

1. Significant study and reading outside of class is required.
2. Students are required to attend the lectures and tutorials. Attendance will be recorded, and absences will be excused only in highly exceptional cases.
3. The student is expected to ask questions during class.
4. You may want to discuss the exercises with your fellow students. *If you do that, you must record a summary of your discussions in your log book including a list of all those with whom you had discussions and a description of what information you received.* It is part of your professional responsibility to give credit to all who have contributed to your work.
5. A student may use his or her texts and notes during the midterm test and final exam but not during the weekly quizzes.
6. Exercise reports may not be submitted late and the midterm test may not be taken later without *prior* approval from the instructor.
7. The instructor reserves the right to require a deferred final exam to be oral.
8. Calculators and electronic devices are *not* permitted during the weekly quizzes, midterm test, and final exam.

9. The Faculty of Engineering is concerned with ensuring an environment that is free of all adverse discrimination. If there is a problem, that cannot be resolved by discussion among the persons concerned, individuals are reminded that they should contact their Department Chair and the Human Rights and Equity Services (HRES) office as soon as possible.

10. Suggestions on how to improve the course and the instructor's teaching methods are always welcomed.

Syllabus

00 Preliminaries

01 Software Engineering as an Engineering Discipline [chapter 1]

02 Software Qualities [chapter 2]

03 Software Engineering Principles [chapter 3]

04 Software Design [chapter 4]

05 Modularization [chapter 4]

06 Specification [chapter 5]

07 Verification [chapter 6]

08 The Software Development Process [chapter 7]

Grading

The course grade will be based on the student's performance on the weekly quizzes, software design exercises, midterm test, and final exam as follows:

Weekly quizzes (11)	20%
Software design exercises (5)	20%
Midterm test	20%
Final exam	40%
Total	**100%**

Notes:

1. A student's final score will be reduced by one half point for each missed lecture and tutorial (there is no penalty for the first *six* absences).

2. The instructor reserves the right to adjust the marks for an exercise, midterm test, or final exam by increasing or decreasing every score by a fixed number of points.