Software Engineering 2A04

Software Design I

Fall 2000

Course Outline

Revised: 8 September 2000

Instructor

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Course Web Site

`http://www.cas.mcmaster.ca/~wmfarmer/SE-2A04-00`

Lecture and Lab Schedule

Lectures:	MW	11:30–12:20	ABB 136
	F	13:30–14:20	ABB 136
Lab:	T	14:30–17:20	ABB 273/274

Teaching Assistants

To be announced.

Calendar Description

"Software development with precise specifications. Implementation, inspection, integration, and testing of precisely specified sequential modules and programs. Assembly of software from independent modules; incremental design."

Mission

"The mission of this course is to give students an understanding of the professional responsibilities of software engineers and the role of precise specifications in software development. Students learn how to read precise specifications and how to use specifications in program design, program inspection, and program testing. They will be introduced to the basic principles of software design. This course teaches students how to read and use specifications for individual (terminating) programs, program packages or modules, and complete systems. Later courses teach about how to design interfaces and write specifications as well as about non-terminating and concurrent programs."

Texts

1. **Required**: *The Mythical Man-Month*, Addison-Wesley, 1995.

2. **Required**: M. Mohrenschildt, M. Directo, and K. Kowalski, *Introduction to Software Engineering: A Collection of Formal Software Specifications*, McMaster Custom Courseware, SE 2A04, September 2000.

3. **Optional**: D. Hoffman and P. Strooper, *Software Design, Automated Testing Maintenance*, McMaster Custom Courseware, SE 2A04, September 2000.

4. **Optional**: *Selected Papers by D. Parnas and Others*, McMaster Custom Courseware, SE 2A04, September 2000.

Work Plan

There will be lectures, lab exercises, three midterm tests, and a final exam. During regular class sessions, lectures will be given by the instructor, and during the lab session, students will work on the lab exercises.

A lab exercise will be assigned every second week. A report on the lab exercise will be due two weeks after it is assigned. The lab exercises will be done in groups and will involve writing and testing programs. All programs will be written in the C programming language.

The three midterm tests will be done in class on the following dates:

1. 2 October 2000.

2. 30 October 2000.

3. 27 November 2000.

Each will be 50 minutes long.

The final exam will be 3 hours long. It will take place on the date scheduled by the University.

Log Book

Each student is expected to keep a detailed, up-to-date log book that records all the steps performed on the lab exercises. Sources of information, consultations with instructors 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.

A copy of the student's log book must be included as part of each final lab exercise report.

Tentative Schedule

00	Preliminaries	8 September
01	Software Engineering	11,13 September
02	Software Fundamentals	15,18 September
03	Software Development	20,22 September
04	Design Techniques	25,27,29 September
	Midterm 1 on sections 01-04	2 October
05	Specification	4,6,9,13 October
06	Software Structure	16,18 October
07	Verification and Analysis	20,23,25,27 October
	Midterm 2 on sections 05-07	30 October
08	Modules	1,3,6,8,10,13 November
09	Software Design Products	15,17,20,22 November
	Midterm 3 on sections 08-09	27 November
10	Project Management	24,29 November, 1 December
	Review	4 December
	Final exam on sections 01-10	

Policy Statements

1. *Significant study and reading outside of class is required.*
2. *Regular class attendance is required.*
3. *The student is expected to ask questions during class.*
4. The student is welcome to discuss assignments with other students, but all such interactions must be recorded in the student's log book. Lab exercises must be the student's own work.
5. A student may use his or her texts and notes during the midterm tests and final exam.
6. Lab exercises may not be turned in late and midterm tests 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 are not needed for this course, and their use will not be permitted during the midterm tests 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, the Sexual Harassment/Anti-Discrimination Officer (SHADO), as soon as possible."

10. "Students are reminded that they should read and comply with the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Senate Office" (see Senate Secretariat, Gilmour Hall, Room 104, 525-9140 or 529-7070, ext. 24337).

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

Grading

The course grade will be based on the student's performance on the lab exercises, midterm tests, and final exam as follows:

Lab exercises	15%
Midterm tests (15% each)	45%
Final exam	40%
Total	**100%**

Notes:

1. *A student who fails the final exam automatically fails the course.*

2. A student's final score will be reduced by one half point for each missed class (there is no penalty for the first three missed classes).

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