

## Exam DM510 Operating Systems (2015)

### Time and Place

Time: Monday, June 15, at 8.30am and Tuesday June 16, 2015, at 8.30am.  
Place: The exam takes place in U49C .

The question hour for DM510 is scheduled for Thursday 11.06. at 14.15 in U20.

On the outside of my office door, there will be/is a list on which you can sign up for a specific slot in the sequence of students to be examined on the two examination days. The list is available on the outside of my office door from Wednesday 03.06. (16:15) on. Registration ends June 9th, 10:00am. The starting time for the first examination is to be finalized with the external examiner (expect around 8.30am). If you don't sign on the list you will be assigned automatically.

Even though the expected total examination time per student is 20-25 minutes (see below), it is not possible to calculate the exact examination time from the placement on the list, since students earlier on the list may not show up. Thus, students are expected to show up plenty early. In principle, all students who are taking the exam on a particular date are supposed to show up when the examination starts, i.e., at the time the first student is scheduled. This is partly because of the way external examiners are paid, which is by the number of students who show up for examination. For this particular exam, we do not expect many no-shows, so showing up one hour before the estimated time of the exam should be safe.

### Procedure

The exam is in English. When it is your turn for examination, you will draw a question. Note that you have no preparation time. The list of questions can be found below. Then the actual exam takes place. This part lasts approximately 20-22 minutes. You should start by presenting material related to the question you drew. Aim for a reasonable high pace and focus on the most interesting material related to the question. You are not supposed to use note material, textbooks, transparencies, computer, etc.

You are allowed to bring keywords for each question, such that you can remember what you want to present during your presentation. As a guideline you are expected to not have more than 10 keywords per question on the list, that you bring to the oral exam. Note that this list is expected to be put on the table during your oral exam.

We, the examiner and the censor, will supplement with specific questions when appropriate, and after a while, we will end the discussion of the exam question that you drew and turn to material from other parts of the curriculum. Note that all of this as well as discussion between examiner and censor about the grade is included in the 25 minutes, so do not count on more than 8-10 minutes for your own presentation. You will be interrupted after 10 minutes.

Some of the questions below are very broad, so you must select the material you choose to cover. You will of course also be evaluated based on your selection of material. If you only present the simplest material, you limit the grade you can obtain. On the other hand, a good presentation of the simple material is better than a very poor presentation of the harder material. We might of course still ask you questions about material that you have decided to skip.

## Curriculum

The curriculum consists of two parts. 1.) From the course book (Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne: Operating Systems Concepts, 9th edition, International Version) the curriculum includes basically Chapters 1-15 omitting the exercises and projects at the end of each chapter. For the exam question on Distributed Systems the curriculum is based on i.) Chapter 17 from the US version of the 9th edition of the course book: Distributed Systems, ii.) Chapter 17 from the International version of the 8th edition of the course book: Distributed File Systems, iii.) Chapter 18 from the International version of the 8th edition of the course book: Distributed Synchronization, all these chapters can be found in the blackboard system or via the link that was send by email. 2.) In addition the curriculum contains the required mandatory assignments, the Weekly Notes, as well as the exercises from the Weekly notes.

## Questions

1. Operating-System Structures (Chapter 2)
2. Process Concept and Multithreaded Programming (Chapter 3 and 4)
3. Process Scheduling (Chapter 5)
4. Synchronization (Chapter 6)
5. Deadlocks (Chapter 7)
6. Memory-Management Strategies (Chapter 8)
7. Virtual-Memory Management (Chapter 9)
8. File-System and Implementing File Systems (Chapters 10 and 11)
9. Mass-Storage Structure and I/O Systems (Chapters 12 and 13)
10. System Protection (Chapter 14)
11. System Security (Chapter 15)
12. Distributed Systems, Distributed File Systems, and Distributed Synchronization: Chapter 17 (US version), chapter 17 (International Version, 8th edition), Chapter 18 (International version, 8th edition) as listed above. In your presentation you can focus on whatever you part you prefer to present.