

Exam DM510 Operating Systems (2019)

Time and Place

Dates: June 17th, 18th and 19th, 2019. Starting time and place: TBA.

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 two hours before the estimated time of the exam should be safe.

Procedure

The exam is in Danish or 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 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 three parts.

1. From the course book (Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne: Operating Systems Concepts, 10th edition.) the curriculum includes basically Chapters 1-18, including the exercises discussed at the tutorial sessions, but omitting the projects at the end of each chapter.
2. In addition the curriculum contains the text of the required assignments and the Weekly Notes.

Questions

1. Operating-System Structures (Chapter 1+2)
2. Processes, Threads and Concurrency (Chapter 3 and 4)
3. CPU scheduling (Chapter 5)
4. Synchronization (Chapter 6+7)
5. Deadlocks (Chapter 8)
6. Main Memory (Chapter 9)
7. Virtual Memory (Chapter 10)
8. Mass-Storage Structure and I/O Systems (Chapters 11 and 12)
9. File-System and Implementing File-Systems (Chapters 13, 14 and 15)
10. Protection (Chapter 17)
11. Security (Chapter 16)
12. Virtual Machines (Chapter 18)