About Exam
CS 3SD3

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- The exam will take place on Saturday, December 18, at 12:30pm - 3:30 pm (date schedule by the University Registrar).
- The exam format will be exactly the same as midterm format, i.e. open book, take home and via Avenue and e-mail.
- The exam will last 2.5 hours (plus 30 minutes for technology, 3hrs in total) and is worth 50% of total grade.
- The exam questions will be similar to the assignment questions, but simpler and less labour consuming.
- There will be 9 exam questions.
- Understanding the posted solutions to assignments is recommended.

- The exam cover Lecture Notes 1-17, parts of Textbook Chapters 1-10, 12, and parts of Chapter 3 of the logic book posted on the web.

- The exam will require not only the knowledge of FSPs (and appropriate LTSs) and its programming representations, but also some rudimentary knowledge of Petri Nets, Semaphores and Model Checking (as in Lecture Notes).

Topics

- Basic Algebra of Finite State Processes (FSP)
- Labeled Transition Systems
- Elementary Petri Nets
- Concurrent Composition of FSP and Elementary Nets
- Bisimulation
- Labeling, Hiding in FSP
- Structure Diagrams
- Shared Object and Mutual Exclusion
- Monitors, Condition Synchronization and Buffers
- Semaphores. Limits and Extensions (in FSP and in general)

Topics

- Deadlock and its prevention
- Place/Transition nets (including invariants)
- Coloured Petri Nets
- Safety (in FSP and in general)
- Liveness (in FSP and in general)
- Model Based Design
- Message Passing
- Temporal Logic: LTL and CTL
- Model Checking
- Dynamic Systems
- Timed Systems: FSP Model and Timed Petri Nets