Course information

Course information in the course database: http://kurser.ku.dk/course/ndaa04029u/2013-2014

Contents and Teaching Format

The course consists of a combination of lectures and practical programming exercises.

Within the seven teaching weeks of block 3, 2013/14, we will offer

- Two lectures of 2 hours per week (Tuesday and Friday);
- One exercise session of 2 hours per week (Tuesday, after the lecture);
- Individual help with the programming tasks on Mondays (DIKU canteen).

All lectures in this course will be delivered in English.
Exercises will be posted in English, but exercise sessions held in Danish (unless you request otherwise, in which case you should talk to us).
You can choose to hand in solutions written in English or in Danish.

Lectures

- Tuesday, 13.15 - 15.00 in HCØ, Aud.3.
- Friday, 10.15 - 12.00 in HCØ, Aud.3.

Lecturers: Jost Berthold (JB, berthold@diku.dk) and Jyrki Katajainen (JK, jyrki@diku.dk)

Week	Date	#	Lecturer	Topics	Reading	G-Ass.
6	Tue 4 Feb	1	JB	Course organisation, Introduction	SGG 1, 2 (cursory)	
	Fri 7 Feb	2	JK	C programming refresh: pointers, malloc, free, essential data structures	Kernighan/Ritchie	**G1**
7	Tue 11 Feb	3	JK	Processes and Scheduling	SGG 3 / 5	
	Fri 14 Feb	4	JB	Thread concepts, context switching POSIX threads, lock, and conditions	SGG 4 PTHREADS1	**G2**
8	Tue 18 Feb	5	JB	Process and Thread Synchronisation, Semaphores	SGG 6	
	Fri 21 Feb	6	JB	Classical Synchronisation problems, Monitors	SGG 6	**G3**
9	Tue 25 Feb	7	JK	Deadlocks	SGG 7	
	Fri 28 Feb	8	JK	Memory Management	SGG 8	**G4**
10	Tue 4 Mar	9	JK	Virtual Memory	SGG 9	
	Fri 7 Mar	10	JB	File systems	SGG 10,11	**G5**
11	Tue 11 Mar	11	JK	Mass storage	SGG 12	
	Fri 14 Mar	12	JB	I/O systems	SGG 13	
12	Tue 18 Mar	13	JB/JK	F. Brooks: "The IBM Operating System/360" (video lecture with additional material)	(SGG 18)	
	Fri 21 Mar	no lecture				
13	Mon 24 Mar	**Exam hand-out (9:00)**				

	Fri 28 Mar	**Exam deadline (14:00)**

Exercises

Exercise Sessions (Tuesday afternoon)

Exercises will be held in "teams" ("holde") on Tuesdays after the lecture. During the exercise sessions, you can get help with solving the assignments. In addition, some small exercises are solved and presented in the group.

Group	Day and Time	Room (Building)	Teaching Assistant
Hold 1	Tuesday 15:15 - 17:00	A 104 (HCØ)	Troels Henriksen
Hold 2	Tuesday 15:15 - 17:00	A 106 (HCØ)	Philip Munksgaard
Hold 3	Tuesday 15:15 - 17:00	A 103 (HCØ)	Annie (Ida) Pinder
Hold 4	Tuesday 15:15 - 17:00	A 105 (HCØ)	Niels Serup

TA Time (Monday morning)

On Monday morning (ca. 9:00 - 12:00), teaching assistants will be available in the DIKU canteen to help with problems concerning your programming assignments.

Assignments

To get access to the course exam, you have to work on five "**G-assignments**" (group assignments, Godkendelse-opgaver).
These are (mostly) practical programming tasks, extending an operating system for teaching purposes called Buenos. A written report must describe and evaluate your implementation work.

The rules are as follows:

- You should solve these tasks in groups of (up to) three students.
- Each G-assignment scores between 1 and 3 points.
- To be admitted to the exam, you have to obtain a total score of at least 8 points.
- To be admitted to the exam, you have to hand in reasonable solutions to at least four of the five G-assignments.
- G-assignments cannot be resubmitted.

G-assignments will be published Friday afternoon and are due ten days later, on Monday (before midnight).

Exam

One part of the exam will be an implementation task similar to the work carried out in the G-assignments earlier, but has to be solved individually. Another part of the exam will consist of questions about theoretical topics (prepared in the weekly exercises).

The exam will be published on 24 March, 2014 (at 9:00) on Absalon, is due on 28 March (at 14:00), and will be graded on the 7-point scale.
The Re-exam will have the same format as the exam. It will be published on 23 June 2014 and is due on 27 June 2014 (unless other information is given by the exam office).

Literature and Software

We use the following textbooks:

- (SGG) Silberschatz, Galvin & Gagne: Operating System Concepts, 9th edition, Wiley, 2013 (International student version)
- Kernighan & Ritchie. The C Programming Language, 2nd edition, Prentice-Hall, 1988.

The course and G-assigment will use the educational operating system Buenos, from the university of Helsinki. Essential additional reading material includes the Buenos roadmap, a description of this system including many exercises and programming tasks.

Other additional reading material may be provided via Absalon and announced in the lectures.