

## Course Analysis

### ID1217 Concurrent Programming (Programmering av parallella system)

2023/2024, period 3 (VT24)

#### Course information

<b>Course:</b>	ID1217 Concurrent Programming (Programmering av parallella system) <a href="https://www.kth.se/student/kurser/kurs/ID1217?l=en">https://www.kth.se/student/kurser/kurs/ID1217?l=en</a>
<b>Credits:</b>	7,5 hp
<b>Level:</b>	First cycle (C)
<b>Requirements:</b>	Written exam, 5h (TEN1; 4,5 hp) Project and programming assignments (LABA; 3 hp)
<b>Academic Year:</b>	2023/2024
<b>Period:</b>	period 3 (VT14)
<b>Course coordinator:</b>	Ahmad Al-Shishtawy, Lecturer, <a href="mailto:ahmadas@kth.se">ahmadas@kth.se</a> , tel. 08-790 4242
<b>Examiners:</b>	Ahmad Al-Shishtawy, Lecturer, <a href="mailto:ahmadas@kth.se">ahmadas@kth.se</a> , tel. 08-790 4242 Vladimir Vlassov, Professor, <a href="mailto:vladv@kth.se">vladv@kth.se</a> , tel. 08-790 4115
<b>Teaching Assistants</b>	none
<b>Language:</b>	English
<b>Canvas (VT24):</b>	<a href="https://canvas.kth.se/courses/44913">https://canvas.kth.se/courses/44913</a>

#### Quantitative Data

<b>Total number of registered students:</b>	<b>54 students</b>
<b>The number of students completed the course</b>	<b>31 students (57 % of 54 st)</b> Grade Statistics (of 31 st): A: 6 (19%); B: 7 (23%); C: 9 (29%); D: 5 (16%); E: 4 (13%)
<b>Exam statistics</b>	<b>37 students (69 % of 54 st) attended the exam</b> Grade Statistics (of 37 st): A: 6 (16%); B: 7 (19%); C: 11 (30%); D: 5 (14%); E: 4 (11%); F: 4 (11%) 33 students (89 % of 37 st) passed

#### Course activities

- 18 lectures; 5 weekly homework programming assignments; 1 programming project
- Lectures and exams were conducted on the KTH Kista campus (Electrum, Kistagången 16, Kista);
- Reporting sessions specially appointed to report and demonstrate programming assignments (homework and project) were done over Zoom.

#### Examination:

The examination in ID1217 consists of

1. Approved four homework assignments and one programming project (LABA; 3 hp)
2. Approved exam, 5 hours (TEN1; 4,5 hp). ID1217 exam is a "closed book" computer-based exam in Canvas held in computer rooms at Electrum, KTH Kista campus.

Grading

- The exam (and the entire course) is graded with grades A-F based on the total sum of points collected on the exam and bonus points collected for programming assignments (homework and project).
- The practical part of the course (LABA; 3 hp) is graded as Pass/Fail as follows. You pass the practical part if at least four homework sets are approved and your project is approved.

#### Bonus Policy

- Each homework assignment is awarded bonus points if submitted on time (i.e., before or on the due date), presented within a week after the deadline, and accepted (passed). The project can be awarded up to 6 bonus points, whereas each homework can be awarded up to 3. The number of bonus points can be reduced for errors or inefficient solutions.
- Assignments (homework and the project) turned in after the corresponding deadlines will not be granted bonus points.

### ***Changes since the previous occasion of the course in the 2022/2023 academic year, VT23***

- Revised lectures 1 Introduction: updated Moore's law plots, state-of-the-art multi-core processors

### ***Proposals of Concrete Improvements for the Next Course Occasion***

- **Lectures:** Revise the last lecture, "Paradigms for Process Interaction in Distributed Computing. Parallelism in Scientific Computing", as there is not enough time to deliver the lecture. Consider splitting it into two lectures. Update state-of-the-art multi-core processors as of spring 2025
- **Homework programming assignments and the Project:** Requirements to do 4 out of 5 homework assignments to pass the course do not leave room for the project. Consider allowing students to work in groups of 2 or, better yet, consider having only project or homework sets but not both.
- **Textbook:** Consider finding a new textbook on which to base the course. As for now, the course is partially based on readings from the following textbooks, augmented by the material presented on comprehensive lecture slides and videos available online in Canvas.
  - ***An Introduction to Parallel Programming***, by Peter S. Pacheco, and Matthew Malensek, Morgan Kaufmann, 2021, eBook ISBN: 9780128046180, Paperback ISBN: 9780128046050.
  - ***The Art of Multiprocessor Programming***, by Maurice Herlihy, Nir Shavit, Victor Luchangco, and Michael Spear, Elsevier Science & Technology Books (Morgan Kaufmann Publishers), 2020; Paperback ISBN: 9780124159501, eBook ISBN: 9780123914064.
- **Videos:** Pre-record new versions of the lecture videos.

### ***Comments by Students:***

- Difficult to start with the project before having all the homework done. Because of the heavy workload on us. The pushed project deadline helped.