Distributed Systems 2023-2024: General Course Information

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KU LEUVEN DistriNet

This Course

- **One series of lectures and lab sessions** for two courses, all lectures in English
  - Distributed Systems [H0N08a]
  - Gedistribueerde Systemen [H04I4A]
- Plenty of time to Q&A and interact in Dutch/Flemish
  - Lectures: hopefully all present in the lecture hall! (Livestream on a best-effort basis)
  - Lab sessions: all teaching assistants speak both Dutch and English!
- Exam: you can use the language of your choice!

Sources of information

- Toledo site for “Distributed Systems [H0N08a]”
  - **Action point**: register on that site, right now or as soon as possible!
  - Be aware: **manual effort** if you are initially enrolled for “Gedistribueerde Systemen [H04I4A]”
- Official course schedule: use the info of the course Distributed Systems [H0N08a]!

Course Objectives

1. Knowledge and understanding of key concepts of Distributed Systems

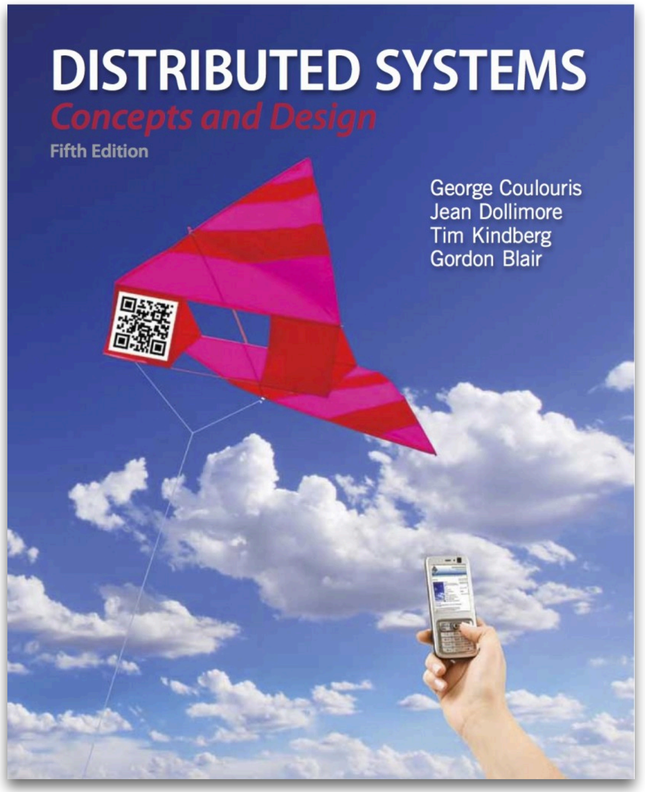
   - Textbook: collection of concepts, patterns and blueprints, architectures and algorithms

2. Experience with and understanding of specific middleware platforms

   - Lab sessions: hands-on experience

Learning resources (course material)

- Primary learning material = lecture slides
- Reference textbook: “Distributed Systems, Concepts and Design” **fifth edition** by Coulouris, Dollimore, Kindberg and Blair.
  - We will cover **a subset of** chapters and sections
  - We will circulate a full list of chapters/sections to study
- For some lectures extra handouts or lecture notes will be made available (via Toledo)
- In rare cases we may refer to technical papers and/or research papers.
- Lab sessions: tutorial information (slides, links, …)



Course activities

- 14 slots with 2 hours of **mandatory lectures** (Tuesday AM or PM)
  - +/- 10 slots based on textbook, concepts and architectures (“principles”)
  - +/- 4 slots based on middleware case studies (“practice”)
- 9 hands-on **lab sessions** (Tuesday AM)
  - 2 **mandatory** sessions on remote communication (remote method invocation & REST)
  - 4 **mandatory** sessions on distributed cloud-based applications - secure web applications in a Cloud based environment (REST, authentication, transactions, local deployment)
  - 3 **optional** sessions on focusing on an extended version, with advanced persistence and deployment in a real-world cloud environment

Lab sessions schedule & deadlines

- Part 1: Remote Communication (**mandatory**)
  - Tuesday October 10 (AM): Lab 1
  - Tuesday October 17 (AM): Lab 2
  - **Friday October 20 - deadline first assignment !**
- Part 2: Cloud Application (**mandatory**)
  - Tuesday October 24 (AM): Lab 3
  - Tuesday October 31 (AM): Lab 4
  - Tuesday November 7 (AM): Lab 5
  - Tuesday November 14 (AM): Lab 6
  - **Friday November 17 - deadline second assignment**
- Part 3: Cloud Application extended (**optional**)
  - Tuesday November 21 (AM): Lab 7
  - Tuesday November 28 (AM): Lab 8
  - Tuesday December 5 (AM): Lab 9
  - **Friday December 8 - deadline third assignment**
- Tuesday December 5 (PM): feedback and Q&A on mandatory assignments (Parts 1 & 2)
- Tuesday December 19 (PM): feedback and Q&A on optional assignment (Part 3)

Support during the Lab Sessions

- Lab sessions will be executed **in teams of 2 students;**
  - In principle, the computer labs in the Computer Science Department are available from 10h30-13h on 9 days (Tuesday AM, as of October 10).
  - In practice: a team of two students can share a single screen and collaborate.
- Supporting actions are mainly IN the lab!
- Teaching assistants will be available in the lab to swiftly answer questions and deliver support.
- Each week: we will explicitly brief you on:
  - (1) which preparations to execute before you come to the lab session.
  - (2) which assignment document to read before you start the lab session.
  - (3) what to deliver (upcoming deadlines).
- Apart from the lab sessions, we intend will have two feedback sessions during the lectures that include explicit advice, recommendations, common mistakes related to the assignments. **You are expected to act on that feedback and reflect on the improvements you should make when reconsidering the results that you submitted.**
- **Please note:** the background for the lab sessions and the feedback on results from lab sessions will be presented as part of the lectures (PM slots)!

Course evaluation

- Examination consists of **two parts**:
- 1. Lectures: written exam
  - Will test your knowledge of key concepts covered during the lectures.
  - Typically 3-4 questions, standard time = 3 hours.
- 2. Lab sessions: assignments
  - Will test your practical experience with middleware platforms
  - We will review your submitted code and report (in teams of 2)
  - We will organise an oral (online) interview (individual!) to test your understanding

Course evaluation: mandatory vs optional part

- When performing the optional assignment (part 3): can choose to let an additional 20% of your final score depend on your lab work
- **Freedom to choose** (with your team of 2):
  - If you participate in labs 7-8-9 and deliver the third (optional) assignment, then you will receive a separate score for this by the end of the semester.
  - You can then still decide whether you want to use this score as part of your final score for the course, or not.
- Rationale:
  - Students who perform very well when doing applied and practical work in the lab have the opportunity to let an extra 20% of their final score depend on the lab sessions
  - Students who have difficulties in delivering lab results can focus on a smaller task and then DO invest more in (the theoretical/conceptual part of) the exam

Course evaluation continued

Scoring if lab assignment 3 completed

20% assignment 1+2
20% written exam Q1
20% written exam Q2
20% written exam Q3
20% written exam Q4 OR assignment 3 score

Scoring if lab assignment 3 not completed

20% assignment 1+2
20% written exam Q1
20% written exam Q2
20% written exam Q3
20% written exam Q4

Course evaluation continued

- For ALL STUDENTS:
  - Evaluation of the mandatory labs: RMI/REST (part 1) and Cloud (mandatory part 2): counts for 4/20 in the final score
  - Part of the permanent evaluation. You prepare for a 10’ interview based on your submission and the feedback we deliver in the feedback sessions. This interview will be scheduled as close as possible to the exam-session.
- THEN: two ways to approach the written exam in January:
  - Written exam Type 1:
    - 3 questions about the lectures: 12/20 points
    - If you made the optional (part 3) cloud assignment, you can opt to not answer question 4 and choose to use the score you received for the optional (part 3) assignment: 4/20 points
  - Written Exam Type 2: (1 extra question)
    - 4 questions about the lectures: 16/20 points
    - Note: this option is available even if you made the optional (part 3) cloud assignment. In this case the score for that assignment has no impact.

Exam: important notes

- Written exam during the examination period
- The exam is “**closed book**”
- The exam can be taken in Dutch or in English (you are free to choose)

Team

- Lectures:
  - **Prof. Wouter Joosen**
  - **Prof. Tom Van Cutsem**

- Lab sessions:
  - **Dr. Kristof Jannes** (coordinator) – **distributedsystems@cs.kuleuven.be**
  - Dr. Victor Le Pochat
  - Willem Verheyen
  - Pieter-Jan Vrielynck
  - Jan Vanhoof
  - Héloise Gollier

A word of warning

- Both the lectures and the lab sessions have changes compared to the previous year(s)!
- Don’t blindly assume the lectures, lab sessions, assignments, exam, … will be the same as last year!

Questions?