

COMP2004

Distributed Systems

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University College Dublin (UCD)

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Course Title

COMP2004 Distributed Systems

1 Details

Date: 4-May-2021

Duration: 8 minutes (approximately)

Venue: Online via zoom.

2 Learning Objectives

In this course, we will explore prevalent issues in designing and implementing distributed systems and learn how to deal with the shared state between separate system processes. We will also evaluate the challenges and solutions that come into play when an application consists of two or more processes that do not share a common address space. Featured guest lecturers throughout the trimester will further elaborate on issues of security distributed shared memory and more.

At the successful completion of this course, the audience will be able to understand the fundamentals of the following topics:

- Replication and consistency;
- Transactions, agreement and reconciliation;
- Structuring of distributed systems;
- Directories and naming;
- Accounts and authentication;
- Distributed storage systems; and
- Future directions and issues

The above learning outcomes are chosen so that the reader starts with the fundamental concepts of distributed systems. Sufficient background knowledge and theoretical understanding are introduced at the beginning. And building on the lecture, the student will have an understanding on the broad spectrum of distributed computing devices and networks.

3 Prerequisites

No essential prerequisites are required for this course. A general understanding of computing devices is sufficient – the course will be delivered from the fundamentals of distributed systems.

It will be good, if the students have access to a smart-phone/tablet/laptop with internet connection during the presentation. However, it is *not* mandatory - teachings in the class will be conducted in an interactive fashion with the instructor.

4 Course Notes

The course website is <https://soumyabrata.dev/distributedsystems.html>, and slides are available via <https://soumyabrata.dev/files/ucd-course-slides.pdf>.

Instructor

Soumyabrata Dev is an Assistant Professor at the School of Computer Science, University College Dublin. Prior to that, he was a postdoctoral researcher at ADAPT SFI Research Centre, Dublin, Ireland. He obtained his PhD from Nanyang Technological University (NTU) Singapore, in 2017. From Aug-Dec 2015, he was a visiting student at Audiovisual Communication Laboratory (LCAV), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland. He graduated *summa cum laude* from National Institute of Technology Silchar, India with a B.Tech. in 2010. His research interests include remote sensing, statistical image processing, machine learning, and deep learning.