CMPU1022
Operating Systems 1

Lecturer Dr. Martin O'Connor

Module Description

The module will provide the fundamentals for Advanced Operating Systems and the groundwork for other modules in computer science that assume a general understanding of operating systems principals and practice.

It provides an overview of the major components of a computer system and their interaction with the systems software.

Online Resources

Brightspace:

Operating Systems 1 CMPU1022: 2024-25 [TU856]

Self-enrolment:

"Discover" tool Instructions:

https://www.tudublin.ie/connect/vle/brightspace-for-students/bitesized-brightspace-student-guides/

Install the Brightspace 'Pulse' app on your phone for class notifications.

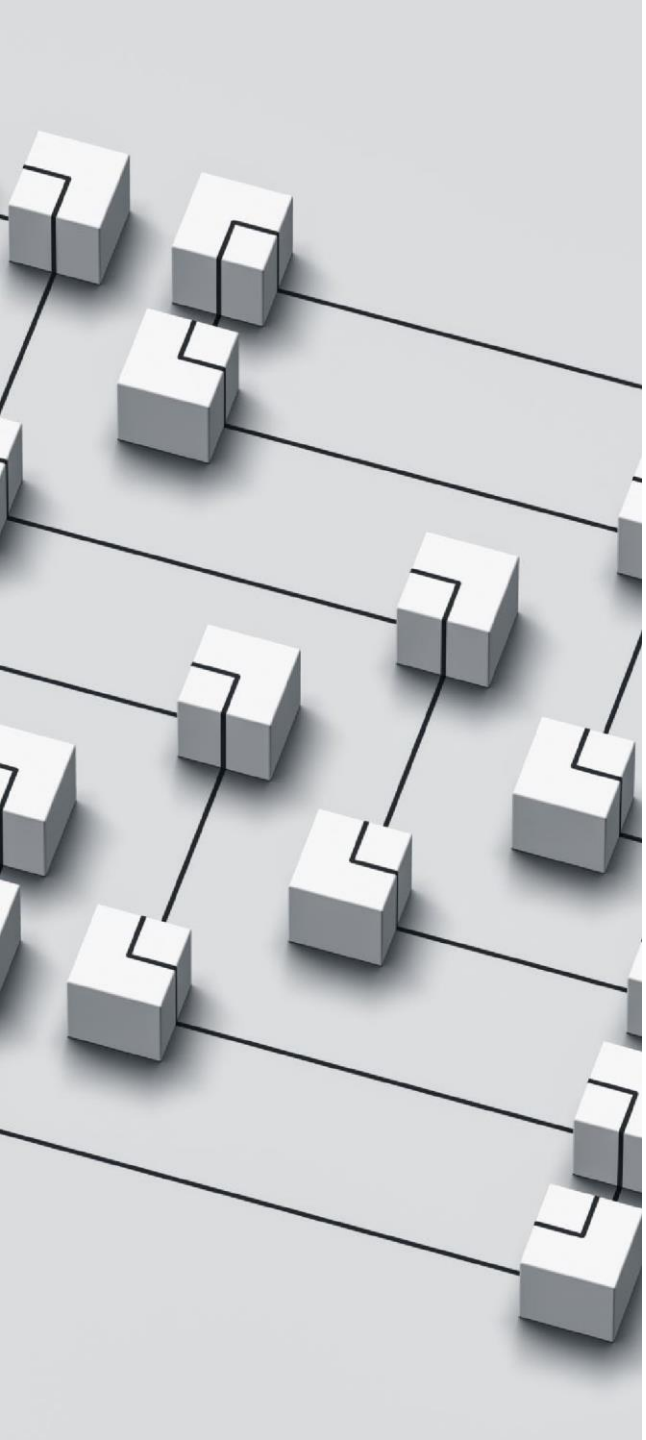
Virtual Learning Environment

- Once enrolled on the module, you will have access to the module learning material and resources
- Brightspace will be used to share slides and reading list
- You are strongly encouraged to get involved, fully engage and help yourself and others to learn
- Brightspace will be the primary communication tools between you and the module instructor

Module Description

The module provides a fundamental understanding of the concepts of operating systems. The module will also introduce networked, client-server and distributed operating systems, at a basic level.

You will also learn how and why operating systems have evolved over years and the impact this has had on modern operating systems.



Module Description

The concepts will be reinforced with practical laboratory exercises in operations systems functionality, user interaction and management. Practical assignments will be given to develop practical operating systems skills.

This will be further backed up by a focus on command line interaction with various operating systems.

Module Aims

The aims of this module are to:

1. Introduce the principals of operating systems design
2. Give a working knowledge of a modern operating system
3. Provide a sound knowledge of the various components and interactions of a modern operating system
4. Facilitate a competency in practical interaction with an operating system

Assessment

Exams – 60%

CA – 40%

[CA1 - 15%

CA2 – 15%

Weekly labs - 10%]

Policy on Plagiarism

All students are required to familiarise themselves with the Academic Integrity resources available on the OS1 module page in Brightspace and adhere to them completely.

Learning Outcomes

1. Explain the benefits of an operating system in a computing environment.
2. List and describe the major components of an operating system and their basic functions.
3. Discuss the fundamental trade-offs involved in the design of operating systems.
4. Differentiate between the concept of processes and threads of control.
5. Classify scheduling policies with examples from different operating systems.

Learning Outcomes

6. Examine various file systems and compare/contrast their relationships.

7. Compare and contrast the strengths and weaknesses of different modern operating system.

8. Discuss networked, client-server and distributed operating systems and how they differ from single user operating systems.

9. Display and perform proficient command line interaction with various operating systems.

Preparing for and doing the exam

- The exam will follow the same structure of the past exams.

- There will be an example of the exam paper on Brightspace. Plus, you can see the past exams on the student intranet so you can know in advance what to expect.

References

Operating System Concepts 10th Edition
by Abraham Silberschatz, Peter B. Galvin, Greg Gagne; 2021

Operating Systems: Internals and Design Principles 9th Edition
by William Stallings, 2017

Understanding Operating Systems 8th Edition
by Ann McHoes, Ida M. Flynn, 2017

Modern Operating Systems
by Andrew S Tanenbaum, 2016

Operating Systems: Three Easy Pieces
https://pages.cs.wisc.edu/~remzi/OSTEP/

Contact me

Contact details on Brightspace

Questions?