

## Learning Guide Unit 1

### Reading Assignment

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As you go through the readings and watch the video, consider the following:

- How operating systems evolved from batch processing systems to modern multitasking environments?
- What role do kernel architecture, system calls, and APIs play in the basic structure of operating systems?

#### To access LIRN:

- Log into the UoPeople library and go to LIRN. Here is a link to guide you to reach LIRN - [How to Access LIRN?](#)
- Select **Computer Science** under the **Jump to the Specific Group** section.
- Search using the entire name of the book.
- View the online book.

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#### Read:

1. Hailperin, M. (2019). *Operating systems and middleware: Supporting controlled interaction*

<https://gustavus.edu/academics/departments/mathematics-computer-science-and-statistics/max/os-book/>. Licensed under a Creative Commons Attribution-ShareAlike 3.0 Unported License.

- View the online book.
- Read Chapter 1: Introduction (pp. 1 till pp. 17)

This chapter provides a comprehensive introduction to operating systems, beginning with a clear definition of what an operating system is and exploring the role of middleware. It then outlines the key concepts such as managing multiple computations on a single computer, facilitating interactions between computations, and supporting interactions across both time and space.

Additionally, the chapter touches on the importance of security in operating systems.

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#### Additional Readings:

1. Arpaci-Dusseau, R. H., & Arpaci-Dusseau, A. C. (2018). *Operating systems: three easy pieces* (1.01 ed.). Arpaci-Dusseau Books.

<https://pages.cs.wisc.edu/~remzi/OSTEP/>

- View the online book.
- Read Chapter 2: [Introduction to Operating Systems](#) (pp. 1 till pp. 17)

An introduction to operating systems provides an essential foundation for understanding how computers manage hardware and software resources. It explores the role of the operating system as an intermediary between user applications and hardware components, ensuring efficient execution of processes. Key concepts include process management, memory allocation, file systems, and device control. The study also delves into various types of operating systems, such as batch, time-sharing, distributed, and real-time systems.

2. Gupta, C. P., & Goyal, K. K. (2020). *Computer concepts and management information systems*. Mercury Learning & Information. ([Access through LIRN](#))

- Read Chapter 1 – Concepts and Computer Fundamentals (pp. 1 till 32 pp.)
- Read Chapter 2 – Software: An Introduction (pp. 35 till 61 pp.)

These chapters offer a detailed exploration of software, beginning with an introduction to the various types of software and their roles in computing. It covers the essential concepts of assemblers, interpreters, and compilers, along with the evolution and uses of different generations of computer languages. A significant focus is placed on operating systems, providing definitions, functions,

classifications, and components that are crucial for managing hardware and software resources.

**Watch:**

1. Harrison Crettol. (2020, August 22). *History of OS (Operating Systems)*. [Video]. YouTube.

- This video provides a concise overview of the history of operating systems. It highlights key milestones and innovations that have shaped the evolution of OS technology.

History of OS (Operating Systems)



2. Learn Computer Science. (2023, February 20). *Introduction To Operating System | OS Functions, Features And Types* [Video]. YouTube.

- This video provides a clear and engaging introduction to operating systems, covering their core functions, key features, and various types. It explains how operating systems manage hardware, software, and user interactions.

Introduction To Operating System | OS Functions , Features...



3. D Sumathi. (2022, June 3). *Operating System Structure-Operating Systems-Unit-1-Operating Systems Overview, System Structures* [Video]. YouTube.

- This video provides a basic introduction of the simple structure of operating systems, focusing on the basic components and their interactions within an OS.

**Operating System Structure-Operating Systems-Unit-1-Oper...**

3. Neso Academy. (2018, March 5). *Operating System Services* [Video]. YouTube.

- This video provides an insightful overview of essential Operating System services, such as process management, memory handling, file operations, and security.

**Operating System Services**