

Course Syllabi

1. TICS-00067 OPERATING SYSTEMS

2. 192 credits hours.

3. Bibliography

- GAWK: Effective AWK Programming. A User's Guide for GNU Awk/<https://www.gnu.org/software/gawk/manual/gawk.pdf>, Arnold D. Robbins, 2023
- Operating Systems: Three Easy Pieces/<https://dokumen.pub/operating-systems-three-easy-pieces-110nbsped.html>, Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau, 2023
- Operating Systems.Principles and Practice. Volume I: Kernels and Processe/<https://www.kea.nu/files/textbooks/ospp/osppv1.pdf>, Thomas Anderson and Michael Dahlin, 2015

4. Specific Course Information

a. The subject Operational Systems studies the main element of software so that a computer works in a friendly way both for the system administrator and for the end users. In the teaching process, the content of the subject is divided into 2 sections. The first, oriented towards understanding the functioning of each of the components of a modern operating system. The analyzed components are: processor, memories, input/output, file systems. In addition, it is studied the virtualization of an operating system. The second part is oriented to the administration of the operating system. In this part we analyze the installation of a Unix type system; in addition, we analyze several commands, basic and administrative, essential in a Unix type system. By correct use of the commands and languages: Bash and AWK, scripts will be implemented to automate common administration tasks in the system. While the course focuses on the Linux system, Most topics to deal in this subject have its equivalent in Windows. In the end the student will be able to manage in an optimal way and also automate some complex tasks that are part of the work of an operating system administrator.

b. Prerequisites:

- TICS-00053 COMPUTER ORGANIZATION AND ARCHITECTURE

5. Learning Objectives of the Course

a. To train the student in the operating system: its components, the interaction between them, its operation from the point of view of a server, and the administration necessary for its operation to be adequate and necessary for the work that it is carrying out.

- To know the concepts related to the virtualization of an operating system.
- To understand the main parts of an operating system, its functioning, its interactions and how it affects the performance of the system, centered on the Linux system.
- Install a GNU/Linux distribution taking into account technical and usability aspects.
- Implement scripts to automate repetitive administration tasks of a Unix operating system.
- Train the student in the administration of a network operating system.

b. Learning Outcomes

- The student is trained to manage the resources of a network operating system.
- The student understands the functioning of each component of the operating system and of the entire operating system as a whole.
- The student is able to customize, install and configure an operating system
- The student is able to monitor the operation of an operating system and solve problems related to its

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6. Course Topics

- Chapter 1: introduction
- Chapter 2: structure of the operational system
- Chapter 3: virtualization of an operational system
- Chapter 4: installation and configuration of an operational system
- Chapter 5: tasks and tools of the administrator of the operational system
- Chapter 6: task assembly
- Chapter 7: performance of the operational system