VNIVERSITAT DE VALÈNCIA

Course Guide
42602 Computers and operating systems

COURSE DATA

DATA SUBJECT

Code: 42602
Name: Computers and operating systems
Cycle: Master's Degree
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
2116 - Master's Degree in Bioinformatics	Escola Tècnica Superior d'Enginyeria	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2116 - Master's Degree in Bioinformatics	Computers and operating systems	ELECTIVES

COORDINATION

ARNAU LLOMBART VICENTE

SUMMARY

In this course we will see the basic concepts of computer architecture. Analyze how information is represented in a computer and how to manage. Study of computer operating systems and give the basics of file system. Interconnection networks of computers and their use will be important to understand how the current computer systems. Analyze the execution of processes on a computer and finally we will see advanced concepts of high performance computing (HPC).

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

None

COMPETENCES / LEARNING OUTCOMES

2116 - Master's Degree in Bioinformatics

Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should demonstrate self-directed learning skills for continued academic growth.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

DESCRIPTION OF CONTENTS

1. Introduction to computer science.

Introduction to Computer Science. The computer as a tool for problem solving.

2. Representation of the information

Representation of information in the computer. The binary system.

3. Computer Architecture

We analyze the components of a Computer. Memory, arithmetic unit, disk, peripherals, etc..

4. Architecture of an operating system

Operating systems controlling the operation of computers. See its structure and functioning.

5. Programs and processes

We study the characteristics and differences between programs and processes.

6. Windows.

We will study and manage the environment of windows operating systems.

7. Filesystems

We will study the various file systems can use a computer to store information.

8. Process Management

In computers for scientific computing is important a good process management. We will discuss how to launch and control processes.

9. Advanced Commands

We will study the most advanced commands for managing data with the terminal..

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	18,00
Laboratory	12,00
Total hours	**30,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	8,00
Individual or group project	2,00
Independent study and work	40,00
Preparation of lessons	36,00

Preparation for assessment activities	15,00
Resolution of case studies	15,00
Total hours	**116,00**

TEACHING METHODOLOGY

MD1 - Task training of the teaching-learning environment interaction in the classroom through expository sessions. Previous assignments include preparation (information search, reading texts supplied by teachers), teaching sessions themselves and the later work of deepening. MD2 - Learning through problem solving and case studies, through which it is acquiring skills on different aspects of materials and subjects. MD3 - Hands-on lab. Include preparation, implementation of practices to monitor and teacher support, independent work online and reporting practices. MD4 - Cross-disciplinary skills. Include attendance at courses, conferences or round tables organized by the CEC of the Master and / or conduct of a bibliographic work on issues that contribute to the integral. It produces a report of activities.

EVALUATION

In both assessments:

SE1: attendance at classes: 5
SE2 Theoretical topics activities: 10.
SE3 Laboratory reports: 75
SE4 Exam: 10

Continuous assessment is scored only once.

REFERENCES

- Referencia b1: INTRODUCCIÓN A LA INFORMÁTICA (Cuarta Edición). Alberto Prieto, Antonio Lloris, Juan Carlos Torres. Ed. McGraw-Hill. 2006.

- Referencia b2: FUNDAMENTOS DE SISTEMAS OPERATIVOS. SANTIAGO CANDELA, EDICIONES PARANINFO, S.A., 2007. ISBN 9788497325479

- Referencia c1: INTRODUCCION A LA INFORMATICA (ED. 2012). ANA MARTOS RUBIO, ANAYA MULTIMEDIA, 2011. ISBN 9788441529410

- Referencia c2: "Linux. Principios básicos de uso del sistema" (8ª edición). Nicolas PONS. Ediciones ENI. 2023.