

**COURSE DATA****DATA SUBJECT****Code:** 34921**Name:** Informatics**Cycle:** Undergraduate Studies**ECTS Credits:** 6**Academic year:** 2026-27**STUDY (S)**

Degree	Center	Acad. year	Period
1404 - Degree in Industrial Electronic Engineering	Escola Tècnica Superior d'Enginyeria	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1404 - Degree in Industrial Electronic Engineering	Information technology	BASIC

COORDINATION

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SUMMARY

This course revises the basics subjects about computer machines, what are its basic components, potential uses and limitations.

It will introduce students to the understanding and management of the operating system as well as the description and use the network as a key part in communicating information between computers.

A basic knowledge of different tools useful for the programming task are also given, as well as a brief introduction to the concept of database.

An introduction to programming using structured programming paradigm, as well as an introduction to basic data structures is provided.

In regard to the practical part in this course, the student will put in practise the knowledge studied in theory and will adquire skills in the development of programs using a widely used general purpose programming



language.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

No previous specific knowledge is needed for this subject.

COMPETENCES / LEARNING OUTCOMES

1404 - Degree in Industrial Electronic Engineering

CG10 - Ability to work in a multilingual and multidisciplinary environment.

CG3 - Knowledge of basic and technological subjects that allows students to learn new methods and theories and provides them with versatility to adapt to new situations.

DESCRIPTION OF CONTENTS

1. INTRODUCTION

Concept of computer: Basic concepts. Internal structure of the computer.
Software: Operating system. Utilities.
Information management.

2. Programming in high level languages

Algorithm.
Languages and programming paradigms.
Characteristics of high-level programming languages: Variables and constants. Simple Data Types.
Stages in conducting a program: Analysis of the problem. Algorithm design. Programming the algorithm.

3. Structured programming.

Structured Program Theorem.
Design of structured programs
Control Structures: Sequential structure. Conditional structure. Iterative structure.



4. Files

Basics of files: Access types. Logical and physical files. Binary and text files.
Processing files.

5. Modular Programming

Module definition: Modular programming. Subprogram Definition: Functions. Parameters of a subprogram.
Scope of identifiers.
Recursion.

6. Structured Data Types

Vectors, matrices, strings and records

7. Computer networks.

Introduction and Basics.
Utilities to share information.

8. INTRODUCTION TO DATA BASES

Introduction and Basics.
Operations and examples.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Laboratory	20,00
Classroom practices	10,00
Total hours	60,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	15,00
Independent study and work	0,00
Preparation of lessons	65,00



Preparation for assessment activities	10,00
Resolution of case studies	0,00
Total hours	90,00

TEACHING METHODOLOGY

EVALUATION

The evaluation of the subject will be carried out by:

- Continuous assessment, based on participation and degree of involvement in the teaching-learning process, taking into account regular attendance at planned face-to-face activities and resolution of proposed questions and problems. (N_Continua).
- Individual objective test, consisting of several controls throughout the semester, and a final exam, which will consist of both theoretical-practical questions and problems (N_Examenes).

N_Examenes = 50% Controls + 50% Final Exam

The value of all controls will be the same.

- Evaluation of the practical activities based on the achievement of objectives in the laboratory sessions and problems, and the preparation of papers / reports as well as the final project (N_Practicas).

N_Practicas = 50% Work of practices + 50% Final Project

Attendance at practices is considered compulsory to pass the course, both in first and second call. You have to get at least a 4 in the final project to be able to do the average.

The final grade for the course will be:

Final Note = 10% N_Continua + 60% N_Examenes + 30% N_Practicas

It will be necessary to obtain, at least 4 out of 10 in each of the parts to be able to mediate the note.

The teachers of the subject will have the right at any time to request an oral explanation of the work presented, whether in the continuous evaluation or in the practices, and may ask the students to make small modifications in order to check the correctness. acquisition of valued knowledge.



The evaluation will be conducted in accordance with the University of Valencia's Regulations. At the time of writing this teaching guide, the current legislation is approved by the Governing Council of the UVEG of

January 27, 2004, adjusted as provided for that purpose by the Royal Decrees 1044/2003 and 1125 / 2003. It states basically that the cards will be numbered from 0 to 10 with a decimal expression and must be added the qualitative rating scale for the following:

From 0 to 4.9: "Failed"

From 5 to 6.9 "Approved"

From 7 to 8.9, "Notable"

From 9 to 10: "Excellent" or "with honors Excellent"

In the second call there is the possibility of improving N_Practices, by preparing a new project (if the practical sessions have been attended) and the exam (a single exam).

The final mark of the subject in the second call will be:

Final Grade = 70% N_Exams + 30% N_Practices

In the second call, it will be necessary to obtain at least 4 out of 10 in each of the parts in order to be able to average the grade.

None of the grades will be kept from one year to the next.

Copying or plagiarism of any activity that is part of the evaluation will result in the impossibility of passing the course, and the student will then be subject to the appropriate disciplinary procedures indicated in the ACTION PROTOCOL FOR FRAUDULENT PRACTICES AT THE UNIVERSITY OF VALENCIA ([ACGUV 123/2020](#)).

REFERENCES

- [G. Beekman (2005)]. Introducción a la informática (Prentice-Hall) (disponible también en versión electrónica).
- [W. Savitch (2007)]. Resolución de problemas con C++. El objetivo de la programación (Prentice-



Hall).

- [L. Joyanes (2006)]. Programación en C++: Algoritmos, estructuras de datos y objetos (MacGraw Hill).
- [L. Joyanes, I. Zahonero (2001)]. Programación en C: Metodología, algoritmos y estructuras de datos (MacGraw Hill).
- Robert C. Martin. Código Limpio. Prentice-Hall / Anaya. 2012.
- [H.M. Deitel, P.J. Deitel (2009)]. C++ como programar (Prentice-Hall).
- H. Korth, A. Silberschatz (2006)] Fundamentos de bases de datos (MacGraw Hill) http://xv9lx6cm3j.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rft_id=info%3Asid%2Fsummon.serialssolutions.com&rft_val_fmt=info%3Aofi%2Ffmt%3Akev%3Amtx%3Abook&rft.genre=book&rft.title=Fundamentos+de+bases+de+datos+%285a.+ed.%29&rft.au=Silberschatz%2C+Abraham&rft.au=Korth%2C+Henry+F&rft.au=Sudarshan%2C+S&rft.date=2006-01-01&rft.pub=McGraw-Hill+Espa%C3%B1a&rft.isbn=9788448146443&rft.externalDocID=EBC3195647¶mdict=es-ES
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