COURSE DATA

DATA SUBJECT

Code: 34831
Name: Informatics
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1407 - Degree in Multimedia Engineering	Escola Tècnica Superior d'Enginyeria	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1407 - Degree in Multimedia Engineering	Informática	BASIC

COORDINATION

DIAZ FERNANDEZ MARIA ELENA

SUMMARY

The course "Informática" is a core course of the first year of the Multimedia Engineering Degree. The course workload is 6 ECTS and it is given in the first four-month period of the first year.

This course tries to teach some basic computer concepts like, its basic components, potential uses and limitations.

Students will understand and management some basic concepts related to operating systems as well as the description and use the network as a key part in communicating information between computers.

They also will learn a basic knowledge of different tools, as well as a brief introduction to the concept of database.

One main objective of the course is to get a deeper knowledge of the design of algorithms using structured programming, as well as fundamental data structures.

In the laboratory sessions, the student will implement the theoretical concepts learned in the course, will use some basic software tools and will program some simple software developments using a general purpose structured 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

COMPETENCES / LEARNING OUTCOMES

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B4 - Have basic skills in the use and programming of computers, operating systems, databases and computer software for use in engineering.

B5- Know the structure, organisation, operation and interconnection of computer systems, the fundamentals of their programming and their application to solve engineering problems.

G6 - Know the basic subject areas and technologies that serve as a basis to learn and develop new methods and technologies and those that provide versatility to adapt to new situations.

MM28 - Be able to solve problems with initiative, decision-making and creativity and to communicate and transmit the knowledge, abilities and skills of a multimedia engineer.

DESCRIPTION OF CONTENTS

1. introduction

The computer concept: Basic concepts. Computer Internal structure.
Software: Operating system. Utilities. Information management.

2. Programming in high level languages.

Algorithm concept.
Languages and programming paradigms.
Characteristics of high-level programming languages: Variables and constants. Simple Data Types.
Program development phases: Analysis of the problem. Algorithm design. Programming

3. Structured programming.

Structured programming Theorem.
Design of structured programs.
Flow control structures: Sequential structure. Conditional structure. Iterative structure.

4. Modular programming.

Module definition
Modular programming.
Subprogram definition: Functions.
Subprogram parameters.
Identifiers scope.
Recusivity.

5. Structured Data Types

Vectors, matrices, strings and records

6. Files

The file concept.
Access types.
Logical and physical files.
Binary and text files.
Processing files.

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	10,00
Independent study and work	15,00
Preparation of lessons	35,00
Preparation for assessment activities	20,00
Resolution of case studies	10,00
Total hours	**90,00**

TEACHING METHODOLOGY

Theoretical activities (B4, B5, G6, MM28).

Description: The lectures will present the course contents providing a global vision, a detailed analysis of the key concepts and encouraging the student participation. The workload of this section for the students is 25% of the total of the course.

Practical activities (B4, B5, G6, MM28).

Description: The practical activities complement the theoretical classes and allow the students to put into practice the contents and improve the understanding of the course concepts. They include the following types of classroom activities:

¿ Solving problems in class.
¿ Regular discussion of exercises and problems that the students have previously tried to work out.

¿ Laboratory sessions.

¿ Support tutorial sessions (individualized or in group).

¿ Individual evaluation of questionnaires to be done in class with the help of professors.

The workload of this section for the students is 25% of the total of the course.

Personal work (B4, B5, G6, MM28).

Description: It is the work that the student must carry out individually out of the classroom timetable. It tries to promote the autonomous work habit. Activities in this group are: monographs, guided literature search, exercises and problems as well as preparation of classes and exams. The workload of this section for the students is 50% of the total of the course.

During the course the e-learning (pizarra virtual) platform of the University of Valencia will be used to support the teaching activities. This platform allows the access to the course materials used in the classes as well as additional documents, solved problems and exercises.

EVALUATION

The breakdown of the course assessment is the following:

(C) Continuous assessment. It is based on participation and the degree of involvement in the teaching-learning process. In this section it will be taken into account the resolution of exercises and problems. They are not recoverable in 2nd examination session.

(I) Individual examination. Consisting of several exams, they will include both theoretical and practical questions and problems. There will be some midterm exams distributed during the period of classes and a final exam out of this period that is fixed in the official exam calendar. The weight of these exams is as follows:

I= 60% Average of midterm exams + 40% Final Exam

(P) Laboratory activities assessment. The marks of this part will take into account the achievement of objectives in the laboratory sessions. That point includes the completion of a final project which is a fundamental requisite to pass the course in any examination session. They are not recoverable in 2nd examination session.

P = 70% Laboratory Sessions + 30% Final Project

A minimum mark of 4,5 out of 10 for each part is required to obtain a final average mark (M), which must be equal or higher than 5 out of 10 to pass the course. The student will fail the course if some mark (in the average of midterm exams, in the final exam, in the average laboratory sessions and in the final project) is below 4 or the average is lower than 5.

Attendance at laboratory sessions is required to pass the course in any examination session (first and second session examination). The final mark of the course in the first examination session will be calculated as follows:

M= 0.15*C + 0.55*I + 0.3*P

For the second exams session will not consider midterm exams and the final mark will be calculated as

follows:

M= 0.10*C + 0.65*FinalExam + 0.25*P

If any kind of copy on any of the activities offered to students during the course would be detected, either from another student or any other source, all students involved in the copy including all members of the group in case of group activity, will not pass the current evaluation session.

The use of ChatGPT or similar code generation tools is not permitted. Its use will be considered as a copy.

In any case, the evaluation of this subject will be done in compliance with the University Regulations in this regard, approved by the Governing Council on 30th May 2017 (ACGUV 108/2017)

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

- Apuntes de la asignatura.
- [G. Beekman (2005)]. Introducción a la informática (Prentice-Hall).
- [W. Savitch (2007)]. Resolución de problemas con C++. El objetivo de la programación (Prentice-Hall).
- [H. Korth, A. Silberschatz (2006)] Fundamentos de bases de datos (MacGraw Hill)
- [H.M. Deitel, P.J. Deitel (2009)]. C++ como programar (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).