COURSE DATA

DATA SUBJECT

Code: 34877
Name: Informatics I
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1403 - Degree in Telematics Engineering	Escola Tècnica Superior d'Enginyeria	1	First quarter
1935 - Double Degree Program in Mathematics-Telematics Engineering	Facultat de Ciències Matemàtiques	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1403 - Degree in Telematics Engineering	Information technology	BASIC
1935 - Double Degree Program in Mathematics-Telematics Engineering	Primer curso	COMPULSORY

COORDINATION

ROMERO GOMEZ VERONICA

SUMMARY

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

This course comprises basic computer concepts such as: basic components, potential uses and limitations.

The aim of the course is to get a deeper knowledge in the design of algorithms using structured programming, as well as fundamental data structures.

In the laboratory sessions, the student will apply the theoretical concepts, will use some basic software tools and will program some simple software using a general purpose structured programming language.

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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 prerequisites are established.

COMPETENCES / LEARNING OUTCOMES

1403 - Degree in Telematics Engineering

B2 - Basic knowledge of the use and programming of computers, operating systems, databases and computer software with applications to computer engineering.

G3 - Acquisition of the knowledge of the basic and technological subjects that allows students to learn new methods and theories and endows them with the versatility to adapt to new situations.

G4 - Ability to solve problems with initiative, decision-making and creativity, and to communicate and transmit knowledge, abilities and skills, understanding the ethical and professional responsibility of the activity of a telecommunications technical 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.
Relational databases.

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. (G-3, G-4, B-2)

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 20% of the total of the course.

Practical activities. (G-3, G-4, B-2)

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 they 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 20% of the total of the course.

Personal work. (G-3, G-4, B-2)

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 45% of the total of the course.

Teamwork in small groups. (G-3, G-4, B-2)

Description: It will be carried out by small groups of students (2-4). It consists of work to be done out of the class timetable in form of exercises and problems. This work tries to improve the teamwork and leadership skills. The workload of this section for the student is 15% of the total charge of the course.

During the course the e-learning (Aula 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 assessment of the subject will be carried out by means of:

(C) Continuous assessment, (G-3, G-4, B-2), based on participation and degree of involvement in the teaching-learning process, taking into account regular attendance to face-to-face activities, the resolution of proposed questions and problems (individually or in groups) and oral presentations. Continuous assessment activities are not recoverable.

(E) Individual objective test, (G-3, G-4, B-2), consisting of one or several controls (optional and not recoverable) and a final exam (compulsory) in the official exam calendar. The mark for this part is obtained as E = 30% Controls + 70% Final Exam. If the controls have not been carried out (or in case the mark calculated in this second way is more favorable for the student), the mark for this part will be the mark obtained in the Final Exam.

(P) Practical activities (G-3, G-4, B-2), consisting of the laboratory sessions (L) (compulsory and not recoverable) and the compulsory completion of a final project (T). The puntuation for this part is calculated as: P = 70% L + 30% T.

The final mark of the course for the first call is:

Final Mark = 0,1*C + 0,6*E+ 0,3* P

It is necessary to obtain at least a 4.5 (out of 10) in E and P to be able to average.

In case of not having passed E or P with a puntuation higher than 4.5, the final mark will be computed as:

Final Mark = minimum(E, P, 4).

In case of not taking E or not submitting the T project, the final mark is Not Submitted.

In the second call, the grade of the continuous assessment (C) will be kept and the punctution of the parts (E and P) higher than 4.5 will be also kept. An exam will be held for part E. Regarding P, the laboratory sessions (L) are not recoverable, but a new final project (T) will be compulsory. The final mark is obtained as:

Final mark = 0,1*C + 0,7*E+ 0,2* P

In case of not having passed E with a mark higher than 4.5, the mark in the minutes will be computed as:

Final mark = minimum (E, T, 4)

As in the first call, in case of not presenting E or not presenting the work T, the final mark will be Not

Submitted.

In order to pass the course, it is necessary to obtain a mark equal or higher than 5 (out of 10) in the Final Mark.

Calculators, watches, mobile phones, laptops, tablets or any other electronic device or document are not allowed in the controls and exams. The evaluation system will be governed according to what is established in the Reglament de Avaluació i Qualificació de la Universitat de València (https://webges.uv.es/uvTaeWeb/MuestraInformacionEdictoPublicoFrontAction.do?accion=inicio&idEdictoSeleccionado=56399).

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