COURSE DATA

Data Subject	
Code	34653
Name	Informatics
Cycle	Grade
ECTS Credits	6.0
Academic year	2020 - 2021

Study (s)

Degree	Center	Acad. year	Period
1400 - Degree in Computer Engineering	School of Engineering	1	First term

Subject-matter

Degree	Subject-matter	Character
1400 - Degree in Computer Engineering	5 - Information technology	Basic Training

Coordination

Name	Department
FERRIS CASTELL, RICARDO	240 - Computer Science

SUMMARY

In this subject one is to learn the basic knowledge of what it is a computer, which are their basic components, potential uses and their limitations. One will introduce to the student in the knowledge and handling of the operating system, as well as the description and the use of the network like fundamental part in the communication of information between computers. Also one will occur a basic knowledge of different computer science tools, as well as a small introduction him to the basic concept of data. One will be to secure a sufficient knowledge of the design of algorithms by means of structured programming, as well as of the structures of fundamental data. Concerning the practical part, in this subject we will deal with which the student as much strengthens the knowledge seen in the theoretical part in the knowledge of the computer as of the basic tools for his use and acquires abilities of development of programs in a programming language structured of general intention and extended use.

The lecturers of this subject are members of the Teaching Innovation Consolidated Group in Collaborative, Cooperative and Competitive Teaching Methodologies, and they participate in the Teaching Innovation Network proposal with reference UV-SFPIE_FO13-147196.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

They do not settle down.

OUTCOMES

1400 - Degree in Computer Engineering

- G8 - Knowledge of basic subject areas and technologies that serve as a basis for learning and developing new methods and technologies, and of those which provide versatility to adapt to new situations.
- G9 - Ability to solve problems with initiative, decision making, autonomy and creativity. Ability to communicate and transmit the knowledge, skills and abilities of a computer engineer.
- B2 - Understanding and mastery of basic concepts of fields and waves and electromagnetism, electrical circuit theory, electronic circuits, physical principles of semiconductors and logic families, electronic and photonic devices and their application for solving problems in engineering.
- B3 - Ability to understand and master the basics of discrete mathematics, logic, algorithms and computational complexity and their application for solving problems in engineering.
- B5 - Knowledge of the structure, organisation, operation and interconnection of computer systems, programming fundamentals, and their application for solving problems in engineering.
- B1 - Ability to solve the mathematical problems that may arise in engineering. Ability to apply knowledge of linear algebra, differential and integral calculus, numerical methods, numerical algorithms, statistics and optimisation.
- B4 - Have basic skills in the use and programming of computers, operating systems, databases and computer software for use in engineering.

LEARNING OUTCOMES

1. To describe the parts in which a computer is made up and to explain its function.

2. To enumerate several peripheral devices explaining its function.

3. To conduct basic operations on files.

4. Capacity to carry out basic tasks of administration in an operating system.

5. To publish technical texts, to use spreadsheets, to create presentations and small data bases being used

application programs office automation.

6. To use application programs of networks to visit pages Web, to look for contents in Internet, to publish contents in Web, etc.

7. To describe solutions to problems algorithmically.

8. Capacity to use a programming language to describe the algorithm that solves a problem.

9. To describe the basic, numerical and nonnumerical data types.

10. To design simple programs of computer with one or several curls.

11. To design structured simple programs of computer by means of functions. 12. To design simple programs of computer using conditional structures.

13. To suitably document the constructed programs.

14. To include/understand the operation of the basic blocks that constitute the components of the computers and their paper in the development of their architecture.

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

3. Structured programming.

Theorem structured programming.
Design of structured
Control Structures
Sequential structure.
Conditional structure.
Iterative structure.

4. Files

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

5. Modular programming.

Module definition
Modular programming.
Definition sub: 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 databases.

Introduction and Basics.
Operations and examples.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Laboratory practices	20,00	100
Classroom practices	10,00	100
Development of group work	15,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	29,00	0
Preparation of practical classes and problem	36,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

The theoretical nature activities will be developed face the issues of the subject by providing a global and inclusive vision, analyzing in detail the key issues and more complex, encouraging at all times, participation of students. These activities are complemented by practical activities in order to apply the basics and expand the knowledge and experience is acquired during the performance of the proposed work.They include the following types of classroom activities:
• Classes of problems and issues in the classroom
• Regular discussion and resolution of problems and exercises that the students havepreviously worked
• Labs
• Conducting individual evaluation questionnaires in the classroom with the presenceof teachers.
In addition to classroom activities, students must perform personal tasks (outside the classroom) on: monographs, literature search directed, issues and problems as well as the preparation of classes and exams (study). These tasks will be primarily an individual basis, in order to enhance self-employment, but additionally include workrequiring the participation of small groups of students (4-6) to build capacity for integration into working groups.
It will use the platform of e-learning (virtual classroom) of the University of Valencia in support of communication with students. Through it you will have access to course materials used in class as well as solve problems and exercises

EVALUATION

The evaluation of the course is conducted by:

• Continuous assessment based on participation and degree of involvement in the teaching-learning process, taking into account regular attendance provided onsite activities and resolution of issues and

problems raised as well as newsletters (N_Continua) . It must be at least 2.5 in each newsletter to make the average of the newsletters. Occasionally you may make oral presentations (individually and / or group) to evaluate the processing capacity and knowledge transfer documents.

• Individual objective test consisting of multiple controls throughout the semester and a final examination, which consists of both theoretical and practical issues as problems (N_Examenes).

N_Examenes = 60% Controls + 40% Final Exam

The value of all controls is the same.

• Assessment of practical activities based on the achievement of objectives in the laboratory sessions and problems, and preparation of papers / reports, including the final project. (N_Practicas). Attendance at practices is considered mandatory to pass the course, both as a primer on second call.

N_Practicas = 30% Work laboratory + 70% Final Project

You have to get at least a 4 on the Final Project in order to make the average.

The final grade for the course will be:

Final = 20% N_Continua + 50% N_Examenes + 30% N_Practicas

Must be obtained, at least 3.5 out of 10 in each of the parties to mediate the note.

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) It states basically that the marks 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"

9 to 10: "Outstanding" or "with honours Outstanding"

On second call it is possible to improve the ratings for the Final Project (and not the practical work done in practical sessions) if attended practice sessions, bulletins and exam (the weight of controls shall be reduced to 20% in N_Examenes). The weights of each section are the same as in the first round, and also the conditions to pass the course.

Copies:

Any copy any part of any of the activities of the course will be a zero in the full activity (newsletter, practice, control, ...). Detection of two copies in different activities will suspend the subject in both the first and second call. Will apply the same criteria to both the original and the copy.

All the above measures will be applied irrespective of the disciplinary procedure that the student may initiate and, if applicable, the sanction that proceeds in accordance with current legislation (Reglament d'Avaluació i Qualificació de la Universitat de València Per a Títols de Grau i Màster (Aprovat en Consell de Govern de 30 de maig de 2017. AUGUV 108/2017)).

REFERENCES

Basic

- Referencia b1: Apuntes PROPIOS de la asignatura
  Referencia b2: [G. Beekman (2005)]. Introducción a la informática (Prentice-Hall)
  Referencia b3: [W. Savitch (2007)]. Resolución de problemas con C++. El objetivo de la programación (Prentice-Hall)
  Referencia b4: [H. Korth, A. Silberschatz (2006)] Fundamentos de bases de datos (MacGraw Hill)

Additional

- Referencia c1: [H.M. Deitel, P.J. Deitel (2009)]. C++ como programar (Prentice-Hall)
  Referencia c2: [L. Joyanes (2006)]. Programación en C++: Algoritmos, estructuras de datos y objetos (MacGraw Hill)
  Referencia c3: [L. Joyanes, I. Zahonero (2001)]. Programación en C: Metodología, algoritmos y estructuras de datos (MacGraw Hill)

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

The teaching method for this subject will follow the teaching model approved by the Academic Committee of the GII / GIM degrees:

https://go.uv.es/catinfmult/ModeloDocenciaGIIGIM

Were facilities closed because of COVID-19, lectures will be replaced by synchronous sessions that will run according to the degree timetable. If such situation affects evaluation activities, they will be replaced by online methods by using the IT tools provided by the University. The weights for each activity will remain the same as specified in the teaching guide.