Sistemas Informáticos (Computer Systems)

Unit 02. Study guide

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Unit 02. Information representation

1. Dates

From 03/10/2022 to 16/10/2022. The length of the unit is 2 weeks (16 hours).

2. Previous knowledge

- How to perform basic mathematical operations.
- How to convert between two general units.

3. Objectives

- To learn how the computer systems manage information.
- To learn how to convert from decimal to binary, octal and hex.
- To learn how to convert from binary, decimal, octal and hex.
- To learn how to convert between octal and hex.
- To learn how to perform basic mathematical operations in binary code: addition, subtraction, multiplication.
    - The division is not in the scope of the objectives.
- To learn how to perform logical operations.
- To learn how to represent negative numbers in binary code.
- To learn how to represent real numbers in binary code.
- To know how to represent alphabetic characters in binary code.
- To know the information units.
- To learn how to change information units.
- To learn how to install Python 3 and set an environment to work with him.
- To learn how to use basic commands to print and read information in Python.

4. Contents

- Numeral systems
- Binary code
- Operations with binary numbers
- Negative numbers
- Real numbers
- Boolean algebra
- Octal
- Hexadecimal
- Alphanumeric Representation
- Numeric and alphanumeric data
- Internal representation
- Unit system
- Python 3 installation.
- Python environment.
- Print and read information in Python.

5. Activities

It is very important to read the notes and perform the exercises. These exercises (both unit 2 exercises and Python exercises) are not part of the assessment, but note that it is very common to have several questions from this unit in the exam.

6. RECOMMENDATIONS

It is very important to go to the TC with the main concepts studied.