Course Syllabi

CODE 107

NAME Algebraic Structures

Credits 6 ECTS

Period Spring Semester

Course Specifications

Lectures in the lecture room. Problem solving with and without computers support in the lecture room. Individual work is required.

Objectives and contents

The course on Algebraic Structures for Computing will set the foundations for the students to be trained on specific formal languages that will be useful for them in future courses such as 'Algorithms Design', 'Networks and Services', 'Automata Theory and Formal Languages' and many others.

Contents:

1. Preliminary Concepts. Cardinality
2. Lattices and Boolean Algebra
3. Groups, Rings and Fields
4. Linear Equations Systems
5. Vector Space
6. Linear Transformations
7. Diagonalization
8. Inner Product and Euclidean Space

Assessment

The attitude and work done by the student during the classes will be taken into consideration. During the practical sessions of the course, the active participation of the student will be encouraged in order to solve the proposed exercises.

** First Call**

The course is divided into two thematic blocks, with equal weight for obtaining the successive grades and their transfer to the official records:

- Block 1. Consists of the topics:

  - Preliminaries. Cardinality.

  - Partially ordered Sets, lattices and Boolean algebras.

- Algebraic structures: groups, rings and fields. Coding theory.

- Block 2. The contents will be those related to linear algebra:

  - Linear equations systems.

  - Vector Space.

  - Linear transformations.

  - Diagonalization.

  - Euclidean Vector Space.

In the first ordinary call, the subject will follow a continuous evaluation. For each block, the following will be done:

- A midterm exam of the contents of the block, to be carried out in the lecture room, with a weighting of 85%.

- An individual practice to be done with a computer, during lectures. This practice has a weighting of 15%.

This weighting results in an independent rating for each block.

If a grade greater than or equal to 3.5 is achieved in both blocks, the average of both grades will be calculated. If said average is equal to or greater than 5, this will be the grade that is transferred to the official records in the first call.

On the date indicated by the School for the exam of the first call, two midterm exams will be held, one for each block. Each student has to take the midterm corresponding to each block where he or she has not obtained at least a 5.

The grade obtained in these midterms will replace the one achieved through continuous evaluation (midterms and practices) in the corresponding block, since these last midterms represent the final milestone of the continuous evaluation of the course.

After completing these midterm exams, the evaluation will follow the same scheme as in the continuous evaluation.

Those students who, having not passed the course through continuous assessment, do not take the corresponding midterm exams of the first call, on the date set by the School, will appear in the official records as "not presented."

**Second ordinary call and extraordinary calls **

If the first call is not passed, on the date proposed by the School a single exam will be taken on the complete content of the course, the grade of which will be the one that is transferred to the official records.

Part-time students

Part-time students may take the exams of each call on the date scheduled by the School, whose grade will be the one that is transferred to the minutes.

Lecturer

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