2010-11 academic year

Computational Logic (21422)

Degree/study: Bachelor's degree in Computer Sciences
Year: 2nd
Term: 3rd
Number of ECTS credits: 4 credits
Hours of study dedication: 100 hours
Teaching language or languages: Catalan, Spanish, English
Teaching Staff: Rafael Ramirez, Victor Dalmau

1. Presentation of the subject

The subject Computational Logic is a compulsory subject offered during the bachelor's degree in Computer Science and it is a part of the second year of this degree. The course covers algorithmic and deductive aspects from both propositional and predicate logic, the use of logic to specify, verify and reason about computer programs, and to represent computational problems. The course has two components: one theoretical and one practical. Within the theoretical component, the emphasis is on understanding the concepts at an intuitive level and on the use of mathematical language.

The course consists of three main activities: lectures, seminars and laboratories. In the lectures, the formal concepts and examples of its applications are introduced. In the seminars, students solve small problems. Each problem corresponds to one of the concepts introduced during the lectures. More computational and complex problems are introduced in laboratories because students have the chance to put the concepts learnt into practice.

2. Previous requirements to follow the formative itinerary

The previous knowledge required to follow the course consists of some basic mathematical notions acquired in compulsory secondary education and during the first year of the degree. Specially, the previous knowledge required in the course is:

- Basic algebraic notions: functions, sets and elementary operations about sets, equivalence relations.
- Basic mathematical logic notions: relations, logical connectors.
- Basic arithmetics.
- Capacity to understand and write basic mathematical expressions in an elemental level.

3. Competences to be obtained in the subject

The main objective of this course is that the students acquire the fundamental aspects related to the deductive and algorithmic aspects of propositional and predicate logic and its application to specify, verify and reason about computer programs.

General competences	Specific competences
Instrumental 1. Capacity to reason in an abstract level 2. Cognitive abilities 3. Common sense	1. Capacity to understand in an intuitive and formal level the different aspects of propositional and predicate logic: syntax, semantics and its application to different problems of computer science.