Course description:
The aim of the lecture is to discuss the principles of relational database design and mastery of skills by the students of professional service database system from the user, namely:

- design skills and create relational databases for real-world issues;
- efficient to search and retrieve information from databases using SQL and QBE languages;

- writing applications with access to databases;
- effective use of the additional capabilities of the system (prospects, transactions, bonds, etc.).

In addition, the lecture allows students to explore the elements of database systems outside the layer's (the system of surveillance of transactions, to ensure the safety and optimization) and refer to databases other concepts that go beyond the standard relational (eg. The object model, the elements of distributed databases).

Program of the lecture:

1. Basic concepts of databases and conceptual modeling.
2. Relational databases. Description Languages data and query languages. SQL and QBE.
3. Elements of active databases (referential integrity, triggers).
4. Elements database systems (transactions, security and authorization data connection relational query languages with languages stem).
5. The theory of relational databases (functional dependencies, normalization and denormalization).
6. Embedded SQL and other methods of writing applications with access to databases.
7. Other database models (logical, object-oriented, network, hierarchical, ...)

Exercise program and workshop:

1. Conversation classes to help in the practical mastery of relational database design data.
2. Mastering the query language SQL and QBE.
3. Laboratory classes allow refer to the professional database management systems data (PostrgeSQL etc.).
4. Complete project execution small database.

Requirements: Basic knowledge of logic acquired, eg. On Logic for computer or Introduction to mathematics; Basic knowledge of algorithms, for example. Algorithms and Data Structures (L); Ability to program in one of the common languages for example. C ++, Java, PHP enough to write applications.