

EG11. SOURCE AND DATA INTEGRATION

Course title and code: EG11. Source and Data Integration

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Number of ECTS: 5

■ Objectives

The objective of this course is to provide students a theoretical as well as a practical knowledge of data integration issues. It will provide conceptual knowledge on the issues raised by data integration, as well as procedural knowledge on the techniques which should be used according to the data sets.

■ Competences (basics, general, transversals, specifics)

Students will acquire competences related to metadata and semantic interoperability. They will learn about specific data processing techniques to successfully integrate data sources.

■ Programme

Data integration is the problem of combining data residing at different sources, and providing the user with a unified view of these data. The problem of designing data integration systems is important in current real world applications, and is characterized by a number of issues that are interesting both from a theoretical point of view and from the applicative point of view. Web data integration is an articulated problem and still several challenges are being faced. The course is critically overviewing and discussing relevant issues (like modeling a data integration application, **processing queries in data integration**, dealing with inconsistent data sources, and reasoning on queries, creation, extraction, and storage of metadata, semantic area and data.

The course will include the following core topics:

- data models
- metadata design and management
- data quality
- data interoperability (technical, semantic, organizational)
- data mapping
- techniques for data manipulation

■ Expected learning outcomes

Students at the end of the course will be able to plan a data integration system and understand the related challenges.

■ Methodology

The course will be organized with a series of lectures and applied exercises to plan and perform the integration of data sets.

■ Evaluation system

Students will be evaluated based on online exam which will test both factual and conceptual knowledge.

■ **Remarks** (previous requirements, coordination, others, if any)

■ **Online resources** (optional)

■ **Bibliography** (optional)

Foulonneau, M., & Riley, J. (2008). *Metadata for digital resources*. Chandos Publishing, UK, 2008. ISBN: 978-1843343011.

■ **Employment opportunities** (optional)

Information manager