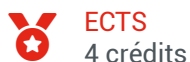


# Data engineering for sustainable and mobile application



## Présentation

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### Description

**Goal :** Introduction to data management, from centralized databases to distributed semantic web of data. Describe different data modelling approaches

**List of subjects to be presented to the students :**

- Data storage:
  - Relational databases (SQL)
  - Non-Relational databases (NoSQL)
  - Graph based, document based, etc.
- Introduction to distributed semantic web of data
- Information and data modeling
  - Visual representation
  - Languages (RDF, OWL, JSON-LD, etc.): namespaces, relationships, entities, properties.
  - Data storage: Triplestore, Graph Databases, etc.
  - Query languages and engines: SPARQL
- Taxonomy and Ontology
  - Inference, Equivalence, Transitivity
  - Examples: generic, IoT, SAREF, Smartcity, etc.
- Data models
  - Data vs Metadata (data quality, enrichment, and linking)
  - Attribute definition
- Data acquisition, sources and introduction to processing
  - 5V's of BigData (velocity, volume, value, variety and veracity)
  - Datasets vs Data Streams (timeseries, etc.)
  - Mapreduce
- Good and bad modeling practices
- Initiatives on smartcity interoperability
  - FIWARE, Smart Data Models, NGSI-LD ETSI standard, oneM2M

- Infrastructure federation