Politechnika Krakowska
Wydział Informatyki
i Matematyki

Course title	Advanced Database Technologies
Institute/Division	Faculty of Computer Science and Mathematics/ Department of Computer Science
Course code	F-1.ADT
Erasmus subject code*	11.3 Informatics, Computer Science
Number of contact hours**	45 lecture hours (45h)
Course duration	1 semester (fall)
ECTS credits	6
Course description (max 100 words)	This hands-on course focuses on discussing document-oriented databases (MongoDB), wide-column stores (Apache Cassandra), object-oriented and graph databases (Neo4j), Geographic Information Systems (GIS), and Data Warehousing. The course is project-driven, focusing on conducting performance benchmarks for CRUD operations (Create, Read, Update, Delete) across diverse data storage architectures. The primary objective is to analyze the scalability and efficiency of both relational (SQL) and non-relational (NoSQL) engines when handling large-scale datasets (Big Data).
Literature	Reference to technical documentation: MongoDB, Cassandra, Neo4j, or any other DBMS.
Course type/organization	Lectures/projects
Assessment method	Individual or team projects
Prerequisites	Basic knowledge of sql/nosql database
Primary target group	Bachelor's and Master's students in Computer Science or related fields
Contact **person**	Anna Plichta PhD, Eng.
Remarks	Course conducted fully in English. All lab materials and assignments in English.

*please insert one of the following codes:
11.0 Mathematics, Informatics
11.1 Mathematics
11.2 Statistics
11.3 Informatics, Computer Science
11.4 Artificial Intelligence
11.5 Actuarial Science
11.9 Others Mathematics, Informatics

**1 lecture hour=45 minutes