Course Title:	**Fundamentals of Databases**
Institute/Division:	Department of Automation and Computer Engineering Faculty of Electrical and Computer Engineering
Course code:	**E-FDB**
Erasmus subject code:	0612 Database and network design and administration
Number of contact hours:	45
Course duration:	1 semester (Fall/Winter)
ECTS credits:	6
Course description:	The course provides students with a comprehensive understanding of relational databases, equipping them with the theoretical knowledge and practical skills necessary for effective data management. This course is designed to help students develop expertise in designing, creating, and managing databases, as well as utilizing SQL to manipulate data. Course Objectives The primary objective of this course is to ensure that students gain the ability to design, implement, and manage databases, and to use SQL for data manipulation. This course prepares students to work with database management systems (DBMS), a crucial element in the development of information technology applications. Course Content The course covers the following topics: • Introduction to Databases: Definition of databases, types of databases, and database management systems (DBMS). • Relational Models: Data organization in tables, relationships between tables, primary and foreign keys. • SQL Language: SQL basics, creating tables, inserting data, selecting, updating, and deleting data queries. • Database Design: Data modeling, normalization, creating entity-relationship diagrams (ERD). • Data Management: Transactions, data integrity, database security. Benefits for Students Participating in this course allows students to: • Understand the fundamentals of relational databases and their practical applications. • Develop skills in designing and managing databases. • Learn the basics of SQL and its application in data manipulation. • Enhance their job prospects by acquiring skills sought after by employers in the IT industry. The course is highly valuable for students as it provides a solid foundation of knowledge and practical skills essential in today's information technology environment.

Course type:	Lectures (20h), Computer laboratory (20h), Project (5h)
Literature:	Jason Price, *Oracle Database 12c SQL*, McGraw Hill, 2013 Steven Feuerstein and Bill Pribyl, *Oracle PL/SQL Programming*, 2014 Michael McLaughlin, *Oracle Database 12c PL/SQL Programming*, 2014 Luca Ferrari, Enrico Pirozzi, *Learn PostgreSQL. Use, manage, and build secure and scalable databases with PostgreSQL 16 – Second Edition*, 2023 Alice Zhao, *SQL Pocket Guide: A Guide to SQL Usage*, 2021
Assessment method:	Project and laboratory exercises
Prerequisites:	–
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