EUROPEAN INFORMATION TECHNOLOGIES CERTIFICATION INSTITUTE, ASBL.

Brussels, Belgium, European Union

# CERTIFICATE

## Malgorzata Maria Belniak

Has successfully completed test requirements of
The European Information Technologies Certification Programme

### EITC/DB/DDEF Databases and data engineering fundamentals

**Certification Programme examination result:** 89.44%

**Certification Programme description:**

Introduction: database requirements, characteristics of databases, database technology, data model, database systems (RDBMS), interaction and communication with the database and implementation technology of database applications (communications architecture); Relational databases: data structure, integrity constraints, data operations, data representation (rules of entities transformation into relational model); Introduction to SQL query language: SQL as a declarative language, database queries (projection, expression, aliases, duplicates elimination, sorting results of a query, selection); preparation of a laboratory environment; SQL functions: aggregate functions, operators, set operators (join, outer join), subqueries (subqueries types), insertion of tuples into relation, modification and deletion of tuples from relation; Microsoft Office Access: database creation (defining relationships between tables, field formatting), queries, reports wizard, forms, external data (data export, data import); Artificial Intelligence: decision support systems (expert systems, data mining), semantic networks; Normalization: normal forms (first normal form, second normal form, third normal form)

**Certificate Programme version/revision: EITC/DB/DDEFv1r2**

CERTIFICATE ID: **EITC/DB/DDEF/KVG20004485**

To validate authenticity of this certificate or review its programme and test results scan/click QR code or visit:
**www.eitci.org/validate**

DATE OF ISSUE:
July 2025
Brussels, Belgium
**European Union**