EUROPEAN INFORMATION TECHNOLOGIES CERTIFICATION INSTITUTE, ASBL.

Brussels, Belgium, European Union

CERTIFICATE

Mateusz Pytel

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

EITC/DB/DDMS Databases and database management systems

Certification Programme examination result: 85%

Certification Programme description:

Introduction to databases: basic concepts, characteristics and technology of databases, requirements for databases, database management systems, data model and database architecture, database system users, interaction with the database (SQL language, application implementing technologies), client-server architecture, classification and review of database systems, relational databases: relational data model, data structures in the relational model, characteristics of relations, integrity constraints (primary key, foreign key), basic operations of relational algebra (selection and projection operations, creating complex operations, commands in SQL language, operations on sets), data modelling: types of models, information system design cycle, objects as fragments of reality, model of relationships - entities (modelling entities and relationships, attributes of entities, characteristics of relationships, types of associations, types of entities and relationships, modelling of complex elements - ternary relationships, hierarchy of entities); transformation of models: basic concepts, the transformation of entities relationship model to relational model (entity transformation rules, transformation rules of relationships, transformation of entities hierarchy); normalization: the idea of normalization - decomposition without loss of information, functional dependencies, normalization process - basic concepts, normal forms (first, second, third and fourth normal form, multi-valued dependencies, Boyce-Codd normal form)

Certificate Programme version/revision: EITC/DB/DDMSv1r1

CERTIFICATE ID: **EITC/DB/DDMS/MDL/10372430**

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:
June 2010
Brussels, Belgium
European Union