



Country GR	Institution Hellenic Army Academy	Common Module Databases	ECTS 2.0 (+ 1.0 e-learning)
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Service ALL	Minimum Qualification for Lecturers - Fully qualified IT or Computer Science officer. - Outstanding knowledge of Relational Databases and Structured Query Language (SQL) and national/international experience in IT. - Teaching experience in the field of Relational Databases and IT technology. - English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG Level 3.
Language English	
SQF MILOF	Competence area – Military technician. Learning area – C4ISR systems & cyber defence. Organisation level – Single service.

Prerequisites for international participants - English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2. - Basic knowledge of IT (ECDL) or similar knowledge".	Contents of the Module - Relational database and database management systems. - Design and implementation of relational databases. - Identification and normalisation of existing relational DB. - Database development using commercial and open-source software applications (MS Access, Libre Office Base or relevant)
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Learning outcomes	Know- ledge	- Define the basics of a relational database and formulate the conceptual, logical, and physical database design methodology, including the normalisation process (1NF-3NF) to eliminate redundancy and ensure data integrity. - Understand the syntax and functions of SQL for querying and manipulating relational databases.
	Skills	- Design and implement a relational database schema based on user requirements. - Identify and normalise an existing relational database.
	Respon- sibility & Autonomy	- Design, create, develop, and query a database using MS Access, LibreOffice Base, or relevant (Queries, Forms, Reports, etc). - Identify and normalise an unnormalised database up to 3rd Normal Form (NF).

Verification of learning outcomes: Observation: Throughout the module, students will discuss topics within syndicates and in the plenary. During this work, students are evaluated to verify their performance. Evaluation: Group presentations of given topics. Test: Written exam (multiple choice) at the end of the Module.



Module details			
Main Topic	Residential WH	E-learning	Details
Introduction to DBs	2	1	- Data vs Information. - Traditional File-Based Systems and Limitations. - What is? Why do we need them? - DB and DBMS Environment, Pros & Cons.
DB Environment	2	1	- DB Three Level Architecture. - View Level, Conceptual Level, Physical Level. - Data Independence. - DB Languages. - DBMS Functions.
Entity-Relationship Model	2	2	- Entities, Attributes, Primary Keys, Relationships. - Cardinality Ratio (1-1, 1-M, M-N). - Participation/Mapping Constraints (total/partial). - E-R Diagram. - Constraints & Assumptions, etc.
Design and Implementation of a DB	4 (incl. 3 SW)	2	- Examples / Tutorial: - How to design a DB (Conceptual & Logical Design). - Apply any constraints & assumptions, etc. - How to implement it (Physical Design).
Normalisation	4 (incl. 2 SW)	2	- Introduction to Normalisation. - Normal Forms (What is it? Why do we need it? How does it work?). - Examples / Tutorial.
Case study: working with MS Access / Libre Office Base Environment	4 (incl. 2 SW)	1	- Examples / Tutorial / Case Study. - Intro to Microsoft Access / Libre Office Base Environment (Depending on which is installed in the labs). - Tables, Attributes, Primary Keys, Relationships (Cardinality Ratio, Mapping Constraints, Referential Constraints, etc.).
Case study: working with MS Access / Libre Office Base Environment	4 (incl. 2 SW)	2	- Queries By Example (QBE) using Microsoft Access or Libre Office Base Environment (Simple, Complex, Aggregate functions, etc.). - Forms, Reports, etc.
Exams	2	1	- Final Exam. - Self-evaluation tests.
Total lectures	24 15 + 9 (SW)	12	
Self-Studies	26	13	- Self-studies, pre-readings & self-evaluation tests. - E-learning may also be counted as self-studies.
Total	50	25	The detailed amount of hours for the respective main topic is up to the course director according to national law or the home institution's rules.



List of Abbreviations:

1-1, 1-M, M-N	One-to-One, One-to-Many, Many-to-Many
AKU	Autonomous Knowledge Unit
B1, B2	Common Reference Levels
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
DB	Database
DBMS	Database Management Systems
ECDL	European Computer Driving Licence
E-R	Entity-Relational
EU	European Union
GR	Greece
IG	Implementation Group
IT	Information Technology
NATO	North Atlantic Treaty Organisation
NF	Normalised Form
NF	Normal Form
QBE	Query-By-Example
SP	The Strategic Partnership
SQL	Structural Query Language
STANAG	Standardization Agreement
SW	Syndicate Work
WH	Working Hour