Country	Institution	Common Module	ECTS
GR	**Hellenic Army Academy**	**Databases**	**2.0 (+ 1.0 e-learning)**

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	**Contents of the Module**
• English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2. • Basic knowledge of IT (ECDL) or similar knowledge".	• Relational database and database management systems. • Design and implementation of relational databases. • Identification and normalization of existing relational DB. • Database development using commercial and open-source software applications (MS Access, Libre Office Base or relevant)

Learning outcomes	Knowledge	• Define the basics of a relational database and formulate the conceptual, logical, and physical database design methodology, including the normalization 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 normalize an existing relational database.
	Responsibility & Autonomy	• Design, create, develop, and query a database using MS Access, LibreOffice Base, or relevant (Queries, Forms, Reports, etc). • Identify and normalize an unnormalized 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.

Origin: Assoc. Prof. Nikolaos KARADIMAS, PhD/HAA ..... 23rd November 2023
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Revised according to SQF MILOF by CAPT (N) N. Dimitrov and Assoc. Prof. N. Karadimas / Chairpersons LoD 2/8 ..... 20th November 2024
Approved by the Implementation Group ..... 26th February 2025

Module details			
Main Topic	**Residential WH**	**E-learning**	**Details**
Introduction to DBs	2	3	• Data vs Information • Traditional File-Based Systems and Limitations • What is? Why do we need them? • DB and DBMS Environment, Pros & Cos
DB Environment	2	3	• DB Three Level Architecture • View Level, Conceptual Level, Physical Level • Data Independence • DB Languages • DBMS Functions
Entity-Relationship Model	3	3	• 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 SW	5	• Examples / Tutorial:
			  ○ How to design a DB (Conceptual & Logical Design)
			  ○ Apply any constraints & assumptions, etc
			• How to implement it (Physical Design)

Normalization	4 (incl. 3 SW)	3	• Introduction to Normalization • 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 SW	4	• 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 SW	3	• 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 and e-learning lessons	**25 (10+15 SW)**	**25**	A minimum of AKUs is part of the regular CM and is required in order to have a minimum of common knowledge before the residential phase. In addition, in the case of a 3 ECTS Database CM Version, it is required that 1/3 of lectures are via e-learning. In both cases, the selection of e-learning topics is up to the Course Director mainly by using the e-learning materials available on the ESDC platform or provided by the institute.
Self-Studies	**25**		• Self-studies, pre-readings & self-evaluation tests. • E-learning may also be counted as self-studies.
Total	**50 (2 ECTS)**	**25 (1ECTS)**	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

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List of Abbreviations:

AKU ..... Autonomous Knowledge Unit
B1, B2 ..... Common Reference Levels
DB ..... Data Base
DBMS ..... Data Base Management Systems
ECDL ..... European Computer Driving Licence
EU ..... European Union
GR ..... Greece
IG ..... Implementation Group
IT ..... Information Technology
NATO ..... North Atlantic Treaty Organisation
NF ..... Normalized Form
SP ..... The Strategic Partnership
STANAG ..... Standardization Agreement
SW ..... Syndicate Work
WH ..... Working Hour