



Course Code MIS-303	Course Title Database Applications Development	Credits / ECTS 3 / 6
Department MIS	Semester As needed	Prerequisites MIS-302
Type of Course Compulsory	Field Management Information Systems	Language of Instruction English
Level of Course 1 st cycle	Year of Study 3 rd	Lecturer Vasso Stylianou
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Review the terminology and fundamental concepts of relational databases and relational database management systems.
- Apply database modeling and design knowledge to model, design and develop database applications to include database tables with validation rules, queries, forms, and reports. Implement advanced queries for demanding user tasks. Connect database components using switchboards.
- Apply Structured Query Language (SQL) commands.
- Use Application Generator capabilities available by some DBMS such as Microsoft Access.
- Implement stored procedures and triggers within macros and programming modules for additional functionality.
- Import, export, and extract data to achieve data migration, integration and other requirements to fulfill the needs for operational and other non-operational read-only databases.
- Investigate Business Intelligence principles by considering a simple Reporting System. Perform simple extraction, cleaning, and preparation of data as needed for the creation of a data warehouse.

Learning Outcomes:

Students will be able to:

- Collect user information requirements and functional specifications.
- Use at least one conceptual data modeling technique (such as entity-relationship modeling) to capture the information requirements for an enterprise domain.
- Apply the principles of normalization to derive a normalized relational database.
- Design high-quality relational databases.
- Implement a relational database design using an industrial database management system such as Microsoft Access.
- Use Structured Query Language (SQL) commands as needed to implement all database requirements.
- Use the application generator capabilities of a DBMS to work with queries (Query-By-Example QBE), forms, reports, and switchboard components.
- Implement stored procedures and triggers within macros and programming modules for

additional functionality.

- Import, export, and extract data to achieve data migration, integration and other requirements to fulfill the needs for operational and other non-operational read-only databases.
- Investigate Business Intelligence principles by considering a simple Reporting System. Perform simple extraction, cleaning, and preparation of data as needed for the creation of a data warehouse.

Course Contents:

- 1) Review of relational database principles.
- 2) Review of data modeling and database design guidelines and activities.
- 3) Review of Structured Query Language (SQL).
- 4) Use an industrial database management system such as Microsoft Access to:
 - a) Understand databases
 - b) Implement a database design
 - c) Manage data integrity
 - d) Manage simple and more advanced database objects: queries, forms, reports
 - e) Integrate database objects including external objects, relationships, linked tables, etc.
 - f) Cover advanced database features: database conversion, import, and export of data, database security, macros and modules
- 5) Introduction to Business Intelligence
 - a) ETL Systems – Extract, Transform, and Load systems
 - b) Data Warehouses
 - c) Reporting Systems

Teaching Methods:

Tutoring, Lab Sessions, Hands-on experience in the form of lab activities and homework assignments

Assessment Methods:

Final Exam, Midterm Exam, Coursework

Required Textbooks:

Authors	Title	Publisher	Year	ISBN
J. Carter, J. Juarez	Microsoft Office Access 2010: A Lesson Approach, Complete	McGraw-Hill	2010	978-0077331245

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
M. R. Groh	Access 2010 Bible		2010	978-047047348
J. J. Adamski, K. T. Finnegan	New Perspectives on Microsoft Access 2010, Comprehensive, 1/e	Course Technology	2011	9780538798471
D. M. Kroenke, D. J. Auer	Database Processing; Fundamentals, Design, and Implementation, 12/e	Prentice Hall	2012	978-0-13-214537-5
J. Korol	Microsoft Access 2010 Programming by Example with VBA, XML, and ASP		2012	978-1936420025