



Course Syllabus

Course Code	Course Title	ECTS Credits
MIS-303	Database Applications Development	6
Prerequisites	Department	Semester
MIS-302	Management and MIS	Spring
Type of Course	Field	Language of Instruction
Required	MIS	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr Vasso Stylianou	3 rd
Mode of Delivery	Work Placement	Corequisites
Face-to-face	N/A	None

Course Objectives:

The main objectives of the course are to:

1. Review the terminology and fundamental concepts of relational databases and relational database management systems.
2. 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.
3. Apply Structured Query Language (SQL) commands.
4. Use Application Generator capabilities available by some DBMS such as Microsoft Access.
5. Implement stored procedures and triggers within macros and programming modules for additional functionality.
6. Import, export, and extract data to achieve data migration, integration and other requirements to fulfil the needs for operational and other non-operational read-only databases.
7. 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:

After completion of the course students are expected to be able to:

1. Collect user information requirements and functional specifications.
2. Use at least one conceptual data modeling technique (such as entity-relationship

- modeling) to capture the information requirements for an enterprise domain.
3. Apply the principles of normalization to derive a normalized relational database.
 4. Design high-quality relational databases.
 5. Implement a relational database design using an industrial database management system such as Microsoft Access.
 6. Use Structured Query Language (SQL) commands as needed to implement all database requirements.
 7. Use the application generator capabilities of a DBMS to work with queries (Query-By-Example QBE), forms, reports, and switchboard components.
 8. Implement stored procedures and triggers within macros and programming modules for additional functionality.
 9. Import, export, and extract data to achieve data migration, integration and other requirements to fulfil the needs for operational and other non-operational read-only databases.
 10. 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 Content:

- 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
 - a) Reporting Systems

Learning Activities and Teaching Methods:

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

Assessment Methods:

Midterm Exam, Final Exam, Coursework

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Your Office: Microsoft Access 2016 Comprehensive	Kinser, Moriarity, Kinser & Kosharek	Pearson	2017	9780134479552
Microsoft Office Access 2016 Complete: In Practice, 1/e	Nordell R., Easton, A.	McGraw Hill Education	2017	9781259911101

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Microsoft Office Access 2010: A Lesson Approach, Complete	J. Carter, J. Juarez	McGraw-Hill	2010	9780077331245
Database Processing; Fundamentals, Design, and Implementation, 14/e	D. M. Kroenke, D. J. Auer	Pearson	2016	9780133876703
Access 2013 All-in-one for Dummies	Barrows	Wiley Publ. ProQuest	2013	9781118510551
Access 2013 for Dummies	L.U. Fuller, K. Cook	Wiley Publ. ProQuest	2013	9781118516386
Beginning Database Design Solutions	S. Rod	Wiley Publ. ProQuest	2009	9780470385494
Database Modeling and Design, 5/e	T.J. Teorey, S. Lightstone, T. Nadeam, H.V. Jagadish	Morgan Kaufmann and Elsevier	2011	9780123820204