



DATA MANAGEMENT

Course code	<i>FUN119</i>
Course subject	<i>Data Management</i>
Type of course	<i>Compulsory</i>
Department	<i>Undergraduate, Bachelor studies</i>
Year of study	<i>2nd</i>
Semester	<i>Fall</i>
ECTS credits	<i>3: 24 hours of practice sessions, 45 hours of self-study, 12 hours of individual work</i>
Coordinating lecturer	<i>Džiugas Petruškevičius</i>
Study form	<i>Full-time</i>
Course prerequisites	-
Language of instruction	<i>English</i>

Course Annotation

This course is a comprehensive introduction to database apps and data management systems using Microsoft Access and Power Apps. The focus is on application of database tools for data collection, querying and reporting. Students will be expected to become fluent in database concepts such as tables, relationships, queries, filters, sorts, forms, and reports. Students will learn how to create and manage database, query database using SQL language, import/export data and to use connections to data sources to read and write data. Additionally, capabilities of data visualization and analysis using PowerApps platform will be introduced. The format encompasses lecture/demonstration and hands-on assignments. Step-by-step instructions with example data will be supplied. Students will be encouraged to apply the knowledge and skills learnt in class to their own data, culminating in homework report.

Aims and learning outcomes of the course

The overall objective of this course is to introduce students to relational database management and equip them with practical knowledge of SQL query language, reports, and capabilities for further data application.

Course learning outcomes (CLO)	Study methods	Assessment methods
CLO1. Be able to explain the advantages and disadvantages of the database as opposed to file-based approach of data processing.	Practice sessions, self-study	Mid-term exam
CLO2. Have a good understanding of the terminologies and concepts associated with database management systems.	Practice sessions, self-study	Mid-term exam, homework
CLO3. Be able to implement the database design and maintenance tasks, like creating tables and forms, editing/inserting records, etc.	Practice sessions, self-study	Assignments, homework
CLO4. Be able to access and manipulate data in relational database using SQL query language, generate customized reports.	Practice sessions, self-study	Assignments, homework
CLO5. Demonstrate the ability to create database apps from different data sources or to use data connectors to use external data sources to import data.	Practice sessions, self-study	Assignments, homework

Quality issues

The lecturer assures a variety of teaching and learning methods, interim knowledge assessment, and supply of learning material to students, as well as discussions of practical and individual work in class during the course.



Cheating issues

Individual testing and practical assignments ensure studying quality and are forms to prevent cheating. The ISM regulations on academic ethics, including cheating (see, *ISM Studies Regulation*) are fully applied in the course during the entire semester.

Weekly course content

#	Topic	Hours	Readings
1	Exploring database. Database design concepts: tables, forms, queries, and reports.	2	[1] Chapter 1.
2	Creating database and simple tables: table structure, data types, primary key, relationships.	2	[1] Chapter 2.
3	Creating simple forms: inserting/editing records. Format forms arrange the layout of forms.	2	[1] Chapter 3.
4	Creating simple reports: use wizard, modify report design, preview and print reports.	2	[1] Chapter 4.
5	Displaying data: sort, filter, filter using forms, locate information that match multiple criteria.	2	[1] Chapter 5.
6	Maintaining data integrity: type of data, field size, input mask, validation, lookup list.	2	[1] Chapter 6.
7	Creating queries: summarize data, update & delete records.	2	[1] Chapter 7.
8	Creating custom forms: modifying forms, adding controls, main form and subforms.	2	[1] Chapter 8.
9	Creating custom reports: hyperlinks, charts, buttons, layouts, main report and subreports	2	[1] Chapter 9.
10	Creating mobile forms: modify forms, adding controls, conditional logic, display data as tables.	2	[2] Chapters 2-7.
11	Mobile asset tracking: use API's, extract datasets from GPS, Barcodes and QR codes.	2	[2] Chapters 8-10.
12	Model driven apps: understand Flows, common data model, create a model-driven app.	2	[2] Chapters 13, 15, 16.
Total hours:		24	



Course assignments, hours of work and assessment of achievements

Type of assignment	Due date	Topics	Self-study / individual hours	Evaluation, %
[1] Course 1: Submit assignments to e-Learning	Week 2	1	3,33	4
[1] Course 2: Submit assignments to e-Learning	Week 3	2	3,33	4
[1] Course 3: Submit assignments to e-Learning	Week 4	3	3,33	4
[1] Course 4: Questions and Answers in class	Week 5	4	3,33	4
[1] Course 5: Submit assignments to e-Learning	Week 6	5	3,33	4
[1] Course 6: Submit assignments to e-Learning	Week 7	6	3,33	4
[1] Course 7: Submit assignments to e-Learning	Week 8	7	3,33	4
[1] Course 8: Submit assignments to e-Learning	Week 9	8	3,33	4
[1] Chapter 9. Submit assignments to e-Learning	Week 10	9	3,33	4
[2] Course 10: Submit assignments to e-Learning	Week 10	2-7	3,33	4
[2] Course 11: Submit assignments to e-Learning	Week 11	8-10	3,33	4
[2] Course 12: Submit assignments to e-Learning	Week 12	11,15,16	3,33	4
[1-3] Homework: individual report using own data	Week 13	1-16	12	22
[1-2] Exam	Session	1-16	5	30
Total:			57	100

Course requirements

The course overall assessment and final grade involves 3 tasks, which are described below:

1. Practical **assignments** will count for the **48%** of the final mark (there will be **12** assignments in total). Students will be assigned to a group and they are expected to attend exercises with the assigned group. Presenting accomplished assignment later than indicated in the 'due date' column, reduces its 10-point grade by the number of weeks being late.
2. Results of assignments will be summarized by **homework report** and it will count for the **22%** of the final mark. Students will be obliged to upload individual report to 'e-Learning' with respect to the specified deadline.
3. A two-hours **exam** in a written form (or online), which will include open and multiple-choice questions on the topics discussed during the practical sessions, mostly from 'key points' at the end of each chapter. Exam will count for the **30%** of the final mark.

Students must score for all 3 tasks of the semester (practical assignments, midterm exam, individual homework report) at the specified time (see, *Weekly course content*). Explicit retake of the midterm assignments will not be allowed. Only in case of the negative final evaluation student has a possibility to retake final exam, which will count for the **30%** of the final grade. Precision of composite evaluations is left intact (up to 2 decimal places) until the end of semester and only the final evaluation will be subject to rounding.

Literature

1. Cox, J., Lambert, J. (2013). Microsoft Access 2013: Step by Step. Redmond: Microsoft Press.
2. Matthew Weston (2019) Learn Microsoft PowerApps. Birmingham: Packt Publishing Ltd.