DATA MANAGEMENT

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| Course code | *FUN119* |
| Compulsory in the programmes | *Industrial Technology Management* |
| Level of studies | *Undergraduate* |
| Number of credits | *3 ECTS (24 hours of practice sessions, 45 hours of self-study,*  *12 hours of individual work)* |
| Course coordinator (title and name) | *Lect. Džiugas Petruškevičius* |
| Prerequisites | *-* |
| Language of instruction | *English* |

**THE AIM OF THE COURSE:**

The overall objective of this course is to introduce students to cloud and on-premises data management solutions and equip them with practical knowledge of business oriented application development, processes automation, SQL query language, reports, and capabilities for further data application.

**MAPPING OF COURSE LEVEL LEARNING OUTCOMES (OBJECTIVES) WITH DEGREE LEVEL LEARNING OBJECTIVES (See Annex), ASSESMENT AND TEACHING METHODS**

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| --- | --- | --- | --- | --- |
| Course level learning outcomes (objectives) | Learning objectives for BSc in Business Management | Learning objectives for BSc in Social Science | Assessment methods | Teaching methods |
| CLO1. Be able to explain the advantages and disadvantages of the database as opposed to file-based approach of data processing. | BLO1.1 | ELO1.1 | Mid-term exam | Practice sessions, self-study |
| CLO2. Have a good understanding of the terminologies and concepts associated with database management systems. | BLO3.1 | ELO3.1 | Mid-term exam,  homework | Practice sessions, self-study |
| CLO3. Be able to implement the database design and maintenance tasks, like creating tables and forms, editing/inserting records, etc. | BLO3.1 | ELO3.1 | Assignments, homework | Practice sessions, self-study |
| CLO4. Be able to access and manipulate data in relational database using SQL query language, generate customized reports. | BLO3.2 | ELO3.2 | Assignments, homework | Practice sessions, self-study |
| 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. | BLO3.2 | ELO3.2 | Assignments, homework | Practice sessions, self-study |

**ACADEMIC HONESTY AND INTEGRITY**

The ISM University of Management and Economics Code of Ethics, including cheating and plagiarism are fully applicable and will be strictly enforced in the course. Academic dishonesty, and cheating can and will lead to a report to the ISM Committee of Ethics. With regard to remote learning, ISM remind students that they are expected to adhere and maintain the same academic honesty and integrity that they would in a classroom setting.

**COURSE OUTLINE**

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| **Topic** | **In-class hours** | **Readings** |
| Exploring databases: Database design concepts: table structure, data types, primary key, relationships. | 2 | [1] Chapter 2. |
| Creating mobile forms: modify forms, adding controls, conditional logic, display data as tables. | 2 | [2] Chapters 2 & 7. |
| Mobile asset tracking: integrate API’s, extract datasets from GPS, Barcodes and QR codes. | 2 | [2] Chapters 8 & 10. |
| Model driven apps: common data model, create a model-driven app. | 2 | [2] Chapters 15 & 16. |
| Automating processes: Power Automate concepts, business processes automation. | 2 | [2] Chapter 13. |
| Improving applications with Artificial Intelligence: sentiment analysis concepts, text recognition systems. | 2 | [3] Chapter 8. |
| Mixed reality integration: 3D environment tools. | 2 | [4] Timo Pertilä documentation. |
| Creating queries: summarize data, update & delete records. | 2 | [1] Chapter 7. |
| Creating simple forms & reports: Format forms & reports; arrange the layout of forms & reports preview and print reports. | 2 | [1] Chapters 3 & 4. |
| Maintaining data integrity: type of data, field size, input mask, validation, lookup list. | 2 | [1] Chapter 6. |
| Creating custom reports & forms: main report and subreports; main forms and subforms. | 2 | [1] Chapter 8 & 9. |
| Importing/exporting data. Tools for data visualization and analysis: PowerPivot and Radiant. | 2 | [1] Chapter 10. |
| **Total hours:** | **24** |  |
| CONSULTATIONS | 6 |  |
| FINAL EXAM | 2 |  |

**FINAL GRADE COMPOSITION**

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| --- | --- |
| **Type of assignment** | **%** |
| *Individual Components 100%* |  |
| [1] Course 1: Submit assignments to e-Learning | 4 |
| [1] Course 2: Submit assignments to e-Learning | 4 |
| [1] Course 3: Submit assignments to e-Learning | 4 |
| [1] Course 4: Submit assignments to e-Learning | 4 |
| [1] Course 5: Submit assignments to e-Learning | 4 |
| [1] Course 6: Submit assignments to e-Learning | 4 |
| [1] Course 7: Submit assignments to e-Learning | 4 |
| [1] Course 8: Submit assignments to e-Learning | 4 |
| [1] Chapter 9. Submit assignments to e-Learning | 4 |
| [2] Course 10: Submit assignments to e-Learning | 4 |
| [2] Course 11: Submit assignments to e-Learning | 4 |
| [2] Course 12: Submit assignments to  e-Learning | 4 |
| [1-3] Homework: individual report using own data | 22 |
| [1-2] Exam | 30 |
| **Total:** | **100** |

**DESCRIPTION AND GRADING CRITERIA OF EACH ASSIGNMENT**

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*).

**RETAKE POLICY**

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.

**REQUIRED READINGS**

1. Cox, J., Lambert, J. (2013). Microsoft Access 2013: Step by Step. Redmond: Microsoft Press.
2. Weston, M. (2019). Learn Microsoft PowerApps. Birmingham: Packt Publishing Ltd.
3. Mendoza, E. (2021). Microsoft Power Apps Cookbook. Birmingham: Packt Publishing Ltd.
4. Pertilä, T. (2020) Power Apps and Mixed reality. Available online @ elearning.ism.lt.

**ANNEX**

**DEGREE LEVEL LEARNING OBJECTIVES**

**Learning objectives for the Bachelor of Business Management**

*Programmes:*

*International Business and Communication,*

*Business Management and Marketing, Finance,*

*Industrial Technology Management*

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| **Learning Goals** | **Learning Objectives** |
| Students will be critical thinkers | BLO1.1. Students will be able to understand core concepts and methods in the business disciplines |
| BLO1.2. Students will be able to conduct a contextual analysis to identify a problem associated with their discipline, to generate managerial options and propose viable solutions |
| Students will be socially responsible in their related discipline | BLO2.1. Students will be knowledgeable about ethics and social responsibility |
| Students will be technology agile | BLO3.1. Students will demonstrate proficiency in common business software packages |
| BLO3.2. Students will be able to make decisions using appropriate IT tools |
| Students will be effective communicators | BLO4.1. Students will be able to communicate reasonably in different settings according to target audience tasks and situations |
| BLO4.2. Students will be able to convey their ideas effectively through an oral presentation |
| BLO4.3. Students will be able to convey their ideas effectively in a written paper |

**Learning objectives for the Bachelor of Social Science**

*Programmes:*

*Economics and Data Analytics,*

*Economics and Politics*

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| --- | --- |
| **Learning Goals** | **Learning Objectives** |
| Students will be critical thinkers | ELO1.1. Students will be able to understand core concepts and methods in the key economics disciplines |
| ELO1.2. Students will be able to identify underlying assumptions and logical consistency of causal statements |
| Students will have skills to employ economic thought for the common good | ELO2.1.Students will have a keen sense of ethical criteria for practical problem-solving |
| Students will be technology agile | ELO3.1. Students will demonstrate proficiency in common business software packages |
| ELO3.2. Students will be able to make decisions using appropriate IT tools |
| Students will be effective communicators | ELO4.1.Students will be able to communicate reasonably in different settings according to target audience tasks and situations |
| ELO4.2.Students will be able to convey their ideas effectively through an oral presentation |
| ELO4.3. Students will be able to convey their ideas effectively in a written paper |