

Study Course Title	Digital Transformation II
Study Course Code	DatZB116
Branch of Science	Computer and information sciences
Sub-branch of science	Other computer science and informatics subsectors
Credits (ECTS)	6
Total Number of Contact Hours	60
Number of Lecture Hours	20
Number of Seminar and Practical Assignment Hours	40
Number of Hours for Laboratory Assignments	0
Independent Study Hours	90
Language of Instruction	English
Course Approval Date	26.10.2025
Responsible Unit	BA School of Business and Finance of the University of Latvia

Course Developer

Professional Programme, lecturer Atis Verdenhofs

Prerequisite Knowledge

Digital transformation I

Study Course Abstract

The aim of this course is to introduce finance students to the fundamentals of programming, data analytics, and digital tools critical for modern business decision-making. Students will explore key concepts including software development, artificial intelligence, business-data integration, and analytics processes. The course blends theory and practical hands-on sessions using tools such as Excel, SQL, RStudio, with an emphasis on logical thinking and low-code automation techniques to prepare students for further courses in data analytics and digital transformation.

Course Plan Full-time Regular Studies

1. Programming languages and applications 2L 1S
 2. Software development process (business side of the development) 2L 2S
 3. Business requirements; Business and IT cooperation process 2L 2S
 4. Artificial Intelligence – critical evaluation what it is and what it is not 2L 5S
 5. Data analytics importance in business decisions 4L 9S
 6. Big data concepts and analytical systems 2L 8S
 7. Data mining principles and applications in business 2L 6S
 8. Predictive modelling and CRISP-DM methodology 2L 6S
 9. Ethical and Regulatory 2L 1S
- Total 20L 40S

Characterization of students' independent work organization and tasks

Students are expected to complete individual tasks that reinforce programming and analytical concepts introduced in class. This includes practicing Excel functions and macros, writing basic SQL queries, exploring data in tools like RStudio or RapidMiner, and preparing a small project applying CRISP-DM. Independent work is aimed at developing problem-solving skills using digital tools relevant to finance and business.

Learning Outcomes

Knowledge:

1. Understand core programming and data analytics concepts relevant to business.
2. Describe the software development process and its relevance to business needs.
3. Recognize the roles of artificial intelligence, big data, and predictive modelling in decision-making.

Skills:

4. Use Excel for logical/nested functions and basic macro automation.
5. Query and manage structured data using SQL.
6. Apply data mining techniques using beginner-friendly tools like RStudio and RapidMiner

Competence

7. Analyse business problems through a data and logic-driven lens.
8. Collaborate with IT and business teams using a shared understanding of digital systems.
9. Evaluate ethical considerations in programming and analytics processes.

Requirements for Awarding Credits

Intermediate assessment:

1. Group presentation #1 - 15%
2. Group presentation #2 - 15%
3. Individual assignment (MS Excel) - 20%
4. Individual assignment (SQL) - 10%
5. Test - 15%

Final assessment:

6. Exam – 25% (data analysis project with result presentation)

Criteria for Evaluating Learning Outcomes

In accordance with Regulations of the Cabinet of Ministers of the Republic of Latvia, at the end of the course, students' knowledge is evaluated according to the following criteria: the amount and the quality of the obtained knowledge, acquired skills and competence in compliance with the planned learning outcomes.

Type of Assessment	Learning Outcomes								
	1	2	3	4	5	6	7	8	9
1. Group presentation #1	+	+	+	+	+	+	+	+	+
2. Group presentation #2	+	+	+	+	+	+	+	+	+
3. Individual assignment (MS Excel)	+	+	+	+	+	+	+	+	+
4. Individual assignment (SQL)	+	+	+	+	+	+	+	+	+
5. Test	+	+	+	+	+	+	+	+	+
6. Exam	+	+	+	+	+	+	+	+	+

Compulsory Reading List

Course materials are prepared by lecturer

Plagiarism and other academic misconducts are not permitted within the course please refer to the Regulations for Academic Integrity at the University of Latvia. Within this course, the use of generative artificial intelligence (AI) tools is allowed in exceptional cases, if it has been specified and authorised in writing by the instructor of this course. In all other cases, submission of materials generated by the AI (text, images, audio, video, etc.) in independent and group assignments, test, examination or any other assessment is not permitted, submission of this type of material will be considered an unauthorised use of aids.