

Institute for Cyber-Physical Systems			Semester 2 of the curriculum 2025-26-2			
Subject name:	Code:	Credits:	Weekly hours:			
				lec	sem	lab
Financial technologies	NKXPT1EMNF	4	full-time	1	0	2
Responsible/Contact person: Dr habil Enikő NAGY PhD			Status: associate professor			
Subject lecturer: Dr habil Enikő NAGY PhD						
Prerequisites:(with code)						
Way of the assessment:			Mid-term grade			
Course description						
Goal:	The aim of the course is to familiarise students with financial techniques supported by IT solutions. Financial areas such as controlling, business analysis and financial management will be highlighted. Students will be introduced to computer tools for financial analysis through practical exercises. They will enable them to analyse and understand their operation and their potential uses. The course will cover how to analyse and visualise source data with differences in magnitude and how to quickly produce charts and statements. An additional important unit of study is the solution of linear programming (or other optimization) problems with large numbers of variables and constraints. There is a wide range of software developed to solve optimisation problems efficiently. Their applications and capabilities are reviewed. General optimisation problems are also solved, where the constraints and the objective function are not necessarily linear. Thus, in addition to linear programming problems, solutions to nonlinear optimization problems are also covered.					
Course description:	The course includes: Introduction to financial technologies, rules of charting, charting options, functions to be used in financial analysis, approximation, target value search (APR, calculation of break-even points) and optimisation (bottlenecks, production losses, collateral losses) procedures (SOLVER), handling large data tables, company analyses, report tables (PIVOT), financial calculations, annuity and non-annuity credit constructions, complex calculations, solutions to problems.					

Lecture schedule	
Educational week	Topic
1.	Introduction to financial technologies with computer-assisted solutions, Warm-up exercises
2.	Data cleaning, financial, statistical functions, financial statements, distributions
3.	Statistical analysis, regression calculations, time series analysis
4.	Financial calculations, present value, future value, credit constructions (annuity, non-annuity)
5.	Target value search, APR, break-even point determination, optimisation, programmes with shortfall, shortfall in production
6.	Transfer of data from other systems, web, online database, data management and analysis, account activity, loan repayment
7.	Filtering, optimisation, creating drop-down menus, chart details
8.	Data visualisation, chart types, combined charts, trend lines, financial forecasting
9.	Capital budgeting, solving optimisation problems with SOLVER
10.	Creating summary tables from large data lists, creating one and two dimensional data

	tables, using PIVOT tables for financial statements
11.	Complex analyses and reports, sales reports, delivery tasks, statements
12.	Complex tasks: trended historical financial data, annual profit and loss statements
13.	Trend forecasts, annual financial statements, tests
14.	Replacement tests, correction
Midterm requirements	
Conditions for obtaining a mid-term grade/signature:	At least 70% attendance in practical classes.
Assessment schedule	
The mid-year grade is calculated based on the following items:	
1. The results of the tests written (Multiple-choice test and practical exercises) in the 13th and 14th weeks of the semester (max. 50 points)	
2. The points earned by completing the assignments given during the practical classes (max. 50 points)	
Method used to calculate the mid-term grade (to be filled out only for subjects with mid-term grades)	
A score of 51 is required for a passing grade, 63 for an average grade, 74 for a good grade, and 85 for an excellent grade. In week 14, students who have successfully completed the course will be given a grade based on their total score from the above items.	
Type of replacement	
Type of the replacement of written test/mid-term grade/signature	In week 14, during the last practical session, one of the test can be substituted. In the case of a complex mid-term grade, both mid-term exams can be made up with a (medical) certificate of absence. Here too, a minimum of 26 points must be obtained in both tests. Correction is also possible in week 14. It is important to note that in all cases, the result obtained in the latter examination will be counted towards the practical grade.
Type of the exam (to be filled out only for subjects with exams)	
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Calculation of the exam mark (to be filled only for subjects with exams)	
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Final grade calculation methods:	
The final semester grade is based on the number of marks obtained in the tests, for which a maximum of 100 points can be obtained.	
0% - 50%: unsatisfactory (1)	
51% - 62%: satisfactory (2)	
63% - 73%: averagee (3)	
74% - 84%: good (4)	
85% - 100%: excellent (5)	
Irodalom	
Obligatory:	<ul style="list-style-type: none"> - Materials published in Moodle - Wayne Winston (2019) Microsoft Excel 2019 Data Analysis and Business Modeling (Business Skills) 6th Edition - Timothy R. Mayes (2019) Financial Analysis with Microsoft Excel 9th Edition

Recommended:	<ul style="list-style-type: none">- Susanne Chishti - Janos Barberis (2016) The FinTech Book, Wiley- Bártfai Barnabás (2012) Excel haladóknak, BBS-INFO KÖNYVEK. ÉS INFORM. KFT. ISBN: 9789639425774- Bártfai Barnabás (2015) Excel a gyakorlatban - Gyakorlati példákkal és azok részletes megoldási leírásaival ISBN: 9786155477164
Others:	<ul style="list-style-type: none">- The slides used in the lecture will be available on the course website at https://elearning.uni-obuda.hu/ after the lecture.